5. Tribe CICHORIEAE

Annual to perennial, acaulescent, scapose, or acaulescent herbs, more rarely subshrubs, exceptionally scandent vines, latex present. Leaves alternate, frequently rosulate. Capitulum solitary or capitula loosely to more densely aggregated, sometimes forming a secondary capitulum, ligulate, homogamous, with 3–5 to ca. 300 but mostly with a few dozen bisexual florets. Receptacle naked, or more rarely with scales or bristles. Involucre cylindric to campanulate, ± differentiated into a few imbricate outer series of phyllaries and a longer inner series, rarely uniseriate. Florets with 5-toothed ligule, pale yellow to deep orange-yellow, or of some shade of blue, including whitish or purple, rarely white; anthers basally calcareous and caudate, apical appendage elongate, smooth, filaments smooth; style slender, with long, slender branches, sweeping hairs on shaft and branches; pollen echinolophate or echinate. Achene cylindric, or fusiform to slenderly oboconoid, usually ribbed, sometimes compressed or flattened, apically truncate, attenuate, cuspidate, or beaked, often sculptured, mostly glabrous, sometimes papillose or hairy, rarely villous, sometimes heteromorphic; pappus of scabrid [to barbellate] or plumose bristles, rarely of scales or absent.

About 95 genera and ca. 2,500 species (and at least 8,000 apomictic and hybrid taxa): chiefly in the temperate to subtropical zones of the N Hemisphere, and extending to tropical and S Africa, tropical Asia, Australia and New Zealand, and South America, also on SE Pacific and mid-Atlantic archipelagos; 35 genera (two endemic, one introduced) and 388 species (190 endemic, 12 introduced) in China.

1a. Pappus absent in all or in outer achenes, or in all achenes present but of minute (≤ 0.3 mm) scales or very short (≤ 1.5 mm) bristles.

2a. Pappus a tiny crown of fimbriate 0.1–0.3 mm scales; florets blue ................................................................. 83. Cichorium

2b. Pappus absent in all or in outer achenes, or of very short (≤ 1.5 mm) bristles; florets yellow.

3a. Achene dimorphic, outer achenes apically attenuate or shortly beaked, inner ones with a long slender beak strongly exceeding involucre; pappus in all or in inner achenes present.

4a. Outer achenes columnar, curved, with appressed hairs, apically attenuate; pappus of smooth to scabrid 0.2–1.5 mm bristles, shorter in outer, longer in inner achenes; inner phyllaries hardened in fruit .................... 70. Garhadiolus

4b. Outer achenes broadly obconical, compressed, lateral ribs strongly winglike and enlarged, shortly beaked; pappus absent in outer achenes, mostly present and of 3–5 mm bristles in inner ones; inner phyllaries not hardened in fruit ................................................................. 69. Heteracia

3b. Achene homomorphic, never beaked; pappus in all achenes absent.

5a. Achene body columnar-scorpionoid, ca. 1 cm, abaxially with antorse and apically with retrorse rigid hooked needlelike spines; leaves undivided, narrowly grasslike .................................................. 53. Koelpinia

5b. Achene body narrowly ellipsoid, subcompressed, to ca. 5 mm, with 0 or (1 or)2–4 main ribs apically prolonged into 0.2–2.2 mm slender hooked appendages; leaves pinnatifid or pinnatifid .................. 67. Lapsanastrum

1b. Pappus well developed in all achenes, of soft or stiff bristles, usually more than 1/2 as long as achene.

6a. Pappus bristles all or at least inner ones plumose but often apically scabrid.

7a. Plumose bristles stiffly fimbriately plumose, fimbriae not intertwining; florets yellow or white; leaves never grasslike.

8a. Receptacle with linear scarious scales ± as long as involucre and enclosing base of florets; stem, leaves, and involucre with rigid simple hairs ............................................................... 81. Hypochaeris

8b. Receptacle naked; stem, leaves, and involucres with simple and 2-hooked hairs ............................................... 82. Picris

7b. Plumose bristles softly or lanately fimbriately plumose, fimbriae conspicuously intertwining; florets of some shade of yellow, white, blue, or purple; leaves often grasslike.

9a. Phyllaries in 1(or 2) series, outer series if present never leaflike ................................................................. 55. Tragopogon

9b. Phyllaries in several series, or in 2 series but then outer series leaflike and longer than inner series.

10a. Phyllaries in 2 series, outer phyllaries herbaceous, leaflike, usually longer than inner phyllaries, inner usually 5 ................................................................. 54. Epilasia

10b. Phyllaries in several series, outer phyllaries never leaflike and longer than inner ones.

11a. Leaves undivided, parallel-veined, grasslike or more rarely also lanceolate to ovate ......................... 51. Scorzonera

11b. Leaves pinnately divided ................................................................. 52. Podospermum

6b. Pappus bristles never plumose, all smooth to scabrid.

12a. Pappus white, of numerous fine cottony outer bristles intermixed with some thicker inner ones .................. 63. Sonchus

12b. Pappus white or grayish, yellowish, straw-colored, brownish, or reddish brown, of bristles ≤ equal in diam. and stiffness.

13a. Leaves, axes, or involucres with various types of hairs, but including stellate hairs and/or multiserial hairs with projecting cell apices.

14a. Achene 2.5–5 mm, with 8–10 equal ribs apically confluent in an obscure ring .............................................. 84. Hieracium
14b. Achene 1–2 mm, with apically distinct ribs not confluent in an obscure ring .................................................. 85. *Pilosella*

13b. Leaves, axes, or involucres glabrous or hairy, but never with stellate hairs or multi-seriate hairs with projecting cell apices.

15a. Capitulum solitary on a hollow scape (without nodes, leaves, or bracts) single or few from a leaf rosette; achene beak usually longer than achene body, body at least apically mostly spinulose, scaly, and/or tuberculate and usually with an apical cone ................................................................. 71. *Taraxacum*

15b. Capitula usually few to numerous, either fascicled or aggregated amid a leaf rosette, or on a branched stem; if capitulum rarely solitary then not on a hollow scape and achene not as above.

16a. Rosulate herbs with several to many capitula either on short, wiry unbranched axes (peduncles) directly from and fasciculate amid leaf rosette, or sessile to very shortly pedunculate and densely aggregated on an apically ± inflated, flat, convex, or more rarely cylindrically elongate rosette shoot.

17a. Capitula with 3–6 florets, sessile or on peduncle shorter than involucre; phyllaries in 1 series, hardened in fruit, outer phyllaries absent, inner ones connate in basal part.

18a. Florets yellow or pale to medium purplish; achene obconical, compressed, with 5 ribs, apex truncate; pappus bristles caducous ................................................................. 77. *Syncalathium*

18b. Florets purplish red to blue; achene obovoid, compressed, with winglike lateral ribs and

1 slender rib on either side, apex constricted into a ca. 0.5 mm fragile thin beak; pappus caducous with pappus disk (*M. souliei*) ................................................................. 58. *Melanoseris*

17b. Capitula with 4–30 florets, peduncle shorter than or longer than involucre; phyllaries in more than 1 series, herbaceous in fruit, outer phyllaries 2 or more, inner ones basally connate or free.

19a. Florets blue to bluish purple (*D. amoena* and *D. gombalana*) .................................................. 76. *Dubyaea*

19b. Florets yellow or rarely white.

20a. Capitula with 4 or 5 florets, with a peduncle shorter than to ± as along as involucre and from

an apically ± inflated, flat, convex, or more rarely cylindrically elongate rosette shoot

(*Soroseris* spp. 3–7) ................................................................. 80. *Soroseris*

20b. Capitula with 12–30 florets, with a peduncle usually longer than involucre, from a non-inflated rosette shoot.

21a. Synflorescence hemispheric, of many densely crowded capitula surrounded by a rosette of orbicular to ovate leaves abruptly contracted into an unwinged petiole-like basal portion; florets yellow or white (*Soroseris* spp. 1 and 2) ................................................................. 80. *Soroseris*

21b. Synflorescence loosely corymbiform with few to several capitula amid a rosette of ± spatulate leaves very gradually attenuate toward base; florets yellow ........................................... 66. *Youngia*

16b. Capitula few to numerous on a branched stem a few cm to more than 2 m tall; rarely capitulum solitary on an unbranched stem.

22a. Achene isodiametric and with ribs of ± equal shape and size; pappus white, rarely pale yellowish.

23a. Achene with 10 very prominent ± winglike ribs ................................................................. 74. *Iceris*

23b. Achene with 10–20 ± prominent but never winglike ribs.

24a. Plants delicate; involucre narrowly cylindric, longest outer phyllary ≤ 1/4(–1/3) of inner ones, inner phyllaries abaxially glabrous; capitula with 5–15 florets; achene pale brown, with 10 ribs ..... 72. *Askellia*

24b. Plants usually robust; involucre cylindric to campanulate, longest outer phyllary 1/4–2/3

or more of inner ones, inner phyllaries abaxially usually with simple and/or glandular hairs along midvein; capitula with (8–)20–70 (and more) florets; achene of some shade of brown, with 10–20 ribs ................................................................. 65. *Crepis*

22b. Achene (sometimes except inner ones) somewhat to distinctly compressed and/or with ± unequal ribs; pappus white, yellowish, or brownish.

25a. Pappus yellowish, straw-colored, brownish, or grayish and achene never strongly compressed with dominant lateral ribs and/or with capillaceous beak.

26a. Florets reddish to bluish purple, or blue.

27a. Involucre broadly campanulate; capitula with many (usually 50–70) florets; stem in upper half and peduncles often with long stiff blackish hairs .................................................. 76. *Dubyaea*

27b. Involucre narrowly cylindric to narrowly campanulate; capitula with 5–30 florets; stem in upper half and peduncles glabrous ................................................................. 56. *Faberia*

26b. Florets yellow, or rarely whitish to pale purplish or pale greenish.

28a. Involucre 4.5–8 mm; capitula erect.

29a. Achene with short slender beak; pappus yellowish to yellowish brown ........................................... 73. *Ixeridium*

29b. Achene apically attenuate but not beaked; pappus ash-gray or yellowish brown ........................................... 66. *Youngia*

28b. Involucre 10–20 mm; capitula often nodding at anthesis.

30a. Synflorescence secundly racemiform (*Y. racemifera*) .................................................. 66. *Youngia*

30b. Synflorescence corymbiform or paniculiform, or capitula 1 or 2.
31a. Stem, branches, and phyllaries with conspicuous stiff yellowish brown, reddish, purplish brown, or blackish mostly glandular hairs, or glabrous and stem with 1 or 2 nodding capitula only ......................................................................................... 76. Dubyaea

31b. Stem, branches, and phyllaries glabrous and stem with some to many capitula, or ± hairy but never with conspicuous stiff mostly glandular hairs.

32a. Leaves grasslike .................................................................................................................................................. 78. Hololeion

32b. Leaves pinnately lobed or, if undivided, ovate to triangular-ovate .................................................................. 79. Nabalus

25b. Pappus white, exceptionally faintly yellowish or brownish but then achene strongly compressed with dominant lateral ribs and/or with capillaceous beak.

33a. Plants broomlike and/or achene with body apically scaly and/or tuberculate and beaked (sometimes very shortly) .............................................................................................................. 64. Chondrilla

33b. Plants never broomlike, achene beaked or not but body never scaly or tuberculate.

34a. One of following features applies: 1) achene ± compressed with ± dominating or broadened lateral ribs; 2) pappus double and additionally with an outer series of minute hairs (usually ≤ 0.3 mm); 3) florets purplish, bluish, or exceptionally white.

35a. Achene black or reddish-purplish (if rarely pale then plant scandent), fusiform to cylindric, without dominating lateral ribs, and apex truncate, attenuate, or shortly (ca. 1 mm) beaked; florets some shade of purple or blue; pappus simple; involucre narrowly cylindric.

35b. Achene pale to dark brown, more rarely blackish or reddish brown, gray, or olive green, subcylindric, ± ellipsoid to obovoid, or ± fusiform, usually with, rarely without, dominating or broadened (sometimes winglike) lateral ribs and apex truncate to long filiform beaked; florets simple or double; florets yellow, bluish, or purplish, rarely white; involucre narrowly cylindric, cylindric, campanulate, or broadly campanulate.

36a. Achene black, fusiform, weakly compressed, apex attenuate to shortly beaked and often pale ........................................................................................................................................... 59. Paraprenanthes

36b. Achene reddish-purplish (rarely pale and plant scandent), fusiform to cylindric, compressed, apex truncate ............................................................................................................. 60. Notoseris

37a. Achene pale to dark brown, more rarely blackish or reddish brown, gray, or olive green, subcylindric, ± ellipsoid to obovoid, or ± fusiform, usually with, rarely without, dominating or broadened (sometimes winglike) lateral ribs and apex truncate to long filiform beaked; florets simple or double; florets yellow, bluish, or purplish, rarely white; involucre narrowly cylindric, cylindric, campanulate, or broadly campanulate.

37b. Achene ± strongly compressed, ellipsoid to obovoid, dominating lateral ribs sometimes even winglike, apex with a short stout or with a long filiform beak; pappus always simple; involucre narrowly cylindric at anthesis, inner phyllaries 5 or 8, or if 3 or 4 then plant a subshrub with whitish, rigid, intricately and divaricately branched stems; stems and branches usually glabrous, at least in upper half; capitula always erect; florets mostly some shade of blue or purple, exceptionally white, very rarely yellow.

38a. Involucre with 5–10 inner phyllaries, 6–10(–12) mm and narrowly cylindric, or cylindric, 11–13 mm, and with longest outer phyllary 1/2–3/4 of inner ones, or to 15 mm, broadly cylindric to campanulate, and herb tall with many-capitellate narrowly racemiform synflorescence to 50 cm; florets always bluish or purplish; achene 4–5 mm .............................................................................................................. 57. Cicerbita

38b. Involucre broadly cylindric to broadly campanulate, mostly exceeding 15 mm and never with many-capitellate narrowly racemiform synflorescence to 50 cm, or rarely narrowly cylindric but then with either only 3 or 4 inner phyllaries, or > 13 mm, or strongly hirsute, or florets yellow, or achene ≥ 6 mm, or, if rather cylindric, longest outer phyllary to ca. 1/2 of inner ones .................................................................................................................................. 58. Melanoseris

39a. Achene ± truncate (at least before shedding of pappus disk if pappus disk caducous).

40a. Longest outer phyllary ≤ 1/3 of inner ones; stem stiff erect; synflorescence narrowly racemiform or paniculiform; pappus caducous (without pappus disk) .......................................................................................... 75. Sonchella

40b. Longest outer phyllary 1/2–3/4 of inner ones; stem weak and procumbent to ascending, or long creeping, or if stiff erect then hardened and densely divaricately and intricately branched; synflorescence corymbose to divaricately paniculiform, or capitulum solitary; pappus persistent or caducous together with pappus disk .......................................................................................................................... 62. Launaea
39b. Achene apex distinctly attenuate to beaked.
41a. Stem leaves well developed and at least upper ones conspicuously clasping stem, or plant stoloniferous (*Crepidiastrum* spp. 1–6) ................................................................. 68. *Crepidiastrum*

41b. Stem leaves absent or present but not clasping stem and plant not stoloniferous.
42a. Stems herbaceous to hardened, several to numerous, more rarely only 1, erect, with some to many heads, from a stout woody caudex and plant often caespitose; basal leaves and stem leaves (if present) pinnate to bipinnate with linear, lanceolate, or filiform lobes; involucre 8–12 mm, most phyllaries subapically crested or corniculate (*Crepidiastrum* spp. 7–9) ................................................................. 68. *Crepidiastrum*

42b. Stems usually 1 or 2, of various kind, either from an inconspicuous caudex and plant never caespitose, or plants annual; involucre ≤ 7 mm and phyllaries subapically all strictly plane, or involucre to 13 mm and either some phyllaries crested or corniculate but then leaves never pinnate with linear, lanceolate, or filiform lobes, or all strictly plane.
43a. Involucre narrowly cylindric, 7–8 mm, all phyllaries subapically plane; perennial rosetulate herbs, stem solitary; either stem, branches, and phyllaries white echinulate, or rosette leaves with a pentagonal or triangular lamina and a petiole as long as or longer than lamina (*Ixeridium* spp. 7 and 8) ................................................................. 73. *Ixeridium*

43b. Involucre 4–13 mm, phyllaries all subapically plane or some crested or corniculate; annual herbs, or if perennial herbs and rosetulate then stem, branches, and phyllaries never white echinulate and leaves never as above ................................................................. 66. *Youngia*


*Lasiospora* Cassini; *Takhtajaniantha* E. A. Nazarova.

*Lasiospora* Cassini; *Takhtajaniantha* E. A. Nazarova.

**Herbs**, perennial [or annual], rarely subshrubs, often with woody caudex and rosetulate. Leaves usually linear to linear-elliptic or lanceolate, more rarely also ovate, with parallel veins, not divided, base with semiamplexicaul usually persistent sheath, base with semiamplexicaul usually persistent sheath, margin entire, flat, or sometimes undulate. Involucre cylindric to campanulate, usually very conspicuously prolonged toward fruiting. Phyllaries in few to several series, imbricate, often (especially inner phyllaries) with scarious margin; longest outer phyllaries usually to more than 1/2 as long as and often ± approaching inner phyllaries in length; inner phyllaries lanceolate to linear-lanceolate. Receptacle naked. Florets yellow (and often pinkish on drying) or rarely orange or pale purple, 1.1–2 × as long as involucre. Achene ± cylindric to columnar, with numerous smooth or tuberculate longitudinal ribs, glabrous, puberulent, or villous along entire length or apically only, apex truncate or more rarely attenuate. Pappus of strong bristles, persistent or caducous, a few often distinctly longer than remainder; bristles softly fimbriately plumose for most of length and apically scabrid.

About 180 species: N Africa, Asia, Europe; 24 species (four endemic) in China.

Even after exclusion of *Podospermum* and *Epilasia*, *Scorzonera* is still polyphyletic (Mavrodiev et al., Taxon 53: 699–712. 2004). Because a more detailed phylogenetic study and revision of *Scorzonera* s.l. is not yet available, and the circumscription of its diverse elements therefore not clear, the genus is treated here in this wider sense still including *Takhtajaniantha* and *Lasiospora*.

1a. Perennial herbs or subshrubs, often hemispheric; stems usually basally woody, virgate, repeatedly divaricately branched; basal leaves early deciduous; stem leaves linear to filiform and small, or larger and spreading.

2a. Caudex with scarious leaf sheath residues; stem leaves inconspicuous, to 10 mm; capitula with 4 or 5 florets ................................................................. 1. *S. divaricata*

2b. Caudex with fibrous and lacerate leaf sheath residues; stem leaves conspicuous, horizontally spreading to spreading-erect, 1–9 cm; capitula with 7–12 florets ................................................................. 2. *S. pseudodivaricata*

1b. Perennial herbs, never hemispheric; stems herbaceous, unbranched or rather weakly branched; basal leaves usually present; stem leaves present or absent, of various shapes.

3a. Caudex with conspicuous dark brown fibrous and lacerate leaf sheath residues.

4a. Leaves filiform to filiform-linear, 1–1.5 mm wide, almost somewhat curled, glaucous ................................. 10. *S. curvata*

4b. Leaves not filiform to filiform-linear, 2 mm or more wide, ± straight, green.

5a. Ovary and achene shortly villous along their entire length.

6a. Leaves 2–15 mm wide, margin undulate; plants glabrous; achene ca. 10 mm ................................. 11. *S. ikonnikovii*

6b. Leaves 3–4 mm wide, margin flat; leaves, stems, and phyllaries floccose or lanate when young, soon glabrescent; achene 7–8 mm ................................................................. 12. *S. manshurica*

5b. Ovary and achene glabrous.
7a. Stem (especially apically) and involucre basally floccose arachnoid hairy; leaves 2–4 mm wide .......................................................... 9. S. subacaulis

7b. Plants usually glabrous (occasionally leaf sheath margin or apical phyllary margin arachnoid hairy); leaves sometimes as narrow as 2 mm wide, otherwise 0.5–3(–4.5) cm wide.

8a. Basal leaves often rather narrow (linear, linear-lanceolate, or linear-elliptic), margin usually flat ........................................................................................................... 7. S. austriaca

8b. Basal leaves often rather broad (broadly ovate, ovate-lanceolate, elliptic-lanceolate, linear-elliptic, or linear), margin undulate ............................................................... 8. S. sinensis

3b. Caudex with smooth, usually scarious, rarely with age lacerate or somewhat fibrous but never dark brown fibrous leaf sheath residues, or without leaf sheath residues.

9a. Ovary and achene densely villous along their entire length.

10a. Leaves usually 0.8–1.5 cm wide, leaf blade margin densely undulate; plants with globose tuber some cm below surface .......................................................... 24. S. circumflexa

10b. Leaves usually 2–8 mm wide, leaf blade margin flat; plants with or without globose tuber.

11a. Plants without tuber, to 40 cm tall; pappus 2–2.5 cm ......................................................... 22. S. ensifolia

11b. Plants with tuber some cm below surface, to 20 cm tall; pappus less than 1.5 cm .......... 23. S. sericeolanata

9b. Ovary and achene glabrous or at most ± villous at pappus disk.

12a. Stems leafless, sparsely leaved, or with reduced leaves, with 1 or few single-capitellate branches, or plants subcaulescent.

13a. Caudex conspicuously dirty white lanate of adaxially thickly lanate leaf sheath residues; leaves broadly lanceolate to ovate, at least in part usually more than 2 cm wide ...................... 3. S. capito

13b. Caudex not lanate, leaf sheaths adaxially glabrous; leaves at most ca. 1.5 cm wide.

14a. Involucre, base of involucre, and sometimes leaves somewhat arachnoid hairy; florets ca. 2 × as long as involucre .................................................................................. 6. S. radiata

14b. Plants entirely glabrous; florets less than 1.5 × as long as involucre.

15a. Leaves lanceolate, or narrowly elliptic to linear, 2–15 mm wide ...................................... 4. S. parviflora

15b. Leaves linear, 1–2 mm wide .................................................................................. 5. S. luntaiensis

12b. Stems leafy, well developed, and usually branched at least basally.

16a. Plants of saline soil, glabrous (but leaf sheaths adaxially often lanate) and grayish to glaucous green; leaves ± fleshy, narrowly elliptic to lanceolate; stem leaves often partly opposite .......................................................... 21. S. mongolica

16b. Plants not of saline soil, glabrous and fresh green or with indumentum; leaves not fleshy, variously shaped; stem leaves always alternate.

17a. Plants with tuber some cm below surface, to 20(–40) cm tall; leaves 1–3 mm wide.

18a. Plants 30–40 cm tall; involucre 2–2.4 cm at anthesis ....................................................... 20. S. aniana

18b. Plants to 20 cm tall; involucre 1.3–1.8 cm at anthesis.

19a. Caudex with adaxially lanate leaf sheath residues; involucre ca. 1.8 cm at anthesis; pappus bristles plumose for most of length ............................................. 18. S. pusilla

19b. Caudex with glabrous leaf sheath residues; involucre 1.3–1.5 cm at anthesis; pappus bristles scabrid for most of length ......................................................... 19. S. pamirica

17b. Plants without tuber, taller than above; leaves usually wider than above.

20a. Involucre from at least 2 cm at anthesis, to 4 cm in fruit; achene 1.7–2.3 cm, apically conspicuously long attenuate; pappus caducous as an entity .................. 13. S. albicaulis

20b. Involucre to 2 cm at anthesis, not more than ca. 3 cm in fruit; achene not more than 1.5 cm, apically not conspicuously attenuate; pappus persistent.

21a. Florets slightly longer than involucre; plants entirely glabrous; achene 7–9 mm .......................................................................................................................... 4. S. parviflora

21b. Florets distinctly longer than involucre (usually ca. 1.5 × as long as involucre); stem, leaves, or involucre with short branched, dendritic or stellate hairs; achene 1–1.5 cm.

22a. Plants with weak, ascending-erect stems to at most 30 cm tall, usually branched already near base; achene with tuberculate ribs.

23a. Plants with conspicuous gray indumentum; leaves linear, 1–5 mm wide, with flat margin .................................................. 16. S. pubescens

23b. Plants stellate puberulent, glabrescent; leaves narrowly lanceolate or narrowly elliptic, 4–7 mm wide, with mostly undulate margin .................................................. 17. S. inconspicua

22b. Plants with strong erect stems to 75 cm tall, usually branched apically; achene with smooth ribs.
1. Scorzonera divaricata

Subshrubs or perennial herbs, 20–40 cm tall. Rootstock 4–10 mm in diam. Caudex branched, with smooth scarious leaf sheath residues. Stems some to many, grayish green, slender, erect, repeatedly divaricately and intricately branched from base, pubescent or glabrous, basally woody; branches slender, ascending-erect. Basal leaves few, distant, linear, early deciduous. Stem leaves linear to filiform, 2–10 × 1–3 mm, apex usually hooked; upper stem leaves bractlike, inconspicuous. Capitula many, terminal, with 4 or 5 (to 12–15 in var. sublilacina) florets. Involucre narrowly cylindric, ca. 1 cm at anthesis, 1.5–1.7 × 0.3–0.4 cm in fruit. Phyllaries puberulent; outer phyllaries triangular-ovate to ovate-lanceolate, longest ca. 1/2 as long as inner phyllaries; inner phyllaries usually ca. 4. Florets yellow (or pale purple in var. sublilacina). Achene pale yellow to yellowish brown, cylindric, 7–9 mm, with smooth ribs, glabrous or apically villous. Pappus straw-colored to brownish, ca. 1.5 cm. Fl. and fr. May–Sep.

2. Scorzonera pseudodivaricata

Subshrubs or perennial herbs, 7–50 cm tall. Rootstock ca. 9 mm in diam. Caudex unbranched or more rarely branched, with somewhat fibrous and lacerate leaf sheath residues. Stems some to many, grayish green, rigid, herbaceous, sparsely to moderately divaricately branched in apical half, puberulent, glabrescent, or glabrous, leafy; branches virgate, slender, spreading-erect. Basal leaves crowded, linear, early deciduous. Stem leaves linear to filiform, usually 1–9 cm × 0.5–5 mm, horizontally spreading to spreading-erect, straight or somewhat hooked, often falcate, pubescent, glabrescent, or glabrous; upper stem leaves progressively smaller but mostly still leaflike. Capitula many, terminal, with usually 7–12 florets. Involucre cylindric, usually 1.5–1.8 cm at anthesis, 1.8–2.5 × 0.5–0.8 cm in fruit. Phyllaries puberulent; outer phyllaries triangular-ovate to linear-lanceolate, longest 1/2–2/3 as long as inner phyllaries; inner phyllaries usually 5 or 6. Florets yellow. Achene brownish, dark green, or blackish, cylindric, 7–8 mm, with elevated smooth or tuberculate ribs, glabrous. Pappus dirty white to straw-colored, 1.3–1.8 cm. Fl. and fr. May–Oct.

Florads, Dry riverbeds, lowland sand dunes, gullies, valleys, hills, slopes, plains at base of mountains; 500–2000 m. Gansu, Hebei, Nei Mongol, Ningxia, Shaanxi, Shanxi [Mongolia].

A reassessment of this taxon and its affinity appears worthwhile considering the frequent confusion between plants of S. divaricata and S. pseudodivaricata. Because the yellow ligules of both S. divaricata and S. pseudodivaricata can become pinkish on drying, floret color needs to be established on living plants.

Scorzonera divaricata var. sublilacina is used medicinally for treating serious cases of boils.

CICHORIEAE

24a. Florets yellow ................................................................. 14. S. iliensis
24b. Florets deep orange ....................................................... 15. S. transiliensis

1a. Scorzonera divaricata var. divaricata

c拐轴鸦葱 guai zhou ya cong (yu ban bian zhong)

Scorzonera divaricata var. intricatissima Maximowicz.

Florets yellow. Achene glabrous.

Dry riverbeds, lowland sand dunes, gullies, valleys, hills, slopes, plains at base of mountains; 500–2000 m. Gansu, Hebei, Nei Mongol, Ningxia, Shaanxi, Shanxi [Mongolia].

1b. Scorzonera divaricata var. sublilacina

Florets pale purple. Achene apically villous.

Hills, slopes, plains at base of mountains; ca. 1500 m. Gansu, Nei Mongol (Hohhot).

Scorzonera divaricata var. sublilacina, originally described by Maximowicz from material from Nei Mongol and Gansu with capitula of up to 15 pale purple florets, was referred by Lipschitz (Fragm. Monogr. Scorzonera 2: 124. 1939) to this species rather than to S. pseudodivaricata as were the other varieties with more numerous florets than is usual in S. divaricata. A reassessment of this taxon and its affinity appears worthwhile considering the frequent confusion between plants of S. divaricata and S. pseudodivaricata. Because the yellow ligules of both S. divaricata and S. pseudodivaricata can become pinkish on drying, floret color needs to be established on living plants.

