

An Enumeration of the Flowering Plants Collected in NW Yunnan and SW Sichuan, China between 1984 and 1998—*Bistorta* (Polygonaceae), *Potentilla* (Rosaceae), *Saxifraga* (Saxifragaceae), *Rhododendron* (Ericaceae) and *Juncus* (Juncaceae)

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Abstract The region including NW Yunnan and W Sichuan has a rich alpine flora. We have collected 9 species of *Bistorta*, 24 species and 4 putative hybrids of *Potentilla*, 43 species of *Rhododendron* and 30 species of *Juncus* for studies on chromosome evolution and morphological diversity between 1984 and 1998. A supplement with corrections of the enumeration of *Saxifraga* (Akiyama *et al.* 1998) is also given. A new combination, *Bistorta sinomontana* (Sam.) Miyam., is proposed. Significant references and taxonomic notes are also given for each entry.

Key words: *Bistorta*, *Potentilla*, *Saxifraga*, *Rhododendron*, *Juncus*, Sino-Himalaya, alpine flora

The area from Dali to Deqin through Lijiang (Likiang), Weixi, Zhongdian (Chungtien), and around Daocheng (including [Xiao] Gongga Shan) on the border of Yunnan and Sichuan is regarded as one of the centres of species diversification in the alpine flora relating to the Himalaya. The species diversity of the genus *Saxifraga* was reported by Akiyama *et al.* (1998). To understand chromosome evolution and morphological diversity in the species in the Sino-Himalayan alpine flora, the authors conducted field research in the Himalaya and SW China since 1983 (Ohba & Malla 1988). This enumeration is the result of determinations of materials collected in SW China during their field research from 1987 through 1998. *Bistorta* (Polygonaceae)

and *Juncus* (Juncaceae) were determined by Miyamoto, *Potentilla* (Rosaceae) by Ikeda, *Rhododendron* (Ericaceae) by Noshiro and Fang, and *Saxifraga* (Saxifragaceae) by Akiyama and Ohba. In this enumeration the specimens that were collected by Iwatsuki *et al.* in 1984 in Diancangshan (Cang Shan) near Dali were also studied. All specimens are deposited in KUN and TI, and duplicates are deposited in TNS; others have been sent to A, BM, E, and MO from TI.

For members and itineraries of the field research from 1984 to 1997 see Akiyama *et al.* (1998). The field research in 1998 is as follows:

1998: 22 August to 8 September: Xiaojin (mainly Mts. Siguniang and Balang Shan). Collectors: Hiroshi Ikeda, Michio Wakabayashi, Shinobu Akiyama, Futoshi Miyamoto, Yong Fei, Makoto Amano and Takayuki Kawahara (for more details see Ikeda & Miyamoto 1999).

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References

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1. ***Bistorta*** Scop. (Polygonaceae)

1. ***Bistorta calostachya*** (Diels) Soják in *Preslia* **46**(2): 152 (1974).

Polygonum calostachyum Diels in *Notes Roy. Bot. Gard. Edinburgh* **5**: 261 (1912).

[Specimens] Yunnan. Dali: Cangshan, 3880 m (Wu *et al.* 1609, 1 Sept. 1996).

Yunnan. Yangbi: around Cangshan, 3750 m (Wu *et al.* 480, 18 Aug. 1997).

[Habit] On slopes in *Rhododendron* scrub.

2. ***Bistorta coriacea*** (Sam.) Yonekura & H. Ohashi in *J. Jap. Bot.* **72**: 157 (1997).

Polygonum coriaceum Sam. in Hand.-Mazz., Symb. Sin. **2**: 174 (1929).

[Specimens] Yunnan. Deq: around Daxue Shan, 4500 m (Wu *et al.* 1596, 28 Aug. 1996). Sichuan. Xiangcheng-Daocheng, 4720 m (Wu *et al.* 1497, 15 Aug. 1996). Sichuan. Daocheng: Bowa Shan, 4360 m (Wu *et al.* 1504, 16 Aug. 1996). Sichuan. Xiangcheng: around Wuming Shan, 4570 m (Wu *et al.* 411, 27 July 1997).

[Habit] On exposed scree slope.

3. **Bistorta emodii** (Meisn.) Petrov in Bull. Jard. Bot. Princ. URSS **27**: 230 (1928). Yonekura & H. Ohashi in J. Jap. Bot. **72**: 302 (1997).

Polygonum emodii Meisn. in Wall. Pl. Asiat. Rar. **3**: 51, t. 287 (1832).

[Specimens] Yunnan. Deq: Sanchan He, 2900 m (Ohba *et al.* 1405, 3 Aug. 1996).

[Habit] On mossy soil banks.

4. **Bistorta macrophylla** (D. Don) Soják in Preslia **46**: 152 (1974).

Polygonum macrophyllum D. Don, Prodr. Fl. Nep.: 70 (1825).

[Specimens] Yunnan. Deq: around Daxue Shan, 4400 m (Wu *et al.* 1591, 27 Aug. 1996). Yunnan. Yangbi: around Cangshan, 3900 m (Wu *et al.* 474, 18 Aug. 1997). Sichuan. Xiangcheng-Daocheng, 4770 m (Wu *et al.* 1498, 15 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, 4450 m (Wu *et al.* 1560, 23 Aug. 1996). Sichuan. Xiangcheng: around Wuming Shan, 4520 m (Wu *et al.* 413, 27 July 1997). Sichuan. Daocheng: around Gongga Shan, 4570 m (Wu *et al.* 447, 4 Aug. 1997).

[Habit] On grassland slopes.

5. **Bistorta milletii** H. Lév. in Repert. Spec. Nov. Regni Veg. **12**: 286 (1913).

[Specimen] Yunnan. Yangbi: around Cangshan, 3750 m (Wu *et al.* 481, 18 Aug. 1997).

[Habit] On mossy rocks and banks.

6. **Bistorta paleacea** (Wall. ex Hook. f.) Yonekura & H. Ohashi in J. Jap. Bot. **72**: 157 (1997).

Polygonum paleaceum Wall. [Numer. List: no. 1684 (1828), nom. nud.; Meisn. in Wall. Pl. As. Rar. **3**: 54 (1832), nom. nud.] ex Hook. f., Fl. Brit. Ind. **5**: 32 (1836).

[Specimens] Yunnan. Lijiang: Ganhaizi, 3080 m (Wu *et al.* 1438, 9 Aug. 1996). Sichuan. Daocheng: Haizi, 3860 m (Wu *et al.* 17 Aug. 1996). Sichuan. Daocheng: Daocheng-Gongling, 3740 m (Wu *et al.* 1533, 19 Aug. 1996). Sichuan. Daocheng: Daocheng-Daxue Shan Yakou, 3600 m (Wu *et al.* 1581, 26 Aug. 1996). Sichuan. Xiangcheng: around Wuming Shan, 3400 m (Wu *et al.* 406, 26 July 1997). Sichuan. Daocheng: Daocheng-Gongling, 3600 m (Wu *et al.* 456, 1 Aug. 1997). Sichuan. Xiaojin: Rilong-Ganhaizi, 3300 m (Ikeda *et al.* 100812, 30 Aug. 1998).

[Habit] On grassland slopes.

7. **Bistorta sinomontana** (Sam.) Miyam., comb. nov.

Polygonum sinomontanum Sam. in Hand.-Mazz., Symb. Sin. **2**: 177 (1929).

[Specimens] Yunnan. Lijiang: Yunshan Ping, 3200 m (Wu *et al.* 1461, 1466, 10 Aug. 1996). Yunnan. Deq: Tianchi, 3600 m (Wu *et al.* 1480, 12 Aug. 1996). Yunnan.

Yangbi: a Fruit Garden–Cangshan, 3500 m (Wu *et al.* 467, 16 Aug. 1997). Sichuan. Daocheng: Daocheng–Daxue Shan Yakou, 3400 m (Wu *et al.* 1582, 26 Aug. 1996). Sichuan. Xiangcheng: around Wuming Shan, 3650 m (Wu *et al.* 426, 427, 29 July 1997).

[Habit] On soil bank.

[Note] *Bistorta sinomontana* is known from Tibet, Sichuan and Yunnan. This species is similar to *B. amplexicaulis* (D. Don) Greene, but differs in having wings on the petiole of the lower stem and basal leaves.

8. ***Bistorta suffulta*** (Maxim.) H. Gross in Bull. Acad. Int. Géogr. Bot. 23 (1913).

Polygonum suffultum Maxim. in Bull. Acad. Imp. Soc. St. Pétersbourg 22: 233 (1877).

[Specimens] Yunnan. Deqe: Dacao Chang, 3200 m (Ohba *et al.* 1436, 6 Aug. 1996). Yunnan. Yangbi: around Cangshan, 3760 m (Wu *et al.* 478, 17 Aug. 1997).

[Habit] On mossy soil banks.

9. ***Bistorta vivipara*** (L.) S. F. Gray, Nat. Arr. Br. Pl. 2: 268 (1821).

Polygonum viviparum L., Sp. Pl.: 360 (1753).

[Specimens] Yunnan. Deqe: Dacao Chang, 3320 m (Ohba *et al.* 1433, 6 Aug. 1996). Yunnan. Yangbi: around Cangshan, 3750 m (Wu *et al.* 483, 18 Aug. 1997). Sichuan. Daocheng: Bowa Shan, 4510 m (Wu *et al.* 1503, 16 Aug. 1996). Sichuan. Daocheng: Haizi, 4050 m (Wu *et al.* 1514, 17 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, 4300 m (Wu *et al.* 1594, 23 Aug. 1996). Sichuan. Daocheng: around Gongga Zhonggu, 3790 m (Wu *et al.* 432, 3 Aug. 1997). Sichuan. Daocheng: around Gongga Shan, 4500 m (Wu *et al.* 458, 6 Aug. 1997). Sichuan. Xiangcheng: around Wuming Shan, 3880 m (Wu *et al.* 424, 29 July 1997). Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 3700 m (Ikeda *et al.* 100842, 1 Sept. 1998). Sichuan. Xiaojin: Ganhaizi–Yanggangzi–Ganhaizi, 3700 m (Ikeda *et al.* 100852, 3 Sept. 1998). Sichuan. Xiaojin: Rilong—a pass of Balang Shan–Wenchuan: Wolong, 3200 m (Ikeda *et al.* 100856, 6 Sept. 1998).

[Habit] On grassland slopes.

2. ***Potentilla*** L. (Rosaceae)

1. ***Potentilla anserina*** L., Sp. Pl.: 495 (1753). Wang *et al.* in Liou, Clavis Pl. China. Bor.-Orient.: 154, t. 47, f. 5 (1959). Fl. Beijing 1: 415, f. 361 (1962). Kong, Fl. Lanzhou: 321, f. 243 (1962). Fl. Pl. Herb. Chin. Bor.-Orient. 5: 9, t. 3, f. 1 & 2 (1976). Fl. Intramongolica 3: 98, t. 51, f. 1–3 (1977). Zhu in Fl. Dalian Area 1: 332, f. 415 (1982). Wu *et al.*, Index Fl. Yunnan. 1: 490 (1984). Xing in He & Ying, Fl. Beijing, 2nd ed. 1: 396, f. 488 (1984). Wang *et al.* in He, Fl. Hebei. 1: 661, f. 709 (1986). Di *et al.* in Di, Pl. Vasc. Helanshan.: 137 (1986). Yao in Liu, Fl. Desert. Reipubl. Popul. Sin. 2: 134, t. 46, f. 1–3 (1987). Li *et al.* in Fl. Taiyuan. 1: 514, f. 310 (1990). Ni *et al.* in Ni, Econom. Pl. Xizang: 288 (1990). An *et al.* in Mao, Fl. Xinjiang. 2(2): 313, t. 85, f. 5–7 (1995). Liu, Enum. Pl. Tianjin: 60

(1995). Ikeda & Ohba in Ohba, *Himal. Pl.* **3**: 82, t. 8b, f. 29 & 46 (1999).

Potentilla anserina L. forma *incisa* Th. Wolf in Sitzungsber. Königl. Böhm. Ges. Wiss. Prag **25**: 39 (1903). Hand.-Mazz., *Symb. Sin.* **7**: 517 (1933); in *Acta Horti Gothob.* **13**: 326 (1939). Wu *et al.*, *Index Fl. Yunnan.* **1**: 490 (1984).

Potentilla anserina L. var. *nuda* Gaudin, *Fl. Helv.* **3**: 405 (1828). Yü & Li in *Fl. Reipubl. Pop. Sin.* **37**: 276 (1985). Yü *et al.* in Wu, *Fl. Xizang.* **2**: 652 (1985). Ku in Wang *et al.*, *Vascul. Pl. Hengduan Mts.* **1**: 851 (1993).

Potentilla anserina L. var. *viridis* W. D. J. Koch, *Syn. Fl. Germ. Helv. ed.* **1**: 213 (1836).

[Specimens] Yunnan. Deqen: Baima Xue Shan, 3790 m (Wu *et al.* 1218, 21 Sept. 1994). Sichuan. Xiangcheng: Da Xue Shan Yakou, 4020 m (Wu *et al.* 1263, 27 Sept. 1994). Sichuan. Daocheng: Gongga Zhonggu, 3980 m (Wu *et al.* 938, 25 Aug. 1996). Sichuan. Xiaojin: Rilong–Ganhaizi, 3160–3460 m (Ikeda *et al.* 100212, 30 Aug. 1998).

[Habit] On grazed grassland or marshy place beside a lake.

2. ***Potentilla argyrophylla*** Wall. [Numer. List: no. 1020 (1829), nom. nud.] ex Lehm., *Nov. Stirp. Pug.* **3**: 36 (1831). Wolf, *Monogr. Potentilla*: 228 (1908). Yü & Li in *Fl. Reipubl. Pop. Sin.* **37**: 302 (1985). Yü *et al.* in Wu, *Fl. Xizang.* **2**: 660 (1985).

Potentilla argyrophylla Wall. ex Lehm. var. *genuina* Hook. f., *Fl. Brit. India* **2**: 357 (1878).

[Specimens] Sichuan. Xiangcheng: around Wuming Shan, 4590 m (Wu *et al.* 14, 27 July 1997). Sichuan. Daocheng: around Gongga Shan, 4550 m & 4600 m (Wu *et al.* 60 & 62, 6 Aug. 1997).

[Habit] On grazed grassland.

3. ***Potentilla articulata*** Franch., *Pl. Delavay.* **3**: 210 (1890). Wolf, *Monogr. Potentilla*: 72 (1908). Diels in *Notes Roy. Bot. Gard. Edinburgh* **7**: 179 (1912). Hand.-Mazz., *Symb. Sin.* **7**: 510 (1933). Fletcher in *Notes Roy. Bot. Gard. Edinburgh* **20**: 208 (1950). Wu *et al.*, *Index Fl. Yunnan.* **1**: 491 (1984). Yü & Li in *Fl. Reipubl. Pop. Sin.* **37**: 257 (1985). Yü *et al.* in Wu, *Fl. Xizang.* **2**: 645, t. 199, f. 4 & 5 (1985). Ku in Wang *et al.*, *Vascul. Pl. Hengduan Mts.* **1**: 847 (1993).

