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(二) 世纬苣苔属 *Tengia* Chun 4

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(三) 四数苣苔属 *Bournea* Oliv 6

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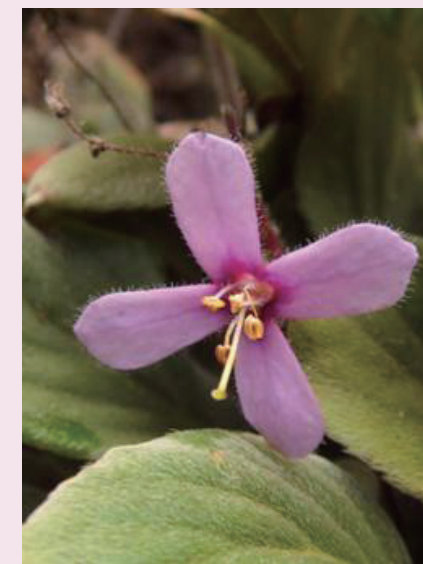
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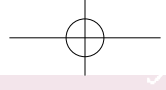
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## 序

世界上可能很少有地方能像中国南部典型的锥形岩溶山地那样让你感受到到苦苣苔科植物的神奇魅力：即使你是在湖光山色间惬意地度假时也能无意中邂逅尚未为人所了解的新物种；或许是它是曾经“失踪”许久的，为许多人“众里寻她千百度”稀罕物种。这一类植物的进化历程是如此复杂和诡秘，神秘莫测——那些叶子让人看不出丝毫区别的植物却能开出截然不同的花，反之，有些具有千奇百怪、奇诡多姿之叶片的不同植物，却能展现出几乎一模一样的花朵！

然而，日益恶化的生存环境迫使这些精灵或适应，或迁移，或消亡。我们何以对待她们？关注她们？宠爱她们？是在她们黯然谢幕之后，还是“一万年太久，只争朝夕！”？苦苣苔科植物是如此极具魅力的精灵，足以担得起我们对她们的付出。“Gesners”——“苣苔”是如此地易于辨认，只要留意一下那复杂纷纭，璀璨美丽的花朵，还有那极始于室内盆栽的观花植物便可无疑惑地认知。苦苣苔科里最灿烂的珍宝大多来自南美和非洲，如非洲紫罗兰属 *Saintpaulia*、大岩桐属 *Sinningia*、欧洲苣苔属 *Ramonda*、丝花苣苔属 *Nematanthus*、绒草属 *Smithiantha* 等，当然也包括了一些来自亚洲的种，如来自中国的云南，印度和马来西亚的口红花（芒毛苣苔）*Aeschynanthus*。已经有大量的，源于这些属之种的杂交后代被欧洲和美洲的苦苣苔科植物爱好者、育种者和园艺家们培育出来，现在品种已成千上万。

然而，但国内的苦苣苔科植物很少被用于杂交和品种改良等园艺用途。目前仅有少数的种被引种至华南的广州和南宁，如唇柱苣苔属 *Chirita*、半蒴苣苔属 *Hemiboaea*、芒毛苣苔属 *Aeschynanthus* 的少数种，主要用做科研，且常用当药用植物栽培，如吊石苣苔 *Lysionotus pauciflorus*、大花旋蒴苣苔 *Boea clarkeana*、蚂蝗七 *Chirita fimbriosepala*、牛耳朵 *C. eburnea*、降龙草 *Hemiboaea subcapitata*、石蝴蝶属 *Petrocosmea* 的一些种。

很多苦苣苔科植物具有独特的狭域分布、生境隐蔽的特点，这些特点使得许多种群数量稀少，对剧烈变化的环境适应力很差。因此随着全球环境的暖化，气候或逐渐干旱，或雨量骤增引发山洪泛滥，很多种类开始面临难以克服的困境。而随着气候变迁直接引起一些物种的消失的同时，人为破坏显然将进一步加快了物种的绝灭进程，如圆果苣苔 *Gyogyne subaequifolia* W.T.Wang 便是由于开山筑路使得其丧失了赖以生存的环境，现在只能存活在我们的记忆和标本馆的记录中了。同时，毫无节制的药物的采集，还有一些需要大量植株作为研究对象和目的的科学研究的，也会使得野外居群急剧缩小甚至濒临绝灭，这一点似乎更容易被人们所忽视。根据我们的多年考察结

