
**虎耳草属 hu er cao shu**

Pan Jintang (潘锦堂); Richard Gornall, Hideaki Ohba

Herbs perennial, rarely annual or biennial. Stem cespitose or simple. Leaves both basal and cauline, petiolate or not; leaf blade simple, entire, margin dentate or lobate; cauline leaves usually alternate, rarely opposite. Inflorescence a solitary flower or few- to many-flowered cyme, bracteate. Flowers usually bisexual, sometimes unisexual, actinomorphic, rarely zygomorphic; receptacle cyathiform or saucer-shaped. Sepals (4 or)5(or 7 or 8). Petals (4 or)5, yellow, orange, white, or red to purple, callose or not, distinctly veined, margin usually entire. Stamens (8 or)10; filaments subulate or clavate. Carpels 2, usually connate at least in placental region; ovary superior to inferior, usually 2-loculed; placentation usually axile; ovules many; integuments 1 or 2; nectary disc sometimes well developed, annular or semiannular. Fruit a 2-valved capsule. Seeds many.

About 450 species: Asia, Europe, North America, South America (Andes), mainly in alpine areas; 216 species (139 endemic) in China.

Two of the present authors (Gornall and Ohba) prefer to segregate *Micranthes* from *Saxifraga* on the basis of certain morphological differences (Webb & Gornall, Saxifrages of Europe, 1987) and data from DNA gene sequences (Solis et al., Amer. J. Bot. 83: 371–382. 1996; and pers. comm.). However, for the purposes of this floristic treatment, *Micranthes* is treated as *S.* sect. *Micranthes*.

1a. Flowering stem leafless; all leaves arranged in a compact, basal rosette, containing crystals; stamen filaments clavate or linear to subulate.

2a. Flowers actinomorphic; seed surface usually longitudinally ribbed, ribs ribbonlike or pectinate; carpel placentas united for less than 1/2 their length ................................................................. 1. *S.* sect. *Micranthes*

2b. Flowers zygomorphic; seed surface not ribbed; carpel placentas united for more than 1/2 their length ................................................................. 2. *S.* sect. *Irregulares*

1b. Flowering stem leafy; leaves distributed along stem, sometimes aggregated toward base, or sometimes forming columnar rosettes, lacking crystals; stamen filaments linear to subulate.

3a. Rhizomes with bulbils; basal leaves petiolate ................................................................. 5. *S.* sect. *Mesogyne*

3b. Rhizomes without bulbils; basal leaves sessile.


4b. Leaves without chalk glands.

5a. Leaves lobed; flower solitary, sessile; petals white; ovary inferior or subinferior . 7. *S.* sect. *Saxifraga*

5b. Leaves usually entire; flowers 1 to several; petals usually yellow; ovary superior to semi-inferior.

6a. Leaf surfaces shiny, glabrous; petals white or cream; sepals erect ............ 3. *S.* sect. *Trachyphyllum*

6b. Character combination not as above ........................................................................... 4. *S.* sect. *Ciliatae*


**小花组 xiao hua zu**


Herbs perennial, usually annual or biennial. Rhizomes short, slender or thick, scaly, fibrous rooted. Stem cespitose or simple. Leaves alternate, all basal in rosettes, distinctly petiolated or tapered at base into a broad, indistinct petiole; leaf blade often carnose or leathery, margin often crenate, serrate, or dentate, rarely entire; hydathodes set in leaf margin, equidistant between abaxial and adaxial surfaces, not secreting chalk; foliar crystals present as druses. Flowering stem scapose, sometimes with leaflike bracts; inflorescence cymose, either lax or often much congested and restricted to apex of stem, usually several flowered. Flowers bisexual, usually actinomorphic. Sepals 5. Petals 5(5 or 7 or 8), usually white, rarely purplish, sometimes with yellow, orange, or purple spots. Stamens 10; filaments linear, subulate, or clavate; pollen 2-nucleate; exine tectum reticulate. Carpels 2, ovuliferous part united only at base or for up to 1/2 its length; styles free; nectary a band or fleshy disc adnate to and encircling base of ovary; ovary superior to more than 1/2 inferior, markedly expanding in fruit; integument 1. Fruit follicular (when carpels united only at base and placentation marginal) or a 2-loculed capsule (when ovuliferous portions united for up to 1/2 their length and placentation axile proximally and marginal distally), often inflated, dehiscing to middle or base. Seeds many, ellipsoid to fusiform, with longitudinal, ribbonlike, undulating or distinctly pectinate ribs, occasionally ribs indistinct or absent.

About 70 species: Asia, Europe, North America, mainly in montane areas; 13 species (six endemic) in China.

1a. Stamen filaments clavate.

2a. Leaves reniform to cordate; petiole slender, radially symmetric.

3a. Stamens shorter than or equaling petals ................................................................. 1. *S.* nelsoniana

3b. Stamens longer than petals ........................................................................... 2. *S.* manchurienensis

2b. Leaves cuneate to truncate; petiole broad, flattened.
4a. Basal leaves spatulate.
   5a. Plants at least 6 cm tall; inflorescence more than 7-flowered; carpels strongly divergent in fruit ................................................................. 3. S. davidii
5b. Plants to 6 cm tall; inflorescence 2- or 3-flowered; carpels not strongly divergent in fruit 4. S. clavistaminea
4b. Basal leaves ovate to oblong-ovate.
   6a. Inflorescence 4–13-flowered ...................................................... 5. S. pallida
   6b. Inflorescence 1- or 2-flowered, flower nodding if solitary ........................................ 6. S. parvula
1b. Stamen filaments linear or subulate.
   7a. Leaf blade glabrous on both surfaces, margin entire .......................................................... 8. S. dungbooi
   7b. Leaf blade glabrous or pubescent on both surfaces, margin crenate-dentate.
5. S. pallida
8a. Petals not overlapping, narrowly ovate, less than 1.8 mm wide.
   9a. Inflorescence ± cylindric; petals red or purple ................................................................ 10. S. lumpuensis
   9b. Inflorescence corymbose; petals white or pink.
      10a. Petals white or pink, 1-veined ........................................................................ 11. S. zekoensis
      10b. Petals white, 3-veined .................................................................................. 12. S. divaricata
8b. Petals overlapping, ovate to broadly so, more than 1.8 mm wide.
   11a. Ovary broadly ovoid, broader than long; petals white, rarely red or purple ............ 7. S. melanocentra
   11b. Ovary ovate, at least as long as broad; petals white, red, or purple


S. nelsoniana

Miranthes aestivalis (Fischer & C. A. Meyer) Small; M. nelsoniana (D. Don) Small; Saxifraga aestivalis
Fischer & C. A. Meyer; S. punctata Linnaeus subsp. nelsoniana (D. Don) Hultén; S. punctata var. nelsoniana (D. Don) Engler.

S. nelsoniana

Stem 22–33 cm tall, glandular pilose. Petiole 4–10.7 cm, glandular pilose; leaf blade reniform, 1.6–5.5 × 1.9–6.5 cm, adaxially glandular pubescent, paltmately veined, margin 19–21-dentate, glandular ciliate, teeth broadly ovate. Inflorescence paniculate, 5–15 cm, 30–52-flowered; branches and pedicels glandular hairy. Hypanthium ca. 0.6 mm, glabrous. Sepals reflexed, ovate to broadly so, 0.7–1.3 × 0.7–1 mm, glabrous, 1-veined. Petals white or lilac, ovate, 2.1–2.7 × 1.6–1.8 mm, 1-veined, base contracted into a claw 0.5–0.7 mm, apex retuse. Stamens 2–3 mm; filaments clavate. Carpels subsuperior to superior, united only at base, purple or green, conical, with a basal, annular nectary; styles erect or slightly spreading, 0.2–0.5 mm; follicles erect or slightly divergent, bottle-shaped, 5–6 mm. Fl. Jul, Aug. 2n = 28, 30, 32, 40, ca. 60, 70, 76, 80, 84, ca. 88.

Pinus koraiensis forests, forest margins, rock crevices; 1700–2300 m. Heilongjiang, Jilin, Nei Mongol [Korea, Mongolia, Russia; North America].

The name Saxifraga punctata Linnaeus has become hopelessly confused in the literature and, following Webb (Repert. Spec. Nov. Regni Veg. 69: 153–154, 1964), the present authors have abandoned it as a nomen conflation. The type of S. punctata actually belongs to the species known widely as S. davurica Willdenow. The next available name for the species under consideration is S. nelsoniana.
Stem 7.5–30 cm tall, crisped glandular villous. Petiole ca. 1.5 cm, margin villous; leaf blade obovate, 2.5–8.5 × 1.5–4 cm, glandular pubescent, pinniveined, base cuneate, margin crenate to dentate-serrate, apex obtuse. Inflorescence paniculate, elongate, 7–30-flowered; branches to 4.5 cm, glandular pubescent; pedicels ca. 8 mm, glandular pubescent. Sepals reflexed, subtriangular to ovate, ca. 2 × 1.1–1.2 mm, glabrous, veins 3, confluent into a verruca, apex subobtuse or acute. Petals white, with a yellow spot at base, elliptic to ovate, 3.2–3.6 × 1.3–1.6 mm, 3- or 4-veined, with a claw 0.2–0.3 mm, apex obtuse or retuse. Stamens ca. 2.3 mm; filaments clavate; anthers brown. Carpels subsuperior to superior, united only at base, conical, with a basal, narrow, annular nectary; stigmas subsessile; follicles widely divergent, bottle-shaped, ventrally convex, 5–9 mm. Fl. Apr–May.

Rock crevices in ravines; 1500–2400 m. W Sichuan [N Myanmar].


桜蕊虎耳草 bang rui hu er cao

Micranthes clavistaminea (Engler & Irmscher) Losinskaja; S. blinii H. Léveillé.

Stem 4.2–5.5 cm tall, glandular villous. Sterile branches present. Petiole ca. 6 mm, margin villous; leaf blade obovate-elliptic, 2–2.4 × 1.2–1.9 cm, abaxially glandular villous near midvein, adaxially glandular pubescent, margin doubly serratate and multicellular glandular ciliate, apex obtuse or acute. Inflorescence 2- or 3-flowered; pedicels pilose. Sepals reflexed, ovate, ca. 3.1 × 1.4 mm, glabrous, veins 3, confluent into a verruca at apex. Petals white, proximally with 2 yellow spots, ovate, 4.3–4.6 × 2–2.1 mm, 3-veined, base with a claw 0.3–0.5 mm, apex obtuse. Stamens ca. 3 mm; filaments clavate. Carpels subsuperior to superior, united only at base, conical, with a basal, thick, annular nectary; stigmas subsessile; follicles bottle-shaped. Fl. May–Jul.

• Forests, rock crevices in valleys; 2300–3600 m. WC Sichuan (Shimian Xian), C and W Yunnan (Dali Xian, Jingdong Xian, Luquan Xian).

5. Saxifraga pallida Wallich ex Seringe in de Candolle, Prodr. 4: 38. 1830.

微虎耳草 wei hu er cao

Micranthes pallida (Wallich ex Seringe) Losinskaja; M. pallidiformis (Engler) Losinskaja; Saxifraga clavistamineoides T. C. Ku; S. himalaica N. P. Balakrishnan; S. micrantha Edgeworth (1846), not Fischer ex de Candolle (1830); S. micrantha var. micrantha f. corymbiflora Engler & Irmscher; S. micrantha var. micrantha f. foliosa Engler & Irmscher; S. micrantha var. micrantha f. minor Engler & Irmscher; S. micrantha var. monbeigii Engler & Irmscher; S. micrantha var. yunnanensis Franchet; S. micranthoides Engler; S. pallida Wallich ex Seringe f. bracteosus Engler & Irmscher; S. pallida f. foliosa Engler & Irmscher; S. pallida f. geoides J. Anthony; S. pallida var. monbeigii Engler & Irmscher; S. pallidiformis Engler.

Stem 3.5–33 cm tall, piliferous. Petiole 1–10 cm, adaxially and marginally piliferous; leaf blade narrowly to broadly ovate, rarely obovate, 1.3–8 × 0.7–3.7 cm, adaxially piliferous, base cuneate or truncate to subcordate, margin 11–25-crenate or obtusely dentate, ciliate, apex obtuse. Inflorescence paniculate, 4–20 cm, 4–13-flowered; branches and pedicels pubescent; most proximal bract ovate to narrowly so, 1.2–4 × 0.5–2 cm, adaxially pubescent, base with a stalk 2–7 mm, margin dentate, ciliate, apex acute. Sepals spreading to reflexed, ovate to narrowly so, 3.3–3.8 × 1–2 mm, both surfaces usually glabrous, rarely abaxially pilose, veins 3–7, confluent at apex, margin pilose at base. Petals white, proximally with 2 yellow spots, ovate, 4.4–4.4 × 2–3 mm, 3–7-veined, base with a claw 0.6–0.9 mm, apex acute, obtuse, or retuse. Stamens 2.5–4 mm; filaments clavate; anthers purple. Ovary up to 1/3 inferior, green or tinged purple, ovoid, 1.6–3 mm, with an annular nectary; styles 1–1.5 mm. Capsule 5–8 mm; carpels divergent distally. Fl. and fr. Jul–Oct. 2n = 22*, 44, 66*.

Forests, alpine scrub, alpine meadows, alpine rock crevices; 3000–5000 m. S Gansu, W Sichuan, SE Xizang, NW Yunnan [Butan, N India, Kashmir, Nepal, Sikkim].

Saxifraga pallida is a variable species. Two of the present authors (Gornall and Ohba) believe that there are at least two varieties that may or may not correspond in some way with the variation in chromosome number. Diploid plants (2n = 22) have small leaf blades (usually less than 3 cm); they also exist as two morphs: one Chinese, with petals more than 3 × 2 mm, and the other Himalayan, with petals less than 3 × 1.5 mm. Tetraploid plants (2n = 44) have longer leaf blades more than 3 cm, but are also represented by two variants each with its own distinctive karyotype. Preliminary cytological details have been published by Wakabayashi (News. Himalayan Bot. 21: 9–13. 1997). Further work is needed to devise a taxonomy that reflects the complex pattern of variation.


微虎耳草 wei hu er cao

Micranthes parvula (Engler & Irmscher) Losinskaja.

Stem 2.7–4 cm tall, slender, crisped villous. Leaves spatulate, 1.4–1.8 cm × 6.5–8 mm, leathery, crisped villous abaxially and adaxially distally, base gradually narrowed, margin 7–9-serrate, ciliate, apex subobtuse. Inflorescence 1- or 2-flowered; pedicels 5–13 mm, crisped villous. Sepals spreading, ovate to triangular-ovate, 2.5–2.8 × 2.3–3 mm, subcarneous, veins 3, confluent into a verruca at apex, margin sparsely ciliate, apex subobtuse. Petals white, proximally 2-spotted, ovate to elliptic, 3.3–3.5 × 2.4–2.6 mm, 3-veined, base with a claw ca. 0.5 mm, apex subobtuse. Stamens ca. 2 mm; filaments ± clavate; anthers black. Ovary up to 1/3 inferior, tinged purple, broadly ovoid; nectary indistinct; styles ca. 0.3 mm thick. Capsule ovoid, ca. 2.8 cm; carpels divergent distally. Fl. Jul–Aug.
Alpine scrub meadows, alpine rock crevices; 3800–5700 m. NW Yunnan.


subglobose, ca. 3.5 × 3 mm; carpels distally divergent. Fl. Jun–Jul.

- Forests, slopes, alpine meadows, by water; 3500–4100 m. S Gansu, W Sichuan.


泽库虎耳草 ze ku hu er cao

Stem 15–19 cm tall, white crisped villous. Petiole 1.7–2.5 cm, sparsely crisped villous; leaf blade ovate to lanceolate-oblong, 1.5–3 × ca. 1.4 cm, both surfaces ± pilose, pinnivenived, margin serrate, sparsely ciliate, apex acute. Inflorescence corymbose, 10–11 cm, 21–29-flowered; branches 2–8 cm, 2–4-flowered; bracts linear, ca. 1.5 cm × 2.5 mm, both surfaces glabrous, margin crisped villous; pedicels densely white crisped villous. Sepals spreading, triangular-ovate, 3.2–3.5 × 1.8–2 mm, glabrous, veins 4–8, confluent into a verruca at apex, apex acute. Petals white or pink with lilac claw, narrowly ovate to suboblong, 2.5–3 × 1–1.3 mm, 1-veined, base contracted into a claw 0.5–0.9 mm, apex obtuse or retuse. Stamens 1.5–4 mm; filaments subulate; anthers purple. Ovary semi-inferior, dark purple, broadly ovoid, ca. 2.5 mm, with an annular nectary; styles 0.5–2 mm. Capsule oblong-ovoid, 4–5 mm; carpels divergent distally. Fl. and fr. Jul–Sep.

- Alpine meadows; ca. 3000 m. E Qinghai (Zêkog Xian).


叉枝虎耳草 cha zhi hu er cao

Micranthes divaricata (Engler & Irmscher) Losinskaja.

Stem 3.7–10 cm tall, white crisped glandular villous. Petiole 1.7–3 cm, glabrous; leaf blade ovate to oblong, 0.7–2.4 cm × 3–13 mm, glabrous, base cuneate, margin serrate or entire, apex obtuse or acute. Inflorescence paniculate, 5–14-flowered; branches and pedicels glandular pubescent; bracts lanceolate or linear, 2–12 mm. Sepals reflexed, ovate, 2.3–2.5 × ca. 1.5 mm, subcarnose, glabrous, veins 3, confluent at apex, apex acute. Petals white, proximally with 2 yellow spots, ovate or narrowly so to oblong, 3–4.5 × 1.8–2 mm, 3–5-veined, base contracted into a claw 1–1.1 mm, apex subobtuse or acute. Stamens ca. 3 mm; filaments subulate. Ovary subsuperior, green, ovoid, 2–2.5 mm; styles ca. 0.2 mm. Capsule 5–7 mm. Fl. and fr. Jul–Aug. 2n = 20.

- Scrub meadows, marsh meadows; 3400–4500 m. SE Qinghai, W Sichuan, Xizang.


长白虎耳草 chang bai hu er cao

Saxifraga takedana Nakai.

Stem 6–26 cm tall, glandular piliferous. Leaves usually spatulate, 1.3–3 cm × 4–10 mm, subcarnose, adaxially glandular piliferous, margin entire proximally, coarsely 5–8-serrate distally, glandular ciliate, apex acute. Inflorescence corymbose, 1.7–13 cm, 5–7-flowered; branches and pedicels glandular pubescent; bracts lanceolate or linear, 2–12 mm. Sepals reflexed, ovate, 2.3–2.5 × ca. 1.5 mm, subcarnose, glabrous, veins 3, confluent at apex, apex acute. Petals white, proximally with 2 yellow spots, ovate or narrowly so to oblong, 3–4.5 × 1.8–2 mm, 3–5-veined, base contracted into a claw 1–1.1 mm, apex subobtuse or acute. Stamens ca. 3 mm; filaments subulate. Ovary subsuperior, green, ovoid, 2–2.5 mm; styles ca. 0.2 mm. Capsule 5–7 mm. Fl. and fr. Jul–Aug.

- Meadows, rock crevices; 2300–2600 m. Jilin [Japan, Korea, Russia (Sakhalin)].


石荷叶组 shi he ye zu

Diptera Borkhausen.

Herbs perennial, forming erect individuals, lacking basal bulbils. Leaves alternate, all basal, petiolate; leaf blade herbaceous or leathery, lacking chalk glands, margin lobed; foliar crystals present mainly as druses. Flowering stem usually scapose; inflorescence cymose. Flowers bisexual, zygomorphic, 5-merous. Petals white or pink, not callose. Filaments clavate; pollen 2-nucleate, exine tectum smooth. Carpels connate at least proximally, dehiscing distally in fruit. Ovary superior. Integuments 2.

About ten species: China, Japan; seven species (four endemic) in China.

1a. Stolons arising from axils of basal leaves, filiform ................................................................. 20. S. stolonifera
1b. Stolons absent.
   2a. Leaf blade peltate or ovate to broadly so, or elliptic to oblong, abaxially sometimes brown spotted.
      3a. Leaf blade peltate or ovate to broadly so, abaxially brown spotted .................................. 18. S. mengtzeana
      3b. Leaf blade elliptic to oblong ............................................................. 14. S. kwangsiensis
2b. Leaf blade reniform to orbicular, abaxially usually concolorous.
   4a. Leaf blade with foliar embryos in sinus adaxially ................................................................. 19. S. epiphylla
   4b. Leaf blade without foliar embryos.
      5a. Longest petal serrat e at margin ................................................................. 17. S. fortunei
      5b. Longest petal entire at margin.
6a. Flowering stem and inflorescence reddish long glandular villous ....................... 15. S. rufescens
6b. Flowering stem and inflorescence shortly glandular pubescent ....................... 16. S. imparilis


龙胜虎耳草  long sheng hu er cao
Saxifraga longshengensis J. T. Pan.

Plants ca. 32 cm tall. Rhizomes extremely short. Leaves all basal; petiole 3–7.5 cm, glandular strigose; leaf blade elliptic to oblong, 2.4–6.5 × 1.1–2.2 cm, both surfaces strigose, base cuneate, distal margin serrate, apex acute. Scape sparsely glandular hairy. Inflorescence ca. 11 cm, ca. 16-flowered; branches slender, to 8 cm; pedicels ca. 1.2 cm, slender, glandular pilose. Sepals 5, spreading, subovate, 2–2.3 × ca. 1.2 mm, glandular pilose, veins 3, partly confluent at apex, apex obtuse. Petals 5, white; shortest 3 petals ovate, 3.5–4 × 2–2.4 mm, base with a claw ca. 0.4 mm, apex acute; longest 2 petals linear, 1.7–2 cm × 2–2.2 mm, veins 3, partly confluent at apex, base with a claw 1–1.5 mm, apex acute. Stamens ca. 5 mm. Carpels ca. 4.5 mm; ovary ovoid, ca. 2 mm; styles divergent, ca. 2.5 mm. Fl. and fr. Jul.–Oct.

• Rock crevices by water; ca. 800 m. NE Guangxi (Longsheng Ge Zu Zizhiqian).


红毛虎耳草  hong mao hu er cao
Saxifraga rufescens (L.) hong mao hu er cao (yuan bian zhong)

Diptera sinensis Losinskaja; Saxifraga sinensis Engler & Irmscher (1919), not S. chinensis Loureiro (1790); S. sinensis var. discolor Engler & Irmscher.

Leaf blade cordate at base. Petals glandular ciliate at margin; shortest 4 petals 3(–7)-veined, longest petal 3–9-veined.

• Forests, forest margins, scrub, alpine meadows, alpine rock crevices; 1000–4000 m. W Hubei, Sichuan, SE Xizang (Zayü Xian), Yunnan.

15b. Saxifraga rufescens var. uninervata

单脉红毛虎耳草  dan mai hong mao hu er cao
Leaf blade ciliate at base. Petals 1-veined, margin glabrous.

• Slopes; ca. 2400 m. SC Sichuan (Hongxi).


扇叶虎耳草  shan ye hu er cao

Leaf blade usually cuneate to truncate at base. Petals 3–5 (–8)-veined.

• Forests, wetlands at sides of valleys, rock crevices; 600–2100 m. NE Sichuan, W Yunnan (Kunming Shi).

This variety probably deserves recognition at specific rank on account of its very distinctive leaf shape. In that case, the correct name for the taxon would be Saxifraga zhejiangensis.


大字虎耳草  da zi hu er cao
Saxifraga martini H. Lévéillé & Vaniot.

Plants ca. 17 cm tall. Petiole 7–10.5 cm, glabrous; leaf blade reniform, 3.5–4.2 × 3.2–5 cm, adaxially and marginally glandular hairy, base cordate, margin 10–11-lobed, apex obtuse; lobes irregularly dentate at margin. Cyme paniculate, ca. 12.5 cm, ca. 16-flowered; branches slender, 4.5–6 cm, sparsely glandular hairy; pedicels 1.5–1.8 cm, shortly brown glandular hairy. Sepals reflexed, subovate, ca. 1.7 × 1 mm, abaxially

1000–4000 m. W Hubei, Sichuan, SE Xizang (Zayü Xian), Yunnan.

15a. Saxifraga rufescens var. rufescens

红毛虎耳草(原变种)  hong mao hu er cao (yuan bian zhong)
and marginally sparsely brown glandular hairy, veins 3, confluent into a verruca at apex. Petals 5, white; shortest 3 petals narrowly ovate, 3.6–4 × ca. 1 mm, 1-veined, base with a claw 0.6–0.7 mm, apex acute; longer petal linear-lanceolate, ca. 6.3 × 1 mm, base with a claw ca. 0.8 mm, 3-veined; longest petal linear-lanceolate, 1.3–1.5 cm × ca. 1 mm, arcurately 3–5-veined, base with a claw 0.8–1.5 mm. Stamens ca. 5 mm. Ovary ovoid; styles divergent. Fl. and fr. Jul.–Oct.

- Scrub, shaded wet rock crevices; 1800–4000 m. C and SE Yunnan.

This species is closely related to Saxifraga rafescens var. rafescens.


**齿瓣虎耳草**

Plants 24–40 cm tall. Petiole 5–18.5 cm, glandular villous; leaf blade reniform to subcordate, 3.3–16 × 3.8–20 cm, abaxially glandular villous, palmately veined, base cordate, margin 7–11-lobed; lobes broadly ovate, margin irregularly dentate, glandular ciliate, apex obtuse or acute. Scape red-brown crisped glandular villous. Inflorescence paniculate, 11.5–32 cm, ca. 35-flowered; branches slender, 6–6.5 cm, glandular villous; bracts narrowly triangular, 7–8 mm, abaxially glandular hairy on both surfaces and marginally glandular hairy, veins 3 and confluent at apex or 1, apex obtuse or acute. Petals 5, white to reddish; shortest 3 petals ovate, 1.3–1.5 cm × ca. 1 mm, arcuately 3–5-veined, base with a claw ca. 0.8 mm, 3-veined; longest petal linear-lanceolate, ca. 6.3 × 1 mm, base with a claw ca. 1 mm, apex acute to shortly acuminate. Stamens 4–5 mm. Carpels 3.2–4 mm; styles divergent. Fl. and fr. Jul.–Oct.

- Forests, rock crevices at brookside. S Jilin (Ji’an Xian), Liaoning [Korea].

**17a. Saxifraga fortunei var. koraensis**


**镜叶虎耳草**

Sepals glandular hairy on both surfaces and at margin, 1-veined. Petals entire and glabrous at margin. Forests, rock crevices at brookside. S Jilin (Ji’an Xian), Liaoning [Korea].


**蒙自虎耳草**

Diptera mengtzeana (Engler & Irmscher) Losinskaja; Saxifraga aculeata I. B. Balfour; S. gelifolia I. B. Balfour (1916), not Saint-Lager (1880); S. henryi I. B. Balfour; S. lancangensis Y. Y. Qian; S. mengtzeana var. cordatifolia Engler & Irmscher; S. mengtzeana var. pettifolia Engler & Irmscher; S. ovatocordata Handel-Mazzetti.

Plants 21–25 cm tall. Rhizomes rather short. Stem glandular piliferous. Basal leaves with petiole 1.1–1.2 cm, densely glandular piliferous; leaf blade peltate or ovate to broadly so, 1.5–7.6 × 1.2–6 cm, leathery, abaxially sparsely hispid and brown spotted, base ± cordate, without a foliar embryo in sinus, margin crenate, apex acute. Cauline leaves lanceolate, ca. 4.5 × 1 mm, margin glandular ciliate. Inflorescence paniculate, ca. 8.7 cm, 16–18-flowered; branches 2.4–5 cm, glandular pubescent, 2- or 3-flowered; pedicels slender, 1.3–3 cm, glandular pubescent. Sepals spreading to reflexed, narrowly ovate, ca. 3 × 1 mm, abaxially and marginally glandular hairy, veins 3, confluent into a verruca at apex. Petals 5, white; shortest 3 petals triangular-ovate, 3.6–4 × ca. 1 mm, 1-veined and glabrous at margin. Stamens 3–4 mm. Carpels 3.2–4 mm; ovary ovoid; styles divergent. Fl. and fr. May–Oct.

- Forests, slopes; 1100–1900 m. Guangdong, SE Yunnan (Mengzi Xian, Yanshan Xian).

In FRPS, the names Saxifraga mengtzeana and S. aculeata were applied to taxa without and with foliar embryos, respectively. However, the holotype of S. aculeata (Henry 10316B (E), which lacks foliar embryos) is an isosyntype and the designated lectotype (Gornall et al., Novon 10: 376. 2000) of the earlier name S. mengtzeana, of which S. aculeata is therefore a synonym. The taxon with foliar embryos is dealt with below as S. epiphylla.


**卵心叶虎耳草**

Plants 20–36 cm tall. Rhizomes rather short. Stem simple, brown glandular hairy. Basal leaves with petiole 1.5–12 cm, brown glandular hairy; leaf blade usually ovate, rarely broadly ovate to reniform, 1.2–10
× 1–8.4 cm, leathery, both surfaces glandular hispid and spotted, basecordate, with a foliar embryo in sinus,margin undulate, thickly dentate, glandular ciliate, apexobtuse or acute. Cauline leaves 1–4, lanceolate to ovate,2.5–5 × ca. 1.1 mm, abaxially and marginally glandularhair, 1-veined. Inflorescence paniculate, 13–22 cm,12–30-flowered; branches 3–9.5 cm, glandular hairy,2.4–flowered; pedicels slender, 0.6–2 cm, sparselyglandular hairy. Sepals spreading to reflexed, ovate,1.6–4 × 1–1.6 mm, abaxially and marginally glandularhairy, veins (2 or)3, confluent into a verruca at apex,apex obtuse or acute. Petals 5, white; shortest 3 petalsovate, 2–4.5 × 1.3–2.2 mm, (1–)3–5-veined, base with aclaw 0.2–1 mm, apex acute to shortly acuminate; longerpetal lanceolate to linear-lanceolate, 0.3–1.8 cm × 1.2–2mm, 3–(12)-veined, base with a claw 0.3–1 mm;longest petal linear-lanceolate to lanceolate, 1.3–2.9 cm× 2.2–7.5 mm, 5–9(–15)-veined, base graduallycontracted into a claw 0.2–2 mm, apex acute to subacuminate. Stamens 4.5–5.5 mm. Carpels 4.5–5.1 mm;ovary ovoid, 2–3.3 mm; styles 1.8–3.2 mm. Fl. and fr.May–Oct.


This is a polymorphic taxon, of which many variants have been

differentiated; leaf blade leathery, lacking chalk glands and crystals, margin usually entire, occasionally toothed or lobed. Flowering stem leafy; inflorescence cymose. Flowers bisexual, actinomorphic, 5-merous. Petals white to different colors; shortest 3 petals ovate, 2–4.5 × 1.3–2 mm, 3–5(–12)-veined, base with aclaw 0.3–1 mm; longest petal linear-lanceolate to lanceolate, 0.3–1.8 cm × 1.2–2 mm, 3–12-veined, base with a claw 0.3–1 mm; longer petal linear-lanceolate to lanceolate, 1.3–2.9 cm × 2.2–7.5 mm, 5–9(–15)-veined, base gradually contracted into a claw 0.2–2 mm, apex acute to subacuminate. Stamens 4.5–5.5 mm. Carpels 4.5–5.1 mm; ovary ovoid, 2–3.3 mm; styles 1.8–3.2 mm. Fl. and fr.


Herbs perennial, forming low cushions or sprawling mats, lacking basal bulbs. Leaves alternate; petiole white to cream, sometimes spotted red or orange, not callose. Filaments subulate to linear; pollen 2-nucleate, exine tectum ciliate, veil present. Carpels connate for most of placental region, dehiscing distally in fruit; ovary subsuperior. Integuments 2.

About ten species: Asia, Europe, North America, mainly in arctic and montane regions; one species in China.


Stem glandular hairy, flowers bisexual, actinomorphic, 5-merous. Petals white to cream, sometimes spotted red or orange, not callose. Filaments subulate to linear; pollen 2-nucleate, exine tectum ciliate, veil present. Carpels connate for most of placental region, dehiscing distally in fruit; ovary subsuperior. Integuments 2.

About ten species: Asia, Europe, North America, mainly in arctic and montane regions; one species in China.

Plants 10–20 cm tall. Shoots numerous, with dense rossettes. Flowering stem slender, glandularpubescent or glabrous. Rosette leaves linear-lanceolate,7.5–9 × 1.4–1.6 mm, leathery, glabrous except margincartilaginous ciliate and apex cartilaginous aristate.Cauline leaves linear, 5.2–6 × 0.8–1 mm, leathery,margin cartilaginous ciliate, apex cartilaginous aristate.Cyme 3–5-flowered; branches slender, glandular pilose,sometimes with buds in bract axils. Sepals spreading,ovate, ca. 1.8 × 1.2 mm, subcarnose, abaxially andmarginally glandular pilose, veins 3 or 4, free, apexacute. Petals yellowish white, crimson spotted, oblongelliptic, 5–6 × 2–2.5 mm, not callose, 3-veined, base ±truncate, clawless, apex acute. Stamens ca. 5 mm.Ovary ovoid, 2–3 mm; styles ca. 1.5 mm. Fl. and fr.Jun–Aug. 2n = 26, 28, 38, ca. 44–66, 65, 80, 92, 112, 150.

Rock crevices on slopes; 800–1500 m. Heilongjiang, Nei Mongol [Mongolia, Russia; North America].

This is a polymorphic taxon, of which many variants have been treated as separate species. The Chinese plants described above appear to belong to subs. bronchialis. Further work on the whole
complex throughout its range is needed in order to clarify the situation.


山羊臭组 shan yang xiu zu

_Hirculus_ Haworth.

Herbs mostly perennial, some possibly annual, biennial, or monocarpic perennial (suspected rather than demonstrated), forming erect individuals, cespitose clumps, cushions, or sprawling mats, lacking basal bulbils. Leaves alternate, very rarely opposite, petiolate or not; leaf blade herbaceous or carnose, lacking chalk glands and crystals, margin usually entire, occasionally toothed or lobed. Flowering stem usually leafy; inflorescence cymose or flower solitary. Flowers sometimes unisexual, actinomorphic, 5-merous. Petals usually yellow or orange, occasionally white, pink, or red, sometimes spotted orange, red, or purple, very often with callosities. Filaments subulate to linear; pollen 3-nucleate, exine tectum finely striate. Carpels connate for most of placental region, dehiscing distally in fruit; ovary subsuperior to subinferior. Integuments 2.

About 175 species: Asia, Europe, North America, mainly in arctic and montane regions; 166 species (112 endemic) in China.

1a. At least proximal stem nodes and petiole bases with brown, crisped, villous hairs (mostly eglandular).
   2a. Leaves often glaucous, with prominent, submarginal vein running from proximal to distal ends; basal or proximal leaves glandular pilose abaxially, ± glabrous adaxially .................................................. Key 5
   2b. Leaves not glaucous, with veins set in from, and none obviously associated with, margin; leaf pubescence variable.
   3a. Pedicels with short, glandular hairs, glands brown or black, occasionally present together with brown, long, crisped, villous hairs, or glabrous .................................................. Key 6
   3b. Pedicels with brown, long, crisped, villous hairs .................................................. Key 3

1b. Stem nodes with straight, glandular hairs, glands brown or black.
   4a. Rosette leaves producing axillary, filiform stolons .................................................. Key 1
   4b. Rosette leaves, if any, not producing axillary stolons.

   5a. Pedicels with short, glandular hairs, glands brown or black, occasionally present together with brown, long, crisped, villous hairs, or glabrous .................................................. Key 7
   5b. Pedicels with brown, long, crisped, villous hairs .................................................. Key 6

Key 1

1a. Petals shorter than or only slightly exceeding sepals.
   2a. Basal leaves glabrous adaxially.
   3a. Stolons arising from axes of basal leaves; glands on cauline leaves with clavate heads . 185. _S. consanguinea_
   3b. Stolons arising from axes of median leaves; glands on cauline leaves with globose heads . 184. _S. tentaculata_

2b. Basal leaves glandular pubescent adaxially.
   4a. Cauline leaves to 2 mm wide .................................................................................. 187. _S. angustata_
   4b. Cauline leaves more than 2 mm wide.
      5a. Petals not overlapping, to 1.5 mm wide ................................................................. 186. _S. microgyna_
      5b. Petals overlapping, more than 2 mm wide.
         6a. Sepal veins confluent into a verruca at apex ......................................................... 182. _S. deqenensis_
         6b. Sepal veins not confluent at apex ........................................................................ 183. _S. nangxianensis_
   1b. Petals at least 1.5 × as long as sepals.
   7a. Median leaves forming a rosette with stolons arising from axes ................................ 181. _S. flaccida_
   7b. Basal leaves forming a rosette with stolons arising from axes.
      8a. Pedicels at least 3 × as long as cauline leaves; cyme lax, many flowered.
         9a. Capsule subglobose; petals at least 3 mm wide; sepals spreading ......................... 178. _S. brunonis_
         9b. Capsule narrowly ovoid; petals less than 2.5 mm wide; sepals spreading to reflexed ....... 179. _S. josephii_
     8b. Pedicels mostly less than 2 × as long as cauline leaves; cyme corymbose, compact, or flower solitary.
        10a. Margin of basal leaves coarsely eglandular setose-ciliate, longest bristles 0.5–1 mm.
           11a. Inflorescence not clearly umbellate, 2–5-flowered or flower solitary; stolons slender; cauline leaves shorter than or equaling basal leaves .................................................. 176. _S. mucronulata_
11b. Inflorescence umbellate, more than 5-flowered; stolons robust; cauline leaves equaling or longer than basal leaves ................................................................. 177. *S. macronulatoides*

10b. Margin of basal leaves slender ciliate, often glandular, longest hairs less than 0.5 mm.
12a. Cauline leaves ca. 4 x as long as internodes, both surfaces glabrous ......................... 180. *S. loripes*
12b. Cauline leaves up to 2 x as long as internodes, both surfaces glandular pubescent.
13a. Stem usually more than 5 cm tall; petals more than 8 mm; ovary superior ........... 174. *S. stenophylla*
13b. Stem usually less than 5 cm tall; petals less than 8 mm; ovary semi-inferior .......... 175. *S. parkaensis*

**Key 2**

1a. Leaf margin coarsely toothed or lobed.
2a. Leaf buds conspicuous in axils of bracts; sepals reflexed in fruit; petals white ....................... 108. *S. strigosa*
2b. Leaf buds conspicuous or inconspicuous in axils of proximal leaves; sepals erect or spreading in fruit; petals yellow.
3a. Median leaves distributed evenly along stem, each usually with 3(or 5) apical lobes; inflorescence branches 1-flowered ................................................................. 106. *S. hispidula*
3b. Median leaves aggregated, often into a rosette, each with several teeth; inflorescence branches 2- or more flowered ......................................................... 107. *S. substrigosa*

1b. Leaf margin entire.
4a. Leaves pubescent adaxially.
5a. Leaf margin eglandular setose-ciliate; petals white .................................................. 109. *S. gemmipara*
5b. Leaf margin glandular hairy; petals yellow .............................................................. 105. *S. balfourii*
4b. Leaves glabrous adaxially.
6a. Proximal leaves scalelike, with leaf buds in axils, median leaves best developed.
7a. Leaves linear, less than 1 mm wide.
8a. Stem many branched; leaf buds present in leaf and bract axils; pedicels glandular hairy; sepals glandular hairy abaxially; petals 2-4-callose .................................................. 111. *S. filicaulis*
8b. Stem simple; leaf buds absent in leaf and bract axils; pedicels glabrous; sepals glabrous on both surfaces; petals not callose ................................................................. 112. *S. wenchuanensis*
7b. Leaves ovate, oblanceolate, occasionally linear, but more than 1 mm wide.
9a. Leaves oblong to narrowly subovate, largest more than 8 mm, margin recurved ........ 110. *S. oreophila*
9b. Leaves suboblong or subspatulate, largest to 8 mm, margin flat ............................... 113. *S. macrostigmatoides*
6b. Proximal leaves nearly as well developed as median ones.
10a. At least some leaves aggregated into an apparently basal rosette, distal cauline leaves ca. 1/2 size of rosette leaves ................................................................................................................. 121. *S. cinerascens*
10b. Leaves distributed ± evenly along stem, size differences gradual.
11a. Plants less than 3 cm tall; flower solitary, apparently sessile ................................. 120. *S. erinacea*
11b. Plants more than 5 cm tall; flowers solitary or more than 1, pedicel at least 5 mm.
12a. Petal margin glandular ciliate or eglandular laciniate.
13a. Flower solitary .......................................................... 119. *S. wardii*
13b. Flowers 2 or 3 in a compact corymb ................................................................. 118. *S. gouldii*
12b. Petal margin entire, glabrous.
14a. Leaf margin not cartilaginous; leaf buds developing shoots more than 5 mm by anthesis ................................................................. 113. *S. macrostigmatoides*
14b. Leaf margin cartilaginous; leaf buds ± undeveloped by anthesis.
15a. Broadest leaves at least 3 mm wide ................................................................. 114. *S. wallichiana*
15b. Broadest leaves to 3 mm wide.
16a. Pedicels glabrous .......................................................... 116. *S. brachypodoidea*
16b. Pedicels glandular hairy.
17a. Distal cauline leaves glandular hairy abaxially .................................................. 117. *S. zayuensis*
17b. Distal cauline leaves glabrous abaxially .......................................................... 115. *S. brachypoda*

**Key 3**

1a. Margin of petals brown crisped villous ......................................................................... 89. *S. ciliatopetala*
1b. Margin of petals glabrous.
2a. Basal leaves absent at anthesis.
3a. Inflorescence a compact cyme of several flowers ........................................... 91. *S. congestiflora*
3b. Inflorescence 1-flowered .................................................................................. 96. *S. nanggenica*
2b. Basal leaves present at anthesis.
4a. Basal leaves brown crisped villous adaxially.
5a. Petals purple, at least 1.2 cm .................................................................................. 95. *S. balfourii*
5b. Petals purple, at least 1.2 cm.
5b. Petals yellow, to 1 cm.
   6a. Apex of basal leaves long aristate ................................................................. 101. *S. gongshanensis*
   6b. Apex of basal leaves obtuse to acute.
   7a. Sepals glabrous abaxially ................................................................. 97. *S. hirculoides*
   7b. Sepals pubescent abaxially.
      8a. Margin of sepals densely brown crisped villous ................................. 86. *S. sinomontana*
      8b. Margin of sepals glandular pilose .......................................................... 87. *S. isophylla*
   4b. Basal leaves glabrous adaxially.
   9a. Apex of basal leaves aristate, sometimes 3-aristate.
      10a. Petals 1.5–2.5 mm ................................................................. 104. *S. culcitosa*
      10b. Petals 4–6 mm.
      11a. Plants to 2 cm tall; apex of some basal leaves 3-aristate .................. 102. *S. triaristulata*
      11b. Plants 4–9 cm tall; apex of basal leaves acute or 1-aristate .......... 79. *S. aristulata*
   9b. Apex of basal leaves obtuse or acute.
      12a. Rosette leaves without a well-defined petiole, blade linear-oblong, to 1 mm wide ..... 103. *S. saginoides*
      12b. Rosette leaves petiolate, blade narrowly elliptic to ovate or lanceolate, more than 1 mm wide.
      13a. Ovary with a conspicuous, annular nectary disc; petals purple abaxially, yellow adaxially.
         14a. Inflorescence 1-flowered ................................................................. 94. *S. tibetica*
         14b. Inflorescence 2- or more flowered.
            15a. Sepals erect at anthesis, later reflexed; inflorescence usually more than 8-flowered 92. *S. tangutica*
            15b. Sepals reflexed by anthesis; inflorescence 2–6-flowered ................. 93. *S. przewalskii*
      13b. Ovary without a conspicuous nectary disc; petals yellow on both surfaces.
         16a. Margin of sepals glabrous or glandular pilose.
            17a. Margin of sepals densely glandular ciliate; petals to 6.4 mm ............ 100. *S. parva*
            17b. Margin of sepals glabrous or sparsely glandular ciliate; petals more than 6 mm ..... 98. *S. elliptica*
         16b. Margin of sepals brown crisped villous.
            18a. Sepals reflexed at anthesis .......................................................... 88. *S. hirculus*
            18b. Sepals erect to spreading at anthesis.
               19a. Petals abaxially and marginally brown crisped villous proximally ........ 99. *S. montanella*
               19b. Petals abaxially and marginally glabrous.
                  20a. Margin of sepals densely brown crisped villous; inflorescence often several flowered 86. *S. sinomontana*
                  20b. Margin of sepals sparsely brown crisped villous; inflorescence often 1-flowered 90. *S. heleonastes*

**Key 4**

1a. Basal leaves pubescent adaxially.
   2a. Hairs on adaxial surface of basal leaves setose or eglandular ............................... 158. *S. gyalana*
   2b. Hairs on adaxial surface of basal leaves glandular.
   3a. Basal or proximal cauline leaves with at least 3 forward-pointing, triangular lobes.
      4a. Basal leaves with at least 3 forward-pointing, triangular lobes ...................... 173. *S. candelabrum*
      4b. Basal leaves entire ........................................................................ 172. *S. dielsiana*
   3b. Basal and cauline leaves entire.
      5a. Flowering stem leafless, bearing bracts only ............................................ 169. *S. lixianensis*
      5b. Flowering stem leafy.
         6a. Petals yellow; plants often forming a mat of basal leaf rosettes ..................... 170. *S. sediformis*
         6b. Petals abaxially purple, adaxially lilac near base and yellow near apex; plants usually with a single
               basal leaf rosette ........................................................................ 171. *S. daoechengensis*
   1b. Basal leaves glabrous adaxially.
      7a. Basal leaves adaxially postulate distally.
         8a. Inflorescence 2- or 3-flowered or flower solitary; petals pale yellow to yellow or ivory .... 163. *S. punctulata*
         8b. Inflorescence 2–10-flowered; petals yellow or white.
            9a. Margin of basal leaves entire ........................................................ 166. *S. umbellulata*
            9b. Margin of basal leaves setose-ciliate.
               10a. Petals white, purple spotted, to 7 mm ....................................... 164. *S. punctulatoides*
               10b. Petals yellow, purple spotted, more than 7 mm ............................ 165. *S. yushuensis*
      7b. Basal leaves adaxially smooth (or wrinkled on drying).
         11a. Margin of basal leaves entire.
            12a. Petals yellow, orange spotted; inflorescence cymose ........................... 155. *S. unguiculata*
            12b. Petals yellow, unspotted; inflorescence subumbellate ............................. 166. *S. umbellulata*
         11b. Margin of basal leaves setose- or denticulate-ciliate.
            13a. Petals red, pink, or white on both surfaces or only abaxially.
1a. Basal leaves caducous, mostly absent by anthesis.