Potentilla fruticosa L. var. *armerioides* Hook. f., *Fl. Brit. India* **2**: 348 (1878). Wolf, *Monogr. Potentilla*: 59 (1908).

Potentilla biflora Willd. ex Schlecht. var. *armerioides* (Hook. f.) Hand.-Mazz. in *Acta Horti Gothob.* **13**: 302 (1939).

Potentilla parvifolia Fisch. ex Lehm. var. *armerioides* (Hook. f.) T. T. Yü et C. L. Li in Wu, *Fl. Xizang.* **2**: 642 (1985).

[Specimens] Sichuan. Daocheng: around Gongga Shan, Beiyu, 4640 m (Wu *et al.* 916, 22 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, 4600 m (Wu *et al.* 58, 5 Aug. 1997).

[Habit] On rocks and scree.

[Note] This species forms cushions on exposed rocks and scree.

4. **Potentilla cardotiana** Hand.-Mazz. in Acta Horti Gothob. **13**: 322 (1939). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 70, t. 7d & 38, f. 21 & 40 (1999).

Potentilla fulgens auct. non Wall. ex Hook.: Diels in Notes Roy. Bot. Gard. Edinburgh **7**: 18 & 234 (1912).

Potentilla peduncularis auct. non D. Don: Franchet, Pl. Delavay. **3**: 213 (1890), p.p. Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 213 (1950), p.p. Wu *et al.*, Index Fl. Yunnan. **1**: 497 (1984), p.p. Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 265 (1985), p.p. Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 848 (1993), p.p.

[Specimens] Yunnan. Dali: Cangshan, 3910 m (Wu *et al.* 971, 1 Sept. 1996). Yunnan. Yangbi: around Cangshan, 3900 m (Wu *et al.* 72, 17 Aug. 1997).

[Habit] On grassland slopes and wet places near small streams.

[Note] *Potentilla cardotiana* is similar to *P. peduncularis* and is usually treated as a synonym of *P. pecunularis* in the Chinese literature, but it differs in having auricles of the stipules of the radical leaves free (connate from base to top in *P. peduncularis*).

5. **Potentilla commutata** Lehm., Nov. Stirp. Pug. **3**: 16 (1831). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 74 (1999).

var. **polyandra** Soják in Bot. Jahrb. Syst. **116**: 38 (1994). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 75, f. 25 & 42 (1999).

[Specimen] Sichuan. Xiaojin: Rilong—a pass of Balang Shan—Wenchuan: Wolong, 2000–4400 m (Ikeda *et al.* 100859, 6 Sept. 1998).

[Habit] Wet places in grazed alpine grasslands.

6. **Potentilla cuneata** Wall. [Numer. List: no. 1015 (1829), nom. nud.] ex Lehm., Nov. Stirp. Pug. **3**: 34 (1831). Wu *et al.*, Index Fl. Yunnan. **1**: 492 (1984). Bernardi in Candollea **18**: 274 (1963). Ohashi in Hara & Williams, Enum. Flow. Pl. Nepal **2**: 139 (1979). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 254 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 644, t. 198, f. 3 & 4 (1985). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 846 (1993).

Potentilla ambigua Cambess. in Jacquem., Voy. Inde **4** (Bot.): 51, t. 62 (1884). Hooker in Bot. Mag. **77**: t. 4613 (1851). Hooker, Fl. Brit. India **2**: 348 (1878). Franchet, Pl. Delavay. **3**: 210 (1890). Wolf, Monogr. *Potentilla*: 78 (1908). Hand.-Mazz., Symb. Sin. **7**: 517 (1933); in Acta Horti Gothob. **13**: 303 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 207 (1950). Acad. Sin. Bot., Iconogr. Cormophyt. Sin. **2**: 289, t. 2307 (1972).

Potentilla dolichopogon H. Lév. in Bull. Acad. Int. Géogr. Bot. **25**: 44 (1915).

[Specimens] Yunnan. Deq: Zhongdian—Daxue Shan, 3540 m (Wu *et al.* 869, 14 Aug. 1996). Yunnan. Deqen: Baima Xue Shan, 4200 m & 4150 m (Wu *et al.* 1223 & 1224, 21 & 22 Sept. 1994). Sichuan. Xiaojin: Ganhaizi—eastern slope of Mts. Xiaxue Tangshan—Ganhaizi, 3460–3800 m (Ikeda *et al.* 100231, 2 Sept. 1998).

[Habit] On dry sandy slopes and scree.

[Note] *Potentilla cuneata* in the Hengduan Mountains has narrowly obovate leaflets, in the Himalaya the leaflets are obovate to broadly obovate. The SW Chinese plants of *P. cuneata* grow on dry sandy slopes and scree; in the Himalayas they grow on rocks beside streams.

7. ***Potentilla delavayi*** Franch., Pl. Delavay. **3**: 215 (1890). Wolf, Monogr. *Potentilla*: 245 (1908). Hand.-Mazz., Symb. Sin. **7**: 514 (1933). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 209 (1950). Wu *et al.*, Index Fl. Yunnan. **1**: 492 (1984). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 301 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 659 (1985). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 853 (1993).

[Specimen] Yunnan. Yangbi: around Cangshan, 3750 m (Wu *et al.* 83, 18 Aug. 1997).

[Habit] On grassland slopes.

8. ***Potentilla dumosa*** (Franch.) Hand.-Mazz., Symb. Sin. **7**: 515 (1933). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 209 (1950). Wu *et al.*, Index Fl. Yunnan. **1**: 492 (1984).

Potentilla coriandrifolia D. Don var. *dumosa* Franch., Pl. Delavay. **3**: 214 (1890). Wolf, Monogr. *Potentilla*: 330 (1908). Diels in Notes Roy. Bot. Gard. Edinburgh **7**: 234 (1912). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 308 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 661 (1985). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 854 (1993).

[Specimens] Yunnan. Zhongdian: Da Xue Shan, 4360 m (Wu *et al.* 1256, 26 Sept. 1994). Yunnan. Zhongdian: around Daxue Shan, 4400 m (Wu *et al.* 943, 27 Aug. 1996).

[Habit] Grazed grasslands.

9. ***Potentilla eriocarpa*** Wall. [Numer. List: no. 1012 (1829), nom. nud.] ex Lehm., Nov. Stirp. Pug. **3**: 35 (1831). Franchet, Pl. Delavay. **3**: 211 (1890). Wolf, Monogr. *Potentilla*: 81 (1908). Hand.-Mazz., Symb. Sin. **7**: 510 (1933); in Acta Horti Gothob. **13**: 303 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 209 (1950). Acad. Sin. Bot., Iconogr. Cormophyt. Sin. **2**: 289, t. 2308 (1972). Acad. Sin. Xibei Bot., Fl. Tsinling. **1**(2): 551, f. 460 (1972). Wu *et al.*, Index Fl. Yunnan. **1**: 492 (1984). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 254 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 644 (1985). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 846 (1993).

Potentilla davidii Franch. in Nouv. Arch. Mus. Hist. Nat. sér. 2, **6**: 222 (1885).

Potentilla eriocarpa Wall. ex Lehm. var. *cathayana* Schneid. in Bot. Gaz. **64**: 73 (1917).

Potentilla eriocarpoides J. Krause var. *glabrescens* J. Krause in Repert. Spec. Nov. Regni Veg. Beih. **12**: 408 (1922).

var. ***eriocarpa***

[Specimens] Yunnan. Deq: around Daxue Shan, 4320 m (Wu *et al.* 950, 27 Aug. 1996). Yunnan. Yangbi: around Cangshan, 3900 m (Wu *et al.* 79, 17 Aug.

1997). Yunnan. Yangbi: around Cangshan, 3750 m (Wu *et al.* 84, 18 Aug. 1997). Sichuan. Daocheng: around Gongga Shan, Beiyu, 4350 m (Wu *et al.* 913, 22 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, 4570 m (Wu *et al.* 54, 4 Aug. 1997). Sichuan. Daocheng: around Gongga Shan, 4500–4600 m (Wu *et al.* 59, 6 Aug. 1997). Sichuan. Daocheng: around Gongga Shan, 4340–4540 m (Wu *et al.* 67, 8 Aug. 1997).

[Habit] Between or on rocks.

var. **tsarongensis** W. E. Evans in Notes Roy. Bot. Gard. Edinburgh **13**: 178 (1921). Hand.-Mazz., Symb. Sin. **7**: 510 (1933); in Acta Horti Gothob. **13**: 303 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 210 (1950). Wu *et al.*, Index Fl. Yunnan. **1**: 493 (1984). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 255 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 645 (1985). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 847 (1993).

Potentilla eriocarpa Wall. ex Lehm. var. *dissecta* Marq. & Shaw in J. Linn. Soc., Bot. **48**: 174 (1921).

Potentilla eriocarpoides J. Krause in Repert. Spec. Nov. Regni Veg. Beih. **12**: 407 (1922), excl. var. *glabrescens*.

[Specimens] Yunnan. Zhongdian: Da Xue Shan, 4170 m (Wu *et al.* 1271, 28 Sept. 1994). Yunnan. Zhongdian: around Daxue Shan, 4360 m (Wu *et al.* 964, 29 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, Beiyu, 4630 m (Wu *et al.* 919, 22 Aug. 1996). Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 3460–4400 m (Ikeda *et al.* 100225, 1 Sept. 1998).

[Habit] Between or on exposed rocks.

10. **Potentilla fallens** Card. in Notul. Syst. (Paris) **3**: 232 (1914). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 44, t. 4e (1999).

[Specimens] Yunnan. Zhongdian: Shu Du Hu, 3490 m (Wu *et al.* 1235, 23 Sept. 1994). Yunnan. Zhongdian: around Daxue Shan, 3990 m (Wu *et al.* 958, 29 Aug. 1996). Yunnan. Zhongdian: Zhongdian–Daxue Shan, 3700 m (Wu *et al.* 1, 25 July 1997).

[Habit] Grazed grasslands and open places sparse *Pinus densata* forests.

11. **Potentilla festiva** Soják in Candollea **43**: 166 (1988). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 43, t. 4b (1999).

Potentilla fulgens auct. non Wall. ex Hook.: Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 261 (1985), p.p.

[Specimens] Yunnan. Zhongdian: Bi Ta Hai, 3460 m (Wu *et al.* 1205, 19 Sept. 1994). Yunnan. Deqe: Sanchan He, 3075 m (Ohba *et al.* 801, 3 Aug. 1996). Yunnan. Deqe: Pantien Ge, 3260 m (Ohba *et al.* 816, 5 Aug. 1996). Yunnan. Yangbi: Cangshan—a Fruit Garden—Yangbi, 3110 m (Wu *et al.* 88, 19 Aug. 1997). Sichuan. Daocheng: Daocheng–Gongling, 3740 m (Wu *et al.* 894, 19 Aug. 1996). Sichuan. Xiaojin: Ganhaizi–Dashuiba–Ganhaizi, 3460–3590 m (Ikeda *et al.* 100222, 31 Aug. 1998).

[Habit] Grassland slopes and beside trails.

[Note] *Potentilla festiva* is similar to *P. lineata*, but *P. festiva* has the auricles of the stipules of the radical leaves connate from the base to the middle and peduncles or pedicels without glandular hairs; *P. lineata* has free auricles and glandular hairs. We examined several specimens of this species from China that were identified as *P. fulgens* (= *P. lineata*) by Yü & Li (1985).

12. ***Potentilla fruticosa*** L., Sp. Pl.: 495 (1753). Franchet, Pl. David. **1**: 110 (1884); **2**: 40 (1888); Pl. Delav.: 210 (1890). Wolf, Monogr. *Potentilla*: 55 (1908). Fl. Intramongolica **3**: 81, t. 41, f. 1–6 (1977). Xing in He & Ying, Fl. Beijing, 2nd ed. **1**: 393, f. 484 (1984). Ma in Wood, Fl. Huabei: 319, f. 336 (1984). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 244, t. 36, f. 1 & 2 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 639, t. 197, f. 5–7 (1985). Yü *et al.* in Zheng, Sylva Sin. **2**: 1115, t. 493, f. 1 & 2 (1985). Wang *et al.* in He, Fl. Hebei. **1**: 657, f. 703 (1986). Yao in Liu, Fl. Desert. Reipubl. Pop. Sin. **2**: 131, t. 44, f. 1–9 (1987). Qi *et al.* List Hunan Fl.: 156 (1987). Li *et al.* in Fl. Taiyuan. **1**: 509, f. 306 (1990). Ni *et al.* in Ni, Econom. Pl. Xizang: 290 (1990). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 844 (1993).

Dasiphora fruticosa (L.) Rydb., Monogr. N. Amer. Potent.: 188 (1898). Ill. Man. Wood. Pl. NE China: 309, t. 107, f. 222 (1955). Wang *et al.* in Liou, Clavis Pl. China. Bor.-Orient.: 146, t. 41, f. 3 (1959). Fl. Beijing **1**: 422 (1962). Acad. Sin. Bot., Iconogr. Cormophyt. Sin. **2**: 287, t. 2304 (1972).

Pentaphylloides fruticosa (L.) O. Schwarz in Mitt. Thüring. Bot. Ges. **1**: 105 (1949). An *et al.* in Mao, Fl. Xinjiang. **2**(2): 305 (1995).

var. ***arbuscula*** (D. Don) Maxim. in Mélanges Biol. Bull. Phys.-Math. Acad. Imp. Sci. Saint-Pétersbourg **9**: 158 (1873). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 247 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 639 (1985). Ni *et al.* in Ni, Econom. Pl. Xizang: 291 (1990). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 844 (1993).

Potentilla arbuscula D. Don, Prodr. Fl. Nepal.: 256 (1825). Hand.-Mazz., Symb. Sin. **7**: 508 (1933); in Acta Horti Gothob. **13**: 289 (1939). Wu *et al.*, Index Fl. Yunnan. **1**: 490 (1984). Yü *et al.* in Wu, Fl. Xizang. **2**: 639 (1985).

Potentilla nepalensis auct. non Hook.: D. Don, Prodr. Fl. Nepal.: 229 (1825).

Potentilla rigida Wall. [Numer. List: no. 1009 (1829), nom. nud.] ex Lehm., Nov. Stirp. Pug. **3**: 3 (1831).

Potentilla fruticosa L. var. *rigida* (Wall. ex Lehm.) Th. Wolf, Monogr. *Potentilla*: 57 (1908).

Potentilla lespedeza H. Lév., China Revue Annuelle: 5, 30, & t. (1916); in Monde Pl. **18**: 54 (1917).

Potentilla arbuscula D. Don var. *rigida* (Wall. ex Lehm.) Hand.-Mazz., Symb. Sin. **7**: 508 (1933), p.p.