A report by Ostenfeld (in Hedin, S. Tibet 6(3): 29. 1922) of Scorzonera divaricata var. virgata Maximowicz (being a synonym of S. pseudodivaricata) was erroneously treated by Tzelev (Rast. Tsentral. Azii 14b: 122. 2008) as “S. divaricata Turczaninow var. virgata (Candolle) Maximowicz” and, consequently, taken as a substantiation for the presence of the W Himalayan S. virgata Candolle in Xinjiang and C Asia, which is, however, clearly erroneous.

3. Scorzonera capitata

Mian mao ya cong


3a. Scorzonera capitata var. capitata

Herbs 5–15 cm tall, perennial, rosulate. Rootstock dark brown, ca. 2 cm in diam. Caudex woody, globose to subglobose, simple or branched, densely covered with scarious entire adaxially abundantly dirty white lanate leaf sheath residues. Stems single or to 5–7, ascending-erect, unbranched, arachnoid villous, glabrescent. Rosette leaves ovate to spatulate or elliptic, 3.5–17 × (1–)2–3[–5] cm, somewhat arachnoid hairy, base attenuate, apex rounded, obtuse, or acute. Stem leaves 1–3, sessile, ovate to lanceolate, 0.5–2 × 0.3–1.5 cm, ± leathery, somewhat arachnoid hairy, glabrescent, or glabrous, base cordate and semiamplexicaul. Capitulum solitary. Involucre
broadly campanulate to subglobe, usually 1.6–2 × 1.2–1.5 cm at anthesis, to 2.5 × > 2 cm in fruit. Phyllaries abaxially arachnoid hairy; outermost phyllaries broadly ovate to broadly lanceolate. Florets yellow. Achene pale yellow, cylindric, 7–9 mm, with tuberculate ribs, apically sparsely villous. Pappus white, 1–1.5 cm. Fl. and fr. May–Aug.

Gravelly deserts, sandy soils, alluvial plains; 1100–1500 m. Nei Mongol, ?Ningxia [Mongolia].


光鸦葱 guang ya cong

Scorzonera caricifolia Pallas; S. halophila Fischer & C. A. Meyer ex Candolle.

Herbs 10–60 cm tall, perennial, rosulate, entirely glabrous. Rootstock creeping, ca. 1.5 cm in diam., usually branched. Caudex with or without scarios leaf sheath residues. Stems solitary or few, ascending to erect, unbranched or rarely sparsely branched. Rosette leaves lanceolate or narrowly elliptic to linear, 7–20 × 0.2–1.5 cm, often somewhat fleshy, base attenuate, apex acute to acuminate. Stem leaves few, smaller than rosette leaves, narrowly lanceolate. Capitulum solitary, rarely 2 or 3 per stem and distant. Involucre cylindric, usually 1.5–1.8 × 0.5–0.8 cm at anthesis, to 2.5–3 × 1–1.3(–1.5) cm in fruit. Phyllaries abaxially glabrous, apex acute to subobtuse; outermost phyllaries ovate to triangular-ovate. Florets yellow, yellowly longer than involucre. Achene yellowish, cylindric, 7–9 mm, with smooth elevated ribs, glabrous. Pappus dirty white, 1.5–1.8 cm. Fl. and fr. Jun–Sep. 2n = 14.

Wet subsaline meadows, riverbanks, at springs; 900–1700 m. Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Mongolia, Russia (C, E, and S European parts), Turkmenistan, Uzbekistan; SW Asia, C and S Europe].


轮台鸦葱 lun tai ya cong

Herbs 12–14 cm tall, perennial, rosulate. Rootstock brown, ca. 5 mm in diam. Caudex with pale brown leaf sheath residues. Stems solitary, ca. 1.5 cm in diam., erect, unbranched, subglabrous or glabrous. Rosette leaves linear, 6–10 × 0.1–0.2 cm, glabrous, base attenuate, margin flat, apex acuminate. Stem leaves very few, mostly on basal portion of stem, similar to rosette leaves but smaller, subulate to linear. Capitulum solitary. Involucrre narrowly cylindric, ca. 1.4 × 0.5 cm at anthesis. Phyllaries abaxially glabrous; outermost phyllaries ovate, ca. 4 × 2.2 mm, apex acute. Achene when immature without tubercles, glabrous, not seen when mature. Pappus white, ca. 8 mm. Fl. Jul.

● Damp riverbanks; ca. 1500 m. Xinjiang (N Tarim Pendi).


毛梗鸦葱 mao geng ya cong

Scorzonera radiata var. rebunensis (Tatewaki & Kitamura) Nakai; S. radiata var. subacaulis Lipschitz & Krascheninnikov; S. rebunensis Tatewaki & Kitamura.

Herbs (3–)15–30(–50) cm tall, perennial, rosulate. Rootstock ca. 1.5 cm in diam. Caudex with scarios leaf sheath residues. Stems solitary to few, erect, unbranched, arachnoid hairy especially under capitula, glabrescent with age. Rosette leaves linear, linear-lanceolate, or linear-elliptic, 5–30 × 0.3–1.5[–1.8] cm, sometimes sparsely arachnoid hairy, glabrescent, base attenuate, apex acuminate. Stem leaves 0–3, linear to linear-lanceolate, smaller than rosette leaves. Capitulum solitary. Involucre broadly cylindric to campanulate, 1.7–2.1 × 0.8–1 cm at anthesis, to 2.6 × 1.8 cm in fruit. Phyllaries abaxially sparsely arachnoid hairy, glabrescent, apex usually with a red spot; outermost phyllaries ovate to broadly lanceolate. Florets yellow, almost 2 × as long as involucre. Achene cylindric, 0.9–1.3 cm, with smooth elevated ribs, glabrous. Pappus dirty yellow, 1.1–1.4 cm. Fl. and fr. May–Jul. 2n = 14.

Forest margins, forests, grasslands, gravelly riverbanks; 900–2600 m. Heilongjiang, Jilin, Liaoning, Nei Mongol, Xinjiang [Kazakhstan, Russia (Asian part), Uzbekistan].


鸦葱 ya cong

Scorzonera austriaca var. plantaginifolia Kitagawa; S. sinensis (Lipschitz & Krascheninnikov) Nakai f. plantaginifolia (Kitagawa) Nakai.

Herbs 5–45 cm tall, perennial, rosulate. Rootstock dark brown. Caudex woody, densely covered with brown fibrous and lacerate leaf sheath residues. Stems solitary or few, erect, unbranched, glabrous. Rosette leaves narrowly linear, linear-lanceolate, linear-elliptic, or narrowly elliptic, usually 3–35 × 0.2–2.5 cm, glabrous or occasionally base and sheath marginally arachnoid hairy, base long attenuate, margin flat, apex acute to acuminate. Stem leaves 2 to several, scalelike, lanceolate to subulate-lanceolate, base semiamplexicaul. Capitulum solitary. Involucrre cylindric, usually 2.1–2.8 × 0.6–1.2 cm at anthesis, to 3.3 × 1.5 cm in fruit. Phyllaries abaxially glabrous or occasionally inner ones apically arachnoid hairy at margin, apex acute, obtuse, or rounded; outermost phyllaries triangular to triangular-ovate. Florets yellow, yellowly to 1.5–1.7 × as long as involucre. Achene whitish to pale brown, cylindric, 1.2–1.5 cm, with smooth or sometimes tuberculate ribs, glabrous. Pappus dirty white, usually 1.5–1.7 cm. Fl. and fr. Apr–Jul. 2n = 14*.

Slopes, floodplains, grassy riverbanks and lake shores; 400–2000 m. Gansu, Hebei, Henan, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shandong, Shanxi, Xinjiang [Kazakhstan, Mongolia, Russia; C and SE Europe].

Scorzonera austriaca is the widespread and name-giving taxon of the highly polymorphic S. austriaca complex, to which the following five species belong, and which is in need of a modern revision covering its entire distribution area. The following two species appear to lack clear morphological discontinuities and seem thus doubtful distinct at species rank.


桃叶鸦葱 tao ye ya cong

Herbs usually 5–50 cm tall, perennial, rosulate. Rootstock brown to dark brown, ca. 1.5 cm in diam. Caudex woody, often branched, densely covered with fibrous and lacerate leaf sheath residues. Stems solitary or few, erect, unbranched, glabrous. Rosette leaves broadly ovate, ovate-lanceolate, oblanceolate, elliptic-lanceolate, linear-elliptic, or broadly linear, usually 5–20(–30) × (0.5–)1–3(–4.5) cm, glabrous, base long attenuate, margin undulate, apex acute to acuminate. Stem leaves few to several, scalelike, lanceolate to subulate-lanceolate, base semi-amplexicaul. Capitulum solitary. Involucre cylindrical, usually 1.8–2.5 × 0.7–1.3 cm at anthesis, to 3.5 × 1.8 cm in fruit. Phyllaries abaxially glabrous, apex obtuse to acute; outermost phyllaries triangular to sometimes obliquely triangular-ovate. Flores yellow, usually to 1.5–1.7 × as long as involucre. Achene whitish to pale brown, cylindrical, 1.2–1.4 cm, with smooth ribs, glabrous. Pappus dirty white to dirty yellow, usually 1.5–1.8 cm. Fl. and fr. Feb–Sep.

Mountain slopes, hills, wastelands, thickets; 200–2500 m. Anhui, Gansu, Hebei, Henan, Jiangsu, Liaoning, Nei Mongol, Ningxia, Shanxi, Shandong, Shanxi [Mongolia].

Scorzonera sinensis is delimited from S. austriaca largely by its undulate leaves, which it shares, however, with S. crispa M. Bieberstein (S. austriaca subsp. crispa (M. Bieberstein) Lipschitz & Krascheninnikov) from Crimea and Kazakhstan. According to Lipschitz (Fragm. Monogr. Scorzonera 1: 121. 1935; Fl. URSS 29: 68–69. 1964), it differs from the latter by basally more shortly attenuate, green rosette leaves and undivided stems with more numerous bracts. See also note under S. austriaca.


小鸦葱 xiao ya cong


Herbs, acaulescent or to 10 cm, perennial, rosulate. Rootstock dark brown, terete, ca. 8 mm in diam. Caudex woody, with fibrous and lacerate leaf sheath residues. Stems solitary or more rarely 2, unbranched, floccose arachnoid hairy especially apically. Rosette leaves linear, 8–10 × 0.2–0.4 cm, glabrous, apex acuminate. Stem leaves 1 or 2, scalelike, lanceolate. Capitulum solitary. Involucre broadly cylindrical, 1–1.5 cm in diam. in fruit. Phyllaries glabrous or basally somewhat arachnoid hairy, apex acute; outermost phyllaries triangular to ovate. Flores yellow, ca. 1.5 × as long as involucre. Corolla ligule with dark red striae. Achene cylindrical, 8–10 mm, with smooth ribs, glabrous. Pappus dirty white, ca. 1.2 cm. Fl. and fr. Jun–Jul.

Grassy mountain slopes; above 2600 m. Xinjiang [Kazakhstan, Kyrgyzstan].

The delimitation of Scorzonera subacaulis and acaulescent forms of S. radiata (the latter without fibrous and lacerate leaf sheath residues and with the florets 2 × as long as the involucre) appears often somewhat blurred in the literature (e.g., Lipschitz, Fl. URSS 29: 67–68. 1964). Regel (Bull. Soc. Imp. Naturalistes Moscou 40(3–4): 170. 1867) considered even an intermediate position of this taxon between both species. See also note under S. austriaca.


丝叶鸦葱 si ye ya cong


Herbs 4–7 cm tall, perennial, rosulate. Rootstock dark brown, cylindric, ca. 1.5 cm in diam. Caudex densely covered with fibrous and lacerate leaf sheath residues. Stems solitary or few, erect, glabrous. Rosette leaves filiform to filiform-linear, 3–10 cm × 1–1.5 mm, usually flat or twisted, glaucous, glabrous but margin basally arachnoid lanate, apex acuminate. Stem leaves absent or few, scalelike, subulate-lanceolate. Capitulum solitary. Involucre campanulate to narrowly campanulate, ca. 1 cm in diam. in fruit. Phyllaries abaxially glabrous, apex acute to subobtuse; outermost phyllaries triangular to triangular-lanceolate, 5–8 × 2–3 mm. Flores yellow. Achene cylindric, with smooth to tuberculate ribs, shortly villous. Pappus pale brown, ca. 1.2 cm. Fl. and fr. May–Jun.

Hills, dry mountain slopes; 500–2500 m. Heilongjiang, Nei Mongol, Qinghai [Mongolia, E Russia].

See note under Scorzonera austriaca.


毛果鸦葱 mao guo ya cong

Scorzonera austriaca Willdenow var. hebecarpa C. H. An.

Herbs to 17 cm tall, perennial, rosulate. Rootstock yellow, obconic, ca. 2 cm in diam. Caudex densely covered with brown fibrous and lacerate leaf sheath residues. Stems few, unbranched, glabrous. Rosette leaves narrowly lanceolate, linear-lanceolate, linear-elliptic, or linear, to 15 × 0.2–0.6(–1.5) cm, glabrous, base attenuate, margin undulate, apex usually recurved and acuminate. Stem leaves 2 or 3, brown, scalelike, narrowly lanceolate to subulate-lanceolate. Capitulum solitary. Involucre campanulate to subglobose, to 2–2.5 × 1.5–2 cm in fruit. Phyllaries abaxially glabrous, apex acute to obtuse; outermost phyllaries triangular to ovate-triangular, to 7 × 2.5 mm. Flores yellow. Achene cylindrical, ca. 1 cm, with smooth ribs, shortly villous. Pappus dirty yellow, ca. 1.2 cm. Fl. and fr. Apr–May. 2n = 14.

Mountain slopes; 1300–1800 m. Liaoning, ?Nei Mongol, Xinjiang (Jinghe) [Mongolia].

Scorzonera ikonnikovii is very similar to S. austriaca (see also note there) but is distinguished by its villous achenes. Centered in Mongolia, it seems to be rare in China, reaching only into the NW and NE. Its delimitation from S. manshurica needs closer consideration.


东北鸦葱 dong bei ya cong
**Scorzonera glabra** Ruprecht var. *manshurica* (Nakai) Kitagawa.

Herbs to 14 cm tall, perennial, rosulate. Rootstock obconic, ca. 3 cm in diam. Caudex densely covered with brown fibrous and lacerate leaf sheath residues. Stems few, unbranched, conspicuously floccose or lanate when young, soon glabrescent. Rosette leaves linear, 8–10 × 0.3–0.4 cm, adaxially densely lanate when young, glabrescent, base attenuate, margin flat and basally lanate, apex acute to long acuminate. Stem leaves 1–3, scalelike, subulate-triangular, margin and adaxially lanate. Capsitulum solitary. Involucre campanulate, to 2 × 1.8 cm in fruit. Phyllaries abaxially white puberulent and tinged with purple, apex obtuse to acute; outermost phyllaries triangular to ovate-triangular, largest ca. 7 × 3 mm. Achene dirty yellow, cylindric and 7–8 mm, with smooth ribs, sparsely to densely villous. Pappus dirty yellow, 1–1.5 cm. Fl. and fr. Apr.–May.

- Dry mountain slopes. Heilongjiang, Ji Lin, Liaoning, Nei Mongol.

Scorzonera *manshurica* seems close to *S. ikonnikovii*, and the delimitation between the two species should be reassessed. See also note under *S. austriaca*.


华北鸦葱 hua bei ya cong

*Aclyrosperis albicaulis* (Bunge) Kamelin & Tagaev; *A. macrosperma* Schultz Bipontinus; *Scorzonera albicaulis f. flavescens* Nakai; *S. albicaulis* subsp. *macrosperma* (Turczaninow ex Candolle) Voroshilov; *S. albicaulis* var. *macro sperma* (Turczaninow ex Candolle) Kitagawa; *S. albicaulis* f. *rosea* Nakai; *S. macrosperma* Turczaninow ex Candolle; *S. macrosperma* f. *angustifolia* Debeaux.

Herbs to 1.2 m tall, perennial. Rootstock cylindric to obconic, ca. 1.5 cm in diam. Caudex with brown scariosus leaf sheath residues. Stem usually solitary, erect, branched apically, floccosely arachnoid hairy especially apically, glabrescent, leafy. Basal leaves rosulate, usually early deciduous, linear to linear-elliptic, to 40 × 0.3–2 cm, glabrous, margin entire, apex acuminate. Stem leaves similar to basal leaves but shorter. Synflorescence sparsely and usually laxly corymiform, with usually 2–7 capitula. Involucre cylindric, 2–2.5 × 0.5–0.7 cm at anthesis, 3.5–4.2 × 0.8–1.3 cm in fruit. Phyllaries abaxially glabrous or thinly arachnoid hairy, glabrescent; outermost phyllaries triangular-ovate to ovate-lanceolate, 5–8 × 2–4.4 mm. Florets yellow, ca. 1.5 × as long as involucre. Achene pale brown, cylindric and from middle third distinctly tapering toward apex, usually 1.7–2.3 cm, with smooth ribs, glabrous. Pappus straw-colored, usually 2.2–2.8 cm, bristles basally connate and caducous as an entity. Fl. and fr. Jul.–Aug.

Mountain valleys, forests, forest margins, scrub, feral fields, fields; 200–2500 m. Anhui, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Jiangsu, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan [Korea, Mongolia, Russia (SE Asian part)].

*Aclyrosperis macrosperma* Schultz Bipontinus (1845) and *Scorzonera macrosperma* Turczaninow ex Candolle (1838) are, in spite of having the same epithet, independently described heterotypic synonyms.


北疆鸦葱 bei jiang ya cong

Herbs 35–70 cm tall, perennial, with a taproot. Caudex with leaf sheath residues. Stems solitary or few, erect, branched apically, glabrous or somewhat floccose and glabrescent, leafy. Basal leaves linear to linear-lanceolate, 10–25 × 0.4–1 cm, margin flat, apex acuminate. Stem leaves similar to basal leaves but smaller. Synflorescence laxly corymiform, with few capitula. Involucre cylindric, 1.4–1.6 × ca. 0.5 cm at anthesis, to 3 cm in fruit. Phyllaries arachnoid branched hairy; outermost phyllaries triangular to ovate-triangular. Achene cylindric, 1–1.5 cm, with smooth ribs, glabrous. Pappus dirty white, to 2 cm. Fl. and fr. Jul.–Aug.

Stony thickets; above 900–1700 m. Xinjiang [Kazakhstan, Kyrgyzstan, Uzbekistan].

See note under the *Scorzonera transiliensis*.


橙黄鸦葱 cheng huang ya cong

Herbs 25–75 cm tall, perennial, with a taproot. Caudex woody, sometimes branched, with sparse leaf sheath residues. Stems solitary or few, erect, sparsely branched apically, glabrous or weakly floccose with branched hairs, leafy. Basal leaves linear to linear-lanceolate, usually 5–20 × 0.4–0.8 cm, margin flat, apex acuminate. Stem leaves similar to basal leaves but smaller. Synflorescence very loosely corymiform, with few capitula. Involucre cylindric, ca. 1.5 × 0.5 cm at anthesis, to 3–3.5 cm in fruit. Phyllaries arachnoid branched hairy. Florets dark orange. Achene cylindric, ca. 1.5 cm, with smooth ribs, glabrous. Pappus dirty white, ca. 2 cm.

Meadows on mountain slopes; ca. 1700 m. Xinjiang [Kazakhstan, Kyrgyzstan].

*Scorzonera transiliensis* is closely related to *S. iliensis* and said to be mainly distinguished by its dark orange florets (Lipschitz, Fl. URSS 29: 84. 1964). It is endemic to the Zailiyskiy and Kungey Alatau (SE Kazakhstan) and the Ketmen range of the Tien Shan (SE Kazakhstan) and Tian Shan (NW China). It has been listed for Xinjiang by C. H. An (Fl. Xinjiang. 5: 395. 1999), and the above description is based on that work and the original description. The status of this taxon requires further studies.

16. **Scorzonera pubescens** Candolle, Prodr. 7: 122. 1838.

基枝鸦葱 ji zhi ya cong

Herbs 7–20 cm tall, perennial, with grayish short branched hairs. Rootstock dark brown, cylindric, ca. 1 cm in diam. Caudex densely covered with leaf sheath residues. Stems solitary to few, erect, branched from base, basally leafy; branches ascending-erect. Basal leaves linear, 5–20 × 0.1–0.5 cm, margin flat, apex acuminate. Stem leaves similar to basal leaves but smaller. Synflorescence diffusely corymiform, with few capitula. Involucre campanulate, 1.3–2 × 0.3–1 cm. Phyllaries abaxially arachnoid hairy; outermost phyllaries ovate to lanceolate. Florets yellow, sometimes ligule adaxially reddish, ca. 1.5 × as long as involucre. Achene cylindric, 1–1.2 cm, with tuberculate
ribs, glabrous. Pappus white tinged with yellow, ca. 1.5 cm. Fl. and fr. Jun.

Mountain slopes, hills, grasslands, dry river valleys; 600–1800 m. Xinjiang [Kazakhstan, Kyrgyzstan, Russia (W Asian part), Tajikistan].


Par米尔鸦葱 pa mi er ya cong

Scorzonera tianshanensis C. H. An.

Herbs usually 8–25 cm tall, perennial. Rootstock ca. 8 mm in diam. Caudex woody, with dark brown or pale yellow scariosus leaf sheath residues. Stems solitary or few, branched from base or from middle with curved-erect branches, stellate puberulent, basally leafy. Basal leaves narrowly elliptic to narrowly lanceolate, 5–20 × 0.4–0.7 [–2] cm, stellate puberulent, glabrescent, base attenuate, margin mostly undulate, apex acuminate. Stem leaves few, smaller than basal leaves but otherwise similar. Synflorescence laxly corymbose, with usually two white membranous wings along the corolla tube,” which perhaps may be an artifact but certainly not a suitable diagnostic feature whatso-

cetera.


细叶鸦葱 xi ye ya cong

Scorzonera astrachanica Candolle; S. circinnata Pallas, nom. illeg. superfl.; S. popovii Lipschitz; Takhtajanianthula pusilla (Pallas) Nazarova.

Herbs 5–20 cm tall, perennial, with a globose tuber to some cm below surface. Caudex unbranched or branched, with scariosus adaxially densely lanate pale brown leaf sheath residues becoming lacerate and subfibrous with age. Stems few to several, erect to arched-erect, sparsely branched apically, glabrous, leafy. Basal leaves linear-lanceolate, to 15 × 0.2–0.3 cm, base inconspicuously attenuate, apex acuminate and often somewhat hooked. Synflorescence sparsely corymbose, with few capitula or capitulum solitary. Involucre narrowly cylindric, 2–2.4 × 0.4–0.5 cm at anthesis, prolonged in fruit. Phyllaries abaxially arachnoid hairy; outermost phyllaries ovate to ovate-lanceolate, ca. 4 mm. Flores yellow. Achene columnar, ca. 1 cm, with tuberculate ribs, glabrous. Pappus dirty white, ca. 2.3 cm, plumose for most of length. Fl. and fr. Apr–Jul. 2n = 14.

Rocky mountain slopes, gravelly deserts, sandy soils, semiconsolidated sand dunes, saline-alkaline areas, roadsides, wastelands, mountain plains, alluvial plains; 500–3400 m. Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, Russia (SE European part), Tajikistan, Turkmenistan, Uzbekistan; SW Asia].
**Scorzonera fengtienensis** Nakai; **S. hotanica** C. H. An; **S. mongolica** var. **putjatae** C. Winkler.

Herbs 5–35 cm tall, perennial, rosulate. Rootstock cylindric. Caudex with brown to pale yellow scarios leaf sheath residues. Stems few to some, grayish green, ascending to more rarely erect, branched apically, glabrous. Rosette leaves narrowly elliptic, elliptic-lanceolate, or linear-lanceolate, 2–13 × 0.4–1.1 cm, usually ± fleshy, glabrous, somewhat glaucous, base attenuate to long attenuate with an adaxially sometimes lanate sheath, apex acute to acuminate. Stem leaves often partly opposite, similar to rosette leaves but shorter. Synflorescence sparsely corymiform, with few capitula or more rarely capitulum solitary. Involucre narrowly cylindric, usually 1.7–2.2 × 0.4–0.5 cm at anthesis, to 3 × 0.6–0.7 cm in fruit. Phyllaries abaxially arachnoid hairy and glabrescent or glabrous; outermost phyllaries ovoid, 3–5 × 2–5 mm, apex acute. Florets yellow, rarely white, slightly longer than involucre. Achene pale yellow, cylindric, 5–7 cm, with smooth ribs, acute. Florets yellow, rarely whitish, usually 1–1.2 cm. Fl. and fr. Apr–Aug.

**Scorzonera ensifolia** M. Bieberstein, Fl. Taur.-Caucas. 2: 235. 1808.

剑叶鸦葱  jian ye ya cong

Lasiopsis ensifolia (M. Bieberstein) Cassini.

Herbs usually 20–40 cm tall, perennial, sparsely rosulate. Rootstock cylindric. Caudex with entire hardened adaxially abundantly reddish brown lanate leaf sheath residues. Stems solitary or few, ± erect, sparsely branched apically, ± pubescent or rarely glabrous, densely leafy. Rosette leaves linear-lanceolate to linear, to 20 × 0.3–0.8 cm, rather rigid, apex filiform acuminate. Stem leaves many, similar to rosette leaves, sparsely pubescent or glabrous. Synflorescence corymiform, usually with 2–4 capitula. Involucre cylindric, to 2.5 × 1–1.5 cm. Phyllaries abaxially arachnoid hairy; outermost phyllaries lanceolate, apex acuminate and bent. Florets yellow, ca. 1.5 × as long as involucral. Achene cylindric, usually 7–8 mm, densely villose. Pappus pale brownish, 2–2.5 cm. Fl. and fr. May–Aug. 2n = 12.

Sand dunes, wastelands, sandy soils; 500–600 m. Xinjiang [Kazakhstan, Russia (C, E, and S European parts); Europe].


皱波球根鸦葱  zhou bo qiu gen ya cong

Herbs 8–20 cm tall, perennial, with a globose tuber some cm below surface. Stems solitary or few, weak, erect, sparsely branched, white sericeous pubescent. Basal leaves few, linear, 5–20 × 0.2–0.8 cm, arachnoid hairy, glabrescent, or adaxially glabrous, base attenuate, margin flat, apex acuminate. Stem leaves similar to basal leaves but base ± amplexicaul. Synflorescence laxly corymiform, with 5–7 capitula. Involucre narrowly cylindric to obconic, ca. 6 mm in diam. Phyllaries abaxially densely pubescent; outermost phyllaries narrowly triangular, apex acute. Florets yellow. Corolla with purplish red veins. Achene cylindric, 5–7 mm, densely sericeous. Pappus whitish, usually 1–1.2 cm. Fl. and fr. Apr–Jun.

Deserts, semiconsolidated sand dunes; 300–1400 m. Xinjiang [Kazakhstan, Russia (SW Asian part); Uzbekistan].

C. H. An (in Fl. Xinjiang. 5: 401. 1999) also reported the similar and related **Scorzonera tuberosa** Pallas for Xinjiang. That species is distributed in E and S European Russia and Kazakhstan and had not been reported before from farther east. The corresponding material has not been seen by the present authors, and the report needs confirmation.

**Scorzonera sericeolanata** var. **putjatae** C. H. An (in Fl. Xinjiang. 5: 401. 1999) also reported the similar and related **Scorzonera tuberosa** Pallas for Xinjiang. That species is distributed in E and S European Russia and Kazakhstan and had not been reported before from farther east. The corresponding material has not been seen by the present authors, and the report needs confirmation.

22. **Scorzonera ensifolia** M. Bieberstein, Fl. Taur.-Caucas. 2: 235. 1808.

剑叶鸦葱  jian ye ya cong


皱波球根鸦葱  zhou bo qiu gen ya cong


灰枝鸦葱  hui zhi ya cong

**Scorzonera tuberosa** Pallas var. **seericolanata** Bunge, Beitr. Fl. Russl. 200. 1852; **S. rubroviolacea** Godwinski.

Herbs 8–20 cm tall, perennial, with a globose tuber some cm below surface. Stems solitary or few, weak, erect, sparsely branched, white sericeous pubescent. Basal leaves few, linear, 5–20 × 0.2–0.8 cm, arachnoid hairy, glabrescent, or adaxially glabrous, base attenuate, margin flat, apex acuminate. Stem leaves similar to basal leaves but base ± amplexicaul. Synflorescence laxly corymiform, with 5–7 capitula. Involucre narrowly cylindric to obconic, ca. 6 mm in diam. Phyllaries abaxially densely pubescent; outermost phyllaries narrowly triangular, apex acute. Florets yellow. Corolla with purplish red veins. Achene cylindric, 5–7 mm, densely sericeous. Pappus whitish, usually 1–1.2 cm. Fl. and fr. Apr–Jun.