2a. Proximal and median cauline leaves sessile.

3a. Cauline leaves orbicular to elliptic or ovate; petals 8–11 mm ........................................... 42. S. kingdomii

3b. Cauline leaves lanceolate to ovate or oblong; petals 5–8.5 mm.

4a. Base of cauline leaves rounded to obtuse, amplexicaul ................................. 47. S. subamplexicaulis

4b. Base of cauline leaves cordate, ± amplexicaul.

5a. Cauline leaves pandurate (narrowed at middle) .............................................. 43. S. moorcroftiana

5b. Cauline leaves ovate to narrowly so ............................................................... 44. S. kingiana

2b. Proximal and median cauline leaves petiolate.

6a. Cauline leaves less than 1.5 cm.

7a. Sepals glandular pilose abaxially; petals brown spotted .................................. 50. S. giraldiana

7b. Sepals glabrous abaxially; petals orange spotted or unspotted.

8a. Petals elliptic, orange spotted ................................................................. 35. S. smithiana

8b. Petals ovate, unspotted.

9a. Pedicels densely glandular pilose ............................................................... 49. S. stellarifolia

9b. Pedicels glabrate, or at most sparsely glandular pilose ................................ 51. S. egregioides

6b. Cauline leaves at least 1.5 cm.

10a. Stem glabrous proximally, except at nodes.

11a. Petals at least 7 mm; petiole of proximal leaves 0.5–1 cm ................................ 41. S. haplophylloides

11b. Petals to 7 mm; petiole of proximal leaves 0.7–6 cm.

12a. Apex of proximal leaves acuminate ...................................................... 34. S. insolens

12b. Apex of proximal leaves acute .............................................................. 33. S. cardiophylla

10b. Stem glandular pilose or brown crisped pilose.

13a. Sepals spreading ................................................................. 36. S. eglandulosa

13b. Sepals reflexed.

14a. Sepals glabrous ................................................................. 35. S. smithiana

14b. Sepals glandular pilose abaxially and sometimes marginally.

15a. Leaves smaller distally on stem; inflorescence 3–12-flowered .................... 30. S. implicans

15b. Leaves not much smaller distally on stem; inflorescence 6–30-flowered.

16a. Stem zigzagged ................................................................. 32. S. omphalodifolia

16b. Stem straight ................................................................. 38. S. subaequifoliata

1b. Basal leaves persistent, mostly present at anthesis.

17a. Basal leaf blade rounded, obtuse, or cuneate at base.

18a. Sepals erect to spreading.

19a. Proximal cauline leaves sessile, pandurate ................................................. 43. S. moorcroftiana

19b. Proximal cauline leaves petiolate, ovate ................................................ 40. S. gedangensis

18b. Sepals reflexed.

20a. Petals purple, spotted purple-black .............................................................. 46. S. pardanthina
20b. Petals yellow, spotted or unspotted.  
21a. Basal leaf blade to 2.4 cm  ................................................................. 48. *S. pratensis*  
21b. Basal leaf blade at least 2.4 cm.  
22a. Petals spotted  .............................................................................. 45. *S. sheqilaensis*  
22b. Petals unspotted  ........................................................................... 39. *S. glaucophylla*

17b. Basal leaf blade cordate at base.  
23a. Proximal median cauline leaves sessile.  
24a. At least some cauline leaves ovate, base cordate, ± amplexicaul; sepalas erect to spreading.  
25a. Petals to 8 mm  ............................................................................. 29. *S. parnassiiifolia*  
25b. Petals at least 8 mm  ...................................................................... 28. *S. sphaeradenia*  
24b. Cauline leaves narrowly elliptic, base rounded, not amplexicaul; sepals reflexed.  
26a. Inflorescence cymose, 2- or 3-flowered, or flower solitary; basal leaf blade 1.1–2 cm 23. *S. dianxibeiensis*  
26b. Inflorescence corymbiform, 5–17-flowered; basal leaf blade 1.5–5 cm 22. *S. diversifolia*  
23b. Proximal median cauline leaves petiolate.  
27a. Sepals reflexed.  
28a. Petals yellow, heavily purple spotted in proximal 1/2 .......................... 27. *S. tigrina*  
28b. Petals yellow, unspotted.  
29a. Proximal median cauline leaves ovate ............................................... 24. *S. egregia*  
29b. Proximal median cauline leaves ovate-cordate ................................. 22. *S. diversifolia*  
27b. Sepals erect to spreading.  
30a. Median cauline leaf blade larger than basal one ............................... 31. *S. subomphaloidifolia*  
30b. Median cauline leaf blade smaller than or equaling basal one.  
31a. Petiole of basal leaves at least 5 cm; cauline leaves 1–3  ..................... 25. *S. erectisepala*  
31b. Petiole of basal leaves to 4.5 cm; cauline leaves 3–6.  
32a. Base of distal cauline leaves cordate, ± amplexicaul ......................... 26. *S. maxionggouensis*  
32b. Base of distal cauline leaves rounded, not amplexicaul ...................... 37. *S. hookeri*

**Key 6**

1a. Basal leaves caducous, mostly absent by anthesis.  
3a. Sepals reflexed at anthesis; leaves usually glabrous adaxially ............. 54. *S. brachyphylla*  
3b. Sepals erect at anthesis; leaves pubescent adaxially ........................ 55. *S. peplidifolia*  
2b. Cauline leaves distributed along stem as far as inflorescence.  
4a. Cyme congested, 1.5–2 cm.  
5a. Leaves sessile, lanceolate to narrowly ovate, base of median ones cordate .......................... 52. *S. auriculata*  
5b. Leaves sessile to subsessile, ovate, base rounded ............................ 53. *S. bulleyana*  
4b. Cyme lax, more than 5 cm, or flower solitary.  
6a. Pedicels glandular pilose .................................................................. 56. *S. hypericoides*  
6b. Pedicels glandular pilose, intermixed with a few brown, crisped, villous hairs ........................ 57. *S. yezhiensis*  
1b. Basal leaves persistent, mostly present at anthesis.  
7a. Basal leaves glabrous adaxially.  
8a. Pedicels glandular pilose, intermixed with brown, crisped, villous hairs .......................... 74. *S. gonggashanensis*  
8b. Pedicels glandular pilose.  
9a. Cyme 2- or more flowered.  
10a. Cyme racemiform, 2–14-flowered, flowers secund ............................ 64. *S. nigroglanduliferi*a  
10b. Cyme 2- or 3-flowered, flowers erect.  
11a. Margin of sepals glabrous ................................................................ 83. *S. nakaoides*  
11b. Margin of sepals glandular ciliate.  
12a. Sepals glabrous abaxially ............................................................ 84. *S. heteroclada*  
12b. Sepals glandular pilose abaxially .................................................. 85. *S. heterocladoides*  
9b. Flower solitary.  
13a. Flowering stem apparently leafless (cauline leaves, if present, immersed in basal foliage).  
14a. Petals 2-callose ........................................................................... 65. *S. diapensia*  
14b. Petals not callose ................................................................. 66. *S. caveana*  
13b. Flowering stem leafy.  
15a. Apex of basal leaves aristulate ..................................................... 79. *S. aristulata*  
15b. Apex of basal leaves obtuse to acute.  
16a. Petals at least 5.5 mm.  
17a. Sepals glabrous abaxially ........................................................... 84. *S. heteroclada*  
17b. Sepals glandular pilose abaxially ................................................. 85. *S. heterocladoides*  
16b. Petals to 4 mm.
1b. Margin of basal leaves ciliate.

1a. Margin of basal leaves glabrous or apparently so.

7b. Basal leaves variously pilose adaxially.

20a. Basal leaves with long (ca. 0.75 mm), slightly wavy, eglandular hairs adaxially and marginally.

21a. Petals glabrous abaxially.

22a. Petals more than 1 cm .......................................................... 73. S. cordigera

22b. Petals to 0.75 cm.

23a. Pedicels glabrous, very rarely with a few glandular hairs ......................... 72. S. forrestii

23b. Pedicels glandular pilose .................................................. 70. S. chumbiensis

21b. Sepals glandular pilose abaxially.

24a. Inflorescence corymbiform, 3–16-flowered ........................................ 71. S. diffusicallosa

24b. Inflorescence 2- or 3-flowered or flower solitary.

25a. Apex of basal and cauline leaves aristate ........................................ 75. S. rizhaoshanensis

25b. Apex of basal and cauline leaves obtuse to acute.

26a. Petals abaxially with a few glandular hairs proximally, base truncate, neither tapered

nor contracted into a claw .................................................. 69. S. subtsangchanensis

26b. Petals glabrous, base tapered or contracted into a claw.

27a. Petals elliptic to obovate, 5–8 × 2.5–3.7 mm ..................................... 68. S. tsangchanensis

27b. Petals broadly elliptic to broadly obovate, 0.7–1.3 cm × 5–9 mm ............. 67. S. nigroglandulosa

20b. Basal leaves shortly glandular pubescent or eglandular hispid adaxially.

28a. Petals ovate or elliptic to obovate, to 2 × as long as wide.

29a. Basal leaves eglandular hispid adaxially.

30a. Pedicels and sepals glandular pilose; cauline leaves lanceolate to oblong, ca. 1 mm wide 77. S. peraristulata

30b. Pedicels and sepals glabrous; cauline leaves oblanceolate to ovate, 2–3 mm wide ... 76. S. glabricaulis

29b. Basal leaves shortly glandular pubescent adaxially.

31a. Basal leaf blade ca. 1.5 mm wide; pedicels to 5 mm; petals 2–2.5 mm .................. 78. S. linearifolia

31b. Basal leaf blade ca. 2.5 mm wide; petals at least 6 mm; petals 3–14 mm ........... 59. S. litangensis

28b. Petals oblong to narrowly ovate, ca. 3 × as long as wide.

32a. Basal leaves spatulate, without a ± well-defined petiole; inflorescence 2- or 3-flowered or

flower solitary.

33a. Petals oblong, to 9 × 2.7 mm .................................................................. 62. S. lychnitis

33b. Petals obovate, at least 10 × 4 mm ........................................ 63. S. oresbia

32b. Basal leaves petiolate; inflorescence 2–14-flowered or flower solitary.

34a. Apex of leaves aristate ................................................................. 60. S. cacuminum

34b. Apex of leaves subobtuse.

35a. Basal leaf blade at least 1.5 cm; leaves subglabrous; flowers secund .......... 64. S. nigroglandulifera

35b. Basal leaf blade less than 1.5 cm; leaves glandular pubescent; flowers erect.

36a. Petals glabrous .......................................................... 58. S. pseudohirculus

36b. Petals glandular pilose abaxially and marginally .............................. 61. S. yarlungzangboensis

Key 7

1a. Margin of basal leaves glabrous or apparently so.

2a. Flowers with conspicuous nectary disc surrounding ovary; pedicels white eglandular pilose.

3a. Leaves alternate; petals broadly elliptic, 3–4 × 2–2.5 mm .................................. 139. S. engleriana

3b. At least some leaves opposite; petals elliptic, ca. 2 × 1.1 mm .......................... 140. S. contraria

2b. Flowers without conspicuous nectary disc; pedicels brown glandular pilose or glabrous.

4a. Pedicels sparsely glandular pilose; petals broadly elliptic, 7–8 × 5–6 mm ........... 132. S. drabiformis

4b. Pedicels glabrous; petals elliptic or narrowly ovate to suboblong, 2–7 × 1–3 mm.

5a. Petals 1-veined .......................................................... 152. S. uninervia

5b. Petals at least 3-veined.

6a. Leaves to 4 mm, tightly imbricate; plants forming a compact cushion; petals 2–3 mm 141. S. atuntsiensis

6b. Leaves at least 4.5 mm, laxly imbricate; plants erect or forming a mat; petals at least 4 mm.

7a. Petals purple abaxially and yellow adaxially, or yellow throughout ............ 149. S. glacialis

7b. Petals yellow abaxially.

8a. Plants usually less than 7 cm tall; apex of cauline leaves mucronate ............... 150. S. flexilis

8b. Plants at least 7 cm tall; apex of cauline leaves obtuse ............................. 146. S. carnosula

1b. Margin of basal leaves ciliate.

9a. Margin of basal leaves glandular ciliate distally.

10a. Flowering stem submerged in foliage.

11a. Leaves glabrous adaxially ................................................................. 129. S. jainzhuanglaensis
11b. Leaves glandular pilose adaxially.
12a. Basal leaves with long, glandular hairs, apex aristate ......................... 128. S. jacquemontiana
12b. Basal leaves with short, glandular hairs, apex glandular but not aristate ........ 127. S. paiquensis
10b. Flowering stem visible, overtopping foliage.
13a. Basal leaves with long, curly, glandular and eglandular hairs at least at margin ........ 135. S. lonakhensis
13b. Basal leaves with short, glandular hairs.
14a. Petals 5.5–7 mm .............................................................................. 130. S. finitima
14b. Petals to 5 mm.
15a. Leaves very sparsely glandular ciliate; leaves to 1 mm wide ....................... 143. S. medogensis
15b. Leaves densely glandular ciliate; leaves at least 1 mm wide.
  16a. Pedicels 6–9 mm; leaf margin denticulate-ciliate ................................. 148. S. nanella
  16b. Pedicels usually at least 1 cm; leaf margin pilose-ciliate ...................... 131. S. stella-aurea
9b. Margin of basal leaves eglandular setose-ciliate or fimbriate-ciliate distally, occasionally so only proximally.
17a. Flowers with conspicuous nectary disc surrounding ovary; pedicels white eglandular pilose.
  18a. Leaves alternate; petals broadly elliptic, 3–4 × 2–2.5 mm ..................... 139. S. engleriana
  18b. At least some leaves opposite; petals narrowly elliptic, ca. 2 × 1.1 mm ........ 140. S. contraria
17b. Flowers without conspicuous nectary disc; pedicels brown glandular pilose or glabrous.
  19a. Apical margin of basal leaves fimbriate, hairs often united to form a scarious margin.
   20a. Flowering stem submerged in foliage ............................................. 124. S. hemisphaerica
   20b. Flowering stem short, but overtopping foliage.
      21a. Basal leaves abaxially convex distally, adaxially concave (spoonlike) ........ 122. S. perpusilla
      21b. Basal leaves ± flat ...................................................................... 123. S. zhidoensis
  19b. Apical margin of basal leaves setose-ciliate or glabrous.
   22a. Flowering stem not overtopping leaves ............................................ 125. S. sessiliflora
   22b. Flowering stem overtopping leaves.
   23a. Cyme 2–5(–12)-flowered.
      24a. Distal cauline leaves longer than proximal ones, aggregated to form a “rosette” subtending inflorescence.
         25a. Petals 4–5 mm ....................................................................... 148. S. nanella
         25b. Petals 6–7 mm ....................................................................... 145. S. pratti
   24b. Distal cauline leaves smaller than or subequaling median and proximal ones, not aggregated.
   26a. Pedicels glabrous.
      27a. Petals red or purple abaxially, yellow and unsotted adaxially ............ 149. S. glacialis
      27b. Petals yellow abaxially, yellow and brown spotted adaxially ............ 150. S. flexilis
   26b. Pedicels glandular pilose, sometimes sparsely so.
      28a. Sepals reflexed at anthesis.
         29a. Margin of sepals glandular pilose, sometimes sparsely so .............. 154. S. densifoliata
         29b. Margin of sepals glabrous .......................................................... 153. S. aurantiaca
      28b. Sepals erect or spreading at anthesis.
         30a. Base of petals obtuse, neither tapered nor contracted into a claw .......... 147. S. dshagalensis
         30b. Base of petals tapered or contracted into a claw.
            31a. Proximal cauline leaves setose-ciliate along entire margin ............ 154. S. densifoliata
            31b. Proximal cauline leaves setose-ciliate at distal margin only ............ 151. S. tatsienluensis
   23b. Flower solitary.
   32a. Axils of cauline leaves with leaf buds .............................................. 142. S. gemmigera
   32b. Axils of cauline leaves without leaf buds.
      33a. Petals to 5 mm.
         34a. Petals red or purple abaxially, yellow and unsotted adaxially .......... 149. S. glacialis
         34b. Petals yellow abaxially, yellow and orange spotted adaxially ......... 155. S. auriculata
      35a. Pedicels pale eglandular pilose.
         36a. Basal leaves to 4 mm .................................................................. 137. S. baimashanensis
         36b. Basal leaves at least 5 mm .......................................................... 136. S. miralana
      35b. Pedicels glandular pilose or glabrous.
         37a. Plants to 4 cm tall ..................................................................... 148. S. nanella
         37b. Plants at least 4 cm tall .............................................................. 52. S. auriculata
   33b. Petals at least 5 mm.
   38a. Margin of sepals ciliate.
         40a. Basal leaves 3–4 mm; sepals erect; petals 5–8 mm .......................... 126. S. brevicaulis
22. Saxifraga diversifolia Wallich ex Seringe in de Candolle, Prodr. 4: 44. 1830.

异叶虎耳草 yi ye hu er cao

Herbs perennial, 16–43 cm tall. Stem proximally brown crisped villous or glabrous, distally shortly glandular hairy. Basal leaves with petiole 3–9 cm, abaxially and marginally brown villous; leaf blade ovate-cordate to narrowly ovate, 1.5–9 × 1.2–2.6 cm, abaxially and marginally brown pubescent, adaxially glabrous or brown pilose near base, base cordate, apex acute. Cauline leaves 8–12; petiole 0.5–4 cm, brown crisped villous; leaf blade subcordate or ovate-cordate to narrowly ovate, 1–6.3 × 0.4–4 cm, base cordate or subcordate, apex obtuse or acute; proximal leaf blades larger, abaxially and marginally brown pilose or glandular pilose, adaxially glabrous or subglabrous; distal leaf blades smaller, usually glabrous on both surfaces, glandular hairy at margin. Cyme corymbose, 3–14 cm, 5–17-flowered; pedicels 6–12 mm, glandular hairy. Sepals reflexed, narrowly to broadly ovate, 3–4.2 × 1.3–3.5 mm, abaxially glandular hairy or glabrous on both surfaces, veins 3(–5), not or partly confluent at apex, margin membranous, glandular ciliate, apex obtuse or acute, rarely erose. Petals yellow, elliptic, obovate, or ovate to narrowly so, rarely oblong, 5–8 × 2–5 mm, usually not callose, rarely 4–6–callose, (3–)5–7(–9)-veined, base narrowed into a claw 0.5–1.3 mm, apex obtuse. Stamens 4–5.6 mm. Ovary subsuperior, ovoid, 3–4.2 mm; styles 1–1.6 mm. Fl. and fr. Aug–Oct.

22a. Saxifraga diversifolia var. diversifolia

异叶虎耳草(原变种) yi ye hu er cao (yuan bian zhong)

Saxifraga diversifolia is extremely polymorphic. Many of the variants have been published as species, which are accepted as such in the present account because a very narrow species concept has been adopted in classifying the variation. However, many botanists would prefer to see rather more “lumping,” and comments relating to how this might be done are made in relevant places.

1a. Most distal cauline leaf at least 1 cm wide ........................................ 22a. var. diversifolia

1b. Most distal cauline leaf to 0.5 cm wide ........................................ 22b. var. angustibracteata


狭叶异叶虎耳草 xia bao yi ye hu er cao


Leaves abruptly smaller from base to proximal part of stem, most distal cauline leaf narrowly elliptic or linear,
1.1–1.7 × 0.2–0.5 cm. Sepals usually glabrous on both surfaces, rarely sparsely glandular hairy abaxially. Petals usually not callose, rarely 4–6-callose. Fl. and fr. Aug–Oct.

- Forests, forest margins, alpine meadows, rock crevices; 2700–3300 m. SW Sichuan (Yanbian Xian), SE Xizang, NW Yunnan.


滇西北虎耳草 dian xie bei hu er cao


Herbs perennial, densely cespitose, 12.5–18.5 cm tall. Stem proximally brown villous at leaf axils, distally dark brown glandular hairy. Basal leaves with petiole 1–2.6 cm, brown villous at margin; leaf blade cordate to ovate-cordate, 1.1–2 × 1.1–1.6 cm, brown pilose, base cordate, apex obtuse or acute. Proximal cauline leaves with petiole 2–16 mm, margin brown pilose; leaf blade cordate to ovate or narrowly so, 1.4–1.8 cm × 6.5–7 mm, base cordate to rounded, apex subobtuse or acute; distal cauline leaves sessile, lanceolate to oblong, 1.2–1.4 cm × 3.4–5.5 mm, both surfaces glabrous, base rounded to cuneate, margin brown pilose, apex subobtuse or acute. Flower solitary or cyme 2- or 3-flowered; pedicels 1.5–3 cm, dark brown glandular hairy. Sepals 3–6-veined, veins not, partly, or fully confluent at apex, acuminate at apex. Stamens 3–6 mm. Ovary superior, ovoid, 2.5–4.8 × 2–3.2 mm, abaxially glandular hairy or sparsely glandular hairy, veins 5–9, not, partly, or fully confluent at apex, margin dark brown glandular ciliate, veins 3–6, not, partly, or fully confluent at apex, distal cauline leaves sessile, lanceolate to oblong, 1.2–1.7 × 0.2–0.5 cm. Sepals usually glabrous on both surfaces, rarely sparsely glandular hairy abaxially. Basal leaves with petiole 1.9–5 cm, margin crisped glandular villous; leaf blade cordate or ovate-cordate to narrowly ovate, 1.5–2 cm, abaxially and marginally brown villous, axially subglabrous. Cauline leaves (3–)7–13; proximal ones with petiole 1.5–19 mm, brown crisped villous; leaf blade cordate-ovate to cordate, 1.2–2.6 × 0.8–2 cm, abaxially and marginally glabrous or subvillous, adaxially glabrous or subglabrous, base cordate, apex subobtuse or acute; most distal cauline leaf with petiole 2–3 mm, leaf blade lanceolate to oblong, 0.9–1.6 cm × 3–7 mm, both surfaces brown glandular hairy or glabrous, base cuneate to rounded, margin brown crisped glandular villous and shortly glandular hairy, apex subobtuse or acute. Pleiochasium corymbose, 1.9–8 cm, 3–9-flowered; branches 1–5.3 cm, 1–3-flowered; pedicels 0.4–6 cm, shortly glandular hairy. Sepals reflexed, ovate to broadly so, 2.3–8 × 1.2–2 mm, abaxially and marginally glandular hairy or margin glabrous, veins 3–6, not, partly, or fully confluent at apex, apex obtuse. Petals yellow, elliptic to ovate, 5.3–8 × 2.3–3.5 mm, (2–)4–6(–10)-callose, 3–6(or 7)-veined, base cuneate to rounded, with a claw 0.4–1.1 mm, apex obtuse or subacute. Stamens 4–6 mm. Ovary subobtusor, ovoid, 2.5–3.8 mm; styles 1–1.5 mm. Fl. and fr. Jul–Oct.


无睫毛虎耳草 wu jie mao hu er cao


无睫毛虎耳草 (原变种) you yue hu er cao (yuan bian zhong)

Hirculus egregius (Engler) Losinskaja; *Saxifraga diversifolia* Wallich ex Seringe var. soulieana Engler & Irmischer; *S. zogangensis* T. C. Ku.


- Forests, scrub, alpine meadows, rock crevices; 2800–4500 m. S Gansu, E and S Qinghai, E Xizang, NW Yunnan.


小金虎耳草 xiao jin hu er cao


*Hirculus xiaojinensis* var. *pilosa* T. C. Ku.


- Alpine meadows; ca. 4000 m. W Sichuan (Xiaojin Xian).
Saxifraga implicans
This species is apparently very close to Saxifraga implicans.


直萼虎耳草  zhi e hu er cao
Herbs perennial, 15–30 cm tall. Stem proximally brown crisp glandular hairs distally, distally very short brown glandular hairy. Basal leaves with petiole 5.5–10 cm, sparsely crisped villous at margin near base; leaf blade ovate to ovate-cordate, 1.8–4.8 × 1.7–3.8 cm, glabrous, base cordate, apex obtuse or acute. Cauline leaves 1–3; proximal ones petiolate, similar to basal leaves; most distal one sessile, elliptic, ca. 2.8 × 1.7 cm, glabrous, base cordate, semiamplexicaul. Cyme 6.5–17.3 cm, 3–15-flowered; branches 3.5–10.5 cm, shortly dark brown glandular hairy, 2- or 3-flowered; bracts lanceolate or oblanceolate to linear, 1.4–1.8 cm × 2.5–7.5 mm, abaxially subglabrous, adaxially and marginally dark brown glandular hairy; pedicels 0.5–2.7 cm, shortly dark brown glandular hairy. Sepals erect, ovate to ligulate-ovate, 0.8–1.4 cm × 4–7 mm, not or indistinctly 2- or 3-cordate, 5–9-veined, base with a claw 0.5–1.1 mm, apex obtuse. Petals yellow, obovate to elliptic to broadly ovate, 0.8–1.4 cm × 4–7 mm, not or indistinctly 2- or 3-cordate, 5–9-veined, base with a claw 0.5–1.1 mm, apex obtuse. Stamens 3.5–6.5 mm. Ovary subsuperior, ovoid, 2.5–4.5 mm; styles 1–1.4 mm. Fl. Aug–Sep.

Abies or Cupressus forests, forest margins, alpine meadows; 3300–4200 m. Xizang.


马熊沟虎耳草  ma xiong gou hu er cao
Herbs perennial, ca. 26 cm tall. Stem brown pilose proximally, glabrous in median part, shortly dark brown glandular hairy distally. Basal leaves with petiole 2.3–3 cm, adaxially and marginally sparsely brown glandular villous; leaf blade ovate-cordate, 2.3–3.3 × 1.8–2.8 cm, abaxially and marginally brown glandular hairy, base cordate, apex obtuse. Cauline leaves ca. 6; proximal ones petiolate, similar to basal leaves; distal ones sessile, ovate-cordate to ovate, 1.6–4.2 × 0.6–3 cm; most distal one adaxially and marginally short brown glandular hairy; others ± glandular pilose, base cordate, amplexicaul, apex obtuse. Cyme corymbose, ca. 6.5 cm, ca. 10-flowered; pedicels densely shortly brown glandular hairy. Sepals spreading, ovate, 3.2–3.3 × 2–2.2 mm, abaxially and marginally shortly dark brown glandular hairy, veins 3, not confluent at apex, apex obtuse. Petals yellow, ovate to broadly obovate, 0.6–4.1 × 4.2 mm, 4-cordate, 5- or 6-veined, base subcordate, contracted into a claw 0.6–0.7 mm, apex subobtuse or acute. Stamens ca. 4.6 mm. Ovary subsuperior, broadly ovoid, ca. 3 mm; styles thick, ca. 0.7 mm. Fl. Jul–Sep.

Meadows at riversides; 3700–3800 m. W Sichuan (Xiangcheng Xian).

This species is apparently very close to Saxifraga implicans.


米林虎耳草  mi lin hu er cao
Herbs perennial, cespitose, ca. 45 cm tall. Stem simple, brown crisp glandular villous. Basal leaves sometimes caducous, broadly ovate to elliptic, ca. 4 × 3 cm, base cordate, truncate, or cuneate, tapered into a petiole. Cauline leaves 4–8, abruptly smaller distally on stem; petiole of median leaves 0.2–4 cm, sparsely brown crisp glandular villous; leaf blade ovate to elliptic, 2.0–3.4 × 1.8–2.4 cm, brown glandular hairy, glabrate adaxially, base rounded to cordate, margin glandular hairs, apex acute or acuminate; most distal leaf sessile, ovate to narrowly so, 1.5–2 cm, 3–7 mm, abaxially and marginally dark brown glandular hairy, adaxially glabrate. Inflorescence 7–8 cm, 5–20-flowered; branches usually 2-flowered; pedicels dark brown glandular hairy. Sepals reflexed, triangular-ovate, 5–6 × 2.8–3 mm, abaxially glabrous, veins 3–6, not confluent at apex, margin membranous, apex glandular ciliate, erose. Petals yellow, adaxially purple spotted, ovate or broadly so to elliptic, 3.8–7 × 2.6–4.9 mm, 8-cordate, 3- or 5-veined, base contracted into a claw 0.3–1 mm, apex obtuse or acute. Stamens 5–5.5 mm; anthers purple. Ovary subsuperior, ovoid, 3.5–3.6 mm; styles 1.4–1.5 mm. Fl. Jul–Aug.

Slopes, by water, rock crevices; 3000–3600 m. SE Xizang.


秃叶虎耳草  tu ye hu er cao
Herbs perennial, cespitose, 10–17 cm tall. Stem glabrous proximally, shortly dark brown glandular hairy distally. Basal leaves with petiole 2–5 cm, brown pilose at margin; leaf blade ovate-cordate, (1–)2.1–3.1 × (0.7–)1.6–1.9 cm, glabrous on both surfaces or brown pilose abaxially, base cordate, margin brown pilose, apex acute. Cauline leaves 3–8, sessile, cordate, 1.2–2.2 × 0.5–1.5 cm, glabrous on both surfaces (or proximal leaves brown pilose abaxially, most distal leaf brown glandular pilose adaxially), base cordate, partly amplexicaul, margin glandular pilose on proximal leaves, shortly dark brown glandular hairy on distal leaves. Flower usually solitary, occasionally cyme 2–5-flowered; pedicel shortly glandular hairy. Sepals spreading, ovate, 3–4 × 2.2–3 mm, glabrous on both surfaces or shortly dark brown glandular hairy abaxially, margin shortly dark brown glandular hairy, veins 3–6, confluent into a verruca at apex, apex obtuse. Petals yellow, orange spotted, orbicular to elliptic, 8–10 × 4–7 mm, not callose or subcolumnar 4-cordate, 7-veined, base contracted into a claw ca. 2 mm, apex obtuse. Stamens 3.5–4 mm. Ovary subsuperior, globose, 3–4 mm; styles ca. 1.3 mm. Fl. Jul–Sep. 2n = 16.

Forest margins, scrub, rock crevices; 3300–4100 m. SE Xizang [Nepal, Sikkim].


Saxifraga egregia var. xiaojinensis and S. xiaojinensis are based on different types collected on the same date at the same locality.
1a. Leaves and sepals glabrous on both surfaces ............................ 28a. subsp. sphaeradena
1b. Leaves brown pilose abaxially; sepals glandular hairy abaxially 28b. subsp. dhwojii

28a. Saxifraga sphaeradena subsp. sphaeradena

秃叶虎耳草(原亚种) tu ye hu er cao (yuán yà zhòng)
Basal and cauline leaves and sepals glabrous on both surfaces. Fl. Jul.–Sep.
Forest margins, rock crevices; 3300–4100 m. S Xizang (Cona Xian, Nyalam Xian) [Nepal, Sikkim].

28b. Saxifraga sphaeradena subsp. dhwojii


绒瓣虎耳草 long jia hu er cao
Scrubs; 3800–3900 m. S Xizang (Nyalam Xian) [Nepal].

This subspecies is very close to Saxifraga parnassifolia dhwojii.


梅花草叶虎耳草 mei hua cao ye hu er cao
Saxifraga diversifolia Wallich ex Seringe var. parnassifolia (D. Don) Seringe; S. parnassifolia var. obscuricallosa J. T. Pan.

Herbs perennial, cespitose, 11.5–24 cm tall. Stem branched, densely brown crissipped villous. Basal leaves with petiole 1.3–2.7 cm, crissiped crassuloid villous; leaf blade cordate-ovate, 1.5–4 × 1.3–3 cm, crissiped villous on both surfaces and at margin or glabrous adaxially, base cordate, apex acute. Cauline leaves 6 or 7, sessile, ovate to cordate, 0.9–3.5 × 0.5–2.3 cm, base cordate, semiamplexicaul, apex obtuse or acute; proximal leaves glandular villous on both surfaces and at margin or glabrous adaxially; distal leaves shortly glandular hairy on both surfaces, margin shortly glandular hairy and glandular villous. Pleiochasia 2–2.5 cm, 6–11-flowered; pedicels shortly glandular hairy. Sepals erect to spreading, oval to broadly so, 3–4 × 1.5–2.9 mm, shortly brown glandular hairy abaxially, adaxially distally, and at margin and apex, veins 5–7, confluent into a verruca at apex. Petals yellow, obovato-cordate, 5–7 × 3.5–4 mm, subcolumnar 4–6-calloso, not or indistinctly 2- or 3-calloso, 5–7-veined, base contracted into a claw 0.6–1.7 mm, apex obtuse. Stamens 2.5–4 mm. Ovary subsuperior, ovoid, 1.6–2.5 mm; styles 1–2 mm. Fl. Jul.–Sep. 2n = 16.

Abies forest margins, slopes; 2700–4000 m. S Xizang (Nyalam Xian, Zayi Xian) [Bhutan, India, Nepal, Sikkim].

Saxifraga parnassifolia var. obscuricallosa, which was accepted in FRPS, cannot be distinguished reliably because of intermediates.


藏东虎耳草 zàng dòng hu er cao
Saxifraga implicans var. weixiensis C. Y. Wu. Herbs perennial, (6–)11–50 cm tall. Stem proximally brown crisped pilose or glabrous, distally shortly glandular hairy. Basal leaves caducous, similar to proximal cauleine leaves. Cauline leaves 5–13; proximal ones with petiole 1.2–4 cm, brown pilose; leaf blade ovate-cordate, 1.9–4 × 1.5–2.7 cm, abaxially and marginally brown pilose, adaxially glabrous or brown pilose, base cordate, apex subobtuse or acute; distal leaves with petiole gradually shorter to absent, leaf blade ovate-cordate, 1.5–3.5 × 0.5–2.1 cm, abaxially glabrous or subglabrous, adaxially and marginally shortly glandular hairy, base cordate, amplexicaul. Cyme 3–6 cm, 3–12-flowered; pedicels 4–15 mm, shortly glandular hairy. Sepals reflexed, ovate to narrowly so, 2.5–4 × 1.4–2 mm, abaxially and marginally glandular hairy except at apex, veins 3, not confluent at apex, apex suberose. Petals yellow, small orange spotted, elliptic or narrowly so to ovate, 5–8 × 2.3–4 mm, not callose or 6–8-callose near base, 3(6)-veined, base cuneate-rounded, contracted into a claw 0.4–0.9 mm, apex obtuse or acute. Stamens 4–5 mm. Ovary superior, ovoid, 3.3–5.5 mm; styles 1–1.6 mm. Fl. and fr. Aug.–Oct. 2n = 16*, 32*, 48*.

• Forests, forest margins, alpine meadows and rock crevices on slopes; 3500–4200 m. SW Sichuan, E Xizang, NW Yunnan.

Plants from Weixi Xian, in NW Yunnan, have been separated as Saxifraga implicans var. weixiensis on account of its stem being glabrous proximally, but since the stem hairs on this species are known to be glabrescent (Smith, loc. cit.), it seems probable that this very minor variation is related to age or environment.


川西南虎耳草 chuàn xián wèi hu er cao
Herbs perennial, ca. 30 cm tall. Stem simple, glabrous. Basal leaves with petiole ca. 3.2 cm, margin brown villous or glandular villous; leaf blade cordate, ca. 1.7 × 1.4 cm, abaxially and marginally brown villous, base cordate, apex obtuse. Cauline leaves ca. 4, similar to basal leaves but larger, most distal one with petiole ca. 1.3 cm, margin brown pilose; leaf blade cordate, ca. 3.3 × 3 cm, brown pilose. Cyme paniculate, ca. 18-flowered; most proximal branch ca. 6.2 cm, ca. 3-flowered; pedicels glandular hairy. Sepals spreading, subelliptic to ovate, 4–4.3 × 2.5–3 mm, abaxially and marginally glandular hairy, veins 5–7, not confluent at apex, apex obtuse or subacuminate. Petals orange, ovate to narrowly so, 7.8–8 × 4–4.3 mm, base callose, 6–8-callose near base, 3(6)-veined, base cuneate-rounded, contracted into a claw 0.8–1 mm, apex obtuse. Stamens 6–7 mm. Ovary subsuperior, ellipsoidal, ca. 4 mm; styles ca. 2 mm. Fl. Jul.–Aug.

• Forests; ca. 4200 m. W Sichuan (Daocheng Xian).

This species appears to be closely related to Saxifraga diversifolia.


无斑虎耳草 wú bān hu er cao
Saxifraga omphalodifolia var. callosa C. Y. Wu; S. omphalodifolia var. retusopetala J. T. Pan.
Herbs perennial, 22–34 cm tall. Stem zigzagged, densely dark brown crissed villous, eglandular proximally, glandular distally. Basal leaves caducous by anthesis, petiolate; leaf blade cordate. Cauline leaves with petiole 0.7–3.5 cm, glandular villous; leaf blade usually olate-cordate to ovate-cordate, 1.5–3.7 × 2–3.4 cm, glandular hispid, base cordate, apex subacute. Cyme paniculate, 7–8.5 cm, 9–11-flowered; pedicels glandular hispid. Sepals reflexed, elliptic to ovate, ca. 4 × 2.5 mm, abaxially and marginally glandular hairy or margin glabrous, veins 3, not confluent at apex, margin membranous, apex obtuse. Petals yellow, narrow, ovate to suboblong, 5.4–7.2 × 2–3.4 mm, obscurely 6-callose, or 4–8-callose, or not callose, 3–5–veined, base contracted into a claw 0.6–0.7 mm, apex obtuse or retuse. Stamens 4.5–5.5 mm. Ovary subsuperior, subovoid, ca. 2.5 mm; styles ca. 1 mm. Fl. and fr. Jul–Sep.

- Pinus forests, alpine meadows; 3800–4200 m. SW Sichuan, Xizang, Yunnan.

The varieties recognized in FRPS, which are treated as synonyms in the present account, are based on minor variations in petal callositites and hairiness of the sepal margin.


