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NOTE

Platanthera whangshanensis (S.S. Chien) Efimov, a Forgotten Orchid of Chinese Flora

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ABSTRACT: *Platanthera whangshanensis*, a forgotten species of the Chinese flora, is described and illustrated. Originally it was described as a member of genus *Perularia*, and a corresponding new combination is here proposed. In the «Flora of China» this taxon was treated under the name *Platanthera tipuloides*, which is in turn a species that is absent from the flora of subtropical China. The localities of true *Platanthera tipuloides* may be found only in the north-west of the country. A doubtful record of *Platanthera tipuloides* from Liaoning Province is discussed.

KEY WORDS: China, new record, *Platanthera whangshanensis*, *Platanthera tipuloides*, Orchidaceae.

INTRODUCTION

Platanthera R.Br. is considered to be one of the taxonomically most complicated genera in the Orchid flora of China. 'Flora of China' (F.C.; Chen et al., 2009) treats 42 species of this genus (of them 10 in the flora of Taiwan and 34 in mainland China), but this estimation suffers from the taxonomical controversy of the group. In the last years, a series of new species was published for this territory (Jin and Efimov, 2012). In the same time, some species treated in the F.C. may fall into the synonymy, thus decreasing the overall species number. Moreover, the generic boundaries of *Platanthera* are not stable, some species being transferred by various authors to other genera as *Habenaria* or *Pecteilis*. Part of *Platanthera* species are sometimes treated under a separate genus *Tulotis* (e.g., Lang, 1999; Su, 2000). Traditionally, in the flora of Mainland China only *P. fuscescens* and *P. ussuriensis* were treated as *Tulotis* (Lang, 1999), but there is also some morphological (Efimov, 2007) and molecular (Hapeman and Inoue, 1997) evidence that some other species, as *P. hologlottis* and *P. japonica* may fall into *Tulotis* too. *Platanthera whangshanensis* also substantially resembles species of *Tulotis* group, and it was originally described as the species of *Perularia* (an older name for *Tulotis*). But the modern point of view on the taxonomy of *Platanthera* alliance is to treat closely related genera, including *Tulotis*, within *Platanthera* s.l. (Bateman et al., 2009). This primarily molecular-based position is also acceptable in the course of morphological data (Efimov, 2011), suggesting high morphological plasticity and quick evolution of this group.

Perularia whangshanensis was originally described by S.S. Chien on the basis of the solitary herbarium specimen. Later, several more herbarium samples of this obviously rare taxon were collected, being determined as *Platanthera tipuloides* (L.f.) Lindl. and correspondingly treated in the F.C. (although it should be noted, that part of herbarium specimens bear earlier correct determination "*Perularia whangshanensis*" by Dr. K.-Y. Lang). The geographical distribution of *P. tipuloides* according to F.C. (Anhui, Fujian, Hunan, Jiangxi, Zhejiang and Hong Kong) well corresponds to the distribution area of *P. whangshanensis* (the only exception are Zhejiang and Hong Kong, where *P. whangshanensis* seems to be absent) (Fig. 1). In the same time, in other countries *P. tipuloides* shows the geographical distribution of typical northern boreal species. Its main distribution area extends from Aleutians to Russia (Kamchatka, Koryak, Magadan, Khabarovsk, Yakutia, Chita, Amur, Primorye and Sakhalin Regions) (for detailed map see Efimov, 2007) and Japan (Inoue, 1982), where it mostly inhabits alpine and subalpine regions of Hokkaido and Honshu (only ssp. *nipponica* (Makino) Murata and ssp. *linearifolia* (Ohwi) K.Inoue grow at lower altitudes).

The morphological differences between *P. tipuloides* and *P. whangshanensis* are rather strong. *P. tipuloides* is a 'true' *Platanthera* in having concave stigma, suborbicular viscidia and flat rostellar arms, being similar in those traits to type species of the genus, *P. bifolia* (L.) Rich. *P. whangshanensis* morphologically falls into 'Tulotis' group, having a convex stigma and concave viscidia (Fig. 2). The only trait of *P. whangshanensis* which is not typical for 'Tulotis', are narrowly fusiform tuberoids with a renewal bud at the base of the shoot of the earlier generation (in 'Tulotis' tuberoids are stoloniferous, placing a renewal bud at the distance of several cm far