Deserts, semiconsolidated sand dunes; 300–1400 m. Xinjiang [Kazakhstan, Russia (SW Asian part); Uzbekistan].

C. H. An (in Fl. Xinjiang. 5: 401. 1999) also reported the similar and related **Scorzonera tuberosa** Pallas for Xinjiang. That species is distributed in E and S European Russia and Kazakhstan and had not been reported before from farther east. The corresponding material has not been seen by the present authors, and the report needs confirmation.


皱波球根鸦葱  zhou bo qiu gen ya cong

Herbs (8–)15–25 cm tall, perennial, with a globose tuber some cm below surface. Caudex rather inconsiderable, reddish brown lanate, with few scarios leaf sheath residues. Stems 1–3, erect, weak, sparsely branched apically, densely pubescent. Basal leaves few, broadly lanceolate, usually 5–15 × 0.8–1.5 cm, densely tomentose, base attenuate, margin undulate, apex acute to acuminate and often curled. Stem leaves similar to basal leaves but not basally attenuate. Synflorescence sparsely corymiform, with 2 or 3 capitula. Involucre narrowly cylindric to obconic. Phyllaries abaxially densely pubescent; outermost phyllaries triangular-ovate to lanceolate. Florets yellow, purplish red when dry. Achene cylindric, 6–7 mm, densely sericeous. Pappus brownish, ca. 9 mm. Fl. and fr. Apr–May. 2n = 12.

Stony slopes, mountain plains; ca. 1100 m. Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan].

52. **PODOSPERMUM** Candolle in Candolle & Lamarck, Fl. Franç. 4: 61. 1805, nom. cons.

柄果菊属  bing guo ju shu

Shi Zhu (石铸 Shih Chu); Norbert Kilian

**Arachnospermum** F. W. Schmidt.

Herbs, [annual or] biennial or perennial, often with woody caudex and rosulate. Leaves pinnately divided, base with semiamplexicaul usually persistent sheath. Involucre cylindric, usually distinctly prolonged toward fruiting. Phyllaries in several series, often
subapically corniculate. Receptacle naked. Achene with conspicuous cylindric carpopodium usually 1/5–1/3 as long as achene body. Pappus of strong bristles; bristles softly fimbriately plumose for most of length and apically scabrid.

About 17 species: N Africa, C and SW Asia, Europe; one species in China.

Molecular phylogenetic analyses by Mavrodiev et al. (Taxon 53: 699–712. 2004) revealed that Scorzonera in its wider sense is polyphyletic and provided support for the recognition of Podospermum as a separate genus.


Herbs, annual, white pubescent or glabrous. Leaves undivided. Involucre ovoid-cylindric to globose. Phyllaries in 2 rows; outer phyllaries narrowly triangular to lanceolate, longest ca. 1/2 or more as long as inner linear-lanceolate phyllaries. Florets yellow, slightly longer than involucre. Achene gray, cylindric, 1–1.2 cm, ribs smooth, carpodium 1/5–1/4 as long as achene body. Pappus dirty white, 1.1–1.2 cm. Fl. and fr. May–Jun. 2n = 14, 28.

Steppes; ca. 1000 m. Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].

No material of Podospermum songoricum from China has been seen by the present authors, but its presence in Xinjiang is confirmed by C. H. An (Fl. Xinjiang. 5: 389. 1999). The description is based on Lipschitz (Fl. URSS 29: 40. 1964) and material from neighboring countries.


KOELPINIA xie wei ju shu

Shi Zhu (石铸 Shih Chu); Norbert Kilians


Five species: N Africa, C, S, and SW Asia, S Europe; one species in China.


KOELPINIA xie wei ju

Rhaegadiolus koelpinia Willdenow.

Herbs 5–35 cm tall. Stem solitary, slender, branched from base, glabrous or sparsely pilosulous, remotely leafy. Stem leaves linear to filiform, 4.5–15 × 0.1–0.5(–0.7) cm, glabrous or subglabrous. Synflorescence diffusely racemiform to paniculiform, with 2–5 capitula or capitulum solitary. Capitula with 5–9 florets. Involucre at anthesis cylindric, 5–7 mm. Phyllaries glabrous or sparsely hairy, apex acute; outer phyllaries 2 or 3, narrowly triangular, ca. 2 × 0.5 mm; inner phyllaries 5, linear-lanceolate. Florets pale yellow, not or slightly exceeding involucre. Achene brownish, columnar-scorpioid, ca. 1 cm, abaxially with antrorse and apically with retrorse rigid hooked needlelike spines. Fl. and fr. Feb–Jul. 2n = 14, 36, 40, 42, 54, 56.

Gravelly deserts; 400–1000 m. Xinjiang, SW Xizang [Afghanistan, NW India, Kashmir, Kazakhstan, Kyrgyzstan, Pakistan, Russia (S European part), Tajikistan, Turkmenistan, Uzbekistan; N Africa, SW Asia, SW Europe].

54. EPILASIA (Bunge) Bentham in Bentham & J. D. Hooker, Gen. Pl. 2: 532. 1873.

SHU MAO JU shu mao ju shu

Shi Zhu (石铸 Shih Chu); Norbert Kilians

EPILASIA (Bunge) Bentham in Bentham & J. D. Hooker, Gen. Pl. 2: 532. 1873.

Herbs, annual, white pubescent or glabrous. Leaves undivided. Involucre ovoid-cylindric to globose. Phyllaries in 2 rows; outer phyllaries herbaceous, leaflike, usually longer than [or equaling] inner phyllaries; inner phyllaries usually 5. Receptacle naked. Florets pale yellow [or pale red or blue]. Achene blackish [or gray], ± cylindric, ribbed, ribs smooth or spinulose, base with somewhat broadened hollow cylindric carpophore, glabrous, apex truncate or apical half conic, unribbed, and covered and hidden by caplike pappus disk with pappus. Pappus arising from flat of caplike conic pappus disk, grayish or brownish, of soft bristles in several rows, persistent, very densely long lanately softly fimbriately plumose, longer bristles apically scabrid.

毛鼠毛菊 ding mao shu mao ju

**Scorzoner a acrolasia** Bunge, Beitr. Fl. Russl. 202. 1852; **Epilasia ammophila** (Bunge) C. B. Clarke ex Tzvelev; **S. ammophila** Bunge.

Herbs 6–25 cm tall, annual. Stem erect, moderately branched often already from base or more rarely unbranched, arachnoid hairy, glabrescent, leafy. Leaves narrowly spatulate, narrowly lanceolate, broadly lanceolate, or rarely ovate-lanceolate, 1–4(--5) × 0.2–1(-2) cm, ± arachnoid hairy, base attenuate and finally semiamplexicaul, margin flat or somewhat undulate and densely microdentate, apex acute to acuminate or more rarely obtuse. Synflorescence diffuse, panicle-like to corymbiform, with several capitula or more rarely capitulum solitary. Involucre ovoid-cylindric to globose, 1.2–1.4 × 0.8–1 cm at anthesis, 1.5–1.7 × ca. 1.5 cm in fruit (outer phyllaries not counted). Outer phyllaries lanceolate, usually 2–4 cm, herbaceous and similar to upper stem leaves, distinctly longer than inner phyllaries; inner phyllaries lanceolate, leathery, margin somewhat scarious, apex obtuse to acute. Florets pale yellow [or purplish], to 1.3 × as long as involucre. Achene blackish, ± concolorous, cylindric, 4–5 mm, with hollow cylindric 1–1.5 mm carpophore, usually with 5 smooth or somewhat spinulose main ribs and ca. 10 secondary ribs. Pappus gray, usually 8–9 mm. Fl. and fr. May–Jun. 2n = 12.

Leeward slopes on sand dunes, clay and gravelly areas; 500–1000 m. Xinjiang [Afghanistan, Kazakhstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].


鼠毛菊 shu mao ju

**Scorzoner a hemilasia** Bunge, Beitr. Fl. Russl. 201. 1852; **Epilasia cenopleura** (Bunge) C. B. Clarke ex Sojak; **E. hemilasia var. nana** (Boissier & Buhse) Kuntze; **E. intermedia** (Bunge) C. B. Clarke ex Sojak; **S. cenopleura** Bunge; **S. intermedia** Bunge; **S. nana** Boissier & Buhse.

Herbs usually 5–50 cm tall, annual. Stem ascending to erect, unbranched or moderately branched often already from base, arachnoid hairy, glabrescent, basally densely and higher up distantly leafy. Leaves narrowly spatulate or narrowly lanceolate to linear-lanceolate, 2–9 × 0.3–1.5 cm, ± arachnoid hairy, base attenuate and finally semiamplexicaul, margin densely microdentate, apex acute to acuminate. Synflorescence diffuse, panicle-like to corymbiform, with several capitula or more rarely capitulum solitary. Involucre ovoid-cylindric to globose, 1.2–1.4 × 0.8–1 cm at anthesis, 1.5–1.7 × ca. 1.5 cm in fruit (outer phyllaries not counted). Outer phyllaries lanceolate, usually 2–4 cm, herbaceous and similar to upper stem leaves, distinctly longer than inner phyllaries, apex acuminate; inner phyllaries lanceolate, leathery, margin somewhat scarious, apex obtuse to acute. Florets pale yellow, slightly longer than involucre. Achene blackish, cylindric, 6–7 mm, with hollow ± cylindric 1–2 mm carpophore, body in lower half with 10 pale narrow raised often somewhat spinulose ribs, upper half covered and hidden by conic caplike pappus disk and pappus. Pappus gray, 8–10 mm. Fl. and fr. Apr–May. 2n = 12, 24.

Sand or clay areas, grasslands; 800–1500 m. Xinjiang [Afghanistan, Kazakhstan, Pakistan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].

The unique achene of **Epilasia hemilasia** is interpreted here through a modification of the pappus disk. Normally the pappus disk is a ± flat disklke (or because of its central opening for the vascular strands connecting achene and floret actually rather ringlike) structure bearing the pappus bristles and crowning the achene apex. In this species, the pappus disk is modified to a caplike structure covering the equally fertile apical half of the achene. This interpretation is supported by the fact that the outer series of plumose pappus bristles arises from the callose ringlike structure in the middle third of the achene (morphologically indistinguishable from the outer series of bristles on the pappus disk of **E. acrolasia**), while other bristles are basally slightly adnate to and then arise from the unribbed, pale brown surface between the callose ring and the achene apex, and the innermost series of ca. 5 bristles arises at the achene apex. The trichomes covering the surface between the bristles are considered as homologues to those at the base of the bristles in **E. acrolasia** and to the soft fimbriae of the plumose **Scorzoneraceae** pappus in general.


婆罗门参属 po luo men shen shu

Shi Zhu (石铸 Shih Chu); Alexander P. Sukhorukov, Evgeny V. Mavrodiev

Herbs, perennial, biennial, or rarely annual, glabrous or tomentulose to floccose [or lanate] especially at leaf bases and below capitula, often glabrescent; if biennial then vertical roots spindle-shaped; if perennial then with well-developed caudex. Stem simple or sparingly branched. Leaves basal and cauline, sessile, linear, lanceolate, or narrowly oblong, margin entire or undulate. Capitulum terminal, solitary or sometimes capitula few to many, large, with (20–)40–180 or more florets; peduncle often apically inflated and normally without bracts. Involucre cylindrical at anthesis, mostly 10–20 mm or more in diam. Phyllaries 5–15(or 16), in (1 or 2) row(s), linear-lanceolate, triangular-lanceolate, or linear, ± equal, abaxially glabrescent [with intertwining hairs], margins white and narrowly pellucid, apex acute. Receptacle naked. Florets with ligules yellow, mauve, orange, purple, or violet. Achene dark to pale brown, straw-colored, or whitish, heteromorphic, outer ones ± cylindric or curviform (fusiform), central ones cylindric and less tuberculate or smooth; achene body normally tuberculat, with 5 fairly well-differentiated ribs, with or rarely without hollows in pericarp; beak...
slender or stout if present; pappus disk ± pubescent. Pappus persistent, dirty white, yellowish, or slightly fulvous; awns 12–20 or more in 1 or 2 rows, unequal, softly fimbriately plumose, apically scabrid.

More than 150 species: mainly in C and SW Asia and S Europe; 19 species (two endemic, one introduced) in China.

1. Tragopogon capitatus

1a. Outer achenes (without pappus) 3.7–4.5 cm; ligules violet; cultivated/alien biennial or annual plants

1b. Outer achenes (without pappus) not more than 3.5 cm; ligules of various colors; non-cultivated perennial or biennial plants.

2a. Peduncle mostly reduced; small plants to 20 cm tall

2b. Peduncle not reduced, always well developed; plants also taller.

3a. Pappus awns clearly unequal, longest 2–5 ca. 7 mm and remainder ca. 4 mm; achenes

1–1.3 cm, beakless

3b. Pappus awns slightly unequal, length ratio ca. 1.2:1; outer achenes longer than 2 cm.

4a. Peduncle with dark hairs; ligules violet; plants biennial

5a. Perennial polycarpics 10–35(–40) cm tall; ligules mauve, violet, purplish, rarely (T. gracilis) adaxially yellow but then abaxially with pink or mauve spot.

6a. Outer achenes (without pappus) 1–2 cm, body pale brown, 1.2–1.6 mm in diam., and terete or sometimes with 5 fairly well-differentiated ribs, beak slender, 0.2–0.6 mm in diam.; hollows in pericarp 40–50 µm in diam.; pappus dirty white; plants to 20(–30) cm tall.

7a. Ligules adaxially yellow, abaxially with a pink or mauve spot; pappus always slightly longer than achene body

7b. Ligules reddish purple; pappus equaling or slightly shorter than achene body

8a. Achene:pappus ratio ca. 1.5:1; basal leaves lanceolate

9b. Peduncle apically distinctly inflated

10a. Plants glabrous

10b. Plants tomentulose to floccose.

11a. Beak of outer achenes well differentiated from body

11b. Beak of outer achenes slightly differentiated from body

5b. Biennial monocarpics 40–150 cm tall; ligules yellow or yellowish orange.

12a. Peduncle apically distinctly inflated.

13a. Outer achenes (without pappus) 2–2.3 cm, body 2–2.5 mm in diam., beak 2–5 mm and stout

13b. Outer achenes (without pappus) more than 2.3 cm, body to 2 mm in diam., beak 0.7–1.7 cm and slender.

14a. Phyllaries 6–9 cm; outer achenes with pappus 5.5–7 cm

14b. Phyllaries 4–5.5(–6) cm; outer achenes with pappus 4.4–6 cm.

15a. Number of phyllaries 5–8

15b. Number of phyllaries (8–)10–12(–14)

16a. Outer achenes with beak to 3 mm or without beak; plants floccose

17a. Phyllaries slightly longer than florets

17b. Phyllaries shorter than florets.

18a. Ligules yellowish orange; outer achenes (without pappus) ca. 1.7 cm

18b. Ligules pure yellow; outer achenes (without pappus) (1.8–)2–2.5 cm


头状婆罗门参 tou zhuang po luo men shen

Herbs 40–100 cm tall, biennial. Stem simple or branched from lower or middle third, glabrous. Basal and lower cauline leaves linear to lanceolate, 15–35 × 0.3–0.7 cm. Capitula solitary to few; peduncle inflated, 0.7–1.5 cm in diam. Involucre 6.5–9 cm. Phyllaries 8–12(–14), longer than florets and equaling or 1/4 longer than achenes with pappus. Ligules yellow. Outer achenes 3–3.5 cm; body pale brown, ± curviform, 1.4–1.8 mm in diam., with 5 fairly well-differentiated ribs,
tuberculate; beak whitish, 1.5–2.2 cm, slender, non-tuberculate or toothed, apically inflated; pappus disk ± tomentulose. Pappus dirty white, 2.5–3.5 cm. Fl. and fr. Apr–Jun. 2n = 12.

Stony steppes, grassy slopes, base of mountains, ditches, roadsides; 500–2000 m. Xinjiang [Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan].


北疆婆罗门参 bei jiang po luo men shen

Herbs 40–80(–100) cm tall, biennial. Stem simple or branched from lower or middle third, erect, glabrous. Basal and lower cauline leaves linear to lanceolate, 15–30 × 0.3–0.5 cm. Capitula solitary to few; peduncle inflated, 7–11 mm in diam. Involucrre 4–5.5 cm. Phyllaries (5–)7 or 8, longer than florets, equaling or longer than achenes with pappus. Ligules yellow. Outer achenes 2.4–3 cm; body pale brown, ± curviform, (1.5–)1.7–2 mm in diam., with 5 fairly well-differentiated ribs, tuberculate; beak whitish, 1–1.7 cm, slender, non-tuberculate or toothed, apically ± inflated; pappus disk ± pubescent. Pappus dirty white, 2.2–3 cm. Fl. and fr. Apr–Jun.

Meadows, river valleys, dry mountain slopes, plateaus; 1000–2000 m. Xinjiang [Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan].

3. **Tragopogon dubius** Scopoli, Fl. Carniol., ed. 2, 2; 95. 1772.

霜毛婆罗门参 shuang mao po luo men shen

Herbs 40–80(–100) cm tall, biennial. Stem erect, simple or branched from lower or middle third, glabrous. Basal and lower cauline leaves linear to lanceolate, 15–40 × 0.3–0.5 cm. Capitula solitary to few; peduncle inflated, 7–10 mm in diam. Involucrre 4–5.5 cm at anthesis, to 7 cm in fruit. Phyllaries 8–12(–14), longer than florets, equaling or longer than achenes with pappus. Ligules yellow. Outer achenes 2.2–3 cm; body pale brown, ± curviform, 1.4–1.7 mm in diam., with 5 fairly well-differentiated ribs, tuberculate; beak whitish, 1.2–1.6 cm, slender, non-tuberculate or toothed, apically inflated; pappus disk pubescent. Pappus dirty white, 2.2–2.8 cm. Fl. and fr. Apr–Jun. 2n = 12.

Stony steppes, grassy slopes at base of mountains, ditches; 500–2000 m. Xinjiang [Kazakhstan, Mongolia, SC Russia–Europe].


准噶尔婆罗门参 zhun ga er po luo men shen

Herbs 40–80 cm tall, biennial. Stem erect, branched from middle third or above, glabrous. Basal and lower cauline leaves linear, 15–30 × 0.2–0.5 cm. Capitula solitary to few; peduncle not inflated, 3–5 mm in diam. Involucre 2.5–3.5 cm. Phyllaries 7 or 8(of 9), equaling or longer than florets, equaling or shorter than achenes with pappus. Ligules yellow, often light blue when dry. Outer achenes 1.8–2.2 cm; body pale brown, ± curviform or almost straight, 1.5–1.8 mm in diam., with 5 fairly well-differentiated ribs, tuberculate; beak whitish, 7–10 mm, abruptly differentiated from body, slender, non-tuberculate or toothed, apically ± inflated; pappus disk pubescent. Pappus dirty white, 1.5–2 cm. Fl. and fr. Jun–Aug.

Meadows, forest margins, semi-deserts; 500–2200 m. Xinjiang [Kazakhstan, Mongolia, SC Russia].


阿尔泰婆罗门参 a le tai po luo men shen

Herbs, 40–120 cm tall, biennial. Stem erect, strongly branched, glabrous. Basal and lower cauline leaves lanceolate, 15–40 × 0.4–1(–1.3) cm. Capitula few to many; peduncle not inflated, 3–5 mm in diam. Involucrre 2.5–3 cm. Phyllaries 7–9(or 10), ca. 2/3 as long as florets, equaling achenes with pappus. Ligules yellowish orange. Outer achenes 1.3–1.8 cm; body pale brown, ± curviform or almost straight, 1.4–1.6 mm in diam., not ribbed and slightly tuberculate; beak pale, 2–6 mm, slender, smooth, apically not inflated; pappus disk ± pubescent. Pappus dirty white, 1–1.5 cm. Fl. and fr. Jun–Aug.

Mountain meadows, stony slopes in hills; 1500–3000 m. Xinjiang [Kazakhstan, Mongolia, SC Russia].

Tragopogon altaicus has previously been mistaken by C. H. An (Fl. Xinjiang. 5: 380. 1999) for *T. pratensis* Linnaeus, which is not present in China.


东方婆罗门参 dong fang po luo men shen

Herbs 40–100 cm tall, biennial. Stem erect, normally branched, glabrous. Basal and lower cauline leaves linear to lanceolate, 15–30 × 0.3–1 cm. Capitula solitary to few; peduncle not inflated. Involucrre 2–3.5 cm. Phyllaries 7–9(or 10), 1.3–1.5 × as long as florets, equaling or shorter than achenes with pappus. Ligules golden yellow. Outer achenes 1.8–2.5 cm; body pale brown, ± curviform or almost, 1.4–1.6 mm in diam., tuberculate; beak whitish, 0.8–1.3 cm, slender, non-tuberculate, apically almost not inflated; pappus disk ± pubescent. Pappus dirty white, 1.5–2.5 cm. Fl. and fr. May–Jul. 2n = 12*.

● Mountain meadows; 1000–2100 m. Xinjiang.

The identity of *Tragopogon orientalis* var. *latifolius* needs to be confirmed, including whether or not it belongs to *T. orientalis*. The overall distribution of *T. orientalis* outside of China includes Kazakhstan, Mongolia, and Russia, as well as Europe and North America.


沙婆罗门参 sha po luo men shen

Herbs 50–150 cm tall, biennial. Stem erect, branched from middle third, glabrous. Basal and lower cauline leaves linear to lanceolate, 15–40 × 0.5–1 cm. Capitula few to 10(–12); peduncle inflated under capitulum, 5–10 mm in diam. Involucrre 3.5–5(–6) cm. Phyllaries 8–10(–12), smaller than florets and achenes with pappus. Ligules yellow. Outer achenes 2.2–2.3 cm; body pale brown, slightly curviform or straight, 2–2.5 mm in diam., tuberculate, with 5 fairly well-differentiated ribs; beak 2–5 mm, attenuate or stout, with inflated apex; pappus disk floccose. Pappus dirty white, 2–2.7 cm. Fl. and fr. May–Jul.

Sand dunes; 800–1500 m. Xinjiang [Kazakhstan, SC Russia].

Traganopon podolicus (Besser ex Candolle) Artemczuk


Herbs 40–80(–100) cm tall, biennial. Stem erect, branched from middle third, pubescent. Basal and lower cauline leaves lanceolate-subulate, 7–15 × 0.2–0.4 mm, margin sometimes adaxially rounded. Capitulum solitary; peduncle not inflated. Involure 1.5–2.5 cm. Phyllaries 7 or 8, ± equaling florets and achenes with pappus. Ligules yellow. Outer achenes 1–1.3 cm; body pale brown, slightly curviform, 0.9–1.2 cm, ca. 1 mm in diam., slightly tuberculate; pappus disk ± pubescent. Pappus dirty white, 1–1.3 cm. Fl. and fr. May–Jul. 2


_xian xi po luo men shen_

Herbs to 20(–30) cm tall, perennial. Caudex stout. Stems few, simple, slender, erect, glabrous. Basal and lower cauline leaves lanceolate-subulate, 7–15 × 0.2–0.4 mm, margin sometimes adaxially rounded. Capitulum solitary; peduncle not inflated. Involure 1.8–2.3 cm at anthesis, to 3.5 cm in fruit. Phyllaries 5–7, shorter than florets and ± equaling achenes with pappus. Ligules bicolored, abaxially with pink or mauve spot, adaxially yellow. Outer achenes 1.3–1.8 cm; body pale brown, slightly curviform, 1.3–1.6 mm in diam., slightly tuberculate, with small (to 40–50 µm in diam.) hollows in pericarp; beak slender, 5–7 mm. Pappus dirty white, 1.5–2 cm. Fl. and fr. Apr–Jun. 2n = 12, 24.

Mountain slopes, river terraces; 2500–3500 m. Xinjiang [Kazakhstan, Russia (W Asian and E European parts)].


_gao shan po luo men shen_

Herbs to 10(–25) cm tall, perennial. Caudex stout. Stems few, simple, slender, erect, glabrous. Basal and lower cauline leaves linear-lanceolate, 10–20 × 0.4–1 cm. Capitulum solitary to few; peduncle not inflated. Involucre 1.5–2.5(–3.5) cm. Phyllaries 7 or 8, ± equaling florets and achenes with pappus. Ligules reddish purple. Outer achenes 1.3–1.7 cm; body pale brown, straight or slightly curviform, 1.2–1.4 mm in diam., smooth or slightly tuberculate, with small (to 40–50 µm in diam.) hollows in pericarp; beak slender, ca. 6 mm. Pappus dirty white, ca. 1.5 cm. Fl. and fr. Jun–Jul.

Mountain grasslands; 3000–3500 m. Xinjiang [Kazakhstan, Kyrgyzstan].


_ishu ye po lu men shen_

Herbs 40–125 cm tall, biennial or annual. Stem erect, simple or branched from middle third, glabrous or slightly tomentulose. Basal and lower cauline leaves lanceolate or linear, 15–40 × 0.3–0.7 cm, marginally often undulate. 6–12 mm in diam.; peduncle inflated. Capitulum solitary to few. Involucre 4–5 cm at anthesis, to 8 cm in fruit. Phyllaries 7 or 8, ca. 1/3 longer than florets and ± equaling achenes with pappus. Ligules violet. Outer achenes 3.7–4.5 cm; body pale brown, curviform, 1.4–1.6 mm in diam.; beak whitish, 2–2.5 cm, slender, smooth, apically inflated; pappus disk ± tomentulose. Pappus dirty white, 2.7–3.7 cm. Fl. and fr. May–Aug. 2n = 12.

700–2000 m. Naturalized or cultivated in Beijing, Guizhou, Shaanxi, Sichuan, Xinjiang, and Yunnan [native to Europe].

_Tragopogon porrifolius_ is naturalized in S Africa, Asia, Australia, North America, and perhaps Oceania.

This is a polyphyletic taxon. The relationship of Chinese plants requires more investigation.


_zhong ya po luo men shen_

Herbs 20–35 cm tall, perennial. Caudex stout. Stem single, erect, branched from middle third, glabrous, ± lanate, tomentulose, or glabrescent at nodes and below capitula. Basal and lower cauline leaves lanceolate to narrowly oblong, abaxially keeled, sometimes folded along midvein. Capitulum solitary to few; peduncle ± inflated, 4–8 mm in diam. Involucr 3 cm at anthesis, 4.5–5 cm in fruit. Phyllaries 8, equaling or shorter than florets. Ligules purple to violet. Outer achenes 2.2–2.7 cm; body whitish, straight to ± curved, 1.8–2.2 mm in diam., tuberculate, with 5 fairly well-differentiated ribs; beak 3–5 mm, stout, apically ± inflated; pappus disk ± tomentulose. Pappus slightly fulvous, 2.2–2.5 cm. Fl. and fr. Apr–Jun.

Mountain slopes, river valleys, sandy soils; 500–2000 m. Xinjiang [Kazakhstan, Kyrgyzstan].


_mo yuan po luo men shen_

Herbs 20–35 cm tall, perennial. Caudex stout. Stem single, erect, simple or branched from middle third or higher, glabrous or tomentulose/toiicose at nodes and below capitula. Basal and lower cauline leaves lanceolate to oblong, 10–30 × 0.5–2 cm, margin white, ± undulate and membranous. Capitulum solitary to few; peduncle not inflated. Involucr 2.5–4 cm. Phyllaries 8, lanceolate, shorter than or equaling florets and achenes with pappus. Ligules purple to mauve. Outer achenes 2.2–2.7 cm; body whitish, straight to ± curved, 2–2.5 mm in diam., tuberculate, with 5 fairly well-differentiated ribs; beak 3–5 mm, stout, apically ± inflated; pappus disk ± tomentulose. Pappus slightly fulvous, often with tinge of red, 2–2.5 cm. Fl. and fr. Apr–Jun. 2n = 12.

Stony slopes, sandy deserts; 800–1400 m. Xinjiang [Kazakhstan, Kyrgyzstan, Russia (E and S European parts), Uzbekistan].

**长茎婆罗门参** chang jing po luo men shen

Herbs 15–35 cm tall, perennial. Caudex stout. Stem single, erect, simple or branched from middle or upper third, glabrous or tomentulose/floccose at nodes and below capitula. Basal and lower cauleine leaves lanceolate, 10–20 × 4–8 cm, margin membranous and sometimes ± crisped. Capitula solitary to few; peduncle not inflated. Involucrre 2–3 cm. Phyllaries 7 or 8, often darkly colored. Ligules purple to mauve. Outer achenes 1.8–2.2 cm; body whitish, straight to ± curved, 1.8–2.2 mm in diam., tuberculate, with 5 fairly well-differentiated ribs; beak 7–10 mm, stout, apically ± inflated; pappus disk ± tomentulose. Pappus slightly fulvous, 2–2.5 cm. Fl. and fr. Apr–Jun. 2n = 12.