心叶虎耳草 xin ye hu er cao

Hiriculus cardiophyllus (Franchet) Losinskaja.

Herbs perennial, 16–36 cm tall. Stem glabrous proximally, shortly dark brown glandular hairy distally. Basal leaves caducous by anthesis; basal and proximal cauline leaves with petiole 0.7–6 cm, abaxially and marginally brown villous or glandular villous; leaf blade cordate to ovate-cordate, 1.6–4.5 × 1.1–3.2 cm, abaxially and marginally brown villous or glandular villous, base cordate, apex acute; distal cauline leaves with petiole 1–10 mm, brown glandular villous, leaf blade ovate to lanceolate, 1.3–3.2 × 0.5–1.7 cm, abaxially and marginally glandular pilose, adaxially glabrous or glandular pilose, base cuneate or rounded, apex acute or subacute; most distal cauline leaf glandular villous and shortly glandular hairy at margin. Cyme compact, 1.5–6.5 cm, 4–13-flowered; pedicels 0.5–2.5 cm, shortly dark brown glandular hairy. Sepals reflexed, ovate or subelliptic to suboblong, 3.4 × 1.7–2.1 mm, abaxially and marginally dark brown glandular hairy, veins 3, not confluent at apex, apex obtuse. Petals yellow, elliptic to narrowly ovate, 6.5–7.5 × 2.5–3.6 mm, 6(or 7)-callose, 3–5–veined, base subcoriate to rounded, with a claw 0.5–1 mm, apex obtuse or acute. Stamens 4.5–5.5 mm. Ovary subsuperior, ovoid, 2.5–3 mm; styles 1–1.5 mm. Fl. and fr. Jul–Oct. 2n = 48*.

- Forests, forest margins, fields on slopes; 2500–4300 m. C and W Sichuan (Baoxing Xian, Xiangcheng Xian), NE and W Yunnan (Dali Xian, Qiaojia Xian).


贡山虎耳草 gong shan hu er cao

Herbs perennial, ca. 48 cm tall. Stem glabrous. Basal leaves caducous before anthesis. Caulline leaves with petiole 0.7–3 cm, proximally brown pilose at margin; leaf blade ovate-cordate to narrowly ovate, 1.8–4 × 0.8–2.1 cm, glabrous, base cordate, apex acute to acuminate; proximal leaves with petiole longer; distal leaves gradually shorter to absent. Inflorescence corymbose, 6.5–10 cm, 14–16-flowered; branches 3–5.5 cm, dark brown glandular hairy, 2–3-flowered; pedicels dark brown glandular hairy. Sepals reflexed, ovate, 3–3.4 × 1.5–2.3 mm, abaxially dark brown glandular hairy, veins 3–5, not, partly, or fully confluent at apex, apex obtuse or acute. Petals yellow, usually elliptic, 5.1–6 × 2.5–2.6 mm, not callose, 4–6–veined, base contracted into a claw 0.6–0.7 mm, apex obtuse. Stamens ca. 4.2 mm. Ovary subsuperior, subellipsoid, ca. 3 mm; styles ca. 1.2 mm. Fl. Aug–Sep.

- Alpine meadows; 3800–4000 m. NW Yunnan.

This species is closely related to Saxifraga diversifolia.


剑川虎耳草 jian chuan hu er cao

Herbs perennial, 26–34 cm tall. Stem brown pilose proximally, brown glandular hairy distally. Basal and proximal cauline leaves caducous; distal cauline leaves with petiole 0.2–2.5 cm, gradually shorter distally on stem until nearly absent, brown pilose at margin; leaf blade ovate-cordate to narrowly ovate, 1.1–2.7 × 0.4–1.7 cm, glabrous or brown pilose only at margin, base cordate to rounded, apex subacuminate. Flower solitary or cyme 2.3–4.5 cm and 5–7–flowered; pedicels 0.7–1.3 cm, brown glandular hairy. Sepals reflexed, subovate, 3.3–4 × ca. 2 mm, glabrous or subglabrous, veins 4 or 5, not confluent at apex, apex erose. Petals yellow, orange spotted, elliptic to broadly so, 5.6–6.5 × 3.3–4.8 mm, 6-callose, 3–veined, base contracted into a claw ca. 0.8 mm, apex obtuse. Stamens ca. 2.5 mm. Ovary subsuperior, broadly ovoid, ca. 2.7 mm; styles ca. 1.3 mm. Fl. Aug–Sep.

- Alpine meadows, rock crevices on slopes; 3700–4000 m. NW Yunnan (Jianchuan Xian, Lijiang Xa Zu Zizhixian).


长毛梗虎耳草 chang mao geng hu er cao


Herbs perennial, cespitose, 8.5–15 cm tall. Stem brown pilose to glabrous. Basal leaves well developed, small, caducous; petiole ca. 1 mm; leaf blade narrowly ovate, ca. 1 × 0.6 cm. Cauline leaves ca. 6; most proximal one with petiole ca. 1.2 cm, crissed glandular villous; leaf blade ovate, ca. 1.8 × 1 cm, ± brown glandular villos, apex acute; median leaves sessile, ovate, ca. 1.6 × 1 cm, base rounded, apex acute; most distal leaf ovate-cordate, ca. 1.3 cm × 7.5 mm, base cordate, amplicexical, apex acuminate. Flower solitary or cyme 2–3-flowered;
pedicels 1.3–2.3 cm, brown crisped glandular villous. Sepals spreading, orbicular to elliptic, 4.2–6 × 3.3–3.8 mm, both surfaces glabrous or glandular pilose, veins 6 or 7, confluent into a verruca at apex, margin brown crisp glandular villous. Petals yellow, broadly elliptic to orbicular, 6.2–8 × 6–7 mm, not callose, 6–7-veined, with a base ca. 0.7 mm or clawless. Stamens ca. 6 mm. Ovary superior, subglobulose; styles ca. 2 mm. Fl. Jul–Aug.

• Alpine meadows, rock crevices; 3600–4500 m. S Xizang, NW Yunnan.


近等叶虎耳草 jìng děng yè hù ěr cǎo

Saxifraga corymbosa J. D. Hooker & Thomson, J. Proc. Linn. Soc., Bot. 2: 70. 1858, not Lucé (1823), nor Boissier (1843); S. hookeri var. aequifolia C. Marquand & Airy Shaw; S. hookeri var. glabrisepala Engler & Irmscher; S. hookeri var. smithii Engler & Irmscher.

Herbs perennial, 9.5–23.5 cm tall. Stem brown crisped glandular villous. Basal leaves with petiole 3.5–4.3 cm, abaxially and marginally brown crisp glandular villous; leaf blade ovate, 1.9–2.1 × ca. 1.3 cm, abaxially and marginally brown villous, base cordate, apex acute. Cauline leaves 3–5; petiole 0.2–3.1 cm; leaf blade ovate, ca. 2 mm, abaxially and marginally brown crisped glandular villous. Basal leaves with petiole 3.5–4.3 cm, abaxially and marginally brown villous, base cordate, apex acute. Proximal ones brown villous abaxially and marginally; most distal one glandular villous adaxially and marginally. Cyme strongly corymbiform, 2.4–3.8 cm, 3–6-flowered or flower solitary; pedicels glandular hairy. Sepals erect to spreading, 3.3–3.8 × 2–2.3 cm, abaxially and marginally dark brown glandular hairy, veins 3–5, confluent at apex, apex acute. Petals yellow, oblong to broadly elliptic, 5–8.1 × 2–5.7 mm, (3 or)4-callose, 3–5-veined, based contracted into a claw 0.6–1 mm, apex obtuse. Stamens 2.5–5.5 mm. Ovary subsuperior, ovoid to ellipsoid, ca. 2–3.4 mm; styles 1.1–1.8 mm. Fl. and fr. Aug–Oct. 2n = 16.

Forests, slopes, by water; 2000–3000 m. W Sichuan (Duozheng Xian), SE Xizang (Mêdog Xian), NW Yunnan. 1765.


近等叶虎耳草 jìng děng yè hù ěr cǎo

Herbs perennial, 18.5–37 cm tall. Stem brown glandular pilose. Cauline leaves 10–13; proximal ones with petiole 0.3–3.3 cm, glandular pilose, gradually shorter to absent distally on stem; leaf blade ovate-cordate or ovate to narrowly so, 2.4–3.5 × 0.7–2.5 cm, ± glandular hairy, base cordate to rounded, apex obtuse or acute. Pleiochasium paniculate, 3.2–14 cm, 6–30-flowered;

most proximal branch 6–7 cm, 2- or 3-flowered;
pedicels shortly dark brown glandular hairy. Sepals reflexed, ovate or broadly so to narrowly triangular-ovate, (1.1–)2.5–3 × 2–2.2(–4.8) mm, abaxially shortly glandular hairy, adaxially glabrous or distally sparsely glandular hairy, veins 3(–7), not confluent at apex, margin membranous, ± glandular ciliate, apex obtuse or acute. Petals yellow, purple spotted, usually ovate to elliptic, rarely broadly ovate to broadly elliptic, 4.5–6.8 × 2.6–3.6 mm, 4–6(–8)-callose or obscurely so, 3- or 4–(8–)veined, base contracted into a claw 0.5–1 mm, apex obtus or acute. Stamens 3–5.5 mm. Ovary subsuperior, broadly ovoid, 2.2–4.2 mm; styles 0.5–1.5 mm. Fl. and fr. Jul–Oct.

• Forests, scrub meadows, alpine meadows, rock crevices; 3000–4200 m. W Sichuan (Duozheng Xian), SE Xizang (Mêdog Xian), NW Yunnan.

39. Saxifraga glaucophylla Franchet, Pl. Delavay. 239. 1890.

近等叶虎耳草 jìng děng yè hù ěr cǎo

Saxifraga cymiformis T. C. Ku; S. diversifolia Wallich ex Seringe f. parviflora (Franchet) Engler & Irmscher; S. diversifolia var. parviflora Franchet; S. dumianana H. Léveillé.

Herbs perennial, 19–42 cm tall. Stem brown pilose proximally, shortly glandular hairy distally. Basal leaves with petiole 1–4 cm, brown pilose; leaf blade ovate-oblong, 2.4–7 × 1–2.5 cm, ± brown pilose, base truncate, rounded, or cuneate, apex acute. Proximal caulin leaves similar to basal ones, petiolate; distal ones sessile, oblong to ovate, 0.8–5 × 0.3–2.5 cm, both surfaces brown pilose or glabrous, base rounded or subamplexicaul, margin glandular hairy, apex subobtuse or acute. Cyme 2.5–24 cm, 5–30-flowered; branches and pedicels shortly dark brown glandular hairy. Sepals reflexed, ovate or subovate, 2.5–3.5 × 1–2 mm, abaxially and marginally dark brown glandular hairy or margin glabrous, veins 3 or 4, not confluent at apex, apex obtuse or acute. Petals yellow, ovate to subelliptic, 4–6.5 × 2–2.9 mm, 4–6-callose near base, 3–5-veined, base contracted into a claw 0.5–0.8 mm, apex obtuse or acute. Stamens 3.5–4.5 mm. Ovary subsuperior, ovoid, 2.2–4 mm; styles 0.7–1 mm. Capsule ca. 5 mm. Fl. and fr. Jul–Aug.

• Forests, forest margins, alpine meadows, rock crevices on slopes; 2600–3900 m. SW Sichuan, C and NW Yunnan.


当虎耳草 dāng hǔ ěr cǎo

Herbs perennial, 23–25 cm tall. Stem simple, proximally glabrous, distally glandular pilose. Basal leaves with petiole 3.5–5 cm, adaxially and marginally glandular hairy; leaf blade ovate, 3.6–4.4 × 2.1–2.6 cm, glabrous, base rounded, apex obtuse or acute. Petals yellow, ovate to orbicular, 4.5–6.8 × 3.6–4 mm, ± brown pilose, base rounded, apex obtuse or acute. Proximal cauline leaves similar to basal ones, petiolate; distal ones sessile, oblong to ovate, 0.8–5 × 0.3–2.5 cm, both surfaces brown pilose or glabrous, base rounded or subamplexicaul, margin glandular hairy, apex subobtuse or acute. Cyme 2.5–24 cm, 5–30-flowered; branches and pedicels shortly dark brown glandular hairy. Sepals reflexed, ovate or subovate, 2.5–3.5 × 1–2 mm, abaxially and marginally dark brown glandular hairy or margin glabrous, veins 3 or 4, not confluent at apex, apex obtuse or acute. Petals yellow, ovate to subelliptic, 4.6–5.5 × 2–2.9 mm, 4–6-callose near base, 3–5-veined, base contracted into a claw 0.5–0.8 mm, apex obtuse or acute. Stamens 3.5–4.5 mm. Ovary subsuperior, ovoid, 2.2–4 mm; styles 0.7–1 mm. Capsule ca. 5 mm. Fl. and fr. Jul–Aug.

Forests, scrub meadows, alpine meadows, rock crevices; 3000–4200 m. S Xizang, NW Yunnan.
erect, narrowly ovate, 3.5–4.5 × 1.2–1.6 mm, abaxially and marginally glandular hairy, veins 3, not confluent at apex, apex subobtuse or acute. Petals yellow, obovate, 7–7.3 × ca. 3.5 mm, adaxially (8 to) numerous callose, ca. 7-veined, base clawless, apex obtuse. Filaments subulate, ca. 5.5 mm. Ovary subsuperior, narrowly ovoid, ca. 4.5 mm; styles ca. 1 mm. Fl. Jul.–Sep.

- Meadows among Abies forests; ca. 3400 m. SE Xizang (Mêdog Xian).

41. **Saxifraga haplophylloides** Franchet, Pl. Delavay. 238. 1890.

**六花虎耳草** liu jia hu er cao

*Saxifraga haplophylloides* (Franchet) Losinskaja; *Saxifraga turfosa* Engler & Irmscher. Herbs perennial, 12–45 cm tall. Stem brown pilose proximally mainly at nodes, dark brown glandular hairy distally. Basal leaves caducous, often absent at anthesis. Cauline leaves ovate, 1.3–4.4 × 0.6–1.9 cm, base truncate to cuneate, apex acute; proximal leaves sometimes caducous, petiole 5–10 mm, abaxially or brown pilose, sparsely brown glandular villous at margin or glandular villous; most distal leaf sessile, glandular hairy on both surfaces and at margin or abaxially glandular, base cuneate to subulate, ovate to ovulate, 6.8–7 × 5.3–6.4 mm, 6-callose, confluent or not at apex, apex acute. Petals yellow, obovate, 7–7.6 × 4.3–5.3 mm, 6-callosose, 3–5–veined, base contracted into a claw 0.4–0.6 mm, apex obtuse. Stamens 3–5 mm. Ovary subsuperior, ovoid, ca. 3.7 mm; styles ca. 1 mm. Fl. Jul.–Aug.

- Alpine meadows; 3600–3700 m. NW Yunnan.

42. **Saxifraga kingdonii** C. Marquand, J. Linn. Soc., Bot. 48: 179. 1929.

**金冬虎耳草** jin dong hu er cao

*Saxifraga kingdonii* T. C. Ku. Herbs perennial, 5–30 cm tall. Basal leaves mostly caducous. Cauline leaves ± isomorphic on stem, sessile, orbicular to elliptic or ovate, 1.4–3 × 0.7–1.3 cm, both surfaces pilose, sometimes densely so, margin similarly pilose, apex obtuse. Flower usually solitary or cyme 2-flowered; pedicel glandular villous. Sepals erect to spreading, ovate, 6.5–10 × 2.7–7 mm, abaxially and marginally glandular or eglandular villous, veins 3–5, partly confluent at apex. Petals yellow to orange, elliptic to broadly ovate, 8–11 × 6–9 mm, several callose, 5–7–veined, base truncate, with a short claw. Stamens ca. 6 mm. Ovary subsuperior, broadly ovoid. Fl. Jul.–Oct.

Cliffs, bare rock faces; 4000–4800 m. Xizang [Myanmar].

In FRPS, this species was treated as a synonym of *Saxifraga eglandulosa*. However, it is a most distinct taxon, with some of the largest flowers in the group.


**聂拉木虎耳草** nie la mu hu er cao

*Saxifraga diversifolia* Wallich ex Seringe var. *moorcroftiana* Seringe in de Candolle, Prodr. 4: 44. 1830; *Hirculus moorcroftianus* (Seringe) Losinskaja; *S. kuana* Zhmylev; *S. lysimachioides* Klotzsch; *S. nyangangensis* J. T. Pan; *S. reflexa* T. C. Ku (1989), not Hooker (1832), nor Saint-Lager (1880).

Herbs perennial, 18–50 cm tall. Stem proximally brown crisped glandular villous, glabrous in median part, distally brown glandular pilose. Basal leaves usually deciduous at anthesis; petiole ca. 3.2 cm, abaxially and marginally sparsely brown glandular villous; leaf blade pandurate-elliptic to oblong, ca. 2.2 × 1.1 cm, abaxially and marginally brown glandular pilose, apex acute. Cauline leaves usually sessile; proximal ones oblong to pandurate, 1.6–6 × 0.8–2 cm, abaxially and marginally glandular pilose, base cordate, semiamplexicaul, apex rounded or acute; most distal leaf ovate to ovate-elliptic, ca. 2.7 × 1.5 cm, both surfaces glabrous, base cordate, amplexicaul, margin sparsely glandular ciliolate, apex obtuse. Cyme corymbose, 2.5–7.3 cm, 2–12-flowered; bracts elliptic, ca. 7 × 2 mm, glandular ciliolate at margin; pedicels 1–5 cm, shortly dark purple glandular hairy. Sepals erect to spreading, ovate-elliptic, 4.5–5.5 × 2.5–3.5 mm, abaxially shortly dark purple glandular hairy or glabrous, margin shortly dark purple glandular hairy, veins 5–7, confluent into a verruca at apex, apex obtuse. Petals yellow, obovate, 8–8.5 × 3.5–5.2 mm, 5–7–veined, base clawless, apex obtuse. Stamens 5.2–5.5 mm. Ovary subsuperior, ovoid, 2.7–3.6 mm; styles 1–1.3 mm. Capsule ca. 9 mm. Fl. and fr. Aug.–Sep. 2n = 16.

Forest margins, scrub, by water; 3500–4400 m. SE Sichuan, S Xizang, NW Yunnan [Bhutan, India, Kashmir, Nepal, Sikkim].

44. **Saxifraga kingiana** Engler & Irmscher, Bot. Jahrb. Syst. 48: 610. 1912.

**毛叶虎耳草** mao ye hu er cao


Herbs perennial, 70–75 cm tall. Stem brown crisped villosus, basal leaves caducous. Cauline leaves ca. 10, lanceolate-ovate or ovate to cordate, 1.6–5.1 × 1.1–2.4 cm, both surfaces and margin villous, base cordate, amplexicaul, apex shortly acuminate or acute; proximal leaves smaller, distal ones gradually larger, most proximal one caducous. Cyme ca. 14.5 cm, ca. 14-flowered; branches 5.5–6 cm, 1- or 2-flowered; pedicels 0.8–1.5 cm, brown glandular villous. Sepals spreading, ovate, 4.5–5 × 3–4 mm, brown glandular pilose abaxially, adaxially distally, and marginally, veins 5 or 6, confluent into a verruca at apex. Petals yellow, adaxially lilac spotted, orbicular or broadly elliptic to broadly obovate, 6.8–7 × 5.3–6.4 mm, not callose, ca. 7-veined, base contracted into a claw 0.5–0.7 mm, apex

obtuse. Stamens ca. 5.9 mm. Ovary subsuperior, globose, ca. 4.2 mm in diam.; styles ca. 1.2 mm. Fl. Jul–Aug. Slopes; 3700–3900 m. S Xizang (Nyalem Xian) [Bhutan, Nepal, Sikkim].


pilose. Sepals spreading to reflexed, subelliptic to ovate, 2.9–4.5 × 2–2.5 mm, both surfaces glabrous, veins 3–5, not confluent at apex, margin glabrous or glandular ciliate, apex obtuse. Petals yellow, ovate to elliptic, 5–8 × 3–3.6 mm, 4–6-calloso, 3–5-veined, base contracted into a claw 0.6–1.1 mm, apex obtuse or acute. Stamens 4.7–6 mm. Ovary subsuperior, ovoid, 3–4.2 mm; styles 1–1.8 mm. Capsule ca. 8.6 mm; seeds ovoid, ca. 1 mm. Fl. and fr. Jul–Sep.

- Forests, alpine meadows; 3000–4300 m. W Sichuan, NW Yunnan.


Hirculus giraldianus (Engler) Losinskaja; Saxifraga giraldiana var. biondiana Engler; S. giraldiana var. hupehensis Engler; S. hastigera H. Léveillé.

Herbs perennial, cespitose, 8.5–21.5 cm tall. Stem brown crisped villous. Basal and proximal cauline leaves deciduous at anthesis; distal cauline leaves with petiole 2.5–12 mm, brown glandular villous at margin, hairs denser near base; leaf blade ovate or broadly so to linear-oblong, 5–13 × 2–11.5 mm, both surfaces glabrous or ± glandular pilose, base rounded to cuneate, margin sparingly crisped glandular villous, apex acute. Flower solitary, or cyme corymbose, 1.2–1.7 cm, and 2–6-flowered; pedicels 3–16 mm, densely brown glandular pubescent. Basal leaves caducous, absent at anthesis. Proximal cauline leaves smaller than others; petiole 1.7–3 mm; leaf blade ovate to lanceolate, 5–6 × 3–4 mm, both surfaces glandular pubescent, base rounded, apex subobtuse to acute; median leaves sessile or subsessile, narrowly ovate, larger, 1.3–1.7 cm × 7–9 mm, base cardate to truncate, amplexical, apex acute; distal leaves oblong, smaller. Cyme congested, 3–11-flowered; pedicels densely glandular pubescent. Sepals erect, subovate, 3–4 × 1–1.5 mm, abaxially and marginally glandular pubescent, veins 3 or 5–15, not confluent at apex, apex obtuse, entire, sometimes erose. Petals yellow, suboblong, ca. 6 × 1.5–2 mm, 2-callose near base or distinctly 6-callose, 3- or 4-veined, base abruptly contracted into a claw, apex obtuse. Stamens overtopping pistil. Ovary ovoid; styles rather short. Fl. and fr. Jul–Sep.

- Shaded and wet places in forests, alpine meadows; 3200–4700 m. W Sichuan, S Xizang.

1a. Sepals 5–15-veined, apex entire; petals 2-callose near base .......................... 52a. var. auriculata
1b. Sepals 3-veined, apex erose; petals distinctly 6-callose .......................... 52b. var. conaensis

52a. Saxifraga auriculata var. auriculata


- Alpine meadows; 3200–4700 m. W Sichuan.


- Shaded and wet places in forests; 3200–3600 m. S Xizang (Cona Xian).


Hirculus bulleyanus (Engler & Irmscher) Losinskaja.
Herbs perennial, densely cespitose, 9.5–30 cm tall.
Stem densely brown glandular hairy and brown crisped glandular villous. Basal and proximal cauline leaves caducous, usually absent at anthesis; distal cauline leaves subsessile, ovate-elliptic, 0.9–1.5 cm × 3.5–8.5 mm, both surfaces white glandular hairy, base rounded, apex subobtuse. Cyme 1.5–2 cm, (1 or)2–5-flowered; pedicels 4–8 mm, dark brown crisped glandular villous and brown glandular hairy. Sepals erect, ovate to narrowly so, 4–5 × 2–3.2 mm, dark brown glandular hairy abaxially, adaxially distally, and marginally, veins 6 or 7, confluent into a verruca at apex, apex subobtuse or acute. Petals yellow, elliptic to broadly ovate, 6–7 × 2–3.5 mm, 2–4-callose, 3–6-veined, base contracted into a claw 0.4–1.5 mm, apex obtuse or acute. Stamens 4–5 mm. Ovary subsuperior, ovoid, 3–3.6 mm; styles 1–1.5 mm. Fl. Jul.–Aug.

- Alpine meadows, cliff ledges, roost crevices; 3000–4600 m. NW Yunnan.


短叶虎耳草 duan ye hu er cao

Saxifraga swertiiflora H. Léveillé.

Herbs perennial, cespitose, 11–50 cm tall. Stem proximally brown crisped glandular villous, distally dark brown glandular hairy and leafless. Basal leaves caducous; petiole 6–9 mm, crisp glandular villous at margin; leaf blade subobovate to elliptic, 4.6–8 × 2.5–3.5 mm, glabrous, sometimes pilose. Cauline leaves sessile or subsessile; most proximal one caducous; median ones denser, ovate, 4–6 × 3–4 mm, glabrous except sometimes glandular hairy at basal margin, base truncate, apex acute; distal leaves sparser, lanceolate to oblong, ca. 6 × 2 mm, glandular hairy, apex acute. Cyme 1.7–9 cm, 2–14-flowered; pedicels 3–14 mm, glandular hairy. Sepals reflexed, ovate, 2.1–2.5 × 1.2–1.5 mm, dark brown glandular hairy abaxially and sparsely so at distal margin, veins 3, not confluent at apex, apex acute. Petals yellow, oblong, 4–5 × 2–2.1 mm, 4-callose, 3-veined, base contracted into a claw 0.4–0.6 mm, apex subobtuse. Stamens 3–3.4 mm. Ovary subsuperior, broadly ovoid, 1.9–2 mm; styles 0.8–1 mm. Fl. Aug–Oct.

- Wet meadows, slopes; 2500–3700 m. Yunnan (Dongchuan Shi, Eryuan Xian, Lijiang Naxi Zu Zizhixian).

55. Saxifraga peplidifolia Franchet, Pl. Delavay. 234. 1890.

耳源虎耳草 er yuan hu er cao

Hirculus peplidifolius (Franchet) Losinskaja; H. petrophila (Franchet) Losinskaja: Saxifraga hypericoides Franchet f. latifolia (Engler & Irmscher) J. T. Pan ex T. C. Ku; S. hypericoides var. likiangensis (Engler & Irmscher) J. T. Pan; S. macrostigma Franchet var. cordifolia W. W. Smith; S. macrostigma var. hypericoides (Franchet) Engler & Irmscher f. latifolia Engler & Irmscher; S. macrostigma var. hypericoides subvar. macrantha Engler & Irmscher; S. peplidifolia var. foliata Franchet; S. petrophila Franchet; S. petrophila var. likiangensis Engler & Irmscher.

Herbs perennial, densely cespitose, 2–13.5 cm tall. Stem brown crisped glandular villous, hairs denser at leaf axils. Basal leaves caducous; petiole 2–7 mm, brown glandular villous; leaf blade elliptic to oblong, 4–6 × 1.9–2.3 mm, adaxially ± glandular hairy, apex acute. Proximal cauline leaves with petiole 1.2–3.6 mm, glandular villous at margin; leaf blade elliptic to oblong, 5–6.5 × 1.9–2.1 mm, axially ± glandular hairy; distal leaves subsessile to sessile, oblong to narrowly ovate, 7–12 × 2–4 mm, adaxially and marginally sub glandular hairy, sometimes glabrous on both surfaces. Flower solitary or cyme 2- or 3-flowered; pedicels 2.2–17 mm, glandular hairy. Sepals erect, then spreading to reflexed, subovate to elliptic, 3–4 × 1.5–2.1 mm, ± glandular hairy abaxially and at margin near apex, glandular hairy distally, veins 3–5, not confluent at apex, apex obtuse, sometimes erose. Petals yellow, elliptic, rarely ovate-elliptic, 4.2–6.1 × 2.4–3.5 mm, 2-callose near base, 3–5(or 6)-veined, base with a claw 0.3–1 mm, apex retuse or obtuse. Stamens 3–4.1 mm. Ovary subsuperior, ovoid, 2.5–3.7 mm; styles 2–2.5 mm. Fl. and fr. Jul.–Sep.

- Forests, alpine scrub meadows, alpine meadows, rock crevices; 2700–4600 m. SW Sichuan, NW Yunnan.

One of the present authors (Gornall) considers that the synonyms Saxifraga hypericoides f. latifolia, S. macrostigma var. hypericoides f. latifolia, and S. macrostigma var. hypericoides subvar. macrantha belong not under this species but under S. hypericoides var. hypericoides.


金丝桃虎耳草 jin si tao hu er cao

Herbs perennial, densely cespitose, 11.5–19 cm tall. Stem brown crisped glandular villous (hairs denser near nodes) and shortly glandular hairy. Basal leaves numerous, caducous; petiole 1.5–4 mm, brown crisped glandular villous at margin; leaf blade oblong to linear or elliptic, 2.5–3 × 0.8–1 mm, brown pubescent, sometimes glandular, apex acute. Cauline leaves with petiole 1.2–2 mm, abaxially glandular hairy, margin brown crisped glandular villous at base; leaf blade oblanceolate to narrowly oblong or elliptic to oblong, 0.8–1.3 cm × 1.9–4 mm, glandular pubescent on both surfaces and at margin, base gradually tapered, apex acute or mucronate. Cyme 2–4–(8)-flowered or flower solitary; pedicels slender, 0.6–2.9 cm, glandular hairy. Sepals erect to spreading, broadly ovate or subelliptic to narrowly ovate, 1.9–2.6 × 1.2–1.5 mm, abaxially glandular hairy, veins 3, not confluent at apex, margin usually glabrous, occasionally glandular hairy, apex...
Franchet.

**56a. Saxifraga hypericoides** var. **hypericoides**
金丝桃虎耳草（原变种） jin si tao hu er cao (yuan bian zhong)

*S. hypericoides* f. *longipetala* T. C. Ku; *S. hypericoides* f. *longistyila* (Franchet) J. T. Pan ex T. C. Ku; *S. hypericoides* var. *longistyila* (Franchet) J. T. Pan; *S. longistyila* Franchet; *S. macrostigma* var. hypericoides (Franchet) Engler & Irmscher; *S. macrostigma* var. hypericoides subvar. longistyila (Franchet) Engler & Irmscher; *S. peplidifolia* Franch var. angustipetala T. C. Ku.


- Forests, forest margins, alpine scrub meadows, alpine meadows, rock crevices; 2700–4600 m. Sichuan, Yunnan.

**56b. Saxifraga hypericoides** var. **rockii** (Mattfeld) J. T. Pan

*S. peplidifolia* (Franchet) J. T. Pan ex T. C. Ku; *S. macrostigma* var. hypericoides subvar. longistyila (Franchet) Engler & Irmscher; *S. peplidifolia* Franch var. angustipetala T. C. Ku.


- 3700–5300 m. Sichuan.


橙瓣虎耳草 cheng ban hu er cao


Flower solitary. Sepals erose or entire at apex. Petals orange, base cuneate, contracted into a claw. Styles 1.5–2 mm. Fl. and fr. Aug–Sep.

- Alpine meadows; 3200–4600 m. Sichuan, Yunnan.


叶枝虎耳草 ye zhi hu er cao

Herbs perennial, 6.5–11 cm tall. Stem brown crisped glandular villous and shorter glandular hairy. Basal leaves caducous; petiole ca. 7 mm, margin glandular villous; leaf blade ca. 4 × 2 mm, glandular hairy, apex obtuse-acuminate. Cauline leaves subsessile, proximal ones smaller, distal ones larger; leaf blade oblong, 6–9 × 1.5–2.8 mm, both surfaces and margin glandular hairy, base cuneate, basal margin sparsely glandular villous, apex acute. Flower solitary or cyme 2- or 3-flowered; pedicels brown crisped glandular villous and shorter straight glandular hairy. Sepals erect-spreading, ovate, 3.2–3.9 × 1.9–2.2 mm, glandular hairy abaxially, adaxially distally, and marginally, veins 8–11, not confluent at apex, apex subacuminate or acute. Petals yellow, oblong to narrowly ovate, 4.8–5.3 × 2.1–2.3 mm, 2-callose near base, 5-veined, base with a claw ca. 1 mm, apex acute. Stamens 3.5–3.9 mm. Ovary subsuperior, ovoid, ca. 2.3 mm; styles divergent, ca. 2.3 mm. Fl. Jul–Aug.

- Slopes; ca. 3600 m. NW Yunnan (Weixi Xian).


猪鬃虎耳草 xia ban hu er cao


Herbs perennial, cespitose, 4–17 cm tall. Stem proximally brown crisped glandular villous and glandular pubescent, distally dark brown glandular hairy. Basal leaves with petiole 0.6–2.3 cm, margin brown crisped glandular villous; leaf blade lanceolate or oblanceolate to narrowly oblong, 2–11 × 0.6–2.5 mm, glandular hairy, apex subobtuse. Cauline leaves with petiole 2–12 mm, gradually shorter to absent distally on stem, margin brown crisped glandular villous; leaf blade suboblong to oblanceolate, 0.8–3.5 cm × 1.9–3.5 mm, glandular pubescent, apex subobtuse. Cyme 2–12-flowered or flower solitary; pedicels 0.5–3.8 cm, dark brown glandular hairy. Sepals erect to spreading, broadly to narrowly ovate, 2–4 × 1–2.9 mm, abaxially and marginally dark brown glandular hairy, adaxially sparsely glandular hairy or glabrous, veins 3–5(–7), not confluent at apex, apex obtuse or acute. Petals yellow, lanceolate or narrowly oblong to ensiform, 4–11 × 1.3–
3 mm, 2-callose, 3–5–(–7)-veined, base with a claw 0.4–1.2 mm, apex obtuse to acute. Stamens 1.5–5 mm. Ovary semi-inferior, broadly ovoid, 2.6–4.6 mm; styles 1.1–2.8 mm. Fl. and fr. Jul.–Sep.

- Forests, scrub, alpine meadows, rock crevices; 3100–4600 (–5600) m. S. Gansu, E and S Qinghai, S Shaanxi (Qin Ling), W Sichuan, E and S Xizang.


雅鲁藏布虎耳草 *ya lu zang bu hu er cao*

Herbs perennial, cespitose, 3.5–12 cm tall. Stem simple, brown glandular hairy and brown crisped villous at leaf axils. Basal leaves with petiole 6–9 mm, abaxially and marginally brown crisped glandular villous; leaf blade oblong, 5–7 × 2.5–2.7 mm, brown glandular hairy, apex subobtuse. Cauline leaves with petiole 2–5.5 mm, gradually shorter to nearly absent distally on stem, margin brown crisped glandular villous; leaf blade oblong, 8–8.5 × 2–2.7 mm, densely brown glandular hairy, apex subobtuse. Flower solitary or cyme 2- or 3-flowered; pedicels densely dark brown glandular hairy. Petals yellow, narrowly oblong or lanceolate to ensiform, 0.9–1.3 cm × 2.6–3 mm, abaxially and marginally densely glandular hairy, adaxially glabrous or spuriously glandular hairy, not callose, 5–7-veined, base with a claw 1–1.8 mm, apex obtuse or acute. Stamens 3.8–4 mm. Ovary subinferior, ca. 3.6 mm, with an annular nectary disc; styles ca. 2.5 mm. Fl. Aug.–Sep.

- Alpine meadows; 4300–4800 m. E and S Xizang (Biru Xian, Nang Xian, Yadong Xian).

The spelling of the specific epithet follows the protologue; in FRPS, it was given as “*Saxifraga yarlungzangbuensis*.” The species differs from the closely related (but Himalayan) *S. viscidula* J. D. Hooker & Thomson in its glandular hairy petals.


燃灯虎耳草 *ran deng hu er cao*

*Hirculus lychnitis* (J. D. Hooker & Thomson) Losinskaja.

Herbs perennial, 3–15 cm tall, cespitose. Stem simple, purple, dark purple glandular hairy. Basal leaves aggregated into a rosette; leaf blade spatulate, 1.1–1.5 cm × 4.2–4.5 mm, both surfaces and margin glandular villous, apex obtuse. Cauline leaves with petiole ca. 2 mm (on proximal leaves); leaf blade oblong, 9–10 × ca. 3.1 mm, both surfaces and margin glandular hairy, apex subobtuse. Flower solitary or cyme 2-flowered, nodding especially in bud; bracts oblong, ca. 8 × 2 mm, dark brown glandular hairy, apex subobtuse; pedicels ca. 3 mm, dark purple glandular hairy. Sepals erect, narrowly ovate to oblong, ca. 5 × 2 mm, subcarnose, abaxially and marginally densely dark purple glandular hairy, veins 3, not confluent at apex, apex obtuse or acute. Petals yellow, oblong, 8.5–9 × 2.6–2.7 mm, not callose, 3- or 4-veined, base with a claw 0.7–0.8 mm, apex retuse. Stamens 3.3–4.5 mm. Ovary semi-inferior, ca. 4 mm; styles ca. 1.8 mm. Fl. Jul.–Sep. 2n = 16.

Wet alpine meadows; 4300–5500 m. E Qinghai (Caka), W Sichuan (Daocheng Xian). S Xizang [Bhutan, N India, Kashmir, Nepal, Sikkim].

山生虎耳草 shan sheng hu er cao

Herbs perennial, cespitose, 6.5–15 cm tall. Basal leaves aggregated into a rosette; leaf blade obovate-spatulate, ca. 9 × 4.5 mm, leathery, both surfaces and margin glandular hairy, apex subobtuse. Cauline leaves lanceolate or oblong to elliptic, 6–11 × 3–7 mm, both surfaces and margin glandular hairy, apex subobtuse. Flower solitary or cyme 2- or 3-flowered; pedicels densely glandular hairy. Sepals erect, ovate to narrowly so, 5.4–5.5 × 2–3 mm, carnosous, glandular hairy abaxially, adaxially distally, and marginally, veins 5, not confluent at apex, apex subacute. Petals yellow, narrowly obovate, 1–1.3 cm × 4–4.2 mm, not callose, 5-veined, base contracted into a claw ca. 1 cm. 3 mm, apex obtuse or acute. Stamens 3.4–5 mm. Ovary semi-inferior, ovoid, 2.5–2.7 mm; styles ca. 1 mm. Fl. Jul–Sep.

- Hill tops, alpine lakesides; 4200–4500 m. W Sichuan.


垂头虎耳草 chui tou hu er cao


Herbs perennial, 5–36 cm tall. Stem simple, proximally dark brown glandular hairy only at leaf axils, distally slightly smaller plant distributed to the S of the more robust S. diapensia. This species is very closely related to Saxifraga caveana, which is a slightly smaller plant distributed to the S of the more robust S. diapensia.


近岩梅虎耳草 jin yan mei hu er cao

Herbs perennial, cespitose, 2.5–4.5 cm tall. Stem dark brown glandular hairy, leafless but with bracts. Basal leaves with petiole 6–10 mm, margin crisped glandular villous; leaf blade oblong to ovate or suboblong, 1.5–4 × 1–1.7 cm, abaxially glabrous, adaxially or sometimes sparsely glandular hairy, margin sparsely brown crisped glandular villous, apex obtuse or acute. Cauline leaves with petiole 2–17 mm, gradually shorter to absent distally on stem, margin brown glandular villous; leaf blade lanceolate to oblong, 1.3–7.5 × 0.3–2.2 cm, both surfaces subglabrous, margin brown glandular villous, apex obtuse or acute. Cyme racemiform, 2–12.5 cm, 2–14-flowered; flowers usually nodding and secund; pedicel 5–6 mm, densely dark brown glandular hairy. Sepals erect, triangular-ovate or ovate to lanceolate, 3.5–5.4 × 1.4–3 mm, abaxially and marginally dark brown glandular hairy, veins 3–6, not confluent at apex, apex obtuse or acute. Petals yellow, subspatulate to narrowly obovate, 7.4–9.6 × 2.5–3 mm, not callose, 3–5-veined. Stamens 4–7 mm. Ovary semi-inferior, 2–4.8 mm; styles 1.2–1.4 mm. Fl. and fr. Jul–Oct.

Forests, forest margins, scrub, alpine meadows, stony ridges, alpine lakesides; 2700–5000(–5400) m. W Sichuan, S Xizang, NW Yunnan [Bhutan, Nepal, Sikkim].


岩梅虎耳草 yan mei hu er cao

Hirculus diapensia (H. Smith) Losinskaja.

Herbs perennial, cespitose, 1–8(–12) cm tall. Stem brown glandular pilose. Basal leaves aggregated into a rosette; petiole sheathlike at base, 2.2–8 mm, brown crisped glandular villous; leaf blade subelliptic to narrowly ovate or lanceolate, 5–12 × 2–5 mm, glabrous, base cuneate, apex acute. Cauline leaves ca. 2, sometimes hidden in basal rosette, sublinear to linear-oblong; leaf blade 6–15 × 1–2 mm, subcarnose, base crisped glandular villous, margin glandular hairy. Flower solitary; pedicel 0.8–12 mm, brown glandular hairy. Sepals erect-spreading, ovate, gibbosus, 3–7 × 2–4 mm, subcarnose, both surfaces glabrous, veins 3–7, confluent into a verruca at apex, margin ± brown glandular ciliate. Petals yellow, sometimes orange spotted, ovate or elliptic to suboblong, 6.2–11 × 3–7 mm, 2-callose near base, 3–5 (–7)-veined, base contracted into a claw 0.5–1.2 mm, apex retuse. Stamens 3–5.6 mm. Ovary subsuperior, broadly subglobose, 2.5–5 mm; styles 0.9–1.8 mm. Fl. Jul–Aug.

- Alpine meadows, rocky grasslands, screes, cliff ledges, rock crevices; 3500–5300 m. W Sichuan, E Xizang, Yunnan.

This species is very closely related to Saxifraga caveana, which is a slightly smaller plant distributed to the S of the more robust S. diapensia.

66a. Saxifraga caveana var. caveana

近岩梅虎耳草原变种 jin yan mei hu er cao (yuan bian zhong)

Sepals ovate, abaxially and marginally dark brown glandular hairy, 5-veined; petals 6-veined ··············

1a. Sepals ovate, abaxially and marginally dark brown glandular hairy, 5-veined; petals 6-veined ··············

66b. var. lanceolata


Alpine meadows; 4500–4800 m. S Xizang (Cona Xian, Médog Xian) [Bhutan, Nepal, Sikkim].

狭萼虎耳草 xia e hu er cao


- Rocky slopes; ca. 4500 m. SE Xizang (Mainling Xian).


黑腺虎耳草 hei xian hu er cao

Hirculus maximoviczi (Losinskaja) Losinskaja; H. nigroglandulosus (Engler & Irmscher) Losinskaja; Saxifraga hirculus Linnaeus var. platypetala Franchet; S. maximoviczi Losinskaja.