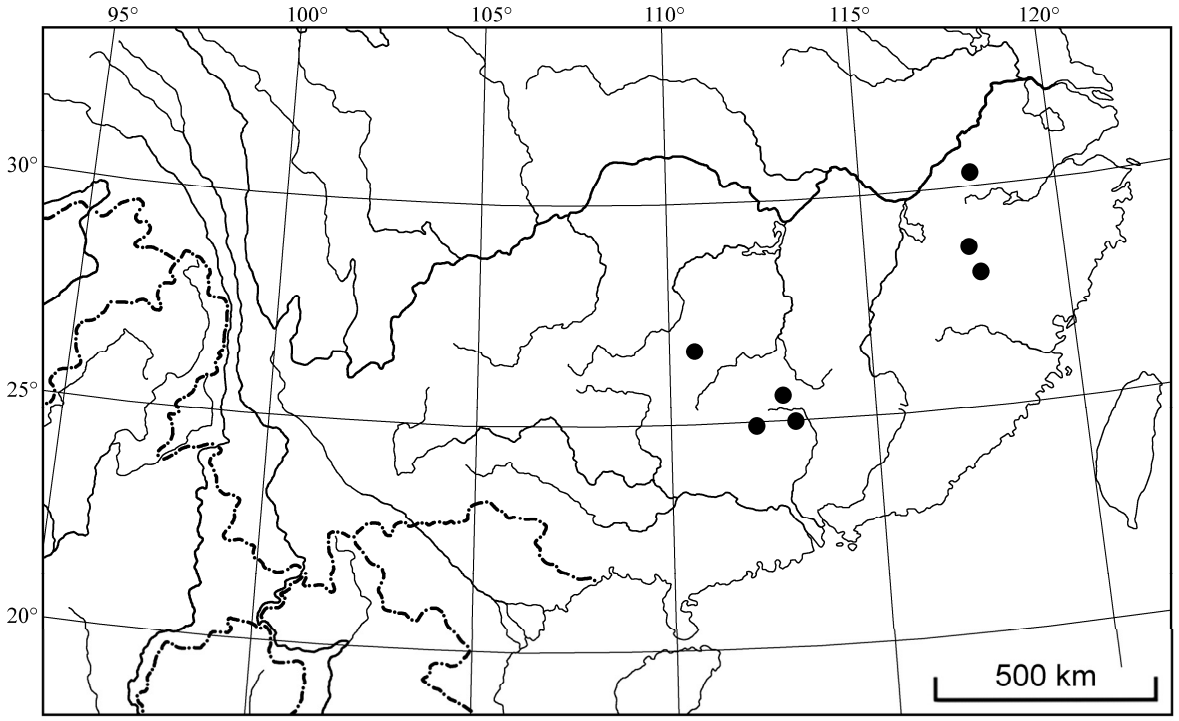

Fig. 1. Geographical distribution of *Platanthera whangshanensis*.

from the shoot of previous year). The leaves of *Platanthera whangshanensis* are longer (narrowly lanceolate vs. lanceolate to ovate in *P. tipuloides*), inflorescence is usually longer (occupies 1/3–1/2 of the stem vs. 1/3–1/5 in *P. tipuloides*), more laxly-flowered and asymmetrical. Lip of *P. whangshanensis* is lanceolate and the spur is always arched.

Thus, *P. whangshanensis* should be included into the flora of subtropical China, and *P. tipuloides* should be excluded from it, respectively. The nearest localities of true *P. tipuloides* in the mainland are situated in Khabarovsk and Amur Regions of Russia, bordering very closely to Heilogjiang Province of China, where this species may be found in the future. However the only true *P. tipuloides* specimen from China is known much from the south (Liaoning Province, Benxi Co, Setsatsun[?] village, on riverbank near the road. 2 VII 1950, Zhu-You Chang, P. Baranov & Zhao-Da Chang 184 – LE). Such untypical southern locality of this species and the presence of another species, mounted on the same sheet (it is a part of a *Gymnadenia conopsea* (L.) R. Br inflorescence in the paper bag) allows the assumption that some mislabeling may have taken place. Up to know, no other specimens of true *P. tipuloides* from China were detected in any of the herbarium collections studied by me (K, BM, E, P, LE, MW, NS, NSK, TK, VLA, PE, KUN, YNUH, CAL). A specimen cited above was collected during the visit of the former director of Komarov Botanical Institute (Saint-Petersburg, Russia), P. Baranov, to his Chinese colleagues in the period of warmest relationships between China and USSR. Most probably, this specimen was collected during some kind of floristic excursion, and therefore it is hardly possible that it may have duplicates in Chinese herbarium collections.

