

中国细柄茅属(禾本科)两个新异名 和一个新组合

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Two new synonymies and a new combination in the genus *Ptilagrostis* Griseb. (Poaceae) from China

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Abstract Based on both herbarium and field observations, *Ptilagrostis dichotoma* Keng ex Tzvel. and *P. junatovii* Grub. are reduced to synonymy of *P. mongholica* (Turcz. ex Trin.) Griseb. and of *P. concinna* (Hook. f.) Roshev. Respectively, and a new combination, *P. roshevitsiana* (Tzvel.) L. B. Cai, is proposed.

Key words *Ptilagrostis*, taxonomic revision, China.

摘要 在标本室研究和野外考察的基础上,对中国细柄茅属*Ptilagrostis* Griseb.几个类群进行了分类修订。双叉细柄茅*P. dichotoma* Keng ex Tzvelev和窄穗细柄茅*P. junatovii* Grub.分别被归并到细柄茅*P. mongholica* (Turcz. ex Trin.)和太白细柄茅*P. concinna* (Hook. f.) Roshev.中作异名;小花细柄茅*P. dichotoma* Keng ex Tzvelev var. *roshevitsiana* Tzvelev则被提升为种*P. roshevitsiana* (Tzvelev) L. B. Cai。

关键词 细柄茅属; 分类修订; 中国

细柄茅属*Ptilagrostis* Griseb.是禾本科Poaceae针茅族Stipeae下的1个小属,自Grisebach (1852)建立该属以来,已记载约10余种;随着有些种类系统位置的转移或分类等级的变更(Tzvelev, 1976; Barkworth, 1983),至今置于该属的种已不超过9个。除了中亚产的2种和北美产的1种外,其余各种我国均产。不过,从《中国植物志》(1987)上收录的5种、1变种和国内大量馆藏该属腊叶标本来看,细柄茅属有些种类的种间界限仍很含混,很难在实际工作中有效使用;有些种类中的变种概念过大,变种之间的性状差异已相当于种间差异,从而导致分类处理不平衡。为了澄清前人的分类混乱,本文在标本室研究和野外考察的基础上,重新评价了该属的主要分类性状,并对国产部分类群进行了分类学修订。

1 细柄茅(禾本科图说)

Ptilagrostis mongholica (Turcz. ex Trin.) Griseb. in Ledeb., Fl. Ross. 4: 447. 1852; Roshevits in Komarov, Fl. USSR. 2: 75, pl. vi, figs. 43-47. 1934; Gamajun in Fl. Kazakh. 1: 157. 1956; Ikon. in Fl. Tadjik. 1: 432. 1957; Keng et al. in Fl. Ill. Pl. Prim. Sin. Gram. 598, pl. 536. 1959; Tzvelev in Pl. Asiae Centr. 4: 44. 1968; et in Zlaki SSSR 566. 1976; Anonymous in Icon. Cormoph. Sin. 5: 123, pl. 7075. 1976; Anonymous in Fl. Tsinling. 1 (1): 155, pl. 123.

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1976; N. R. Cui in Clav. Pl. Xinjiang. 1: 254. 1982; S. L. Lu in C. Y. Wu, Fl. Xizang. 5: 264, pl. 144. 1987; S. L. Lu & P. C. Kuo in Fl. Reip. Pop. Sin. 9 (3): 313, pl. 78, figs. 1-5. 1987; Imzab. in Y. C. Ma, Fl. Intramongol. 5: 215, pl. 81, figs. 1-7. 1994. —*Stipa mongholica* Turcz. & Trin. in Bull. Sci. Acad. Pétersb. 1: 67. 1836; Bor in Grass. Burm. Ceyl. Ind. Pak. 645. 1960. —*Lasiagrostis mongholica* Trin. & Rupr. in Sp. Gram. Stip. 87. 1842; et in Mém. Acad. Sci. Pétersb. sér. 6. 7. 87. 1843. —*Achnatherum mongholicum* (Turcz. ex Trin.) Ohwi in J. Jap. Bot. 17: 403. 1941. Type: Mongolia. Sayan, 1830, Turczaninov. s.n. (holotype, LE; isotypes, LE).