Herbs perennial, cespitose, 6.5–10.5 cm tall. Stem densely dark brown glandular hairy. Basal leaves with petiole 0.6–1.8 cm (on proximal leaves), margin brown crisped eglandular villous; leaf blade ovate to narrowly so, 0.6–1.4 cm × 3–6 mm, usually glabrous, apex subobtuse or acute. Cauline leaves 2–5; petiole 3–6 mm, longer in proximal leaves, reduced or absent in distal leaves, margin dark brown glandular villous; leaf blade lanceolate to linear, 1–2 cm × 1.5–6 mm, abaxially glabrous, adaxially and marginally dark brown glandular hairy. Basal leaves with petiole 0.6–1.8 cm (on proximal leaves), margin brown crisped eglandular hairs, apex subobtuse or acute. Flower solitary, rarely 2; pedicel 1–3 cm, densely black glandular hairy. Sepals erect, subovate to subelliptic, 4.5–5 × ca. 2 mm, abaxially and marginally dark brown glandular hairy, veins 3–9, partly or fully confluent at apex, apex obtuse. Petals yellow or orange-yellow, elliptic or broadly so to broadly obovate, 0.7–1.3 cm × 5–8.8 mm, 2–11-callose, 5–9-veined, base contracted into a claw 0.6–1.2 mm, apex obtuse or retuse. Stamens 5.5–6.5 mm. Ovary subsuperior, subglobose, 3.2–6.2 mm; styles 1–2 mm. Fl. and fr. Jun–Sep.

Forests, scrub, alpine meadows, rock crevices; 4100–4300 m. SE Xizang (Bomi Xian, Mêdog Xian).

68. Saxifraga tsangchanensis Franchet, Pl. Delavay. 233. 1890.

藏东南虎耳草 zang dong nan hu er cao

Herbs perennial, cespitose, 4–4.5 cm tall. Stem simple, proximally brown glandular pilose near nodes, distally dark brown glandular hairy. Basal leaves with petiole 5.5–11 mm, brown glandular pilose at margin; leaf blade subovate to elliptic, 5.5–6.5 × 2–3.5 mm, adaxially and marginally brown pilose, apex subobtuse. Cauline leaves linear-oblong to lanceolate, 7.5–10 × 1.2–3.5 mm, adaxially and marginally brown pilose, apex obtuse; proximal leaves with petiole 2–6 mm, distal ones sessile. Flower solitary; pedicel 5–11 mm, adaxially and marginally dark brown glandular hairy. Sepals erect, subovate to subelliptic, 4.5–5 × ca. 2 mm, abaxially and marginally dark brown glandular hairy, veins 5, confluent into a verruca at apex, apex obtuse. Petals yellow, obovate, 7.5–8 × 3.8–4 mm, abaxially sparsely glandular hairy near base, 7- or 8-veined, base clavate, apex obtuse. Stamens ca. 4.5 mm. Ovary subsuperior, subovoid, ca. 3 mm; styles ca. 1 mm. Fl. and fr. Jul–Oct.

- Alpine scrub meadows, rock crevices; 4100–4300 m. SE Xizang (Bomi Xian, Mêdog Xian).


楚丕虎耳草 chu pi hu er cao

Herbs perennial, cespitose, 6.5–10.5 cm tall. Stem brown glandular pilose. Basal leaves with petiole 0.6–2 cm, adaxially and marginally brown pilose; leaf blade elliptic to oblong, 5–12 × 2.5–4.5 mm, adaxially and marginally pilose, base subacute, apex acute. Cauline leaves with petiole 0.2–0.8 mm; leaf blade elliptic or oblong to lanceolate, 5–10 × 2.5–4 mm, adaxially and
marginally brown pilose, base subcuneate, apex acute. Flower solitary; pedicel 0.5–1.5 cm, brown pilose. Sepals erect to spreading, ovate, 4.5–5.5 × 2–2.9 mm, both surfaces glabrous, veins 5, confluent at apex, margin brown glandular pilose, apex acute. Petals yellow, oblong-obovate to oblong, 4–7 × 1.5–3.1 mm, distinctly or indistinctly 4-callose near base, 3-veined, base contracted into a claw 0.6–0.8 mm, apex subacute. Stamens 2.5–3.6 mm. Ovary sub terminals, ovoid, 2.5–3 mm; styles 0.5–2 mm. Fl. Aug–Sep.

• Herbaceous, brown glandular pilose. Basal leaves with petiole long ciliate; leaf blade ovate or obovate, ca. 3 × 2.5 mm, adaxially and marginally brown villous. Cauline leaves sessile, ovate to broadly so, 4–6 × 4–5 mm, both surfaces and margin long ciliate, base cordate, apex obtuse. Flower solitary. Sepals erect, subelliptic to ovate, ca. 5.5 mm, veins 3–5, confluent into a verruca at apex, margin ciliate, apex obtuse. Petals yellow, obovate, ca. 1.1 mm, not callose, 5–7-veined, base contracted into a claw, apex obtuse. Stamens ca. 5.7 mm. Ovary ovoid; styles erect, then divergent. Fl. and fr. Jul–Sep. 2n = 16.

Graze by alpine streams; 4000–5000 m. S Xizang [Nepal, Sikkim].


Herbs perennial, cespitose, 4–6 cm tall. Stem slender, brown glandular villous. Basal leaves with petiole long ciliate; leaf blade ovate or obovate, ca. 3 × 2.5 mm, adaxially and marginally brown villous. Basal leaves with petiole 6–13 mm, crisped glandular villous at base and margin; leaf blade ovate or subovate to elliptic, 1.5–8 × 1–4 mm, adaxially and marginally brown glandular villous, apex obtuse. Proximal cauline leaves with petiole ca. 4 mm, brown glandular villous at margin; leaf blade lanceolate to linear-oblong, 3.4–5.5 × 0.2–1.1 mm, leathery, adaxially and marginally brown glandular villous (hairs to 1 mm); distal leaves sessile, linear, ca. 7.5 × 0.9 mm, subcarnose, margin glandular pilose or glabrous. Cyme 4.5–6 cm and 2–4-flowered or flower solitary; pedicels slender, 0.9–3 cm, glabrous or sometimes sparsely black glandular hairy. Sepals reflexed, subelliptic to ovate, 2–3 × 1.8 mm, both surfaces glabrous, veins 3, not confluent at apex, distal margin glandular ciliate or glabrous, apex obtuse. Petals yellow, oblong-ovate to oblong, 4–7 × 1.5–3.1 mm, distinctly or indistinctly 4-callose near base, 3-veined, base contracted into a claw 0.6–0.8 mm, apex subacute. Stamens 2.5–3.6 mm. Ovary sub terminals, ovoid, 2.5–3 mm; styles 0.5–2 mm. Fl. Aug–Sep.

• Herbaceous, cespitose, 4–6 cm tall. Stem slender, brown glandular villous. Basal leaves with petiole long ciliate; leaf blade ovate or obovate, ca. 3 × 2.5 mm, adaxially and marginally brown villous. Basal leaves with petiole 6–13 mm, crisped glandular villous at base and margin; leaf blade ovate or subovate to elliptic, 1.5–8 × 1–4 mm, adaxially and marginally brown glandular villous, apex obtuse. Proximal cauline leaves with petiole ca. 4 mm, brown glandular villous at margin; leaf blade lanceolate to linear-oblong, 3.4–5.5 × 0.2–1.1 mm, leathery, adaxially and marginally brown glandular villous (hairs to 1 mm); distal leaves sessile, linear, ca. 7.5 × 0.9 mm, subcarnose, margin glandular pilose or glabrous. Cyme 4.5–6 cm and 2–4-flowered or flower solitary; pedicels slender, 0.9–3 cm, glabrous or sometimes sparsely black glandular hairy. Sepals reflexed, subelliptic to ovate, 2–3 × 1.8 mm, both surfaces glabrous, veins 3, not confluent at apex, distal margin glandular ciliate or glabrous, apex obtuse. Petals yellow, oblong-ovate to oblong, 4–7 × 1.5–3.1 mm, distinctly or indistinctly 4-callose near base, 3-veined, base contracted into a claw 0.6–0.8 mm, apex subacute. Stamens 2.5–3.6 mm. Ovary sub terminals, ovoid, 2.5–3 mm; styles 0.5–2 mm. Fl. Aug–Sep.


Herbs perennial, cespitose, 13–17 cm tall. Stem tawny pubescent; distal margin glandular ciliate or glabrous, apex obtuse. Petals yellow, oblong-ovate to oblong, 4–7 × 1.5–3.1 mm, distinctly or indistinctly 4-callose near base, 3-veined, base contracted into a claw 0.6–0.8 mm, apex subacute. Stamens 2.5–3.6 mm. Ovary sub terminals, ovoid, 2.5–3 mm; styles 0.5–2 mm. Fl. Aug–Sep.

• Alpine scrub meadows; ca. 4600 m. W Sichuan (Daocheng Xian).
日照山虎耳草  
Herbs perennial, cespitose, 6.5–7.5 cm tall. Stem dark brown glandular hairy, crisped glandular villous near base. Basal leaves dense; petiole 2–2.5 mm, margin brown crisped glandular villous; leaf blade narrowly elliptic to oblong, ca. 2 × 0.5–1.2 mm, adaxially and marginally pilose, apex acute, with 1 brown, aristate hair. Proximal cauline leaves with petiole ca. 2 mm, margin brown crisped glandular villous; leaf blade linear-oblong, ca. 6 × 1 mm, glandular or eglandular hispid, apex with 1 aristate hair; distal leaves sessile, linear, ca. 6.6 × 1 mm, dark brown glandular hairy. Cyme 2-flowered; pedicels 1–1.7 cm, dark brown glandular hairy. Sepals erect to spreading, ovate to broadly so, ca. 2.5 × 1.6–2 mm, abaxially dark brown glandular hairy, veins 3, not confluent at apex, margin membranous, apex erose, sometimes ± dark brown glandular hairy. Petals yellow, suboblong, ca. 4.2 × 1.7 mm, 2-callose near base, 3-veined, base contracted into a claw ca. 0.5 mm, apex acute. Stamens ca. 2.4 mm. Ovary subperigynous, ovoid, ca. 2 mm; styles divergent, ca. 2 mm. Fl. Jul–Aug.

76. Saxifraga g labriscula 
光茎虎耳草 guang jing hu er cao
*Saxifraga palpebrata* J. D. Hooker & Thomson var. *parceciliata* Englger & Irmscher.  
Herbs perennial, densely cespitose, 2–4 cm tall. Stem glabrous. Rosette leaves ovate-lanceolate, 4–6 × 1.5–3 mm, adaxially and marginally hispid, base contracted into a petiole ca. 1.5 cm, apex obtuse. Cauline leaves with petiole reduced to absent distally on stem; leaf blade oblanceolate to narrowly ovate, 6–8 × 2–3.5 mm, adaxially and marginally crisped, apex obtuse. Flower solitary; hypanthium glabrous. Sepals spreading, ovate to orbicular, to 8 × 5.5 mm, 5-veined, base abruptly narrowed into a claw ca. 1.5 mm. Male flowers: stamens 2–3.5 mm; anthers ca. 0.8 mm, with pollen; ovary ovoid-conical, ca. 2 mm; styles rather bent, 0.7 mm; stigma obscure. Female flowers: stamens ca. 2.5 mm; anthers small, without pollen; ovary ca. 3 mm, with an annular nectary disc; styles divergent, thick, ca. 1.5 mm; stigma thick. Fl. and fr. Jul–Aug. 2n = 16.

Near snow lines; ca. 4800 m. SE Xizang [Bhutan, Nepal, Sikkim].

77. Saxifraga peraristulata  
川滇虎耳草 chuan dian hu er cao
Herbs perennial, densely cespitose, 2.5–5.5 cm tall. Stem glandular pilose. Basal leaves with petiole 2.7–8 mm, margin brown glandular or eglandular villous; leaf blade narrowly elliptic to oblanceolate, 3.5–7 × 0.9–1.5 mm, ± hispid on both surfaces or adaxially only, margin brown glandular or eglandular villous, apex 1-aristate. Cauline leaves narrowly lanceolate or linear, 4–10 × 0.9–1.2 mm, adaxially and marginally ± brown glandular villous, apex 1-aristate; proximal leaves with petiole ca. 1.4 mm, brown glandular villous at margin, distal leaves sessile. Flower solitary; pedicel slender, 0.9–2.5 cm, brown glandular pilose. Sepals spreading, subelliptic, 2.2–3 × 1–2 mm, abaxially glandular hairy, veins 3, not confluent at apex, margin glabrous, apex erose. Petals yellow, oblong to narrowly ovate, 5–5.5 × 2.2–2.5 mm, 2-callose near base, 3–5-veined, base contracted into a claw ca. 0.5 mm, apex subobtuse. Stamens 3.5–4 mm. Ovary subperigynous, broadly ovoid, ca. 2 mm; styles 1.5–2.5 mm. Fl. Jul–Aug.

* Alpine meadows, rock crevices; 4100–4700 m. W Sichuan, NW Yunnan.
* Alpine meadows, rock crevices; 4300–4500 m. W Sichuan (Dêrong Xian, Xiangcheng Xian).

78. Saxifraga linearifolia  
条叶虎耳草 tiao ye hu er cao
Herbs perennial, densely cespitose, small, 3–5 cm tall. Stem brown glandular villous. Basal leaves aggregated into a rosette; petiole 4.5–5.5 mm, margin brown glandular villous; leaf blade oblanceolate to elliptic, 3.5–4 × 1–1.5 mm, adaxially and marginally glandular hairy, base cuneate, apex subobtuse. Cauline leaves with petiole reduced to absent distally on stem, base glandular villous; leaf blade oblanceolate to obovate, 3.6–5 × 1.2–1.3 mm, both surfaces and margin glandular hairy. Flower solitary; pedicel 2–2.5 mm, long and shortly glandular hairy. Sepals spreading, subelliptic or oblong, 1.5–2.5 × 1–1.7 mm, glabrous or glandular hairy abaxially, veins 3 or 4, not confluent at apex, margin membranous, apex obtuse and erose, glabrous or sparsely glandular ciliate on 1 lateral side. Petals yellow, obovate to elliptic, 2.5–5 × 1.6–3.5 mm, not callose, 3–5-veined, base contracted into a claw 0.2–0.3 mm, apex obtuse. Stamens ca. 1.2 mm. Ovary subperigynous, ovoid, ca. 1.6 mm; styles ca. 1 mm. Fl. and fr. Jul–Sep.

* Alpine meadows, rock crevices; 3900–4200. W Sichuan (Kangding Xian), NW Yunnan (Lijiang Naxi Zu Zizhixian).

79. Saxifraga aristulata  
小芒虎耳草 xiao mang hu er cao
Herbs perennial, densely cespitose, 2–8.5(–11) cm tall. Stem ± brown crisped glandular villous. Basal leaves with petiole 4–6 mm, margin brown crisped glandular villous; leaf blade narrowly ovate, oblong, or linear, 4–8.2 × 0.7–1.3 mm, both surfaces glabrous, sometimes
margin glandular ciliate, apex acute, often aristate, sometimes glandular. Proximal cauline leaves larger than distal ones; petiole 1.5–2 mm, margin brown crisped glandular villous; leaf blade linear, 6–7.5 × 0.5–1.8 mm, both surfaces glabrous, sometimes margin glandular ciliate, apex aristate, sometimes glandular; distal leaves sessile, linear, 3.8–7.5, 0.5–3 mm, abaxially sometimes sparsely brown glandular hairy, margin glandular ciliate, apex shortly aristate, sometimes glandular. Flower solitary or rarely cyme 2-flowered; pedicel 0.7–12 mm, dark brown glandular hairy. Basal leaves with petiole ca. 2 mm, glandular villosus at leaf axils. Basal leaves with petiole ca. 8 mm, glandular villosus at leaf axils; leaf blade narrowly oblanceolate, 8–10 × 1–1.2 mm, glabrous, apex obtuse. Cauline leaves sessile, oblong to linear, 4–10 × 1–1.1 mm, brown crisped glandular villosus only near base. Flower solitary; pedicel ca. 1.1 cm, dark brown glandular hairy. Sepals erect, then spreading to reflexed, elliptic or ovate to broadly ovate, 2–2.5 × 1–2 mm, glabrous, rarely glandular at margin, veins 3 or 4, not confluent at apex, apex obtuse or acute. Petals yellow, ovate, obovate, or elliptic to oblong, 4–6 × 1.9–2 mm, 2-callose near base, 3–5-veined, base with a claw 0.4–1 mm, apex obtuse to acute. Stamens 2.5–5 mm. Ovary subsuperior, ovoid, 2.4–2.5 mm; styles 1.4–1.6 mm. Fl. and fr. Jul–Oct. 2n = 16.

Forests, forest margins, alpine meadows, rocky hillsides, stony ground, rock crevices; 3000–5000 m. SW Sichuan, Xizang, N Yunnan [Bhutan, N India, Nepal, Sikkim].

Two varieties may be recognized. Two of the present authors (Gornall and Ohba) believe that Saxifraga macrostigma should be treated as a third variety of S. aristulata.

1a. Plants slender, usually 2–5 cm tall; cauline leaves 0.5–1 mm wide. 79a. var. aristulata

1b. Plants robust, usually 4–11 cm tall; cauline leaves more than 1 mm wide. 79b. var. longipila

79a. Saxifraga aristulata var. aristulata

小芒虎耳草(原变种) xiao mang hu er cao (yuan bian zhong)

Hirculus aristulatus (J. D. Hooker & Thomson) Losinskaja; *H. macrostigma* (Franchet) Losinskaja; Saxifraga aristulata var. microcephala Engler & Irmscher; *S. macrostigma* Franchet; *S. macrostigma* var. georgiana Engler & Irmscher; *S. macrostigma* var. gracillima Engler & Irmscher; *S. macrostigma* f. hastifolia Engler & Irmscher.

Plants slender, usually 2–5 cm tall. Cauline leaves 0.5–1 mm wide. Pedicel brown glandular hairy. Fl. and fr. Jul–Oct.

Forests, forest margins, rocky hillsides, stony ground; 4000–5000 m. Xizang [Bhutan, N India, Nepal, Sikkim].

79b. Saxifraga aristulata var. longipila (Engler & Irmscher)


长毛虎耳草 chang mao hu er cao


异条叶虎耳草 yi tiao ye hu er cao

Herbs perennial, cespitose, ca. 4.5 cm tall. Stem brown glandular piliferous, crisped glandular villous at leaf axils. Basal leaves with petiole ca. 8 mm, crisped glandular villosus at leaf axils. Basal leaves with petiole ca. 8 mm, crisped glandular villosus at leaf axils; leaf blade narrowly oblanceolate, 8–10 × 1–1.2 mm, glabrous, apex obtuse. Cauline leaves sessile, oblong to linear, 4–10 × 1–1.1 mm, brown crisped glandular villosus only near base. Flower solitary; pedicel ca. 1.1 cm, dark brown glandular hairy. Sepals erect or spreading, ovate-elliptic, 2–3 × 1–1.5 mm, glabrous, veins 3 or 4, not confluent at apex, apex obtuse. Petals yellow, obovate, 3.8–4.5 × 2–2.8 mm, not callose, 3- or 4-veined, base abruptly contracted into a claw ca. 0.4 mm, apex obtuse. Stamens ca. 3.5 mm. Ovary subsuperior, ca. 3 mm; styles 0.6–1.5 mm. Fl. and fr. Jul–Sep.

Alpine meadows; ca. 4700 m. S Xizang (Cona Xian) [Bhutan]. The present authors have provisionally retained *Saxifraga lepidostolonosa*, described from Bhutan, as the name for this species. It is not clear whether *S. lepida* H. Smith (loc. cit.; 239), described from Bhutan and Nepal, is distinct. The two taxa appear to differ chiefly in that the former produces stolons from the basal leaf rosettes (although examination of the type specimen shows that not every plant does this). There are other minor differences in sepal orientation (spreading but sometimes reflexed in *S. lepida*) and in sexuality (dioecious in *S. lepida* but apparently hermaphrodite in *S. lepidostolonosa*). Despite this, there would appear to be a case for merging the two taxa, as was done by Grierson (Fl. Bhutan 1(3): 510. 1987), who recorded the large-leaved (merged) species from S Xizang (Chumbi, i.e., Yadong Xian). For the purposes of priority, the choice of the first author to unite them must be followed, because the two names were published simultaneously. Grierson (loc. cit.) chose *S. lepida*.


四川虎耳草 si chuan hu er cao

*Saxifraga aristulata* J. D. Hooker & Thomson var. *earistulata* T. C. Ku.

Herbs perennial, 1.7–4.2 cm tall. Stem brown crisped villous near base and at leaf axils. Basal leaves with petiole 2.5–4 mm, brown crisped glandular villous; leaf blade suboblong, 2–4 × 0.4–1 mm, glabrous, apex obtuse. Cauline leaves linear-oblong, 3.2–3.6 × ca. 0.6 mm, sparsely brown crisped glandular villosus only near base, apex obtuse; proximal leaves with petiole ca. 2.3 mm, brown crisped glandular villosus; distal leaves subsessile. Flower solitary; bract linear-oblong, ca. 3 × 0.6 mm, sparsely brown crisped glandular villosus near axil; pedicel 3.7–7 mm, usually glabrous, rarely sparsely glandular hairy. Sepals spreading, subovate, 1.5–1.8 × ca. 1 mm, glabrous, veins 3 or 4, not confluent at apex, apex obtuse. Petals orange, subelliptic, 2.9–3.2 × 1.3–1.6 mm, 2-callose near base, 3-veined, base abruptly contracted into a claw 0.3–0.4 mm, apex subobtuse. Stamens ca. 3 mm.
Ovary subsuperior, ovoid, ca. 1.5 mm; styles ca. 1 mm. Fl. Jul–Aug.

• W. Sichuan.


Herbs perennial, cespitose, 4–7 cm tall. Stem slender, proximally brown glandular or eglandular villous, distally sparsely glandular hairy. Basal leaves with petiole 6–13 mm, crisped glandular villous at margin and leaf axis; leaf blade subspathulate to lanceolate, ca. 3 × 1–1.5 mm, glabrous, apex obtuse. Cauline leaves sessile, linear-lanceolate, 2–4 × 0.5 mm, glabrous. Flower solitary; pedicel black glandular hairy. Sepals erect, ovate, 2.4–2.7 × 1.8–2.1 cm, dark brown glandular hairy. Cyme ca. 2 cm, 2- or 3-flowered; pedicels 5–10 mm, dark brown glandular hairy. Sepals erect, ovate, 2.4–2.7 × 1.8–2.1 cm, dark brown glandular hairy. Basal leaves usually caducous by anthesis; petiole 6.2–9.2 mm, base sheathlike, margin brown crisped glandular villous; leaf blade elliptic, 4–5.2 × 2–2.3 mm, glabrous, base cuneate, apex subobtuse. Cauline leaves oblong to lanceolate, 0.8–1.2 cm × 1.3–2 mm, both surfaces glabrous, margin brown crisped glandular villous at base, dark brown glandular hairy on distal leaves. Cyme 1.5–2.2 cm and 2- or 3-flowered or flower solitary; pedicels 0.9–1.3 cm, brown glandular hairy. Sepals erect, elliptic to broadly so, 3.4–3.6 × 2.2–3 mm, abaxially and marginally dark brown shortly glandular hairy, veins 3–5, not or partly confluent at apex, apex retuse. Petals yellow, elliptic to obovate-elliptic, 7.2–10 × 3.8–5.1 mm, 6- or 7-callose near base, 5-veined, base rounded, contracted into a claw 0.4–0.8 mm, apex obtuse. Stamens 2–3.2 mm. Ovary subsuperior, broadly ovoid, 2.9–3.2 mm; styles 0.8–1 mm. Fl. Jul–Aug.

• Abies forests, rock crevices; ca. 4000 m. SE Xizang (Bomi Xian).


Herbs perennial, 4.5–18.5 cm tall. Stem proximally sparsely crisped glandular villous (hairs denser near leaf axis), distally brown glandular hairy. Basal leaves usually caducous by anthesis; petiole 6.2–9.2 mm, base sheathlike, margin brown crisped glandular villous; leaf blade elliptic, 4–5.2 × 2–2.3 mm, glabrous, base cuneate, apex subobtuse. Cauline leaves oblong to lanceolate, 0.8–1.2 cm × 1.3–2 mm, both surfaces glabrous, margin brown crisped glandular villous at base, dark brown glandular hairy on distal leaves. Cyme 1.5–2.2 cm and 2- or 3-flowered or flower solitary; pedicels 0.9–1.3 cm, brown glandular hairy. Sepals erect, elliptic to broadly so, 3.4–3.6 × 2.2–3 mm, abaxially and marginally dark brown shortly glandular hairy, veins 3–5, not or partly confluent at apex, apex retuse. Petals yellow, elliptic to obovate-elliptic, 7.2–10 × 3.8–5.1 mm, 6- or 7-callose near base, 5-veined, base rounded, contracted into a claw 0.4–0.8 mm, apex obtuse. Stamens 2–3.2 mm. Ovary subsuperior, broadly ovoid, 2.9–3.2 mm; styles 0.8–1 mm. Fl. Jul–Aug.

• Abies forests, rock crevices; ca. 4000 m. SE Xizang (Bomi Xian).


Herbs perennial, cespitose, 2.5–18.5 cm tall. Stem simple, sparsely brown crisped glandular villous, with axillary leaf buds. Basal leaves caducous; petiole 4–7 mm, margin crisped glandular villous; leaf blade subelliptic to oblong, 3.5 × 1–1.1 mm, subcarneose, glabrous, apex subacute. Cyme leaves sessile, linear, 0.9–1.4 cm × 1–2 mm, subcarneose, both surfaces glabrous, margin crisped glandular villous at base. Flower solitary or cyme 2- or 3-flowered; pedicels 6–2.2 cm, dark brown glandular hairy. Sepals erect, subelliptic to broadly ovate, 3–4.1 × 2–3.1 mm, subcarneose, both surfaces glabrous, veins 3–5, not confluent at apex, margin dark brown glandular ciliate, apex obtuse or retuse. Petals yellow, elliptic, 5.5–8.2 × 3–5 mm, (4–) 6-callose near base, (3–)5–7-veined, base contracted into a claw 0.2–0.5 mm, apex retuse. Stamens 3.6–5 mm. Ovary subsuperior, broadly ovoid, 3–3.5 mm; styles 1–1.5 mm; stigma large. Fl. and fr. Jul–Sep.

Forests, alpine scrub meadows, rock crevices; 3500–4200 m. SE Xizang [N Myanmar].

Saxifraga heterooclada var. aurantia is supposed to differ from var. heterooclada in its more numerous cauline leaves, glabrous pedicels, sepalas with glandular margin, and larger (to 9 × 5 mm), orange petals. It seems from the above description that not all these characters are correlated, and it remains to be seen whether the two varieties can be maintained. Both taxa were described from N Myanmar.


Herbs perennial, cespitose, 6.5–18.5 cm tall. Stem proximally sparsely crisped glandular villous (hairs denser near leaf axis), distally brown glandular hairy. Basal leaves usually caducous by anthesis; petiole 6.2–9.2 mm, base sheathlike, margin brown crisped glandular villous; leaf blade elliptic, 4–5.2 × 2–2.3 mm, glabrous, base cuneate, apex subobtuse. Cauline leaves oblong to lanceolate, 0.8–1.2 cm × 1.3–2 mm, both surfaces glabrous, margin brown crisped glandular villous at base, dark brown glandular hairy on distal leaves. Cyme 1.5–2.2 cm and 2- or 3-flowered or flower solitary; pedicels 0.9–1.3 cm, brown glandular hairy. Sepals erect, elliptic to broadly so, 3.4–3.6 × 2.2–3 mm, abaxially and marginally dark brown shortly glandular hairy, veins 3–5, not or partly confluent at apex, apex retuse. Petals yellow, elliptic to obovate-elliptic, 7.2–10 × 3.8–5.1 mm, 6- or 7-callose near base, 5-veined, base rounded, contracted into a claw 0.4–0.8 mm, apex obtuse. Stamens 2–3.2 mm. Ovary subsuperior, broadly ovoid, 2.9–3.2 mm; styles 0.8–1 mm. Fl. Jul–Aug.

• Alpine meadows; ca. 4200 m. S Xizang (Cona Xian).


Herbs perennial, cespitose, 4.5–35 cm tall. Stem sparsely brown crisped villous. Basal leaves with petiole 0.7–4.5 cm, margin brown crisped villous; leaf blade elliptic or oblong to linear-oblong, 0.5–3.4 cm × 1.5–5.5 mm, glabrous or adaxially brown crisped eglandular villous, apex obtuse or acute. Cauline leaves lanceolate to linear, 0.9–2.5 cm × 1.5–5.5 mm, abaxially and marginally glabrous or villous; proximal leaves with petiole 0.3–2 cm, distal ones sessile. Cyme 1.4–4 cm, 2–8-flowered, rarely flower solitary; pedicels 0.4–1.8 cm, brown crisped villous. Sepals erect, subovate to subelliptic, 3.8–5.2–3.3 mm, abaxially sometimes pilose, veins 5–8, not confluent at apex,
margin crisped villous, apex obtuse. Petals yellow, obovate, elliptic, oblong, or pandurate to narrowly obovate, 0.8–1.3 cm × 3.3–6.9 mm, 2-callose near base, 5–15-veined, base with a claw 0.2–0.9 mm, apex obtuse or acute. Stamens 4–6 mm. Ovary subsuperior, 3.3–5 mm; styles 1.1–2.5 mm. Fl. and fr. May–Oct.

Saxifraga sinomontana is an extraordinarily variable species. However, there always seem to be intermediates between the numerous variants, or their diagnostic characters show reticulate variation. Therefore, the present authors have refrained from recognizing any varieties, except in one case, described below, where there does appear to be a genuine discontinuity.

1a. Basal leaves glabrous adaxially 86a. var. sinomontana
1b. Basal leaves brown crisped
e glandular villous adaxially ......... 86b. var. amabilis

86a. Saxifraga sinomontana var. sinomontana

山地虎耳草(原变种) shan di hu er cao (yuan bian zhong)

Saxifraga montana H. Smith, Acta Horti Gothob. 1: 9. 1924, not (Small) Fedde (1906); Hirculus montanus Losinskaja; S. hirculus Linnaeus var. indica C. B. Clarke; S. hirculus var. kansuensis Kanzit; S. hirculus f. vestita Engler; S. montana f. densifolia T. C. Ku; S. montana f. humilis H. Smith; S. montana var. splendens H. Smith.


可观山地虎耳草 ke guan shan di hu er cao


86b. Saxifraga sinomontana var. amabilis

山羊臭虎耳草 shan yang xiu hu er cao

Herbs perennial, cespitose, 4–24 cm tall. Stem brown crisped glandular villous. Basal leaves mostly caducous; petiole 7–12 mm, margin glandular villous; leaf blade elliptic to obovate, 5–10 × 2.3–3 mm, glandular villous.


林芝虎耳草 lin zhi hu er cao

Herbs perennial, cespitose, 4–24 cm tall. Stem brown crisped glandular villous. Basal leaves mostly caducous; petiole 5–12 mm, margin glandular villous; leaf blade elliptic to obovate, 5–10 × 2.3–3 mm, glandular villous. Cauline leaves 13–23; petiole 0.5–4 mm, margin glandular villous; leaf blade lanceolate to linear-oblong, 0.8–1.3 cm × 2.2–5 mm, long and shortly glandular pilose. Cyme corymbose, 1.6–4.5 cm, 2–9-flowered; pedicels 9–9.3 mm, dark brown glandular villous. Sepals erect, ovate to narrowly obovate, 4.5–5.6 × 2–3 mm, abaxially and marginally brown glandular hairy, veins 3–5, not, partly, or fully confluent at apex, apex acute. Petals yellow, subelliptic or obovate-oblong to subpandurate, 7–9.8 × 3–4.2 mm, 4–8-callose, 5–8–veined, base cordate to subtruncate, with a claw 0.8–1 mm, apex retuse. Stamens 4–5 mm. Ovary subsuperior, ovoid, 2.5–4 mm; styles 2–2.1 mm; stigmas prominent. Fl. Jul–Oct.

Forest margins, scrub, alpine meadows, earthy slopes, rock crevices; 3700–4700 m. SE Xizang (Mêdog Xian, Nyingchi Xian).


Herbs perennial, 6.5–21 cm tall. Stem sparsely brown crisped villous. Basal leaves with petiole 1.2–2.2 cm, margin brown crisped villous; leaf blade elliptic, lanceolate, or oblong to linear-oblong, 1.1–2.2 cm × 3–10 mm, both surfaces glabrous, margin brown pilose or glabrous. Cauline leaves lanceolate to oblong, 0.4–2.2 cm × 1–6 mm, both surfaces glabrous, margin brown crisped villous; proximal ones larger with petiole longer, distal ones smaller with petiole gradually shorter to absent. Flower solitary or cyme 2–3.7 cm and 2–4-flowered; pedicels 0.9–1.3 cm, brown crisped villous. Sepals erect, then spreading to reflexed, elliptic, or ovate to narrowly so, 3.6–1.1 × 1.5–3.5 mm, abaxially and marginally brown crisped villous or glabrous on both surfaces, veins 3–11(–13), not confluent at apex, apex obtuse or acute. Petals yellow, elliptic or obovate to narrowly ovate, 7.9–10.3 × 2.9–6.8 mm, 2-callose, 7–11(–17)-veined, base with a claw 0.3–0.5 mm, apex subobtuse or acute. Stamens 4–5.5 mm. Ovary subsuperior, ovoid, 2–5 mm; styles 1–1.8 mm. Fl. and fr. Jun–Sep. 2n = 16, 32.

Forests, alpine meadows, rock crevices; 2100–5000 m. Shanxi, W Sichuan, Xinjiang, Xizang, NW Yunnan [Kashmir, Kazakstan, Mongolia, Russia, Sikkim, Tajikistan; C and N Europe, ?North America].

1a. Stem more than 10 cm tall; flower solitary
or cyme 2–4-flowered; sepals abaxially and marginally brown crisped villous 88a. var. hirculus
1b. Stem usually less than 10 cm tall; flower solitary; sepals glabrous ........................... 88b. var. alpina

88a. Saxifraga hirculus var. hirculus

山羊臭虎耳草 (原变种) shan yang xiu hu er cao (yuan bian zhong)

Leptasea hirculus (Linnaeus) Small; Saxifraga aizoides Linnaeus var. autumnalis (Linnaeus) Engler & Irmscher; S. autumnalis Linnaeus; Saxifraga hirculus f. intermedia Engler & Irmscher; S. hirculus f. major Engler & Irmscher; S. hirculus var. major (Engler & Irmscher) J. T. Pan; S. montana H. Smith f. oblongipetala T. C. Ku; S. nutans Adams (1834), not D. Don (1821), nor J. D. Hooker & Thomson (1857).

Stem more than 10 cm tall. Flower solitary or cyme 2–4-flowered. Sepals abaxially and marginally brown crisped villous. Fl. and fr. Jun–Sep.

Forests, alpine meadows, rock crevices; 2100–4600 m. Shanxi, W Sichuan (Daocheng Xian), Xinjiang, Xizang, NW Yunnan (Diqên...
Xian) [Kashmir, Kazakhstan, Mongolia, Russia, Tajikistan; C and N Europe].


高山虎耳草 gao shan hu er cao
Saxifraga hirculus subsp. alpina (Engler) Podlech; S. hirculus var. alpina f. elata Engler & Irmscher; S. hirculus var. alpina f. humilis Engler & Irmscher; S. hirculus subsp. compacta K. O. Hedberg; S. hirculus f. minor Engler & Irmscher.


Wet alpine meadows; 4500–5000 m. SW Sichuan, E and S Xizang, SW Yunnan [Nepal].


毛瓣虎耳草 mao ban hu er cao

Herbs perennial, cespitose, 7.5–30 cm tall. Stem brown crisped villous. Basal leaves with petiole 0.8–2.3 cm, margin brown crisped villous; leaf blade ovate to lanceolate. Cauline leaves oblong or lanceolate to linear-oblong, 1.2–2 cm × 2–6 mm, brown crisped villous; proximal leaves with petiole 1–8 mm, brown crisped villous; distal leaves sessile. Cyme cymose, 1.5–6 cm, 2–5-flowered, rarely flower solitary; branches 2.3–3.5 cm; pedicels 5–18 cm, densely brown crisped villous. Sepals erect, then spreading to reflexed, elliptic or broadly so to suboblong, 3.1–5.3, 1.5–3 mm, abaxially and marginally brown crisped villous, veins 3–9, not confluent at apex. Petals yellow, obovate, elliptic, or orbicular to oblong, 6.6–9.6 × 3–5.6 mm, brown crisped villous at margin, sometimes also abaxially proximally, 2-callose near base, 5–10(–14)-veined, base with a claw 0.3–1.2 mm, apex obtuse. Stamens 3.2–6 mm. Ovary subsuperior, ovoid, 2–4 mm; styles ca. 1.5 mm. Fl. and fr. Jul–Oct.

Forests, scrub, alpine meadows, marshes; 4500–5000 m. SW Xizang [Kashmir, Russia, Sikkim; North America].


密花虎耳草 mi hua hu er cao
Hirculus congestiflorus (Engler & Irmscher) Losinskaja.

Herbs perennial, 16–28 cm tall. Stem simple, densely brown crisped villous. Basal leaves caducous. Cauline leaves sessile or subsessile, oblong-lanceolate, 2.8 cm × 2–3 mm, both surfaces glabrous, margin brown crisped villous. Inflorescence a compact, corymbose cyme of 6–10 flowers; branches ascending, 1–2 cm, 1- or 2-flowered; pedicels densely brown crisped villous. Sepals erect to spreading, ovate-oblong, 2.3–3.8 × 1–1.3 mm, abaxially and marginally brown crisped villous, veins 3, not confluent at apex, apex obtuse. Petals yellow, oblong-elliptic, 5–6 × 1.5–1.8 mm, callose, base contracted into a short claw. Stamens ca. 3.5 mm. Ovary subsuperior, ovoid, ca. 3 mm; styles ca. 1.5 mm. Fl. and fr. Aug–Sep.

Forest margins, scrub, alpine meadows, marshes; 3600–4800 m. S Shaanxi (Taibai Shan), Sichuan, SW Xizang (Gyaca Xian, Lhünzhub Xian), Yunnan.


唐古特虎耳草 tang gu te hu er cao

Herbs perennial, cespitose, 3.5–31 cm tall. Stem brown crisped villous. Basal leaves with petiole 1.7–2.5 cm, margin sparsely brown crisped villous; leaf blade ovate to lanceolate to oblong, 0.6–3.3 cm × 3–11 mm, both surfaces glabrous, margin brown crisped villous, apex obtuse or acute. Petals yellow, oblong-elliptic, 0.6–1.5 × 0.8–2.0 mm, abaxially and marginally brown crisped villous, margin sparsely brown crisped villous, abaxially proximally and at margin. Inflorescence 1–7.5 cm, 2–8–24-flowered; pedicels densely brown crisped villous. Sepals erect, then spreading to reflexed, ovate to narrowly so or lanceolate, 0.7–3.5 cm × 2.3–10 mm, brown crisped villous abaxially proximally and at margin. Stamens 2–2.2 mm. Ovary subinferior, with an
annular nectary disc; styles ca. 1 mm. Fl. and fr. Jun–Oct.
Forests, scrub, alpine scrub meadows, alpine meadows, rock crevices; 2900–5600 m. S Gansu, Qinghai, N and W Sichuan, Xizang [Bhutan, Kashmir, Nepal, Sikkim].

*Saxifraga lamashanensis* K. S. Hao (Repert. Spec. Nov. Regni Veg. 40: 214. 1936) is known only from the type collection (from Gansu), which is now lost. It may be related to *S. tangutica* (see FRPS, p. 202).

The variation of *Saxifraga tangutica* is such that the two varieties described below are simply the extremes of a continuum.

1a. Leaves narrow, basal ones 0.6–3.3 cm × 3–8 mm, cauleine ones 0.7–1.7 cm × 2.3–6.5 mm ................. 92a. var. tanguitica

1b. Leaves broad, basal ones 1.2–3 cm × 5–11 mm, cauleine ones 1.5–3.5 cm × 3–10 mm ................. 92b. var. platyphylla

92a. *Saxifraga tangutica* var. tanguitica

92b. *Saxifraga tangutica* var. platyphylla

The variation of *Saxifraga tangutica* is such that the two varieties described below are simply the extremes of a continuum. The variation of *Saxifraga tangutica* is such that the two varieties described below are simply the extremes of a continuum.

Herbs perennial, densely cespitose, (1–)2–16 cm tall. Stem densely brown crisped villous. Basal leaves with petiole 2–3 cm, margin brown crisped villous; leaf blade elliptic to oblong, 8–10 × 2–6.5 mm, glabrous, apex obtuse. Petiole 1–1.4 mm, apex obtuse. Cauline leaves with petiole 1–1.3 cm proximally on stem, gradually shorter to absent distally on stem; leaf blade narrowly ovate or lanceolate to oblong, 0.6–1.4 cm × 1.5–6 mm, glabrous or margin brown crisped villous. Flower solitary; bract 1, narrowly ovate or narrowly lanceolate to oblong, 3.5–9 × 1–3.5 mm, both surfaces glabrous, margin brown crisped villous; pedicel ca. 5 mm, brown crisped villous. Sepals reflexed, subovate to narrowly ovate, 3.2–4.1 × 1.5–2.5 mm, both surfaces glabrous, veins 3–5, not confluent at apex, margin brown crisped villous, apex obtuse. Petals purple abaxially, proximally purple and distally yellow adaxially, ovate to narrowly so, 4–5 × 1.9–2.1 mm, 2-calylose, 3–5-veined, base with a claw 0.5–1.4 mm, apex obtuse. Stamens 2–3.5 mm. Ovary ovoid, ca. 2 mm, with an annular nectary disc; styles ca. 1.5 mm. Fl. and fr. Jul–Sep. 2n = 16*. Rocky alpine meadows, marshes, rock crevices; 4300–5600 m. SW Qinghai, Xinjiang, Xizang.