Mountains; 1200–2500 m. Xinjiang [Kazakhstan, Kyrgyzstan, SC Russia, Tajikistan, Uzbekistan; SW Asia].


**西伯利亚婆罗门参** xi bo li ya po luo men shen

Herbs 0.5–1 m tall, biennial. Stem erect, simple or branched from middle third, glabrous. Basal and lower cauleine leaves lanceolate to linear, 15–40 × 0.4–1 cm, margin flat. Capitula solitary to few; peduncle with dark hairs, ± inflated. Phyllaries 7 or 8, ca. 1/3 longer than florets and equaling achenes with pappus. Ligules violet. Outer achenes 1.8–2.4 cm; body smooth or subtuberculate on 5 fairly well-differentiated ribs; beak 0.6–1.4 cm, slender, ± inflated; pappus disk ± tomentulose. Pappus dirty white, 1.5–2 cm. Fl. and fr. Jun–Aug. 2n = 12.

Forest margins; ca. 1700 m. Xinjiang [Russia (W Asian and E European parts)].


红花婆罗门参 hong hua po luo men shen

*Tragopogon ruber* var. *leucocarpus* C. H. An.

Herbs 15–35 cm tall, perennial. Caudex stout. Stem single, erect, simple or branched from middle third or above, glabrous or tomentulose/floccose at nodes and below capitula. Basal and lower cauleine leaves lanceolate to oblong, 10–30 × 0.5–2 cm, margin white, ± undulate, and membranous. Capitula solitary to few; peduncle not inflated. Involucrre 3.5–6 cm. Phyllaries 8, lanceolate, equaling or shorter than florets and achenes with pappus. Ligules purple to mauve. Outer achenes 1–1.3 cm; body whitish, straight to ± curved, 1.8–2.2 mm in diam., tuberculate, with 5 fairly well-differentiated ribs; beak 5–10 mm, stout, apically ± inflated; pappus disk ± tomentulose. Pappus slightly fulvous, often with tinge of red, 2–2.5 cm. Fl. and fr. Apr–Jun. 2n = 12.

Mountains, sand dunes; 500–1500 m. Qinghai, Xinjiang [Kazakhstan, Kyrgyzstan].


**山地婆罗门参** shan di po luo men shen

Herbs 0.5–1 m tall, biennial. Stem erect, simple or branched from middle third or above, glabrous or tomentulose/floccose at nodes and below capitula. Basal and lower cauleine leaves lanceolate to linear, 15–40 × 0.4–1 cm, margin flat. Capitula solitary to few; peduncle with dark hairs, ± inflated. Phyllaries 8–10, lanceolate. Ligules yellow. Outer achenes 1.5–2 cm; beakless. Pappus dirty white, ca. 2 cm. Fl. and fr. Jun–Aug.

*Tragopogon verrucosobracteatus* is poorly known and requires more investigation.


**长苞婆罗门参** chang bao po luo men shen

Herbs 20 cm tall, perennial. Stem simple, densely covered with lanceolate or linear leaves, gradually decreasing in size toward apex. Capitulum solitary; peduncle mostly reduced, not inflated. Phyllaries 8–10, lanceolate. Ligules yellow. Outer achenes 1.5–2 cm, beakless. Pappus dirty white, ca. 2 cm. Fl. and fr. Jun–Aug.

*Tragopogon heteropappus* is poorly known and requires more investigation.


花佩菊属 hua pei ju shu

*Faberiopsis* C. Shih & Y. L. Chen.

Herbs, perennial, often rosulate, with rhizomes. Stem leafy or ± leafless. Leaves lyrately pinnate or undivided, leathery. Capitula...
with 5–30 florets. Involucre ± narrowly cylindric to ± narrowly campanulate. Phyllaries mostly glabrous; outer phyllaries in several series, gradually longer centripetally, often conspicuously imbricate, longest ca. 1/2 as long as inner ones; inner phyllaries 5–14, ± equal in length, ± linear-lanceolate to linear. Receptacle naked. Florets reddish to bluish purple. Achenes brown to reddish brown, subcylindric to narrowly ellipsoid, rather weakly compressed, with 5 main ribs and 1 or 2 narrower ribs in between, apex truncate. Pappus brownish, single, of strong scabrid bristles.

- Seven species: China.

Systematic placement and circumscription of the genus have been revised based on molecular phylogenetic analyses of subtribes Lactucaeae and Crepidaeae (J. W. Zhang & N. Kilian, in prep.; N. Kilian et al., in prep.), N. Kilian et al. (in V. A. Funk et al., Syst. Evol. Biogeogr. Compositae, 348–350, 2009) placed Faberia in subtribe Crepidaeae, but now ITS phylogenies show it on a very basal branch in subtribe Lactucaeae. Recent additions to the genus by Sennikov (Komarovia 5: 109–110, 2008) are based on a different genus concept and are, as far as relevant for the flora of China, not supported. Karyological studies (Y. Liu, T. Deng & Q. E. Yang, pers. comm.) have revealed that the four species investigated have the unusual basic chromosome number of x = 17, perhaps indicating a hybrid origin of this genus.

Prenanthes glandulosa Dunn (J. Linn. Soc., Bot. 35: 514. 1903), which was initially placed by the first author in Notoseris (N. glandulosa (Dunn) C. Shih), is only known from the holotype at K, a piece of a flowering plant raised from seeds collected in “West China.” It seems to be a distinct species, perhaps referable to Faberia, as may be assumed from the involucre (purplish, inner phyllaries ca. 6, outer ones linear as in F. lancifolia), the 10–12 blue (or purple?) florets, and the pale straw-colored pappus. The lower leaves have a broadly ovate blade with cordate base and a distinct, basally sheathlike widened and clasping petiole. The axes of the paniculiform to corymbiform synflorescence are densely glandular hairy, a feature otherwise not known from Faberia.

1a. Leaves lyrately pinnatifid to lyrately pinnatisect.

2a. Leaves with terminal lobe much larger than lateral lobes, to 2/3 of entire leaf; involucre 1.4–1.5 cm; inner phyllaries usually 12–14; capitula with 20–30 florets ................................................................. 3. F. sinensis

2b. Leaves with terminal lobe never conspicuously larger than lateral lobes; involucre 1.1–1.3 cm; inner phyllaries ca. 8; capitula with 10–15 florets ............................................................................................................ 4. F. ceterach

1b. Leaf blade not divided or at most coarsely sinuate-dentate.

3a. Leaf blade lanceolate to narrowly elliptic or oblanceolate, at least ca. 3 × as long as wide.

4a. Capitula many in a leafless narrowly paniculiform synflorescence ........................................................................ 1. F. lancifolia

4b. Capitula 1–3 on short branchlets subtended by upper stem leaves .......................................................... 2. F. nanchuanensis

3b. Leaf blade broadly elliptic, ovate, or pentagonal, mostly not more than ca. 2 × as long as wide.

5a. Leaves on stem, with petiole usually shorter than blade; leaf blade triangular-ovate to pentagonal; capitula with 5 florets; inner phyllaries 5 .............................................................................................................. 7. F. faberi

5b. Most leaves basal, with petiole distinctly longer than blade; leaf blade broadly elliptic to ovate; capitula with 10–20 florets; inner phyllaries at least 8.

6a. Leaf blade mostly more than 5 cm; synflorescence corymbiform, with some capitula; florets bluish purple ........................................................................................................................................... 5. F. cavelricei

6b. Leaf blade at most ca. 4 cm; synflorescence sparsely branched, with 1–4 capitula only; florets purplish, drying yellowish .................................................................................. 6. F. thibetica


假花佩菊 jia hua pei ju

Lactuca glabra C. C. Chang (1934), not Candolle (1838).

Herbs 30–70 cm tall, perennial. Rhizomes short, oblique, with many slender roots. Stem erect, ± branched from middle, sparsely hairy especially apically, leafy especially in basal portion. Basal leaves lanceolate and attenuate into a petiole-like basal portion to 1/3 of its length, 9–21 × 1–2.5 cm, base narrow, margin entire, apex acute to acuminate. Stem leaves usually 4 or 5, rather distant, similar to basal leaves but successively smaller; uppermost stem leaves reduced to linear-lanceolate bracts. Synflorescence narrowly paniculiform, with many capitula; branches wiry, spreading-erect, mostly 3–7 cm, with (1 or)2–6 capitula. Capitula with ca. 10 florets; peduncle 0.5–2 cm, conspicuously bracteate; bracts linear-lanceolate, 2–3 mm, spreading. Involucre purplish, 1–1.3 cm. Outer phyllaries linear-lanceolate, longest 5–6 mm; inner phyllaries ca. 6. Florets dark bluish purple. Achenes pale brown, 3–4 mm. Pappus 5–6 mm. Fl. and fr. Aug–Sep.

- Crevices and ledges of cliffs by streams; 2100–2500 m. Yunnan (Tengchong).

Fabera lancifolia is a conspicuous but rare species, apparently only known from the type collection made in 1912.


假花佩菊 jia hua pei ju

Faberopsis nanchuanensis (C. Shih) C. Shih & Y. L. Chen.

Herbs 30–40 cm tall, perennial. Rhizomes short, horizontal. Roots long stretching. Stem solitary, dark purple, erect and weakly zigzag, slightly diverging at each node from perpendicularly, weakly branched in apical portion, glabrous except for somewhat brown lanate leaf axils, distantly leafy. Basal leaves few to some; petiole ± purplish, 5–12 cm; leaf blade narrowly elliptic, 4–14 × 1–3 cm, base cuneate, margin inconspicuously mucronately sinuate-dentate, apex acuminate. Stem leaves usually 5–7; petiole 1–9 cm, shorter upward; leaf blade narrowly elliptic to lanceolate but uppermost ones narrowly lan-
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colate, otherwise like basal leaves, abaxially somewhat tinged purplish. Synflorescence of 1 to few short branchlets subtended by upper stem leaves, each with 1–3 capitula. Capitula with usually 15–20 florets. Involucrure green and tinged purple, 1.1–1.3 cm. Phyllaries with apex obtuse to acute; outer phyllaries triangular-ovate to lanceolate, longest ca. 5 mm, margin ± ciliate; inner phyllaries usually 9–12, apically ciliate. Florets bluish purple. Achene not seen when mature. Pappus 7–8 mm. Fl. and fr. Jun–Aug. 2n = 34*.

- Wet places in ravines, on banks of pools and creeks; 600–700 m. Chongqing (Nanchuan).

C. Shih and Y. L. Chen (Acta Phytotax. Sin. 34: 439. 1996) described the ligule of the florets on the basis of the holotype as trisect with a larger 3-dentate middle segment and founded on this particularity the new genus Faberiopsis. Other collections of Faberia nanchuenensis, however, show the usual 5-dentate ligule of the Cichorieae, and both morphological and molecular data (J. W. Zhang et al., in prep.) corroborate its placement in Faberia. The species is morphologically closest to F. lancefolia.


Herbs 25–70 cm tall, perennial, rosulate. Basal leaves similar to basal leaves but with shorter petiole for 1–3 cm, apex acute to acuminate; lateral lobes 7–15, semiorbicular to ovate, gradually smaller toward leaf base; terminal lobe lanceolate. Synflorescence narrowly paniculiform, with usually 10–20 capitula. Capitula with 10–15 florets. Involucrure 1.1–1.3 cm. Phyllaries purplish red, abaxially glabrous; outer phyllaries triangular-ovate to lanceolate, longest 3–4 mm, apex acute; inner phyllaries ca. 8, apex obtuse. Florets purplish to bluish. Achenes reddish brown, 3.5–4.5 mm. Pappus 6–7 mm. Fl. and fr. Jul. and fr. Jun–Jul. 2n = 34*.

- Densely shaded woods; 900–1500 m. Guangxi (Ziyuan), Guizhou (Guiyang).

Faberia ceterach seems only to be known from a few collections made in the early 20th century.


Guan hua hua pei ju


Herbs 60–80 cm tall, perennial, rosulate, glabrous or sparsely hairy. Rhizomes with many slender roots. Stem erect, branched apically, sparsely leafy. Basal leaves rosulate; petiole 12–14 cm; leaf blade broadly elliptic to ovate, 9–14 × 4–6 cm, base cordate, truncate, or shortly cuneate, margin shallowly sinuate and distantly shortly mucronulately dentate, apex acute to acuminate. Stem leaves with petiole 1–3 cm; leaf blade lanceolate, smaller and narrower but otherwise similar to basal leaves, apex acuminate. Synflorescence corymbiform. Capitula with usually 10–20 florets, sessile or pedunculate; peduncle (when present) 2–5 cm, slender. Involucrure 1.2–1.4 cm. Phyllaries purplish red, abaxially glabrous; outer phyllaries triangular-ovate to lanceolate, longest 0.5–0.7 mm, apex acute to obtuse; inner phyllaries 8, apex obtuse. Florets bluish purple. Achenes reddish brown, 4–4.5 mm. Pappus 7–8 mm. Fl. and fr. Jun–Jul. 2n = 34*.

- Densely shaded woods; 900–1500 m. Guangxi (Ziyuan), Guizhou (Guiyang).

Faberia cavaleriei is rare and only known from a few collections.


光滑花佩菊 guang hua hua pei ju

Lactuca thibetica Franchet, J. Bot. (Morot) 9: 293. 1895.

Herbs 15–35 cm tall, perennial, rosulate. Rhizomes with many slender roots. Stem erect, simple or sparsely branched, glabrous, not or very sparsely leafy. Basal leaves rosulate; petiole 4–11 cm; leaf blade triangular-ovate, 2–4 × 1–3 cm, base cordate or unequally cordate, margin shallowly to coarsely sinuate-dentate, or irregularly coarsely dentate, apex acute to acuminate. Stem leaves similar to basal leaves but with shorter...
petiole and smaller narrower blade. Synflorescence sparsely branched, with 1–4 capitula. Capitula nodding at anthesis, with usually 15–25 florets. Involucre ca. 1.5 cm. Phyllaries abaxially glabrous; outer phyllaries triangular-ovate to linear-lanceolate, longest 1/2–2/3 as long as inner phyllaries, apex acute; inner phyllaries 10–12, apex subacute. Florets purplish, drying yellowish. Achene brown, ca. 5 mm. Pappus ca. 8 mm. Fl. and fr. Jul. 2n = 34*.

- Grasslands on mountain slopes; ca. 2700 m. Sichuan (Kangling).

**Faberia thibetica** is rare and only known from a few collections.

7. **Faberia faberi** (Hemsley) N. Kilian, Z. H. Wang & J. W. Zhang, **comb. nov.**

狭锥花佩菊 xia zhui hua pei ju


Herbs 1.2–2.5 m tall, perennial. Rhizomes horizontal, 1–2 cm in diam. Stem solitary, erect, ± glabrous, leafy, apically with or without branches as leafy as main stem. Stem leaves with petiole 2–6 cm; leaf blade triangular-ovate to pentagonal, 8–15 × 5–12 cm, glabrous or very sparsely with stiff hairs, base hastate to cordate, margin shallowly sinuately mucronately dentate and mucronately denticate, apex acute to acuminate; lower stem leaves rarely with a single pair of small, elliptic, entire, and subopposite to opposite lateral lobes. Synflorescences contracted paniculiform, with some to many capitula; branches short, wiry, often pilose. Capitula rather clustered, each with ca. 5 florets; peduncle 0–2 mm. Involucre ca. 10 × 3 mm. Phyllaries green, ± shortly white ciliate; outer phyllaries broadly ovate-triangular, longest 2.5–3(–5) mm, apex acute; inner phyllaries 5, apex obtuse. Florets pale purple. Achene brown, 3.5–4 mm. Pappus 6–8 mm. Fl. and fr. Jun–Aug.

- Mountain slopes, forest margins; 1800–3000 m. Chongqing, Guizhou, Sichuan, Yunnan.

Molecular phylogenetic analyses by N. Kilian et al. (in prep.) fully confirm the morphological affinity to **Faberia of F. faberi**, previously classified under **Prenanthes** (e.g., FRPS 80(1): 189. 1997).

The syntypes of **Prenanthes vitifolia**, collected by Rosthorn in Chongqing in 1891 and conserved at O with the annotation in Diels’s hand “**Prenanthes vitifolia Diels**” on the printed label of O, are evidence that **P. vitifolia** is conspecific with **Faberia faberi**. The sheet at O with the collection number “470” on an original handwritten label is designated here as the lectotype of the name **Prenanthes vitifolia** Diels.


岩参属 yan shen shu

Shi Zhu (石铸 Shih Chu); Norbert Kilian

**Cephalorrhynchus** Boissier; **Galathenium** Nuttall; **Myceis** Cassini.

Herbs, perennial, often with rhizomes. Stem leafy. Leaves pinnae, lyrate pinnae, or undivided. Capitula with 5–20[–30] florets. Involucre narrowly to broadly cylindric or campanulate. Phyllaries glabrous [or abaxially appressed hairy]; outer phyllaries in several series, gradually longer centripetally, ± imbricate, longest ca. 1/2(–3/4) as long as inner ones; inner phyllaries 5–10, ± equal in length, ± linear-lanceolate to linear. Receptacle naked. Florets bluish or purplish, exceptionally white. Achene some shade of brown, subcylindric, ± ellipsoid, or ± fusiform, weakly to distinctly compressed, with 5 main ribs (2 lateral and sometimes strongly enlarged, 1 median ventrally, and 2 median dorsally), also with 0–2 slender ribs in between main ribs, apex truncate, attenuate, or beaked. Pappus white, single of slender scabrid bristles or double and with an additional outer row of short hairs.

Probably ca. 20–30 species: C and SW Asia, Europe; seven species (five endemic) in China.

The circumscription of **Cicerbita** has been heavily in debate since its creation. The genus is used here in a revised circumscription inferred from most recent molecular phylogenetic and morphological studies of the entire subtribe (N. Kilian et al., in prep.), but its circumscription is still not settled, in particular concerning the species of C and SW Asia. Its concept with respect to the taxa occurring in China is therefore tentative and aims at keeping the nomenclatural changes to a minimum. Molecular phylogenetic analyses by N. Kilian et al. (in prep.) revealed that **Chaetoseris** as treated in FRPS (80(1): 266–283. 1997) is diphyletic. Whereas the larger part of the genus, including **C. lyriformis** (= Melanoseris beesiana), which provides the type of the generic name, is nested in the genus **Melanoseris**, the smaller part forms a distant clade close to **Cicerbita** (generic name typified by **C. alpina** Wallroth). The latter clade includes **Chaetoseris sect. Roborovskia** Tzevelev (Rast. Tsentr. Azi 14b: 98. 2008) and **Cicerbita azurea**. We place this clade here tentatively in **Cicerbita**. We, moreover, follow Tzvelev (Bot. Zhurn. 92: 1756. 2007; Rast. Tsentr. Azi 14b: 100. 2008) in placing **Youngia** sect. **Cyanoglossa** S. W. Liu & T. N. Ho (originally with two species described by S. W. Liu & T. N. Ho, Acta Phytotax. Sin. 39: 553–556. 2001; further two species added by Tzvelev, loc. cit.: 2007) in close proximity to **Chaetoseris sect. Roborovskia**. It was so far not possible to study material of any of these species, as the material was not made available on loan to us. We place this group (**Chaetoseris sect. Cyanoglossa** (S. W. Liu & T. N. Ho) Tzevelev) tentatively in **Cicerbita**. Finally, we leave **Cicerbita thianschanica**, which has not been included so far in the aforementioned molecular phylogenetic studies, in **Cicerbita**.

1a. Plants robust, 0.6–1.5 m tall and synflorescence racemiform .............................................................. 1. **C. thianschanica**

1b. Plants mostly rather delicate, mostly less than 0.6 m tall but sometimes to 0.9 m tall and synflorescence paniculiform.

2a. Basal leaves and lower and middle stem leaves usually with triangular-ovate to orbicular leaf blade contracted into a well-developed long unwinged petiole; involucre 11–13 mm .............................................................................. 4. **C. azurea**

2b. Leaves not as above, or if basal leaves with triangular-ovate to orbicular leaf blade and well-developed petiole present then involucre ≤ 8 mm; involucre 6–10(–12) mm.
3a. Basal leaves at anthesis usually missing; stem throughout leafy with well-developed conspicuously auriculately to sagittally clasping leaves.

4a. Capitula with usually 10–12 florets; involucre (8–9–10(–12) mm; inner phyllaries 8  

4b. Capitula with 5 florets; involucre 7–9 mm; inner phyllaries 5  

3b. Basal leaves at anthesis usually present; stem leaves few, reduced, undivided except for lowermost, and base not clasping.

5a. Involucre 9–10 mm; synflorescence divaricately branched; capitula with curved-erect peduncle 

5b. Involucre 6–9 mm; synflorescence not divaricately branched; capitula with straight spreading-erect peduncle.

6a. Basal and stem leaves usually entire or more rarely few basal leaves with a few broadly triangular lobes; florets blue 

6b. Basal and lowermost stem leaves runcinate; florets mauve  


天山岩参

Cichorieae


Herbs 0.6–1.5 cm tall, perennial. Rhizomes thick, woody. Stem solitary, erect, branched from middle or apically. Basal and lower stem leaves with petiole 8–9 cm, winged, semamplexicaul; leaf blade obovate to elliptical, to 16(–50) × 7–8(–9) cm, lyrate-marginally dentate; lateral lobes 2 or 3 pairs, elliptic; terminal lobe larger than lateral leaves, triangular-hastate, to 9 × 8 cm, apex acute to acuminate. Middle stem leaves sessile, auriculately clasping, similar to lower stem leaves. Upper stem leaves lanceolate to narrowslly elliptic, smaller, less or not divided. Synflorescence narrowly racemiform to 50 cm, with many capitula often clustered at nodes. Capitula with usually 10–20 florets; peduncle wiry, 1–3(–5) cm. Involucre broadly cylindric to campanulate, ca. 1.2 cm at anthesis, to 1.5 × 0.8 cm in fruit. Phyllaries glabrous or sparsely pubescent; outer phyllaries triangular-ovate to lanceolate, largest 7–9 × 1.5–2 mm; inner phyllaries ca. 8. Florets pale purple [to blue]. Achene brown, narrowly ellipsoid, ca. 5 mm, somewhat compressed, lateral ribs somewhat broadened, apex truncate. Pappus double, outer hairs 0.2–0.4 mm, bristles 6–7 mm. Fl. and fr. Jul–Sep. 2n = 18.

Mountain valleys, forests, along rivers; 1600–2000 m. Xinjiang [Kazakhstan, Tajikistan].


川甘岩参

Lactuca roborowskii Maximovicz, Bull. Acad. Imp. Sci. Saint-Pétersbourg 29: 177. 1883; Chaetoseris albiflora Tzvelev; C. potaninii Tzvelev; C. prattii (Dunn) Tzvelev; C. roborowskii (Maximovicz) C. Shih, L. prattii Dunn.

Herbs 20–90 cm tall, perennial. Rhizomes very short. Stem solitary, erect, apically branched and glabrous or with white, stiff, subulate, and partly glandular hairs. Basal and lower leaves with winged clasping petiole to 10(–15) cm; leaf blade narrowly obovate to elliptic, 4.5–16 × 1.5–6 cm, pinnatipartite to pinnatisect or lyrate so, glabrous, margin entire or with few larger teeth; lateral leaves 2–7 pairs, lanceolate, elliptic, or linear, recurved, apex acute to obtuse; terminal lobe triangular-ovate, ovate-sagittate, linear, or lanceolate, apex acute to obtuse. Middle and upper stem leaves shortly petiolate or sessile; leaf blade elliptic to lanceolate, smaller, narrower, and less divided than lower leaves, base sagittally to auriculately clasping. Synflorescence paniculiform, with numerous capitula. Capitula with 10–12 florets. Involucre narrowly cylindric, (8–)9–10(–12) × 3–4 mm. Phyllaries glabrous or with subulate hairs, apex acute to obtuse; outer phyllaries triangular-ovate to linear-lanceolate, longest ca. 3/4 as long as inner phyllaries; inner phyllaries 8. Florets blue to purplish blue, rarely white. Achene 4–5 mm; body dark reddish to blackish brown, ellipsoid, compressed, with broad lateral ribs; bead greenish to brownish, 1–1.5 mm, slender. Pappus double, outer hairs ca. 0.2 mm, bristles ca. 7 mm. Fl. and fr. Jul–Sep.

Thickets, grasslands; 1900–4200 m. Gansu, Ningxia, Qinghai, Sichuan, Xizang.

Chaetoseris albobiflora, with white florets and strongly recurved leaf lobes, recently described from Xizang, hardly deserves recognition as a separate taxon and is here placed in the synonymy of Cicerbita roborowskii. Another recently described species from Xizang and based on a single 19th century collection, Chaetoseris potaninii is said to be closely related to Cicerbita roborowskii but to have a strongly reduced outer pappus and leaves with only 1–3 pairs of lateral lobes each with 1 or 2 large teeth. As the division of the leaves in C. roborowskii shows some variation, this feature, although conspicuous, does not preclude conspecificity of Chaetoseris potaninii, neither does the stated pappus feature. A closer investigation of the material is pending, but for the time being C. potaninii is included in Cicerbita roborowksi. As no discontinuity could be observed between plants having leaves with narrow (linear to linear-lanceolate or narrowly elliptic), ± entire lateral and terminal lobes on the one hand and those having leaves with wider (broadly lanceolate to ovate), 1- or 2-toothed lobes (originally described as Lactuca pratii) on the other hand, the inclusion of this latter species starting with Beauverd in 1910 is therefore maintained.

3. Cicerbita auriculiformis (C. Shih) N. Kilian, comb. nov.

抱茎岩參


Herbs 45–80 cm tall, perennial. Stem solitary, erect, apically branched, glabrous. Lower stem leaves with petiole 6–11 cm, narrowly winged, ± clasping; leaf blade narrowly ovate, not divided or lyrate or non-lyrate pinnatisect; lateral lobes if present 1 or 2 pairs, obliquely ovate to oblong, recurved; terminal lobe 6.5–8.5 × 3.5–4.5 cm, base cordate, margin entire...
or shallowly sinuate-dentate, apex acute to obtuse. Middle and upper stem leaves similar to lower leaves but with broadly winged, sagittately to auriculately clasping petiole-like basal portion or sessile; lateral lobes 2–4 pairs, ca. 3 × 0.7–1 cm; terminal lobe triangular-hastate to lanceolate. Synflorescence paniculiform, with numerous capitula. Capitula with ca. 5 florets. Involucre narrowly cylindric, 7–9 × ca. 2 mm. Phyllaries green, glabrous; outer phyllaries triangular-ovate to linear-lanceolate, longest ca. 1/2 as long as inner phyllaries; inner phyllaries 5. Florets bluish purple. Achene ca. 4 mm; body ellipsoid, compressed, with broad lateral ribs; beak ca. 1 mm and thick. Pappus double, outer hairs 0.1–0.2 mm, bristles ca. 5 mm. Fl. and fr. Jul–Aug.

- Mountain slopes, along rivers, forests; 2000–2300 m. Gansu (Yuzhong), W Nei Mongol, Qinghai.

*Cicerbita auriculiformis* is closely related to *C. roborowskii*, although very distinct by its smaller capitula with only 5 inner phyllaries. This relationship was clearly expressed by S. W. Liu and T. N. Ho (Fl. Qinghai. 3: 312. 1996) when publishing it under the name *Chaetoseris qiliangshanensis*. However, the species had been known before, but it was, for its small capitula, misplaced in *Stenosera* as *S. auriculiformis* (e.g., FRPS 80(1): 286. 1997).


岩参 yan shen

Sonchus azureus Ledebour, Fl. Altaic. 4: 138. 1833; *Cicerbita azurea* var. glabra Sennikov; *C. glabra* (Sennikov) Tzvelev; *Lactuca azurea* (Ledebour) Danguy; *Mulgedium azureum* (Ledebour) Candolle.

Herbs 30–60 cm tall, perennial. Rhizomes horizontal or oblique. Stem solitary, erect, branched apically, ± with brownish glandular hairs or glabrous. Basal and lower stem leaves with petiole 4.5–5.5(–18) cm, narrowly winged or unwinged, base ± expanded and semiamplexicaul to clasping; leaf blade pinnatisect, abaxially sparsely villous but glabrescent, margin sinuate-dentate; lateral lobes 1 pair, elliptic-triangular to triangular; terminal lobe cordate, ovate, triangular-hastate, or rarely reniform, 2–8 × 1.5–6 cm, apex acuminate to rounded. Middle and upper stem leaves with winged petiole; leaf blade smaller, lateral lobes 1 pair or absent. Synflorescence racemiform to more rarely paniculiform, with few to many capitula. Capitula with usually 11–18 florets. Involucre cylindric, 1.1–1.3 × 0.4–0.6 mm. Phyllaries usually tinged deep violet, glandular hairy along midvein or glabrous; outer phyllaries lanceolate to linear-lanceolate, longest 6–9 mm; inner phyllaries 8–10, abaxially sparsely villous but glabrescent. Florets deep blue. Achenes pale brown, narrowly ellipsoid, 4–5 mm, weakly compressed, constricted for ca. 0.2 mm below pappus disk. Pappus double, outer hairs inconspicuous and ca. 0.1 mm, bristles 6–8 mm. Fl. and fr. Jul–Aug.