Ptilagrostis dichotoma Keng in Fl. Ill. Pl. Prim. Sin. Gram. 598, pl. 537. 1959, nom. seminud. —*Ptilagrostis dichotoma* Keng ex Tzvelev in Pl. Asiae Centr. 4: 43. 1968; S. L. Lu in C. Y. Wu, Fl. Xizang. 5: 265. 1987; et in S. W. Liu, Fl. Qinghai. 4: 163, pl. 23, figs. 24-27. 1999; S. L. Lu & P. C. Kuo in Fl. Reip. Pop. Sin. 9 (3): 315, pl. 78, figs. 6-11. 1987, syn. nov. Type: China. Gansu (甘肃): Xiahe (夏河), 1937, K. T. Fu (傅坤俊) 1444 (holotype, NJ).

产中国四川、云南、西藏、青海、新疆、甘肃、宁夏、陕西、山西、河北、内蒙古、吉林、黑龙江等省区,生于海拔2000-4800 m的草原草甸、砾石山坡、林缘灌丛。蒙古、俄罗斯(西伯利亚)、中亚地区也有分布。

China. Gansu (甘肃): Jingtai (景泰), Z. Y. Yu & Y. P. Xu (于兆英,徐养鹏) 3124 (WUK); Kangle (康乐), Taohe Exped. (洮河队) 3669 (PE, WUK); Luqu (碌曲), Taohe Exped. (洮河队) 724 (LZU); Shandan (山丹), T. N. Ho (何廷农) 2751 (HNWP); Sunan (肃南), Hexi Exped. (河西队) 275 (PE); Tianzhu (天祝), Anonymous 0323 (NMAC); Weiyuan (渭源), Chinese Acad. Sci. Yellow River Exped. (中科院黄河队) 1504 (WUK); Xiahe (夏河), K. T. Fu (傅坤俊) 1444 (PE). **Hebei (河北):** Mt. Xiaowutaishan (小五台山), Anonymous 2336 (PE); Yu Xian (蔚县), Anonymous 7448 (PE, HNWP). **Heilongjiang (黑龙江):** Hailin (海林), P. Y. Fu (傅沛云) 3499 (HNWP). **Jilin (吉林):** Antu (安图), P. Y. Fu (傅沛云) 1180 (PE); Mt. Changbaishan (长白山), W. Wang et al. (王薇等) 2246 (HNWP); Fusong (抚松), Y. L. Chang & Y. G. Wang (张玉良,王益钢) 442 (PE, HNWP). **Nei Mongol (内蒙古):** Mt. Helanshan (贺兰山), Y. Q. Ma (马毓泉) 189 (HIMC). **Ningxia (宁夏):** Mt. Helanshan (贺兰山), Y. P. Xu & Z. Y. Yu (徐养鹏,于兆英) 2339 (WUK). **Qinghai (青海):** Baima (班玛), W. Y. Wang et al. (王为义等) 27599 (HNWP); Chindu (称多), Y. Y. Liu (刘有义) 83-382 (HNWP); Darlag (达日), H. B. G. 1325 (HNWP); Datong (大通), L. J. Mei (梅丽娟) 231 (HNWP); Gonghe (共和), K. Z. Zhang (张盍曾) 63132 (HNWP); Guide (贵德), T. N. Ho (何廷农) 1203 (HNWP); Henan (河南), S. W. Liu (刘尚武) 1948 (HNWP); Huangzhong (湟中), T. N. Ho (何廷农) 909 (HNWP); Huzhu (互助), P. C. Kuo & W. Y. Wang (郭本兆,王为义) 12642 (HNWP); Jigzhi (久治), Guoluo Exped. (果洛队) 296 (HNWP); Ledu (乐都), Y. H. Wu et al. (吴玉虎等) 3399 (HNWP); Madoi (玛多), Y. H. Wu (吴玉虎) 743, 785 (HNWP); Maqên (玛沁), Veg. Region. Exped. 3rd Team (区划第三队) 163 (HNWP); Menyuan (门源), X. M. Zhou & Q. Sha (周兴民,沙渠) 171 (HNWP); Nangqên (囊谦), Y. C. Yang (杨永昌) 01333 (WUK, HNWP); Qilian (祁连), Q. C. Chen (陈庆诚) 396 (LZU); Tianjun (天峻),