The geography of *P. whangshanensis* is untypical for this genus. In mainland Asia, almost all endemic and narrowly distributed *Platanthera* species concentrate in Himalayas and surrounding regions. East subtropical China in contrast is poor in *Platanthera* species. Only 8 species are known from this area. Most common are 5 taxa, which have wide distribution over all country – *P. minor, P. japonica, P. hologlottis, P. ussuriensis* and *P. mandarinorum*. Other 3 taxa, *P. whangshanensis*, *P. kwangsiensis* and *P. damingshanica* Lang et H.S. Guo, are considered to be endemic or sub-endemic for this area. *P. damingshanica* is a critical taxon, and it may be referable to *P. whangshanensis*. Unfortunately, exact decision on *P. damingshanica* is not possible, as far as type material of *P. damingshanica* seems to be absent from herbarium of Jiangsu Botanical Institute where it was kept according to the protologue. But some traits from the original desciption show that it is distinct from *P. whangshanensis*: its sepals are larger (4.5–7 mm vs. 2.5–3.5 mm), lip is larger (7–8 mm vs. 4–5 mm), spur shorter (10 mm vs. 12–14 mm), stigma is concave (convex in *P. whangshanensis*), viscidia are rotundate (ovate or lanceolate in *P. whangshanensis*).

Consequently, *P. damingshanica* seems to be more closely related to *P. minor* than to *P. whangshanensis*, although it is well distinguishable from *P. minor* too on the basis of leaf shape and general habitus. Maybe *P. damingshanica* is a poorly known species with narrow distribution area. But there is also some probability that it may represent some untypical form of *P. minor* or hybrid e.g. *P. minor* × *P. whangshanensis*.

TAXONOMIC TREATMENT

Platanthera whangshanensis (S.S. Chien) Efimov, ***comb. nov.*** 黃山舌唇蘭 Fig. 2

Basionym: *Perularia whangshanensis* S.S. Chien, Contrib. Biol. Lab. Sc. Soc. China, Bot. Ser. 6, 7:75, 1931.
Synonym: *Tulotis whangshanensis* (S. S. Chien) Hara, J. Jap. Bot. 30:72, 1955.

Type: CHINA, Anhwei, Huang Shan [Whangshan], on open moorland, 4400 ft. 19 Jul 1925, *Ching* 4254 (N), isotype (date erroneously indicated as «15 Jul 1925») – PE.

Other studied specimens: **CHINA**, Anhwei, Hwang-shan [Whangshan], 13 Aug 1935, *Liou & Tsoong 2665b* (PE); Fokien, Wuyi Shan, 1993, *Liu 93051501* (PE); Jiangsi, Taishan, 14 Jul 1985, *Chen & Ma 1143* (PE); Hunan, Yizhang Co, 14 Jun 1957, *Liu 632* (PE, KUN, YUKU); same locality, 26 Jun 1987, *Zhao 764526* (PE); Xinning, 9 Jul 1986, *Chinese Medicine Survey Team 514* (PE); Kwantung, Ruyuan, 2 Jun 1973, [*Anonymous*] 504 (PE); Liahnan Co, 11 May 1999, *Zeng 472* (PE); same locality and date, *Zeng 588* (PE).

Terrestrial herb with fusiform to narrowly fusiform tuberoids, tapering into a long root-end. Stem erect or slightly arched, 20–40 cm long. Normally developed leaf 1(2), sub-basal, narrowly-lanceolate, 6–16 cm long, 1–2,5 cm wide. Bract-like leaves 2–5, basal one is transitional to a normally developed leaf. Inflorescence 4–18-flowered, one-sided, floral bracts narrowly-lanceolate, 6–15 mm lg. Flowers greenish (data from protologue). Middle sepal ovate, ca. 3 mm long, 2.3 mm wide, one-veined. Lateral sepals lanceolate, incurved and barely twisted, ca. 4 mm long, 1 mm wide, one-veined. Lateral petals lanceolate, ca. 3 mm long, 1 mm wide, one-veined, not fleshy. Hood absent. Lip rhombic-lanceolate (when flattened), concave, ca. 5 mm long, 2 mm wide, fleshy, veins obsure. Spur 10–16 mm long, always arched, not thickened at the apex. Gynostemium ca. 1.5 mm long, 1 mm wide. Anther thecae divergent to the base, connective narrow. Stigma lobes indistinguishable, united into a common convex stigmatic surface. Rostellum median lobe forming a rim above fertile stigma, rostellum lateral lobes not seen (probably wide and concave according to the shape of viscidium). Pollinarium ca. 1.3 mm long, caudicle ca. 0.4 mm, viscidium lanceolate, concave, ca. 0.75 mm long.