Forest margins, mountain slopes, open areas in forests, grasslands on flats; 600–2000 m. N Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, SC Russia].


振铎岩参 zhen duo yan shen


Herbs 15–30 cm tall, perennial, rosalate. Rhizome short. Stem erect, branched from base or higher up, glabrous or white pubescent. Rosette leaves glabrous or pubescent, margin ± entire. Early leaves with distinct 1.3–3 cm petiole; leaf blade triangular-ovate, 1–1.8 × 0.6–0.8 cm, base sagittate, truncate, or cuneate, apex obtuse to acute. Leaf blade of later rosette leaves elliptic to lanceolate, 4–8.5 × 0.3–0.8 cm, undivided to rarely weakly pinnatifid with few triangular lobes, base gradually attenuate, apex acute to long acuminate. Stem leaves similar to later rosette leaves, narrowly ovate-elliptic to narrowly lanceolate; uppermost leaves bractlike. Synflorescence loosely racemiform or paniculiform, glabrous or pubescent, with few to some capitula. Capitula with usually 4–7 florets. Involucre narrowly cylindric, 6–8 × 1.5–2 mm. Phyllaries glabrous or pubescent; outer phyllaries ovate to lanceolate, longest 4 × 1 mm, apex acute; inner phyllaries apically blackish purple, apex obtuse. Florets blue. Achenes fusiform and apically attenuate, ca. 4 mm, somewhat compressed. Pappus 4–5 mm. Fl. and fr. Sep.

- Moist slopes, riverbanks; 3600–3700 m. Qinghai (Yushu).

We have not seen material of *Cicerbita zhenduoi*; therefore, its inclusion follows Tzvelev (Rast. Tsentral. Azii 14b: 100, 2008), and its description is taken from the original publication. We are not convinced that *Youngia cyanea*, described also from the environment of Jiangxi-gou, distinguished chiefly by the shape of the rosette leaves and the absence or presence of pubescence, represents a different species. From the variation experienced in the subtribe, the differences in either feature may well be within the usual range found. The corresponding combination under *Chaetoseris* provided by Tzvelev is illegitimate as a later homonym of *Chaetoseris cyanea* (D. Don) C. Shih, and the epithet is also not available in *Cicerbita*. Until closer study of the material, we prefer to treat both as conspecific.


高原岩参 gao yu yan shen


- 4000–4100 m. Xizang.

We have not seen material of *Cicerbita ladyginii*; therefore, its description is taken from the original publication.
Melanoseris


Herbs, perennial, sometimes rosulate, rarely acaulescent; capitula without secondary capitula; phyllaries in 2 or more rows.

Melanoseris

The generic name Melanoseris, based on M. lessertiana, is one of the oldest in subtribe Lactucinae but has never found recognition. Molecular phylogenetic analyses of subtribe Lactucinae (N. Kilian et al., in prep.) revealed, however, that the bulk of Chaetoseris, including the type of the name, the genus Stenoseris, and a number of species formerly placed in Cicerbita, Lactuca, Mulgedium, and Prenanthes, are all members of a sizable Melanoseris clade. The genus chiefly seems to represent the important branch in the evolution of subtribe Lactucinae that successfully colonized subtropical and drier tropical regions.

1a. Plants rosulate and acaulescent; capitula sessile, densely congested in a secondary capitulum; phyllaries only in 1 row................................................................................................................................. 25. M. souliei
1b. Plants neither rosulate nor acaulescent; capitula without secondary capitula; phyllaries in 2 or more rows.

2a. Involucre with 3–9 florets; inner phyllaries 3–5(or 6).
   3a. Involucre 1.5–1.8 mm; capitula with 7–9 florets; plants, including involucre, strongly hirsute with pale hairs ........................................................................................................................................... 7. M. hirsuta
   3b. Involucre 0.9–1.4(–1.6) mm; capitula with 3–6 florets; plants, including involucre, glabrous or ± hairy, but never strongly hirsute with pale hairs.
      4a. Involucre 1.3–1.6 mm; inner phyllaries 4; achene 9–11 mm including a slender 3–4 mm beak .................. 10. M. henryi
      4b. Involucre 0.9–1.4(–1.5) mm; inner phyllaries 3–5(or 6); achene 4–7 mm and unbeaked or with less than 2 mm beak.
   5a. Outer phyllaries with longest 4–5 mm; inner phyllaries 5(or 6); florets 4–6 .................................................................................................................. 23. M. violifolia
   5b. Outer phyllaries with longest ≤ 3 mm; inner phyllaries 3–5; florets 3–5.

6a. Leaf blade of all leaves not divided.
   7a. Involucre with 3 or 4 inner phyllaries; capitula with 3 or 4 bluish purple florets; anther tube ca. 2 mm .................................................................................................................. 16. M. temus
   7b. Involucre with 4 or 5 inner phyllaries; phyllaries with reddish hairs; capitula with 4 or 5 yellow florets; anther tube ca. 4 mm ........................................................................................................... 26. Lactuca scandens

6b. Leaf blade of at least lower and middle leaves pinnatisect or lyrate pinnatisect.
   8a. Involucre 1.2–1.5 cm at anthesis and in fruit; outer phyllaries with longest to 3 mm; achene 6–7 mm .................................................................................................................. 18. M. graciliflora
   8b. Involucre 0.9–1.1 cm at anthesis and in fruit; outer phyllaries with longest to 2 mm; achene 4–5 mm.
      9a. Achene unbeaked .................................................................................................................. 20. M. oligolepis
      9b. Achene contracted into a distinct stout beak of 0.5–1 mm.
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>10a</td>
<td>Rachis of leaves usually pectinate; leaf blade terminal lobe ovate to ovate-</td>
<td>17. M. triflora</td>
</tr>
<tr>
<td></td>
<td>lanceolate, base truncate, shallowly cordate, or broadly cuneate</td>
<td></td>
</tr>
<tr>
<td>10b</td>
<td>Rachis of leaves not pectinate; leaf blade terminal lobe elliptic to lanceolate, base cuneate</td>
<td>19. M. leptantha</td>
</tr>
<tr>
<td>2b</td>
<td>Capitula with 10 or more florets; inner phyllaries at least (7 or)8.</td>
<td>24. M. bracteata</td>
</tr>
<tr>
<td>11a</td>
<td>Peduncle bracts regularly conspicuous, usually purplish red when dry, lanceolate, to 1.5 cm, ± semiamplexicaul</td>
<td></td>
</tr>
<tr>
<td>11b</td>
<td>Peduncle without or with inconspicuous bracts.</td>
<td></td>
</tr>
<tr>
<td>12a</td>
<td>Outer phyllaries with white densely fimbriate margin.</td>
<td></td>
</tr>
<tr>
<td>13a</td>
<td>Capitula with ca. 40 florets; involucre conspicuously thick and large,</td>
<td>3. M. macrantha</td>
</tr>
<tr>
<td></td>
<td>1.8–2.3 × 1–1.5 cm</td>
<td></td>
</tr>
<tr>
<td>13b</td>
<td>Capitula with ca. 15 florets; involucre only ca. 1.5 × 0.8 cm</td>
<td>4. M. ciliata</td>
</tr>
<tr>
<td>12b</td>
<td>Outer phyllaries with glabrous margin.</td>
<td></td>
</tr>
<tr>
<td>14a</td>
<td>Florets yellow (cyanic florets sometimes drying yellowish, corolla teeth then keeping original color).</td>
<td></td>
</tr>
<tr>
<td>15a</td>
<td>Leaves pinnately lobed, lobes narrowly elliptic, elliptic, or lanceolate; involucre 1.1–1.5 mm</td>
<td>1. M. yunnanensis</td>
</tr>
<tr>
<td>15b</td>
<td>Leaves pinnately lobed, lobes rhombic to irregularly rhombic; involucre 9–10 mm</td>
<td>2. M. rhombiformis</td>
</tr>
<tr>
<td>14b</td>
<td>Florets purple, purplish red, blue, or exceptionally white.</td>
<td></td>
</tr>
<tr>
<td>16a</td>
<td>Plants 5–50 cm tall; stems either several, weak, and sparsely branched or with solitary dominant stem branched from base or else stem delicate.</td>
<td>21. M. lessertiana</td>
</tr>
<tr>
<td>17a</td>
<td>Plants 5–30 cm tall; capitula with usually 12–24 florets; involucre to 10 mm in diam. in fruit; branches, peduncles, and involucres often reddish villous; pappus without a row of minute outer hairs</td>
<td></td>
</tr>
<tr>
<td>17b</td>
<td>Plants 20–50 cm tall; capitula with usually 10–15 florets; involucre ≤ 5 mm in diam. in fruit; branches, peduncles, and involucres never reddish villous; pappus with a row of minute outer hairs</td>
<td>22. M. macrorhiza</td>
</tr>
<tr>
<td>16b</td>
<td>Plants taller; stem strong, with dominant main stem apically branched.</td>
<td></td>
</tr>
<tr>
<td>18a</td>
<td>Lower and middle stem leaves gradually attenuate into a petiole or petiole-like basal portion, at least middle stem leaves with blade usually clasping stem; blade shape not as below.</td>
<td>5. M. cyanea</td>
</tr>
<tr>
<td>19a</td>
<td>Involucre at fruiting 1–1.5 cm wide; capitula with usually 25–35 florets.</td>
<td>12. M. atropurpurea</td>
</tr>
<tr>
<td>19b</td>
<td>Involucre at fruiting less than 1 cm wide; capitula with usually 10–16 florets.</td>
<td></td>
</tr>
<tr>
<td>20a</td>
<td>Capitula with ca. 10 florets.</td>
<td>14. M. likiangensis</td>
</tr>
<tr>
<td>20b</td>
<td>Capitula with 12–16 florets.</td>
<td></td>
</tr>
<tr>
<td>21a</td>
<td>Involucre 1.7–2 cm; leaf blade lateral lobes 1 or 2 pairs</td>
<td>13. M. leiolepis</td>
</tr>
<tr>
<td>21b</td>
<td>Involucre ca. 1.5 cm; leaf blade lateral lobes 5–7 pairs.</td>
<td>15. M. pectiniformis</td>
</tr>
<tr>
<td>18b</td>
<td>Lower and middle stem leaves abruptly contracted from a basally broad blade into a narrowly winged petiole; leaf blade undivided and triangular-ovate to broadly lanceolate or pinnately lobed with 1–3 pairs of elliptic to lanceolate lateral lobes.</td>
<td></td>
</tr>
<tr>
<td>22a</td>
<td>Lower and middle stem leaves with 2 or 3 pairs of lateral lobes; leaf blade terminal lobe usually much narrower than blade.</td>
<td>8. M. sichuanensis</td>
</tr>
<tr>
<td>23a</td>
<td>Involucre ca. 1.5 cm in fruit; capitula with usually 15–20 florets.</td>
<td></td>
</tr>
<tr>
<td>23b</td>
<td>Involucre ca. 2 cm in fruit; capitula with ca. 30 florets.</td>
<td>9. M. taliensis</td>
</tr>
<tr>
<td>22b</td>
<td>Lower and middle stem leaves undivided or with 1 or 2 pairs of lateral lobes; leaf blade terminal lobe at least in some leaves as wide or almost as wide as blade.</td>
<td>11. M. macrocephala</td>
</tr>
<tr>
<td>24a</td>
<td>Involucre 1.7–2.1 cm; capitula with ca. 40 florets.</td>
<td></td>
</tr>
<tr>
<td>24b</td>
<td>Involucre 1.2–1.7 cm; capitula with usually 15–30 florets.</td>
<td>5. M. cyanea</td>
</tr>
<tr>
<td>25a</td>
<td>Lower and middle stem leaves undivided or single leaves with 1 pair of elliptic lateral lobes; involucre 1.3–1.7 cm.</td>
<td>6. M. beesiana</td>
</tr>
<tr>
<td>25b</td>
<td>Lower and middle stem leaves with 1 or 2 pairs of elliptic lateral lobes; involucre 1.2–1.5 cm.</td>
<td></td>
</tr>
</tbody>
</table>
1. *Melanoseris yunnanensis* (C. Shih) N. Kilian & Z. H. Wang, **comb. nov.**

云南毛鳞菊  yun nan mao lin ju

**Basionym:** *Chaetoseris yunnanensis* C. Shih, Acta Phytotax. Sin. 29: 410. 1991; *C. lutea* (Handel-Mazzetti) C. Shih; *C. teniana* (Beauverd) C. Shih; *Cicerbita cyanea* (D. Don) Beauverd var. *lutea* Handel-Mazzetti; *C. cyanea* var. *teniana* Beauverd.

Herbs ca. 1 m tall or more, perennial. Stem slenderly turriplike. Stem solitary, erect, apically branched and glandular hairy. Lower and middle stem leaves with petiole 3–10 cm, narrowly winged, not clasping; leaf blade elliptic to ovate, 10–15 × 4–9 cm, pinnatifid or pinnatisect to bipinnately lobed, pilose and hispid glandular hairy, margin dentate; lateral lobes 2–6 pairs, opposite or alternate, elliptic to lanceolate, apex acute; secondary lobes if present 1 or 2 pairs, broadly triangular to lanceolate; terminal lobe elliptic to lanceolate. Upper stem leaves similar to middle stem leaves but petiole shorter; leaf blade smaller and less divided; uppermost leaves linear-lanceolate, undivided. Synflorescence racemiform to narrowly paniculiform, with few to many capitula. Capitula nodding, with usually 15–20 florets; peduncle wiry, 0.2–2(–5) cm. Involucre purplish green, cylindric, 1.1–1.5 × 0.4–0.8 cm. Phyllaries ± acute at apex; outer phyllaries triangular-ovate to linear-lanceolate, glabrous or abaxially hispid on midvein, longest inner phyllaries in length. Florets yellow to whitish. Achenes ca. 7 mm; body dark reddish brown, ellipsoid, compressed, lateral ribs broadened, apex contracted into a ca. 2 mm beak. Pappus double, outer hairs 0.1–0.2 mm, bristles 7–8 mm. Fl. and fr. Sep–Oct.

- Grasslands on mountain slopes, river valleys, forests; 700–3400 m. Sichuan, Yunnan.

**Melanoseris yunnanensis** and *Chaetoseris lutea* show many transitions between each other and actually seem to be conspecific. According to the fragmentary type material of *Cicerbita cyanea* var. *teniana* preserved at G (the type material in herb. Bonati, formerly at LA, is presumably lost), it represents a strongly glandular form of *M. yunnanensis*.

2. *Melanoseris rhombiformis* (C. Shih) N. Kilian & Z. H. Wang, **comb. nov.**

菱裂毛鳞菊  ling lie mao lin ju


Herbs 60–70 cm tall, perennial. Stem solitary, erect, apically with slender glabrous branches. Lower stem leaves with petiole 3–5 cm, basally widened; leaf blade narrowly elliptic, 14–17 × 5–8 cm, pinnatifid, margin dentate; lateral lobes 6–9 pairs, ± rhombic to rarely triangularly hasteate, base broadly petiolulate or sessile, apex acuminate; terminal lobe rhombic, hasteate-rhombic, or triangular-hasteate-rhombic, apex acute. Middle stem leaves similar to lower stem leaves but with fewer lateral lobes. Upper stem leaves similar to middle stem leaves but broader triangular to broadly ovate, base broadly winged, petiolo-like, and auriculately clasping, margin entire; lateral lobes 2 pairs, irregularly triangular-hasteate, basally attenuate; terminal lobe irregularly triangular-hastate. Synflorescence paniculiform, with numerous capitula. Capitula nodding, with ca. 10 florets. Involucre cylindric, 8–10 × ca. 3 mm. Phyllaries abaxially glabrous, apex acute to obtuse; outer phyllaries narrowly triangular to linear-lanceolate. Florets yellow. Achenes 4–5 mm; body dark brown, ellipsoid, compressed, lateral ribs broadened, apex contracted into a ca. 1 mm beak. Pappus double, outer hairs inconspicuous, bristles ca. 4 mm. Fl. and fr. Sep–Oct.

- Thickets; ca. 2500 m. Yunnan (Eryuan).

3. *Melanoseris macrantha* (C. B. Clarke) N. Kilian & J. W. Zhang, **comb. nov.**

缘毛毛鳞菊  yuan mao mao lin ju

**Basionym:** *Lactuca macrantha* C. B. Clarke, Compos. Ind. 267. 1876; *Chaetoseris macrantha* (C. B. Clarke) C. Shih; *Cicerbita macrantha* (C. B. Clarke) Beauverd.

Herbs 0.5–1.5 m tall, perennial. Stem stout, erect, apically branched and glandular hairy. Lower and middle stem leaves with petiole long (lowermost leaves) to sessile with an expanded and clasping base; leaf blade narrowly spatulate, elliptic, or narrowly lanceolate, 14–40(or more) × 4–8 cm, pinnatifid to pinnatisect (in lowermost leaves); lateral lobes 2–5 pairs but to 8-paired in lowermost leaves, abaxially glabrous, margin coarsely dentate, apex acute; terminal lobe narrowly triangular, narrowly ovate, or irregular rhombic, apex acute to acuminate. Upper stem leaves similar to middle stem leaves but smaller and less divided. Synflorescence racemiform to corymbosely paniculiform, lax, with few capitula. Capitula with ca. 40 florets; peduncle (2–)5–14 cm. Involucre dark purplish green, broadly campanulate, 1.8–2.3 × 1–1.5 cm. Phyllaries with apex acute to obtuse; outer phyllaries ovate to lanceolate, margin white densely fimbriate; inner phyllaries without a fimbriate margin. Florets blue to bluish purple. Achenes 6–7 mm; body brown, ellipsoid, compressed, lateral ribs broadened, apex tapering into a barely differentiated thick beak of 1–2 mm. Pappus double, outer hairs 0.1–0.2 mm, bristles ca. 8 mm. Fl. and fr. Jul–Sep. 2n = 16.

Forests, thickets; 3200–4100 m. Xizang [Bhutan, N India, Nepal].

4. *Melanoseris ciliata* (C. Shih) N. Kilian, **comb. nov.**

景东毛鳞菊  jing dong mao lin ju


Herbs ca. 50 cm tall. Stem erect, apically branched and sparsely glandular hairy. Lower and middle stem leaves with petiole 3–5.5 cm, narrowly winged, basally widened and auriculately clasping; leaf blade lyrate pinnatisect, abaxially or both surfaces with squarrose hairs on veins; lateral lobes 1 pair, elliptic, apex acute to obtuse; terminal lobe triangular, 6–8 × 3–4 cm, base truncate, apex acute. Upper stem leaves similar to middle stem leaves but smaller; uppermost stem leaves sessile, lanceolate to linear-lanceolate, undivided. Synflorescence racemiform, with few capitula. Capitula with ca. 15 florets. Involucre broadly cylindric to campanulate, ca. 1.5 × 0.8 cm. Phyllaries dark green, abaxially glabrous, apex acute to obtuse;
outer phyllaries broadly triangular to linear-lanceolate, margin white fimbriate. Florets bluish. Achenes beaked but only immature ones seen. Pappus 1 single, bristles ca. 6 mm. Fl. Nov.

- Mountain slopes; 2800–2900 m. Yunnan (Jingdong).

Melanoseris ciliata is a little-known species in need of closer examination on the basis of additional material with mature achenes.


蓝花毛鳞菊 lan hua mao lin ju

Sonchus cyaneus D. Don, Prodr. Fl. Nepal. 164. 1825; Chaetoseris cyanea (D. Don) C. Shih; C. hastata (Candolle) C. Shih; C. hispida C. Shih; Cicribita cyanea (D. Don) Beauverd; C. cyanea var. glandulifera (Franchet) Beauverd; C. cyanea var. hastata (Candolle) Beauverd; Lactuca funebris W. W. Smith; L. hastata Candolle; L. hastata var. glandulifera Franchet; Melanoseris hastata (Candolle) Edgeworth; Mulgedium cyaneum (D. Don) Candolle.

Herbs 0.8–1.8 m tall, perennial. Root slenderly turniplike. Stem solitary, erect, branched apically, ± glabrous to densely covered with purplish to brownish glandular hairs. Lower and middle stem leaves with petiole to 12 cm, narrowly winged, not or rarely very faintly sagittately clasping; leaf blade ovate to triangular, 5–11 × 3.5–8.5 cm, undivided or with 1 pair of ± elliptic lateral lobes, margin coarsely dentate, base of blade or terminal lobe cuneate, truncate, cordate, or hastate, apex acute. Upper stem leaves shortly petiolate to sessile; leaf blade similar to middle stem leaves but smaller, narrowly elliptic, undivided to shallowly pinnatifid. Synflorescencepaniculiform, often with rather long virgate branches, with several to numerous capitula. Capitula with usually 20–30 florets. Involucre cylindric, 1.3–1.7 × 0.5–0.8 cm. Phyllaries with midvein white or purplish hispid except in innermost ones, apex acute; outer phyllaries triangular-ovate to lanceolate. Florets blue to purplish. Achenes 7–8 mm; body dark brown, broadly ellipsoid, compressed, lateral ribs broadened, apex attenuate into a pale 1–2 mm beak. Pappus double, outer hairs ca. 0.1 mm, bristles ca. 7 mm. Fl. and fr. Sep–Nov. 2n = 16*.

Moist places under forests, thickets in mountain valleys, forest margins, grassy slopes, wastelands on mountain slopes; 1500–3100 m. Chongqing, Guizhou, Sichuan, Xizang, Yunnan.

Plants with less glandular hairy to almost all glabrous branches, as they occur in various species besides strongly glandular plants, were originally described as Lactuca hastata and recognized as Chaetoseris hastata in FRPS (80(1): 275. 1997) but have been considered as conspecific with C. cyanea by most authors, a treatment which is also followed here. Plants from Chongqing earlier described as a separate species, C. hispida, were later recognized by its author as conspecific with C. cyanea, and the name was sunk in the synonymy of this species.

6. Melanoseris beesiana (Diels) N. Kilian, comb. nov.

毛鳞菊 mao lin ju


Herbs ca. 1 m tall, perennial. Stem solitary, erect, apically branched and glandular hairy. Lower and middle stem leaves with petiole 3–7 cm, ± winged, basally semiamplexicaul; leaf blade 7–17 × 4–13 cm, lyrate pinnaesect, abaxially glandular hairy, base cuneate, margin dentate; lateral lobes 1 or 2 pairs, ± elliptic; terminal lobe broadly triangular-hastate, ovate, or triangular, comprising most of blade, apex acute to acuminate. Upper stem leaves similar to middle stem leaves but smaller; uppermost leaves sessile, linear-lanceolate to elliptic, not divided. Synflorescence narrowly racemiform or paniculiform, with few to several capitula. Capitula with usually 15–25 florets; peduncle 0.5–3 cm. Involucre cylindric to narrowly campanulate, 1.2–1.5 × 0.4–0.7 cm. Phyllaries dark green, abaxially densely glandular hispid, apex acute to obtuse; outer phyllaries narrowly triangular to lanceolate. Florets purple. Achenes ca. 5 mm; body dark brown, broadly ellipsoid, compressed, lateral ribs broadened, apex attenuate into a pale 1–2 mm beak. Pappus double, outer hairs ca. 0.1 mm, bristles ca. 7 mm. Fl. and fr. Aug–Oct. 2n = 16*.

- Forests, wastelands, farmlands; 700–3700 m. Sichuan, Xizang, Yunnan.

Melanoseris beesiana was established by C. Shih (Acta Phytotax. Sin. 29: 405. 1991) as Chaetoseris lyriformis (providing the type of the generic name Chaetoseris), but Lactuca beesiana provides an older epithet. It is, no doubt, closely related to the more widespread M. cyanea and mainly distinguished from the latter by its regularly lyrate pinnaesect lower and middle stem leaves and somewhat smaller involucres. With some reservation, species rank is maintained for this taxon, but future research may reveal that subspecies rank is perhaps more appropriate.

7. Melanoseris hirsuta (C. Shih) N. Kilian, comb. nov.

鹤庆毛鳞菊 he qing mao lin ju


Herbs 15–30 cm tall, perennial, with a taproot ?and shootbearing lateral roots, strongly hirsute of pale partly glandular hairs. Stem solitary, erect, leafy. Lower and middle stem leaves oblancoescence to obovoid in outline, ca. 12 × 5 cm, lyrate pinnaessect, basally abruptly contracted into a ± winged petiole-like portion, base semiamplexicaul to weakly clasping, margin densely and sharply sinuate-dentate and denticulate; lateral lobes 1 or 2 pairs, triangular to rhombic, apex acute to obtuse; terminal lobe broadly ovate to broadly triangular, very much larger than lateral lobes, base cordate, apex acute. Upper stem leaves ovate to lanceolate, smaller, ± without petiole-like basal portion, otherwise similar to middle stem leaves. Synflorescence narrowlypaniculiform, leafy, with few to some capitula. Capitula nodding, with ca. 8 florets; peduncle less than 1 cm. Involucre cylindric, 1.5–1.8 cm. Phyllaries abaxially hirsute as remainder of plant; outer phyllaries few, ± inconspicuous; inner phyllaries 5. Florets yellowish. Achene brown, narrowly ellipsoid, ca. 1 cm, subcompressed, apex attenuate into a short stout beak. Pappus single, yellowish, ca. 7 mm, caducous. Fl. and fr. Aug–Oct.
8. Melanoseris sichuanaensis (C. Shih) N. Kilian, comb. nov.

Herbs ca. 80 cm tall, perennial. Stem solitary, erect, apically branched and sparsely glandular hairy. Middle stem leaves with petiole 4–5 cm, winged, basally broadened and clasping; leaf blade narrowly ovate, 10–15 × ca. 6 cm, runcinately pinnatipartite to subpinnatisect, margin dentate, apex acute to obtuse; lateral lobes 2 or 3 pairs, elliptic, apex acute, acuminate, or obtuse; upper and middle lobes 2–4.5 × 1–1.5 cm; lower lobes smaller; terminal lobe elliptic-lanceolate, ca. 4 × 1.5 cm. Upper stem leaves similar to middle stem leaves but smaller; uppermost leaves linear. Synflorescence narrowly paniculiform, with numerous capitula. Capitula with ca. 40 florets; peduncle 1–5 cm. Involucre narrowly campanulate, ca. 1.5 × 0.5 cm. Phyllaries with an obtuse to acute apex; outer phyllaries lanceolate, hirsute. Florets purplish. Achene ca. 6 mm; body pale brown, ellipsoid, compressed, lateral ribs broadened, apex contracted into a ca. 2 mm beak. Pappus double, outer hairs inconspicuous, bristles ca. 8 mm. Fl. and fr. Aug–Oct.


Herbs ca. 50 cm tall, perennial. Rhizomes tuberlike. Stem solitary, erect, apically branched and glandular hairy. Lower and middle stem leaves with petiole 4–5 cm, winged, basally broadened and clasping; leaf blade narrowly ovate, 10–15 × ca. 6 cm, runcinately pinnatipartite to subpinnatisect, margin dentate, apex acute to obtuse; lateral lobes 2 or 3 pairs, elliptic, apex irregularly rhombic, increasing in size toward leaf apex; terminal lobe lanceolate, irregularly rhombic, or falcate, much narrower than lateral lobes, with few small semiorbicular lobes. Upper stem leaves similar to lower and middle stem leaves but smaller; uppermost leaves linear-lanceolate, undivided. Synflorescence racemiform to sparsely paniculiform, with few capitula. Capitula with ca. 30 florets. Involucres campanulate, ca. 2 × 1 cm. Phyllaries glabrous, apex acute to obtuse; outer phyllaries triangular-lanceolate. Achene 8–9 mm; body dull brown, narrowly ellipsoid, compressed, lateral ribs broadened, apex tapering into a paler 2–3 mm beak. Pappus double, outer hairs ca. 0.1 mm, bristles ca. 7 mm. Fl. and fr. Oct. 2n = 16*.

10. Melanoseris henryi (Dunn) N. Kilian, comb. nov.

Herbs to 1 m tall, perennial. Stem solitary, erect, apically branched, glabrous, leafy. Lower stem leaves not seen. Middle stem leaves spatulate, to 12 × 3 cm, pinnatifid to pinnatipartite, somewhat setose, base attenuate, margin sinuate-dentate, apex obtuse to acute; lateral lobes 1 or 2 pairs, semiorbicular to broadly ovate; terminal lobe ovate to lanceolate, as wide as lateral lobes. Upper stem leaves similar to middle stem leaves but smaller and less divided, apex acute to acuminate; uppermost stem leaves narrowly elliptic, undivided. Synflorescence paniculiform with some to many capitula. Capitula with 4 or 5? florets; peduncle wiry, sparsely setose. Involucre narrowly cylindric, 1.3–1.6 × ca. 0.3 cm. Phyllaries glabrous, apex obtuse; outer phyllaries lanceolate to linear-lanceolate, longest ca. 1/2 as long as inner ones; inner phyllaries 4. Florets ?purplish. Achene 0.9–1.1 cm; body reddish, narrowly ellipsoid, compressed, apex tapering into a paler 3–4 mm beak. Pappus ca. 7 mm.