Qinghai-Gansu Exped. (青甘队) 997 (PE, WUK, HNWP); Tongde (同德), Y. H. Wu et al. (吴玉虎等) 4887, 4996, 7074, 7128 (HNWP); Ulan (乌兰), P. C. Kuo & W. Y. Wang (郭本兆, 王为义) 11513 (HNWP); Xinghai (兴海), T. P. Wang (王作宾) 20246 (WUK, HNWP); Yushu (玉树), Yushu Veter. Centr. (玉树兽医站) 650183 (HNWP); Zadoi (杂多), S. W. Liu (刘尚武) 246 (HNWP); Zêkog (泽库), L. H. Zhou & L. N. Sun (周立华, 孙立南) 1685 (HNWP); Zhidoi (治多), L. H. Zhou (周立华) 421 (HNWP). **Shaanxi** (陕西): Foping (佛坪), P. C. Kuo (郭本兆) 1704 (PE, WUK); Hu Xian (户县), K. T. Fu (傅坤俊) 14306 (WUK); Mt. Taibaishan (太白山), T. N. Liou & P. C. Tsoong (刘慎谔, 钟补求) 2972 (WUK, HNWP). **Shanxi** (山西): Mt. Wutaishan (五台山), Y. L. Chen (陈艺林) 1731 (PE, HNWP); Wuzhai (五寨), Yellow River Exped. (黄河队) 2938 (WUK). **Sichuan** (四川): Aba (阿坝), X. Li (李馨) 72223 (SZ); Daocheng (稻城), Qinghai-Xizang Exped. (青藏队) 5422 (PE); Dawu (道孚), Anonymous 5965 (PE, HNWP); Dêgê (德格), S. X. Jia (贾慎修) s.n. (PE); Emei (峨眉), D. H. Du (杜大华) 1437 (SZ); Garzê (甘孜), K. Tang (唐克) 0054 (SZ); Hongyuan (红原), Z. C. Zhao (赵佐成) 118 (HON); Jiulong (九龙), Z. A. Liu et al. (刘志安等) 22855 (CDBI); Kangding (康定), Q. Q. Wang (王清泉) 20621 (CDBI); Muli (木里), Qinghai-Xizang Exped. (青藏队) 14050 (PE); Sêrtar (色达), D. J. Wu (伍典及) 6656 (PE, HNWP); Sêrxü (石渠), Z. G. Liu (刘照光) 4915 (PE); Songpan (松潘), K. T. Fu (傅坤俊) 1519 (WUK); Xiangcheng (乡城), Anonymous 3153 (PE); Xiaojin (小金), Anonymous 9737 (CDBI, HNWP); Yajiang (雅江), Anonymous 3992 (PE); Yanyuan (盐源), Qinghai-Xizang Exped. (青藏队) 12308 (PE); Zamtang (壤塘), Anonymous 9321 (HNWP); Zoigê (若尔盖), Anonymous 10318 (PE, HNWP). **Xinjiang** (新疆): Mt. Altay (阿尔泰山), Anonymous 10750 (PE); Hejing (和静), A. J. Li & J. N. Zhu (李安仁, 朱家楠) 06509 (PE); Tacheng (塔城), Anonymous 581 (HNWP); Mt. Tianshan (天山), K. C. Kuan (关克俭) 2081 (PE); Toli (托里), Anonymous 122, 187 (HNWP); Usu (乌苏), N. Tian (天鸟) 53 (PE); Zhaosu (昭苏), K. C. Kuan (关克俭) 348 (PE). **Xizang** (西藏): Amdo (安多), J. X. Yang (杨金祥) 2408 (WUK); Baqên (巴青), Qinghai-Xizang Sci. Exped. (青藏科考队) 11093 (PE, HNWP); Baxoi (八宿), Inst. Biol. Xizang Exped. (生物所西藏队) 1358 (HNWP); Biru (比如), B. C. Wu (武宝成) 84-606 (FGC); Cona (错那), C. Y. Wu (吴征镒) 75-997 (PE, HNWP); Maizhokunggar (墨竹工卡), C. Y. Wu et al. (吴征镒等) 1206 (HNWP); Nyalam (聂拉木), C. C. Ni et al. (倪志诚等) 2139 (XZ); Qamdo (昌都), Qinghai-Xizang Sci. Exped. (青藏科考队) 12659 (HNWP); Sog Xian (索县), J. T. Wang (王金亭) 3227 (PE); Tingri (定日), R. F. Huang (黄荣福) 89-766 (HNWP); Zayü (察隅), Qinghai-Xizang Exped. (青藏队) 10681 (PE); Zogang (左贡), P. C. Kuo & W. Y. Wang (郭本兆, 王为义) 23420, 23502 (HNWP). **Yunnan** (云南): Dêqên (德钦), Beijing Inst. Bot. Hengduanshan Mt. Exped. (北京植物所横断山队) 3666 (PE); Heqing (鹤庆), Z. H. Hu & J. D. Zhang (胡志洪, 张迦得) 781078 (HNWP).