果，我们发现，现在华南苦苣苔科植物大部分已经面临极其严峻的生存困境。

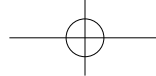
我国现已知的苦苣苔科植物包括了58属460个以上的种（李振宇和王印政，2004）。目前，大多数的科研院所和部分大专院校（主要是中医药类的院校），集中研究的是我国苦苣苔科植物的生物学、生殖生态学、形态与系统学、化学成份分析和医药有效成份及作用机理等方面。而对于系统完整的引种、驯化、栽培、保育和杂交等各种观赏园艺化和综合保护利用方面的研究涉及极少，少许文献也多仅仅集中在对野生植物资源的简单描述和评述上。近年来，也有部分院校和科研院所开展了我国原生苦苣苔科植物的组织培养和快速繁殖方面的研究，但是相对于国内外大量各种非我国原产的苦苣苔科植物的研究来说，还是相距甚远。

旧世界的苦苣苔科植物的变异和分化中心在我国的华南地区（本书所指的华南地区包括广西、广东、海南、江西、安徽、湖北、福建、台湾、浙江、湖南和贵州），尤以广西全境、广东北部、云南东南部、贵州南部的山地等典型岩溶地貌地区为甚。上述4省（区）的苦苣苔科植物特有属、种的数量极多，使之成为世界苦苣苔科植物爱好者和研究者所极力关注的区域，不愧为世界苦苣苔科植物研究的热点。这些特有的属、种更应在它们有可能濒临灭绝以前加强研究，想方设法保护它们。

华南地区分布的苦苣苔科植物已知的有350种以上，从1993年开始，我们对中国，特别是华南地区的苦苣苔科植物进行了野外考察，掌握了大量的第一手资料，认知了众多种的产地生境需求（包括了气候、土壤与水文情况等）。本书总结了我们的始于1993年以来的，在我国华南地区进行的艰苦而细致的工作，收录了覆盖占华南地区85%和中国65%以上的该科植物307种（含48种已确认但尚未正式发表的新种），以及一个新属——凹柱苣苔属 *Litostigma* Y.G. Wei, Fang Wen & M. Moeller，此新属是旧世界苦苣苔科（family Gesneriaceae）苦苣苔亚科（subfamily Cyrtandroideae）[现修订为长蒴苣苔亚科（subfamily Didymocarpoideae）]中联系统发育底层和较为进化的枝系的重要一环，该新属的发现有着重大的科学意义。这一切都显示出华南岩溶地区永远是能够致以植物学研究者惊喜的圣地，毫无疑问，我们也认为将来还必将有更多的受珍视的物种将被发现。

综合研究，起到积极促进作用。本书的出版，不仅为华南地区苦苣苔科植物研究学者在过去我们的研究基础上更上了一个新台阶！在此，我对本书全稿完成表示衷心的祝贺，并希望早日出版，为苦苣苔科植物研究、保护和可持续开发、利用作出重要贡献。

王文采



## PRFECE

The flora of China is particularly rich and diverse in gesneriaceous plants. However, owing to the late beginning of phytotaxonomic studies in the 1920' s in China, early taxonomic work in Chinese Gesneriaceae was conducted by Western botanist. After that period, a few Chinese botanists began working on the family. In the 1940' s, Professor Chun Woon-young, one of the founders of Chinese phytotaxonomy, studied Gesneriaceae of South China, and described several new genera, including the enigmatic genus *Tengia*, and many other new species.

According to the Dictionary of families and genera of Chinese seed plants (1958), 41 genera and 210 species of Gesneriaceae were reported in the Chinese flora. In the 1970' s, Professors Pan Kai-yu and Li Zhen-yu and myself, undertook the compilation of the Gesneriaceae for *Flora Reipublicae Popularis Sinicae*, and studied many plant specimens of that family, deposited in various herbaria in China, and described 16 new genera, including the genus *Thamnocharis*, and more than 100 new species. At the same time, Professors Wu Zheng-yi and Li Xi-wen of the Kunming Institute of Botany described one new genus and many new species of Gesneriaceae in the Yunnan Province.