About 1500 m. Yunnan (Pu’er).

Lactuca henryi, based on the collection A. Henry 13494, was omitted from FRPS and by X. Zhuang (Fl. Yunnan. 13. 2004), but, as confirmed by the electronic image of an isotype at NY, it represents a species well characterized by its slender involucres and long-beaked achene. It can fairly safely be assigned to Melanoseris.


Herbs 50–100 cm tall, perennial. Stem solitary, erect, apically branched and glandular hairy. Lower and middle stem leaves with petiole 5–10 cm, narrowly winged; leaf blade ovate to ± broadly lanceolate, 10–14 × 5–6 cm, undivided or pinnatisect, abaxially sparsely glandular hairy, base ± truncate, margin dentate, apex acute to acuminate; lateral lobes (0 or) 1 or 2 pairs, elliptic, apex obtuse to acute; terminal lobe ovate to broadly lanceolate, often hastate and comprising most of blade, apex acute to acuminate. Upper stem leaves with shorter petiole and otherwise similar to middle stem leaves; uppermost stem leaves sessile, lanceolate, base cuneate, apex acuminate. Synflorescence racemiform or paniculiform, with few to several capitula. Capitula with ca. 40 florets; peduncle 1–5 cm. Involucrre broadly campanulate, 1.7–2.1 × ca. 1 cm. Phyllaries glandular hispid, apex acute; outer phyllaries triangular to lanceolate. Florets purplish red. Achene ca. 5 mm; body dark brown, ellipsoid, compressed, lateral ribs broadened, apex attenuate into a pale 1–2 mm beak. Pappus double, outer hairs 0.1–0.2 mm, bristles ca. 7 mm. Fl. and fr. Aug–Sep.

Forest margins, thickets, grasslands; 2000–3500 m. Xizang (Nyalam).

12. Melanoseris atropurpurea (Franchet) N. Kilian & Z. H. Wang, comb. nov.

Herbs 1–2 m tall, perennial. Stem solitary, erect, apically branched, glabrous, leafy. Lower stem leaves not seen. Middle stem leaves spatulate, to 12 × 3 cm, pinnatifid to pinnatipartite, somewhat setose, base attenuate, margin sinuate-dentate, apex obtuse to acute; lateral lobes 1 or 2 pairs, semiorbicular to broadly ovate; terminal lobe ovate to lanceolate, as wide as lateral lobes. Upper stem leaves similar to middle stem leaves but smaller and less divided, apex acute to acuminate; uppermost stem leaves narrowly elliptic, undivided. Synflorescence paniculiform with some to many capitula. Capitula with 4 or 5? florets; peduncle wiry, sparsely setose. Involucre narrowly cylindrical, 1.3–1.6 × ca. 0.3 cm. Phyllaries glabrous, apex obtuse; outer phyllaries lanceolate to linear-lanceolate, longest ca. 1/2 as long as inner ones; inner phyllaries 4. Florets ?purplish. Achene 0.9–1.1 cm; body reddish, narrowly ellipsoid, compressed, apex tapering into a paler 3–4 mm beak. Pappus ca. 7 mm.

Mountain slopes; 2700–3700 m. Sichuan (Mianning), Yunnan.
are the combinations in superfl.; *Cicerbita grandiflora Beauverd*, nom. illeg. superfl.; *L. grandiflora* Franchet, nom. illeg. superfl.; *L. pseudosonchus* H. Léveillé.

Herbs 50–100 cm tall, perennial. Root turniplike. Stems solitary or few, erect, apically branched and glandular hairy. Basal leaves elliptic and basally attenuate into a long narrow petiole-like portion, 20–30 × 10–15 cm, pinnatifidate to pinnatisect and often lyrate so, margin dentate; lateral lobes 3–5 pairs, elliptic to rhombic, gradually smaller toward leaf base, apex obtuse to acute; terminal lobe triangular, ± irregularly rhombic, elliptic, or lanceolate, much larger than lateral lobes, base hastate to rounded, apex acute to obtuse. Lower and middle stem leaves shortly petiolate to sessile and clasping, similar to basal leaves but smaller; lateral lobes 3–7 pairs. Upper stem leaves sessile, less divided and smaller. Synflorescence racemiform or paniculiform, with few to several capitula. Capitula nodding before anthesis, with usually 25–35 florets; peduncle (1–)2–(6–)10 cm. Involucre dark purplish green, broadly campanulate, 1.7–2.1 × 1–1.5 cm. Phyllaries glabrous or rarely glandular hispid, apex acute; outer phyllaries triangular-ovate to lanceolate. Florets blue to bluish purple. Achenes 6–7 mm; body dark brown, ellipsoid, compressed, lateral ribs broadened, apex tapering into a paler 1–2 mm beak. Pappus double, outer hairs 0.1–0.2 mm, bristles ca. 8 mm. Fl. and fr. Jul.–Nov. 2n = 16*.

Forests, forest margins, thickets, alpine meadows; 2800–4000 m. Sichuan, Xizang, Yunnan [Myanmar].

Franchet published the name “*Lactuca atropurpurea*” twice in 1895, in July (J. Bot. (Morot) 9: 260) and in August (J. Bot. (Morot) 9: 294), the latter name for a species of *Dubyaca* and illegitimate as a later homonym but under to Art. 58.1 of the Vienna Code the epithet is available for use in the new name *Dubyaca* Stebbins. In October 1895 (J. Bot. (Morot) 9: 368), Franchet unfortunately renamed the legitimate earlier homonym to *L. grandiflora*, which is thus illegitimate, as are the combinations in *Chaetoseris* and *Cicerbita* based on it. *Chaetoseris dolichophylla* seems not actually distinct from *Melanoseris atropurpurea* and is here tentatively included in this species.


光苞毛鳞菊 guang bao mao lin ju


Herbs to 1 m tall, perennial. Stem solitary, erect, apically branched and glandular hairy. Lower and middle stem leaves narrowly elliptic and basally attenuate into winged ± clasping petiole-like portion, 10–14 × 2.5–4 cm, lyrate pinnatifid to lyrate pinnatifidate, sparsely glandular hairy, margin shallowly sinuate-dentate; lateral lobes 1 or 2 pairs, semioblong to elliptic, apex rounded to obtuse; terminal lobe narrowly ovate to lanceolate, 5–8 × 2.5–4 cm, margin ± sinuate, apex acute to acuminate. Upper stem leaves ± sessile, narrowly elliptic to linear-lanceolate, smaller, lyrate pinnatifid or not divided. Synflorescence racemiform or sparsely paniculiform, with few to several capitula. Capitula nodding, with usually 12–16 florets. Involucre campanulate, 1.7–2 × 0.7–1 cm. Phyllaries glabrous, apex acute to obtuse; outer phyllaries triangular-ovate to lanceolate. Florets purple. Achenes 6–7 mm; body brown to dark brown, ellipsoid, compressed, lateral ribs broadened, apex tapering into a paler 1–2 mm beak. Pappus double, outer hairs 0.1–0.2 mm, bristles ca. 8 mm. Fl. and fr. Oct.

- Mountain slopes; ca. 2500 m. Yunnan (Jingdong).


丽江毛鳞菊 li jiang mao lin ju

Basionym: *Lactuca likiangensis* Franchet, J. Bot. (Morot) 9: 259. 1895; *Chaetoseris bonatii* (Beauverd) C. Shih; *C. likiangensis* (Franchet) C. Shih; *Cicerbita bonatii* Beauverd; *C. likiangensis* (Franchet) Beauverd; *L. bonatii* (Beauverd) H. Léveillé; *L. forrestii* W. W. Smith.

Herbs 40–60 cm tall, perennial. Rhizomes thick. Stem solitary, erect, apically branched and mostly densely glandular hairy. Basal and lower stem leaves narrowly ovate to narrowly elliptic and basally attenuate into a ± winged petiole-like portion, 12–25 × 3–10 cm, pinnatifidate to pinnatisect, margin ± coarsely sinuate-dentate; lateral lobes 3–7 pairs, lowermost small and triangular, others elliptic to suborbicular, apex acute to obtuse; terminal lobe triangular-ovate to lanceolate, distinctly larger than lateral lobes, apex acuminate to acute. Middle and upper stem leaves similar to lower leaves but smaller and sessile with an auriculately clasping base; uppermost leaves lanceolate to elliptic-lanceolate, less divided or undivided. Synflorescence paniculiform, with several to many capitula. Capitula drooping to nodding, with ca. 10 florets; peduncle wiry, 0.5–3 cm. Involucre cylindric, 1.3–1.8 × 0.4–0.6 cm. Phyllaries purplish green, glandular hispid; outer phyllaries triangular-ovate to lanceolate; inner phyllaries ca. 8. Florets blue to bluish purple. Achenes 6–8 mm; body brownish red, narrowly ellipsoid, compressed, lateral ribs broadened, apex contracted into a paler ca. 2 mm beak. Pappus double, outer hairs 0.1–0.2 mm, bristles 6–8 mm. Fl. and fr. Aug.–Oct. 2n = 16*.

- Forests, open boulder-strewn slopes, grasslands; 1900–3100 m. Yunnan.

According to the type material preserved at G, *Chaetoseris bonatii*, based on *Cicerbita bonatii*, is apparently conspecific.


栉齿毛鳞菊 zhi chi mao lin ju


Herbs ca. 90 cm tall, perennial. Stem purplish red below middle, branched from middle or apically and sparsely glandular hairy. Lower stem leaves narrowly elliptic and basally attenuate into a short petiole-like portion, pinnatifidate to subpinnatisect, margin dentate. Middle stem leaves to 10 × 1.5 cm, basally with an auriculately or sagittately clasping petiole-like portion; lateral lobes 5–7 pairs, opposite to obliquely opposite, lanceolate to elliptic, gradually smaller toward leaf base, rachis sometimes pectinate, apex acute to obtuse; terminal lobe lanceolate. Upper stem leaves narrowly elliptic, smaller, less divided, margin entire. Synflorescence racemiform, with few capit-
Herbs 0.5–1.5 m tall, perennial. Stem solitary, erect, apically branched and glandular hairy. Lower and middle stem leaves with petiole 5–8 cm, basally slightly widened and not clasping; leaf blade triangular to triangular-ovate, 5–14 × 5–10 cm, undivided, glandular hairy, glabrescent, base somewhat cuneate to truncate, shallowly cordate, or deeply hastate, margin mucronulate-dentate, apex acute to acuminate. Upper stem leaves similar to middle stem leaves but with shorter petiole and smaller; uppermost stem leaves sessile or subsessile. Synflorescence paniculiform, with usually numerous capitula and capilaceous branches. Capitula with 3 florets; peduncle capillary, 3–4 mm; body yellowish brown, narrowly ellipsoid to obcolumnar, lateral ribs broadened, apex constricted into a thick 0.5–1 mm beak. Pappus ± single, ca. 6 mm. Fl. and fr. Aug.–Sep.

- Forest margins, forests; 2000–2800 m. Yunnan (Fugong, Luchun).

18. Melanoseris graciliflora (Candolle) N. Kilian, comb. nov.

细莴苣 xi wo ju

Basionym: Lactuca graciliflora Candolle, Prodr. 7: 139. 1838; Cicerbita taliensis (Franchet) Beauverd; L. taliensis Franchet; Stenoseris graciliflora (Candolle) C. Shih; S. taliensis (Franchet) C. Shih.

Herbs 0.5–2.5 m tall, perennial. Root slenderly turniplike. Stem solitary, erect, apically branched and glabrous or sparsely glandular hairy. Lower and middle stem leaves with petiole 4–7 cm, basally slightly widened; leaf blade pinnatisect to lyrate, pinnatifid, glandular hairy, margin shallowly mucronulate-dentate; lateral lobes 2 or 3 pairs but uppermost pair often incompletely separated from terminal lobe, opposite or alternate, sessile or shortly pediolate, elliptic to lanceolate, 1.5–4.5 × 1–2 cm, base cuneate to truncate, apex acute to acuminate; terminal lobe triangular-ovate to lanceolate, 5.5–11 × 4–9 cm, base hastate, cordate, truncate, or cuneate, apex acute. Upper stem leaves shortly pediolate to sessile, smaller, less or not divided, otherwise similar to middle stem leaves. Synflorescence panicle-like, with numerous capitula and capilaceous branches. Capitula with 3 or 4 florets; peduncle capilaceous. Involucre narrowly cylindric, 12–15 × ca. 1.5 mm. Phyllaries glabrous; outer phyllaries triangular-ovate to lanceolate, largest ca. 3 × 1 mm, apex acute; inner phyllaries 3. Florets purplish red. Achene 6–7 mm; body pale brown, ellipsoid, compressed, lateral ribs broadened, apex constricted into a thick 0.5–1 mm beak. Pappus ± single, ca. 6 mm. Fl. and fr. Oct.

- Forest margins, forests; 2000–2800 m. Yunnan (Fugong, Luchun).
compressed, lateral ribs broadened, apex contracted into a thick ca. 1 mm beak. Pappus ± single, ca. 5 mm. Fl. and fr. Nov. 2n = 16*.

- Moist areas on mountain slopes; 2500–3200 m. Sichuan (Muli), Yunnan (Jingdong).

*Melanoseris leptantha* appears rather similar to *Stenoseris triflora*, and its specific distinctness needs confirmation.


Herbs 0.6–1.3 m tall, perennial. Stem solitary, erect, apically branched and ± brownish pilose, leafy. Lower and middle stem leaves with petiole to 6 cm, unwinged; leaf blade obovate to oblanccolate, pinnatisect, margin faintly sinuate-dentate; lateral lobes 1 or 2 pairs, narrowly elliptic, 2.5–4 × 1–1.5 cm, apex acute to acuminate; terminal lobe ovate to lanceolate, 4–10 × 2–4 cm, apex acute to acuminate. Synflorescence narrowly paniculiform, with numerous capitula and capilaceous branches. Capitula with 4 florets; peduncle capilaceous. Involucre narrowly cylindric, 9–11 × ca. 2 mm. Phyllaries glabrous; outer phyllaries triangular-ovate to lanceolate, longest ca. 2 mm; inner phyllaries 4. Florets blue. Achene brown, narrowly elliptoid, 4–5 mm, compressed, lateral ribs broadened, apex truncate. Pappus double, outer hairs to 0.1 mm, bristles ca. 7 mm. Fl. and fr. Aug.

- Forests on mountain slopes; 2100–3000 m. Yunnan (Dali).

Originally placed in *Cicerbita*, *Melanoseris oligolepis* is morphologically near and apparently closely related to the preceding four species.

**22. Melanoseris macrorhiza** (Royle) N. Kilian, *comb. nov.*

**CICHORIEAE**

Whereas, according to the molecular phylogenetic analysis by N. Kilian et al. (in prep.), *Cephalorrhynchus* in the sense of its type (C.
glandulosus Boissier) is a congener of Cicerbita, Melanoseris macro-rhiza, previously treated as a member of Cephalorhynchos (e.g., FRPS 80(1): 291. 1997), clearly belongs to Melanoseris. The white-flowered C. albiflorus is considered as a mere albino form of this species, as is known also occasionally in other species, and therefore treated as conspecific.

23. Melanoseris violifolia (Decaisne) N. Kilian, comb. nov.

西藏毛鳞菊 xi zang mao lin ju

Basionym: Prenanthes violifolia Decaisne in Jacquemont, Voy. Inde 4(Bot.): 100. 1843 ["violaefolia"]; Cicerbita sikkimensis (J. D. Hooker) C. Shih; C. violifolia (Decaisne) Beauverd; Lactuca hookeri (C. B. Clarke ex J. D. Hooker) Stebbins; L. sikkimensis (J. D. Hooker) Stebbins; P. alata J. D. Hooker & Thomson ex C. B. Clarke (1876), not (Hooker) D. Dietrich (1847); P. hookeri C. B. Clarke ex J. D. Hooker; P. sikkimensis J. D. Hooker.

Herbs 50–70 cm tall, perennial. Stem solitary, erect, branched apically, glabrous or sparsely strigose. Basal, lower, and middle stem leaves with petiole 5–6 cm, slender, ± broadly winged toward base; leaf blade undivided or lyrate-nattatisect, margin sparsely sinuate-dentate to subentire; lateral lobes if present 1 pair, sessile or with a 7–8 mm winged petiolo, lanceolate to elliptic, to 2 × 1 cm; terminal lobe broadly triangular to triangular-ovate, 3–8 × 3–7 cm, base hastate, cordate, sagittate, or truncate, apex obtuse to rounded. Upper stem leaves similar to middle stem leaves or with much shorter winged basally narrow to clasping petiole and smaller blade with a basally cuneate terminal lobe. Synflorescence paniculiform, with several to 30 capitula and slender branches. Capitula with 4–6 florets; peduncle capillaceous. Involucrre narrowly cylindrical, 1.2–1.4 × ca. 0.3 cm. Phyllaries glabrous, apex acute to obtuse; outer phyllaries lanceolate, longest 4–5 mm; inner phyllaries 5(or 6). Florets bluish to reddish purple. Achenes dark brown, narrowly ellipsoid, 6–7 mm, subcompressed, lateral ribs weakly broadened, apex truncate. Pappus double, outer hairs ca. 8 mm, bristles 6–8 mm. Fl. and fr. Jun–Aug.

Forests, forest margins, meadows; 3000–3700 m. Xizang [Bhutan, NE and NW India, Nepal].

Melanoseris violifolia, formerly treated as a member of Cicerbita (e.g., FRPS 80(1): 223. 1997, under C. sikkimensis) is, as inferred from morphology, closely related to M. macro-rhiza and can therefore safely be considered as a member of Melanoseris too.

24. Melanoseris bracteata (J. D. Hooker & Thomson ex C. B. Clarke) N. Kilian, comb. nov.

苞叶毛鳞菊 bao ye mao lin ju

Basionym: Lactuca bracteata J. D. Hooker & Thomson ex C. B. Clarke, Compos. Ind. 270. 1876; Mulgedium bracteatum (J. D. Hooker & Thomson ex C. B. Clarke) C. Shih.

Herbs, perennial. Root slender. Stem solitary, 20–120 cm, erect, branched apically, strongly glandular hairy to glandular hispid. Basal and lower stem leaves ovate, elliptic-ovate, or oblanceolate, 3–6[–11] × 1–2.5[–4] cm, glandular hairy, base attenuate and auriculately clasping, margin sinuate-dentate, apex acute. Middle and upper stem leaves smaller, oblanceolate to lanceolate, apex acuminate, otherwise similar to lower leaves. Leaves in synflorescence usually purplish red when dry, lanceolate, base ± semiamplexicaul, margin entire, apex acuminate. Synflorescence racemiform or sparsely paniculiform, leafy, with several to 20 capitula. Capitula nodding at anthesis, with usually 20–30 florets; peduncle with lanceolate bracts to 1.5 cm. Involucre campanulate, 1.2–1.4 cm at anthesis, to 1.9 × 1 cm in fruit. Phyllaries purplish red when dry, abaxially glabrous, apex obtuse to acute; outer phyllaries lanceolate, not much shorter than inner phyllaries. Florets pale blue to mauve. Achenes 5–9 mm; body grayish brown, fusiform, compressed, lateral ribs weakly broadened, apex attenuate into a slender beak 1/3–1/2 as long as achene body. Pappus indistinctly double, 7–8 mm. Fl. and fr. Sep. 2n = 16.

Forests; 800–3000 m. Xizang [Bhutan, NE and NW India, Nepal].

25. Melanoseris souliei (Franchet) N. Kilian, comb. nov.

康滇毛鳞菊 kang dian mao lin ju

Basionym: Lactuca souliei Franchet, J. Bot. (Morot) 9: 257. 1895; Syncalathium orbiculariforme C. Shih; S. souliei (Franchet) Y. Ling.

Herbs 2–5 cm tall, perennial, rosalate, ± aculeascent, with a taproot. Rosette shoot terminally hollow, inflated to secondary capitulum. Leaves with petiole 1–5 cm, basally widened; leaf blade of outer leaves undivided, broadly triangular, triangular-ovate, orbicular, or obovate, 0.5–2 × 0.5–1.5 cm; leaf blade of more inner leaves 1.5–7 × 1.2–2.5 cm, lyrate pinnatisect to pinnatisect, margin sinuate-dentate or entire; lateral lobes 1–3 pairs, elliptic, semiorbiculate, triangular, or suborbicular; terminal lobe elliptic, ovate, suborbicular, or triangular-ovate, 1–3 × 0.8–2.5 cm, base cordate to truncate, apex rounded to acute. Secondary capitulum (1–)2–7 cm in diam., with few to many sessile densely congested capitula with 1 elliptic subdentate leaf. Capitula with 4–6 florets. Involucrre narrowly cylindric, 1–1.4 × 0.4–0.5 cm. Phyllaries 5, in 1 row, equal, lanceolate, conate for basal 1/3–1/2. Florets purplish red to blue. Achenes ca. 4 mm; body dark to blackish brown, obovoid, compressed, with winglike lateral ribs and 1 slender rib on either side, apex constricted into a ca. 0.5 mm fragile thin beak. Pappus single, ca. 8 mm, caducous with pappus disk. Fl. and fr. Aug. 2n = 16*.

Alpine meadows, scree slopes, stony areas, marshes, forest margins; 2300–4300 m. Sichuan, Xizang, Yunnan [Bhutan, Myanmar].

Recent works, corroborating the observation by Stebbins (Mem. Torrey Bot. Club 19(3): 47–50, 1940) on the peculiarity of Melanoseris souliei inferred from achene morphology, have shown that M. souliei is misplaced in Syncalathium and the Crepidinae (J. W. Zhang et al., Bot. J. Linn. Soc. 154: 79–87, 2007; N. Kilian et al. in V. A. Funk et al., Syst. Evol. Biogeogr. Compositae, 348–350, 2009; J. W. Zhang et al., Taxon 60: 15–26, 2011) and the striking overall similarity to the species of that genus purely a result of convergent evolution in response to the environmental changes following the uplift of the Qinghai-Xizang Plateau. The inclusion of Syncalathium orbiculariforme by X. Zhuang (Fl. Yunnan. 13: 764. 2004) has been supported also by molecular studies (J. W. Zhang et al., loc. cit. 2011). The molecular phylogenetic analysis of subtribe Lactucinae (N. Kilian et al., in prep.) reveals the species to be nested in the Melanoseris clade. It is here therefore tentatively assigned to Melanoseris, admitting that this is debatable in the light of its peculiar morphology and the still not settled circumscription of the genus.

**Chongqing (Baxian).**

Herbs, perennial. Stem semiscandent, pale purplish red, with reddish bristles. Basal leaves unknown. Lower and middle stem leaves with red bristles and with slender basally ± widened, ± winged petiole to ca. 9 cm; leaf blade suborbicular or subreniform, 4.5–5.5 × 4.5–7.5 cm, base cordate, margin faintly denticulate, apex acuminate. Uppermost stem leaves sessile or with short, winged, clasping petiole and ovate to narrowly elliptic-ovate blade, otherwise similar to middle stem leaves. Synflorescence racemiform, branches 1–1.5 cm with 2 or 3 capitula. Capitula with 4 or 5 florets. Involucre narrowly cylindric, ca. 1.2 cm. Phyllaries blackish green, reddish setose; outer phyllaries few, gradually longer centripetally, mostly much shorter than inner phyllaries; inner phyllaries 4 or 5, apex subacute. Florets yellow. Achene not seen when mature. Pappus white, ca. 6.5 mm.

**Corymbiform; achene ca. 5 mm.**

No material has been available of *Lactuca scandens*, based on and only known from the collection T. T. Yü 1702 made in October 1932 in the "vicinity of Pa-hsiien" (deposited in the herbarium of the Science Society of China at Nanking). C. C. Chang compared it with, and considered it to be related to, the insufficiently known *L. hirsuta* Franchet, placed here in *Melanoseris* not without doubt (see above). *Lactuca scandens* is diagnosed rather clearly, and in its combination of characters it resembles only few known species of Cichorieae in China (even if the presumed scandent habit is ignored) but matches none in a way that conspecificity could be proposed with sufficient confidence. A safe generic assignment, however, is not possible from the original description; thus, its treatment under *Melanoseris* is very tentative and a formal transfer not justified.

### 59. PARAPRENANTHES


**Shi Zhu (石铸 Shih Chu); Norbert Kilian**

**假福王草属 jia fu wang cao shu**

Herbs, semiannual or more rarely annual. Stems usually solitary, erect, branched apically, glabrous or glandular hairy, leafy or rarely ± leafless. Leaves pinnately lobed or more rarely undivided. Synflorescence with capillaceous branches. Capitula often pendant at anthesis, with 4–15 florets; peduncle capillaceous. Involucre narrowly cylindric. Phyllaries usually green and tinged pale purplish red, glabrous; outer phyllaries few, gradually longer centripetally, mostly much shorter than inner phyllaries; inner phyllaries usually 5 or 8, ± equal in length, ± linear-lanceolate to linear. Receptacle naked. Florets pale reddish or purple. Achene body dark to blackish brown, fusiform, weakly compressed, with 5 main ribs (2 lateral, 1 median ventrally, and 2 median dorsally) and 2 rather similar secondary ribs in between, apically attenuate and pale but without or rarely with a short beak. Pappus white, single, of slender scabrid bristles.

Twelve species: E and SE Asia; 12 species (11 endemic) in China.

1a. Involucre with 5(or 6) inner phyllaries.

2a. Stem leafless or with a single or very few leaves; leaves mostly undivided or more rarely with 1 pair of very small ovate lateral lobes ......................................................................................................................... 6. *P. umbrosa*

2b. Stem leafy throughout; leaves with 1–7 pairs of lateral lobes or more rarely undivided.

3a. Lower and middle stem leaves pinnatisect to subpinnatisect, with 4–7 pairs of ± narrowly elliptic lateral lobes, rachis for most part not or narrowly winged .................................................................................. 10. *P. dolichophylla*

3b. Lower and middle stem leaves lyrate pinnatifid to pinnatisect, with 1–4 pairs of elliptic to triangular lobes or more rarely undivided, rachis for most part at least broadly winged.

4a. Stem leaves with mostly a slender cuneately winged petiole and undivided blade or blade lyrate pinnatifid to lyrate pinnatisect with 1 or 2(or 3) pairs of lobes ......................................................... 8. *P. diversifolia*

4b. Stem leaves with an unwinged petiole and lyrate pinnatifid to lyrate pinnatisect with 3 or 4 pairs of lobes ........................................................................................................................................ 9. *P. heptantha*

1b. Involucre with ca. 8 inner phyllaries.

5a. Middle and upper stem leaves auriculately to sagittally clasping stem.

6a. Leaves sagittally clasping stem; outer phyllaries longest 5–8 mm .................................................................................. 2. *P. yunnanensis*

6b. Leaves auriculately clasping stem; outer phyllaries longest 4–5 mm .................................................................................. 3. *P. auriculiformis*

5b. Stem leaves not clasping stem and except for uppermost ± petiolate.

7a. Stem leaves all palmately 3-lobed or palmately 3-cleft .................................................................................. 11. *P. multifloris*

7b. Stem leaves undivided or pinnately lobed with 1–8 pairs of lateral lobes.

8a. Middle stem leaves sessile, 3-parted, with to 20 cm linear terminal lobe and 1 pair of very small broadly linear-lanceolate lateral lobes at its base .................................................................................. 12. *P. longiloba*

8b. Middle stem leaves petiolate, undivided or pinnately divided with (1 or)2–5 pairs of lateral lobes.

9a. Middle stem leaves lyrate pinnate, pinnatifid, or pinnatisect with broader lateral or terminal lobes or rarely undivided.