双叉细柄茅 *P. dichotoma* 最早由耿以礼(1959)用中文描述, Tzvelev(1968)补充了拉丁描述, 使其成为合格发表的名称。耿以礼(1959)认为双叉细柄茅颖基灰褐色, 外稃长约4 mm, 芒长13-16 mm, 花药顶端生微柔毛, 因此不同于属的模式细柄茅 *P. mongholica*。后者颖

基紫色、外稃长5-6 mm,芒长15-25 mm,花药顶端无毛。我们查阅了13个标本馆(PE、CDBI、SZ、HON、XZ、HNWP、LZU、WUK、FGC、HIMC、NMAC、NMTC、NXAC)中的197份有关标本,发现该种在上述特征上是极不稳定的,变异很大,与细柄茅相比其对应性状均有过渡或重叠,没有一个特征能把这两个种区别开来(表1),标本馆中对该种的错误鉴定相当常见。

表1 细柄茅属4个种主要形态性状的比较

Table 1 Comparison of the main morphological characters of four species in *Ptilagrostis*

分类群 Taxon	株高 Plant height (cm)	花序 Inflorescence	花序分枝 Branch of inflore- scence	颖基颜色 Colour of glume at base	颖长 Length of glume (mm)	外稃长 Length of lemma (mm)	芒长 Length of awn (mm)	花药顶端 Apex of anther
细柄茅 <i>P. mongholic</i>	30-38	疏松,开展,通常无苞片,稀具苞片痕迹 lax, extending, usually bractless, rarely with traces of bracts	不分枝或二分枝 unbranched or 2-branched	通常紫色,稀黄色 usually purple, rarely yellow	5.0-6.0	4.0-4.9	15.0-24.0	通常无毛,稀具微柔毛 usually glabrous, rarely puberulous
双叉细柄茅 <i>P. dichotoma</i>	21-80	疏松,开展,通常无苞片,偶具小苞片 lax, extending, usually bractless, occasionally bracteolate	通常不分枝,偶二分枝 usually unbranched, occasionally 2-branched	通常紫色,偶黄色 usually purple, occasionally yellow	4.2-6.2	3.9-5.4	11.0-20.0	通常具微柔毛,偶尔无毛 usually puberulous, occasionally glabrous
太白细柄茅 <i>P. concinna</i>	6-45	稍密集,狭窄,通常具苞片,偶无苞片 slightly crowded, narrow, usually bracteolate, occasionally bractless	多二分枝,稀不分枝 mostly 2-branched, rarely unbranched	通常紫色,偶浅黄色 usually purple, occasionally yellowish	4.5-7.2	3.3-4.9	11.0-17.0	通常具微柔毛,偶尔无毛 usually puberulous, occasionally glabrous
窄穗细柄茅 <i>P. junatovii</i>	14-65	稍密集,狭窄,通常无苞片,稀具苞片 slightly crowded, narrow, usually bractless, rarely bracteolate	多二分枝,稀不分枝 mostly 2-branched, rarely unbranched	通常紫色,稀浅黄色或带白色 usually purple, rarely yellowish or whitish	4.5-6.8	3.1-4.5	10.0-16.0	通常无毛,稀具微柔毛 usually glabrous, rarely puberulous

为了更深入认识二者之间的关系,我们于2003年选择了细柄茅和双叉细柄茅均有分布的青海省兴海县河卡乡和泽库县宁秀乡进行了考察,在河卡山的山坡草地和宁秀乡的砾石荒坡上分别发现了相似的植物。从现场观察的性状和测量的数据来看,这些植物有近一半似乎可以鉴定为双叉细柄茅,极少数植株(约1/6)可以定为细柄茅,还有少数植株因性状过渡或交叉而无法准确归类。由于这些难以准确鉴定的植物的形态特征和已归的两类十分相似,并处于同一分布区的相同生境,若要将它们定为其他种类显然是不合适的,只

有将它们与前二者作为一个种处理,才能显得较为合理。

2 太白细柄茅(秦岭植物志) 优雅细柄茅(新疆植物检索表) 致细柄茅(西藏植物志)