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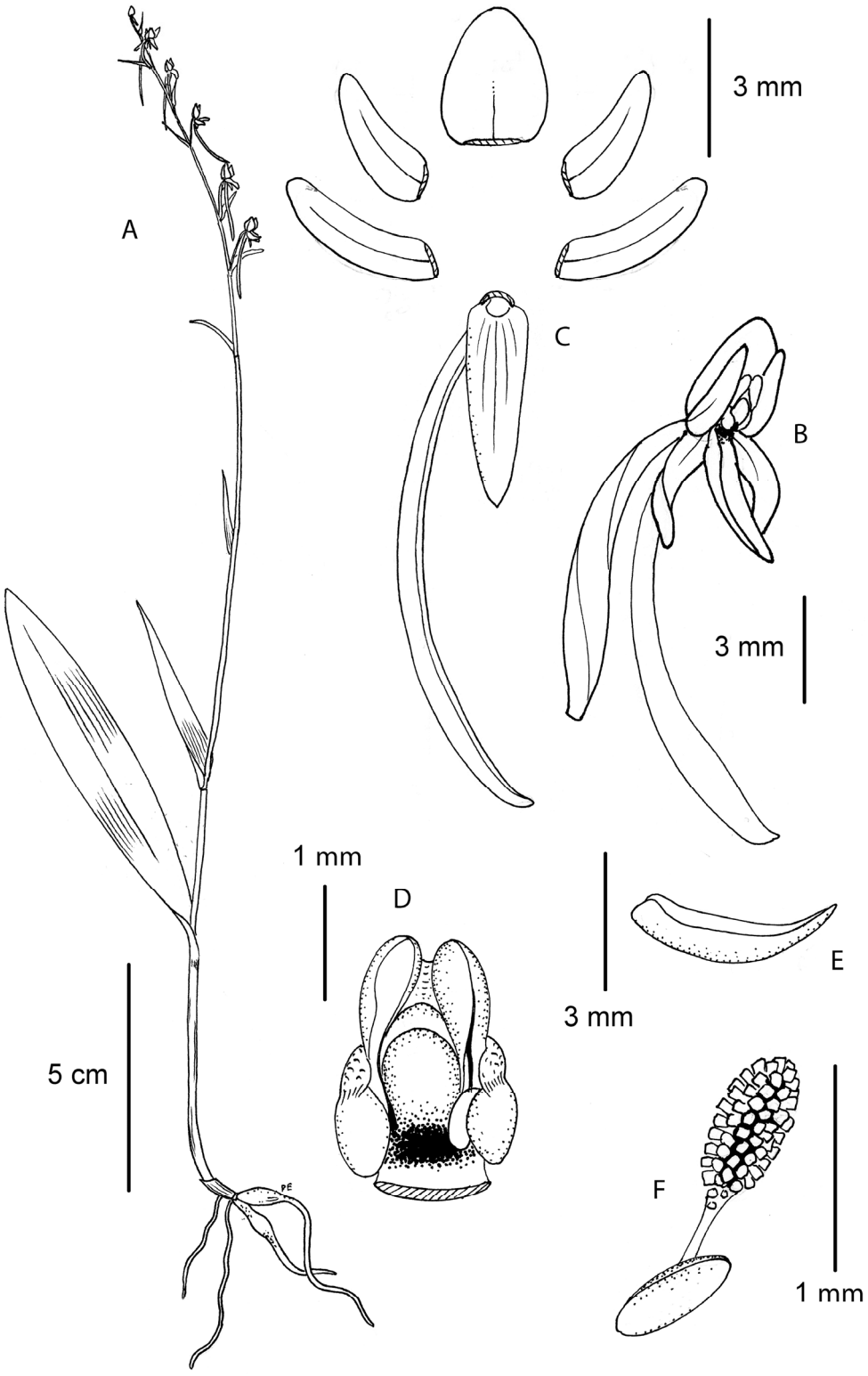

Fig. 2. Morphology of *Platanthera whangshanensis*. A: Habit. B: Flower. C: Tepals, flattened. D: Lip, intact. E: Gynostemium. F: Pollinarium.

中國植物誌中被遺忘的蘭科物種－黃山舌唇蘭

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摘要：本文將中國植物誌中的黃山舌唇蘭重新描述與提供手繪圖。這個物種最早被歸類於*Perularia*屬中，本文因此提出一個新組合名。在中國植物誌中，此物種被處理為筒距舌唇蘭，但筒距舌唇蘭在中國的亞熱帶區是不存在的，真正的筒距舌唇蘭可能只在中國西北才能發現。因此在中國遼寧省發現的筒距舌唇蘭很可能是誤認，本文也對此做討論。

關鍵詞：中國、新紀錄、黃山舌唇蘭 、筒距舌唇蘭、蘭科。