10a. Leaves adaxially glaucous, margin shallowly and distantly dentate; synflorescence corymbiform; achene ca. 5 mm, attenuate into a pale stout ca. 1 mm beak ...................... 1. *P. polypodiifolia*

Herbs 50–110 cm tall, perennial. Stem apically densely glandular hairy. Leaves glaucous, glabrous, all with unwinged or weakly winged petiole, margin of leaf blade shallowly and distantly mucronately dentate. Basal leaves, lower stem leaves, and middle stem leaves with petiole 9–12 cm; leaf blade lyrate-pinnatifid to pinnatisect, margin sinuate; lateral lobes 1–3(–5) pairs, elliptic-rhombic, ovate, or triangular-ovate, much smaller than terminal lobe; apex obtuse to acute; terminal lobe triangular-ovate to lanceolate, 5–8 × 3.5–6 cm, base cordate, truncate, or cuneate, apex acute to shortly acuminate. Upper stem leaves smaller, with a shorter petiole; leaf blade similar to middle stem leaves or undivided and ovate to broadly lanceolate. Synflorescence corymbiform, with some to many capitula on somewhat diverging branchlets. Capitula with usually 10–15 florets. Involucre 9–11 × ca. 3 mm. Outer phyllaries triangular-ovate to linear-lanceolate, longest ca. 3 × 1 mm, apex acute; inner phyllaries 8, apex ± obtuse. Florets purplish red or rarely white. Achene ca. 5 mm, apically attenuate into a stout ca. 1 mm beak. Pappus ca. 6 mm. Fl. and fr. May–Jun.

- Trailsides on mountain slopes, forests in mountain valleys; 800–2000 m. Guangxi, Sichuan, Yunnan.


云南假福王草 yunnan jia fu wang cao

Lactuca yunnanensis Franchet, J. Bot. (Morot) 9: 265. 1895; Mulgedium meridionale C. Shih; Paraprenanthes meridionalis (C. Shih) Senikov.

Herbs 0.6–1.5 m tall, perennial. Stem glabrous. Basal leaves unknown. Lower and middle stem leaves sessile, lanceolate, 10–14 × 3.5–6 cm, pinnatifid, glabrous, base auriculately clasping, margin weakly sinuate and mucronately dentate; lateral lobes 2 or 3 pairs, elliptic to narrowly triangular, apex rounded and mucronate to acute; terminal lobe lanceolate to narrowly triangular, apex acute to acuminate. Upper stem leaves lanceolate, triangular, or narrowly elliptic, undivided, margin inconspicuously dentate or entire, apex acuminate. Synflorescence panicle, with some to many capitula. Capitula with usually 10 florets. Involucr 9–11 × ca. 3 mm. Outer phyllaries triangular-ovate to lanceolate, largest 4–5 × ca. 1 mm, apex acute; inner phyllaries ± 8, apex ± obtuse. Florets purple. Achene 3–4 mm, attenuate into a stout ca. 1 mm beaklike apex. Pappus 7–8 mm. Fl. and fr. Jul.

- Grasslands on mountain slopes; ca. 1900 m. Yunnan (Menghai).

Paraprenanthes auriculiformis is a little-known species in need of further studies with affinity to P. yunnanensis.


异叶假福王草 yi ye jia fu wang cao


Herbs 30–130 cm tall, perennial. Stem apically densely glandular hairy. Basal leaves often present at anthesis; petiole 6–10 cm, unwinged; leaf blade triangular-ovate to broadly lanceolate, 3–11 × 3–7 cm, glabrous, base conspicuously cordate to hastate, margin sinuate and mucronulate-dentate, apex acute to shortly acuminate. Lower and middle stem leaves with a shorter petiole; leaf blade to 17 cm, pinnatisect, margin entire to very shallowly mucronulate-dentate, base cuneate; lateral lobes
Herbs 40–100 cm tall, annual. Stem apically densely glandular hairy. Basal leaves, lower stem leaves, and middle stem leaves with petiole 3–7 cm, unwinged, basally not or scarcely widened; leaf blade pinnatisect, ± glabrous, margin very shallowly mucronulate-dentate or entire; lateral lobes 2–8 pairs, opposite to obliquely opposite; basal leaf blade rhombic to elliptic, 5–20 × 4–10 mm; other lateral leaves linear-elliptic to linear-lanceolate, 2.5–6 × 0.5–2 cm, apex acute to acuminate; terminal lobe linear-elliptic to linear-lanceolate, 6–10 × 0.3–1.5 cm, apex acute to acuminate. Upper stem leaves shortly petiolate or sessile, similar to middle stem leaves or 3-parted; uppermost stem leaves linear-elliptic, undivided. Synflorescence corymbiform to corymbosely so, with many capitula. Capitula with usually 10–15 florets. Involucre 9–11 × ca. 3 mm. Outer phyllaries triangular to lanceolate, largest ca. 3 × 0.3–0.5 mm, apex acute; inner phyllaries 8, apex ± obtuse. Florets bluish. Achene ca. 4 mm, attenuate into a ca. 1 mm beaklike apex. Pappus 5–6 mm. Fl. and fr. Apr–May.

- Forests; 500–1200 m. Guangxi, Guizhou, Sichuan.


Herbs 40–100 cm tall, annual. Stem glabrous, leafless, or with very few leaves. Basal leaves with petiole 4–17 cm, unwinged; leaf blade mostly triangular to triangular-ovate, 6–13 × 5–10 cm, undivided, base cordate, hasteate, or sagitattate, margin entire or sinuate and remotely unequally mucronulately dentate; leaf blade more rarely pinnatisect with 1 pair of small ovate lateral lobes. Stem leaves if any triangular-hastate, undivided, otherwise like basal leaves. Synflorescence corymbiform to corymbosely paniculiform, with few to many capitula. Capitula with usually 6–10 florets. Involucre cylindric, 10–13 × 2–3 mm. Phyllaries glabrous, apex acute; outer phyllaries triangular-ovate to lanceolate, largest 5–7 × 1–2 mm; inner phyllaries 5(or 6). Florets purplish red. Achene ca. 6 mm, contracted into a ca. 1 mm beak. Pappus 6–7 mm. Fl. and fr. Oct.

- River valleys; ca. 1200 m. Yunnan.

*Paraprenanthes umbrosa* has previously been placed in *Malgeum* (e.g., FRPS 80(1): 72. 1997). Its reclassification by Sennikov is convincing and is followed here.


假福王草 jia fu wang cao


Herbs 0.5–1.5–[1.8] m tall, perennial. Stem glabrous or more rarely glandular hairy. Basal leaves withered at anthesis. Lower and middle stem leaves with petiole 3–7 cm, unwinged; leaf blade undivided and triangular-ovate to lanceolate or ± lyrate pinnatifid to ± lyrate pinnatissect, glabrous, base cordate, truncate, or cuneate, margin ± sinuate and mucronulately dentate; lateral lobes 1 or 2(or 3) pairs, sometimes alternate or unpaired, ovate to irregularly rhombic, 1–11 × 1–7 cm, smaller toward leaf base, apex rounded to acute; terminal lobe broadly triangular to broadly lanceolate, 5.5–15 × 5.5–15 cm, base hastate, cordinate, truncate, or cuneate, margin often coarsely sinuate, apex acute. Upper stem leaves sessile or with a shorter winged petiole, smaller, less or not divided. Synflorescence narrowly paniculiform, with many capitula. Capitula with usually 10–15 florets. Involucre 9–11 × ca. 3 mm. Outer phyllaries ovate to lanceolate, longest ca. 4 × 1 mm, apex acute; inner phyllaries ± 8, apex obtuse to rounded. Florets purplish. Achene 4–5 mm, attenuate into a ca. 1 mm beaklike apex. Pappus 7–8 mm. Fl. and fr. May–Aug. 2n = 18×.


*Paraprenanthes sororia* is the most widespread species of the genus and one of the two species distributed also outside China. Its circumscription and delimitation differ in the literature. *Paraprenanthes pilipes* and *P. sylvicola* have been considered either as specifically distinct or as conspecific, and *Lactuca diversifolia* (here treated as *P. diversifolia*) has been treated as a separate species and, more recently, as conspecific. This last species, however, clearly differs and is readily distinguished from *P. sororia* by its smaller capitula with only 5 inner phyllaries and 4–6 florets and by its endemic status in China. In contrast, *P. sylvicola* as treated in FRPS (80(1): 172. 1997), delimited by undivided leaves and glabrous upper stem portion, actually comprises
plants (or specimens) with undivided leaves of both *P. sororia* and *P. diversifolia*. The type of the name *P. sylvicola* represents *P. diversifolia*. Glandular hairy plants, which occur throughout the distribution range of *P. sororia*, were formally described as a variety (*Mycelis sororia var. pilipes*) from Japan and later upvalued to species rank as *P. pilipes*. However, the co-occurrence of entirely glabrous and apically glandular hairy plants is also known from other species in subtribe Lactucinae and is of no taxonomic value. *Paraprenanthes pilipes* is therefore treated as synonymous with *P. sororia*. *Paraprenanthes hastata*, with conspicuous undivided lanceolate to lanceolate-hastate middle stem leaves and glandular hairy upper stem portion, which is only known from the incomplete type material collected in Chongqing on Jinyun Shan, is here considered merely as a depauperate form of *P. sororia*. *Paraprenanthes luchunensis*, finally, combines two different elements, and we follow X. Zhuang (Fl. Yunnan. 13: 741. 2004) who included that name in the sense of its type in *P. sororia*; other collections cited in the protologue represent *P. polypodifolia*.

8. *Paraprenanthes diversifolia* (Vaniot) N. Kilian, **comb. nov.**

林生假福王草 *lin sheng jia fu wang cao*


Herbs 0.5–1.5 m tall, annual. Stem glabrous or apically glandular hairy. Lower stem leaves with petiole 4–9 cm, slender cuneately winged, base not clasping; leaf blade triangular, triangular-ovate, or broadly lanceolate, 7–18 × 4–24 cm, usually undivided, glabrous or sparsely glandular hairy, base cuneate, truncate, cordate, or hastate, margin sinuate and mucronately dentate, apex acute. Middle and upper stem leaves with a shorter narrow to broader winged petiole; leaf blade with a rather cuneate base, undivided and otherwise similar to lower leaves or lyrate pinnatifid to lyrate pinnatisect, terminal lobe triangular-ovate to lanceolate, apex acute. Uppermost leaves sessile, elliptic to narrowly rhombic, undivided, base narrow and not clasping, apex acute. Synflorescence narrowly paniculiform, with some to numerous capitula. Capitula with 4–6 florets. Involucr e 9–11 × 1.5–2.2 mm. Outer phyllaries ovate-triangular to lanceolate, largest ca. 3 × 0.5 mm, apex acute; inner phyllaries 5, apex acute to obtuse. Florets purplish red to sometimes whitish. Achene ca. 4 mm, attenuate into an almost beaked apex. *Pappus* 5–6 mm. Fl. and fr. Feb.–Aug.

- Mountain valleys, forests; 500–2500 m. Chongqing, Fujian, Guangdong, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, Yunnan, Zhejiang.

*Paraprenanthes diversifolia* has often not been recognized properly in the past but confused with *P. sororia*. However, it is very well characterized by its small capitula with only 5 inner phyllaries and 4–6 florets. In contrast, leaf shape and indumentum do not actually distinguish it from *P. sororia* (see also note there) and *P. pilipes*.


雷山假福王草 *lei shan jia fu wang cao*

Herbs 0.8–2 m tall, annual. Stem glabrous. Basal leaves unknown. Lower and middle stem leaves with petiole 2.5–10 cm, ± unwinged; leaf blade narrowly elliptic, 12–24 × 8.5–13 cm, lyrate pinnatifid or unequally pinnatifid, margin sinuate and mucronulate-dentate; lateral lobes 3 or 4 pairs, opposite or alternate, elliptic, triangular, or irregularly rhombic, apex obtuse to rounded; terminal lobe irregularly rhombic, lanceolate, or narrowly triangular. Upper stem leaves shortly petiolate; leaf blade linear-elliptic, ca. 10 × 1.3 cm, base cuneate, apex acuminate, otherwise similar to middle stem leaves. Synflorescence narrowly paniculiform, with many capitula. Capitula with 7 or 8 florets. Involucr e 9 × 2 mm. Outer phyllaries triangular-ovate to lanceolate, largest ca. 3 × 1 mm, apex acute; inner phyllaries 5, apex obtuse. Florets bluish purple. Achene ca. 4 mm, attenuate into an almost beaked apex. *Pappus* ca. 5 mm. Fl. and fr. May–Jul.

- Grasslands on mountain slopes, forests; 600–1200 m. Guangxi, Guizhou (Leishan), Hunan, Jiangsu, Sichuan.

*Paraprenanthes heptantha* shows affinities to *P. diversifolia*, and future studies should assess the delimitation between both species.

10. *Paraprenanthes dolichophylla* (C. Shih) N. Kilian & Z. H. Wang, **comb. nov.**

长叶假福王草 *chang ye jia fu wang cao*


Herbs ca. 45 cm tall, perennial. Stem densely glandular hairy. Basal and lower stem leaves unknown. Middle stem leaves with petiole 1–1.5 cm, unwinged; leaf blade obovate to narrowly oblong-lanceolate, 20–22 × 4–13 cm, pinnatisect to subpinnatisect, glabrous, margin sinuate to subulate and mucronately dentate; lateral lobes 4–7 pairs, opposite or alternate, sometimes petiolulate, ± narrowly elliptic, longest pair each 2.5–8 × 1–2.5 cm, decreasing in size toward base and if more than 4 pairs also toward leaf apex, lowermost pair smallest; terminal lobe elliptic to narrowly elliptic, apex acute to acuminate. Synflorescence paniculiform, with numerous capitula. Capitula with ca. 5 florets. Involucr e 9–10 × 2–3 mm. Outer phyllaries ovate to lanceolate, largest ca. 3 × 1 mm, apex acute; inner phyllaries 5, linear-lanceolate, equal in length, apex obtuse. Florets purple. Achene 4–5 mm. *Pappus* ca. 7 mm. Fl. May.

- Forests on mountain slopes; 1600–1700 m. Sichuan (Tianquan).

*Paraprenanthes dolichophylla* was originally described on the basis of flowering material only. Recently collected material with ripe achenes revealed that the species is a member of *Paraprenanthes*, which has also been supported by the molecular analysis of that material.


三裂假福王草 *san lie jia fu wang cao*

Herbs 40–90 cm tall, annual. Stem apically densely glandular hairy. Basal leaves unknown. Middle stem leaves with petiole 3–10 cm, unwinged, basally not widened; leaf blade triangular-ovate, 6–8 × 5–7 cm, 3-lobed or 3-parted, base cordate, margin ± sinuate and mucronately dentate; lateral lobes tri-
angular-ovate to semiorbicular, somewhat smaller or equal in size to terminal lobe, apex rounded to acute; terminal lobe = triangular-ovate, apex acute. Upper stem leaves with petiole shorter and = winged; leaf blade triangular, smaller and less divided than in middle stem leaves or not divided, base cuneate, apex acuminate. Uppermost leaves lanceolate, triangular-lanceolate, or narrowly elliptic, pilose as upper stem, margin dentate or entire, apex acuminate. Synflorescence narrowly paniculiform, with some to many capitula. Capitula with usually 10–15 florets. Involucre 9–11 × ca. 3 mm. Outer phyllaries triangular-ovate to lanceolate, largest 2–3 × ca. 1 mm, apex acute; inner phyllaries 8, apex obtuse. Florets reddish. Achene ca. 4 mm, attenuate into an almost beaked apex. Pappus ca. 6 mm. Fl. and fr. May–Aug.

- Forests, forest margins; 600–800 m. Fujian, Hunan (Zhijiang), Jiangxi, Sichuan.

1a. Herbs scandent; stem ± zigzag.
1b. Herbs not scandent; stem straight, erect.

Fl. and fr. May–Aug.

N. nanchuanensis


狭裂假福王草 xia lie jia fu wang cao

Herbs, annual. Stem glabrous. Basal leaves unknown. Middle stem leaves sessile, 3-parted; lateral lobes 1 pair, broadly linear-lanceolate, very small; terminal lobe narrowly linear, to 20 × 1 cm, margin subundulate or inconspicuously dentate, apex long acuminate. Upper stem leaves gradually smaller, similar to middle stem leaves. Synflorescence paniculiform, with numerous capitula. Capitula with usually 8–12 florets. Involucre 9–11 × ca. 3 mm. Outer phyllaries triangular-ovate to linear-lanceolate, largest 3–4 × ca. 0.5 mm, apex acute; inner phyllaries 8, apex obtuse. Florets purple. Achene 4.5–5 mm, attenuate into an almost beaked apex. Pappus 5–6 mm. Fl. and fr. Jul.

- Mountain slopes; ca. 2000 m. Yunnan (Kunming).


紫菊属 zi ju shu

Shi Zhu (石铸 Shih Chu); Norbert Kilian

Herbs, perennial. Stem erect, rarely scandent and ± zigzag, branched apically, glabrous or glandular hairy, leafy. Leaves pinnately lobed, more rarely undivided. Synflorescence with few to numerous capitula and capitulate branchlets. Capitula pendent at anthesis, with 3–12 florets; peduncle capillaceous. Involucre narrowly cylindric. Phyllaries often tinged purple; outer phyllaries few, gradually longer centripetally, longest ca. 1/3 as long as inner ones; inner phyllaries 3(4), 5, or 6, ± equal in length, ± linear-lanceolate to linear. Receptacle naked. Florets some shade of purple. Achene usually purplish to brownish red, cylindrical to subfusiform, compressed, with 5 main ribs and 2 secondary ribs in between, apex truncate. Pappus white, single, of slender scabrid bristles.

About 11 species: China, Himalayan region; ten species (eight endemic) in China.

1a. Herbs scandent; stem ± zigzag.
2a. Inner phyllaries ca. 8; capitula with 10–12 florets ................................................................. 1. N. yakoensis
2b. Inner phyllaries 4 or 5; capitula with 5–8 florets ................................................................. 2. N. scandens
1b. Herbs not scandent; stem straight, erect.

3a. Inner phyllaries 3 or 4; capitula with 3 or 4 florets; base of petiole often expanded and auriculately clasping .... 10. N. triflora
3b. Inner phyllaries 5; capitula with 4–6 florets; base of petiole never expanded and clasping.

4a. Blade of lower and middle stem leaves not divided.
5a. Lower and middle stem leaves hastate-triangular to rhombic; involucre at anthesis and in fruit less than 1.2 cm ........................................................................................................ 3. N. nanchuanensis
5b. Lower and middle stem leaves ovate to triangular-ovate; involucre at anthesis and in fruit 1.2–1.5 cm.
6a. Middle stem leaves narrowly ovate, base cuneate, petiole winged; upper stem leaves sessile ................................................. 4. N. guizhouensis
6b. Middle stem leaves ovate to triangular-ovate, base cordate, truncate, or cuneate, petiole unwinged; upper stem leaves shortly petiolate ........................................ 6. N. macilenta

4b. Blade of lower and middle stem leaves pinnately lobed.
7a. Terminal lobe of lower and middle stem leaves narrowly elliptic to lanceolate, always much exceeded in width by upper pair of lateral lobes separated by winged or unwinged rachis .......... 8. N. porphyrolepis
7b. Terminal lobe of lower and middle stem leaves ovate, triangular-ovate, or broadly rhombic, not or slightly exceeded in width by upper pair of lateral lobes separated by winged or unwinged rachis.

8a. Involucre at anthesis ca. 1.2 cm and in fruit to 1.6 cm ................................................................... 7. N. melanantha
8b. Involucre at anthesis and in fruit 0.9–1.2 cm.
9a. Involucre at anthesis ca. 1 cm and in fruit to 1.2 cm; achene basally more attenuate than apically; pappus not distinctly exceeding involucre in fruit .............................................. 5. N. yunnanensis
9b. Involucre at anthesis ca. 0.9 cm and in fruit to 1 cm; achene apically more attenuate than basally; pappus distinctly exceeding involucre in fruit .................................................. 9. N. wilsonii
1. Notoseris yakoensis (Jeffrey) N. Kilian, comb. nov.


Vines 3–4 m, herbaceous, perennial. Stem scandent, ± zigzag, flexible, apically branched and glandular hairy, leafy. Stem leaves with petiole 1–3 cm, unwinged, ± glandular hairy, basally not widened; leaf blade triangular-ovate to lanceolate, 4–15 × 2–6 cm, both surfaces ± glandular hairy, base cordate to hastate, margin mucronately dentate, apex acuminate. Synflorescence terminal and in axils of upper leaves, divaricately paniculiform, with few to several capitula. Capitula with usually 10–12 florets; peduncle usually less than 1 cm. Involucre 1.1–1.4 × 0.3–0.5 cm. Phyllaries tinged purplish red; outer phyllaries ovate to lanceolate, largest 5–6 × ca. 1 mm, glandular hairy, apex acute to obtuse; inner phyllaries ca. 8, glabrous to sparsely glandular hairy, apex rounded to obtuse. Florets purplish red. Achene pale to dark purple, cylindric to subfusiform, 4–5 mm, basally more attenuate than apically, somewhat attenuate below pappus disk. Pappus ca. 8 mm. Fl. and fr. Aug–Dec.

Forests, forest margins; 1300–2800 m. Yunnan [N Myanmar].

2. Notoseris scandens (J. D. Hooker) N. Kilian, comb. nov.


Vines, herbaceous, perennial. Stem scandent, ± zigzag, flexible, apically branched and glandular hairy, leafy. Stem leaves with petiole 1–4 cm, unwinged, glandular hairy, basally not widened; leaf blade ovate, triangular-ovate, or lanceolate, 4–15 × 2–4[–7] cm, both surfaces ± glandular hairy, margin mucronately dentate, apex acuminate. Synflorescence terminal and in axils of upper leaves, divaricately corymbose panicleform, with several to many capitula. Capitula with usually 5–8 florets; peduncle usually less than 1 cm. Involucre 11–14 × 2–2.3 mm. Phyllaries tinged purplish red; outer phyllaries ovate to linear-lanceolate, largest 4–6 × ca. 1 mm, glandular hairy, apex acute; inner phyllaries 4 or 5, glabrous or sparsely glandular hairy, apex acute. Florets blue [?or dull violet to reddish purple]. Achene pale [?to dark purple], cylindric to subfusiform, 4–5 mm, basally more attenuate than apically, somewhat attenuate below pappus disk. Pappus ca. [0.7–]1 cm. Fl. and fr. Nov–Dec.

Forests, forest margins; 900–2000 m. Xizang, Yunnan [NE India].


金佛山紫菊 jin fo shan zi ju

Herbs 40–80 cm tall, perennial. Stem erect, branched apically, glabrous, leafy. Lower and middle stem leaves with petiole to 5 cm, winged, basally not widened and not clasping; leaf blade triangular to rhombic, 7–9.5 × 5.5–6 cm, undivided, base hastate to cuneate, margin mucronately dentate, apex acuminate. Upper stem leaves similar to middle stem leaves or sessile, lanceolate to irregularly rhombic, 10–12 × 2–4 cm; uppermost leaves linear, 1.5–2.5 cm. Synflorescence narrowly paniculiform, with numerous capitula and capillaceous branches. Capitula with ca. 5 florets; peduncle capillaceous. Involucre ca. 10 × 2 mm. Phyllaries purple, abaxially glabrous; outer phyllaries ovate to lanceolate, largest ca. 3 × 1 mm, apex acute; inner phyllaries 5, apex obtuse to rounded. Florets purple. Achene subfusiform, ca. 5 mm. Pappus ca. 7 mm. Fl. and fr. Aug–Sep.

● Mountain slopes; 1500–2000 m. Chongqing (Nanchuan).


全叶紫菊 quan ye zi ju

Herbs. Stem solitary, erect, branched apically, glabrous, leafy. Middle stem leaves with petiole to 10 cm, distinctly winged, basally not widened and not clasping; leaf blade narrowly ovate to ovate, 10 × 4.5 cm, undivided, base cuneate, margin mucronately dentate, apex acuminate. Upper stem leaves sessile, narrowly elliptic, lanceolate, or narrowly elliptic-lanceolate, 8.5–17 × 1.5–4.5 cm. Synflorescence paniculiform, with numerous capitula and capillaceous branches. Capitula with ca. 5 florets; peduncle capillaceous. Involucre 12–14 × 2–3 mm. Phyllaries purplish red, abaxially glabrous; outer phyllaries broadly ovate to lanceolate, largest ca. 5 × 1–1.5 mm, apex obtuse to acute; inner phyllaries 5. Florets purplish red. Achene subfusiform. Pappus ca. 8 mm. Fl. and fr. Sep. 2n = 18*.

● Mountain slopes, shaded and moist areas by trails, thickets; ca. 2000 m. Chongqing. Guizhou (Pu’an).


云南紫菊 yun nan zi ju

Herbs, 1–2.7 m tall. Stem solitary, erect, branched apically, glabrous, leafy. Middle stem leaves with petiole 5–20 cm, unwinged; leaf blade ovate, 16–22 × 12–15 cm, lyrate pinnatisect, margin mucronately dentate; lateral lobes 1–3 pairs, narrowly elliptic, 6–10 × 2–5 cm, apex obtuse; terminal lobe rhombic to elliptic, 10–13 × 4–10 cm, base cuneate, apex acuminate. Upper stem leaves with shorter petiole to sessile, usually smaller and less divided to undivided, otherwise similar to middle stem leaves. Synflorescence paniculiform, with numerous capitula. Capitula with 4 or 5 florets. Involucre ca. 10 × 2.5–3 mm at anthesis, to 1.2 cm in fruit. Phyllaries purplish red, abaxially glabrous, apex obtuse; outer phyllaries linear-lanceolate to narrowly elliptic, largest 4–6 × ca. 1 mm; inner phyllaries 5. Florets purple. Achene ca. 5 mm, basally more attenuate than apically. Pappus 7–8 mm. Fl. and fr. Sep–Oct.

● Dense forests; 1200–2000 m. S Yunnan (Yanshan).


光苞紫菊 guang bao zi ju


CICHORIEAE

Herbs 30–130 cm tall, perennial. Stem solitary, erect, branched apically, glabrous or glandular hairy, leafy. Basal, lower, and middle stem leaves with petiole 8–25 cm, unwinged, basally not or slightly widened; leaf blade ovate, triangular-ovate, or more rarely suborbicular, 7–30 × 4.5–23 cm, adaxially ± glandular hairy, base cordate, truncate, or cuneate, margin mucronately dentate, apex acute to acuminate. Upper stem leaves similar to middle stem leaves but smaller and with petiole shorter and often apically cuneately winged; leaf blade triangular to narrowly rhombic, basally usually cuneate, apically acute to acuminate. Uppermost leaves sessile, narrowly rhombic to narrowly elliptic, base cuneate, apex acuminate. Synflorescence paniculiform, with numerous capitula. Capitula with 5 florets. Involucre ca. 12 × 2–3 mm at anthesis, ca. 1.5 cm in fruit. Phyllaries purple, abaxially glabrous; outer phyllaries triangular-ovate to linear-lanceolate, longest ca. 7 × 1 mm; inner phyllaries 5, apex acute. Florets purplish red. Achene 5–6 mm, basally more attenuate than apically. Pappus 8–9 mm. Fl. and fr. Sep–Nov.

- By water in mountain valleys, forests; 800–2300 m. Chongqing, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Yunnan.

The name Prenanthes macilenta Franchet predates the previously accepted name Notoseris psilocephala Franchet. Notoseris macilenta is closely related to N. melanantha and is distinguished by its leaves undivided throughout.


黑花紫菊 hei hua zi ju

Lactuca melanantha Franchet, J. Bot. (Morot) 9: 291. 1895; Notoseris formosana (Kitamura) C. Shih; N. gracilipes C. Shih; N. henryi (Dunn) C. Shih; N. rhombiformis C. Shih; Prenanthes formosana Kitamura; P. henryi Dunn.

Herbs 0.5–2 m tall, perennial. Stem solitary, erect, apically branched and glabrous or glandular hairy, leafy. Lower and middle stem leaves with petiole 3–17 cm, ± unwinged, basally not widened; leaf blade pinnaatipartite to pinnatisect or lyrate so, rarely some leaves undivided, margin mucronately dentate (sometimes very coarsely so) and sometimes ± sinuate; lateral lobes 1–3 pairs, opposite to subopposite, elliptic, irregularly rhombic, or obovate, 1–10 × 0.5–6 cm, base truncate, cuneate, or subpetiolulate, apex obtuse to acute; terminal lobe broadly triangular, or rhombic, 4–22 × 3–20 cm, base cordate, truncate, or cuneate, apex obtuse, rounded, or acute. Upper stem leaves similar to middle stem leaves but with shorter petiole to sessile, smaller and less or not divided. Synflorescence narrowly paniculiform, with numerous capitula. Capitula with 5(or 6) florets. Involucre ca. 12 × 2–3 mm at anthesis, to 1.6 cm in fruit. Phyllaries purplish, abaxially glabrous; outer phyllaries triangular, linear-elliptic, or lanceolate, largest 4–6 × 1–1.5 mm, apex acute; inner phyllaries 5, apex ± rounded. Florets bluish purple to pink. Achene 4–6 mm, basally more attenuate than apically. Pappus 7–9 mm. Fl. and fr. Jun–Dec. 2n = 18*.

- Forests, forest margins; 1300–2700 m. Chongqing, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Sichuan, Taiwan, Yunnan.