Ptilagrostis concinna (Hook. f.) Roshev. in V. L. Komarov, Fl. USSR. 2: 75. 1934; Gamajun in Fl. Kazakh. 1: 157. 1956; Tzvelev in Pl. Asiae Centr. 4: 43. 1968; Anonymous in Fl. Tsinling. 1 (1): 154, pl. 122. 1976; N. R. Cui in Clav. Pl. Xinjiang 1: 254. 1982; S. L. Lu in C. Y. Wu, Fl. Xizang. 5: 264, pl. 142. 1987; et in S. W. Liu, Fl. Qinghai. 4: 162. 1999; S. L. Lu & P. C. Kuo in Fl. Reip. Pop. Sin. 9 (3): 311, pl. 77, figs. 8-14. 1987. —*Stipa concinna* Hook. f. in Fl. Brit. Ind. 7: 230. 1896; Bor in Grass. Burm. Ceyl. Ind. Pak. 644. 1960. Type: China. Xizang (西藏): Without precise locality, alt. 14000-16000 ft., J. D. Hooker s.n.

Ptilagrostis concinna ssp. *schischkinii* Tzvelev in Novosti Sist. Vyssh. Rast. 11: 7. 1974; et in Zlaki SSSR 567, 1976. Type: Semirechensk district, Przhevalskii post, Kokgar River, subalpine meadows and slopes, alt. 2700 m, 1921-07-26, V. Sapozhnikov & B. Shishkin s.n. (holotype, LE).

Ptilagrostis junatovii Grub. in Not. Syst. Herb. Inst. Bot. Acad. Sci. USSR 17: 3. 1955; Malyshev in Vysok. Fl. Vost. Sayana 56. 1965; Tzvelev in Zlaki SSSR 567. 1976; S. L. Lu in C. Y. Wu, Fl. Xizang. 5: 264, pl. 143. 1987; et in S. W. Liu, Fl. Qinghai. 4: 162, pl. 23, figs. 19-23. 1999; S. L. Lu & P. C. Kuo in Fl. Reip. Pop. Sin. 9 (3): 313, pl. 77, figs. 15-20. 1987, syn. nov. Type: Mongolia. Hangai: Tarbagatai, 1951, A. Yunalov s.n. (holotype, isotype, LE).

产中国四川、云南、西藏、青海、新疆、甘肃、陕西,生于海拔3200-5100 m的高山草甸、荒坡草滩、河岸沟谷、沼泽湿地、灌丛林下。蒙古、俄罗斯(西伯利亚)、中亚及喜马拉雅地区也有分布。

China. Gansu (甘肃): Sunan (肃南), Hexi Exped. (河西队) 231, 418 (PE); Têwo (迭部), P. C. Kuo (郭本兆) 5763 (WUK); Tianzhu (天祝), R. F. Huang (黄荣福) 2642 (HNWP); Yumen (玉门), T. N. Ho (何廷农) 3081 (HNWP). **Qinghai** (青海): Chindu (称多), X. J. Gou & Y. Y. Liu (葛新京,刘有义) 418 (HNWP); Darlag (达日), G. C. Chen et al. (陈桂琛等) 1651 (HNWP); Datong (大通), Z. H. Zhang (张志和) 4845 (HNWP); Dulan (都兰), Qinghai-Gansu Exped. (青甘队) 1704 (WUK); Gonghe (共和), Y. H. Wu (吴玉虎) 9434 (HNWP); Henan (河南), L. H. Zhou & L. N. Sun (周立华,孙立南) 2186 (HNWP); Jigzhi (久治), Guoluo Exped. (果洛队) 508 (HNWP); Madoi (玛多), Y. H. Wu (吴玉虎) 852 (HNWP); Maqên (玛沁), Veg. Region. Exped. 1st Team (区划第一组) 131 (HNWP); Nangqên (囊谦), Y. C. Yang (杨永昌) 1218 (WUK, HNWP); Qilian (祁连), P. C. Tsoong (钟补求) 8673 (PE); Qumarlêb (曲麻莱), R. F. Huang (黄荣福) 0113 (HNWP); Tianjun (天峻), Qinghai-Gansu Exped. (青甘队) 1135 (PE); Tongren (同仁), L. H. Zhou & L. N. Sun (周立华,孙立南) 1048 (HNWP); Ulan (乌兰), P. C. Kuo & W. Y. Wang (郭本兆,王为义) 11532 (HNWP); Xinghai (兴海), P. C. Kuo (郭本兆) 6266, 6353, 6394, 6412 (HNWP); Yushu (玉树), Z. D. Wei (魏振铎) 22193 (HNWP); Zadoi (杂多), S. W. Liu (刘尚武) 225 (HNWP, WUK); Zêkog (泽库), S. W. Liu & D. S. Luo (刘尚武,罗达尚) 1568 (HNWP). **Shaanxi** (陕西): Mt. Taibaishan (太白山), Biol. Dept. Northwest Univ. (西北大学生物系) 0135 (HNWP). **Sichuan** (四川): Aba (阿