[Specimens] Yunnan. Deqin: Deqin–Baima Xue Shan–Benzilan–Zhongdian (Wu *et al.* 1062, 22 Sept. 1994). Yunnan. Zhongdian: Da Xue Shan, 4140 m (Wu *et*

al. 1278, 28 Sept. 1994). Yunnan. Zhongdian: Tianchi, 3700 m (Wu *et al.* 1294, 30 Sept. 1994). Sichuan. Xiangcheng: Da Xue Shan Yakou, 4000 m (Wu *et al.* 1262, 27 Sept. 1994). Sichuan. Xiangcheng: around Wuming Shan, 4000 m (Wu *et al.* 45, 29 July 1997). Sichuan. Daocheng: Bowa Shan, 4460 m (Wu *et al.* 873, 16 Aug. 1996). Sichuan. Xiaojin: Rilong–Ganhaizi, 3160–3460 m (Ikeda *et al.* 100207, 30 Aug. 1998).

[Habit] Rocky or grazed grassland slopes, in *Larix* and *Rhododendron* forests, and marshy places beside lakes.

var. **albicans** Rehder & E. H. Wilson in Sarg., Pl. Wils. **2**: 302 (1916). Yü & Li in Yü, Fl. Reipubl. Popul. Sin. **37**: 247 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 639 (1985). Ni *et al.* in Ni, Econom. Pl. Xizang: 291 (1990).

Potentilla arbuscula D. Don var. *albicans* (Rehder & E. H. Wilson) Hand.-Mazz., Symb. Sin. **7**: 508 (1933); in Acta Horti Gothob. **13**: 292 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 207 (1950). Wu *et al.*, Index Fl. Yunnan. **1**: 490 (1984).

Potentilla arbuscula D. Don var. *bulleyana* Balf. f. ex H. R. Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 208 (1950). Wu *et al.*, Index Fl. Yunnan. **1**: 491 (1984).

[Specimens] Yunnan. Zhongdian: Daxue Shan–Xiangcheng, 360 m (Wu *et al.* 3, 25 July 1997). Sichuan. Xiangcheng: around Da Xue Shan, 4050 m (Wu *et al.* 1249, 25 Sept. 1994). Sichuan. Daocheng: Haizi, 4400 m (Wu *et al.* 883 & 885, 17 Aug. 1996).

[Habit] Grazed grassland slopes, dry slopes in sparse *Pinus densata* forests and in *Rhododendron* forests.

var. **pumila** Hook. f., Fl. Brit. India **2**: 348 (1878). Wolf, Monogr. *Potentilla*: 59 (1908), p.p. Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 247 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 640 (1985). Ni *et al.* in Ni, Econom. Pl. Xizang: 291 (1990). Wu & Huang in Wu & Feng, Biol. Human Physiol. Hoh Xil Reg.: 58 (1996).

Potentilla arbuscula D. Don var. *pumila* (Hook. f.) Hand.-Mazz., Symb. Sin. **7**: 508 (1933); in Acta Horti Gothob. **13**: 291 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 208 (1950). Wu *et al.*, Index Fl. Yunnan. **1**: 491 (1984).

Potentilla arbuscula D. Don var. *ochreatea* (Lendl.) Hand.-Mazz. in Acta Horti Gothob. **13**: 292 (1939).

[Specimens] Yunnan. Zhongdian: Da Xue Shan, 4080 m (Wu *et al.* 1274, 28 Sept. 1994). Sichuan. Xiangcheng: around Wuming Shan, 4590 m (Wu *et al.* 13, 27 July 1997). Sichuan. Daocheng: Bowa Shan, 4500 m (Wu *et al.* 875, 16 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, Beiyu, 4630 m (Wu *et al.* 918, 22 Aug. 1996).

[Habit] Grassland slopes.

var. **parvifolia** (Fisch. ex Lehm.) Th. Wolf, Monogr. *Potentilla*: 58 (1908). Kong, Fl. Lanzhou: 322, f. 245 (1962).

Potentilla parvifolia Fisch. ex Lehm., Nov. Stirp. Pug. **3**: 6 (1831). Hand.-Mazz. in Acta Horti Gothob. **13**: 292 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 213 (1950). Fl. Intramongolica **3**: 83, t. 41, f. 7 (1977). Wu *et al.*, Index Fl. Yunnan. **1**: 497 (1984). Ma in Wood. Fl. Huabei: 320, f. 337 (1984). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 249, t. 36, f. 7–10 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 642, t. 197, f. 1–4 (1985). Yü *et al.* in Zheng, Sylva Sin. **2**: 1115, t. 493, f. 3–6 (1985). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 845 (1993).

Potentilla fruticosa L. var. *purdomii* Rehder in J. Arnold Arbor. **3**: 209 (1922).

Potentilla fruticosa L. var. *grandiflora* Marq. in J. Linn. Soc., Bot. **48**: 174 (1929).

Potentilla fruticosa L. var. *wardii* Rehder in J. Arnold Arbor. **20**: 97 (1939).

Potentilla rehderiana Hand.-Mazz. in Acta Horti Gothob. **13**: 301 (1939).

Potentilla parvifolia Fisch. ex Lehm. var. *hypoleuca* Hand.-Mazz. in Acta Horti Gothob. **13**: 293 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 213 (1950). Yü & Li in Yü, Fl. Reipubl. Pop. Sin. **37**: 250 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 642 (1985). Di *et al.* in Di, Pl. Vasc. Helanshan.: 136 (1986). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 846 (1993).

Dasiphora parvifolia (Fisch. ex Lehm.) Juz. in Fl. URSS **10**: 71 (1941). Ill. Man. Wood. Pl. NE China: 309, t. 107, f. 221 (1955). Wang *et al.* in Liou, Clavis Pl. China. Bor.-Orient.: 146, t. 41, f. 2 (1959). Acad. Sin. Bot., Iconogr. Cormophyt. Sin. **2**: 288, t. 2305 (1972). Zhu in Fl. Dalian Area **1**: 339, f. 428 (1982).

[Specimens] Sichuan. Xiangcheng: around Da Xue Shan, 4410 m (Wu *et al.* 1117 & 1250, 25 Sept. 1994). Sichuan. Xiangcheng: around Wuming Shan, 3610 m (Wu *et al.* 41, 29 July 1997).

[Habit] Exposed rocky slopes.

13. ***Potentilla glabra*** Lodd. in Bot. Cab. **10**: t. 914 (1824). Hand.-Mazz. in Acta Horti Gothob. **13**: 295 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 211 (1950). Fl. Intramongolica **3**: 83, t. 42, f. 4 (1977). Wu *et al.*, Index Fl. Yunnan. **1**: 494 (1984). Xing in He & Yin, Fl. Beijing, 2nd. ed. **1**: 393 (1984). Ma in Wood. Fl. Huabei: 320, f. 338 (1984). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 247 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 641 (1985). Yü *et al.* in Zheng, Sylva Sin. **2**: 1116 (1985). Wang *et al.* in He, Fl. Hebei. **1**: 656 (1986). Li *et al.* in Fl. Taiyuan. **1**: 511 (1990). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 844 (1993).

Potentilla fruticosa L. β . *dahurica* Ser. in DC., Prodr. **2**: 579 (1825).

Potentilla fruticosa L. var. *mongolica* Maxim. in Mélanges Biol. Bull. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg **9**: 158 (1873).

Potentilla fruticosa L. var. *mandshurica* Maxim. in Mélanges Biol. Bull. Phys.-Math. Acad. Imp. Sci. Saint-Petersbourg **9**: 158 (1873).

Potentilla fruticosa L. var. *tangutica* Th. Wolf, Monogr. *Potentilla*: 57 (1908).

Potentilla dahurica auct. non Nestl.: Wolf, Monogr. *Potentilla*: 60 (1908).

Potentilla dahurica Nestl. var. *mandshurica* (Maxim.) Th. Wolf, Monogr. *Potentilla*: 61 (1908).

Potentilla veitchii E. H. Wilson in Gard. Chron. ser. 3, **50**: 102 (1911). Hand.-Mazz., Symb. Sin. **7**: 509 (1933).

Potentilla fruticosa L. var. *veitchii* (E. H. Wilson) Bean, Trees & Shrubs Brit. Isl. **2**: 223 (1914).

Potentilla dahurica Nestl. var. *veitchii* Jesson in Bot. Mag. **141**: t. 8637 (1915).

Potentilla fruticosa L. var. *dahurica* Ser. forma *ternata* Card. in Bull. Mus. Hist. Nat. (Paris) **22**: 398 (1916).

Dasiphora dahurica (Nestl.) Kom. et Klob.-Alis., Key Pl. Far East. USSR **2**: 641 (1932), quoad nomen. Ill. Man. Wood. Pl. NE China: 310, t. 107, f. 223 (1955). Wang *et al.* in Liou, Clavis Pl. China. Bor.-Orient.: 146, t. 41, f. 4 (1959).

Potentilla × *sulphuracens* Hand.-Mazz., Symb. Sin. **7**: 509 (1933). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 216 (1950). Wu *et al.*, Index Fl. Yunnan. **1**: 498 (1984).

Potentilla glabra Lodd. forma *ternata* (Card.) Hand.-Mazz. in Acta Horti Gothob. **13**: 296 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 211 (1950), as *P. glabra* Lodd. var. *rhodocalyx* H. R. Fletcher forma *ternana*.

Potentilla glabra Lodd. var. *mandshurica* (Maxim.) Hand.-Mazz. in Acta Horti Gothob. **13**: 297 (1939). Fl. Intramongolica **3**: 85, t. 42, f. 1–3 (1977). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 249 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 641 (1985). Wang *et al.* in He, Fl. Hebei. **1**: 657 (1986). Li *et al.* in Fl. Taiyuan. **1**: 511, f. 307 (1990).

Potentilla glabra Lodd. var. *veitchii* (E. H. Wilson) Hand.-Mazz. in Acta Horti Gothob. **13**: 298 (1939). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 249 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 641 (1985). Yü *et al.* in Zheng, Sylva Sin. **2**: 1117 (1985).

Dasiphora fruticosa (L.) Rydb. var. *veitchii* (E. H. Wilson) Nakai in J. Jap. Bot. **15**: 601 (1939).

Potentilla fruticosa L. var. *subalbicans* Hand.-Mazz. in Acta Horti Gothob. **13**: 297 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 211 (1950).

Dasiphora mandshurica (Maxim.) Juz. in Fl. URSS **10**: 73 (1941). Di *et al.* in Di, Pl. Vasc. Helanshan.: 136 (1986).

Potentilla glabra Lodd. var. *rhodocalyx* H. R. Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 211 (1950).

Potentilla arbuscula D. Don var. *veitchii* (E. H. Wilson) T. N. Liou, Fl. Tsinling. **1**: 548, f. 456 (1974), excl. syn.

Potentilla glabra Lodd. var. *longipetala* T. T. Yü et C. L. Li in Acta Phytotax. Sin. **18**: 7, t. 1, f. 1 (1980); in Fl. Reipubl. Pop. Sin. **37**: 249, t. 36, f. 3–6 (1985). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 845 (1993).

[Specimens] Sichuan. Xiangcheng: around Wuming Shan, 3610 m (Wu *et al.* 38, 29 July 1997). Sichuan. Daocheng: Bowa Shan, 4550 m (Wu *et al.* 874, 16 Aug. 1996).

[Habit] Rocky slopes.

14. **Potentilla griffithii** Hook. f., Fl. Brit. India **2**: 351 (1878). Wolf, Monogr. *Potentilla*: 320 (1908). Hand.-Mazz., Symb. Sin. **7**: 511 (1933); in Acta Horti Gothob. **13**: 315 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 212 (1950). Wu *et al.*, Index Fl. Yunnan. **1**: 494 (1984). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 294 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 658 (1985). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 853 (1993).

Potentilla leschenaultiana auct. non Ser.: Franch., Pl. Delavay. **3**: 212 (1890). Wolf, Monogr. *Potentilla*: 167 (1908), p.p. Diels in Notes Roy. Bot. Gard. Edinburgh **7**: 235 (1912).

Potentilla leschenaultiana Ser. var. *reticulata* Franch., Pl. Delavay. **3**: 212 (1890).

Potentilla leschenaultiana Ser. var. *pumila* Franch., Pl. Delavay. **3**: 212 (1890).

Potentilla leschenaultiana Ser. var. *concolor* Franch., Pl. Delavay. **3**: 213 (1890).

Potentilla potaninii Th. Wolf, Monogr. *Potentilla*: 166 (1908), p.p.

Potentilla sikkimensis Th. Wolf, Monogr. *Potentilla*: 169 (1908).

Potentilla griffithii Hook. f. var. *velutina* Card. in Notul. Syst. (Paris) **3**: 235 (1914). Hand.-Mazz., Symb. Sin. **7**: 511 (1933). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 212 (1950). Acad. Sin. Bot., Iconogr. Cormophyt. Sin. **2**: 295, f. 2319 (1972). Wu *et al.*, Index Fl. Yunnan. **1**: 495 (1984). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 295 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 658 (1985).

Potentilla griffithii Hook. f. var. *pumila* (Franch.) Hand.-Mazz., Symb. Sin. **7**: 511 (1933).

[Specimens] Yunnan. Zhongdian: Bi Ta Hai, 3460 m (Wu *et al.* 1206, 19 Sept. 1994). Yunnan. Deqin: Baima Xue Shan, 3790 m (Wu *et al.* 1219, 21 Sept. 1994); 3400 m (Wu *et al.* 1221, 21 Sept. 1994). Yunnan. Deqin: Sanchan He, 3075 m (Ohba *et al.* 802 & 803, 3 Aug. 1996). Yunnan. Lijiang: Ganhaizi, 3070 m (Wu *et al.* 837, 9 Aug. 1996). Yunnan. Deqin: Napa Hai, 3630 m (Wu *et al.* 864, 13 Aug. 1996). Sichuan. Xiangcheng: around Wuming Shan, 3660 m (Wu *et al.* 11, 26 July 1997). Sichuan. Daocheng: around Gongga Zhonggu, 3940 m (Wu *et al.* 53, 3 Aug. 1997).

[Habit] Grazed grasslands, sandy slopes, beside trails.

15. **Potentilla leuconota** D. Don, Prodr. Fl. Nepal.: 230 (1825). Ni *et al.* in Ni, Econom. Pl. Xizang: 291 (1990). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 76, t. 8a & 41, f. 26 (1999).

[Specimens] Yunnan. Deqin: Baima Xue Shan, 3790 m (Wu *et al.* 1216, 21 Sept. 1994). Yunnan. Dali: Cang Shan, Zhonghe Peak, 3700 m (Wu *et al.* 1303, 3 Oct. 1994). Yunnan. Deqin: Pantien Ge, 3260 m (Ohba *et al.* 817, 5 Aug. 1996). Sichuan. Xiaojin: Ganhaizi–Dashuiba–Ganhaizi, 3460–3590 m (Ikeda *et al.* 100214, 31 Aug. 1998). Sichuan. Xiaojin: Ganhaizi–eastern slope of Mts. Xiexue Tangshan–Ganhaizi, 3460–3800 m (Ikeda *et al.* 100232, 2 Sept. 1998).

[Habit] Grazed grasslands, marshy places beside lakes, beside trails in *Abies* and

Picea forests.

16. ***Potentilla lineata*** Trev., Ind. Sem. Vratislav. 1822 (1822). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 44, t. 4d (1999).