Thus, in vol. 69 of the *Flora Reipublicae Popularis Sinicae* (Wang, 1990), I could report a total of 56 genera and 416 species for the Chinese Gesneriaceae. On the basis of an analysis of the geographic distribution of the species of Gesneriaceae in China, it became apparent to me, that the karst region of Guangxi, southeastern Yunnan and southern Guizhou included all 5 tribes of the Subfam. Cyrtandroideae, as defined in the *Flora of China*, and 42 genera and 210 species. This area also contains 15 endemic genera and 163 endemic species, and with this diversity can be considered a centre of diversity of the subfamily (Wang, 1992). Even after the publication of vol. 69, the karst region still yielded many new species, and even three new genera, *Paraisometrum*, *Paralagarosolen* and *Wentsaiboea*. In their book entitled *Plants of Gesneriaceae in China* (2004) Professors Li Zhen-yu and Wang Yin-zheng included 58 genera and 463 species of Chinese Gesneriaceae.

With the introduction of Gesneriaceae in Southern China, to no surprise, one new genus, *Litostigma*, and many new species have further been added to the Gesneriaceae, and I would say that through the efforts of Chinese botanists over the last seventy years, the majority of Chinese Gesneriaceae is at last approximately revealed. Though the plant resources of Gesneriaceae in China are

very rich, unfortunately only very few species are used, and mainly in Chinese medicine, and fewer in horticulture. Besides, due to the deterioration of the environment, some species are much endangered, or even have become extinct, such as *Gyogyne subaequifolia* and *Opithandra pumila* in western Guangxi Province.

To highlight this situation, Professor Wei Yi-gang (Guangxi Institute of Botany), Dr. Wen Fang (Beijing Forestry University) and Dr. Michael Möller (Royal Botanic Garden Edinburgh) et al., have are producing a book entitled *Gesneriaceae in Southern China*, in which most gesneriaceous species occurring in the distribution center of the Subfam. Cyrtandroideae are included. In this book, for each species not only morphological description, geographic distribution, natural habitat, population status, threads in the field, information about their introduction, and cultivation is provided. It makes also progress on joining traditional taxonomy with modern molecular data. Combined, these will address many problems of controverse species discussed in the book.

I think, the contents of the book, I think, firstly will stimulate the curiosity of scientists to study the plants, but also be useful for laymen who care about and protect the gesneriads in China; secondly, it will provide baseline data for further, sensible exploitation and utilization of plants of this diverse family; thirdly, it will advance and accelerate the research in Chinese gesneriads through multidisciplinary synthesis methods.

I am very glad to see Professor Wei Yi-gang and the other No. 4 generation Gesneriaceae researchers working in China make such progress on the basis of our initial research a long time ago.

I like to congratulate the authors on finishing the book, and look forward to reading it as soon as possible, and wish it is going to be the important stimulus for further research and protection, of plants of Gesneriaceae in China.

Wang Wen-cai

10, Aug. 2009 in Beijing, China

## 辐花苣苔属

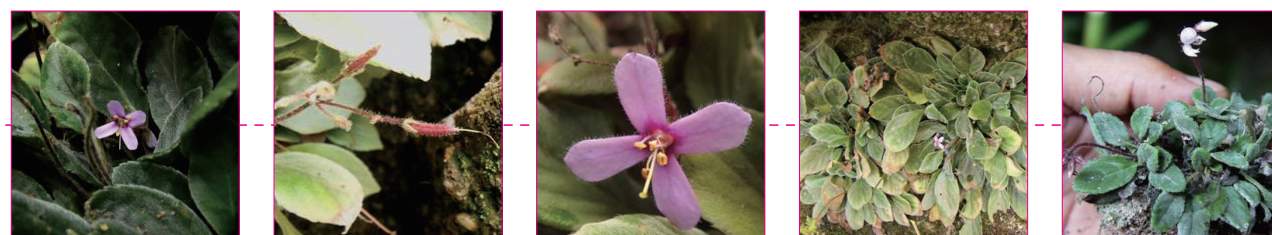
*Thamnocharis* W.T.Wang



© W. T. Wang in Acta Phytotax. Sin. 19 (4): 485. 1981.

**【形态特征】**：多年生小草本，具短状茎。叶多数，均基生。聚伞花序腋生，2回分枝，有少数花；苞片2枚，对生；花小，近辐射对称。花萼钟状，辐射对称，4-5裂近基部。花冠紫色至蓝色，辐状，4-5深裂，筒短，筒长约为裂片的1/3。雄蕊4-5枚。花药底着，椭圆形，2药室平行，纵裂，顶端不汇合。无退化雄蕊。花盘环状。子房狭卵形，1室，2侧膜胎座内伸，2裂。柱头1个，近头状，不分裂。蒴果狭椭圆球形，室背分裂成2瓣，果瓣直，不扭曲。