Herbs perennial, 1.3–15(–30) cm tall. Stem simple, brown crisped villous. Basal leaves with petiole 0.7–1.6 cm, brown crisped villous; leaf blade ovate to narrowly elliptic, 5.5–11.5 × 1.5–6 mm, glabrous, apex acute. Cauline leaves sessile, elliptic to ovate, 8.5–11 × 1.7–5 mm, margin crisped villous, apex subobtuse. Flower solitary; pedicel 5–11 mm, brown crisped villous. Sepals spreading, ovate to elliptic, 2.8–7 × 2.4–3.8 mm, abaxially glabrous or brown pubescent, veins 3–9, not confluent at apex, margin near base, 2-callose, 8–13-veined, base with a claw 0.2–0.6 mm or clawless, apicule obtuse or retuse. Stamens 2–6 mm. Ovary subsuperior, ovoid, 3–5 mm; styles 0.7–2.3 mm. Fl. and fr. Jul.–Aug.


Herbs perennial, 3.5–5 cm tall. Stem simple. Flowering stem brown crisped glandular villous. Basal leaves with petiole 0.7–1.6 cm, brown crisped glandular villous. Sepals erect, abaxially glabrous or brown pubescent, 3–5 mm, not confluent at apex, margin brown crisped villous; leaf blade ovate to lanceolate, 5.5–11.5 × 1.5–6 mm, glabrous, apex acute. Cauline leaves sessile, elliptic to oblong, 8.5–11 × 1.7–5 mm, margin crisped villous, apex subobtuse. Flower solitary; pedicel 5–11 mm, brown crisped villous. Sepals spreading, ovate to elliptic, 2.8–7 × 2.4–3.8 mm, abaxially glabrous or brown pubescent, veins 3–9, not confluent at apex, margin near base, 2-callose, 8–13-veined, base with a claw 0.2–0.6 mm or clawless, apicule obtuse or retuse. Stamens 2–6 mm. Ovary subsuperior, ovoid, 3–5 mm; styles 0.7–2.3 mm. Fl. and fr. Jul.–Aug.


Herbs perennial, 2–4 mm, distal leaves, apex obtuse. Flower solitary; pedicel 1.4–2 mm, brown crisped villous. Stamens ca. 5 mm. Ovary subsuperior, broadly ovoid, ca. 3 mm; styles ca. 2 mm. Fl. Jul.–Aug.


Herbs perennial, cespitose, 3–8.3 cm tall. Stem brown crisped villous. Basal leaves with petiole ca. 7 mm, margin brown crisped villous; leaf blade ovate to broadly obovate, 2–3.2 × 1–2 mm, leathery, glabrous or sometimes glandular pilose at margin, veins 3–5, not confluent at apex. Petals yellow, obovate to broadly so or broadly elliptic, 4–6.8 × (2.5–)4–5.3 mm, 2-callose, 6–9-veined, base with a claw 1.1–1.2 mm, apex retuse. Stamens ca. 5. mm. Ovary subsuperior, ovoid, ca. 3 mm; styles ca. 2 mm. Fl. Jul.–Aug.


Herbs perennial, cespitose, 3–8.3 cm tall. Stem brown crisped villous. Basal leaves with petiole ca. 7 mm, margin brown crisped villous; leaf blade ovate to broadly obovate, 2–3.2 × 1–2 mm, leathery, glabrous or sometimes glandular pilose at margin, veins 3–5, not confluent at apex. Petals yellow, obovate to broadly so or broadly elliptic, 4–6.8 × (2.5–)4–5.3 mm, 2-callose, 6–9-veined, base with a claw 1.1–1.2 mm, apex retuse. Stamens ca. 5. mm. Ovary subsuperior, ovoid, ca. 3 mm; styles ca. 2 mm. Fl. Jul.–Aug.


- Alpine meadows, near snow lines; 4900–5000 m. S Xizang (Gongbo’gyamda Xian, Lhasa Shi)

**100. Saxifraga parva** Hemsley, J. Linn. Soc., Bot. 30: 112. 1894.

*小虎耳草* xiao hu er cao

*Saxifraga hirculus* Linnaeus var. *tafeliana* Engler & Irmscher.

Herbs perennial, cespitose, 0.7–4.5 cm tall. Stem simple, brown crisped glandular villous. Basal leaves with petiole 4–9 mm, sparsely crisped glandular villous at margin; leaf blade ovate-elliptic or narrowly so ovate to oblong, 4–4.5 × 1.5–2 mm, glabrous or margin brown crisped glandular villous, apex obtuse. Cauline leaves 3–10; proximal ones with petiole 2–4.5 mm, margin crisped glandular villous at base; leaf blade ovate to oblong, 3.5–7 × 1.5–2 mm, glabrous or margin sparsely brown crisped piliferous; distal leaves sessile, oblong or lanceolate to linear-oblongate, 5.2–7.8 × 1.2–3.2 mm, margin crisped glandular villous. Flower solitary; pedicel brown crisped glandular villous. Sepals erect, ovate to subovate, 2.3–6.4 × 1.3–4.7 mm, both surfaces glabrous, veins 3, not confluent at apex, margin glandular ciliate, apex obtuse. Petals yellow, obovate to broadly so or elliptic, 2.3–6.4 × 1.3–4.7 mm, 2-callose near base, 3–5–veined, base with a claw 0.2–1 mm, apex obtuse. Stamens 3–5 mm. Ovary subsuperior, ovoid, 2–2.7 mm; styles 0.5–2 mm. Fl. Jul–Aug.

Alpine scrub meadows, marsh meadows, rock crevices; 4200–4900 m. S Xizang [Bhutan, Nepal].


*小刚毛虎耳草* xiao gang mao hu er cao

*Saxifraga hirculus* Linnaeus var. *tafeliana* Engler & Irmscher.

Herbs perennial, cespitose, cushion-shaped, 0.9–1.5 cm tall. Stem extremely short, 3–9 mm, brown crisped glandular villous. Basal leaves with petiole 3–4.8 mm, margin brown crisped glandular villous; leaf blade suboblong, 3–4 × ca. 1 mm, glabrous, apex subobtuse. Cauline leaves linear, thick, 4.9–6.8 × 0.8–1 mm, both surfaces glabrous, margin brown crisped glandular villous at base. Flower solitary; pedicel 0.7–3 mm, densely brown crisped glandular villous. Sepals erect, ovate to subelliptic, 2.1–2.6 cm. Petals yellow, elliptic, 0.7–3 mm, densely brown crisped glandular villous. Sepals ovate, ca. 2.5 × 1.5 mm, sparsely glandular axially, margin glabrous, apex obtuse, sometimes slightly erose. Petals yellow, elliptic, 1.5 × 2 mm, 3-veined, base truncate with a claw ca. 0.3 mm. Ovary subsuperior, ovoid; styles ca. 0.2 mm. Fl. Aug.

- Rocks; ca. 4700 m. Sichuan.

This puzzling species seems to be allied to *Saxifraga gongshanensis* and *S. saginoides*. The description above is based on the type specimen only; no other material has been seen.


*浸水虎耳草* qi gu hu er cao

*Hirculus saginoides* (J. D. Hooker & Thomson) Losinskaja.

Herbs perennial, densely cespitose, cushion-shaped, 0.9–1.5 cm tall. Stem extremely short, 3–9 mm, brown crisped glandular villous. Basal leaves with petiole 3–4.8 mm, margin brown crisped glandular villous; leaf blade suboblong, 3–4 × ca. 1 mm, glabrous, apex subobtuse. Cauline leaves linear, thick, 4.9–6.8 × 0.8–1 mm, both surfaces glabrous, margin brown crisped glandular villous at base. Flower solitary; pedicel 0.7–3 mm, densely brown crisped glandular villous. Sepals ovate, 2.1–2.6 cm. Petals yellow, elliptic, 0.7–3 mm, densely brown crisped glandular villous. Sepals ovate, 2.1–2.6 cm. Petals yellow, ovate to narrowly so, 3.4–4.4 × 1.5–1.9 mm, not or obscurely 2-callose, 3–5–veined, base contracted into a claw 0.7–0.8 mm, apex obtuse. Stamens 1.5–2.9 mm. Ovary subsuperior, subovoid, ca. 1.5 mm; styles ca. 1.4 mm. Fl. and fr. Jul–Sep. 2n = 32.

Alpine scrub meadows, alpine meadows, rock crevices; 4300–5500 m. S Xizang [Bhutan, N India, Nepal, Sikkim].


*枕状虎耳草* zhen zhuang hu er cao


Herbs perennial, densely cespitose, cushion-shaped, 0.9–1.5 cm tall. Stem extremely short, 3–9 mm, brown crisped glandular villous. Basal leaves with petiole 3–4.8 mm, margin brown crisped glandular villous; leaf blade suboblong, 3–4 × ca. 1 mm, glabrous, apex subobtuse. Cauline leaves linear, thick, 4.9–6.8 × 0.8–1 mm, both surfaces glabrous, margin brown crisped glandular villous at base. Flower solitary; pedicel 0.7–3 mm, densely brown crisped glandular villous. Sepals ovate, 2.1–2.6 cm. Petals yellow, ovate to narrowly so, 3.4–4.4 × 1.5–1.9 mm, not or obscurely 2-callose, 3–5–veined, base contracted into a claw 0.7–0.8 mm, apex obtuse. Stamens 1.5–2.9 mm. Ovary subsuperior, subovoid, ca. 1.5 mm; styles ca. 1.4 mm. Fl. and fr. Jul–Sep. 2n = 32.

Alpine scrub meadows, alpine meadows, rock crevices; 4300–5500 m. S Xizang [Bhutan, N India, Nepal, Sikkim].
crisped glandular villous; leaf blade subob lanceolate, abaxially convex, adaxially rather concave, 2.2–3 × 0.5–0.8 mm, subcarnose, both surfaces glabrous, 3-veined, apex acute or aristate. Flower solitary; bract linear, ca. 3.3 × 0.5 mm, both surfaces glabrous, 1-veined, margin brown glandular villous at base, apex mucronate; pedicel ca. 1.5 mm, brown glandular villous. Sepals erect, narrowly ovate to suboblance, ca. 2.3 × 0.6 mm, glabrous, veins 2 or 3, not confluent at apex, apex obtuse. Petals orange, narrowly ovate, 1.5–2.3 × 0.6 mm, 2-collare near base, 1- or 3-veined, base contracted into a claw ca. 0.6 mm, apex acute. Stamens ca. 2 mm. Ovary semi-inferior, ca. 1.4 mm; styles ca. 0.5 mm. Fl. Jul–Aug.

• Alpine meadows, rock crevices; 4000–5100 m. W Sichuan.


马耳山虎耳草 ma er shan hu er cao

Hirculus balfourii (Engler & Irmscher) Losinskaja.

Stem branched or simple, 6–18 cm tall, glandular or eglandular pilose. Leaf buds prominent in axes at proximal nodes. Proximal cauline leaves often scalelike, less than 1/2 size of median ones, ca. 3 mm. Median cauline leaves elliptic, 0.7–2.9 cm × 3–13 mm, both surfaces densely striigose, margin entire, eglandular or glandular hairy, apex acute. Flower solitary or cyme 2–5-flowered; pedicels glandular hairy. Sepals erect, then spreading, ovate to subelliptic, 3–3.6 × 1.8–2.1 mm, abaxially glandular hairy, veins 4–7, confluent at apex, margin ± glabrous, apex acute. Petals yellow, elliptic to obovate, 6–7.7 × 2.5–4.2 mm, 4–6(–8)-callose, sometimes obscurely so, 3–7-veined, base contracted into a claw 1–1.2 mm, apex obtuse. Stamens 3.5–4 mm. Ovary subsuperior; styles ca. 1.6 mm. Fl. and fr. Jul–Sep. 2n = 32*, 48*.

• Mixed forests, alpine meadows, rock crevices; 2300–4600 m. NW Yunnan (Heqing Xian, Lijiang Naxi Zu Zizhixian).


齿叶虎耳草 chi ye hu er cao

Saxifraga hispida D. (Don) Losinskaja; Saxifraga eohuoloides Wall. ex Serine; S. hispidula var. dentata Franchet; S. hispida var. doniana Engler; S. potentilliflora H. Léveillé.

Stem usually branched, 4.5–22.5 cm tall, glandular pilose. Leaf buds present in axes at proximal nodes. Proximal cauline leaves caducous, less than 1/2 size of median ones, margin entire. Median cauline leaves subelliptic to ovate, 0.5–2 cm × 2.5–10 mm, both surfaces striigose, margin with 3–5 acute lobes toward apex. Flower usually solitary, or cyme 2-4-flowered; pedicel 0.6–2.1 cm, long glandular hairy. Sepals erect or somewhat spreading, ovate, 2.3–4 × 1.4–2.3 mm, glandular or eglandular hairy abaxially, adaxially distally, and marginally, veins 3–8, confluent at apex. Petals yellow, elliptic to broadly so or obovate, 4–7.3 × 2.9–5 mm, 2–16-callose, 3–10-veined, base contracted into a claw 0.6–1.7 mm, apex obtuse. Stamens 3–4.5 mm. Ovary subsuperior, ovoid to broadly so, 1.6–2.2 mm; styles 1.5–1.8 mm. Fl. and fr. Jul–Sep. 2n = 16, 24*.

Rocks and rock crevices in forests, forest margins, scrub, alpine meadows, and on cliffs; 2300–5600 m. C Sichuan (Baoxing Xian, Tianquan Xian), S Xizang, NW Yunnan [Bhutan, N India, N Myanmar, Nepal, Sikkim].

Many plants from Sikkim have entire leaves (Saxifraga hispida var. hispida), but no such plants have been seen among specimens from China.


疏叶虎耳草 shu ye hu er cao

Saxifraga subhispida var. gemmifera J. T. Pan.

Stem usually simple, sometimes branched proximally, 5–30 cm tall, proximally eglandular villous, distally glandular hairy. Leaf buds present in axes of at least proximal leaves, sometimes developing into sterile, leafy shoots by anthesis. Proximal cauline leaves caducous, less than 1/2 size of median ones. Median cauline leaves ovate or obovate to oblong, 0.8–4.3 cm × 3–13 mm, both surfaces striigose, base cuneate, margin sparsely 5- or 6-serrate or 2- or 3-denticulate, apex acute. Cyme 2–7 cm and 2–10-flowered or flower solitary; primary branches 2–5 cm, 1–4-flowered; pedicels 0.6–1.4 cm, glandular hairy. Sepals erect or spreading, ovate, 2.6–3 × 1.4–1.8 mm, abaxially glandular hairy, adaxially and marginally glabrous, veins 5–8, confluent at apex. Petals yellow, obovate, 6.4–7 × 3.1–4.3 mm, 4–6(–9)-callose, 3–8-veined, base gradually narrowed into a claw 1.5–1.8 mm, apex obtuse. Stamens 3.5–4 mm. Ovary subsuperior; styles 1.4–1.6 mm. Fl. and fr. Jul–Sep.

Mixed forests, Picea forests, forest margins, alpine meadows, rock crevices; 2700–4200 m. Xizang, Yunnan [Nepal].

108. Saxifraga strigosa Wallich ex Seringe in de Candolle, Prodr. 4: 41. 1830.

伏毛虎耳草 fu mao hu er cao

Hirculus strigosus (Wall ach ex Seringe) Losinskaja; Saxifraga echinophora H. Léveillé; S. strigosa f. ramosa Engler & Irmscher; S. strigosa f. simplex Engler & Irmscher; S. strigosa f. subaseexualis Engler & Irmscher.

Stem branched or simple, 5.5–28 cm tall, proximally densely crisped eglandular villous, distally glandular hairy. Leaf buds present in axes of rosette leaves and bracts, often replacing flowers. Proximal cauline leaves less than 1/2 size of median ones, ca. 3 mm. Median cauline leaves aggregated into a rosette; petiole 2–10 mm, margin long glandular hairy; leaf blade ovate, obovate, or elliptic to oblong, 0.6–2.7 cm × 4–13 mm, both surfaces striigose, base tapered into petiole, margin 2- or 3(-9)-dentate. Proximal and distal cauline leaves...
more remote and smaller than median ones, 3–8.5 × 1.2–4 mm. Flower solitary or cyme 3–10-flowered; branches often 1-flowered; bracts lanceolate, ca. 1.5 × 0.5 mm, strigose; pedicels 0.6–1.9 cm, dark purple glandular hairy. Sepals erect to spreading, ultimately reflexed, ovate to elliptic, 2–3 × 0.9–2.6 mm, abaxially strigose, veins 3–7, confluent into a verruca at apex, margin ± glabrous, apex acute. Petals white, spotted reddish brown, ovate to broadly so or elliptic, 3.8–5.5 × 1.4–2.6 mm, 2–4-callose, 3–7-veined, base contracted into a claw 0.7–1.3 mm, apex obtuse to acute. Stamens 2.3–4.5 mm. Ovary subsuperior, ovoid to broadly so, 1.3–2.2 mm; styles 0.5–2 mm. Fl. and fr. Jul–Oct. 2n = 16*, 32*.

Forests, forest margins, scrub, rock crevices; 1800–4200 m. W Sichuan, S Xizang, Yunnan [N Thailand].


芽生虎耳草 ya sheng hu er cao

Hirculus genniparatus (Franchet) Losinskaja; Saxifraga gasterostens H. Léveillé.

Stem many branched, (5–)9–24 cm tall, proximally eglandular villous, distally glandular hairy. Leaf buds present in axils of proximal, median, or distal cauline leaves. Proximal cauline leaves often scalelike, less than 1/2 size of median ones, ca. 3 mm. Median cauline leaves often aggregated into a loose rosette, sessile; leaf blade narrowly obovate or oblong to linear-oblong, 0.6–2.9 cm × 1.2–9 mm, strigose at least adaxially, base cuneate, margin eglandular setose-ciliate, apex acute. Cyme usually corymbose, laxly branched, 2–9 cm, 2–12-flowered; pedicels 0.6–2.4 cm, glandular hairy. Sepals erect, then spreading, ultimately reflexed, subovate, 2.4 × 1–2 mm, abaxially glabrous, variably glandular, or eglandular hairy, veins 3–7, confluent at apex, margin glabrous or sometimes glandular hairy at base, apex acute. Petals white, spotted yellow or purple, ovate or narrowly so, elliptic, or oblond, 2(–)4-callose, 3–7-veined, base contracted into a claw 1–1.5 mm, apex subtorse or acute. Stamens 2–6 mm. Ovary subsuperior, ovoid, 2.3–5 mm; styles 0.8–3 mm. Fl. and fr. Jun–Nov.

Forests, forest margins, scrub, meadows, rock crevices; 1700–4200 m. W Sichuan, S Xizang, Yunnan [Bhutan, N India, Myanmar, Nepal, Sikkim].


刚毛虎耳草 gang mao hu er cao

Hirculus oreophilus (Franchet) Losinskaja.

Stem many branched, 7–12 cm tall, proximally eglandular hairy, distally glandular hairy. Leaf buds present in axils of proximal, median, or distal cauline leaves and bracts. Proximal cauline leaves scalelike, 1–2 mm. Median cauline leaves sessile, oblond or narrowly so to narrowly subovate, 0.5–1.5 cm × 1–1.5 mm, both surfaces glabrous, margin recurved, eglandular or glandular ciliate, apex rigidly aristate. Flower solitary or cyme 2–4-flowered; pedicels 8–12 mm, glandular hairy. Sepals erect, ovate, 3–3.5 × 1–1.5 mm, abaxially glandular hairy, veins 5–7, confluent into a verruca at apex, margin ± glabrous, apex obtuse or acute. Petals yellow, ovate or elliptic, 4.5–5 × 2–2.7 mm, 2–4-callose, 4–7-veined, base contracted into a claw ca. 1 mm, apex subobtuse or acute. Stamens 3.5–5 mm. Ovary subsuperior, ovoid, 1.5–2.5 mm; styles 2–3 mm. Fl. Aug–Sep.

● Rocky slopes and crevices; 2600–3200 m. N Yunnan (Eryuan Xian, Lijiang Naxi Zu Zizhixian, Qiaojia Xian).

111. Saxifraga filicaulis Wallich ex Seringe in de Candolle, Prodr. 4: 46. 1830.

Hirculus filicaulis (Wallich ex Seringe) Losinskaja; Saxifraga mairei H. Léveillé.

Stem many branched, 9.5–24 cm tall, proximally sparsely eglandular hairy, distally glandular hairy. Leaf buds present in axils of leaves and bracts, those at median nodes often developing into sterile shoots by anthesis. Proximal cauline leaves scalelike, ca. 3 mm. Median and distal cauline leaves linear to ensiform, 3–12 × 0.6–2.1 mm, both surfaces usually glabrous, rarely sparsely glandular hairy axially, margin recurved, ± glandular ciliate. Flower solitary or cyme 2- or 3-flowered; bracts lanceolate, ca. 2 × 0.5 mm, margin glandular ciliate; pedicels glandular hairy. Sepals erect, ovate to triangular-ovate, 1.5–3 × 1–2 mm, abaxially glandular hairy, veins 3–5, confluent into a verruca at apex, margin glandular ciliate or glabrous, apex obtuse. Petals yellow, ovate or elliptic to obovate, 4.8 × 2.3–3.1 mm, 2–4-callose, 3–7-veined, base contracted into a claw 1–2.3 mm, apex obtuse or acute. Stamens 2.5–5.3 mm. Ovary subsuperior, ovoid, 2–2.5 mm; styles 1.5–3 mm. Fl. and fr. Jun–Oct. 2n = 24*, 32*.

Forests, forest margins, scrub, alpine meadows, cliff faces, rock crevices; 2100–4800 m. EC Shaanxi (Hua Xian), W Sichuan, S Xizang, E and NW Yunnan [Bhutan, India, Kashmir, Nepal, Sikkim].


汶川虎耳草 wenchuan hu er cao

Hirculus oreophilus (Franchet) Losinskaja.

Stem many branched, 7–12 cm tall, proximally sparsely eglandular hairy, distally glandular hairy. Leaf buds present in axils of leaves and bracts. Basal leaves absent; cauline leaves lanceolate, 5.5–8 × 1–1.5 mm, both surfaces glabrous, base rounded, margin cartilaginous glandular ciliate, apex acute, aristate-mucronate. Flower solitary; pedicel ca. 1.5 mm, glabrous. Sepals erect, subovate, ca. 4 × 2 mm, leathery,
both surfaces glabrous, veins 3, confluent at apex, margin cartilaginous glandular ciliate, apex mucronate. Petals yellow, obovate, ca. 5.8–3 mm, not callose, 3–5-veined, base contracted into a claw ca. 1 mm, apex rounded. Stamens ca. 5 mm. Ovary ovoid, ca. 2 mm; styles ca. 1.8 mm. Fl. Jun–Aug.

- Alpine passes; ca. 4300 m. NC Sichuan (Wenchuan Xian).


假大柱头虎耳草  jia da zhu tou hu er cao

*Saxifraga macrostigmatoides* (Engler) Losinskaja; *Hirculus macrostigmatoides* (Engler) Losinskaja;

*Saxifraga oreophila* Franchet var. *dapaoshanensis* J. T. Pan.

Stem 2.5–7 cm tall, proximally eglanular pubescent, distally glandular hairy. Leaf buds conspicuous in axes of proximal and median cauline leaves, developing into sterile shoots by anthesis. Leaves of sterile shoots suboblong, ca. 4 × 1.2 mm, both surfaces glabrous, margin sparsely setose-ciliate, apex mucronate or aristate. Proximal cauline leaves subpatulate, ca. 6 × 1.5 mm, both surfaces glabrous, margin sparsely setose-ciliate; median leaves larger than proximal and distal ones; distal leaves oblong to linear-oblong, 6–7.4 × 1.5–2.2 mm, both surfaces glabrous, margin glandular ciliate, apex aristate-mucronate. Flower solitary; pedicel 0.8–1.3 cm, glandular hairy. Sepals erect or spreading, ovate to subelliptic, 3–4 × 1.5–2.5 mm, abaxially and marginally glandular hairy, veins 3–7, not, partly, or fully confluent at apex, apex obtuse or subacute. Petals yellow, obovate, (5–)7–8 × 2–4 mm, 2–4-callose, 3–6-veined, base contracted into a claw 0.6–1 mm, apex obtuse. Stamens 4.5–6 mm. Ovary subsuperior; styles 1.3–3 mm. Fl. Jul–Aug.

- Alpine meadows, scrub, rock crevices; 3900–5000 m. W Sichuan (Batang Xian, Kangding Xian, Litang Xian), Xizang, NW Yunnan (Déqên Xian, Gongsan Drung-Nu Zhizhixian, Zhongdian Xian).


流苏虎耳草  liu su hu er cao

*Saxifraga wallichiana* D. Don var. *fimbriata* (Wallich ex Seringe) Engler & Irmscher; *S. fimbriata* Wallich ex Seringe; *S. oligantha* Zhmylev; *S. pauciflora* T. C. Ku (1989), not Sternberg (1822); *S. phaeophylla* Franchet.

Stem simple, 10–30 cm tall, proximally glabrous or sparsely eglandular hairy, only most distal part glandular hairy. Leaf buds present in axes of proximal, median or (especially) distal cauline leaves. Basal leaves absent. Cauline leaves crowded along stem, shiny, ovate or narrowly so to lanceolate, 0.8–1.8 cm × 1.5–8 mm, both surfaces glabrous, base cordate, semi-amplexicaul, margin cartilaginous eglandular or glandular ciliate, apex acute. Cyme 2–4-flowered or flower solitary; pedicels 2–8 mm, glandular hairy. Sepals erect, ovate, 1.6–5.3 × 0.7–2.5 mm, glabrous or abaxially and marginally ± glandular hairy, veins 3–7, partly or fully confluent at apex, apex acute. Petals yellow, ovate or obovate to elliptic, 4.3–6.6 × 1.6–3.1 mm, 2-callose near base, 3–9-veined, base abruptly contracted into a claw 0.3–1.1 mm, apex obtuse to acute. Stamens 3.5–5.5 mm. Ovary subsuperior, ovoid to broadly so, 1.8–2.2 mm; styles 1.1–3 mm. Fl. and fr. Jul–Nov. 2n = 24.

Forests, forest margins, scrub, alpine meadows, rock crevices; 2000–5000 m. W Sichuan, E and S Xizang, N Yunnan [Bhutan, India, Myanmar, Nepal, Sikikim].

The gross morphology of *Saxifraga wallichiana* sometimes approaches that of *S. brachypoda*, especially in the Himalayas, but the former species is distinguished from the latter by the presence of petal callosties. Therefore, the two species are kept separate in the present account. Both Chinese and Nepalese *S. wallichiana* have petals 2-callose. The petal margin is different (entire in Chinese plants, very finely laciniate in Nepalese plants), but plants from the two countries cannot be distinguished by other characters.


短柄虎耳草  duan bing hu er cao

*Hirculus brachypodus* (D. Don) Losinskaja; *Saxifraga glandulosa* Wallich ex Seringe.

Stem simple, 5.5–19 cm tall, proximally glabrous, distally glandular hairy. Leaf buds present in leaf axils. Basal leaves absent. Cauline leaves crowded along stem, shiny, lanceolate to linear-lanceolate, 5–12 × 0.4–2.8 mm, leathery, rigid, both surfaces glabrous, margin setose-ciliate or glabrous, apex acute, rigidly aristate; median leaves larger than proximal and distal ones. Flower solitary or cyme 2- or 3-flowered; pedicels 0.5–1.8 cm, glandular hairy. Sepals erect, ovate or triangular-ovate to subelliptic, 3.5–5 × 1.6–3 mm, glabrous, or abaxially and marginally eglandular or glandular hairy, veins 3–7, not, partly, or fully confluent at apex, apex obtuse or acute. Petals yellow, obovate or elliptic to ovate, 5.5–9 × 2.3–5.2 mm, not callose, 5–8-veined, base with a claw 0.3–1 mm, apex obtuse. Stamens 2.9–5 mm; anthers dark brown. Ovary subsuperior, ovoid to ellipsoid, 2.2–2.9 mm; styles 1–2 mm. Fl. and fr. Jul–Sep. 2n = 16, 24.

Forests, scrub, alpine meadows, steep gullies, rock crevices; 3000–5000 m. C and N Sichuan (Baoxing Xian, Songpan Xian), S Xizang, NW Yunnan [Bhutan, N India, Myanmar, Nepal, Sikikim].


光花梗虎耳草  guang hua geng hu er cao

Stem simple, 5–7.5 cm tall, glabrous. Leaf buds present in leaf axils. Leaves crowded along stem, narrowly ovate or lanceolate to oblanceolate, 5–7 × 1.8–2 mm, leathery, rigid, margin eglandular setose-ciliate on proximal and median leaves, glabrous on distal ones, apex setose-aristate. Flower solitary; pedicel glabrous. Sepals erect, subovate to subelliptic, 3.6–4 × 2–2.2 mm, carnose, glabrous, veins 3 or 4, not or partly confluent at apex, apex acute. Petals yellow, subspathulate, 5.2 × 1.6–1.8
mm, not callose, 3-veined, base gradually tapered into a claw, apex acute. Stamens ca. 4.5 mm. Ovary subsuperior, ovoid, ca. 3.5 mm; styles ca. 2.5 mm. Fl. and fr. Jul–Oct.

- Alpine meadows; 4200–4300 m. SE Xizang (Mêdog Xian).


云岭虎耳草 yun ling hu er cao Saxifraga yunlingensis C. Y. Wu; S. zayuensis f. angustipetala T. C. Ku.

Stem simple, 3–7 cm tall, glandular pilose. Leaf buds present in leaf axils. Proximal leaves few, scalelike, lanceolate, 5.7–6 × 1–1.2 mm, both surfaces glabrous, distal margin cartilaginous setose-ciliate, apex acute. Median cauline leaves crowded; petiole ca. 2 mm, margin ciliate; leaf blade oblong to narrowly so, 5–10.5 × 1.5–2 mm, both surfaces glabrous, base tapered into petiole, margin cartilaginous setose-ciliate, apex acute, rigidly aristate; distal leaves with petiole shortened to absent, leaf blade glandular hairy abaxially and at margin. Flower solitary or cyme 2-flowered; pedicels 0.5–1.5 cm, glandular pilose. Sepals erect to rather spreading, narrowly ovate, 3.5–5 × 1.5–2 mm, leathery, abaxially and marginally glandular hairy, veins 3, confluent at apex, apex rigidly aristate. Petals yellow, elliptic or ovate to narrowly obovate, 5.5–7 × 2–3.5 mm, 6–9-calloose, 4- or 5-veined, margin sometimes with a few glandular hairs at base, base with a claw 0.6–1 mm, apex obtuse or acute. Stamens 4.4–6.5 mm. Ovary subsuperior, ovoid, 2–3 mm; styles 1–2 mm. Fl. Jul–Aug.

- Abies forests, forest margins, alpine scrub meadows, rock clefts; 3800–4400 m. NW Yunnan (Dêqên Xian).


顶腺虎耳草 ding xian hu er cao

Stem simple, 7–25 cm tall, proximally glabrous, distally glandular hairy. Leaf buds present in axils of rhizome scales. Cauline leaves sessile, shiny, lanceolate to linear, 8–11 × 1.5–2 mm, both surfaces glabrous, margin cartilaginous eglandular setose-ciliate, apex acute, rigidly aristate. Cyme corymbose. Pedicels 0.5–1.5 cm, glandular pilose. Sepals erect, ovate to broadly so, 4.5–6.5 × 2–5 mm, abaxially and marginally glandular hairy, veins 3 or 5, not or partly confluent at apex, apex acute. Petals yellow, obovate to spatulate, 8–11 × 4–6 mm, not callose, 5–9-veined, base tapered into a claw 1–2 mm, distal margin glandular ciliate or eglandular laciniate, apex rounded. Stamens 4–5.5 mm. Ovary subsuperior, 3–4.5 mm; styles 2.5–3.5 mm. Fl. Jul–Sep.

Rocky or stony hillsides; 4000–4200 m. Xizang (Bhutan, N India (Darjiling), E Nepal, Sikkim).

Two apparently allopatric varieties may be distinguished: var. gouldii, occupying the W part of the range of the species, and var. eglandulosa, occupying the E part.

One of the present authors (Ohba) as well as Akiyama et al. (Bull. Nat. Sci. Mus., Tokyo, B, 26: 75–93. 2000) believe that Saxifraga gouldii var. gouldii and var. eglandulosa are varieties of S. brachypoda. The types of var. eglandulosa are similar to S. brachypoda in plant size, leaf shape, sepalas, and petals. However, the two taxa differ in the absence of var. eglandulosa of axillary buds in the middle and apical parts of the stem. Saxifraga gouldii var. gouldii is characterized by having petals with a single row of sessile or shortly stipitate, small, black glands that are continued for a varying distance along the margin. With the exception of these glands, var. gouldii does not differ from var. eglandulosa.

1a. Petals glandular ciliate at distal margin .................................................... 118a. var. gouldii
1b. Petals eglandular laciniate at distal margin ........................................ 118b. var. eglandulosa

118a. Saxifraga gouldii var. gouldii

顶腺虎耳草(原变种) ding xian hu er cao (yuan bian zhong)

Saxifraga brachypoda D. Don var. gouldii (C. E. C. Fischer) S. Akiyama et al.

Petals glandular ciliate at distal margin.

Xizang [Bhutan].


无顶腺虎耳草 wu ding xian hu er cao

Saxifraga brachypoda var. eglandulosa (H. Smith) S. Akiyama et al.

Petals eglandular laciniate at distal margin.

Rocky or stony hillsides; 4000–4200 m. SE Xizang [Bhutan, N India (Darjiling), E Nepal, Sikkim].


腺瓣虎耳草 xian ban hu er cao

Stem simple, 2.5–9.5 cm tall, proximally glabrous, distally glandular hairy or glabrous. Leaf buds present only in axils of rhizome scales. Leaves crowded along stem, sessile, ovate or oblong to linear-oblong, 5–11 × 3–6 mm, both surfaces glabrous, margin cartilaginous eglandular setose-ciliate, apex acute, rigidly aristate. Flower solitary; pedicel 5–7 mm, glandular hairy or glabrous. Sepals erect, ovate to broadly so, 4.5–6.5 × 2–5 mm, abaxially and marginally glandular hairy or glabrous, veins 5 or 6, not or partly confluent at apex, apex acute. Petals yellow, broadly ovate to orbicular, 6–11 × 4.5–9 mm, not callose, 5–9-veined, base abruptly contracted into a claw 1–2 mm, margin glandular ciliate, eglandular setose-ciliate, or glabrous, apex rounded. Stamens 4–5.5 mm. Ovary subsuperior, 3–4.5 mm; styles 2.5–3.7 mm. Fl. Jul–Sep. 2n = 16*.

- Alpine meadows and scrub, rock crevices; 1200–4800 m. SE Xizang, NW Yunnan.

1a. Pedicels and sepals glandular hairy; petals glandular ciliate at margin ......... 119a. var. wardii
1b. Pedicels and sepals glabrous; petals setose-ciliate or glabrous at margin

119a. Saxifraga wardii var. wardii

腺瓣虎耳草 (原变种) xian ban hu er cao (yuan bian zhong)

Saxifraga megalantha C. Marquand.

- Alpine meadows and scrub, rock crevices; 3500–4800 m. SE Xizang, NW Yunnan (Dêqên Xian).

119b. Saxifraga wardii var. glabripedicellata

猬状虎耳草 wei zhuang hu er cao

Stem simple, 5–8.5 cm tall, glandular hairy. Leaf buds present in axils of proximal nodes, developing into sterile shoots by anthesis. Leaves crowded along stem, shiny, oblong to oblong-oblate, 5–6.5 × 1.3–1.5 mm, rigid, both surfaces glabrous, base gradually narrowed, margin cartilaginous eglandular ciliate, apex aristate-mucronate. Petals yellow, ovate to ovate-obtuse, 2.5–3.5 × 0.7–1.5 mm, abaxially ± glandular hairy, adaxially glabrous, veins 3, confluent into a verruca at apex, margin glandular hairy or glabrous, petiole broad; leaf blade oblong to oblong-oblate, 1.1–1.2 cm × 1.9–2 mm, leathery, rigid, both surfaces glabrous, margin cartilaginous eglandular (occasionally glandular) setose-ciliate, apex cartilaginous aristate. Distal cauline leaves sessile, gray, oblong, usually smaller than rosette leaves, 5–7 × 1.5–2 mm, leathery, rigid, abaxially occasionally with a few eglandular hairs, adaxially glandular, margin cartilaginous glandular hairy, apex cartilaginous aristate. Cyme 2–4-flowered or flower solitary; pedicels 6–10 mm, glandular hairy. Sepals erect to spreading, subovate to subelliptic, ca. 2 × 1.5 mm, leathery, rigid, glabrous or abaxially and marginally glandular hairy, veins 3 or 4, confluent at apex, petiole broad; leaf blade oblong to oblong-oblate, 1.1–1.2 cm × 1.9–2 mm, leathery, rigid, both surfaces glabrous, margin cartilaginous eglandular (occasionally glandular) setose-ciliate, apex cartilaginous aristate.


矮小虎耳草 ai xiao hu er cao

Herbs perennial, 1–2 cm tall. Shoots crowded, forming cushions. Flowering stem scapose, 0.6–1.6 cm, mostly embedded among rosette leaves, visible part 2.8–10 mm, glandular hairy. Shoot leaves imbricate, aggregated into a rosette, subspatulate, abaxially convex, adaxially concave, 2.2–3.6 × 0.8–1 mm, subcarnose, colorless fimbriate hairy abaxially distally and at distal margin. Flower solitary; pedicel glandular hairy. Sepals erect or ascending, ovate to broadly so, abaxially subconvex, adaxially subconcave, 1–1.8 × 1.4 mm, abaxially ± glandular hairy, adaxially glabrous, veins 3, confluent into a verruca at apex, margin glandular hairy or glabrous, abaxially and at distal margin. Flower solitary; pedicel glandular hairy. Sepals erect or ascending, ovate to broadly so, abaxially subconvex, adaxially subconcave, 1–1.8 × 1.4 mm, abaxially ± glandular hairy, adaxially glabrous, veins 3, confluent into a verruca at apex, margin glandular hairy or glabrous, petiole broad; leaf blade oblong to oblong-oblate, 1.1–1.2 cm × 1.9–2 mm, leathery, rigid, both surfaces glabrous, margin cartilaginous eglandular (occasionally glandular) setose-ciliate, apex cartilaginous aristate.


治多虎耳草 zhi duo hu er cao

Herbs perennial, 1–2 cm tall. Shoots numerous, crowded, forming cushions. Flowering stem ca. 7 mm, glandular hairy. Shoot leaves imbricate, aggregated into a dense rosette, subspatulate, 3.5–3.6 × 1.1–1.2 mm, subcarnose, both surfaces glabrous, margin proximally ciliate or glandular ciliate, apex obtuse, scarious fimbriate. Cauline leaves remote. Flower solitary; pedicel ca. 0.7 mm, glandular hairy. Sepals erect, elliptic-ovate, ca. 2.5 × 1.5 mm, both surfaces glabrous, veins 5, confluent at apex, margin proximally ciliate or glandular ciliolate, apex fimbriate. Petals yellow, ovate, ca. 2.4 × 1.3 mm, 3-veined, base clawed, margin ±...
serrulate, apex subobtuse or acute. Stamens 2–2.5 mm. Ovary subinferior, with an annular nectary disc; styles ca. 1 mm. Fl. Jun–Aug.

- Alpine meadows, rock crevices; 4900–5000 m. S Qinghai (Nangqên Xian, Zhidoi Xian).


**半球虎耳草**  ban qiu hu er cao

Herbs perennial, 2–5 cm tall. Shoots crowded, forming cushions. Flowering stem embedded among rosette leaves, not visible, 3.2–4.5 mm, sparsely glandular hairy. Shoot leaves imbricate, aggregated into a rosette. Subflabellate, abaxially subconvex, adaxially subconcave, 4.5–6.6 × 1.2–1.8 mm, subcamose, both surfaces glabrous, margin proximally ciliate, distally colorless fimbriate. Cauline leaves remote, embedded among rosette leaves, rarely visible, narrowly obovate to oblong, 2.4–4 × 1–1.4 mm, both surfaces glabrous, margin setose-ciliate proximally, apex colorless fimbriate. Flower solitary; bracts 1 or 2, oblong-linear, ca. 3 × 0.6 mm, both surfaces glabrous, margin ciliate, apex obtuse; pedicel 0.2–0.3 mm, glandular hairy. Sepals erect, ovate to subelliptic, abaxially convex, adaxially concave, 2.2–2.6 × 1–1.6 mm, subcamose, abaxially sparsely glandular hairy or glabrous, adaxially glabrous, veins 3–7, confluent into a verruca at apex, margin glandular ciliate proximally, apex scarious fimbriate. Petals yellow, ovate or narrowly so to narrowly obovate, 2.5–3.5 × 0.9–1 mm, 2-callose, 3-veined, base with a claw 0.6–1.3 mm, apex obtuse or acute. Stamens 2–2.5 mm. Ovary inferior, ca. 1.3 mm, with an annular nectary disc; styles 0.8–0.9 mm. Fl. Jun–Aug.

Alpine rock crevices; 4500–5000 m. S Qinghai (Nangqên Xian, Yushu Xian, Zadoi Xian), E Xizang (Dêngqên Xian) [Bhutan, India, Nepal, Sikkim].


**短茎虎耳草** duan jing hu er cao

Herbs perennial, 2–4 cm tall. Shoots numerous, with leaf rosettes. Stem slender, glandular hairy. Rosette leaves imbricate, narrowly obovate-spatulate, abaxially convex, adaxially concave, 4–6 × 1.4–2.5 mm, both surfaces glabrous, margin setose-ciliate, apex obtuse, aristate. Flower solitary, sessile or subsessile; pedicel 0–1 mm, glandular hairy. Sepals erect, ovate, 3.4–4 × 2–3 mm, both surfaces glabrous, veins 3, not confluent at apex, margin setose-ciliate, apex obtuse. Petals white, pink at base, broadly elliptic to broadly ovate, 5–9 × 3–5 mm, not callose, 5-veined, base gradually narrowed into a claw 1–2.5 mm, apex rounded or retuse. Stamens ca. 3 mm. Ovary subsuperior, ovoid, ca. 2.5 mm; styles ca. 2.2 mm. Fl. Jul–Aug.