Potentilla fulgens Wall. ex Hook. in Bot. Mag. **53**: t. 2700 (1826). Acad. Sin. Bot., Iconogr. Cormophyt. Sin. **2**: 290, f. 2310 (1972). Ni *et al.* in Ni, Econom. Pl. Xizang: 291 (1990). Ye in Wu, Contr. Pl. Invest. Upper Reach. Hongshui River: 135 (1996).

[Specimens] Yunnan. Yangbi: Cangshan—a Fruit Garden—Yangbi, 3230 m (Wu *et al.* 89, 19 Aug. 1997). Yunnan. Deq: Sibao, 2865 m (Ohba *et al.* 812, 4 Aug. 1996). Yunnan. Zhongdian: Bi Ta Hai, 3460 m (Wu *et al.* 1204, 19 Sept. 1994). Yunnan. Lijiang: Ganhaizi, 3070 m (Wu *et al.* 829, 9 Aug. 1996). Sichuan. Daocheng: Daocheng—Gongling, 3740 m (Wu *et al.* 895, 19 Aug. 1996). Sichuan. Xiaojin: Rilong—Ganhaizi, 3160–3460 m (Ikeda *et al.* 100203, 30 Aug. 1998).

[Habit] Grazed grassland slopes.

17. ***Potentilla multifida*** L., Sp. Pl.: 496 (1753). Wolf, Monogr. *Potentilla*: 154 (1908). Juzep. in Fl. URSS **10**: 114 (1941). Wang *et al.* in Liou, Clavis Pl. China. Bor.-Orient.: 150, t. 44, f. 3 (1959). Kong, Fl. Lanzhou: 322, f. 245 (1962). Fl. Pl. Herb. Chin. Bor.-Orient. **5**: 30, t. 14, f. 1–5 (1976). Fl. Intramongolica **3**: 103, t. 53, f. 1–4 (1977). Xing in He & Ying, Fl. Beijing, 2nd ed. **1**: 402, f. 499 (1984). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 281 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 652 (1985). Wang *et al.* in He, Fl. Hebei. **1**: 666, f. 718 (1986). Di *et al.* in Di, Pl. Vasc. Helanshan.: 138 (1986). Yao in Liu, Fl. Desert. Reipubl. Popul. Sin. **2**: 139, t. 49, f. 5–7 (1987). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 851 (1993). An *et al.* in Mao, Fl. Xinjiang. **2**(2): 313, t. 85, f. 1 & 2 (1995).

Potentilla multifida L. var. *angustifolia* Lehm., Monogr. *Potentill.*: 64 (1820).

Potentilla multifida L. var. *hypoleuca* (Turcz.) Th. Wolf, Monogr. *Potentilla*: 157 (1908).

Potentilla plurijuga Hand.-Mazz. in Acta Horti Gothob. **13**: 315 (1939). Fletcher in Notes Roy. Bot. Gard. Edinburgh **20**: 214 (1950).

Potentilla multifida L. var. *sericea* Bar. & Skv. ex Liou, Clavis Pl. China. Bor.-Orient.: 150, t. 44, f. 4 (1959), nom. seminud.

Potentilla multifida L. var. *nubigera* Th. Wolf, Monogr. *Potentilla*: 155 (1908). Fl. Intramongolica **3**: 103 (1977). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 282 (1985).

Potentilla multifida L. var. *ornithopoda* Th. Wolf, Monogr. *Potentilla*: 156 (1908). Fl. Intramongolica **3**: 103, t. 53, f. 5 (1977). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 281 (1985).

[Specimens] Yunnan. Deqin: Baima Xue Shan, 3790 m (Wu *et al.* 1215, 21 Sept. 1994). Sichuan. Xiangcheng: around Wuming Shan, 3660 m (Wu *et al.* 10, 26 July 1997).

[Habit] Grazed grasslands and moist places beside streams.

18. **Potentilla peduncularis** D. Don, Prodr. Fl. Nepal.: 230 (1825). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 63, t. 4a & 30, f. 17 & 38 (1999).
 [Specimens] Yunnan. Dali: Cang Shan, Zhonghe Peak, 3700 m (Wu *et al.* 1304, 3 Oct. 1994). Yunnan. Dali: Cangshan, 3780 m (Wu *et al.* 970, 1 Sept. 1996). Yunnan. Yangbi: around Cangshan, 3760 m (Wu *et al.* 82, 18 Aug. 1997).
 [Habit] Grassland slopes and edges of small streams.
 [Note] *Potentilla peduncularis* in the Himalaya has long, slender, underground rhizomes. On Cangshan the rhizomes are short and thick.
19. **Potentilla polyphylla** Wall. [Numer. List: no. 1026 (1829), nom. nud.] ex Lehm., Nov. Stirp. Pug. **3**: 13 (1831). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 45 (1999)
 var. **interrupta** (T. T. Yü et C. L. Li) H. Ikeda & H. Ohba in Bot. J. Linn. Soc. **112**: 179 (1993). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 45, t. 5b & c (1999).
 [Specimens] Yunnan. Yangbi: around Cangshan, 3760 m (Wu *et al.* 80, 17 Aug. 1997). Sichuan. Daocheng: around Gongga Shan, Zhong Niuan, 3970 m (Wu *et al.* 902, 21 Aug. 1996).
 [Habit] In or at edges of forests.
20. **Potentilla** aff. **polyphylla** Wall. ex Lehm.
 [Specimens] Yunnan. Dali: Cang Shan, Zhonghe Peak, 3390 m (Wu *et al.* 1305, 3 Oct. 1994). Yunnan. Dali: Cangshan, 3440 m (Wu *et al.* 968, 1 Sept. 1996). Yunnan. Yangbi: Cangshan—a Fruit Garden—Yangbi, 3230 m & 3500 m (Wu *et al.* 91 & 92, 19 Aug. 1997).
 [Habit] Grazed grasslands and trail sides.
 [Note] Plants resembling *P. polyphylla* were collected in meadows on Cangshan. They differ in having the lower surface of the leaflets, pedicels, and abaxial surface of the episepals with multicellular hairs with glandular tips and peduncles occasionally rooting at the nodes.
21. **Potentilla reptans** L., Sp. Pl.: 499 (1753). Franchet, Pl. Delavay. **3**: 216 (1890). Wolf, Monogr. *Potentilla*: 654 (1908). Kong, Fl. Lanzhou: 321, f. 244 (1962). Acad. Sin. Bot., Iconogr. Cormophyt. Sin. **2**: 299, t. 2327 (1972). An *et al.* in Mao, Fl. Xizang. **2**(2): 327, t. 88, f. 3 & 4 (1995).
 var. **sericophylla** Franch., Pl. David. **1**: 113 (1884). Card. in Bull. Mus. Hist. Nat. (Paris) **22**: 407 (1916). Acad. Sin. Xibei Bot., Fl. Tsinling. **1**(2): 549, f. 457 (1974). Fl. Intramongolica **3**: 87, t. 44, f. 1-3 (1977). Fl. Jiangsu **2**: 310, f. 1228 (1982). Xing in He & Ying, Fl. Beijing, 2nd ed. **1**: 394, f. 485 (1984). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 330 (1985). Wang *et al.* in He, Fl. Hebei. **1**: 658, f. 705 (1986). Yao in Liu, Fl. Desert. Reipubl. Popul. Sin. **2**: 144, t. 53, f. 1 & 2 (1987). He in Fl. Anhui **3**: 80, f. 996 (1990). Li *et al.* in Fl. Taiyuan. **1**: 525, f. 317 (1990). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 856 (1993). Wei & Zhang in Wei & He, Fl. Zhe-jiang **3**: 220 (1993).
Potentilla reptans L. var. *incisa* Franch., Pl. David. **1**: 113 (1884). Fl. Pl. Herb. Chin. Bor.-Orient. **5**: 11 (1976).

Fragaria filipendula Hemsl. in J. Linn. Soc., Bot. **23**: 239 (1887).

Potentilla hemsleyana Th. Wolf, Monogr. *Potentilla*: 667 (1908).

Potentilla indica auct. non Anders.: Diels in Notes Roy. Bot. Gard. Edinburgh **7**: 235 & 289 (1912).

[Specimens] Yunnan. Lijiang: Longpan, 1940 m (Wu *et al.* 1201, 18 Sept. 1994). Yunnan. Zhongdian: around Zhongdian, 3170 m (Wu *et al.* 1299, 1 Oct. 1994).

[Habit] Moist slopes beside streams.

22. ***Potentilla saundersiana*** Royle, Ill. Bot. Himal. Mts. **2**: 207, t. 41 (1839). Franchet, Pl. Delavay. **3**: 215 (1890). Wolf, Monogr. *Potentilla*: 242 (1908). Hand.-Mazz. in Acta Horti Gothob. **13**: 312 (1939). Acad. Sin. Bot., Iconogr. Cormophyt. Sin. **2**: 293, f. 2316 (1972). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 298 (1985). Yü *et al.* in Wu, Fl. Xizang. **2**: 658 (1985). Ni *et al.* in Ni, Econom. Pl. Xizang: 291 (1990). Ku in Wang *et al.*, Vascul. Pl. Hengduan Mts. **1**: 853 (1993). Wu & Huang in Wu & Feng, Biol. Human Physiol. Hoh Xil Reg.: 60 (1996).

Potentilla caespitosa Lehm., Del. Sem. Hort. Hamburg.: 10 (1849); Rev. Potent.: 172, t. 53, f. 2 (1856).

Potentilla multifida L. var. *saundersiana* (Royle) Hook. f., Fl. Brit. India **2**: 345 (1878).

Potentilla potaninii Th. Wolf var. *subdigitata* Th. Wolf, Monogr. *Potentilla*: 167 (1908).

Potentilla tibetica Card. in Notul. Syst. (Paris) **3**: 233 (1914).

Potentilla saundersiana Royle var. *subpinnata* Hand.-Mazz., Symb. Sin. **7**: 513 (1933).

Potentilla saundersiana Royle var. *potaninii* (Th. Wolf) Hand.-Mazz. in Acta Horti Gothob. **13**: 314 (1939).

Potentilla saundersiana Royle var. *caespitosa* (Lehm.) Th. Wolf, Monogr. *Potentilla*: 243 (1908). Hand.-Mazz. in Acta Horti Gothob. **13**: 314 (1939). Yü & Li in Fl. Reipubl. Pop. Sin. **37**: 299 (1985). Wu & Huang in Wu & Feng, Biol. Human Physiol. Hoh Xil Reg.: 60 (1996).

Potentilla sinonivea Hultén in Bot. Not. **2**: 138 (1945).

[Specimens] Sichuan. Xiangcheng: around Da Xue Shan, 4200 m (Wu *et al.* 1244, 25 Sept. 1994). Sichuan. Daocheng: Haizi, 4050 m (Wu *et al.* 879, 17 Aug. 1996). Sichuan. Xiangcheng Xian: around Wuming Shan, 4300 m (Wu *et al.* 25, 28 July 1997).

[Habit] Grasslands and sandy slopes.

23. ***Potentilla smithiana*** Hand.-Mazz. in Acta Horti Gothob. **13**: 325 (1939). Ikeda & Ohba in Ohba, Himal. Pl. **3**: 85, t. 8c & 47, f. 48 (1999).

[Specimen] Sichuan. Mianning: Lugu–Tuowu (Ikeda *et al.* 100201, 24 Aug. 1998).

[Habit] Moist grassy slope beside trail.

24. **Potentilla stenophylla** (Franch.) Diels in Notes Roy. Bot. Gard. Edinburgh 7: 271 (1912). Ikeda & Ohba in Ohba, Himal. Pl. 3: 50 (1999).

var. **stenophylla**: Ikeda & Ohba in Ohba, Himal. Pl. 3: 51, t. 6a, 16 & 17, f. 10 & 32 (1999).

[Specimens] Yunnan. Deqin: Baima Xue Shan, 4180 m (Wu *et al.* 1227, 22 Sept. 1994). Yunnan. Zhongdian: Da Xue Shan, 4200 m (Wu *et al.* 1257, 26 Sept. 1994); 4120 m (Wu *et al.* 1259, 26 Sept. 1994). Yunnan. Zhongdian: around Daxue Shan, 4360 m (Wu *et al.* 946, 27 Aug. 1996). Sichuan. Xiangcheng: around Da Xue Shan, 4270 m (Wu *et al.* 1242, 25 Sept. 1994).

[Habit] Grasslands and sandy slopes.

var. **emergens** Card. in Notul. Syst. (Paris) 3: 241 (1914). Ikeda & Ohba in Ohba, Himal. Pl. 3: 53, t. 6c, 20–22, f. 12 & 32 (1999).

Potentilla tatsienluensis Th. Wolf, Monogr. *Potentilla*: 680 (1908).

Potentilla fulgens auct. non Wall. ex Hook.: Diels in Notes Roy. Bot. Gard. Edinburgh 7: 16 (1912).

[Specimens] Sichuan. Xiangcheng: Xiangcheng–Daocheng, 4600 m (Wu *et al.* 870, 15 Aug. 1996). Sichuan. Daocheng: Bowa Shan, 4480 m (Wu *et al.* 877, 16 Aug. 1996). Sichuan. Xiangcheng: around Wuming Shan, 4610 m (Wu *et al.* 15, 27 July 1997).

[Habit] Grazed grasslands.

var. **taliensis** (W. W. Sm.) H. Ikeda & H. Ohba in Ohba, Himal. Pl. 3: 52, t. 6b & 19, f. 11 & 32 (1999).

Potentilla taliensis W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh 7: 199 (1914).

Potentilla peduncularis auct. non D. Don: Fletcher in Notes Roy. Bot. Gard. Edinburgh 20: 213 (1950), p.p. Wu *et al.*, Index Fl. Yunnan. 1: 497 (1984), p.p.

[Specimens] Yunnan. Dali: Cangshan, 3780 m alt. (Wu *et al.* 969, 1 Sept. 1996). Yunnan. Yangbi: around Cangshan, 3840 m (Wu *et al.* 75, 17 Aug. 1997).

[Habit] Rocky slopes and grasslands at edges of *Rhododendron* forest.

25. **Potentilla festiva** Soják × **P. lineata** Trev.: Ikeda & Ohba in Bot. J. Linn. Soc. 112: 184 (1993).

[Specimens] Sichuan. Daocheng: Daocheng–Gongling, 3740 m (Wu *et al.* 893, 19 Aug. 1996).

[Habit] Grassland beside trail.

[Note] *Potentilla festiva* and *P. lineata* often hybridize where they grow sympatrically. The hybrid is recognized by its intermediate morphology between the putative parents and the degenerate or sterile anthers.

26. **Potentilla festiva** Soják × **P. leuconota** D. Don.

[Specimen] Yunnan. Deqin: Pantien Ge, 3260 m (Ohba *et al.* 818, 5 Aug. 1996).

[Habit] Marshy places beside a lake.

[Note] We collected this hybrid where the putative parents grow parapatrically;

P. festiva on grazed grasslands and *P. leuconota* and the putative hybrid in marshy places.

27. **Potentilla fruticosa** L. × **P. glabra** Lodd.