坝), Anonymous 10481 (HNWP); Daocheng (稻城), Z. G. Liu (刘照光) 29041 (CDBI); Dawu (道孚), Anonymous 7908 (PE); Emei (峨眉), D. H. Du (杜大华) 1442 (SZ); Garzê (甘孜), NW Plat. Inst. Biol. Xizang Exped. (西北高原生物研究所西藏队) 2429 (HNWP); Hongyuan (红原), Anonymous 10452 (CDBI, HNWP); Kangding (康定), K. C. Kuan & W. T. Wang (关克俭,王文采) 1100 (PE); Litang (理塘), W. Hou (侯伟) 29443 (CDBI); Sêrxü (石渠), Sino-USSR Exped. (中苏队) 9315 (PE). **Xinjiang** (新疆): Mt. Tianshan (天山), DCCZ T456 (HNWP). **Xizang** (西藏): Amdo (安多), J. X. Yang (杨金祥) 1989, 2391 (WUK); Biru (比如), Qinghai-Xizang Exped. (青藏队) 11232 (HNWP); Burang (普兰), Qinghai-Xizang Exped. (青藏队) 76-8296 (PE, HNWP); Cona (错那), C. Y. Wu et al. (吴征镒等) 75-883 (PE, HNWP); Nyingchi (林芝), P. C. Kuo & W. Y. Wang (郭本兆,王为义) 23246 (HNWP); Rutog (日土), Qinghai-Xizang Exped. (青藏队) 76-8392 (PE); Zogang (左贡), P. C. Kuo & W. Y. Wang (郭本兆,王为义) 23421, 23498, 23503 (HNWP). **Yunnan** (云南): Dêqên (德钦), Beijing Inst. Bot. Hengduanshan Mt. Exped. (北京植物所横断山队) 3693 (PE); Heqing (鹤庆), W. Yunnan Jinshajiang Exped. (滇西金沙江队) 6162 (WUK).

无论从野外考察还是室内标本观察来看,太白细柄茅 *P. concinna* 至少在花序宽窄与疏密上与细柄茅可以区别(表1)。而真正与其没有明显区别的是窄穗细柄茅 *P. junatovii*, 正如表1列出的一些特征一样,没有一个性状可以将它们分开。笔者在窄穗细柄茅有分布记载的青海兴海县和乌兰县的考察中,所见到的植株花序均狭窄,花序基部有的具苞片,小穗下部多呈紫色,长一般在4.5-6.5 mm之间,外稃长3.5-4.5 mm,芒通常不超过15 mm,株高一般15-25 cm。后来经与太白细柄茅相比较,这些特征几乎都在太白细柄茅的性状变异范围内,均可鉴定为太白细柄茅。至今笔者在野外还未发现与太白细柄茅有明显差异的植株。

窄穗细柄茅这个种当初发表时可能就相当勉强。以后的作者(如Tzvelev, 1976; 卢生莲,郭本兆, 1987; 卢生莲, 1987, 1999)在编制它与太白细柄茅的分类检索表时,罗列的几乎所有性状都呈连续过渡状态,种间界限明显不清,难以在分类实践中应用。

3 小花细柄茅(西藏植物志) 新等级

Ptilagrostis roshevitsiana (Tzvelev) L. B. Cai, comb. & stat. nov. — *Ptilagrostis dichotoma* Keng ex Tzvelev var. *roshevitsiana* Tzvelev in P1. Asiae Centr. 4: 43. 1968; S. L. Lu in C. Y. Wu, Fl. Xizang. 5: 267, pl. 145. 1987; et in S. W. Liu, Fl. Qinghai. 4: 163. 1999; S. L. Lu & P. C. Kuo in Fl. Reip. Pop. Sin. 9 (3): 315, pl. 78, figs. 12-16. 1987. Type: China. Gansu (甘肃): Without precise locality, Anonymous s.n. (holotype, LE).