- Alpine scrub, meadows, rock crevices; 4200–4800 m. S Xizang (Gyaca Xian, Lhasa Shi, Lhünzê Xian).


**派区虎耳草** pai qu hu er cao

Herbs perennial, 1–1.5 cm tall. Shoots extremely crowded, forming cushions. Flowering stem hidden among rosette leaves, ca. 9 mm, yellow glandular hairy. Leaves imbricate, aggregated, subelliptic to suboblong, 3.5–4 × 1.5–2 mm, carnose, yellow glandular hairy, apex obtuse. Flower solitary, sessile; bracts tightly appressed to sepals. Sepals erect, subovate, ca. 3 × 2 mm, subcamose, yellow glandular hairy, veins 8 or 9, confluent at apex, apex obtuse. Petals yellow, obovate to elliptic, ca. 5 × 3–3.2 mm, 2-callose, 6- or 7-veined, base contracted into a claw ca. 0.4 mm, apex obtuse. Stamens ca. 3.5 mm. Ovary subsuperior, ovoid, ca. 2.5 mm; styles ca. 1 mm. Fl. Jul–Aug.

- Alpine rock crevices; 4400–4700 m. SE Xizang.


**派区虎耳草** pai qu hu er cao

Herbs perennial, 1–1.5 cm tall. Shoots extremely crowded, forming cushions. Flowering stem hidden among rosette leaves, ca. 9 mm, yellow glandular hairy. Leaves imbricate, aggregated, subelliptic to suboblong, 3.5–4 × 1.5–2 mm, carnose, yellow glandular hairy, apex obtuse. Flower solitary, sessile; bracts tightly appressed to sepals. Sepals erect, subovate, ca. 3 × 2 mm, subcamose, yellow glandular hairy, veins 8 or 9, confluent at apex, apex obtuse. Petals yellow, obovate to elliptic, ca. 5 × 3–3.2 mm, 2-callose, 6- or 7-veined, base contracted into a claw ca. 0.4 mm, apex obtuse. Stamens ca. 3.5 mm. Ovary subsuperior, ovoid, ca. 2.5 mm; styles ca. 1 mm. Fl. Jul–Aug.

- Alpine rock crevices; 4400–4800 m. SE Xizang (Mainling Xian).


**派区虎耳草** pai qu hu er cao

Herbs perennial, 2 cm tall. Shoots crowded, forming cushions, lignified. Flowering stem 3–4 mm, embedded among rosette leaves, not visible, glandular hairy, with 1 or 2 leaves. Shoot leaves imbricate, aggregated into a rosette, subflabellate, 5–5.2 × 1.5–1.7 mm, carnose, abaxially glabrous or distally glandular, adaxially and marginally glandular pilose, apex rounded to obtuse, long hairy. Cauline leaves elliptic, ca. 3.6 × 1.9 mm, carnose, abaxially glabrous or distally glandular, adaxially and marginally glandular pilose, apex rounded to obtuse, long hairy. Flower solitary; bract 1, suboblong, ca. 3 × 1.3 mm, both surfaces glabrous, margin glandular ciliate; pedicel ca. 0.5 mm, glandular pubescent. Sepals erect, ovate to narrowly so, ca. 3 × 1.2–2 mm, carnose, abaxially and marginally glandular hairy, veins 3, confluent at apex, apex acute. Petals
yellow, obovate to elliptic, ca. 5 × 3 mm, 4- or 5-callose, 3–5-veined, base gradually narrowed into a claw 0.5–0.9 mm, apex retuse. Stamens ca. 3.5 mm. Ovary semi-inferior, ovoid, ca. 2.6 mm; styles ca. 1.5 mm. Fl. Jul–Aug. 2n = 16.

Alpine rock crevices; 4000–5200 m. SE Xizang (Mainling Xian, Mêdog Xian) [Bhutan, India, Kashmir, Nepal, Sikkim].


Herbs perennial, dwarfish. Shoots numerous branched, crowded, forming cushions. Flowering stem embedded among rosette leaves, 1–2 mm, glandular hairy, with 1 or 2 leaves, gemmiferous at leaf axils. Shoot leaves imbricate, aggregated into a rosette, narrowly subovate, 6–6.8 × 2–2.5 mm, subcarnose, both surfaces glabrous, margin glandular ciliate, apex subobtuse. Cauline leaves subelliptic, ca. 5.9 × 3.6 mm, subcarnose, both surfaces glabrous, margin glandular ciliate, apex obtuse. Flower solitary, subeseisile. Sepals spreading, broadly ovate, ca. 2.5 × 2–2.2 mm, subcarnose, abaxially and marginally glandular hairy, veins 3, confluent at apex, apex obtuse. Petals yellow, broadly obovate to elliptic, 2.5–2.7 × 1.8–2 mm, not callose, 3-veined, base clawless, apex retuse. Stamens ca. 2.2 mm. Ovary semi-inferior, ovoid; styles ca. 1 mm. Capsule ellipsoid, ca. 4 mm. Fl. and fr. Jul–Aug.

• Alpine scrub meadows; 3900–4200 m. SE Xizang (Mêdog Xian).

In the protologue, the specific epithet was spelled as both “Saxifraga jainzhuglaensis” and, as an apparent typographical error, “jain–zhulaensis.”


Herbs perennial, cespitose, 2.5–5 cm tall. Shoots numerous branched, forming cushions, with leaf rosettes. Flowering stem apparently scapose, brown glandular hairy. Rosette leaves subspatulate to spatulate, 5–10 cm in diam.; styles 1.2–1.9 mm. Fl. and fr. Jul–Sep.

• Alpine scrub meadows; 3900–4200 m. SE Xizang (Mêdog Xian).


Herbs perennial, cespitose, 1–8 cm tall. Shoots branched, sometimes forming cushions, with leaf rosettes. Stem scapiform, glandular hairy. Rosette leaves subspatulate, subelliptic, or suboblong to subtrapezoidal, 2–5 × 1–2 mm, carnose, both surfaces usually glabrous or sometimes glandular hairy distally, margin glabrous or sparsely glandular hairy, apex usually obtuse, rarely acute. Flower solitary; bracts absent; pedicel slender, 0.7–2(–4) cm, glandular hairy. Sepals reflexed, elliptic to broadly so or subovate, 2.0–3.5 × 1.2–2.5 mm, abaxially and marginally usually ± glandular hairy, veins 3–6, not, partly, or fully confluent at apex, apex obtuse or acute. Petals yellow, proximally orange spotted, ovate to narrowly so or elliptic, 4–7 × 1.5–3.4 mm, obscurely 2-collote, 3–6-veined, base with a claw 0.4–1 mm, apex obtuse. Stamens 4.1–4.3 mm. Ovary subsuperior, broadly ovoid to ellipsoid, 1.7–2 mm; styles 1.2–1.3 mm. Fl. and fr. Jul–Oct.

Alpine scrub meadows, alpine meadows, rock crevices; 3000–5800 m. S Qinghai (Yushu Xian), W Sichuan, Xizang, W Yunnan (Dêqên Xian, Gongshan Drung-Nu Zu Zizhixian, Yangbi Xian) [Bhutan, India, Nepal, Sikkim].


Hirculus drabiformis (Franchet) Losinskaja.

Herbs perennial, cespitose, 6–9.5 cm tall. Shoots branched. Sterile branches with leaf rosettes. Flowering stems glabrous proximally, dark brown glandular hairy distally. Rosette leaves spatulate-oblongulate, 5–6.2 × ca. 1.5 mm, carnose, glabrous, base gradually narrowed, apex subobtuse. Flowering stem leaves remote, narrowly obovate to oblong, 5.6–10.1.5–3 mm, largest near middle of stem, carnose, both surfaces glabrous on proximal leaves, margin dark brown glandular hairy on distal leaves, apex subobtuse. Flower solitary; pedicel 1.5–3 cm, sparsely dark brown glandular hairy. Sepals reflexed, broadly ovate to broadly subelliptic, abaxially and marginally sparsely dark brown glandular hairy, veins 5–7, partly or fully confluent at apex, apex obtuse or subacute. Petals yellow, broadly elliptic to broadly ovate, 7.3–8 × 5–6 mm, 4–6(–7)-collote, 3–6-veined, base contracted into a claw 0.8–1.1 mm, apex obtuse. Stamens 5.5–6 mm. Ovary superior, suboblongate, 3–3.6 mm in diam.; styles 1.2–1.9 mm. Fl. and fr. Jul–Sep.

• Rock crevices and screes; 3300–4900 m. NW Yunnan (Lijiang Naxi Zu Zizhixian, Zhongdian Xian).

拟黄花虎耳草  花冠长约1.5毫米，花柱约0.6毫米。花期7月–8月。

*Saxifraga chrysantha* Franchet, Pl. Delavay. 236. 1890, not A. Gray (1877); *Hirculus chrysanthoides* (Engler & Irmscher) Losinskaja.

Herbs perennial, 1–3 cm tall. Shoots branched, with leaf rosettes. Flowering stem brown pilose. Rosette leaves oblanceolate, 6 × 1.5 mm, carnose, both surfaces glabrous, 3-veined, margin cartilaginous setose-ciliate distally, apex obtuse to acute, mucronate. Cauline leaves linear to narrowly oblanceolate, 4–8 × 1–1.3 mm, carnose, both surfaces glabrous, 3-veined, margin cartilaginous setose-ciliate distally, apex mucronate. Flower solitary; pedicel 1.1–2.5 cm, dark brown glandular ciliate, apex obtuse. Petals yellow, proximally orange-yellow spotted, narrowly ovate to suboblong, 4.5–5.1 × ca. 2 mm, not or obscurely 2-callose, 3-veined, base contracted into a claw ca. 0.5 mm, apex acute. Stamens ca. 3.1 mm. Ovary subsuperior, ovoid, ca. 2 mm; styles ca. 0.6 mm. Fl. Jul.–Aug.

• Rock crevices and screes; 2700–3500 m. NW Yunnan (Lijiang Naxi Zu Zizhixian, Zhongdian Xian).


细叶虎耳草  花冠长约1.5毫米，花柱约0.6毫米。花期7月–8月。

Herbs perennial, 3–7 cm tall. Shoots branched, with leaf rosettes. Flowering stem glabrous or sparsely glandular hairy. Rosette leaves oblong to spatulate, 3–5 × 0.5–1 mm, carnose, both surfaces glabrous, margin setose-ciliate, apex mucronate. Cauline leaves few, remote, linear to narrowly obovate, 2–4 × 0.5–0.75 mm, carnose, both surfaces and margin glabrous, apex acute. Flower solitary; pedicel 1–2.5 cm, glabrous or sparsely glandular hairy. Sepals reflexed, 1.5–2.7 × 1–1.5 mm, subcarnose, both surfaces and margin glabrous, veins 3, confluent at apex. Petals yellow or orange, narrowly elliptic, 6–7 × 1.5–2.5 mm, 3-veined, base tapered into a short claw ca. 0.25 mm, apex obtuse. Stamens 3–4 mm. Ovary subsuperior, broadly ovoid, ca. 2.5 × 2 mm; styles ca. 0.5 mm. Fl. Jul.–Oct.

• Mossy rocks and screes; 3000–4300 m. Xizang, Yunnan [Myanmar].


近加拉虎耳草  有叶柄长1.5毫米，花柱约0.6毫米。花期7月–8月。

*Saxifraga stella-aurea* J. D. Hooker & Thomson var. *ciliata* C. Marquand & Airy Shaw.

Herbs perennial, cespitose, 4.2–9 cm tall. Shoots branched, with leaf rosettes. Flowering stem dark brown glandular hairy. Rosette leaves oblanceolate-linear, 5.2–8–ca. 1 mm, subcarnose, both surfaces glabrous or glandular or eglandular villous, margin and apex setose-villous, apex mucronate. Cauline leaves with leaf blade oblong to linear, 2.8–5 × 0.6–1.6 mm, carnose, both surfaces glabrous or dark brown glandular hairy, margin dark brown glandular ciliate, apex obtuse. Flower solitary, rarely cyme 2- or 3-flowered; pedicel slender, 0.8–1.5 cm, dark brown glandular villous. Sepals erect, broadly ovate to triangular-ovate, 2–2.5 × 1.2–2.3 mm, leathery, abaxially and marginally dark brown glandular hairy, veins 3–5, not confluent at apex. Petals yellow, obscurely orange-yellow spotted, pandurate-oblong, 6.2–9.2 × 2–3.1 mm, 4–6-callose, 3-veined, base usually rounded to cuneate, with a claw 0.2–1 mm, apex obtuse. Stamens ca. 4.5 mm. Ovary subsuperior, ovoid, ca. 2.1 mm; styles ca. 1.9 mm. Fl. and fr. Jul.–Sep.

*Picea* forests, rock crevices; 3700–4600 m. E Xizang (Qando Xian, Riwoqê Xian, Zayü Xian), NW Yunnan (Gongshan Drung-Nu Zu Zizhixian) [N Myanmar, Nepal, Sikkim].


白毛茎虎耳草  叶柄长约1.5毫米，花柱约0.6毫米。花期7月–8月。

Herbs perennial, 4–4.5 cm tall. Stem pale pilose. Basal leaves aggregated into a rosette; leaf blade spatulate, 5–6 × ca. 1.5 mm, carnose, both surfaces glabrous, margin setose-ciliate. Cauline leaves linear-oblong, 3.4–5 × ca. 1 mm, subcarnose, both surfaces glabrous, margin setose-ciliate, apex obtuse. Flower solitary; pedicel 1.1–2.5 cm, pale pilose. Sepals spreading or reflexed, ovate, ca. 2 × 1.5 mm, carnose, abaxially pale pilose or glabrous, adaxially and marginally glabrous, veins 3–5, partly or fully confluent at apex, apex obtuse. Petals yellow, proximally orange spotted, narrowly ovate to suboblong, 4.5–5.1 × ca. 2 mm, not or obscurely 2-callose, 3–5-veined, base contracted into a claw ca. 0.5 mm, apex acute. Stamens ca. 3.1 mm. Ovary subsuperior, ca. 2 mm; styles ca. 0.6 mm. Fl. Jul.–Aug.

• Scrub, alpine meadows, screes, rock crevices; 4100–5100 m. E Xizang.


白马山虎耳草  叶柄长约1.5毫米，花柱约0.6毫米。花期7月–8月。

Herbs perennial, cespitose, 3.5–4.5 cm tall. Shoots few branched, with leaf rosettes. Flowering stem pale crisped piliferous. Rosette leaves subspatulate, ca. 3.7 × 1.2 mm, subcarnose, both surfaces glabrous, margin cartilaginous setose-ciliate, apex mucronate. Cauline leaves spatulate-oblong, ca. 3.3 × 1 mm, carnose, both surfaces glabrous, margin cartilaginous setose-ciliate, apex mucronate. Flower solitary; pedicel slender, ca. 1.7 cm, pale pilose. Sepals spreading or reflexed, orbicular, ca. 2 mm, carnose, abaxially pale pilose, margin and apex glabrous or eglandular pilose, veins 3–5, partly confluent at apex. Petals yellow, proximally orange spotted, ovate, ca. 4.6 × 2.3 mm, obscurely 2-callose, 5-veined, base with a claw ca. 0.3 mm, apex acute. Stamens ca. 3.4 mm. Ovary subsuperior, broadly ovoid, ca. 2 mm; styles ca. 1 mm. Fl. Jul.–Aug.
Herbs perennial, cespitose, 0.5–2 cm tall. Shoots branched. Flowering stem glabrous proximally, white pilose distally. Leaves opposite, occasionally some alternate on young shoots, aggregated into a rosette; leaf blade elliptic, ca. 2 × 1.1 mm, carnose, both surfaces glabrous, margin glabrous, occasionally setose-ciliate, apex obtuse. Flower solitary; bracts 2, opposite, elliptic, ca. 2 × 1 mm, carnose, margin usually glabrous, apex obtuse; pedicel 1–5 mm, white pubescent; hypanthium scrotiform at base. Sepals spreading, subovate, 1.5–1.8 × 1–1.5 mm, carnose, glabrous, veins 3, not confluent at apex, apex obtuse. Petals yellow, narrowly ovate to elliptic, 2–3.5 × 1–1.3 mm, 2-callose near base, 3-veined, base contracted into a claw ca. 0.5 mm, apex retuse. Stamens ca. 2 mm. Ovary semi-inferior, broadly ovoid, ca. 1.4 mm, with a lobed, annular nectary disc; styles ca. 0.5 mm. Fl. Jul–Aug.

Rocky hillsides, alpine rock crevices; 4200–4800 m. S Xizang (Lhasa Shi, Mainling Xian) [Bhutan, Nepal].


阿墩子虎耳草 a dun zi hu er cao

_Hirculus crassulifolius_ (Engler) Losinskaja; _Saxifraga crassulifolia_ Engler.

Herbs perennial, cespitose, forming cushions, 0.5–2 cm tall. Shoots branched. Flowering stem glabrous proximally, glandular hairy distally. Cauline leaves aggregated into a rosette, spatulate, 3.5–4.1.6–1.8 mm, carnose, glabrous, 3-veined, apex obtuse, triquetrous; distal leaves remote, suboblong, 4.3–5.4 × 1–2 mm, glabrous, 5-veined, apex obtuse. Flower solitary; pedicel slender, 4–6 mm, glandular hairy. Sepals reflexed, suboblong, 1–1.5 × ca. 0.7 mm, subcarnose, glabrous, veins 3, confluent at apex, apex obtuse. Petals yellow, elliptic to ovate, 2–3 × ca. 1 mm, obscurely 4-callose, 3- or 4-veined, base contracted into a claw ca. 0.5 mm, apex obtuse or acute. Stamens 1.5–2.5 mm. Ovary subsuperior, broadly ovoid, ca. 1.5 mm; styles 0.5–1 mm. Fl. Jul–Aug.

Alpine meadows, rock crevices; 4300–5200 m. N and W Sichuan (Daocheng Xian, Kangding Xian, Songpan Xian), NW Yunnan (Dêqên Xian).


芽虎耳草 ya hu er cao

Herbs perennial, cespitose, 4.5–17 cm tall. Stem simple or branched, with leaf rosettes. Flowering stem glabrous proximally, glandular hairy distally, with axillary leaf buds. Bud scales subspathulate to obovate, 1.4–2 × ca. 1 mm, carnose, glabrous or sparsely ciliate. Rosette leaves obovate to subspathulate, 3–5 × 1–2 mm, carnose, both surfaces glabrous, margin sparsely cartilaginous setose-ciliate, apex obtuse or mucronate. Cauline leaves ovate or narrowly so to oblong-linear, 3–6.5 × 1–2 mm, leathery, both surfaces glabrous on proximal and some-
times also median leaves, abaxially glandular hairy on
distal leaves, margin glandular ciliate or setose-ciliate,
apex cartilaginous mucronate. Flower solitary; pedicel
slender, 1–1.8 cm, glandular hairy. Sepals reflexed,
ove to broadly so, 1.5–2 × 1–2 mm, carnose,
abaxially glandular hairy, adaxially and marginally
glabrous, veins 3–5, not confluent at apex, apex
subacute. Petals yellow, elliptic to subovate or narrowly
ove 4–4.6 × 1.4–3 mm, not callose or 2-callose, 3- or
4-veined, base contracted into a claw 0.5–1 mm, apex
obtuse. Stamens 2.5–3.5 mm. Ovary subterminal, ovoid
to subovoid, ca. 2 mm; styles ca. 0.5 mm. Fl. and fr.
Jun–Sep.

1a. Cauline leaves narrowly ovate to
oblong-linear; petals narrowly
ove .............................. 142a. var. gemmuligera
1b. Cauline leaves ovate; petals elliptic
to subovate .................. 142b. var. gemmuligera

142a. Saxifraga gemmuligera var. gemmuligera
芽虎耳草 (原变种) ya hu er cao (yuan bian zhong)
Hirculus gemmuligera (Engler) Losinskaja.
Cauline leaves narrowly ovate to obovate-linear, 5.1–6.5
mm, margin setose-ciliate or glandular ciliate. Petals
narrowly ovate, ca. 4 × 1.4–1.5 mm, not callose, 3-
veined, base contracted into a claw 0.9–1 mm.

142b. Saxifraga gemmuligera var. gemmuligera
小芽虎耳草 xiao ya hu er cao
Saxifraga unguiculata Engler var. gemmuligera Engler
in Maximowicz, Bull. Acad. Imp. Sci. Saint-
Pétersbourg, Sér. 3, 29: 116. 1883; Hirculus
gemmuligerus (Engler) Losinskaja; Saxifraga
gemmigera (Engler) Engler.
Cauline leaves ovate, 3–4.8 × 1–1.7 mm, margin
glandular ciliate. Petals elliptic to subovate, 4.4–4.6 ×
2.9–3 mm, usually 2-callose, 3- or 4-veined, base
contracted into a claw ca. 0.5 mm.

墨脱虎耳草 mo tuo hu er cao
Herbs perennial, ca. 4.5 cm tall. Stem glabrous proxi-
mally, dark brown shortly glandular hairy distally.
Leaves aggregated, ensiform, 2.8–3 × 0.8–1 mm,
carnose, both surfaces glabrous, margin sparsely
glandular ciliate, apex acute. Flower solitary; pedicel
slender, ca. 2 cm, sparsely dark brown shortly glandular
hairy. Sepals reflexed, ovate, ca. 2 × 1 mm, carnose,
abaxially sparsely glandular pubescent, adaxially and
marginally glabrous, veins 3, confluent into a verruca at
apex, apex acute. Petals yellow, ovate to narrowly so,
4.2–4.4 × 2–2.6 mm, 4- or 5-callose, 3-veined, base
contracted into a claw ca. 1 mm, apex acute. Stamens
3.4–3.9 mm. Ovary superior, ovoid, ca. 2.6 mm; styles
ca. 0.6 mm. Fl. and fr. Jul–Sep.

1. Alpine meadows, rock crevices by streams; 3000–4700 m. Gansu,
Qinghai, S Shaanxi, Sichuan.

144. Saxifraga nanelloides C. Y. Wu in C. Y. Wu & J. T.
拟光缘虎耳草 ni guang yuan hu er cao
Herbs perennial, sparsely cespitose, 2.5–3 cm tall.
Shoots branched. Sterile branches with terminal leaf
setose-ciliate; distal leaves arranged in a dense
rosette, larger, margin glandular ciliate. Flower solitary;
pedicel 1–1.8 mm, brown glandular hairy. Sepals
reflexed, subelliptic, ca. 3.4 × 1.7 mm, carnose,
glabrous, veins 3–5, confluent into a verruca at apex,
apex obtuse. Petals yellow, ovate to elliptic, ca. 5.6 ×
3–3.1 mm, 3-5-callose, 3-5-veined, base contracted
into a claw ca. 0.4 mm, apex subacute. Stamens ca. 3.5
mm. Ovary superior, ca. 2.7 mm; styles ca. 1.8 mm. Fl.
Jul–Aug.

1. Alpine rock crevices; ca. 4000 m. NW Yunnan (Dêqên Xian).

50(Beibl. 114): 44. 1914.
康定虎耳草 kang ding hu er cao
Herbs perennial, sparsely cespitose, 2.5–6 cm tall.
Shoots subterranean, creeping, short, slender; cataphylls
ovate, 1–1.5 mm. Sterile branches 1.5–2.5 cm;
cataphylls remote, obovate, 1–2 mm; terminal leaves
gathered into a rosette, shortly
spatulate, margin ciliate. Flowering stem glabrous or
 glandular hairy distally. Proximal cauline leaves
smaller than distal ones, margin ciliate, apex reflexed;
distal leaves spatulate, 2–5 × 1.2–1.7 mm, apex obtuse
or acute. Cyme 2-flowered or floral solitary; pedicels
2–2.5 cm, glabrous or black glandular hairy. Sepals
spreading to reflexed, broadly ovate, 1.5–2 mm,
glabrous or abaxially and marginally ± glandular hairy,
veins 3–7, confluent into a verruca at apex, apex
rounded. Petals yellow, obovate or ovate, 6–7 × 3–4
mm, 5–8-veined, base cuneate or with a claw ca. 0.2
mm, apex subacute. Stamens 3–4.5 mm. Ovary

1. Subalpine and alpine regions, rock crevices on slopes; 2500–5300
m. W Sichuan, Xizang, Yunnan.

145a. Saxifraga prattii var. prattii

145b. Saxifraga prattii var. obtusata
Hirculus prattii (Engler & Irmscher) Losinskaja. Flowering stem and pedicels sparsely glandular hairy or glabrous. Sepals sparsely glandular hairy or glabrous, 3–5-veined. Petals ovate, 5–7-veined, base with a claw ca. 0.2 mm. Fl. Jul–Aug.

- Alpine rock crevices; 5000–5600 m. W Sichuan (Batang Xian, Litang Xian), C and E Xizang (Amdo Xian, Dêngqên Xian, Xainza Xian).


This species is possibly not distinct from typical Saxifraga prattii.


One of the present authors (Ohba) believes that this variety is not separable from typical Saxifraga prattii.


This species is possibly not distinct from Saxifraga prattii var. trinervia (Engler & Irmscher) Losinskaja.


• Alpine meadows, rock crevices; 4200–4900 m. E and S Xizang.


Herbs perennial, cespitose, 4–8.5 cm tall. Shoots sometimes crowded, forming cushions. Leaf blade subovate, both surfaces glabrous, margin glabrous or proximally sparsely setose-ciliate. Pedicel glabrate. Sepals glabrous on both surfaces. Fl. Jul–Aug.

• Alpine meadows, rock crevices; 4100–4700 m. SW Sichuan, NW Yunnan.


Herbs perennial, cespitose, 2.3–7 cm tall. Stem glabrous, with leaf rosettes. Rosette leaves spatulate to spatulate-lanceolate, 4.5–10 × 1.2–2.3 mm, carnose, both surfaces glabrous, margin glabrous or sparsely setose-ciliate, apex rounded. Cauline leaves remote, ensiform, 4–6.6 × 1–1.5 mm, carnose, glabrous. Cyme 2–6-flowered or flower solitary; pedicels slender, 4–15 mm, glabrous. Sepals spreading, ovate, 1.5–3 × 1–2 mm, carnose, glabrous, veins 3, confluent at apex, not at apex, apex obtuse. Petals yellow or abaxially purple and axially yellow, elliptic or ovate to narrowly so, 3–5 × 1.5–2.5 mm, 2-callose, 3-veined, base tapered into a claw 0.5–1 mm, apex obtuse or acute. Stamens 3–4 mm. Ovary subsuperior, dark purple, broadly ovoid, ca. 2.5 mm; styles ca. 1 mm. Fl. and fr. Jul–Sep.

• Alpine meadows, rock crevices; 4100–5000 m. SE Qinghai (Jigzhi Xian), N and W Sichuan, NW Yunnan (Weixi Xian).


Herbs perennial, 5.5–9 cm tall. Stem sparsely glandular hairy, proximally sometimes with glands deciduous. Proximal cauline leaves subspatulate, 4.5–5 × 1.3–1.5 mm, subcarnose, both surfaces glabrous, margin cartilaginous setose-ciliate distally, apex obtuse; median leaves lanceolate to linear-lanceolate, 4.7–5 × 1–1.5 mm, glabrous except sparsely cartilaginous setose at apex; most distal leaf narrowly ovate, ca. 4.6–1.9 mm, abaxially and marginally sparsely glandular hairy, apex acute, cartilaginous mucronate. Cymes 2–4-flowered or flower solitary; pedicels slender, 1.3–2.3 cm, sparsely glandular hairy. Sepals spreading, ovate to broadly so, 2.1–2.3 × 1.6–1.8 mm, subcarnose, abaxially sparsely glandular hairy, veins 4 or 5, not confluent at apex, margin glandular ciliate or glabrous, apex subacute. Petals yellow, narrowly ovate to suboblong, 6.2–6.7 × 2.5–2.8 mm, 2-callose near base, 3-veined, base contracted into a claw 0.8–1 mm, apex subobtuse or acute. Stamens ca. 4 mm. Ovary subsuperior, ovoid, ca. 2 mm; styles ca. 1 mm. Fl. and fr. Jul–Sep.

• Alpine meadows, rock crevices; 3800–4000 m. W Sichuan (Kangding Xian).


Herbs perennial, 3–4 cm tall. Shoots branched. Flowering stem glabrous. Proximal leaves reduced toward median cluster of rosette leaves, narrowly obovate, 5–8 × 1–2 mm, carnose, both surfaces and margin glabrous, apex obtuse. Cauline leaves narrowly obovate, 6–8 × 1–2 mm, carnose, both surfaces and margin glabrous, apex obtuse. Flower solitary or cyme 2–4-flowered; pedicels ca. 3 mm, glabrous. Sepals erect or spreading, ovate, 2.5–3 × 1.5–2 mm, glabrous, veins 3, confluent at apex, apex obtuse. Petals yellow, elliptic, 4–5 × 2.5 mm, 1-veined, base tapered into a short claw, apex obtuse. Stamens ca. 2.5 mm. Ovary subsuperior, ovoid, ca. 2 mm; styles divergent, ca. 2 mm. Fl. Aug.

• Rocks, cliffs; ca. 5000 m. Yunnan.


Herbs perennial, cespitose, 4–10.5 cm tall. Shoots branched. Flowering stem glabrous. Proximal leaves reduced toward median cluster of rosette leaves, narrowly obovate, 5–8 × 1–2 mm, carnose, both surfaces and margin glabrous, apex obtuse. Cauline leaves narrowly obovate, 6–8 × 1–2 mm, carnose, both surfaces and margin glabrous, apex obtuse. Flower solitary or cyme 2–4-flowered; pedicels ca. 3 mm, glabrous. Sepals spreading, ovate, 2.5–3 × 1.5–2 mm, glabrous, veins 3, confluent at apex, apex obtuse. Petals yellow, elliptic, 4–5 × 2.5 mm, 1-veined, base tapered into a short claw, apex obtuse. Stamens ca. 2.5 mm. Ovary subsuperior, ovoid, ca. 2 mm; styles divergent, ca. 2 mm. Fl. Aug.

• Alpine scrub meadows, alpine meadows, alpine lakesides, screes, rock crevices; 4100–4700 m. SW Sichuan, NW Yunnan.


Herbs perennial, 2.3–7 cm tall. Stem glabrous. Proximal cauline leaves subspatulate, 4.5–10 × 1.2–2.3 mm, subcarnose, both surfaces glabrous, margin glandular hairy, veins 4 or 5, not confluent at apex, margin glandular ciliate or glabrous, apex obtuse. Petals yellow, narrowly ovate to suboblong, 6.2–6.7 × 2.5–2.8 mm, 2-callose near base, 3-veined, base contracted into a claw 0.8–1 mm, apex subobtuse or acute. Stamens ca. 4 mm. Ovary subsuperior, ovoid, ca. 2 mm; styles ca. 1 mm. Fl. and fr. Jul–Sep.

• Alpine meadows, rock crevices; 4100–5000 m. SE Qinghai (Jigzhi Xian).


Herbs perennial, 3–4 cm tall. Shoots branched. Flowering stem glabrous. Proximal leaves reduced toward median cluster of rosette leaves, narrowly obovate, 5–8 × 1–2 mm, carnose, both surfaces and margin glabrous, apex obtuse. Cauline leaves narrowly obovate, 6–8 × 1–2 mm, carnose, both surfaces and margin glabrous, apex obtuse. Flower solitary or cyme 2–4-flowered; pedicels ca. 3 mm, glabrous. Sepals spreading, ovate, 2.5–3 × 1.5–2 mm, glabrous, veins 3, confluent at apex, apex obtuse. Petals yellow, elliptic, 4–5 × 2.5 mm, 1-veined, base tapered into a short claw, apex obtuse. Stamens ca. 2.5 mm. Ovary subsuperior, ovoid, ca. 2 mm; styles divergent, ca. 2 mm. Fl. Aug.

• Alpine scrub meadows, alpine meadows, alpine lakesides, screes, rock crevices; 4100–4700 m. SW Sichuan, NW Yunnan.
near middle of stem, carnose, both surfaces glabrous, margin eglandular ciliate on proximal leaves, glandular ciliate on distal leaves, sparsely setose-ciliate near apex, apex obtuse or acute, mucronate. Cyme 2–12-flowered, occasionally flower solitary; pedicels slender, 0.6–1.7 cm, proximally dark brown glandular hairy. Sepals reflexed, ovate, 1.4–2.3 × 1–1.4 mm, carnose, glabrous or sparsely glandular hairy, veins 3, not confluent at apex, apex obtuse or acute. Petals yellow, proximally purple or orange spotted, ovate to suboblong, 3.3–5.9 × 1.5–2.6 mm, 2-callose near base, 3–5-veined, base narrowed into a claw 0.3–1 mm, apex obtuse or acute. Stamens 1.5–4 mm. Ovary subsuperior, broadly ovoid, 1.5–2.2 mm; styles 0.3–1.5 mm. Fl. and fr. Jul–Sep.

1a. Margin of rosette leaves setose-ciliate .................................. 154a. var. densifoliata
1b. Petals not callose ........................................... 154b. var. nedongensis

154a. Saxifraga densifoliata var. densifoliata
密叶虎耳草 (原变种) mi ye hu er cao (yuan bian zhong)

Hirculus densifoliatus (Engler & Irmscher) Losinskaja.

• Alpine meadows, rock crevices; 4000–4500 m. NC and W Sichuan (Kangding Xian, Li Xian, Maowen Qiang Zu Zizhixian), NW Yunnan (Zhongdian Xian).

乃东虎耳草 nai dong hu er cao


• Cupressus forests; ca. 4000 m. S Xizang (Nêdong Xian).


爪瓣虎耳草 zhuo ban hu er cao

Herbs perennial, cespitose, 2.5–13.5 cm tall. Shoots branched, with leaf rosettes. Flowering stem leafy, proximally glabrous, distally brown glandular pilose. Rosette leaves spathulate to narrowly subobovate, 4.5–8 × ca. 1.5 mm, subcarnose, both surfaces usually glabrous, margin setose-ciliate or glabrous, apex mucronate. Cauline leaves remote, oblong or lanceolate to ensiform, 4.4–15 × 1–2.3 mm, carnose, both surfaces usually glabrous, rarely sparsely glandular hairy abaxially, margin glandular or eglandular ciliate, apex mucronate. Flower solitary, or cyme corymbose, 2–8-flowered, 2–6 cm; pedicels slender, 0.3–3 cm, brown glandular hairy. Sepals erect, then spreading to reflexed, ovate to narrowly so, 1.5–3 × 1–2.1 mm, carnose, abaxially brown glandular hairy, axially glabrous, veins 3–5, not, partly, or fully confluent at apex, margin glabrous or ± glandular ciliate, apex obtuse or acute. Petals yellow, proximally orange spotted, narrowly glabrous or eglandular ciliate, 3–5-veined, base with a claw 0.1–1 mm, apex subobtuse or acute. Stamens 2.8–4.3 mm. Ovary subsuperior, broadly ovoid, 2.3–3.8 mm; styles 0.5–2 mm. Fl. and fr. Jul–Sep.

• Forests, scrub, alpine meadows, rock crevices; 1800–5600 m. S Gansu, WC Hebei, Qinghai, NE Mongol, Ningxia, N Shanxi, W Sichuan, Xizang, NW Yunnan.

The Saxifraga unguiculata / S. vilmoriniana complex requires further examination. The chief distinctions between the two taxa are supposed to lie in plant height, cauline leaf shape, and petal base shape. Plant height varies enormously and cannot be used to distinguish the taxa. Similarly, cauline leaf shape is variable, and the distinction is at best subtle: oblong in S. unguiculata but narrowly linear in S. vilmoriniana, according to Engler and Irmscher (in Engler, Pflanzenr. 67(IV . 117. I): 142, 149. 1916). The difference in petal base shape is perhaps worthy of more consideration: abruptly contracted into a claw in S. unguiculata but cuneate in S. vilmoriniana. However, the occurrence of intermediates makes even this distinction unclear and, in one of the syntype collections of S. vilmoriniana (Pratt 575, BM, E, GH, K), the petals are basally contracted into a claw. The two taxa are united in the present account because a satisfactory key to distinguish them could not be written. It should also be noted that S. unguiculata var. limprichtii may deserve recognition as a distinct species because of the differences in basal leaf morphology, usually fewer flowers, and associated, distinct geographical distribution.

1a. Margin of rosette leaves setose-ciliate ........................................... 155a. var. unguiculata
155a. Saxifraga unguiculata var. unguiculata
爪瓣虎耳草 (原变种) zhao ban hu er cao (yan bian zhong)

Hirculus unguiculatus (Engler) Losinskaja; H. vilmorinianus (Engler & Irmscher) Losinskaja; Saxifraga aurrantiaca Franchet f. lanceolata T. C. Ku; S. serpyllifolia Pursh var. pallasianna Hance; S. unguiculata f. auctiflora (Engler) Engler & Irmscher; S. unguiculata var. auctiflora Engler; S. unguiculata var. auctiflora subvar. aurea Engler; S. unguiculata var. subglabra Engler; S. vilmoriniana Engler & Irmscher.


• Forests, scrub, alpine meadows, rock crevices; 3000–5600 mm. S Gansu, Nei Mongol, Qinghai, W Sichuan, Xizang, NW Yunnan.

155b. Saxifraga unguiculata var. limprichtii (Engler & Irmscher) T. C. Ku; S. unguiculata var. limprichtii (Engler & Irmscher) Losinskaja.


• Rock crevices on slopes; 1800–3300 m. WC Hebei (Xiaowutai Shan), Ningxia (Helan Shan, Jingyuan Xian), N Shanxi (Wutai Shan).

156. Saxifraga pellucida

加拉虎耳草 jia la hu er cao


• Forests, scrub, alpine meadows, rock crevices; 3500–3900 m. E Xizang (Gonjo Xian, Nyingchi Xian).

157. Saxifraga tarakophylla

线叶虎耳草 xian ye hu er cao

Hirculus limprichtii var. limprichtii (Engler & Irmscher) Losinskaja.

Hirsutus limprichtii var. limprichtii (Engler & Irmscher) Losinskaja; Saxifraga aurrantiaca Franchet f. lanceolata T. C. Ku; S. serpyllifolia Pursh var. pallasianna Hance; S. unguiculata f. auctiflora (Engler) Engler & Irmscher; S. unguiculata var. auctiflora Engler; S. unguiculata var. auctiflora subvar. aurea Engler; S. unguiculata var. subglabra Engler; S. vilmoriniana Engler & Irmscher.

Herbs perennial, cespitose, 5–9 cm tall. Sterile branches with leaf rosettes. Flowering stem dark brown glandular hairy distally. Sterile branch rosette leaves spatulate-linear, 8–9.7 × ca. 1 mm, both surfaces glabrous, margin setose-ciliate. Proximal cauline leaves aggregated into a rosette; leaf blade narrowly obovate, ca. 5 × 1.7 mm, abaxially setose distally and at margin; distal leaves sometimes forming a secondary rosette subtending inflorescence, leaf blade linear, 6–7.6 × 1.1–1.5 mm, adaxially and marginally ± glandular hairy. Cyme 2–9.1 cm, 2–7-flowered or flower solitary; pedicels slender, 1.5–2.2 cm, sparsely dark brown glandular hairy. Sepals reflexed, ovate, ca. 2 × 1.2 mm, glabrous, veins 3, not confluent at apex, apex subobtuse. Petals yellow, oblong, ca. 6.1 × 2.1–2.2 mm, 2-callose near base, glabrous, 3-veined, base contracted into a claw ca. 0.9 mm, apex acute. Stamens ca. 3.9 mm. Ovary subsuperior, ovoid, ca. 2 mm; styles ca. 1.8 mm. Fl. and fr. Jul.–Sep.

• Oak forests, rock crevices; 3000–3900 m. E Xizang (Gonjo Xian, Nyingchi Xian).

158. Saxifraga gyalana

线叶虎耳草 xian ye hu er cao

Hirsutus limprichtii var. limprichtii (Engler & Irmscher) Losinskaja.

Hirsutus limprichtii var. limprichtii (Engler & Irmscher) Losinskaja; Saxifraga aurrantiaca Franchet f. lanceolata T. C. Ku; S. serpyllifolia Pursh var. pallasianna Hance; S. unguiculata f. auctiflora (Engler) Engler & Irmscher; S. unguiculata var. auctiflora Engler; S. unguiculata var. auctiflora subvar. aurea Engler; S. unguiculata var. subglabra Engler; S. vilmoriniana Engler & Irmscher.

Herbs perennial, cespitose, 12–15 cm tall. Sterile branches with leaf rosettes. Flowering stem dark brown glandular hairy distally. Sterile branch rosette leaves spatulate-linear, 8–9.7 × ca. 1 mm, both surfaces glabrous, margin setose-ciliate. Proximal cauline leaves aggregated into a rosette; leaf blade narrowly obovate, ca. 5 × 1.7 mm, abaxially setose distally and at margin; distal leaves sometimes forming a secondary rosette subtending inflorescence, leaf blade linear, 6–7.6 × 1.1–1.5 mm, adaxially and marginally ± glandular hairy. Cyme 2–9.1 cm, 2–7-flowered or flower solitary; pedicels slender, 1.5–2.2 cm, sparsely dark brown glandular hairy. Sepals reflexed, ovate, ca. 2 × 1.2 mm, glabrous, veins 3, not confluent at apex, apex subobtuse. Petals yellow, oblong, ca. 6.1 × 2.1–2.2 mm, 2-callose near base, glabrous, 3-veined, base contracted into a claw ca. 0.9 mm, apex acute. Stamens ca. 3.9 mm. Ovary subsuperior, ovoid, ca. 2 mm; styles ca. 1.8 mm. Fl. and fr. Jul.–Sep.

• Oak forests, rock crevices; 3000–4100 m. E Xizang (Gonjo Xian, Nyingchi Xian).

159. Saxifraga heterotricha

五台虎耳草 wu tai hu er cao

Hirsutus limprichtii var. limprichtii (Engler & Irmscher) Losinskaja.