Potentilla fruticosa L. var. *vilmoriniana* Kom. in Repert. Spec. Nov. Regni Veg. **7**: 146 (1909).

Potentilla subphurascens Hand.-Mazz., Symb. Sin. **7**: 509 (1933); in Acta Horti Gothob. **13**: 301 (1939).

Potentilla vilmoriniana (Kom.) Konken in Deutsche Gärtn. Zeitung **50**: 364 (1935). Hand.-Mazz. in Acta Horti Gothob. **13**: 300 (1939).

[Specimen] Sichuan. Daocheng: Haizi, 4400 m (Wu *et al.* 886, 17 Aug. 1996).

[Habit] Between rocks on grazed grassland slopes.

[Note] This is a putative hybrid between *P. fruticosa* and *P. glabra*. The hybrid can be recognized by the creamy yellow petals and degenerate stamens and sterile anthers.

28. **Potentilla** aff. **polyphylla** Wall. ex Lehm. × **P. festiva** Soják

[Specimen] Yunnan. Yangbi: Cangshan–a Fruit Garden–Yangbi, 3230 m (Wu *et al.* 90, 19 Aug. 1997).

[Habit] Grazed grasslands.

[Note] Growing sympatrically with putative parents. Reproducing vegetatively by new shoots from the nodes of the peduncles.

3. **Saxifraga** L. (Saxifragaceae)

This is a supplement of ‘An Enumeration of *Saxifraga* collected in NW Yunnan and SW Sichuan, China between 1984 and 1997’ published in 1998 (Akiyama *et al.* 1988) with corrections. The species numbers correspond to those in the enumeration. The species with ‘Ad. number’ did not appear in the enumeration.

Subsection **Hirculoideae** Engl. & Irmsch. in Notes Roy. Bot. Gard. Edinburgh **5**(24): 135 (1912).

Series **Hirculoideae** (Engl. & Irmsch.) Gornall in Bot. J. Linn. Soc. **95**: 276 (1987).

2. **Saxifraga cardiophylla** Franch. in Nouv. Arch. Mus. Hist. Nat. sér. 2, **8**: 230 (1886). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 64 (1998).

[Specimen] Yunnan. Yangbi: around Cangshan, 3850 m (Wu *et al.* 1251, 17 Aug. 1997).

[Habit] On rocks.

4. **Saxifraga diapensia** H. Sm. in Acta Horti Gothob. **1**: 10, f. 3 (1924). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 64 (1998).

[Specimen] Sichuan. Xiaojin: a pass of Balang Shan, 4350 m (Ikeda *et al.* 100438, 6 Sept. 1998).

5. **Saxifraga diversifolia** Wall. [Numer. List: no. 452 (1828), nom. nud.] ex Ser. in DC. Prodr. **4**: 44 (1830). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 64 (1998).

[Specimens] Sichuan. Xiaojin: Rilong–Ganhaizi, 3400 m (Ikeda *et al.* 100402 & 100612, 30 Aug. 1998). Sichuan. Xiaojin: Ganhaizi–Dashuiba–Ganhaizi, 3500 m (Ikeda *et al.* 100406, 31 Aug. 1998); 3510 m (Ikeda *et al.* 100618, 31 Aug. 1998). Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 3740 m (Ikeda *et al.* 100419, 1 Sept. 1998). Sichuan. Xiaojin: Ganhaizi–eastern slope of Mts. Xiaxue Tangshan–Ganhaizi, 3580 m (Ikeda *et al.* 100634, 2 Sept. 1998).

9. ***Saxifraga montana*** H. Sm. in *Acta Horti Gothob.* **1**: 9 (1924). Akiyama *et al.* in *Bull. Natn. Sci. Mus. Tokyo*, ser. B, **24**(2): 66 (1998).

[Specimens] Sichuan. Daocheng: around Gongga Shan, 4620 m (Wu *et al.* 1165, 4 Aug. 1997). Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 3740 m (Ikeda *et al.* 100423, 1 Sept. 1998); 3860 m (Ikeda *et al.* 100630, 1 Sept. 1998). Sichuan. Xiaojin: Ganhaizi–Yanggangzi–Ganhaizi, 4000 m (Ikeda *et al.* 100429, 3 Sept. 1998).

[Habit] On rocks.

11. ***Saxifraga nigroglandulosa*** Engl. & Irmsch. in *Notes Roy. Bot. Gard. Edinburgh* **5**(24): 135, t. 95 (1912). Akiyama *et al.* in *Bull. Natn. Sci. Mus. Tokyo*, ser. B, **24**(2): 66 (1998).

[Specimen] Sichuan. Xiangcheng: around Wuming Shan, 4100 m (Wu *et al.* 1062, 29 July 1997).

Ad. 1. ***Saxifraga stellariifolia*** Franch. in *Nouv. Arch. Mus. Hist. Nat. sér.* **2**, **8**: 231, pl. 7, fig. A (1886). J. T. Pan in *Fl. Reipubl. Pop. Sin.* **34**(2): 123 (1992).

[Specimens] Sichuan. Xiaojin: Rilong–Ganhaizi, 3400 m (Ikeda *et al.* 100401 & 100613, 30 Aug. 1998). Sichuan. Xiaojin: Ganhaizi–Dashuiba–Ganhaizi, 3470 m (Ikeda *et al.* 100408, 31 Aug. 1998); 3510 m (Ikeda *et al.* 100617, 31 Aug. 1998). Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 3750 m (Ikeda *et al.* 100421, 100424 & 100424b 1 Sept. 1998). Sichuan. Xiaojin: Ganhaizi–Yanggangzi–Ganhaizi, 4000 m (Ikeda *et al.* 100428, 3 Sept. 1998). Sichuan. Xiaojin: a pass of Balang Shan–Wenchuan: Wolong, 3200 m (Ikeda *et al.* 100437, 6 Sept. 1998).

[Note] Though Franchet described *Saxifraga stellariifolia* as having sepals ciliate at the margins, Pan (1992) distinguished *S. stellariifolia* from *S. giraldiana* Engl. mainly by the sepals glabrous on both surfaces except on the margins. Specimens numbers no. 100401, 100408, 100421 and 100424 have sepals pubescent on the outside, 100424b, 100428, 100437, 100613 and 100617 have sepals glabrous on the outside. These two types of sepal hairiness are found in the same locality.

Ad. 2. ***Saxifraga* aff. *subamplexicaulis*** Engl. & Irmsch.

[Specimens] Sichuan. Xiaojin: Ganhaizi–Dashuiba–Ganhaizi, 3490 m (Ikeda *et al.* 100616, 31 Aug. 1998). Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 3820 m (Ikeda *et al.* 100416, 1 Sept. 1998).

[Note] Although *Saxifraga subamplexicaulis* is characterized by having stems glabrous at the base, these specimens have densely pubescent stems.

15. **Saxifraga tangutica** Engl. in Bull. Acad. Imp. Sci. Saint-Pétersbourg **29**: 114 (1883). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 66 (1998).

[Specimens] Sichuan. Xiangcheng: around Wuming Shan, 4600 m (Wu *et al.* 1023, 27 July 1997). Sichuan. Daocheng: around Gongga Shan, 4700 m (Wu *et al.* 1197, 5 Aug. 1997). Sichuan. Xiaojin: a pass of Balang Shan, 4370 m (Ikeda *et al.* 100433, 6 Sept. 1998).

[Habit] On rocks.

Series **Lychnitidae** (Engl. & Irmsch.) Gornall in Bot. J. Linn. Soc. **95**: 276 (1987).

17. **Saxifraga nigroglanulifera** Balakr. in J. Bombay Nat. Hist. Soc. **67**: 59 (1970). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 67 (1998).

[Specimen] Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 4100 m (Ikeda *et al.* 100417, 1 Sept. 1998).

Densifoliata group

Ad. 3. **Saxifraga litangensis** Engl. in Repert. Spec. Nov. Regni Veg. **12**: 396 (1922). J. T. Pan in Fl. Reipubl. Pop. Sin. **34**(2): 105 (1992).

[Specimens] Sichuan. Xiaojin: a pass of Balang Shan, 4370 m (Ikeda *et al.* 100430, 100435 & 100436, 6 Sept. 1998).

Subsection **Gemmiparae** Engl. & Irmsch. in Notes Roy. Bot. Gard. Edinburgh **5**(24): 140 (1912).

Ser. **Gemmiparae** (Engl. & Irmsch.) Gornall in Bot. J. Linn. Soc. **95**: 277 (1987).

Ad. 4. **Saxifraga erinacea** H. Sm. in Bull. Brit. Mus. (Nat. Hist.) Bot. **2**(9): 250, f. 13a–e, t. 20B (1960). J. T. Pan in Fl. Reipubl. Pop. Sin. **34**(2): 147 (1992).

[Specimen] Sichuan. Daocheng: around Gongga Shan, 4700 (Wu *et al.* 1159, 4 Aug. 1997).

27. **Saxifraga filicaulis** Wall. [Numer. List: no. 445 (1828), nom. nud.] ex Ser. in DC. Prodr. **4**: 46 (1830). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 69 (1998).

[Specimen] Sichuan. Xiaojin: Rilong–Ganhaizi, 3220 m (Ikeda *et al.* 100603, 30 Aug. 1998); 3220 m (Ikeda *et al.* 100603, 30 Aug. 1998). Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 3750 m (Ikeda *et al.* 100425, 1 Sept. 1998); 3860 m (Ikeda *et al.* 100631, 1 Sept. 1998).

Series **Spinulosae** (C. B. Clarke) Gornall in Bot. J. Linn. Soc. **95**: 277 (1987).

32. **Saxifraga wallichiana** Sternb., Rev. Saxifr. Suppl. **2**: 21, t. 22 (1831). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 70 (1998).

[Specimens] Sichuan. Xiaojin: Rilong–Ganhaizi, 3400 m (Ikeda *et al.* 100403, 30 Aug. 1998). Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 3740 m (Ikeda *et al.* 100418, 1 Sept. 1998).

Subsection **Rosulares** Gornall in Bot. J. Linn. Soc. **95**: 277 (1987).

Ad. 4. **Saxifraga daochengensis** J. T. Pan in Acta Phytotax. Sin. **28**(5): 394 (1990); in Fl. Reipubl. Pop. Sin. **34**(2): 190 (1992).

[Specimen] Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–

Ganhaizi, 3700 m (Ikeda *et al.* 100422, 1 Sept. 1998).

34. ***Saxifraga finitima*** W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh **8**: 133 (1913). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 71 (1998).

[Specimens] Sichuan. Xiangcheng-Daocheng: around Wuming Shan 4600 m (Wu *et al.* 774, 27 July 1997); 4600 m (Wu *et al.* 810, 27 July 1997); 4600 m (Wu *et al.* 1020, 27 July 1997).

35. ***Saxifraga lhasana*** H. Sm. in Bull. Brit. Mus. (Nat. Hist.) Bot. **2**(9): 225 (1960). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 71 (1998). Akiyama & Ohba in J. Jap. Bot. **73**(4): 234 (1998).

Saxifraga obovatipetala T. C. Ku in Bull. Bot. Res. **9**(4): 16, f. 5 (1989).

Saxifraga umbellulata Hook. f. & Thomson var. *pectinata* (Marq. & A. Shaw) J. T. Pan: J. T. Pan in Fl. Reipubl. Pop. Sin. **34**(2): 166 (1992), p.p.

[Specimen] Sichuan. Xiangcheng, around Wuming Shan, 4400 m (Wu *et al.* 1082, 29 July 1997).

[Habit] In rock crevices.

Subsection ***Serpyllifoliae*** Gornall in Bot. J. Linn. Soc. **95**: 277 (1987).

40. ***Saxifraga draboides*** C. Y. Wu in Acta Phytotax. Sin. **28**(1): 64 (1990). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 72 (1998).

[Specimens] Sichuan. Daocheng, around Gongga Shan, 4700 m (Wu *et al.* 1171, 4 Aug. 1997); 4650 m (Wu *et al.* 855, 6 Aug. 1997).

[Habit] In soil in alpine meadow and on rocks.

41. ***Saxifraga flexilis*** W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh **8**: 134 (1913). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 72 (1998).

[Specimen] Sichuan. Xiangcheng: around Wuming Shan, 4610 m (Wu *et al.* 808, 27 July 1997); 4700 m (Wu *et al.* 1024, 27 July 1997); 4400–4700 m (Wu *et al.* 1025b, 27 July 1997). Sichuan. Xiaojin: a pass of Balang Shan, 4370 m (Ikeda *et al.* 100434, 6 Sept. 1998).

Ad. 5. ***Saxifraga gracialis*** H. Sm. in Acta Horti Gothob. **1**: 14, f. 4a–9, t. 9A & B (1924). J. T. Pan in Fl. Reipubl. Pop. Sin. **34**(2): 172 (1992).

[Specimens] Sichuan. Xiangcheng: around Wuming Shan, 4610 m (Wu *et al.* 809, 27 July 1997); 4700 m (Wu *et al.* 1022, 27 July 1997); 4400–4700 m (Wu *et al.* 1025, 27 July 1997). Sichuan. Xiangcheng: around Wuming Shan, 4300 m (Wu *et al.* 818, 28 July 1997). Sichuan. Daocheng: around Gonna Shan, 4600 m (Wu *et al.* 1145, 4 Aug. 1997); 4700 m (Wu *et al.* 1167, 4 Aug. 1997).

42. ***Saxifraga stella-aurea*** Hook. f. & Thomson in J. Linn. Soc. Bot. **2**: 72 (1857). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 72 (1998).

[Specimens] Yunnan. Yangbi: around Cangshan (Yangbi side), 3820 m (Wu *et al.* 866, 17 Aug. 1997).

Ad. 6. ***Saxifraga unguiculata*** Engl. in Bull. Acad. Imp. Sci. Saint-Pétersbourg **29**: 115 (1883).

[Specimen] Sichuan. Xiangcheng: around Wuming Shan, 4600 m (Wu *et al.*

1033, 28 July 1997).

Subsection **Flagellares** (C. B. Clarke) Engl. & Irmsch. in Notes Roy. Bot. Gard. Edinburgh **5**(24): 146 (1912).

44. **Saxifraga consanguinea** W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh **8**: 132 (1913). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 73 (1998).

[Specimens] Sichuan. Xiangcheng: around Wuming Shan, 4400–4700 m (Wu *et al.* 1025, 27 July 1997). Sichuan. Daocheng: around Gongga Shan, 4700 m (Wu *et al.* 1166, 4 Aug. 1997).

[Habit] On rocks.

46. **Saxifraga microgyna** Engl. & Irmsch. in Engl. Jahrb. **48**: 604 (1912). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 73 (1998).

[Specimen] Sichuan Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi (Ikeda *et al.* 100420, 1 Sept. 1998).

47. **Saxifraga stenophylla** Royle, Ill. Bot. Himal. 227, t. 50, f. 1 (1835). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 73 (1998).

[Specimens] Sichuan. Daocheng: around Gongga Shan, 4700 m (Wu *et al.* 1166b, 4 Aug. 1997).

[Habit] In soil in alpine meadows.

Section **Mesogyne** Sternb., Revis. Saxifrag. Suppl. **2**: 29 (1831).