产中国四川、西藏、青海、甘肃,生于海拔2400-4800 m的高山草甸、灌丛草地、沟谷河岸。中亚地区也有分布。

China. Gansu (甘肃): Tianzhu (天祝), Qinghai-Gansu Exped. (青甘队) 1406 (WUK). **Qinghai** (青海): Datong (大通), Z. H. Zhang et al. (张志和等) 5303, 5311 (HNWP); Gangca (刚察), G. C. Chen (陈桂琛) 003 (HNWP); Gonghe (共和), Veget. Geogr. Exped. (植被地理组) 1241 (HNWP); Henan (河南), Y. H. Wu et al. (吴玉虎等) 7520 (HNWP); Huangyuan (湟

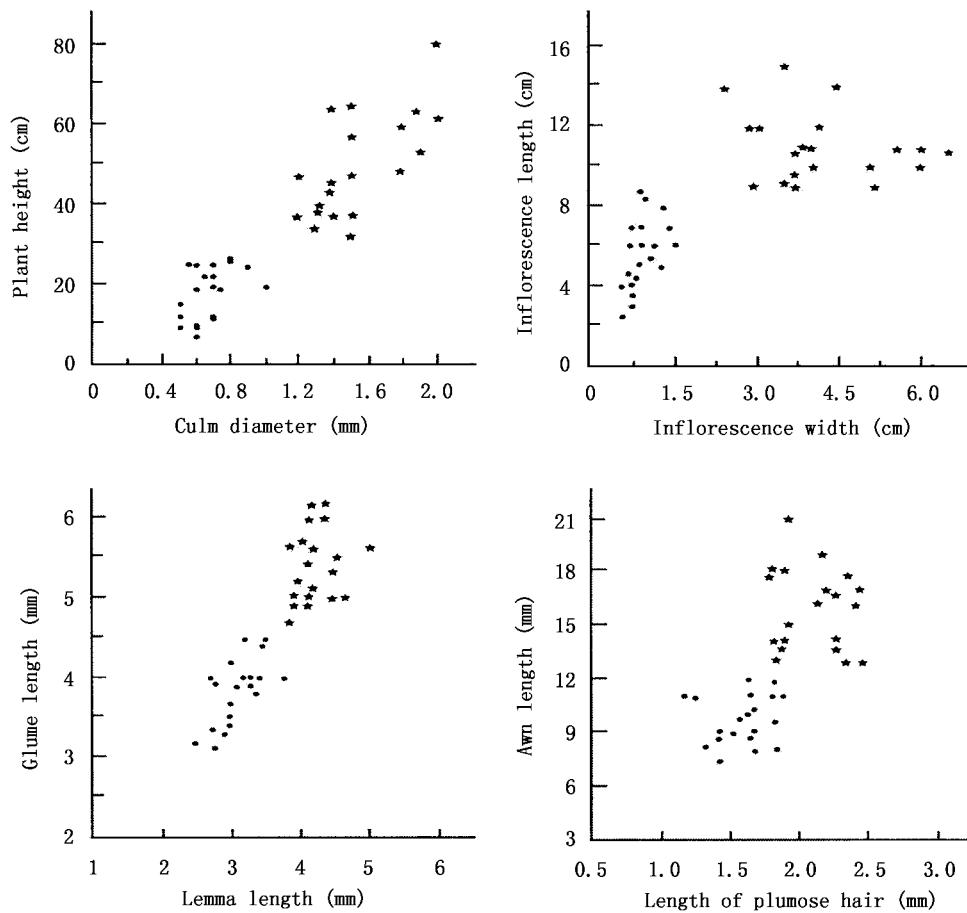


图1 小花细柄茅(●)和细柄茅(○) 8个主要形态性状的散点图

Fig. 1. Scatter diagram of eight main morphological characters of *Ptilagrostis roshevitsiana* (●) and *P. dichotoma* (= *P. mongholica*) (○).

源), P. C. Kuo (郭本兆) 331 (HNWP); Madoi (玛多), Y. H. Wu (吴玉虎) 1057, 1108 (HNWP); Maqên (玛沁), Veget. Geo. Exped. (植被地理组) 403 (HNWP); Menyuan (门源), P. C. Kuo (郭本兆) 27753 (HNWP); Qilian (祁连), P. C. Kuo & W. Y. Wang (郭本兆, 王为义) 12317 (HNWP); Qumarlêb (曲麻莱), S. W. Liu & R. F. Huang (刘尚武, 黄荣福) 765 (HNWP); Tianjun (天峻), Qinghai-Gansu Exped. (青甘队) 1089 (WUK); Tongde (同德), Y. H. Wu et al. (吴玉虎等) 6274 (HNWP); Xinghai (兴海), T. N. Ho (何廷农) 0286 (HNWP, WUK); Yushu (玉树), Z. D. Wei (魏振铎) 22064 (HNWP); Zêkog (泽库), L. H. Zhou & L. N. Sun (周立华, 孙立南) 1384 (HNWP); Zhidoi (治多), L. H. Zhou (周立华) 322 (HNWP). **Sichuan** (四川): Baoxing (宝兴), S. Y. Hu 1408 (SZ); Sêrxü (石渠), Kuo & Lu 28313 (HNWP); Zoigê (若尔盖), Anonymous 10225 (PE, HNWP, CDBI). **Xizang** (西藏): Mainling (米林), Xizang Med. Pl. Exped. (西藏中草药队) 3794 (HNWP); Zhongba (仲巴), Qinghai-

Xizang Exped. (青藏队) 6758 (HNWP).