Hirsutus limprichtii var. limprichtii (Engler & Irmscher) Losinskaja; Saxifraga aurrantiaca Franchet f. lanceolata T. C. Ku; S. serpyllifolia Pursh var. pallasianna Hance; S. unguiculata f. auctiflora (Engler) Engler & Irmscher; S. unguiculata var. auctiflora Engler; S. unguiculata var. auctiflora subvar. aurea Engler; S. unguiculata var. subglabra Engler; S. vilmoriniana Engler & Irmscher.

Herbs perennial, cespitose, 5–9 cm tall. Sterile branches with leaf rosettes. Flowering stem dark brown glandular hairy. Rosette leaves obovate-oblong to spatulate-linear, 5–8.6 × 1–1.7 mm, subcarnose, setose abaxially distally, adaxially, and marginally, apex obtuse. Cauline leaves obovate to oblong-oblong, 3.6–4.5 × 1.5–1.7 mm, subcarnose, abaxially glabrous or sparsely glandular hairy, adaxially distally and marginally brown glandular hairy, apex obutose or acute. Cyme 1–2.7 cm, 2–6-flowered, rarely flower solitary; pedicels 0.8–1.5 cm, dark brown glandular hairy. Sepals spreading to reflexed, ovate to broadly so, abaxially convex, adaxially concave, 2–2.1 × 1–1.5 mm, abaxially dark brown glandular hairy, adaxially glabrous, veins 3, not confluent at apex, margin glandular ciliate, apex obute or acute. Petals yellow, proximally orange or spotted orange, lanceolate to oblong, 5–6.8 × 1.8–2.4 mm, 6–8-callose, 3-veined, base subulate, with a claw 0.4–1 mm, apex obute or acute. Stamens 3.8–4 mm. Ovary subsuperior, ovoid, ca. 1.6–2.5 mm; styles 1–1.1 mm. Fl. and fr. Jun.–Sep.

• Forests, scrub, alpine meadows; 2700–3400 m. Xizang, NW Yunnan (Dégèn Xian).

157. Saxifraga tarakophylla

五台虎耳草 wu tai hu er cao

Hirsutus limprichtii var. limprichtii (Engler & Irmscher) Losinskaja.

Hirsutus limprichtii var. limprichtii (Engler & Irmscher) Losinskaja; Saxifraga aurrantiaca Franchet f. lanceolata T. C. Ku; S. serpyllifolia Pursh var. pallasianna Hance; S. unguiculata f. auctiflora (Engler) Engler & Irmscher; S. unguiculata var. auctiflora Engler; S. unguiculata var. auctiflora subvar. aurea Engler; S. unguiculata var. subglabra Engler; S. vilmoriniana Engler & Irmscher.

Herbs perennial, cespitose, 12–15 cm tall. Sterile branches with leaf rosettes. Flowering stem dark brown glandular hairy distally. Sterile branch rosette leaves spatulate-linear, 8–9.7 × ca. 1 mm, both surfaces glabrous, margin setose-ciliate. Proximal cauline leaves aggregated into a rosette; leaf blade narrowly obovate to oblongulate, 3–5.2 × 1.2–2.1 mm, carnose, both surfaces glabrous, margin cartilaginous setose-ciliate, apex acute, aristulate. Cauline leaves remote, ovate to obovulate or oblong, 3–7
× 1–3.2 mm, carnose, both surfaces glabrous, margin dark brown glandular ciliate, apex subobtuse or acute. Cyme 3.5–4.5 cm, 2–6-flowered or flower solitary; pedicels slender, 1.8–2.2 mm, dark brown glandular hairy. Sepals reflexed, subovate, 1.6–2 × 0.8–1.4 mm, glabrous or abaxially dark brown glandular hairy, veins 3, not confluent at apex, apex obtuse or acute. Petals yellow, proximally orange spotted, narrowly ovate to oblong, ca. 4.8–6.2 × 1.4–2.5 mm, 4–6-callose, 3-veined, base tapered, or contracted into a claw 0.7–1.1 mm, apex subobtuse or acute. Stamens 3–4.5 mm. Ovary subsuperior, narrowly ovoid to ellipsoid, 2–2.5 mm; styles 1–2 mm. Fl. and fr. Jun–Sep.

- Forests, screes, rock crevices; 3000–4400 m. S Xizang.

1a. Flowering stem with glandular hairs

1b. Flowering stem with mostly eglandular hairs

159a. Saxifraga heterotricha var. heterotricha

异毛虎耳草 (原变种) yi mao hu er cao (yuan bian zhong)

Flowering stem with glandular hairs. Petals 4.8–5 mm, base usually tapered.

- Forests, screes, rock crevices; 3000–4200 m. S Xizang (Gongbo’gyamda Xian, Mainling Xian).


波密虎耳草 bo mi hu er cao


Flowering stem with mostly eglandular hairs. Petals 5–6.2 mm, base contracted into a claw 0.7–1.1 mm.

- Rock crevices on slopes; 3600–4400 m. S Xizang (Bomi Xian, Gongbo’gyamda Xian).


沟繁缕虎耳草 gou fan lu hu er cao

Herbs perennial, 2–6 cm tall. Stem slender, glabrous. Basal leaves aggregated into a rosette; leaf blade spatulate, ca. 3 × 0.9–1 mm, subcarnose, both surfaces glabrous, distal margin sparsely setose-ciliate. Cauline leaves lanceolate to narrowly oblong, 2.3–3.5 × 0.5 mm, subcarnose, glabrous or distally glandular ciliate, apex subobtuse. Flower solitary; pedicel slender, 0.9–1.6 cm, glabrous. Sepals reflexed, subelliptic, ca. 2 × 1 mm, subcarnose, glabrous, veins 3, not, partly, or fully confluent at apex, apex obtuse. Petals yellow, elliptic to suboblong, 4.5–5 × 1.9–3 mm, not callose, 3-veined, base gradually narrowed into a claw 0.2 mm, apex acute. Stamens 3–3.5 mm. Ovary superior, ellipsoid, ca. 2 mm; styles ca. 0.6 mm. Fl. May–Aug.

- Rock crevices; 3000–4700 m. SW Sichuan, NW Yunnan.


藏中虎耳草 zang zhong hu er cao

Herbs 2.5–7.5 cm tall. Stem simple, densely dark brown glandular hairy. Basal leaves aggregated into a rosette; leaf blade usually spatulate, 6–9.2 × 1.6–2.8 mm, subcarnose, both surfaces glabrous, margin usually cartilaginous setose-ciliate distally, apex mucronate. Cauline leaves remote, oblong to lanceolate, 3.5–5.5 × 0.8–1.7 mm, subcarnose, adaxially and marginally dark brown shortly glandular hairy, apex acute. Cyme 2.4–4.5 cm, 2–12-flowered, rarely flower solitary; pedicels slender, 1–2.5 cm, densely dark brown glandular hairy. Sepals spreading, ovate to broadly so, 2–2.6 × 1–2.4 mm, abaxially dark brown glandular hairy, veins 3–5, confluent or not at apex, margin proximally dark brown glandular hairy or glabrous, apex obtuse or acute. Petals white or pink, proximally purple spotted, oblong to lanceolate, 4–7 × 1.6–2.2 mm, 2-callose, 3–5-veined, base gradually narrowed into a claw 0.5–0.9 mm, apex acute. Stamens 3–3.3 mm. Ovary subsuperior, dark purple, broadly ovoid, 1.6–2.8 mm; styles ca. 1 mm. Fl. and fr. Jul–Sep.

- Alpine meadows, alpine marsh meadows, rock crevices; 3900–5400 m. S Xizang (Lhasa Shi, Mêdog Xian, Namling Xian).


褐斑虎耳草 he ban hu er cao

Herbs 2–6 cm tall. Stem simple, densely dark brown glandular hairy. Basal leaves aggregated into a rosette; leaf blade oblong to spatulate, rhombic distally, 5–7 × 2–2.5 mm, subcarnose, both surfaces glabrous, margin cartilaginous setose-ciliate distally, apex mucronate. Cauline leaves remote, linear, 4–7 × 1–1.5 mm, subcarnose, adaxially and marginally dark brown shortly glandular hairy, apex acute. Cyme 1.5–4 cm, 2–11-flowered, rarely flower solitary; pedicels slender, 1–2 cm, densely dark brown glandular hairy. Sepals spreading, ovate, ca. 2 × 1–1.3 mm, abaxially and at proximal margin dark brown glandular hairy, veins 3–5, confluent into a verruca at apex, apex subobtuse. Petals yellow, proximally brown spotted, narrowly elliptic, ca. 5 × 1.6 mm, 2-callose, 3-veined, base gradually narrowed into a claw 0.5–0.9 mm, apex subobtuse. Stamens 3–4 mm. Ovary subsuperior, dark purple, subglobose, ca. 2 mm; styles ca. 1 mm. Fl. and fr. Jul–Sep.

- Rocky hillsides, cliff ledges, rock crevices; 4000–4900 m. Xizang.


小斑虎耳草 xiao ban hu er cao

Herbs perennial, cespitose, 1.5–6 cm. Stem dark purple glandular hairy. Basal leaves aggregated into a rosette; leaf blade spatulate, 3.5–4 × ca. 1.4 mm, carnose, both
Herbs perennial, 5.5–10 cm tall. Stem simple, brown glandular hairy. Basal leaves aggregated into a rosette; leaf blade spatulate, 0.8–1.4 cm × 2–3 mm, adaxially smooth or sometimes subpustulate distally, glabrous or margin sometimes cartilaginous setose-ciliate, apex obtuse. Cauline leaves oblong to oblanceolate, 4.5–6.6 × 1.5–2 mm, both surfaces brown glandular hairy or adaxially glabrous, margin brown glandular hairy. Cyme umbelliform or compoundly so, 3–5.5 cm, 2–23-flowered; pedicels slender, 0.7–1.7 cm, brown glandular hairy. Sepals usually erect, ovate to narrowly triangular-ovate, 2.2–3.5 × ca. 1.3 mm, abaxially and marginally ± brown glandular hairy, veins 3, not confluent at apex, apex subacute. Petals yellow, pale yellow, white, or pink, pandurate to pustulate, 5.6–9 × 2.9–3.2 mm, 2–3 callosely veined, base contracted into a claw 0.4–0.5 mm, apex obtuse to acute. Stamens ca. 3 mm. Ovary subsuperior, broadly ovoid, ca. 0.5 mm. Fl. Jul–Aug.


玉树虎耳草  yu shu hu er cao
Herbs perennial, 4.5–6 cm tall. Stem densely glandular hairy. Basal leaves aggregated into a rosette; leaf blade spatulate, 6–8.4 × 1.9–3 mm, abaxially glabrous, adaxially pubescent distally, margin cartilaginous pubescent and rigidly ciliate. Cauline leaves remnant, oblong-linear, 1–1.3 cm × 1.6–2.5 mm, glandular hairy, apex acute. Inflorescence corymbose, 2.3–3.7 cm, 2–10-flowered; pedicels 1–1.5 cm, densely glandular hairy. Sepals erect to spreading, triangular-ovate, 2.5–4 × 1.8–2 mm, abaxially and marginally glandular hairy, 5–9, confluent or not at apex, apex subacute. Petals yellow, proximally purple spotted, elliptic-ovate, 7.3–7.6 × 4.3–4.5 mm, not callosely veined, 7–veined, base tapered, apex obtuse. Stamens ca. 3 mm. Ovary subsuperior, broadly ovoid, ca. 2 mm; styles divergent, ca. 0.5 mm. Fl. Jul–Aug.

Alpine rock crevices; 4300–4400 m. S Qinghai (Yushu Xian).


小伞虎耳草  xiao san hu er cao
Herbs perennial, 3–5.5 cm tall. Stem dark purple shortly glandular hairy. Basal leaves aggregated into a rosette; leaf blade spatulate, 0.8–1.4 cm × 2–3 mm, subcarinose, both surfaces glabrous, adaxially pubescent distally, margin cartilaginous pectinate distally, apex subobtuse.

Cauline leaves subobtuse, ca. 1 cm × 1.6 mm, abaxially and marginally dark purple glandular hairy, apex mucronate. Inflorescence ca. 2.5 cm, 3–10-flowered; pedicels 0.7–1.8 cm, densely dark purple glandular hairy. Sepals spreading, subovate, 3–4 × 1.5–2.4 mm, carnose, abaxially and marginally dark purple glandular hairy, veins 5, confluent into a verruca at apex, apex acute. Petals white, proximally purple spotted, elliptic to ovate, 5.5–7 × 2.7–3.5 mm, obscurely 2-callosely veined, 5–7–veined, base rounded and narrowed into a claw 0.6–1 mm, apex acute. Stamens ca. 4.1 mm. Ovary subsuperior, dark purple, ca. 4.4 mm; styles ca. 1.4 mm. Fl. Jul–Aug.

Alpine meadows, rock crevices; 4800–5100 m. S Xizang (Cona Xian, Lhünzê Xian, Nêdong Xian).

Saxifraga lhasana, S. pasumensis (possibly with S. muricola as a variety), and S. umbellulata. Saxifraga lhasana and S. pasumensis can be distinguished from S. umbellulata by having basal leaves adaxially smooth (vs. subpustulate distally) and margin cartilaginous setose-
ciliate; *S. lhasana* can be further distinguished by having white (vs. yellow) petals.

1a. Margin of basal leaves glabrous

166a. var. *umbellulata*

1b. Margin of basal leaves cartilaginous

setose-ciliate.

2a. Petals yellow

166b. var. *pectinata*

2b. Petals pale yellow or white,
sometimes pink

166c. var. *muricola*

**166a. Saxifraga umbellulata** var. *umbellulata*

小伞虎耳草 (原变种) xiao san hu er cao (yuan bian zhong)


Marshlands, alpine rock crevices; 3100–4400 m. S Xizang [Nepal, Sikkim].


理县虎耳草 bi chi hu er cao


- Forests, scrub, alpine rock crevices; 3000–4100 m. E Xizang.


西南虎耳草 xi nan hu er cao


- Rock crevices by water, sunny cliffs; 3000–4700 m. E and S Xizang.

**167. Saxifraga sanguinea** Franchet, J. Bot. (Morot) 8: 295. 1894.

理县虎耳草 li xian hu er cao

*Hirculus sanguineus* (Franchet) Losinskaja.

Herbs perennial, 5–15 cm tall. Stem purple, densely purple glandular hairy. Basal leaves aggregated into a rosette, spatulate to subspatulate, 5.5–13 × 1.5–3 mm, carnose, both surfaces glabrous, margin cartilaginous setose-ciliate, apex deflexed, obtuse. Cauline leaves remote, ob lanceolate to linear-lanceolate, 3.5–11 × 2–2.5 mm, leathery, adaxially and marginally purple-brown glandular hairy, apex obtuse. Cyme 2.7–6.5 cm, 3–23-flowered; branches slender, 2.5–6 cm, 1–3-flowered; pedicels 0.6–1.7 cm, densely purple-brown glandular hairy. Sepals spreading, then reflexed, ovate to lanceolate, 2.5–5.7 × 1.5–2.1 mm, purple-brown glandular hairy abaxially, adaxially distally, and marginally, veins 5–7, confluent into a verruca at apex, apex subobtuse or acute. Petals adaxially pale yellow, proximally purple spotted, abaxially red, or red on both surfaces, lanceolate to narrowly elliptic, 5–7.3 × 2–2.3 mm, 2-callose, 3-veined, base rounded, with a claw 1.3–1.8 mm, apex acute. Stamens ca. 4.5 mm. Ovary subsuperior, broadly ovoid to subellipsoid, ca. 2 mm; styles ca. 1 mm. Fl. Jul–Aug.

- Rocky hillside meadows, limestone crevices; 3300–4500 m. SE Qinghai (Jigzhi Xian), W Sichuan, S Xizang (Sa’gya Xian, Xigazê Xian), NW Yunnan (Zhongdian Xian).


*Hirculus signatus* (Engler & Irmischer) Losinskaja;

*Saxifraga signata* var. *lancepetala* Handel-Mazzetti.

Herbs perennial, (5–)10–20 cm tall. Stem dark brown glandular hairy. Basal leaves aggregated into a rosette; leaf blade spatulate, 1.5–1.6 cm × 2.1–3 mm, carnose, both surfaces glabrous, margin setose-ciliate. Cauline leaves remote, oblong to oblong-obovate, ca. 1 cm × 3 mm, dark brown glandular hairy, margin entire, apex recurved, acute. Inflorescence corymbose, 3.5–8 cm, 4–24-flowered; branches 3–8 cm, 2- or 3-flowered; pedicels 1.5–1.8 cm, dark brown glandular hairy. Sepals spreading to reflexed, triangular-ovate to narrowly so, 4–9 × 2–3.5 mm, dark brown glandular hairy abaxially, adaxially distally, and marginally, veins 5–7, confluent at apex, apex subobtuse. Petals yellow, adaxially purple spotted proximally, ovate to subovate, 5.8–8.7 × 2.5–4 mm, 2-callose, 3–7-veined, base usually truncate, with a distinct claw 1–1.6 mm, apex acute. Stamens 4–5 mm. Ovary subsuperior, broadly ovoid, ca. 2.1 mm; styles ca. 1.4 mm. Fl. and fr. Jul–Sep.

- Alpine meadows, rock crevices; 2800–4600 m. S Qinghai (Yushu Xian), W Sichuan, E Xizang, NW Yunnan.


理县虎耳草 li xian hu er cao

*Saxifraga subsediformis* J. T. Pan.

Herbs perennial, 4.5–6.7 cm tall. Stem tawny glandular villous. Cauline leaves absent, but not bracts. Basal leaves aggregated into a rosette, spatulate, ca. 9.5 × 2–3.3 mm, adaxially and marginally glandular hairy, apex obtuse. Inflorescence corymbose, 2.5–4.5 cm, 13–15-flowered; bracts linear, 3.1–4.5 × 0.5–0.8 mm, adaxially and marginally glandular villous; pedicels slender, tawny glandular hairy. Sepals reflexed, ovate to elliptic-ovate, 1.9–2 × 1–1.1 mm, abaxially and marginally glandular hairy, veins 3 or 4, not confluent at apex, apex obtuse. Petals yellow, orange spotted at base,
suboblong, ca. 4.9 × 2.9 mm, 2-callose near base, 3-veined, base contracted into a claw ca. 0.4 mm, apex subacute. Stamens ca. 3.5 mm. Ovary subsuperior, broadly subellipsoid, ca. 2.3 mm; styles divergent, ca. 1 mm. Fl. Jun–Aug.

- Rock crevices on grassy slopes. NC Sichuan (Li Xian).


Herbs 17–18 cm tall. Stem tawny glandular hairy. Basal leaves aggregated into a rosette, subspatulate to oblong, 0.5–2 cm × 1.4–5.5 mm, subcarnose, adaxially and marginally tawny glandular hairy, apex obtuse or acute. Cauline leaves remote, elliptic or broadly so to oblong, 3–14 × 2.3–7 mm, subcarnose, adaxially and marginally tawny glandular hairy, apex acute. Inflorescence corymbose, 2.5–11.7 cm, 5–33-flowered; branches 2–8.5 cm, 2–4-flowered; pedicels 0.9–1.2 cm, tawny glandular hairy, 2- or 3-flowered; pedicels 3–5 mm, brown glandular hairy. Sepals spreading to reflexed, lanceolate, 3.4–5 × 1.2–1.7 mm, abaxially and marginally tawny glandular hairy, veins 3, confluent into a verruca at apex, apex acute. Petals yellow, elliptic to narrowly ovate, 6–7.5 × 2.4–3 mm, 2-callose, 3-veined, base subcordate, narrowed into a claw 0.8–1.4 mm. Stamens 3.2–5.5 mm. Ovary superior, ovoid, 2.2–3.5 mm; styles 1–1.5 mm. Fl. and fr. Jul–Aug.

- Forests, scrub, alpine rock crevices; 2700–4600 m. SW Sichuan (Huili Xian, Miyi Xian, Xiangcheng Xian), SE Xizang (Zayü Xian), N and NW Yunnan (Gongshan Drung-Nu Zu Zizhixian).


Herbs 15–38 cm tall. Stem brown glandular hairy. Basal leaves aggregated into a rosette; leaf blade spatulate to obovate, 1.5–6 cm × 5.3–14 mm, both surfaces and margin brown glandular hairy, margin 3–7-dentate distally. Cauline leaves remote, subspatulate, 1.5–2.7 cm × 5.8–12 mm, both surfaces and margin brown glandular hairy, margin 3–8-dentate. Inflorescence paniculate, 10–14 cm, 19–29-flowered; branches 3–4.5 cm, densely brown glandular hairy, 1–3-flowered; pedicels 0.8–1.5 cm, densely brown glandular hairy. Sepals spreading to reflexed, lanceolate to narrowly ovate, 4–7 × 1.5–2.1 mm, brown glandular hairy abaxially, adaxially distally, and marginally, veins 3–5, confluent into a verruca at apex, apex acute. Petals yellowish, proximally spotted orange or purple, narrowly ovate to suboblong, 5.9–6.1 × 2.3–3.1 mm, 2-callose near base, 3–5-veined, base cordate, with a claw 1–1.3 mm, apex acute. Stamens 3.5–5.5 mm. Ovary superior, slublous, 2–4 mm in diam.; styles 1–1.5 mm. Fl. and fr. Jul–Sep.

- Forests, forest margins, alpine meadows, rock crevices; 2000–4200 m. NW Sichuan (Garzé Zangzu Zizhixian), N Yunnan.


Herbs 12–15 cm tall. Stem brown pilose. Basal leaves aggregated into a rosette; leaf blade spatulate, 1.7–2.2 cm × 7.5–8.5 mm, both surfaces and margin brown glandular hairy, margin entire, apex acute. Cauline leaves spatulate to subobovate, 1.5–1.9 × 0.9–1.2 cm, both surfaces and margin brown glandular hairy, margin 4–5-dentate on proximal leaves, entire on distal leaves, apex acute. Inflorescence ca. 10 cm, up to 31-flowered; branches 2.1–5.7 cm, brown glandular hairy, 2–3-flowered; pedicels 3–5 mm, brown glandular hairy. Sepals suberect, lanceolate, 5–5.2 × 1.5–1.7 mm, brown glandular hairy, veins 5 or 6, confluent into a verruca at apex, apex acute. Petals yellow, sublanceolate to suboblong, ca. 7 × 2.5 mm, 2-callose, 5–6-veined, base abruptly narrowed into a claw ca. 0.7 mm, apex obtuse or acute. Stamens 3.5–4.5 mm. Ovary superior, ovoid, ca. 2 mm; styles ca. 1.3 mm. Fl. Jul–Aug.

- Rock crevices; 2100–2600 m. W Sichuan (Kangding Xian), NW Yunnan (Gongshan Drung-Nu Zu Zizhixian).

S. candelabrum var. patentiramea Engler & Irmscher.

Herbs 15–38 cm tall. Stem brown glandular hairy. Basal leaves aggregated into a rosette; leaf blade spatulate to obovate, 1.5–6 cm × 5.3–14 mm, both surfaces and margin brown glandular hairy, margin 3–7-dentate distally. Cauline leaves remote, subspatulate, 1.5–2.7 cm × 5.8–12 mm, both surfaces and margin brown glandular hairy, margin 3–8-dentate. Inflorescence paniculate, 10–14 cm, 19–29-flowered; branches 4.5–9 cm, densely brown glandular hairy, 1–3-flowered; pedicels 0.8–1.5 cm, densely brown glandular hairy. Sepals spreading to reflexed, lanceolate to narrowly ovate, 4–7 × 1.5–2.1 mm, brown glandular hairy abaxially, adaxially distally, and marginally, veins 3–5, confluent into a verruca at apex, apex acute. Petals yellowish, proximally spotted orange or purple, narrowly ovate to suboblong, 5.9–6.1 × 2.3–3.1 mm, 2-callose near base, 3–5-veined, base cordate, with a claw 1–1.3 mm, apex acute. Stamens 3.5–5.5 mm. Ovary superior, subglabrous, 2–4 mm in diam.; styles 1–1.5 mm. Fl. and fr. Jul–Sep.
Stems arising from axils of basal leaves, 4–12 cm, sparsely glandular hairy, gemmiferous at apex. Basal leaves aggregated into a rosette, narrowly elliptic to subspatulate, somewhat convex abaxially, concave adaxially, 0.8–1.3 cm × 2–4.5 mm, leathery, both surfaces ± glandular pubescent, margin glandular ciliate, apex acute, glandular. Cauline leaves remote, 5.5–11 × 1.5–3 mm, leathery, both surfaces ± glandular hairy, margin glandular ciliate, apex glandular. Cyme 1.5–3 cm, (1 or) 2- to 3-flowered; pedicels 0.6–1.4 cm, densely glandular hairy. Sepals erect, ovate to lanceolate, 4.6–2 × 1.2–2.8 mm, subcarnose, abaxially and marginally dark brown glandular hairy, adaxially glabrous or rarely sparsely glandular hairy, veins 5–9, partly or fully confluent at apex, apex usually mucronate. Petals yellow, obovate to broadly obovate or elliptic, 0.8–1.2 cm × 4.5–7.5 mm, not callose, 8–11-veined, clavate, apex obtuse. Stamens 4–5.7 mm. Ovary subsuperior, ellipsoid, 2.5–3 mm, not callose, 8–11-veined, clavate, apex obtuse or subpandurate, 5.6–6 × 3.5 mm, 2-callose, 5–7-veined, base abruptly narrowed into a claw 0.4–0.5 mm, apex mucronate. Petals yellow, obovate to elliptic, 4.3–4.4 × 2–2.2 mm, not callose, 5–6-veined, base abruptly narrowed into a claw 0.4–0.5 mm, apex obtuse. Stamens 1.1–1.5 mm. Ovary semi-inferior, ovoid; styles divergent, ca. 1 mm, Fl. Jul.–Aug. Rocky alpine meadows, cliff ledges, boulders; 2800–5400 m. Sichuan, S Xizang (Tingri Xian, Yadong Xian), Yunnan [India, Kashmir, Nepal, Sikkim].

*Saxifraga stenophylla* is part of the polymorphic *S. flagellaris* complex. In the present account, the taxa belonging to this complex are treated as narrowly defined species.


Stem 1.5–4 cm tall, glandular hairy, glands globose. Stolons arising from axils of basal leaves, ca. 10 cm, glandular hairy, apex gemmiferous. Basal leaves aggregated into a rosette, narrowly obovate or subspatulate to oblanceolate, 6–8 × 2.2–2.6 mm, subcarnose, glandular hairy (glands globose), apex mucronate. Cauline leaves remote, suboblong-lanceolate, 9–10 × ca. 2.3 mm, subcarnose, usually glandular hairy, rarely glabrous adaxially, apex mucronate. Flower solitary or cyme 2- or 3-flowered; pedicels 5.6–7.5 mm, glandular hairy. Sepals erect, ovate or lanceolate to oblong-lanceolate, 3.3–5 × 1.4–2 mm, subcarnose, abaxially and marginally glandular hairy (glands globose), adaxially glabrous or distally glandular hairy, veins 3–5, not, partly, or fully confluent at apex, apex obtuse or acute. Petals yellow, obovate to oblong-lanceolate, 6.8–8 × 2.2–4 mm, 2-calcose, 5–10-veined, base with a claw 0.2–1.3 mm, apex obtuse. Stamens 2.5–4.4 mm. Ovary semi-inferior, 2.8–6.4 mm, with an annular nectary disc; styles 1.5–2 mm. Fl. Jul.–Aug. Alpine meadows, rock clefts; 5100–5300 m. SW Xizang (Burang Xian).


*Saxifraga flagellaroides* Engler; *S. flagellaris* Willdenow ex Sternberg subsp. *megistantha* Handel-Mazzetti; *S. flagellaris* var. *mucronulata* (Royle) C. B. Clarke; *S. flagellaris* subsp. *mucronulata* (Royle) Engler & Irmscher; *S. spinulosa* Royle (1835), not Adams (1817).

Stem 2–4 cm tall, densely glandular pubescent. Stolons arising from axils of basal leaves, densely glandular hairy. Basal leaves aggregated into a rosette, spatulate to linear-spatulate, 8–9.5 × 1.6–2 mm, carnose, both surfaces glabrous, margin eglandular setose-ciliate, longest bristles 0.5–1.1 mm, apex mucronate. Cauline leaves linear, ca. 6.2 × 1 mm, abaxially and marginally glandular hairy, apex mucronate. Cyme compact, 7–14 mm, 2–5-flowered, or flower solitary; pedicels to 3 mm, glandular hairy. Sepals erect, ovate to narrowly so, ca. 2.5 × 1 mm, abaxially and marginally glandular hairy, veins 3, not or partly confluent at apex, apex subacuminate. Petals yellow, obovate to elliptic, 4.3–4.4 × 2–2.2 mm, not callose, 5–6-veined, base abruptly narrowed into a claw 0.4–0.5 mm, apex obtuse. Stamens 1.1–1.5 mm. Ovary semi-inferior, ovoid; styles divergent, ca. 1 mm. Fl. Jul.–Aug. Alpine meadows, among rocks; 3700–5000 m. W Sichuan, E Xizang (Baxoi Xian, Mainling Xian, Zayi Xian), NW Yunnan (Zhongdian Xian) [India, Kashmir, Nepal, Pakistan, Sikkim, Tajikistan].

*Saxifraga stenophylla* is much confused with other members of the *S. flagellaris* complex. Specimens from Sichuan and Yunnan identified by Hultén (Svensk. Bot. Tidskr. 58: 93. 1964) as *S. flagellaris* subsp. *setigera* (Pursh) Tolmachev (*S. setigera* Pursh) have been referred in the present account to *S. mucronulata*. Further study of the whole group is required.

*Saxifraga flagellaris* subsp. *megistantha*, treated as a synonym of *S. stenophylla* in FRPS, is regarded in the present account as synonymous with *S. mucronulata*. The type of subsp. *megistantha* has coarsely eglandular setose-ciliate basal leaves and therefore does not correspond with *S. stenophylla*.


*Saxifraga flagellaroides* Willdenow ex Sternberg subsp. *sikkimensis* Hultén, Svensk. Bot. Tidskr. 58: 99. 1964; *S. mucronulata* Royle subsp. *sikkimensis* (Hultén) H. Har. Stem ca. 21 cm tall, densely glandular pubescent, glands globose. Stolons arising from axils of basal leaves, glandular hairy. Basal leaves aggregated into a rosette, suboblong-lanceolate, ca. 1.1 cm × 3 mm, both surfaces glabrous, margin eglandular setose-ciliate, longest bristles 0.5–1.0 mm, apex cartilaginous mucronate. Cauline leaves oblong-linear, ca. 1.1 cm × 2.1 mm, glandular hairy, apex cartilaginous mucronate. Pleiochasium ca. 12-flowered; pedicels and hypanthium tawny glandular hairy. Sepals erect, narrowly ovate, 2.6–2.8 × ca. 1 mm, abaxially and marginally glandular hairy, glands globose, veins 4 or 5, confluent at apex, apex acute. Petals yellow, subpandurate, 5.6–6 × 3.5 mm, 2-calcose, 5–7-veined, base abruptly narrowed into...
a claw ca. 0.5 mm, apex obtuse. Stamens 2–3 mm. Ovary semi-inferior, ca. 1.6 mm; styles ca. 0.8 mm. Fl. Jun–Aug.

Stony places on slopes and in gorges; 3400–5200 m. S Xizang (Tingri Xian) [Bhutan, Nepal, Sikkim].

178. Saxifraga brunonis Wallrich ex Seringe in de Candolle, Prodr. 4: 45. 1830.

须弥虎耳草 xu mu er cao

Hirculus brunonianus Losinskaja; Saxifraga brunoniana Stemberg, nom. illeg. (included S. brunonis); S. brunoniana var. majuscula Engler & Irmscher; S. brunoniana var. majuscula subvar. exunguiculata Engler & Irmscher; S. brunoniana var. majuscula subvar. uinguiculata Engler & Irmscher.

Stem purple-brown, 6–16 cm, proximally glabrous, distally sparsely dark purple shortly glandular hairy. Stolons arising from axils of basal leaves, purple-brown, 4–24 cm, sparsely dark purple glandular hairy. Basal leaves aggregated into a rosette, gray-green, shiny, oblong-ensiform, 1–1.3 cm × 1.9–2.5 mm, carnose, rigid, both surfaces glabrous, margin cartilaginous setose-ciliate, apex cartilaginous aristate. Cauline leaves remote, obovate to broadly subobovate, 5–10 × 1.6–3.2 mm, leathery, both surfaces glabrous, margin ±glandular hairy (glands globose), veins 3–5, confluent into a verruca at apex, capsule subglobose. Capsule subglobose. Fl. and fr. Jul–Sep.

One of the present authors (Ohba) regards this species as synonymous with the extremely similar Saxifraga brunonis.


柔弱虎耳草 rou ruo hu er cao

Stem slender, 2–4 cm tall, brown glandular hairy. Stolons arising from axils of basal leaves, sparsely glandular hairy. Basal leaves aggregated into a rosette, obovate to obovate lanceolate, 0.5–10 cm, both surfaces glabrous, margin glandular ciliate, apex acute. Caulescent leaves subelliptic to linear-oblong, 12–20 × 2.0–3.5 mm, both surfaces glabrous, margin glandular ciliate, apex acute, mucronate. Cyme corymbose, compact, 2–4-flowered, or flower solitary; pedicels ca. 1 mm, sparsely glandular hairy. Sepals spreading, obovate, 4.5–5 × ca. 2 mm, glabrous, veins 3–5, confluent into a verruca at apex, capsule subglobose. Petals yellow, broadly elliptic to obovate, 5–7 × 3.5–5 mm, 2-callose, 5-veined, base abruptly narrowed into a claw ca. 1 mm, apex obtuse. Stamens ca. 2.5 mm. Ovary subsuperior, ca. 2 mm; styles ca. 1.5 mm. Fl. Jun–Aug.

One of the present authors (Ohba) regards this species as synonymous with the extremely similar Saxifraga brunonis.
Stem 2.5–10 cm tall, glandular hairy, glands globose. Basal leaves aggregated into a rosette, oblong-oblongate, 1–1.6 cm × 3.5–4 mm, subcarnose, glandular pilose (glands globose), apex acute. Cauline leaves dense, suboblong, ca. 1.1 cm × 3.6–3.8 mm, subcarnose, glandular pilose, apex acute. Cyme 3–5-flowered; pedicels 2–3 mm, glandular pilose. Sepals erect, subovate, ca. 2.6 × 1.8 mm, subcarnose, abaxially and marginally glandular hairy, glands globose, veins 3, confluent into a verruca at apex, apex subobtuse or acute, glabrous. Petals yellow, obovate to broadly so, 3.5–3.8 × 2–2.4 mm, 2-callose near base, ca. 6-veined, base with a claw 0.4–0.7 mm, apex obtuse. Male flowers: stamens ca. 2.4 mm; pistil degenerate. Female flowers: stamens degenerate; ovary subinferior, with a thick, annular disc; styles stout. Fl. Jul–Aug.

One of the present authors (Ohba) believes that this species may be synonymous with Saxifraga parkaensis.


朗县虎耳草 long xian hu er cao

Stem 2.5–10 cm tall, glandular pubescent. Stolons arising from axes of basal leaves, 4.5–12 cm, glandular pubescent, apex glanduliferous. Basal leaves aggregated into a rosette, narrowly obovate to subspatulate, 6–8.3 × 2.3–3 mm, carnose, brown glandular hairy, apex obtuse or acute. Cauline leaves remote, oblong to subspatulate, 6–10 × 1.9–3 mm, subcarnose, brown glandular hairy. Cyme 9–12 mm, 4–9-flowered; pedicels 1–6.2 mm, glandular pubescent. Sepals erect, ovate to subelliptic, abaxially somewhat convex, adaxially somewhat concave, 1.5–2.7 × 0.8–1.5 mm, subcarnose, abaxially glandular hairy, adaxially usually glabrous, rarely glandular hairy near apex, veins 3 or 4, not confluent at apex, margin glandular hairy, apex acute. Petals yellow to purple, obovate or broadly so to elliptic, 2.5–3.8 × 1.7–2.5 mm, 2-callose, 5–9-veined, base abruptly narrowed into a claw 0.5–0.8 mm, apex obtuse or acute. Stamens 1–2.5 mm. Ovary subinferior, ca. 1.9 mm, with an annular nectary disc; styles ca. 0.9 mm. Fl. Jul–Aug.

Alpine rock crevices; 4500–4600 m. NW Yunnan (Dêqên Xian, Zhongdian Xian).

One of the present authors (Ohba) believes that the two taxa cannot be distinguished. However, further study may show that the two taxa cannot be distinguished.


秃茎虎耳草 tu jing hu er cao

Stem purple after drying, slender, 2.5–6 cm tall, glabrous. Stolons arising from axes of median cauline leaves, lilac, ca. 22 cm, glabrous. Leaves sessile, aggregated proximally and distally in stem, remote near middle of stem, oblong or elliptic-oblong to spatulate, apex obtuse or subacute; proximal and median leaves 4–8 × 3–4 mm, glabrous; distal leaves lilac, ca. 1.2 cm × 3–4 mm, shortly glandular hairy. Flower solitary or cyme 2-flowered; pedicel lilac, 1.5–8 mm, purple shortly glandular hairy; hypanthium broadly mitriform, ca. 1.5 mm, sparsely glandular hairy. Sepals elliptic to triangular or broadly ovate, 2.5–3 × 1.5–2.8 mm, purple glandular hairy, 3-veined, apex obtuse. Petals yellow, broadly obovate, 3–3.2 × 2–2.6 mm, 5-veined, apex obtuse. Stamens ca. 2.8 mm. Ovary subinferior, broadly conical, ca. 2 mm above hypanthium; styles short. Fl. Jul–Aug.

4000–4600 m. S Xizang (Nêdong Xian, Yadong Xian) [Bhutan, Nepal, Sikkim].


棒腺虎耳草 bang xian hu er cao

Saxifraga consanguinea (H. Smith) Losinskaja; Saxifraga muliensis Handel-Mazzetti; S. propagulifera H. Smith.

Stem 0.6–8.5 mm, glandular hairy, glands clavate. Basal leaves aggregated into a rosette, narrowly elliptic or narrowly obovate to subspatulate, 4.5–9 × 1.6–3 mm, subcarnose, both surfaces glabrous, margin glandular or glandular ciliate (glands clavate), apex mucronate. Cauline leaves remote, oblong or lanceolate to oblongate-linear, 5–10 × 1.0–2.5 mm, subcarnose, both surfaces glabrous or abaxially glandular hairy, margin glandular ciliate, apex mucronate. Flower solitary, or cyme corymbose, 2–10-flowered, 0.8–2.5 cm; branches 1.8–2.3 cm, 2- or 3-flowered; pedicels 2–6 mm, glandular hairy. Sepals erect, broadly to narrowly ovate, 1.8–3.8 × 1–2 mm, carnose, abaxially and marginally glandular hairy, glands clavate, veins 3–6, confluent or not at apex, apex obtuse or acute. Petals red, pink, or yellow, elliptic, or ovate to broadly so or broadly obovate, 1.2–2.6 × 1–2 mm, leathery, 2-callose, 3-veined, base abruptly narrowed into a claw 0.2–0.8 mm, apex usually obtuse, rarely acute. Male flowers: stamens 1.6–2 mm; pistil degenerate. Female flowers: stamens degenerate, 0.6–1 mm; ovary semi-inferior, 3–3.5 mm, with an annular nectary disc; styles ca. 1 mm. Fl. and fr. Jun–Sep.

Picea forests, scrub, stony alpine meadows, boulders, screes, rock crevices; 3000–5400 m. S Qinghai, W Sichuan, E and S Xizang, NW Yunnan [Nepal].

Saxifraga consanguinea is extremely close to the Himalayan S. pilifera J. D. Hooker, from which it differs chiefly in having basal leaves adaxially glabrous (vs. glandular pubescent). However, further study may show that the two taxa cannot be distinguished.

**小果虎耳草** *xiao guo hu er cao*

*Hirculus microgynus* (Engler & Irmscher) Losinskaja: *Saxifraga microgyna* var. *ramosior* Engler & Irmscher; *S. microgyna* f. *uniflora* T. C. Ku.

Stem 3.5–20 cm tall, glandular pilose. Stolons arising from axils of basal leaves, brown glandular hairy, apex gemmiferous. Basal leaves aggregated into a rosette, elliptic-obovate or narrowly obovate to oblong, 5–7.3 × 1.5–3.2 mm, subcarnose, both surfaces and margin glandular hairy, more sparsely so abaxially, apex acute. Cauline leaves remote, narrowly elliptic to narrowly obovate, 5–15(–20) × 2–6 mm, both surfaces and margin glandular hairy, apex acute. Cyme laxly corymbose, 0.6–1.5 cm, (1–)3–15-flowered; pedicels 1.8–3.5 mm, glandular pilose. Sepals erect, then spreading, ovate or narrowly so to obovate, 1.6–3.2 × 0.8–1.3 mm, subcarnose, abaxially and marginally glandular pubescent, veins 3–5, not or partly confluent at apex, apex acute. Petals yellow to pink, elliptic, ovate or narrowly so, or oblong, 2–3.2 × 1–1.4 mm, 2-callose, 1–3-veined, base clawless, or with a claw 0.4–1 mm, apex acute. Male flowers: stamens ca. 1.5 mm; pistil degenerate. Female flowers: stamens degenerate, 0.4–0.5 mm; ovary inferior, 1.4–1.5 mm, with an annular nectary disc; styles ca. 1 mm. Fl. and fr. Jul–Sep.


**球茎组** *qiu jing zu*

Herbs perennial, forming erect individuals, with bulbils present in axils of at least basal leaves. Leaves alternate, petiolate; leaf blade herbaceous, lacking chalk glands and crystals, margin toothed or lobed. Flowering stem leafy; inflorescence cymose. Flowers bisexual, actinomorphic, 5-merous. Petals white, rarely reddish, not callose. Filaments subulate to linear; pollen 2-nucleate, exine tectum coarsely striate. Carpels connate for most of placental inflorescence cymose. Flowers bisexual, actinomorphic, 5-merous. Petals white, rarely reddish, not callose. Filaments subulate to linear; pollen 2-nucleate, exine tectum coarsely striate. Carpels connate for most of placental inflorescence cymose. Flowers bisexual, actinomorphic, 5-merous. Petals white, rarely reddish, not callose. Filaments subulate to linear; pollen 2-nucleate, exine tectum coarsely striate. Carpels connate for most of placental inflorescence cymose.