49. **Saxifraga granulifera** H. Sm. in Bull. Brit. Mus. (Nat. Hist.) Bot. **2**(9): 259, t. 21B (1960). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 74 (1998).

Saxifraga cernua auct. non L.: J. T. Pan in Fl. Reipubl. Pop. Sin. **34**(2): 77 (1992), p.p.

[Specimens] Sichuan. Xiangcheng: around Wuming Shan, 4000 m (Wu *et al.* 820, 29 July 1997). Sichuan. Daocheng: around Gongga Zhonggu, 3970 m (Wu *et al.* 835, 3 Aug. 1997).

[Habit] On rocks.

Section **Porphyron** Tausch, Hort. Canal.: 1 (1823).

50. **Saxifraga pulchra** Engl. & Irmsch. in Notes Roy. Bot. Gard. Edinburgh **5**(24): 146, t. 102 (1912). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 73 (1998).

[Specimens] Sichuan. Daocheng: around Gongga Shan, 4300 m (Wu *et al.* 860, 8 Aug. 1997).

[Habit] On rocks.

Ad. 7. **Saxifraga subsessiliflora** Engl. & Irmsch. in Engl., Pflanzenr. **67**: 573, f. 118 (1919). J. T. Pan in Fl. Reipubl. Pop. Sin. **34**(2): 212 (1992).

[Specimen] Sichuan. Daocheng: around Gongga Shan, 4700 m (Wu *et al.* 1168, 4 Aug. 1997).

Section **Micranthes** (Haw.) D. Don in Tans. Linn. Soc. London **13**: 345 (1822). Gornall in Bot. J. Linn. Soc. **95**: 278 (1987).

Series **Melanocentrae** (Engl. & Irmsch.) Gornall in Bot. J. Linn. Soc. **95**: 279 (1987).

52. **Saxifraga melanocentra** Franch. in J. Bot. **10**: 263 (1896). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 74 (1998).

[Specimens] Sichuan. Daocheng: around Gongga Shan, 4600 m (Wu *et al.* 1193, 5 Aug. 1997). Sichuan. Xiaojin: a pass of Balang Shan, 4370 m (Ikeda *et al.* 100431, 6 Sept. 1998); 4350 m (Ikeda *et al.* 100432, 6 Sept. 1998).

[Habit] In grasslands.

var. **rubriflora** J. T. Pan in Fl. Hengduan Mts. **1**: 701 (1993), nom. nud. Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 74 (1998).

[Specimen] Sichuan. Xiangcheng: around Wuming Shan, 4400 m (Wu *et al.* 1009, 27 July 1997).

53. **Saxifraga pallida** Wall. [Numer. List: no. 450 (1828), nom. nud.] ex Ser. in DC., Prodr. **4**: 38 (1830). Akiyama *et al.* in Bull. Natn. Sci. Mus. Tokyo, ser. B, **24**(2): 75 (1998).

[Specimen] Yunnan. Yangbi: around Cangshan, 3800 m (Wu *et al.* 1244, 17 Aug. 1997).

[Habit] On rocks.

Correction (Bull. Natn. Sci. Mus., Tokyo ser. B, **24**(2): 61–75, 1998)

P. 66: 9. **Saxifraga montana** H. Sm.

Add.: Yunnan. Lijiang: Yulongshan, 4300 m (Ohba *et al.* 916, 17–26 Sept. 1987). This was determined as *S. montanella*.

P. 66: 10. **Saxifraga montanella** H. Sm.

Del.: Yunnan. Lijiang: Yulongshan, 4300 m (Ohba *et al.* 916, 17–26 Sept. 1987).

P. 70: 29. **Saxifraga hispidula** D. Don

Add.: Yunnan. Dali: Cangshan, 3475 m (Wu *et al.* 791, 1 Sept. 1996). This was determined as *S. oreophila*.

P. 70: 30. **Saxifraga oreophila** Franch.

Del.: Yunnan. Dali: Cangshan, 3475 m (Wu *et al.* 791, 1 Sept. 1996).

P. 73: 46. **Saxifraga microgyna** Engl. & Irmsch.

Del.: Yunnan. Zhongdian: Da Xue Shan, 3600–4200 m (Wu *et al.* 1182, 28 Sept. 1996).

P. 74: 51. **Saxifraga divaricata** Engl. & Irmsch.

Add.: Yunnan. Deq: Tianchi, 3800 m (Wu *et al.* 661, 12 Aug. 1996). This was determined as *S. melanocentra*.

P. 74: 52. **Saxifraga melanocentra** Franch.

Del.: Yunnan. Deq: Tianchi, 3800 m (Wu *et al.* 661, 12 Aug. 1996).

4. **Rhododendron** L. (Ericaceae)

1. **Rhododendron adenogynum** Diels in Notes Roy. Bot. Gard. Edinburgh **5**: 216

- (1912). *Chamb. in Notes Roy. Bot. Gard. Edinburgh* **39**: 340 (1982). L. C. Hu in *Fl. Reipubl. Pop. Sin.* **57**(2): 193 (1994).
- [Specimens] Yunnan. Lijiang, Yulongshan, 4000 m (Ohba *et al.* 868, 17–26 Sept. 1987). Yunnan. Lijiang: Qilanbiao, Yulong Xueshan, 3500–3900 m (Kato *et al.* 2310, 1 Aug. 1988). Sichuan. Daocheng: around Gongga Shan, 4430 m (Wu *et al.* 923, 23 Aug. 1996).
2. **Rhododendron aganniphum** Balf. f. & Kingdon-Ward in *Notes Roy. Bot. Gard. Edinburgh* **10**: 80 (1917). *Chamb. in Notes Roy. Bot. Gard. Edinburgh* **39**: 354 (1982). L. C. Hu in *Fl. Reipubl. Pop. Sin.* **57**(2): 208 (1994).
- [Specimen] Yunnan. Deqe: around Daxue Shan, 4450 m (Wu *et al.* 1588, 27 Aug. 1996).
3. **Rhododendron beesianum** Diels in *Notes Roy. Bot. Gard. Edinburgh* **5**: 214 (1912). *Chamb. in Notes Roy. Bot. Gard. Edinburgh* **39**: 365 (1982). L. C. Hu in *Fl. Reipubl. Pop. Sin.* **57**(2): 223 (1994).
- [Specimen] Yunnan. Deqe: Tianchi, 3600 m (Wu *et al.* 1474, 12 Aug. 1996).
4. **Rhododendron cyanocarpum** (Franch.) W. W. Sm. in *Trans. Bot. Soc. France* **26**: 274 (1914). *Chamb. in Notes Roy. Bot. Gard. Edinburgh* **39**: 423 (1982). M. Y. Fang in *Fl. Reipubl. Pop. Sin.* **57**(2): 337 (1994).
- [Specimens] Yunnan. Yanbi: Dashr Chan on W slope of Dianchang Shan, 3100–3900 m (Kato *et al.* 1259, 23 July 1988). Yunnan. Dali: E slope of Zhonghe Fong, Dianchang Shan, 3100–3900 m (Kato *et al.* 2536, 8 Aug. 1988).
5. **Rhododendron decorum** Franch. in *Bull. Soc. Bot. France* **33**: 230 (1886). *Chamb. in Notes Roy. Bot. Gard. Edinburgh* **39**: 230 (1982). W. K. Hu in *Fl. Reipubl. Pop. Sin.* **57**(2): 16 (1994).
- subsp. **decorum**
- [Specimens] Yunnan. Dali: Huadianba, 3000 m (Iwatsuki *et al.* 1422, 28 Aug. 1984); 2900–3100 m (Iwatsuki *et al.* 1428, 28 Aug. 1984). Yunnan. Lijiang, Ganhaizi, 3000–3550 m (Ohba *et al.* 160, 12 Sept. 1987). Yunnan. Yanbi: Zhongshan on W slope of Dianchang Shan, 2300–2400 m (Kato *et al.* 1272, 24 July 1988). Yunnan. Deqe: Sibao, 2960 m (Ohba *et al.* 1408, 4 Aug. 1996).
- subsp. **diaprepes** (Balf. f. & W. W. Sm.) T. L. Ming in *Act. Bot. Yunn.* **6**: 147 (1984). W. K. Hu in *Fl. Reipubl. Pop. Sin.* **57**(2): 19 (1994).
- [Specimen] Yunnan. Yangbi: Zhongshan, 2400 m (Iwatsuki *et al.* 49, 23 Aug. 1984).
6. **Rhododendron delavayi** Franch. in *Bull. Soc. Bot. France* **33**: 231 (1886). W. K. Hu in *Fl. Reipubl. Pop. Sin.* **57**(2): 173 (1994).
- [Specimen] Yunnan. Yangbi: Zhongshan, (Iwatsuki *et al.* 706, 23 Aug. 1984). Yunnan. Deqe: Sibao, 3015 m (Ohba *et al.* 211, 4 Aug. 1996).
7. **Rhododendron dichroanthum** Diels in *Notes Roy. Bot. Gard. Edinburgh* **5**: 212 (1912). *Chamb. in Notes Roy. Bot. Gard. Edinburgh* **39**: 393 (1982). W. K. Hu in *Fl. Reipubl. Pop. Sin.* **57**(2): 297 (1994).

[Specimen] Yunnan. Dali: E slope of Zhonghe Fong, Dianchang Shan, 2550–3150 m (Kato *et al.* 223, 14 July 1988).

8. **Rhododendron dumicola** Tagg & Forrest in Stevenson, *Spec. Rhodod.*: 643 (1930). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 338 (1982). L. C. Hu in Fl. Reipubl. Pop. Sin. **57**(2): 193 (1994).

[Specimen] Yunnan. Daocheng: around Gongga Shan, 4300 m (Wu *et al.* 1566, 24 Aug. 1996).

9. **Rhododendron edgeworthii** Hook. f., *Rhododendr. Sikkim-Himalya*: t. 21 (1849). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 26 (1980).

[Specimen] Yunnan. Dali: Swangian stream on E slope of Dianchang Shan, 2200–2800 m (Kato *et al.* 2450, 7 Aug. 1988).

10. **Rhododendron facetum** Balf. f. & Kingdon-Ward in Notes Roy. Bot. Gard. Edinburgh **10**: 104 (1917). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 377 (1982). M. Y. Fang in Fl. Reipubl. Pop. Sin. **57**(2): 260 (1994).

[Specimens] Yunnan. Dali: Huadianba, 2900 m (Iwatsuki *et al.* 1685, 29 Aug. 1984). Yunnan. Yanbi: Damakanchiechu on W slope of Dianchang Shan, 2300–3150 m (Kato *et al.* 315, 22 July 1988); 2300–3150 m (Kato *et al.* 1237, 22 July 1988).

11. **Rhododendron fastigiatum** Franch. in Bull. Soc. Bot. France **33**: 234 (1886). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 100 (1980).

[Specimens] Yunnan. Yanbi: Dashr Chan on W slope of Dianchang Shan, 3100–3900 m (Kato *et al.* 1264, 23 July 1988); 3100–3900 m (Kato *et al.* 1269, 23 July 1988). Yunnan. Dali: E slope of Zhonghe Fong, Dianchang Shan, 3850 m (Kato *et al.* 2546, 8 Aug. 1988).

12. **Rhododendron** cf. **haematodes** Franch. in Bull. Soc. Bot. France **33**: 232 (1886). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 390 (1982). W. K. Hu in Fl. Reipubl. Pop. Sin. **57**(2): 282 (1994).

[Specimens] Yunnan. Yanbi: Dashr Chan on W slope of Dianchang Shan, 3100–3900 m (Kato *et al.* 1261, 23 July 1988). Yunnan. Dali: E slope of Zhonghe Fong, Dianchang Shan, 3100–3900 m (Kato *et al.* 2543, 8 Aug. 1988).

13. **Rhododendron heliolepis** Franch. in Bull. Soc. Bot. France **34**: 283 (1887). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 89 (1980).

[Specimens] Yunnan. Yanbi: Dashr Chan on W slope of Dianchang Shan, 3100–3900 m (Kato *et al.* 349, 23 July 1988); 3100–3900 m (Kato *et al.* 1255, 23 July 1988). Yunnan. Dali: E slope of Zhonghe Fong, Dianchang Shan, 3100–3900 m (Kato *et al.* 2537, 8 Aug. 1988). Yunnan. Deqe: Tianchi, 3600 m (Wu *et al.* 1478, 12 Aug. 1996).

14. **Rhododendron hippohaeoides** Balf. f. & W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh **9**: 236 (1916). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 96 (1980).

var. **occidentale** Philipson & Philipson in Notes Roy. Bot. Gard. Edinburgh **34**:

- 20 (1975). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 97 (1980).
 [Specimen] Yunnan. Deque: Pantien Ge, 3250 m (Ohba *et al.* 1431, 5 Aug. 1996).
15. **Rhododendron irroratum** Franch. in Bull. Soc. Bot. France **34**: 280 (1887).
 Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 296 (1982). M. Y. Fang in Fl. Reipubl. Pop. Sin. **57**(2): 127 (1994).
 [Specimen] Yunnan. Dali: Huadianba, 2900 m (Iwatsuki *et al.* 1686, 29 Aug. 1984).
16. **Rhododendron maddenii** Hook. f., Rhododendr. Sikkim-Himalaya: t. 18 (1849).
 Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 33 (1980).
 subsp. **crassum** (Franch.) Cullen in Notes Roy. Bot. Gard. Edinburgh **36**: 107 (1978). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 34 (1980).
 [Specimen] Yunnan. Dali: E slope of Zhonghe Fong, Dianchang Shan, 2200 m (Shimizu & Cheng, 2551, 9 Aug. 1988).
17. **Rhododendron microphyton** Franch. in Bull. Soc. Bot. France **33**: 235 (1886).
 Chamb. & Rae in Notes Roy. Bot. Gard. Edinburgh **47**: 126 (1990). M. Y. He in Fl. Reipubl. Pop. Sin. **57**(2): 410 (1994).
 [Specimens] Yunnan. Dali: Wenqia, Xiaguan, 2000–2100 m (Kato *et al.* 630, 13 July 1988). Yunnan. Dali: en route from Dali town to Zhonghe temple on E slope of Dianchang Shan, 2150–2650 m (Kato *et al.* 667, 15 July 1988). Yunnan. Dali: Swan-gian stream on E slope of Diachang Shan, 2200–2800 m (Kato *et al.* 2484, 7 Aug. 1988). Yunnan. Kunming: Qongzhu temple, 2100 m (Kato *et al.* 3334, 30 Aug. 1988); 2100 m (Kato *et al.* 3335, 30 Aug. 1988); 2100 m (Kato *et al.* 3336, 30 Aug. 1988).
18. **Rhododendron nivale** Hook. f., Rhododendr. Sikkim-Himalaya: 29 (1849).
 Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 105 (1980).
 subsp. **australe** Philipson & Philipson in Notes Roy. Bot. Gard. Edinburgh **34**: 54 (1975). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 106 (1980).
 [Specimen] Yunnan. Lijiang: Qilanbiao, Yulong Xueshan, 3500–3900 m (Kato *et al.* 2318, 1 Aug. 1988).
19. **Rhododendron pachypodum** Balf. f. & W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh **9**: 254 (1916). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 53 (1980).
 [Specimens] Yunnan. Yangbi: Zhongshan, 2500 m (Iwatsuki *et al.* 500, 23 Aug. 1984). Yunnan. Dali: Wenqia, Xiaguan, 2000–2100 m (Kato *et al.* 204, 13 July 1988). Yunnan. Dali: Swan-gian stream on E slope of Diachang Shan, 2200–2800 m (Kato *et al.* 2504, 7 Aug. 1988).
20. **Rhododendron phaeochrysum** Balf. f. & W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh **10**: 131 (1917). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 350 (1982). L. C. Hu in Fl. Reipubl. Pop. Sin. **57**(2): 216 (1994).
 var. **agglutinatum** (Balf. f. & Forrest) Chamb. ex Cullen & Chamb. in Notes Roy. Bot. Gard. Edinburgh **36**: 120 (1978). L. C. Hu in Fl. Reipubl. Pop. Sin. **57**(2): 218 (1994).