**【种类与分布】**：1种，仅分布于贵州（贞丰，兴仁，安龙）。



**【生境】**：生于林下或灌木丛下石上，海拔1500-1600 m。

**【染色体数目】**：未知。

**【属名来源】**：源自希腊语。①“θαμνος”，thamnos，意为“灌木，灌木丛”；②后缀“-χαρι”，-charis，意为“喜爱，喜欢”，引申为“喜生于”。该名暗示着本种多生于灌木丛下。

**【讨论】**：本属属于苦苣苔族Trib. Ramondeae Fritsch（王文采，1990）。然而无论是基于Möller等（2009）的未发表分子系统发生证据，还是Webber（2004），该族在旧世界苦苣苔亚科植物中均是被废弃了的。这是因为系统分类上发现该“族”下的不同类群是重复发生并毫无关联的。

辐花苣苔属植物多少呈现短小而扁平的花冠并非是由于呼吸特化的传粉者所形成的，因为实际上其传粉也很容易为非特化的传粉者所完成。这可能是由于其花期处于夏秋季，这个时间段内开花时受到气候变迁的影响较小，而其传粉者可能也不会受到过多的影响，另外此时间段内与其共生的，开花的植物物种极少，所有因素综合起来，本属（本种）在传粉方面所承受的选择压力要小于热带或者南半球亚热带地区，这直接导致了本属一些原始性状的有效保留（李振宇，1996）。

**Habit:** Herbs, perennial, short rhizomes. Leaves many, basal. Inflorescences umbel-like, axillary, 2-branched, few-flowered cymes; bracts 2, opposite. Calyx actinomorphic; 4- or 5-dissected from base. Corolla purple to blue, actinomorphic; tube rotate, not swollen, ca. 1/3 length of lobes; limb deeply 4- or 5-lobed. Stamens 4 or 5; anthers basifixed, free, thecae parallel, not confluent, dehiscent longitudinally; connective not projecting; staminodes absent. Disc ringlike. Ovary narrowly ovoid, 1-loculed; placentas 2, parietal, projecting inward, 2-cleft. Stigma 1, terminal, punctiform to subcapitate, undivided. Capsule narrowly ellipsoid, straight in relation to pedicel, dehiscent loculicidally to base; valves 2, straight, not twisted. Seeds unappendaged.

**Species and Distribution:** One species (*Thamnocharis esquirolii* W.T.Wang). Endemic to Guizhou (Zhenfeng, Xingren and Anlong) of China.

**Habitat:** Grows on rocks in forests and thickets, alt. 1500-1600 m.

**Chromosome Number:** Unknown.

**Etymology:** From the Greek θαμνος, thamnos = shrub, bush, and -χαρις, -charis = loving, friend of, fond of. The name suggests that the plant likes to grow in

shrubby.

**Comments:** This genus used to belong in Trib. Ramondeae Fritsch (Wang Wen-tsai, 1990). In Weber (2004), based on then unpublished molecular phylogenetic results (Möller et al., 2009) the tribes in the OW Didymocarpoideae were abolished. This is because actinomorphic taxa were found to have evolved repeatedly and unrelated.

The short tubed ± flat flowers of *Thamnocharis* have not evolved in concert with specialized pollinators as it is easily accessible to non-specialized pollinators. This may be linked to its flowering time in late summer and autumn, outside the main flowering time, when accompanying plants do not flower and pollinators are scarce. These factors may have lead to these simple, but derived, flower shapes (Li Zhen-Yu, 1999).

## 辐花苣苔

*Thamnocharis esquirolii* (Lévl.)W.T.Wang in Acta Phytotax. Sin. 19(4): 486, fig.1.1981.  
—*Oreocharis esquirolii* Lévl. in Repert. Sp. Nov. 9:329. 1911, non Lévl. in l.c. 9: 447, 1911.