About eight species: Asia, Europe, North America, mainly in arctic and montane regions; three species in China.

1a. Bulbils restricted to rhizome, none present in axils of cauline leaves or bracts ............................... 188. *S. sibirica*

1b. Bulbils present in axils of cauline leaves and/or bracts.

2a. Bulbils present in axils of cauline leaves only, not replacing flowers ............................... 189. *S. granulifera*

2b. Bulbils present in axils of cauline leaves and (where replacing flowers) bracts ............................... 190. *S. cernua*


**狭叶虎耳草** *xia ye hu er cao*

*Lobaria sibirica* (Linnaeus) Haworth; *Saxifraga pekinensis* Maximowicz; *S. sibirica* var. *bockiana* Engler; *S. sibirica* var. *eusibirica* Engler & Irmscher; *S. sibirica* var. *pekinensis* (Maximowicz) Engler & Irmscher; *S. sibirica* var. *pycnoloba* Franchet; *S. sibirica* var. *schindleri* Engler & Irmscher.

Stem 6.5–25 cm tall, densely glandular pilose. Basal leaves with petiole 1.2–4.5 cm, glandular pilose; leaf blade reniform, 0.7–1.8 × 1–2.7 cm, margin 7–9-lobed; lobes ovate or broadly so to broadly orbicular.

188. *Saxifraga sibirica* Maximowicz; *S. sibirica* var. *sibirica* Engler & Irmscher; *S. sibirica* var. *pycnoloba* Franchet; *S. sibirica* var. *schindleri* Engler & Irmscher.

Stem 6.5–25 cm tall, densely glandular pilose. Basal leaves with petiole 1.2–4.5 cm, glandular pilose; leaf blade reniform, 0.7–1.8 × 1–2.7 cm, margin 7–9-lobed; lobes ovate or broadly so to broadly orbicular.


**球茎虎耳草** *xiao guo hu er cao*


- Forest margins, rocky alpine meadows, rock crevices; 3000–4900 m.
- SE Qinghai (Jigzhi Xian), W Sichuan, S Xizang (Comai Xian), NW Yunnan (Dêqên Xian, Zhongdian Xian).


- Forest margins, rocky alpine meadows, cliff faces; 4200–4300 m. W Sichuan.


mm; styles 0.8–2 mm; stigma small. Fl. and fr. May–Nov. 2n = 16, 26.
Forests, scrub, alpine meadows, rock clefts; 800–5100 m. S Gansu (Wen Xian), NW Hebei, N Helongjiang (Heihe Shi), W Hebei, Hunan (Xiangling), NE Mongolia, S Shaanxi, C Shandong (Tai Shan), E Shaanxi, Sichuan, Xinjiang (Hami Xian, Shawan Xian, Taxkorgan Tajik Zizhixian), Xizang, NW Yunnan [India, Kashmir, Mongolia, Nepal, Russia].


珠芽虎耳草 zhú yá hú ěr cǎo
Saxifraga sibirica Linnaeus var. bulillifera H. Smith. Stem simple or branched, 10–25 cm tall, glandular pilose, with 1–3 minute bulbils 0.2–0.5 mm in axils of cauline leaves. Basal leaves with petiole 1.5–2.5 cm, glandular pilose; leaf blade reniform to suborbicular, 0.8–1 × 1.1 cm, margin 7–9-lobed; lobes broadly ovate to triangular-ovate, adaxially glabrous or sparsely glandular pilose, margin glandular pilose. Cauline leaves with petiole 0.3–3 cm; leaf blade reniform or broadly ovate to broadly orbicular, 0.4–1 × 0.4–1.5 cm, glandular pilose, base reniform or cuneate to truncate, margin 5–7-lobed. Cyme corymbose, 2–10 cm, 1–10-flowered; pedicels slender, 0.5–3 cm, glandular pilose. Sepals erect, ovate to narrowly so, 1.2–2.5 × ca. 1 mm, abaxially and marginally glandular pubescent, veins 3–5, not, partly, or fully confluent at apex, apex acute. Petals white or yellowish, narrowly obovate-cuneate, 5–8 × 1.7–2.5 mm, 3–8 veined, base gradually tapered into a claw. Stamens 2.5–3 mm. Carpels connate proximally, 2.5–5 mm; ovary ovoid, 2–3 mm; styles ca. 1.3 mm. Fl. and fr. Jun–Sep.

Alpine grasslands, cliff ledges, mossy rocks; 3100–4600 m. Sichuan, SE Xizang, Yunnan [Butan, India (Uttar Pradesh), Nepal, Sikkim].


零余虎耳草 líng yú hú ěr cǎo
Lobaria cernua (Linnaeus) Haworth; Saxifraga cernua f. bulillifora Engler & Irmscher; S. cernua var. linnaeana Seringe; S. cernua f. ramosa J. G. Gmelin; S. cernua f. simplicissima Ledebour.

Stem branched or simple, 6–25 cm tall, glandular pubescent, with conspicuous, red or brown bulbils in axils of cauline leaves. Basal leaves with petiole 3–8 cm, crisped glandular villous near base, elsewhere glandular pubescent; leaf blade reniform, 0.7–1.5 × 0.9–1.8 cm, margin generally 5–7-lobed; lobes broadly ovate, glandular pubescent. Proximal cauleine leaves with petiole 0.3–3.4 cm, glandular pubescent; leaf blade reniform, 0.8–2 × 1–2.4 cm, glandular pubescent, margin 5–7(–9)-lobed; distal cauleine leaves with petiole shorter, leaf blade 3-lobed at margin. Cyme 2–5-flowered or flower solitary; bulbils present in bract axils; pedicels 0.6–3 cm, glandular pubescent. Sepals erect, elliptic or ovate to suboblong, 3–3.7 × 1–2.8 mm, abaxially and marginally glandular pubescent, veins 3–7, not, partly, or fully confluent at apex, apex subobtuse or acute. Petals white or yellowish, obovate to narrowly so, 4.5–10.5 × 2.1–4.1 mm, 3–8(–10)-veined, base gradually contracted into a claw 1.2–1.8 mm, apex retuse or obtuse. Stamens 4–5.5 mm. Ovary subsuperior, ovoid; styles 0.9–2 mm. Fl. and fr. Jun–Sep. 2n = 36, 48, 50, 52, 56, 60–70.

Forests, forest margins, alpine meadows, alpine rock crevices; 2200–5500 m. WC Hebei (Xiaowutai Shan), S Jilin (Fusong Xian), E Nei Mongolia, N Ningxia (Helan Shan), Qinghai, S Shaanxi (Taibai Shan), N Shanxi (Ningwu Xian), W Sichuan, Xinjiang (Bogda Shan), Xizang, NW Yunnan [India, Japan, Korea, Mongolia, Russia; Europe, North America].


垫状组 diàn zhàng zǔ

Antiphylla Haworth.

Herbs perennial, forming dense cushions or mats, lacking basal bulbils. Leaves alternate or opposite; petiole scarcely differentiated; leaf blade leathery, usually stiff and hard, usually coated with a white deposit of calcium carbonate derived from chalk glands set submarginally (rarely marginally) in pits in adaxial surface, margin entire but often denticulate-ciliate proximally; foliar crystals absent. Inflorescence cymose or flower solitary. Flowers bisexual, actinomorphic, 4- or 5-merous. Petals white, pink, or red, rarely yellow, not callose. Filaments subulate to linear; pollen 2-nucleate, exine tectum coarsely striate. Carpels connate proximally or for most of placental region, dehiscing distally in fruit; ovary submarginally to subinferior. Integuments 2.

About 90 species: primarily in Asia and Europe, mainly Himalayan and montane, also extending into North America; 25 species (17 endemic) in China.

1a. Shoot leaves opposite; flower solitary.

2a. Shoot leaves with 1(–3) chalk glands.

3a. Leaves of a pair meeting at an acute angle, margin denticulate-ciliate proximally; all flowers 5-merous .............................................................................................................. 211. S. georgei

3b. Leaves of a pair confluent at base, margin glabrous; all or most flowers 4-merous.

4a. Petals 2–3 × as long as sepals; leaves with 1–3 chalk glands ........................................ 213. S. decussata

4b. Petals less than 2 × as long as sepals; leaves with 1 chalk gland ........................................ 215. S. nana

2b. Shoot leaves with 3–7 chalk glands.

5a. Leaves of a pair meeting at an acute angle, margin denticulate-ciliate proximally; all flowers 5-merous.
6a. All leaves in opposite pairs ................................................................. 210. S. oppositifolia
6b. Some leaves on vigorous shoots 3-verticillate ........................................ 212. S. subternata

5b. Leaves of a pair confluent at base, margin glabrous; all or most flowers 4-merous.
7a. Flowering stem 0.7–1.5 cm, with 1 or 2 pairs of opposite cauline leaves .......... 214. S. monantha
7b. Flowering stem absent to 5 mm ............................................................ 213. S. decussata

1b. Shoot leaves alternate; flowers 1 to several.
8a. Petals yellow.
9a. Cyme 2- or 3-flowered ................................................................. 196. S. rotundipetala
9b. Flower solitary.
10a. Flowering stem more than 2 cm ...................................................... 194. S. kongboensis
10b. Flowering stem to 1 cm.
11a. Stamens equaling or exceeding petals; basal 2/3 of leaf margin denticulate-ciliate 195. S. nambulana
11b. Stamens much shorter than petals; basal 1/3 of leaf margin minutely setose-ciliate 193. S. elliottii

8b. Petals white, pink, or red.
12a. Corolla shorter than or subequaling calyx.
13a. Flower solitary, sessile or borne on a stem to 1 cm .................................. 192. S. rupicola
13b. Flowers 2–7, borne on a stem 1–4 cm ............................................. 191. S. chionophila
12b. Corolla at least 1.5 x as long as calyx.
14a. Cyme 2- to several flowered.
15a. Cyme apparently sessile, embedded among leafy shoots; petals white ........ 200. S. clivorum
15b. Cyme elevated above leafy shoots on a stem 1.5–7 cm; petals reddish, pink, or white.
16a. Sepals without chalk glands.
17a. Styles less than 2.5 mm ................................................................. 197. S. afghanica
17b. Styles more than 4 mm ................................................................. 201. S. pulchra
16b. Sepals with 1–3 chalk glands.
18a. Petals pink or purple ................................................................. 199. S. decora
18b. Petals white, rarely pale pink ........................................................ 198. S. andersonii

14b. Flower solitary.
19a. Leaves with 1 chalk gland.
20a. Petals more than 2 mm wide ...................................................... 208. S. subsessiliflora
20b. Petals less than 2 mm wide .......................................................... 209. S. pulvinaria
19b. Leaves with more than 1 chalk gland.
21a. Flowering stem ± absent .............................................................. 207. S. likiangensis
21b. Flowering stem present.
22a. Sepals glabrous abaxially ............................................................ 204. S. saxicola
22b. Sepals glandular hairy abaxially.
23a. Petals purple or reddish.
24a. Petals at least 9 mm ................................................................. 203. S. ludlowii
24b. Petals 4–4.5 mm ................................................................. 206. S. saxatilis
23b. Petals white.
25a. Petals less than 5 mm ................................................................. 206. S. saxatilis
25b. Petals at least 6 mm.
26a. Flowering stem to 1 cm .............................................................. 202. S. doyalana
26b. Flowering stem more than 2 cm .................................................. 205. S. unguipetala

雪地虎耳草 xue di hu er cao
Saxifraga schneideri Engler.
Plants many branched, 2.5–7 cm tall, forming a compact cushion of leafy shoots. Flowering stem 1–4 cm, proximally densely leafy, distally more sparsely so, brown glandular hairy. Shoot leaves imbricate, aggregated into a rosette distally on shoot, spatulate to narrowly obovate, (5)–8–9 × (1.5)–2.3–3 mm, leathery, both surfaces glabrous, chalk glands 5–7, margin denticulate-ciliate basally, apex subacute. Cauline leaves subspatulate, 4–8 × 1–2 mm, leathery, abaxially and marginally glandular hairy proximally, chalk glands 5, apex recurved, subobtuse. Cyme corymbose, 2–7-flowered; branches 1–1.5 cm, brown glandular hairy; bract tightly appressed to hypanthium, linear, 2–5 × ca. 1 mm, abaxially and marginally brown glandular hairy, chalk glands 2, apex acute; pedicels absent. Sepals erect to ascending, ovate, 1.5–3 × 1.2–1.8 mm, abaxially and marginally colorless glandular hairy, chalk glands 3, veins 3 or 4, confluent or not at apex, apex obtuse. Petals red, obolate to oblong-oblancoleadate, 1.8–3 × 0.8–1 mm, subleathery, abaxially and marginally pale hairy, adaxially glabrous, chalk glands 1–3, veins 3–5, partly confluent at apex, apex acute.

- Alpine meadows, cliffs, rock crevices; 2700–5000 m. SW Sichuan (Muli Zang Zu Zizhixian), SE Xizang (Zayü Xian), W Yunnan (Dali Xian, Lijiang Naxi Zu Zizhixian, Zhongdian Xian).


崖生虎耳草 ya sheng hu er cao

Plants many branched, forming a compact cushion of leafy shoots. Flowering stem 6–8 mm, distally with leaves evenly distributed, crisped glandular hairy. Shoot leaves densely imbricate, forming tight rosettes distally; leaf blade deflexed, spatulate or narrowly obovate, 4–5 × 1.5–2.5 mm, leathery, both surfaces glabrous, margin sparsely eglandular ciliate proximally, chalk glands 3–5, apex obtuse. Proximal cauline leaves spatulate, 3–3.5 × 1–1.2 mm, chalk glands 3, margin sparsely ciliate at base, apex obtuse. Flower submerses; pedicel very short, glandular pilose. Petals greenish yellow, oblong-lanceolate, 2.3–2.5 × 0.7 mm, nearly equaling sepals, 1–veined, blade tapered. Stamens equaling petals. Ovary 1/3 inferior, with an annular nectary disc; styles very short. Fl. and fr. Jul–Aug.

- Calcareous rocks; ca. 3500 m. Yunnan.


索白拉虎耳草 suo bai la hu er cao

*Saxifraga buceras* H. Smith.

Plants cespitose. Shoots many branched, elongate, to 6 cm. Flowering stem short, 0.2–3.5 cm, glandular pilose. Shoot leaves densely imbricate, sometimes subopposite, suberect or subcurved, narrowly obovate to obovate-oblong, 4–6 × 1.5–2 mm, leathery, both surfaces glabrous, chalk glands 5–7, margin cartilaginous denticulate-ciliate proximally, apex obtuse or subacute. Cauline leaves absent or 1–7, remote, similar to shoot leaves, abaxially and marginally glandular pilose. Flower solitary; pedicel short or nearly absent; hypanthium usually black glandular hairy. Sepals ovate to broadly so, 2.5–4 × 2–2.7 mm, glandular pilose abaxially and marginally, chalk glands 3–5, partly to fully confluent at apex, apex acute, glabrous. Petals yellow, obovate, 5–10 × 3.5–6.5 mm, ca. 8-veined, base gradually narrowed into a short claw, apex obtuse. Stamens 3–8 mm. Carpels connate proximally; ovary subterminal, ca. 3.5 mm; styles erect, ca. 3 mm. Fl. Jul–Aug.

- Rocky hillsides, streamsides, cliff faces; 2800–3600 m. SE Xizang (Nyingchi Xian).

*Saxifraga buceras* agrees in a large number of important details of leaf and floral morphology with *S. elliotii*. Such differences as there are involve chiefly the height of the flowering stem (to 3.5 cm in *S. buceras* and to 0.5 cm in *S. elliotii*), and possibly also the length of the petals (to 10 mm in *S. buceras* and to 7 mm in *S. elliotii*). There may also be a difference in the shape of the fruit, but this is as yet unclear (styles widely divergent in *S. buceras*, but mature fruits not seen in *S. elliotii*). Since *S. elliotii* is known to vary somewhat, it seems justifiable under the circumstances to regard *S. buceras* as a synonym.


九窝虎耳草 jiu wo hu er cao

Plants many branched, to 7 cm tall. Flowering stem to 2.5 cm, glandular pilose. Shoot leaves imbricate, aggregated into a rosette, linear to suboblong, 5–7(–10) × 1.5–1.9(–2.5) mm, both surfaces glabrous, chalk glands 7–11, margin cartilaginous ciliate proximally, apex mucronate. Cauline leaves 3–5, abaxially and marginally glandular pilose, chalk gland 1. Flower solitary; pedicel glandular pilose. Sepals erect, ovate, ca. 3.5 × 2.5 mm, abaxially and marginally glandular pilose, adaxially glabrous, chalk gland 1, veins 4, not confluent at apex, apex obtuse or subacute, glabrous. Petals yellow, broadly obovate to orbicular, ca. 1 × 0.85 cm, ca. 15-veined, base abruptly narrowed into a claw 2–2.5 mm, margin subdulate. Stamens ca. 7.5 mm. Carpels connate proximally; ovary subterminal; styles divergent, ca. 3 mm. Fl. May–Aug.

- Rock crevices; 2400–2900 m. SE Xizang (Nyingchi Xian).


南布拉虎耳草 nan bu la hu er cao

Plants many branched, to 3 cm tall, with crowded shoots forming cushions. Flowering stem barely 1 cm, glandular villous. Shoot leaves imbricate, long persistent even when dead, spatulate to narrowly obovate, ca. 5.5 × 2 mm, leathery, thickened in distal 1/3, both surfaces glabrous, chalk glands 5, margin cartilaginous denticulate-ciliate proximally, apex usually mucronate and glabrous. Cauline leaves 4–6, ca. 5 mm, subleathery, glandular pilose abaxially and at proximal margin, chalk gland 1, apex acute. Flower solitary; pedicel and hypanthium densely glandular pilose. Sepals broadly ovate, ca. 4 × 3 mm, glandular pilose abaxially and at margin, veins 3, confluent at apex, apex subacute or acute, glabrous. Petals yellow, elliptic to obovate, ca. 7 × 3 mm, 3- or 4-veined, base contracted into a claw ca. 1.5 mm, apex obtuse. Stamens ca. 7 mm. Carpels connate proximally; ovary subterminal; styles erect, ca. 2 mm. Fl. Jul–Aug.

- Rock faces; ca. 4200 m. SE Xizang (Nyingchi Xian).


圆瓣虎耳草 yuan ban hu er cao

Plants many branched, ca. 7 cm tall, with crowded shoots forming cushions. Flowering stem glandular hairy. Shoot leaves subimbricate, forming rosettes, subspatulate, abaxially convex, adaxially subconcave, 6.8–7 × ca. 2 mm, chalk glands 3–5(–6), margin setose-ciliate proximally. Cauline leaves remote, subspatulate, 6.5–7.3 × 1.8–1.9 mm, glandular hairy...
abaxially and at proximal margin, chalk gland 1. Cyme 2- or 3-flowered; pedicels 2–3 mm, glandular hairy. Sepals erect, subelliptic, 4–5 × 2.5–3 mm, glandular hairy abaxially and at margin, veins 3–5, partly or fully confluent at apex, apex glabrous. Petals yellow, orbicular, 4.6–5.5 × 4–4.7 mm, 7–9-veined, base with a claw 1–1.3 mm, apex obtuse or recurved. Stamens 1.8–4 mm. Ovary semi-inferior, ca. 5.5 mm; styles divergent.


Plants many branched, with crowded shoots forming cushions. Flowering stem 0.8–2.5 cm, glandular hairy, leafy. Shoot leaves aggregated into a rosette, oblong to subspatulate, 4–7 × 1.3–2 mm, leathery, both surfaces glabrous, chalk glands 5, margin denticulate-ciliate proximally or glabrous, apex recurved, obtuse. Cauline leaves lanceolate-oblong, 3.5–5 × ca. 1 mm, chalk gland 1 margin glandular hairy proximally, apex obtuse or acute. Cyme (2 or)3- or 4-flowered, rarely flower solitary; branches ca. 1 cm. Sepals erect, purple, oblong to sublanceolate, 2–3 × 1–1.4 mm, abaxially and marginally sparsely glandular pilose, veins 3, not confluent at apex, apex acute. Petals usually pink, obovate, ca. 5 × 2.5–3.3 mm, 5-veined, base gradually narrowed into a short claw, apex obtuse. Stamens 3–3.5 mm. Ovary semi-inferior; styles 1.5–2.2 mm. Fl. Jun–Aug. 2n = 26.

Alpine rock crevices; 4200–4500 m. S Qinghai [Nangqên Xian, Zadoi Xian], NW Yunnan (Dêqên Xian, Zhongdian Xian).


Plants many branched, 3.5–6 cm tall, with crowded shoots forming cushions. Flowering stem 1.5–3.4 cm, densely dark brown glandular hairy. Shoot leaves aggregated into a rosette, subspatulate to suboblong, 3.3–5 × 1.1–2 mm, leathery, both surfaces glabrous, chalk glands 3–7, margin cartilaginous ciliate proximally, apex rather recurved, obtuse. Cauline leaves 4–6, linear to subspatulate, abaxially convex, adaxially subconcave, 4.5–5 × 0.9–2 mm, leathery, abaxially glandular hairy, axially glabrous, chalk glands 3–5, margin glandular hairy, apex obtuse, glabrous. Cyme corymbose, 3- or 4-flowered; pedicels glandular hairy. Sepals erect, subovate, 2–2.8 × 1.2–2 mm, leathery, abaxially and marginally dark brown glandular hairy, chalk glands 1–3, veins 3, confluent or not at apex, apex obtuse. Petals pink or purple, spatulate to narrowly obovate, 3–5.1 × 1.3–3 mm, 3–5-veined, base usually gradually narrowed into a claw, apex obtuse. Stamens ca. 5 mm. Ovary semi-inferior, broadly ovoid, 2–3 mm; styles 1–2.8 mm. Fl. May–Aug.

Alpine meadows, rock crevices; 4100–4700 m. S Xizang [Bhutan, Nepal, Sikkim].

The specific epithet was spelled “Anderssonii” in the protologue, although the type specimen was cited as “T. Andersson 596.” The correct spelling of the collector’s name is “Anderson,” so “Anderssonii” should be treated as a typographical error.


Plants many branched, 2.5–9 cm tall, with crowded shoots forming cushions. Flowering stem 2–3 mm, abaxially and marginally glandular hairy, apex acute; pedicels nearly absent. Sepals erect, ovate to broadly so, 1.5–3 × 1–2 mm, abaxially and marginally glandular hairy, veins 3, partly or fully confluent at apex, apex obtuse, glabrous. Petals white or pink, ovate to broadly so, 1.3–5 × 1.2–3.2 mm, 3–5-veined, base contracted into a claw 0.6–1.6 mm, apex obtuse. Stamens 3–3.8 mm. Ovary semi-inferior, with an annular nectary disc; styles 0.2–2.4 mm. Fl. Jun–Aug. 2n = 26.

Alpine meadows, rock crevices; 4100–4700 m. S Xizang [Bhutan, Nepal, Sikkim].

The Chinese plants identified in FRPS as the NW Himalayan Saxifraga meeboldii Engler & Irmscher evidently belong to Saxifraga decorum. The description in FRPS states that the petals are “pink or purple,” but in true Saxifraga meeboldii they are yellow. It appears that the description applies to one or both of the synonyms that were listed under Saxifraga decorum, namely Saxifraga meeboldii and Saxifraga lamarum. Although most of the characters distinguishing the latter two taxa are encompassed by the description in FRPS, the glandular hairy sepal surface clearly points to Saxifraga meeboldii (S. lamarum has sepals abaxially glabrous). Therefore, the present authors have provisionally taken Saxifraga decorum to be the species intended in FRPS under Saxifraga meeboldii. It remains to be seen whether Saxifraga lamarum is synonymous.

plants many branched, 1.5–2 cm tall, with crowded shoots forming cushions. flowering stem ca. 4 mm, embedded among rosette leaves and not visible, glandular hairy. shoot leaves subimbricate, aggregated into a rosette, narrowly obovate, abaxially convex, adaxially concave, 6.5–7 × 2.3–2.6 mm, both surfaces glabrous, chalk glands 3, margin glandular ciliate proximally, apex truncate. cauline leaves narrowly subobovate, abaxially subconvex, adaxially subconcave, ca. 5 × 1.8 mm, abaxially glandular hairy proximally, adaxially glabrous, chalk glands 3, margin cartilaginous glandular ciliate, apex subacute, glabrous. cyme usually 3-flowered; bracts tightly appressed to hypanthium, linear, chalk gland 1; pedicels nearly absent. sepals erect, broadly ovate, 1.8–2 × ca. 1.5 mm, both surfaces glabrous, veins 3, not confluent at apex, margin cartilaginous glandular ciliate, apex obtuse, glabrous. petals white, broadly obovate to orbicular, 4–4.2 × 3–3.6 mm, 5–7-veined, base with a claw 0.5–0.9 mm, apex obtuse. stamens ca. 2.5 mm. ovary semi-inferior; styles ca. 2 mm. fl. jun–aug.

cushion vegetation, cliffs, rocks; 4700–5000 m. s xizang (dinggyê xian) [bhutan, sikkim].

201. saxifraga pulchra engler & irmscher, notes roy. bot. gard. edinburgh 5: 146. 1912.

美丽虎耳草 mei li hu er cao

chondrosea pulchra (engler & irmscher) losinskaja. plants many branched, ca. 3.9 cm tall, with shoots forming cushions. flowering stem 1.5–3.5 cm, dark brown glandular hairy. shoot leaves aggregated into a rosette, ovate-oblung, 5.5–7 × ca. 2.5 mm, leathery, both surfaces glabrous, chalk glands 7–11, margin setose-ciliate proximally, apex rather recurved, acute. cauline leaves subspatulate, ca. 5.7 × 1 mm, leathery, abaxially and marginally brown glandular hairy proximally, chalk glands 5–8, apex acute. cyme compact, ca. 6-flowered; bracts oblong, ca. 4.4 × 1.4 mm, leathery, abaxially and marginally brown glandular hairy proximally, chalk gland 1, apex acute; pedicels ca. 1 mm, sparsely glandular hairy. sepals erect, ovate to subelliptic, 2.4–3 × 1.5–2 mm, abaxially sparsely glandular hairy proximally, veins 3–5, not confluent at apex, margin usually glabrous, rarely sparsely glandular ciliate, apex obtuse or acute. petals pink or purple, narrowly obovate, 4–5 × 2–2.7 mm, 3-veined, base contracted into a claw ca. 1.5 mm, apex obtuse. stamens 3–4.3 mm. ovary semi-inferior; styles 5–7 mm. fl. and fr. apr–sep.

lives forests, scrub, rock crevices; 2500–4600 m. w sichuan (daocheng xian), xizang, nw yunnan (lijiang xavi zu zizhixian, zhongdian xian).


岩生虎耳草 yan sheng hu er cao

plants many branched, to 2 cm tall, with shoots forming cushions. flowering stem ca. 1 cm, glandular pilose. shoot leaves subobovate, ca. 4 × 2 mm, thickened distally, both surfaces glabrous, chalk glands 5–7, margin densely shortly ciliate proximally, apex not or rather recurved, subobtuse. flower solitary; hypanthium glandular pilose. sepals broadly subovate, ca. 1.8 mm, abaxially and marginally densely glandular pilose, usually with chalk glands, veins 3, not confluent at apex, apex thickened, glabrous. petals white, broadly obovate, ca. 6 × 4.2 mm, ca. 6-veined, base gradually narrowed into a claw ca. 1.5 mm. stamens 3–3.5 mm. carpels connate proximally; ovary subsuperior; styles ca. 1.5 mm. fl. jul–aug.

• alpine scrub, rock crevices; 4300–4800 m. e and s xizang (baxoi xian, gongbo’gyamda xian).


红瓣虎耳草 hong ban hu er cao

plants many branched, 3–4 cm tall, with crowded shoots forming cushions. flowering stem ca. 1.1 cm, overtopping rosette leaves, glandular hairy. shoot leaves aggregated into a rosette, lanceolate-oblung, abaxially convex, adaxially concave, ca. 5.5 × 1.6 mm, leathery, both surfaces glabrous, chalk glands 3, margin denticulate-ciliate, apex recurved, acute, glabrous. cauline leaves ensiform, ca. 5 × 1 mm, glandular hairy, chalk gland 1, apex subacute, glabrous. flower solitary; pedicel ca. 2 mm, purple-black glandular hairy. sepals erect, subovate, ca. 4 × 2–2.6 mm, abaxially and marginally glandular hairy, veins 4, not confluent at apex, apex obtuse. petals purple, obovate, ca. 9 × 5 mm, ca. 7-veined, base gradually narrowed into a short claw, apex obtuse. stamens ca. 6.2 mm. ovary semi-inferior; styles ca. 5 mm. fl. jul–aug.

• alpine scrub, rock crevices; 4300–4800 m. e and s xizang (baxoi xian, gongbo’gyamda xian).


岩生虎耳草 yan sheng hu er cao

plants many branched, with shoots forming cushions. flowering stem ca. 1.5 cm, white eglandular hairy throughout, with 4 or 5 leaves. shoot leaves linear, ca. 4 × 1.5 mm, distally leathery, chalk glands 5–7, margin denticulate-ciliate proximally, apex ± recurved, subobtuse. cauline leaves linear, 5–6 mm, distally leathery, eglandular hairy abaxially and at proximal margin, chalk gland 1. flower solitary; pedicel and hypanthium long eglandular hairy. sepals subsquare, ca. 3 × 2.5 mm, abaxially glabrous, veins 3–5, not confluent at apex, margin eglandular ciliate. petals white, obovate-spatulate, ca. 9 × 6 mm, base tapered into a claw ca. 2 mm. carpels connate only at base; ovary superior; styles ca. 6 mm. fl. jun.

• calcareous rocks; ca. 2800 m. sichuan.

丽江虎耳草 *li jiang hu er cao*

*Chondrosea lijiangensis* (Franchet) Losinskaja;

*Chondrosea calcicola* J. Anthony; *S. mundula* H. Smith.

Plants many branched, 1.5–4.5 cm tall, with shoots forming cushions. Flowering stem initially embedded among rosette leaves and rarely visible, elongated after anthesis and in fruit and then ca. 1.1 cm taller than rosette leaves, glandular hairy. Shoot leaves subimbricate, aggregated into a rosette; leaf blade subobpandurate-oblong to narrowly ovate or narrowly obovate, abaxially convex, adaxially concave, 3–5.6 × 1–2.1 mm, leathery, both surfaces glabrous, chalk glands 3, margin ± setose-ciliate, apex ± recurved, acute or mucronate. Cauline leaves 4–8, spatulate- or oblanceolate-oblong to oblong, abaxially convex, adaxially subconcave, 3.3–5.3 × 1–1.5 mm, leathery, abaxially ± glandular hairy, adaxially glabrous, chalk glands (1 or)3, margin glandular ciliate, apex ± recurved, obtuse or acute. Flower solitary; pedicel initially nearly absent, then elongated, to 2 mm, glandular hairy; bracts oblong to spatulate-oblong, 3–4 × ca. 1 mm, leathery, glandular hairy abaxially proximally and at margin, glabrous adaxially, chalk gland 1, apex acute, glabrous. Sepals erect, ovate to broadly so, 2.1–4 × 1.5–2.8 mm, leathery, abaxially and marginally glandular hairy, adaxially glabrous, chalk glands (1 or)3, veins 3–7, not, partly, or fully confluent at apex, apex usually obtuse, rarely mucronate, glabrous. Petals usually white, rarely yellowish, obovate or broadly so or elliptic to orbicular, 3.3–9 × 2.3–5 mm, 5–9-veined, base gradually narrowed into a claw 0.9–2 mm, apex obtuse. Stamens 1.1–6.2 mm. Carpels 2–6.3 mm; ovary semi-inferior, with an annular nectary disc; styles 1–2 mm. Fl. and fr. May–Sep.

Forests, scrub, alpine rock crevices; 3000–5600 m. S Qinghai (Nangqên Xian), C Sichuan (Baoxing Xian), E and S Xizang, NW Yunnan [Bhutan, Myanmar].

A very broad view of *Saxifraga lijiangensis* has been adopted in the present account.


单窝虎耳草 *dan wo hu er cao*

*Saxifraga lolaensis* H. Smith; *S. matta-florida* H. Smith.

Plants many branched, 2.5–4 cm tall, with crowded shoots forming cushions. Flowering stem embedded among rosette leaves and not visible, ca. 1 mm, glabrous. Shoot leaves aggregated into a rosette, ovate, elliptic, or narrowly obovate to subspatulate, abaxially convex, adaxially subconcave, 3–6 × 1–2.5 mm, subleathery, both surfaces glabrous, chalk gland 1, margin ciliate, glandular ciliate on distal leaves, apex obtuse or acute, glabrous. Cauline leaf usually 1, embedded among rosette leaves, suboblong, 3–3.3 × ca. 1 mm, both surfaces glabrous, chalk gland 1, margin glandular ciliate, apex obtuse, glabrous. Flower solitary, sessile; bracts 2, tightly appressed to hypanthium,
narrowly ovate, ca. 3.5 × 1.6 mm, subleathery, both surfaces glabrous, chalk gland 1, margin glandular ciliate, apex acute, glabrous. Sepals erect or spreading-erect, ovate to broadly so, 1.5–2.5 × 1.3–2.3 mm, both surfaces glabrous, chalk gland 1, veins 3 or 4, confluent or not at apex, margin glandular ciliate, apex obtuse, glabrous. Petals white, obovate, 3–5 × 1.9–4.5 mm, 3–6-veined, base gradually narrowed into a claw ca. 0.7 mm, apex obtuse. Stamens 2–2.3 mm. Ovary semi-inferior; styles short, thick. Fl. Jun–Aug. 2n = 26.

Alpine meadows, rock crevices; 3900–4800 m. W Sichuan ( Dao-cheng Xian), Xinjiang (Kunlun Shan, Taxkorgan Tajik Zizhixian), S Xizang (Cona Xian, Lhünzê Xian, Mêdog Xian), NW Yunnan (Zhongdian Xian) [Bhutan, Sikkim].

A broad view of the limits of Saxifraga subsessiliflora has been adopted in the present account. While S. lolaensis and S. matta-florida are undoubtedly very closely related to each other and could be regarded as variants of a single species, one of the present authors (Gornall) would like to point out that they differ from S. subsessiliflora in having a triquetrous (vs. flat) leaf apex in which the chalk gland is sunken (vs. submarginal).


垫状虎耳草 dian zhuang hu er cao


Plants many branched, 4.5–6 cm tall, with crowded shoots forming cushions. Flowering stem embedded among rosette leaves and not visible, 1.4–1.9 mm, glabrous. Shoot leaves imbricate, aggregated into a rosette, narrowly elliptic, ca. 3.3 × 1.4 mm, leathery, both surfaces glabrous, chalk gland 1, margin cartilaginous ciliate, apex acute, glabrous. Cauline leaves 3 or 4, linear-oblong, 3.5–4 × 0.8–1 mm, both surfaces glabrous, chalk gland 1, margin cartilaginous ciliate, apex acute, glabrous. Flower solitary; bract suboblong, ca. 2.8 × 0.9 mm, both surfaces glabrous, margin glandular ciliate, apex acute; pedicel ca. 0.3 mm. Sepals erect, subtriangular-ovate to broadly ovate, 1.6–2 × ca. 1.4 mm, leathery, both surfaces glabrous, veins 3, confluent at apex, margin glandular ciliate, apex obtuse or acute, glabrous. Petals white, obovate or oblanceolate to obleng, 3.5–5.3 × (1.5–)2–3 mm, 5- or 6-veined, base gradually narrowed into a claw, apex retuse or obtuse. Stamens ca. 2.2 mm. Ovary subinferior, ca. 2 mm, with an annular nectary disc; styles ca. 1.5 mm. Fl. Jun–Jul.

Rock crevices; 3900–5200 m. SW Xinjiang (Taxkorgan Tajik Zizhixian), SW Xizang (Burang Xian), NW Yunnan (Gongshan Drung-Nu Zu Zizhixian, Zhongdian Xian) [Bhutan, India, Kashmir, Nepal, Sikkim].


挪威虎耳草 nüo wei hu er cao

Antaphylla asiatica (Hayek) Losinskaja; A. oppositifolia (Linnaeus) Fourreau; Saxifraga asiatica Hayek; S. oppositifolia subsp. asiatica (Hayek) Engler & Irmscher.

Plants many branched, ca. 6 cm tall, with shoots forming mats or cushions. Flowering stem brown pilose. Shoot leaves decussate, imbricate, aggregated into a rosette, gemmiferous at leaf axils, subovobovate, 3.5–4 × 1.6–2.3 mm, subleathery, both surfaces glabrous, chalk gland 1, margin pilose, apex obtuse. Cauline leaves opposite, remote, subovobovate, 4.2–4.5 × 2.6–2.9 mm, subleathery, both surfaces glabrous, chalk gland 1, margin pilose, apex obtuse. Flower solitary; pedicel ca. 3 mm, brown pilose. Sepals erect, ovate to elliptic-ovate, ca. 5 × 3 mm, leathery, both surfaces glabrous, veins 6 or 7, partly or fully confluent at apex, margin pilose, apex obtuse. Petals purple, narrowly obovobovate-spulate, ca. 1.2 × 0.5 cm, ca. 7-veined, base gradually narrowed into a claw ca. 3.5 mm, apex retuse. Stamens ca. 7 mm. Ovary subellipsoid, ca. 2.7 mm, with an obscure nectary disc; styles ca. 6.5 mm. Fl. Jul–Aug. 2n = 26, 52.

Alpine rock crevices, cliff ledges; 3900–5600 m. Xinjiang (Kunlun Shan, Taxkorgan Tajik Zizhixian, Tomar), W Xizang [Kashmir, Mongolia, Russia; Europe, North America].


对生叶虎耳草 dui sheng ye hu er cao

Plants many branched, cespitose, with crowded shoots forming cushions. Shoot leaves opposite; leaf blade ovate, ca. 3 × 2 mm, rather thick, glabrous, chalk gland 1, apex subacute. Flower solitary, sessile. Sepals erect, broadly ovate, ca. 2 × 2 mm, abaxially and marginally glandular pilose, chalk gland 1, veins 3, confluent at apex, apex subobtuse, glabrous. Petals white, obovate, ca. 5 × 3 mm, 3–5-veined, base contracted into a claw, apex obtuse. Stamens longer than sepals. Ovary ovoid; styles rather long. Fl. Jul–Aug.

Rock crevices on cliffs; 3600–4100 m. SW Sichuan (Muli Zang Zu Zizhixian), SE Xizang, NW Yunnan (Zhongdian Xian) [Bhutan, Nepal, Sikkim].


对轮叶虎耳草 dui lun ye hu er cao

Plants many branched, dwarfish, densely cespitose. Shoots to 12 cm. Flowering stem ca. 3 mm, glandular pilose. Shoot leaves in opposite pairs with bases connate-perfoliate on slender shoots, 3-verticillate with bases partly connate-perfoliate on thick shoots, imbricate, subelliptic, 3–4 × 1.5–2 mm, both surfaces glabrous, chalk glands 3–7, margin cartilaginous denticate-ciliate proximally, apex usually recurved,
Saxifraga humilis Engler & Irmscher.


Plants many branched, 2–7 cm tall, with shoots sparsely cespitose. Flowering stem slender, to 1.5 cm, glandular pilose. Shoot leaves opposite, imbricate, obovate-elliptic, 5 × 2.5–3.7 mm, glabrous, chalk glands 3–7, bases connate-perfoliate, apex subobtuse or acute. Cauline leaves 4, opposite, linear, 2.2–3 mm, glandular pilose abaxially proximally and at margin, chalk gland 1, bases free, apex obtuse. Flower solitary, 4-merous; hypanthium glandular pubescent. Sepals broadly ovate, ca. 2 × 2.2–2.6 mm, abaxially and marginally glandular hairy, veins 3, confluent into a verruca at apex or not, apex obtuse, glabrous. Petals white, obovate, ca. 6.5 × 4–4.5 mm, ca. 11-veined, base gradually narrowed into an indistinct claw, apex obtuse. Carpels connate proximally; ovary semi-inferior; styles ca. 3 mm. Fl. May–Aug.

• Damp rock crevices; ca. 3900 m. S Xizang (Nang Xian).


Plants many branched, 1–1.5 cm tall, with numerous, crowded shoots forming cushions. Flowers stem scapose, 5–6 mm, glandular pubescent. Rosette leaves imbricate, subpatulate-oblong, 3–4 × 0.9–1 mm, leathery, glabrous, chalk gland 1, obscure, vein 1, apex ± reflexed, thickened. Flower solitary. Sepals erect, then spreading to reflexed, subelliptic to ovate, 1.4–1.5 cm × 1 mm, subleathery, glabrous, veins 3, confluent into a verruca at apex, apex obtuse. Petals (if present) white, elliptic, ca. 2.5 × 1.4 mm, 3-veined, base contracted into a claw ca. 0.4 mm, apex obtuse. Stamens ca. 2.8 mm. Ovary subsuperior, ovoid, ca. 1.2 mm; styles erect, ca. 0.7 mm. Fl. Jul–Aug.

• Lake shores, alpine rock crevices; 4200–4900 m. Gansu, S Qinghai (Maqên Xian, Yushu Xian), W Sichuan (Daocheng Xian).
sometimes gemmiferous in leaf axil, apex acute. Flower solitary or cyme 2-flowered; bracts oblong, 3–6.5 × 0.7–2.4 mm, abaxially and marginally glandular pilose, apex acute; pedicels initially 1.3–2 mm, elongating to 1.2 cm in fruit, glandular pubescent. Sepals erect, ovate or broadly so to subelliptic, 1.5–2.7 × 1–2 mm, abaxially and marginally glandular hairy, veins 3, not, partly, or fully confluent at apex, apex obtuse. Petals white, broadly to narrowly obovate to subelliptic, 3–5.6 × 1–3.4 mm, not callose, 3–6-veined, base clawless, apex obtuse. Stamens 1.5–3 mm. Ovary subinferior, 2–2.2 mm; styles 1.1–1.5 mm. Fl. and fr. Jun–Sep. Alpine scrub meadows, rock crevices; 3800–4700 m. Sichuan, Xizang, NW Yunnan [Bhutan, Nepal, Sikkim].