- [Specimens] Yunnan. Deqe: Tianchi, 3600 m (Wu *et al.* 1482, 12 Aug. 1996). Yunnan. Daocheng: around Gongga Shan, 4400 m (Wu *et al.* 1565, 24 Aug. 1996).
21. **Rhododendron primuliflorum** Bur. & Franch. in *J. Bot.* **5**: 95 (1891). Cullen in *Notes Roy. Bot. Gard. Edinburgh* **39**: 165 (1980).
[Specimens] Sichuan. Daocheng: around Gongga Shan, 4430 m (Wu *et al.* 924, 23 Aug. 1996). Yunnan. Deqe: around Daxue Shan, 4450 m (Wu *et al.* 1590, 27 Aug. 1996).
22. **Rhododendron pubescens** Balf. f. & Forr. in *Notes Roy. Bot. Gard. Edinburgh* **12**: 153 (1920). Cullen in *Notes Roy. Bot. Gard. Edinburgh* **39**: 84 (1980).
[Specimen] Yunnan. Kunming: Qongzhu temple, 2100 m (Kato *et al.* 3328, 30 Aug. 1988).
23. **Rhododendron racemosum** Franch. in *Bull. Soc. Bot. France* **33**: 235 (1886). Cullen in *Notes Roy. Bot. Gard. Edinburgh* **39**: 82 (1980).
[Specimens] Yunnan. Dali: Huadianba, 3100 m (Iwatsuki *et al.* 1430, 28 Aug. 1984). Yunnan. Lijiang: Ganhaizi, 3100–3500 m (Shimizu *et al.* 2328, 2 Aug. 1988). Yunnan. Lijiang: Yufeng temple, 2700 m (Kato *et al.* 2362, 3 Aug. 1988). Yunnan. Lijiang: en route from Lulan to Qinlongho, 2300 m (Kato *et al.* 2414, 5 Aug. 1988). Yunnan. Dali: Swangian stream on E slope of Dianchang Shan, 2200–2800 m (Kato *et al.* 2491, 7 Aug. 1988); 2200–2800 m (Kato *et al.* 2505, 7 Aug. 1988). Yunnan. Dali: en route from Dali town to Zhonghe temple on E slope of Dianchang Shan, 2150–2650 m (Kato *et al.* 661, 15 July 1988). Yunnan. Lijiang: Mahuanba, Yulong Xueshan, 2700–3500 m (Kato *et al.* 1374, 28 July 1988). Yunnan. Lijiang: Shrgu, 1800–2300 m (Kato *et al.* 2225, 30 July 1988). Yunnan. Lijiang: Ganhaizi, 3080 m (Wu *et al.* 1450, 9 Aug. 1996).
24. **Rhododendron** cf. **rex** H. Lév. subsp. **fictolacteum** (Balf. f.) Chamb. in *Notes Roy. Bot. Gard. Edinburgh* **36**: 330 (1979).
[Specimens] Yunnan. Yanbi: Damakanchiechu on W slope of Dianchang Shan, 2300–3150 m (Kato *et al.* 1232, 22 July 1988). Yunnan. Dali: E slope of Zhonghe Fong, Dianchang Shan, 3100–3900 m (Kato *et al.* 2539, 8 Aug. 1988).
25. **Rhododendron rubiginosum** Franch. in *Bull. Soc. Bot. France* **34**: 282 (1887). Cullen in *Notes Roy. Bot. Gard. Edinburgh* **39**: 90 (1980).
[Specimens] Yunnan. Dali: Huadianba, 2900 m (Iwatsuki *et al.* 1688, 29 Aug. 1984). Yunnan. Yanbi: Damakanchiechu on W slope of Dianchang Shan, 2300–3150 m (Kato *et al.* 1228, 22 July 1988). Yunnan. Lijiang: Mahuanba, Yulong Xueshan, 2700–3500 m (Kato *et al.* 1330, 28 July 1988). Yunnan. Lijiang: Ganhaizi, 3100–3500 m (Shimizu *et al.* 2352, 2 Aug. 1988). Yunnan. Lijiang: Yunshan Ping, 3230 m (Wu *et al.* 1458, 10 Aug. 1996).
26. **Rhododendron russatum** Balf. f. & Forrest in *Notes Roy. Bot. Gard. Edinburgh* **9**: 126 (1919). Cullen in *Notes Roy. Bot. Gard. Edinburgh* **39**: 108 (1980).
[Specimen] Yunnan. Deqe: Pantien Ge, 3250 m (Ohba *et al.* 1432, 5 Aug. 1996).
27. **Rhododendron scabrifolium** Franch. in *Bull. Soc. Bot. France* **33**: 236 (1886).

- Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 84 (1980).
 [Specimen] Yunnan. Kuming, Hwating temple, W Hill Forest Park, 2000 m (Kato *et al.* 3356, 31 Aug. 1988).
28. **Rhododendron siderophyllum** Franch. in J. Bot. **12**: 262 (1898). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 67 (1980).
 [Specimen] Yunnan. Yanbi: Zhongshan on W slope of Dianchang Shan, 2300–2400 m (Kato *et al.* 1277, 24 July 1988).
29. **Rhododendron cf. siderophyllum** Franch.
 [Specimens] Yunnan. Dali: Wenqia, Xiaguan, 2000–2100 m (Kato *et al.* 614, 13 July 1988). Yunnan. Dali: en route from Qiliqiao to Qinbi stream on E slope of Dianchang Shan, 2000–2300 m (Kato *et al.* 694, 16 July 1988). Yunnan. Yanbi: Sanchaho on W slope of Dianchang Shan, 2350–2600 m (Kato *et al.* 1208, 21 July 1988). Yunnan. Lijiang: Sandawan, 3200 m (Kato *et al.* 2203, 29 July 1988).
30. **Rhododendron cf. simsii** Pl. in Fl. des Serr. **9**: 78 (1854). Chamb. & Rae in Notes Roy. Bot. Gard. Edinburgh **47**: 115 (1990). M. Y. He in Fl. Reipubl. Pop. Sin. **57**(2): 386 (1994).
 [Specimens] Yunnan. Dali: en route from Dali town to Zhonghe temple on E slope of Dianchang Shan, 2150–2650 m (Kato *et al.* 670, 15 July 1988). Yunnan. Dali: Swangian stream on E slope of Dianchang Shan, 2200–2800 m (Kato *et al.* 2485, 7 Aug. 1988).
31. **Rhododendron sinogrande** Balf. f. & W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh **9**: 274 (1916). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 245 (1982). L. C. Hu in Fl. Reipubl. Pop. Sin. **57**(2): 45 (1994).
 [Specimens] Yunnan. Yanbi: Damakanchiechu on W slope of Dianchang Shan, 2300–3150 m (Kato *et al.* 1246, 22 July 1988). Yunnan. Deqe: Sibao, 3000 m (Wu *et al.* 1409, 4 Aug. 1996).
32. **Rhododendron spinuliferum** Franch. in J. Bot. **9**: 399 (1895). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 85 (1980).
 [Specimen] Yunnan. Kunming: Xiaoshao, 2200 m (Kato *et al.* 3304, 29 Aug. 1988).
33. **Rhododendron taliense** Franch. in Bull. Soc. Bot. France **33**: 232 (1886). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 343 (1982). L.C. Hu in Fl. Reipubl. Pop. Sin. **57**(2): 231 (1994).
 [Specimens] Yunnan. Yanbi: Dashr Chan on W slope of Dianchang Shan, 3100–3900 m (Kato *et al.* 1260, 23 July 1988). Yunnan. Dali: E slope of Zhonghe Fong, Dianchang Shan, 3850 m (Kato *et al.* 2545, 8 Aug. 1988).
34. **Rhododendron cf. taliense** Franch.
 [Specimens] Yunnan. Lijiang: Qilanbiao, Yulong Xueshan, 3500–3900 m (Kato *et al.* 2311, 1 Aug. 1988). Yunnan. Dali: E slope of Zhonghe Fong, Dianchang Shan, 3100–3900 m (Kato *et al.* 2542, 8 Aug. 1988).
35. **Rhododendron tanastylum** Balf. f. & Kingdon-Ward in Trans. Bot. Soc. Edinb.

- 27: 217 (1917). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 300 (1982). M. Y. Fang in Fl. Reipubl. Pop. Sin. **57**(2): 120 (1994).
 [Specimen] Yunnan. Deq: Sibao, 3000 m (Ohba *et al.* 208, 4 Aug. 1996).
36. **Rhododendron tatsienense** Franch. in J. Bot. **9**: 394 (1895). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 65 (1980).
 [Specimen] Yunnan. Lijiang: Mahuanba, Yulong Xueshan, 2700–3500 m (Kato *et al.* 1350, 28 July 1988).
37. **Rhododendron telmateium** Balf. f. & W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh **9**: 279 (1916). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 104 (1980).
 [Specimen] Sichuan. Daocheng: Haizi, 4400 m (Wu *et al.* 1522, 17 Aug. 1996).
38. **Rhododendron traillianum** Forrest & W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh **8**: 204 (1914). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 354 (1982). L. D. Hu in Fl. Reipubl. Pop. Sin. **57**(2): 225 (1994).
 [Specimen] Yunnan. Deq: around Daxue Shan, 4160 m (Wu *et al.* 951, 28 Aug. 1996).
39. **Rhododendron trichocladum** Franch. in Bull. Soc. Bot. France **33**: 234 (1886). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 153 (1980).
 [Specimens] Yunnan. Yanbi: Dashr Chan on W slope of Dianchang Shan, 3100–3900 m (Kato *et al.* 1265, 23 July 1988). Yunnan. Dali: E slope of Zhonghe Fong, Dianchang Shan, 3100–3900 m (Kato *et al.* 2541, 8 Aug. 1988); 2200 m (Shimizu & Cheng, 2550, 9 Aug. 1988).
40. **Rhododendron uvarifolium** Diels in Notes Roy. Bot. Gard. Edinburgh **5**: 213 (1912). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 368 (1982). L. C. Hu in Fl. Reipubl. Pop. Sin. **57**(2): 246 (1994).
 [Specimen] Yunnan. Lijiang: Yunshanping, 3000–3100 m (Kato *et al.* 2294, 31 July 1988).
41. **Rhododendron vernicosum** Franch. in J. Bot. **12**: 258 (1898). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 230 (1982). W. K. Hu in Fl. Reipubl. Pop. Sin. **57**(2): 27 (1994).
 [Specimen] Yunnan. Dequ: Napa Hai, 3600 m (Wu *et al.* 1496, 13 Aug. 1996).
42. **Rhododendron wardii** W. W. Sm. in Notes Roy. Bot. Gard. Edinburgh **8**: 205 (1914). Chamb. in Notes Roy. Bot. Gard. Edinburgh **39**: 265 (1982). M. Y. Fang in Fl. Reipubl. Pop. Sin. **57**(2): 74 (1994).
 [Specimen] Yunnan. Deq: Tianchi, 3600 m (Wu *et al.* 1475, 12 Aug. 1996).
43. **Rhododendron yunnanense** Franch. in Bull. Soc. Bot. France **33**: 232 (1886). Cullen in Notes Roy. Bot. Gard. Edinburgh **39**: 67 (1980).
 [Specimens] Yunnan. Lijiang, Ganhaizi, 3100 m (Ohba *et al.* 329, 12 Sept. 1987). Yunnan. Yanbi: Sanchaho on W slope of Dianchang Shan, 2350–2600 m (Kato *et al.* 1212, 21 July 1988). Yunnan. Lijiang: Sandawan, 3200 m (Kato *et al.* 2212, 29 July 1988); 3200 m (Kato *et al.* 2215, 29 July 1988). Yunnan. Lijiang:

Shrgu, 1800–2300 m (Kato *et al.* 2260, 30 July 1988); 1800–2300 m (Kato *et al.* 2261, 30 July 1988). Yunnan. Lijiang: Yunshanping, 3000–3100 m (Kato *et al.* 2276, 31 July 1988). Yunnan. Lijiang: Ganhaizi, 3100–3500 m (Shimizu *et al.* 2353, 2 Aug. 1988). Yunnan. Kunming: Qongzhu temple, 2100 m (Kato *et al.* 3338, 30 Aug. 1988). Yunnan. Deq: Sanchan He, 3035 m (Ohba *et al.* 205, 3 Aug. 1996). Yunnan. Lijiang: Yunshan Ping, 3230 m (Wu *et al.* 1457, 10 Aug. 1996).

5. **Juncus** L. (Juncaceae)

1. **Juncus allioides** Franch. in *Nouv. Arch. Mus. Hist. Nat. sér. 2*, **10**: 99 (1887).

[Specimens] Yunnan. Deq: Sanchan He, 3040 m (Ohba *et al.* 1404, 3 Aug. 1996). Yunnan. Deq: Sibao, 2800 m (Ohba *et al.* 1425, 4 Aug. 1996). Yunnan. Deq: Dacao Chang, 3200 m (Ohba *et al.* 1437, 6 Aug. 1996). Sichuan. Daocheng: Haizi, 4400 m (Wu *et al.* 1520, 17 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, Beiyu, 4650 m (Wu *et al.* 1547, 22 Aug. 1996). Sichuan. Xiangcheng–Daocheng: around Wuming Shan, 3600 m (Wu *et al.* 425, 29 July 1997). Sichuan. Daocheng: around Gongga Shan, 4450 m (Wu *et al.* 446, 4 Aug. 1997). Sichuan. Daocheng: around Gongga Zhonggu, 4020 m (Wu *et al.* 462, 7 Aug. 1997). Sichuan. Xiaojin: Rilong—a pass of Balang Shan–Rilong, 3600 m (Ikeda *et al.* 100806, 29 Aug. 1998). Sichuan. Xiaojin: Ganhaizi–Dashuiba–Ganhaizi, 3530 m (Ikeda *et al.* 100826, 31 Aug. 1998). Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 3800 m (Ikeda *et al.* 100847, 1 Sept. 1998).

[Habit] On marsh places in meadow.

2. **Juncus amplifolius** A. Camus in *Lecomte, Not. Syst.* **1**(10): 281 (1910).