**【形态特征】**: 多年生草本。叶14-18枚，均基生；叶片椭圆形至卵形，长1.2-5cm，宽0.7-2.8cm，顶端微尖或圆形，基部楔形或宽楔形，边缘有小钝齿；叶柄长0.6-4cm。聚伞花序的3条，每花序有5-9花；花序梗长3-10cm；苞片2枚，对生；花梗长0.6-15 mm。花萼钟状，4-5裂近基部。花冠紫色或蓝色，辐状，4-5深裂；筒长2-3mm。雄蕊4-5枚；无退化雄蕊。子房卵球形。柱头1个。蒴果狭椭圆状球形。花期8-10月。

**【分布与生境】**: 分布于贵州（兴仁，安龙及贞丰），我们于2007年在贵州的安龙发现新的分布点。生于砂岩或页岩山地灌丛中或丛下，海拔1500-1600m。

**【染色体数目】**: 未知。

**【讨论】**: 1905年，本种首次由法国传教士Esquirol采集到，Léveillé“错误地”将其划入马铃薯苣苔属 *Oreocharis* 下（1911），当时为纪念Esquirol，定名为 *Oreocharis esquirolii* Lévl.，此后再无人采集到此种的标本。1960年，张志松在兴仁和贞丰分别采集到此类植物的第2、3号标本，王文采（1981）主要根据此2号标本，认为它具有完全不同于马铃薯苣苔属的特征，并建立了一个原始属——辐花苣苔属 *Thamnocharis*，得到了广泛的认同。

然而有趣的是，我们的尚未正式发表的分子证据表明，这个属很有可能还是应该被划分到马铃薯苣苔属 *Oreocharis* 下的类群（Möller, 待发表，2009）。

**【居群情况】**: 本种于贞丰、兴仁一带主要分布于海拔1360-1600米的高山林下沟谷崖壁。常成集群生长，生于林下石上或石缝间腐殖质上。观察其生境，高湿度和稍明亮的散射光对其正常生长起到重要作用。而在安龙，则主要见于路旁溪流边岩壁下方或上方间隙中，上层多有多样植物，种群较小，大约有120株，其中近4成为幼苗，为更新发育中的群体。

**【濒危情况】**: 本种列入国家I级保护植物名录，亦是物种红色名录物种，所认定级别为“濒危 Endangered, EN Bab(ii,v)”，认定理由为：“分布地点少于5个，种群持续衰退”（汪松和解焱，2005）。

**【IUCN的物种濒危等级和标准】**: 濒危 [Endangered, EN Bab (ii,v)]。

**【引种难度】**: 不详。

**【繁殖指南】**: 种子和叶插繁殖。

**【栽培指南】**: 不详。但本种为高山植物，严重依赖于高山环境，夏季日温高于30℃，日夜温差小于7-8℃，植株便会迅速衰弱死亡。



**Habit**: Perennial, acaulescent. Leaves 14-18; basal rosette; blade elliptic to ovate, 1.2-5 × 0.7-2.8 cm, apex acute to rounded, base broadly to narrowly cuneate, margin shallowly crenulate to serrulate; petiole 0.6-4 cm. Cymes 3, 5-9-flowered; peduncle 5-10 cm; bracts 2; pedicel 0.6-15 mm. Calyx 4- or 5-dissected from base. Corolla purple or blue; tube 2-3 mm long; limb deeply 4- or 5-lobed. Stamens 4-5; staminodes absent. Ovary ovoid, stigma 1. Capsule narrowly ellipsoid. Fl. Jul.-Aug., fr. Aug..

**Distribution and Ecology**: Guizhou (Xingren, Zhenfeng and Anlong). Grows in thickets, on forested hills; alt. 1500-1600 m.

**Chromosome Number**: Unknown.

**Comments**: This species was first collected by the French missionary Esquirol in 1905. But Léveillé (falsely) placed it into *Oreocharis*, and named it *Oreocharis esquirolii* Lévl.. No one collected this species henceforth. Zhang Zhi-Song collected specimen number 2 and 3 in 1960. (Wang Wen-tsai, 1981), mainly relying on the two specimens of Zhang, established the genus, *Thamnocharis*. It remained intact until today. Interestingly, our unpublished molecular data show that the genus belongs to a group dominated by *Oreocharis*

(Möller et al unpublished).

**Population Status**: The distribution area of this monotype genus is very narrow, and is probably smaller than five populations,

**Threats**: The population sizes are declining, and the distributing points are less than five.

**IUCN Category**: Endangered, EN Bab (ii,v). [This species was listed in the Chinese IUCN list, the reason is that the distributing points are less than five and the populations are degenerating. (Wang Song and Xie Yan, 2005)]

**Introduction to Cultivation**: Unknown.

**Propagation Guide**: Perhaps through seeds and leaf cuttings.

**Cultivation Guide**: Unknown. But it is an alpine plant and depends on high altitude mountain habitats. The temperature of the surroundings should be below 30° C, (with a night



temperature of 7-8° C lower), otherwise the plants will rapidly suffer and die.