根据国内标本,小花细柄茅 *P. roshevitsiana* 在许多性状上不仅与属中的其他种有显著区别,而且与细柄茅也有明显差异,尤其在植株高矮、茎秆粗细、花序长宽以及颖、外稃、外稃芒和芒毛的长度上存在明显间断(表1)。从前人已鉴定的20份小花细柄茅标本和从双叉细柄茅中相应随机抽样的20份标本来测量上述性状,并将性状两两相配进行坐标描点做出散点图(图1)。不难看出,凡是鉴定为小花细柄茅的植物,其各性状的分布散点都较集中地靠近坐标的左下角,凡是鉴定为双叉细柄茅的植物,其各性状的分布散点都较集中地远离坐标左下角,从而在4个小图上均形成了界限分明的小花细柄茅区和双叉细柄茅区。

小花细柄茅不仅与植株高大的细柄茅存在明显区别,就是与植株较为低矮的太白细柄茅也差异明显。如小花细柄茅的颖一般在4.5 mm以下,外稃一般不超过3.5 mm,芒一般不逾11 mm;而太白细柄茅的颖通常在4.5 mm以上,外稃通常超过3.5 mm,芒通常超过11 mm。这表明将小花细柄茅与细柄茅处理为独立的两个种较为合适。

野外观察也表明将小花细柄茅提升到种级水平较为合理。野外观察发现,小花细柄茅植株低矮,茎秆纤细,花序窄狭,小花弱小,从而与植株高大、茎秆粗壮、花序开展、小花硕健的双叉细柄茅形成了明显的差异。再者,小花细柄茅的分布区域远不及双叉细柄茅宽,就是在野外小范围下,有双叉细柄茅的地方,不一定有小花细柄茅生长,双叉细柄茅一般与细柄茅等其他类群混生。另外,小花细柄茅与双叉细柄茅虽然都可在草甸、灌丛环境下生长,但小花细柄茅的生长环境通常较湿润,双叉细柄茅的生长环境通常较干燥,小花细柄茅喜生沟谷河岸生境,双叉细柄茅在这种生境颇为少见。

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参 考 文 献

- Barkworth M E. 1983. *Ptilagrostis* in North America and its relationship to other Stipeae (Gramineae). *Systematic Botany* 8: 395-419.
- Grisebach A. 1852. *Ptilagrostis* Griseb. In: Ledebour C F ed. *Flora Rossica*. Stuttgartiae. 4: 447.
- Keng Y-L (耿以礼). 1959. *Ptilagrostis* Griseb. In: Keng Y-L (耿以礼) ed. *Flora Illustralis Plantarum Primarum Sinicarum Gramineae* (中国主要植物图说 禾本科). Beijing: Science Press. 598-599.
- Kuo P-C (郭本兆). 1976. *Ptilagrostis* Griseb. In: *Flora Tsinlingensis* (秦岭植物志). Beijing: Science Press. 1 (1): 154-155.
- Lu S-L (卢生莲). 1987. *Ptilagrostis* Griseb. In: Wu C-Y (吴征镒) ed. *Flora Xizangica* (西藏植物志). Beijing: Science Press. 5: 263-268.
- Lu S-L (卢生莲). 1999. *Ptilagrostis* Griseb. In: Liu S-W (刘尚武) ed. *Flora Qinghaiica* (青海植物志). Xining: Qinghai People's Publishing House. 4: 161-163.
- Lu S-L (卢生莲), Kuo P-C (郭本兆). 1987. *Ptilagrostis* Griseb. In: *Flora Reipublicae Popularis Sinicae* (中国植物志). Beijing: Science Press. 9 (3): 310-316.
- Tzvelev N N. 1968. *Planta Asiae Centralium*. Aedibus: Nauka. 4: 43.
- Tzvelev N N. 1976. *Zlaki SSSR*. Leningrad: Nauka. II: 565-567.