[Specimens] Yunnan. Dali: Cangshan, 3410 m (Wu *et al.* 1603, 1 Sept. 1996); 3770 m (Wu *et al.* 1606, 1 Sept. 1996).

[Habit] On exposed plaeces.

3. **Juncus articulatus** L., *Sp. Pl.*: 327 (1753).

[Specimen] Sichuan. Xiaojin: Rilong—a pass of Balang Shan–Rilong, 2880 m (Ikeda *et al.* 100801, 29 Aug. 1998).

[Habit] On marshy places.

4. **Juncus benghalensis** Kunth, *Enum Pl.* **3**: 360 (1841).

[Specimens] Sichuan. Daocheng: around Gongga Shan, Beiyu, 4400 m (Wu *et al.* 1553, 22 Aug. 1996). Yunnan. Deq: around Daxue Shan, 4300 (Wu *et al.* 1593, 27 Aug. 1996). Yunnan. Yangbi: around Cangshan, 3760 m (Wu *et al.* 471, 17 Aug. 1997). Sichuan. Daocheng: around Gongga Shan, 4370 m (Wu *et al.* 466, 8 Aug. 1997). Sichuan. Xiaojin: Ganhaizi–Dashuiba–Ganhaizi, 3600 m (Ikeda *et al.* 100819, Aug. 31 1998); 3500 m (Ikeda *et al.* 100821, 31 Aug. 1998).

[Habit] On mossy rocks.

5. **Juncus brachystigma** Sam. in *Hand.-Mazz., Symb. Sin.* **7**: 1236 (1936).

[Specimens] Yunnan. Yangbi: around Cangshan, 3750 m (Wu *et al.* 479, 18 Aug. 1997). Sichuan. Daocheng: around Gongga Shan, Beiyu, 4600 m (Wu *et al.* 1548, 22

Aug. 1996). Sichuan. Daocheng: around Gongga Shan, 4600 m (Wu *et al.* 455, 5 Aug. 1997).

[Habit] On mossy rocks.

6. **Juncus bufonius** L., Sp. Pl.: 328 (1753).

[Specimen] Sichuan. Xiaojin: Rilong—a pass of Balang Shan—Rilong, 2880 m (Ikeda *et al.* 100802, 29 Aug. 1998).

[Habit] On marshy places.

7. **Juncus clarkei** Buchenau in Bot. Jahrb. **6**: 210 (1885).

[Specimens] Yunnan. Dali: Cangshan, 3440 m (Wu *et al.* 1608, 1 Sept. 1996). Yunnan. Yangbi: a Fruit Garden—Cangshan, 3800 m (Wu *et al.* 468, 16 Aug. 1997).

[Habit] On mossy rocks.

8. **Juncus concinnus** D. Don, Prodr. Fl. Nepal: 44 (1825).

[Specimens] Yunnan. Lijiang: Ganhaizi, 3080 m (Wu *et al.* 1439, 9 Aug. 1996). Yunnan. Dali: Cangshan, 3300 m (Wu *et al.* 1613, 1 Sept. 1996). Yunnan. Dali: Cangshan, 3410 m (Wu *et al.* 1611bis, 1 Sept. 1996). Sichuan. Daocheng: Daocheng—Gongling 3740 m (Wu *et al.* 1531, 19 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, Beiyu, 4200 m (Wu *et al.* 1554, 22 Aug. 1996). Sichuan. Daocheng: Gongga Zhonggu—Riwa Xiang—Gongling—Daocheng, 3700 m (Wu *et al.* 1577, 25 Aug. 1996). Sichuan. Xiangcheng—Daocheng: around Wuming Shan, 4000 m (Wu *et al.* 428, 29 July 1997). Sichuan. Daocheng: around Gongga Zhonggu, 3880 m (Wu *et al.* 435, 3 Aug. 1997). Sichuan. Xiaojin: Ganhaizi—southwestern slope of Mt. Siguniang—Ganhaizi, 3800 m (Ikeda *et al.* 100839, 1 Sept. 1998); 3700 m (Ikeda *et al.* 100841, 1 Sept. 1998).

[Habit] On mossy rocks or wet soil banks.

9. **Juncus concolor** Sam. in Hand-Mazz., Symb. Sin. **7**: 1232 (1936).

[Specimen] Yunnan. Yangbi: around Cangshan, 3800 m (Wu *et al.* 475 & 476, 17 Aug. 1997).

[Habit] On grassland slopes.

10. **Juncus crassistylus** A. Camus in Lecomte, Not. Syst. **1**(10): 278 (1910).

[Specimens] Sichuan. Xiaojin: Rilong—a pass of Balang Shan—Rilong, 4000 m (Ikeda *et al.* 100803, 29 Aug. 1998). Sichuan. Xiaojin: Ganhaizi—Dashuiba—Ganhaizi, 3530 m (Ikeda *et al.* 100823, 31 Aug. 1998). Sichuan. Xiaojin: Ganhaizi—southwestern slope of Mt. Siguniang—Ganhaizi, 4450 m (Ikeda *et al.* 100838, 1 Sept. 1998); 4270 m (Ikeda *et al.* 100840, 1 Sept. 1998).

[Habit] On exposed soil slopes.

11. **Juncus dongchuanensis** K. F. Wu in Acta Phytotax. Sin. **32**: 457 (1994).

[Specimen] Yunnan. Dali: Cangshan, 3410 m (Wu *et al.* 1611, 1 Sept. 1996).

[Habit] On soil banks.

12. **Juncus gracilicaulis** A. Camus in Lecomte, Not. Syst. **1**(10): 279 (1910).

[Specimens] Sichuan. Daocheng: Haizi, 4050 m (Wu *et al.* 1512, 17 Aug. 1996). Sichuan. Xiangcheng—Daocheng: around Wuming Shan, 4520 m (Wu *et al.* 431, 29

July 1997).

[Habit] On mossy rocks.

13. **Juncus glaucoturgidus** Noltie in *Edinb. J. Bot.* **51**: 132 (1994).

[Specimens] Sichuan. Daocheng: around Gongga Zhonggu, 3790 m (Wu *et al.* 443, 3 Aug. 1997). Sichuan. Daocheng: around Gongga Shan, 4400 m (Wu *et al.* 445, 4 Aug. 1997).

[Habit] On grassland slopes.

14. **Juncus gonggae** Miyam. & H. Ohba in *J. Jap. Bot.* **72**: 162 (1997).

[Specimens] Sichuan. Daocheng: Gongga Zhonggu–Riwa Xiang–Gongling–Daocheng, 4300 m (Wu *et al.* 1551, 25 Aug. 1996). Sichuan. Daocheng: around Gongga Zhonggu, 3930 m (Wu *et al.* 440, 441 & 442, 3 Aug. 1997).

[Habit] On exposed slopes.

15. **Juncus himalensis** Klotzsch in Klotzsch & Garcke, *Bot. Reise Pr. Waldemar*: 60, t. 97 (1862).

[Specimens] Sichuan. Daocheng: Haizi, 4350 m (Wu *et al.* 1524, 18 Aug. 1996). Sichuan. Daocheng: Daocheng–Daxue Shan Yakou, 3610 m (Wu *et al.* 405, 26 July 1997).

[Habit] On marshy places.

16. **Juncus inflexus** L., *Sp. Pl.*: 326 (1753).

[Specimen] Yunnan. Deq: Pantien Ge, 2600 m (Ohba *et al.* 1427, 5 Aug. 1996).

[Habit] On marshy places.

17. **Juncus khasiensis** Buchenau in *Bot. Jahrb.* **12**: 407 (1890).

[Specimen] Yunnan. Yangbi: a Fruit Garden–Cangshan, 3550 m (Wu *et al.* 469, 16 Aug. 1997).

[Habit] On mossy rocks.

18. **Juncus kingii** Rendle in *J. Bot.* **44**: 45 (1906).

[Specimens] Yunnan. Deq: Tianchi, 3600 m (Wu *et al.* 1479, 12 Aug. 1996). Yunnan. Deq: around Daxue Shan, 4300 m (Wu *et al.* 1592, 27 Aug. 1996). Sichuan. Daocheng: Bowa Shan, 4360 m (Wu *et al.* 1505, 16 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, Beiyu, 4300 m (Wu *et al.* 1555, 22 Aug. 1996). Sichuan. Daocheng: Gongga Zhonggu–Riwa Xiang–Gongling–Daocheng, 4000 m (Wu *et al.* 1580 25 Aug. 1996). Sichuan. Daocheng: around Gongga Zhonggu, 3880 m (Wu *et al.*, 444, 3 Aug. 1997). Sichuan. Daocheng: around Gongga Shan, 4300 m (Wu *et al.* 457 6 Aug. 1997). Sichuan. Xiaojin: Ganhaizi–southwestern slope of Mt. Siguniang–Ganhaizi, 3800 m (Ikeda *et al.* 100846, 1 Sept. 1998).

[Habit] On exposed slopes or between *Rhododendron* scrub.

19. **Juncus leucanthus** Royle ex D. Don in *Trans. Linn. Soc. Lond* **18**: 318 (1840).

[Specimens] Yunnan. Deq: around Daxue Shan, 4470 m (Wu *et al.* 1583, 27 Aug. 1996). Yunnan. Yangbi: around Cangshan, 3750 m (Wu *et al.* 482, 18 Aug. 1997). Sichuan. Daocheng: Bowa Shan, 4400 m (Wu *et al.* 1510 16 Aug. 1996).

[Habit] On grassland slopes.

20. **Juncus longiflorus** (A. Camus) Noltie in *Edinb. J. Bot.* **51**: 134 (1994).
Juncus sikkimensis Hook. f. var. *longiflorus* A. Camus in *Lecomte, Not. Syst.* **1**(10): 283 (1910).
 [Specimens] Yunnan. Dali: Cangshan, 3680 m (Wu *et al.* 1604, 1 Sept. 1996); 3800 m (Wu *et al.* 1605, 1 Sept. 1996); 3900 m (Wu *et al.* 1607, 1 Sept. 1996). Yunnan. Yangbi: around Cangshan, 3850 m (Wu *et al.* 477, 17 Aug. 1997).
 [Habit] On grassland slopes or soil slopes in *Abies* forests.
21. **Juncus luzuliformis** Franch. in *Nouv. Arch. Mus. Nat. sér. 2*, **10**: 99 (1887).
 [Specimen] Sichuan. Xiaojin: Rilong—a pass of Balang Shan–Wenchuan: Wo-long, 2500 m (Ikeda *et al.* 100856, 6 Sept. 1998).
 [Habit] On mossy rocks.
22. **Juncus milashanensis** A. M. Lu & Z. Y. Zhang in *Acta Phytotax. Sin.* **17**: 127 (1979).
 [Specimens] Sichuan. Xiangcheng-Daocheng: around Wuming Shan, 4680 m (Wu *et al.* 410, 29 July 1997). Sichuan. Daocheng: around Gongga Shan, 4500 m (Wu *et al.* 450, 4 Aug. 1997).
 [Habit] On scree slopes.
23. **Juncus minimus** Buchenau in *Bot. Zeit.* **25**: 145 (1867).
 [Specimen] Yunnan. Deq: around Daxue Shan, 4550 m (Wu *et al.* 1595, 28 Aug. 1996).
 [Habit] On scree slopes.
24. **Juncus modicus** N. E. Br. in *J. Linn. Soc.* **36**: 165 (1858).
 [Specimen] Yunnan. Yangbi: around Cangshan, 3800 m (Wu *et al.* 472, 17 Aug. 1997).
 [Habit] On mossy rocks in *Abies* forests.
25. **Juncus potaninii** Buchenau in *Bot. Jahrb.* **12**: 401 (1890).
 [Specimens] Yunnan. Deq: around Daxue Shan, 3800 m (Wu *et al.* 1600, 29 Aug. 1996). Sichuan. Xiaojin: Rilong–Ganhaizi, 3300 m (Ikeda *et al.* 100812, 30 Aug. 1998). Sichuan. Xiaojin: Rilong—a pass of Balang Shan–Rilong, 4100 m (Ikeda *et al.* 100811 29 Aug. 1998).
 [Habit] On mossy rocks in *Abies* forests.
26. **Juncus przewarskii** Buchenau in *Bot. Jahrb.* **12**: 401 (1890).
 [Specimens] Yunnan. Deq: around Daxue Shan, 4300 m (Wu *et al.* 1601, 29 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, Beiyu, 4200–4580 m (Wu *et al.* 1546, 22 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, 4700 m (Wu *et al.* 451, 5 Aug. 1997).
 [Habit] On grassland slopes.
27. **Juncus pseudocastaneus** (Lingelsh.) Sam. in *Hand.-Mazz., Symb. Sin.* **7**: 1230 (1936).
Juncus sikkimensis var. *pseudocastaneus* Lingelsh. apud. *Limpr. f. in Fedde, Repert., Beih.* **12**: 316 (1922).

[Specimens] Sichuan. Daocheng: around Gongga Shan, 4500 m (Wu *et al.* 449, 4 Aug. 1997). Sichuan. Xiaojin: Rilong—a pass of Balang Shan–Rilong, 4100 m (Ikeda *et al.* 100804, 29 Aug. 1998).

[Habit] On marshy places in alpine meadow.

28. **Juncus sphacelatus** Decne. in Jacquem., *Voy.* 4, Bot.: 172, t. 172 (1835).

[Specimens] Sichuan. Daocheng: around Gongga Shan, 4500 m (Wu *et al.* 1562, 23 Aug. 1996). Sichuan. Xiaojin: Rilong—a pass of Balang Shan–Rilong, 4000 m (Ikeda *et al.* 100805, 29 Aug. 1998).

[Habit] On marshy places in alpine meadow.

29. **Juncus thomsonii** Buchenau in Bot. Zeit. **25**: 148 (1867).

[Specimens] Sichuan. Daocheng: Bowa Shan, 4300 m (Wu *et al.* 1518, 17 Aug. 1996). Sichuan. Daocheng: Bowa Shan, 4400 m (Wu *et al.* 1501, 16 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, 4500 m (Wu *et al.* 448, 4 Aug. 1997). Sichuan. Xiaojin: Ganhaizi–Dashuiba–Ganhaizi, 3600 m (Ikeda *et al.* 100820, 31 Aug. 1998).

[Habit] On marshy places in alpine meadow.

30. **Juncus trachyphyllus** Miyam. & H. Ohba in J. Jap. Bot. **72**: 164 (1997).

[Specimens] Sichuan. Daocheng: around Gongga Shan, Zhong Niuan, 4260 m (Wu *et al.* 1540, 21 Aug. 1996). Sichuan. Daocheng: around Gongga Shan, Beiyu, 4200 m (Wu *et al.* 1552, 22 Aug. 1996). Sichuan. Daocheng: Gongga Zhonggu–Riwa Xiang–Gongling–Daocheng, 3900 m (Wu *et al.* 1579, 25 Aug. 1996). Sichuan. Daocheng: around Gongga Zhonggu, 3880 m (Wu *et al.* 443, 3 Aug. 1997).

[Habit] On grassland slopes.