Notoseris melanantha is here treated in a wide sense, including several other species previously distinguished only by rather subtle leaf and indumentum features. As here treated, it is well characterized by its pinnatifid or pinnatisect leaves with a broad, triangular to triangular-ovate or broadly rhombic terminal lobe and its 1.2–1.6 cm involucres with 5 inner phyllaries. Comparing the type material of N. melanantha and N. henryi, which were apparently described independently of each other a few years apart, with a larger number of specimens referable to either of them, it becomes evident that a continuous variation in leaf shape closely knits all of these specimens. The rich type material of N. melanantha represents a form with pinnatifid or pinnatisect lower and middle stem leaves, the rachis of which is distinctly to broadly winged at least between the broad, triangular-ovate terminal lobe and the upper pair of lateral lobes and narrowly winged to unwinged between the pairs of lateral lobes, and the lateral lobes of which have a broad base. The syntypes of N. henryi, A. Henry 7022 and A. Henry 11214, in contrast, have pinnatisect lower and middle stem leaves with usually unwinged rachis, lateral lobes with narrow or even subpetiolulate base, and a broad, triangular-ovate to rhombic terminal lobe. This latter leaf shape appears to be much more common. As N. melanantha predates the name N. henryi for a few years, the former is the correct name for the commonest and most widespread Notoseris species. Three further species, N. formosana, N. gracilipes, and N. rhombiformis, apparently each represent only part of this continuous variation, making their delimitation practically impossible. Of these, N. rhombiformis refers to plants with a broad, distinctly rhombic terminal lobe separated by the unwinged rachis from the uppermost pair of lateral lobes, a form also represented by the syntype A. Henry 11214 and approximately by part of the material of the syntype A. Henry 7022 of N. henryi, while N. gracilipes and N. formosana refer to pinnatisect-leafy plants with a broadly triangular terminal lobe and were moreover distinguished by indumentum characters.


南川紫菊 nan chuan zi ju

Herbs 0.7–1.5 m tall, perennial. Stem solitary, erect, branched apically, glabrous, leafy. Basal and middle stem leaves with petiole ca. 4.5 cm, unwinged, basally not widened; leaf blade pinnaatipartite to subpinnatisect, margin mucronately dentate and lobe margin mucronate or with 1 large triangular tooth on one side; lateral lobes 2 or 3 pairs, narrowly elliptic to narrowly rhombic, 3–4 × 1–1.5 cm, base truncate, apex acute to acuminate; terminal lobe narrowly elliptic to obliquely narrowly elliptic, 3–4 × 1–1.5 cm, apex acute to acuminate. Upper stem leaves narrowly elliptic to narrowly elliptic-lanceolate, ca. 5.5 × 1 cm, undivided, apex acuminate. Synflorescence paniculiform, with numerous capitula. Capitula with ca. 5 florets. Involucre 13–15 × 2–3 mm. Phyllaries purplish, abaxially glabrous, apex rounded to obtuse; outer phyllaries lanceolate to linear-lanceolate, longest ca. 6 × 1–1.5 mm; inner phyllaries 5. Florets purple. Achene ca. 5 mm, basally more attenuate than apically. Pappus ca. 8 mm. Fl. and fr. Sep. 2n = 18*.

- Forests on mountain slopes; 1800–1900 m. Chongqing (Nanchuan), Guizhou.

Notoseris porphyrolepis is closely related to N. melanantha and mainly distinguished by the leaf shape, as given in the key.


峨眉紫菊 e mei zi ju

Herbs to 1 m tall, perennial. Stem erect, apically branched and glandular hairy, basally glabrous, leafy. Lower and middle stem leaves with petiole 3.5–8 × 2–2.5 cm, ± unwinged and base slightly widened in lower leaves, narrowly winged and base sometimes auriculately widened in middle leaves; leaf blade pinnatifid to pinnatisect and sometimes lyrate so, margin ± sinuate and mucronulately dentate and sometimes sublobately so; lateral lobes 1–4 pairs, opposite or alternate, sessile to subpetiolulate, ovate, triangular-ovate, or elliptic, 1–7 × 1–4 cm, often unequal, upper ones sometimes subdividing terminal lobe; terminal lobe triangular, triangular-ovate, or rhombic, 7–12 × 3–10 cm, base truncate to cuneate, sometimes lobulate, apex acute to acuminate. Upper stem leaves similar to middle stem leaves but sessile or with shorter usually broader winged petiole, sometimes smaller and fewer. Synflorescence paniculiform, with numerous capitula. Capitula with 4 or 5 florets. Involucre 9–10 × ca. 2 mm. Phyllaries purple, glabrous; outer phyllaries triangular-ovate to linear-lanceolate, longest ca. 5 × 1 mm, apex acute; inner phyllaries 5. Florets purplish blue. Achene 4–6 mm, apically usually more attenuate than basally. Pappus 6–7 mm, exserted from involucre at maturity. Fl. and fr. May–Jul.

- Forests, forest margins; 1000–2800 m. Sichuan (Emei Shan, Wenchuan).


三花紫菊 san hua zi ju


Herbs, to 1 m tall, perennial. Stem solitary, erect, branched apically, sparsely glandular hairy, leafy. Lower and middle stem leaves with petiole to 17 cm, narrowly winged, basally usually slightly widened; leaf blade lyrate pinnatifid to subpinnatisect, margin ± sinuate and mucronulately dentate; lateral lobes 1 (or 2) pairs, ± elliptic, 2–6 × 1–4 cm, base cuneate to petiolulate, apex rounded to obtuse; terminal lobe triangular to trinerved, 12–19 × 11–20 cm, base shallowly cordate, hastate, cuneate, or rounded, apex acuminate to acute. Upper stem leaves with petiole shorter, basally slightly widened, or distinctly widened and ± auriculately clasping or ± sessile and auriculately clasping; leaf blade smaller and often less divided, otherwise similar to middle stem leaves; uppermost leaves narrowly elliptic, narrowly rhombic, or broadly linear, undivided. Synflorescence paniculiform, with numerous capitula. Capitula with 3 or 4 florets. Involucre 10–12 × 1.5–2 mm. Phyllaries purple, glabrous; outer phyllaries narrowly ovate to linear-lanceolate, longest ca. 5 × 1 mm, apex acute; inner phyllaries 3 or 4, apex obtuse to acute. Florets bluish purple. Achene 4–5 mm, basally more attenuate than apically. Pappus ca. 7 mm. Fl. and fr. Jul.–Oct. 2n = 18*.

- Grasslands, forests; 1400–3000 m. Chongqing, Sichuan (Emei Shan), Yunnan (Tengchong).

Notoseris triflora seems to have a scattered, disjunct distribution in C and SW China. It is apparently closely related to Notoseris khasiana (C. B. Clarke) N. Kilian, comb. nov. (basionym: Prenanthes khasiana C. B. Clarke, Compos. Ind. 273. 1876), which has a scattered distribution in NW Myanmar, NE India (Assam), and perhaps Bhutan. The available material of N. triflora shows some variation with respect to leaf shape; therefore, a comparative study of its disjunct populations, as well as those of N. khasiana, would be desirable.


莴苣属 wo ju shu

Shi Zhu (石莼 Shih Chu); Norbert Kilian

Agathyrus D. Don; Lactuopsis Schultz Bipontinus ex Visiani; Lagedium Sojak; Mulgedium Cassini; Phaenioxopus Cassini; Pterocypsela C. Shih; Scariola F. W. Schmidt; Steptorhamphus Bunge.

Herbs, perennial or annual, more rarely subshrubs (only Lactuca orientalis in China). Stems usually leafy. Leaves pinnate or undivided. Capitula with 4–30 or more florets. Involucre narrowly cylindric. Phyllaries glabrous or hairy; outer phyllaries gradually narrower than basally. Pappus 6–7 mm, exserted from involucre at maturity. Fl. and fr. May–Jul.

- Forests, forest margins; 1000–2800 m. Sichuan (Emei Shan, Wenchuan).

The circumscription of the genus is not yet settled, and species numbers given in the literature therefore vary greatly. The concept of the genus applied here on the basis of molecular and morphological studies by N. Kilian et al. (in prep.) is wider than the one adopted in FRPS (80(1): 233–239, 1997) and includes, as far as China is concerned, the former segregates Mulgedium, Pterocypsela, and Scariola.

1a. Subshrubs, stems whitish, rigid, and intricately and divaricately branched; stem leaf bases with linear auricles adnately long decurrent on stem; capitula with 4(or 5) florets ............................................ 8. L. orientalis

1b. Annual to perennial herbs, stems not as above; stem leaf bases never adnately decurrent on stem; capitula with 4(or 5) florets

2a. Achene body strongly compressed with distinctly winged margin.

3a. Inner phyllaries 5(or 6); achene with 3–5 prominent ribs on either side ........................................ 4. L. raddeana

3b. Inner phyllaries ca. 8; achene with 1(or 2) prominent rib(s) on either side.
1. **Lactuca undulata** Ledebour, Icon. Pl. 2: 12. 1830.

   精叶莴苣 *piao dai guo*


   Herbs 10–35 cm tall or more, annual. Stems solitary or few, erect, divaricately branched from base; branches slender, glabrous. Leaves glaucous green to glaucous; lower and middle stem leaves oblanceolate to narrowly elliptic, 2–5 × 1–2 cm, glabrous, base clasping stem and auriculate, margin sinuate-dentate to pinnately lobed; lateral lobes 2–6 pairs; terminal lobe rhombic, flabelliform, apex acuminate. Capitula numerous, terminal, with 8–12 florets; peduncle wiry, usually shorter than capitulum. Involucre narrowly cylindric and 7–9 mm at anthesis, ca. 6 mm in fruit; achene white, beak 2–3.5 mm. Pappus 3–4 mm. Fl. and fr. May–Aug. 

   Moist areas on mountain slopes, mountain valleys; 500–2000 m.


   裂叶莴苣 *chang ye wo ju*

   *Lactuca auriiculata* Candolle.

   Herbs ca. 40 cm tall, annual. Stem solitary, erect, simple or divaricately branched from base; branches slender, glabrous. Leaves glabrous, base sagittately to auriculately clasping stem. Lower and middle stem leaves ovate, spatulate, or elliptic, 3–7 × 1–3.5 cm, pinnatifid to subpinnatisect, margin entire or sparsely dentate; lateral lobes 3–6 pairs, rhombic, flabelliform, or orbicular, apex rounded to acute; terminal lobe rhombic, acute. Upper stem leaves lanceolate to linear-lanceolate, smaller, less or not divided, apiculate. Synflorescence corymbose, with some to numerous capitula. Capitula with ca. 15 florets; peduncle capillaceous, usually longer than capitulum. Involucre narrowly cylindric and ca. 6 mm at anthesis, longish ovoid and to 1.3 × 0.3–0.4 cm in fruit. Phyllaries abaxially purplish red, glabrous, apex acute; outer phyllaries ovate to linear-lanceolate, approaching inner phyllaries to 3/4 their length; inner phyllaries ca. 5. Florets blue to bluish purple [or pale yellowish]. Achene body pale brown to blackish, ovobovoid, ca. 2.5 mm, compressed, with 3 ribs on either side; beak white, filiform, 4–4.5 mm. Pappus 3–4 mm. Fl. and fr. Jun. 2n = 18.

   Grasslands; ca. 2000 m. Xinjiang, ?Xizang [Afghanistan, Bhutan, India (Sikkim), Kashmir, Kazakhstan, Kyrgyzstan, Nepal, Pakistan, Tajikistan; SW Asia].


   长叶莴苣 *chang ye wo ju*

   *Mulgodium sagittatum* Royle, Ill. Bot. Himal. Mts. 252, t. 61, f. 2. 1835; *Lactuca handeliana* S. Y. Hu; *L. longifolia* Candolle (1838), not Michaux (1803); *L. wallichiana* Tuol, nom. illeg. superfl.
Herbs ca. 1 m tall, annual or biennial. Stem solitary, erect, paniculate apically, glabrous. Lower stem leaves linear to linear-lanceolate, undivided or pinnately lobed, base sagittately clasping stem, apex acuminate; lobes when present, linear, apex acute. Upper stem leaves undivided, smaller, otherwise similar to lower leaves. Synflorescence paniculiform, with numerous capitula. Capitula with 12–20 florets; peduncle wiry. Involucre narrowly cylindric and 9–10 mm at anthesis, ovoid and to 1.6 × 0.8 cm in fruit. Phyllaries apically purplish red, abaxially glabrous, apex acute; outer phyllaries triangular-ovate to linear-lanceolate, approaching inner phyllaries to 3/4 their length; inner phyllaries ca. 5. Florets blue. Achene body dark brown, brous, apex acute; terminal lobe triangular, ovate-triangular, or subrhombic, apex acute. Upper stem leaves with basal portion cuneate or winged petiole-like, 2–10 cm; apical portion 3(–5) prominent ribs on either side, beak greenish, filiform, 2.5–3 mm. Pappus 6–7 mm. Fl. and fr. Sep. 2n = 16.

Thickets; ca. 3200 m. Xizang, Yunnan [Afghanistan, Bhatan, India, Kashmir, Myanmar, Nepal, Pakistan].


毛脉翅果菊 mao mai chi guo ju

*Lactuca alliariifolia* H. Léveillé & Vaniot; *L. elata* Hemsley; *L. raddeana* var. elata (Hemsley) Kitamura; *L. vaniotii* H. Léveillé; *Prenanthes hieraciifolia* H. Léveillé; *Pterocypsela elata* (Hemsley) C. Shih; *P. raddeana* (Maximowicz) C. Shih.

Herbs 0.8–2 m tall, biennial or perennial. Roots ramose. Stem solitary, erect, basal half ± densely hispid, apical half glabrous and branched. Lower and middle stem leaves with basal portion cuneate or winged petiole-like, 2–10 cm; apical portion ovate, elliptic, or triangular, 5–16 × 2–8.5 cm, undivided, pinnatipartite, or lyrate pinnatipartite, ± hispid, margin dentate and coarsely sinuate-dentate; lateral lobes 1–3 pairs, elliptic, apex acute; terminal lobe triangular, ovate-triangular, or subrhombic, apex acute. Upper stem leaves with basal portion shorter, winged, and petiole-like to cuneate, apical portion ovate, elliptic, or lanceolate. Synflorescence narrowly paniculiform, with numerous capitula on wiry branches. Capitula with 8–11 florets. Involucre cylindric, 8–10 mm at anthesis, 9–11 × 0.5–0.6 cm in fruit. Outer phyllaries narrowly triangular to lanceolate, longest ca. 7 × 1 mm, apex acute; inner phyllaries 8, usually purplish red, apex acute to obtuse. Florets yellow. Achene 4–6 mm; body blackish, reddish, or dark brown, ellipsoid, compressed, broadly winged, 2–2.5 mm wide, with 1(or 2) prominent rib on either side, apically contracted into an apically pale stout 0.1–0.5 mm beak. Pappus 6–8 mm, caducous. Fl. and fr. Jun–Sep. 2n = 18.

Grasslands on mountain slopes, mountain forests, forest margins, trailsides; 700–1900 m. Hebei, Heilongjiang, Jilin, Liaoning, Shanxi [Japan, Korea, SE Russia].


翅果菊 chi guo ju

*Brachyrrhampus.sinicus* Miquel; *Lactuca amurensis* Regel & Maximowicz ex Regel; *L. brevirostris* Champion ex Bentham; *L. cavaleriei* H. Léveillé; *L. indica* f. indivisa (Maximowicz) H. Hara; *L. indica* f. runcinata (Maximowicz) Kitamura; *L. koyangensis* H. Léveillé; *L. laciniata* (Houttuyn) Makino (1903), not Roth (1979); *L. squarrosa* (Thunberg) Miquel; *L. squarrosa* var. dentata Komarov; *L. squarrosa* f. indivisa Maximowicz; *L. squarrosa* var. integrifolia Komarov; *L. squarrosa* var. laciniata (Houttuyn) Kunz; *L. squarrosa* f. runcinata Maximowicz; *L. squarrosa* var. runcinatopinnatifida Komarov; *Prenanthes laciniata* Houttuyn; *P. squarrosa* Thunberg; *Pterocypsela indica* (Linnaeus) C. Shih; *P. laciniata* (Houttuyn) C. Shih.

Herbs 0.4–2 m tall, annual or perennial. Roots narrowly thickened. Stem solitary, stout, erect, branched apically, glabrous. Lower and middle stem leaves 13–37 × 0.5–20 cm, glabrous, base semiamplexicaul to weakly amplexicaul, margin entire or sparsely dentate, apex obtuse to acuminate; shape and incision extremely variable; shape ranging from linear-lanceolate, linear-elliptic, lanceolate, spatulate, to elliptic; incision ranging from entire, pinnatifid, deeply pinnatifid, to bipinnatifid, with segments mostly narrow, linear, falcate, triangular-lanceolate, or also indicative that comparable variation in leaf shape can also be observed in *L. indica* and *L. formosana*.
elliptic, apex acute to acuminate. Upper leaves smaller, linear-lanceolate, linear, or elliptic, less incised to entire. Synflorescence paniculiform to racemiform-paniculiform, with numerous capitula. Capitula with usually 20–30 florets. Involucre cylindric, 1–1.1 cm at anthesis, 1.2–1.5 × 0.6–0.8 cm in fruit. Phyllaries usually with a purplish margin, apex usually obtuse to rounded; outer phyllaries ovate to lanceolate, longest ca. 6 × 1.5–2 mm; inner phyllaries 8. Florets pale yellow, bluish purple on drying. Achenes 3–5 mm; body reddish brown, dark brown, or blackish brown, ellipsoid, compressed, broadly winged, 1.2–2.5 mm wide, with 1 prominent rib on either side, apically contracted into an apically pale to greenish subfiliform 0.4–1.6 mm beak. Pappus 7–8 mm, caducous. Fl. and fr. Apr.–Nov. 2n = 18*.

Mountain valleys, forests, forest margins, thickets, ravines, fields, wastelands; 200–3000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shaanxi, Shanxi, Sichuan, Taiwan, Xizang, Yunnan, Zhejiang [Bhutan, India, Indonesia, Japan, Korea, Philippines, Russia, Thailand, Vietnam; introduced elsewhere].

*Lactuca indica* is one of the commonest species of tribe Cichorieae in China. Leaf shape shows a similarly strong variation as that in *L. raddeana* and is in a quite similar way ± continuous. Leaf shape is therefore not suitable for species delimitation in this group of species. In China, *L. indica* also shows considerable variation in achene beak length; therefore, the differences with *L. formosana* are sometimes not so clear-cut. See note under the latter species.


台湾翅果菊 tai wan chi guo ju

*Lactuca formosana* Hayata; *L. sonchus* H. Léveillé & Vaniot; *Pterocypsela formosana* (Maximowicz) C. Shih; *P. sonchus* (H. Léveillé & Vaniot) C. Shih.

Herbs 0.5–1.5 m tall, annual or ?perennial. Roots ramose. Stem solitary, erect, loosely branched apically, ± hirsute, glabrescent. Lower and middle stem leaves with narrow petiole-like amplexicaul basal portion to 5 cm or with conspicuously expanded and semiamplexicaul base; leaf blade elliptic, lanceolate, or oblanceolate, 8–18 × 4–8 cm, hirsute, main rib echinulate, undivided and with coarsely dentate margin or pinnatifid with 2–5 pairs of elliptic to broadly falcate lateral lobes, faintly to strongly dentate on margin, and a lanceolate or triangular terminal lobe. Upper stem leaves similar to middle stem leaves, margin mostly ± entire. Synflorescence loosely corymbose, with ca. 10 to many capitula. Capitula with usually 25–30 florets. Involucre cylindric, 1–1.1 cm at anthesis, to 1.8 × 0.8 cm in fruit. Phyllaries acute to acuminate at apex; outer phyllaries broadly obovate to lanceolate, longest ca. 8 × 1–2 mm; inner phyllaries 8. Florets yellow. Achenes 4.5–6.5 mm; body reddish brown, dark brown, or blackish brown, ellipsoid, compressed, broadly winged, 2–2.3 mm wide, with 1 prominent rib on either side, apically contracted into a usually pale to greenish subfiliform 2–3.5 mm beak. Pappus 7–8 mm, caducous. Fl. and fr. Apr.–Nov. 2n = 18*.

• Grasslands on mountain slopes and in valleys, thickets or forests on mountain slopes, fields, along trails; 100–2000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hebei, Hunan, Jiangsu, Jiangxi, Ningxia, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang.

*Lactuca formosana* is similar to *L. raddeana*, *L. triangulata*, and *L. indica*, and the leaf shape of *L. formosana* in mainland China shows some variation. Instead of the typically lyrate-pinnatifid leaves with irregularly incised to dentate margin, plants sometimes have narrow, weakly pinnatifid leaves more similar to those of *L. indica*. However, usually both species can be distinguished by the shape of the synflorescence (corymbiform in *L. formosana*, paniculiform to racemiform-paniculiform in *L. indica*) and the indumentum of stem and leaves (hirsute and with echinulate main rib in *L. formosana*, glabrous in *L. indica*). Conspicuous, occasionally occurring plants with all or most leaves undivided, as are sometimes the upper stem leaves in usually pinnately lobed plants, have been treated as a separate species, *Lactuca sonchus* or *Pterocypsela sonchus*, respectively (e.g., FRPS 801(1): 231. 1997), but are here considered as a mere form of *L. formosana*, easily recognizable by the distinctive long beak of this species.


雀苣 que ju


Subshrubs (10–)20–60 cm tall, glabrous or subglabrous, spinescent, branched from base. Stems whitish, rigid, intricately and divaricately branched. Leaves glaucous green. Basal leaves rosulate, sinuate-dentate to pinnately lobed; lateral lobes 2–4 pairs, triangular, retorse, apex acute. Stem leaves similar to basal leaves but smaller, less incised, and basally with linear auricles adnately long decurrent on stem. Capitulum solitary, terminal and pedunculate or lateral and sessile, with 4(or 5) florets; peduncle (when present) subulate, remaining as a spine after shedding of capitulum. Involucre narrowly cylindric, 7–10 mm at anthesis, to 1.5 cm in fruit. Phyllaries green to bluish purple; outer phyllaries ovate, abaxially pubescent; inner phyllaries 3(or 4), apex obtuse. Florets pale yellow. Achenes 7–8 mm; body brownish, narrowly ellipsoid, 1–1.3 mm wide, with 5–7 ribs on either side; beak concolorous, stout, 2–3 mm. Pappus 7–8 mm, caducous. 2n = 18, 36.

Mountain slopes and screes, on clay or loamy soil, on lime deposits, on gravel, in dry ravines; below 3800 m. Xinjiang [Kashmir, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan; SW Asia].

*Lactuca orientalis* reaches China apparently only in the extreme northwest. No material from China was seen; the description is based on material from outside of China and the habitat data is from Fl. URSS (29: 321. 1964).


乳苣 ru ju

*Sonchus tataricus* Linnaeus, Mant. Pl. 2: 572. 1771; *Agathyrsus tataricus* (Linnaeus) D. Don; *Crepis charbonnelli* H. Léveillé; *Lactuca multipes* H. Léveillé & Vaniot; *Lagedium tataricum* (Linnaeus) Sojak; *Malgedium alatoicum* C. H. An; *M. roborovskii* Tzvelev; *M. runcinatum* Cassini; *M. tataricum* (Linnaeus) Candolle; *S. lactucoideus* Bunge.

Herbs 15–60 cm tall, perennial, with a taproot, roots shoot bearing. Stem erect; branched apically, glabrous, leafy mainly in basal part. Leaves grayish green to glaucous, rigid, glabrous.
Lower and middle stem leaves elliptic, narrowly elliptic, or linear, 6–19 × 2–6 cm, narrowed toward base, pinnatisect, pinnatifid, or coarsely dentate, apex acute to obtuse; lateral lobes 2–5 pairs, subelliptic to triangular, margin entire, denticulate, or spinulose; terminal lobe lanceolate to narrowly triangular, margin entire, denticulate, or spinulose. Upper stem leaves similar to middle stem leaves but smaller and less incised. Synflorescence racemiform to corymbosely paniculiform, almost leafless, usually with numerous capitula. Capitula with 20 florets. Involucre cylindric, 1.1–1.4 × 0.3–0.5 cm at anthesis, to 2 cm in fruit. Phyllaries usually tinged purplish red, glabrous, apex acute to obtuse; outer phyllaries ovate to lanceolate; inner phyllaries ca. 8. Florets usually purplish blue to blue, rarely white. Achene 5–6 mm; body dark gray, columnar to very narrowly ellipsoid, subcompressed, with 5–7 ribs on either side, apically attenuate or contracted into a concolorous or pale stout 1–2 mm beak. Pappus ca. 1 cm. Fl. and fr. Jun–Sep. 2n = 18.

Riverbanks and terraces, by lakes, meadows, by fields, consolidated sand dunes, gravelly places; 1200–4300 m. Gansu, Hebei, Henan, Liaoning, Nei Mongol, Qinghai, Shaanxi, Shanxi, Xinjiang. Xizang [Afghanistan, NW India, Kashmir, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, C and W Russia, Tajikistan, Uzbekistan; SW Asia, Europe, North America].

Lactuca tatarica is a very widespread and considerably variable species. Mulgedium roborovskii is considered not to exceed the variation of the species and is included here. Mulgedium alatum is tentatively included here from the insufficient original description, as no type material has been seen.


山萵苣 shan wo ju

Sonchus sibiricus Linnaeus, Sp. Pl. 2: 795. 1753; Lagerdium sibiricum (Linnaeus) Soják; Mulgedium kamschtaticum Ledebour; M. sibiricum (Linnaeus) Lessing. Herbs 25–100 cm tall, annual or biennial. Stem solitary, whitish, yellowish green, or glaucous green, erect, branched apically, glabrous. Leaves green, glabrous, rather soft. Basal and lower stem leaves sessile, oblanceolate to elliptic-oblan- ceolate, 6–15 × 1.5–6.5 cm, undivided, base coriace to sagitattate and semiangular-circular, margin subapiculate-dentate, apex acute, acuminate, or rounded. Upper stem leaves similar to lower stem leaves or lanceolate, smaller; uppermost leaves ovate, very small, base coriace to sagitattate and clasping, margin entire. Synflorescence corymbosely paniculiform, with very numerous capitula. Capitula with usually 10–30 florets. Involucre narrowly cylindric and 0.9–1.3 cm at anthesis, ovoid and ca. 6 mm in diam. in fruit. Phyllaries green to pale yellowish green, glabrous, usually erect in fruit, apex obtuse; outer phyllaries broadly triangular to lanceolate, approaching inner phyllaries in length; inner phyllaries ca. 8. Florets yellow. Achene body pale brown, narrowly obovoid, ca. 4 mm, compressed, with 5–7 ribs on either side; beak white, filiform, 2–4 mm. Pappus 3–4 mm. Fl. and fr. Feb–Sep. 2n = 18*.

Cultivated throughout China [probably originating from E Mediterranean to SW Asia].

Lactuca sativa was first known in cultivation in ancient Egypt. It is widely cultivated as a vegetable in China. Leaves of the species contain Vitamins A, B9, C, and K and can be eaten as a salad. Lactuca sativa has many cultivars, which are usually treated as varieties. Lactuca sativa var. angustata Irish ex Bremer is the most commonly cultivated variety in China, where the thick stems are cooked as a vegetable.


野萵苣 ye wo ju

Lactuca altaica Fischer & C. A. Meyer; L. scariola Linnaeus. Herbs 50–80 cm tall, annual. Stem solitary, pale, erect, usually branched only apically, glabrous or prickly setose in basal part. Leaves rather rigid, usually held in vertical plane in sunshine, midrib abaxially often prickly setose. Lower and middle stem leaves oblanceolate to narrowly elliptic, 3–7.5 × 1–4.5 cm, pinnatifid, pinnatisect, or more rarely not divided and leaf broadly linear, base auriculately clasping, margin spinulose; lateral lobes usually 3–6 pairs, truncate, falcate, triangular-falcate, or ovate-falcate; terminal lobe triangular-ovate, rhombic, or broadly linear. Uppermost stem leaves smaller, otherwise similarly to middle stem leaves or lanceolate, linear-lanceolate, or linear, margin entire. Synflorescence paniculiform and much branched to almost racemiform in meager plants, with numerous capitula. Capitula with 15–25 florets. Involucre narrowly cylindric and 8–10 mm at anthesis, ovoid and ca. 6 mm in diam. in fruit. Phyllaries usually reflexed in fruit, apex acute; outer phyllaries ovate to lanceolate, approaching inner phyllaries in length; inner phyllaries ca. 8. Florets yellow. Achene body pale brown, narrowly obovoid, ca. 3.5 mm, compressed, with 7–9 ribs on either side; beak whitish, filiform, 3.5–5 mm. Pappus ca. 5 mm, caducous. Fl. and fr. Jun–Aug. 2n = 18.
Wastelands, roadssides, gravel areas on floodplains, rock crevices, grasslands on mountain slopes, mountain valleys; 500–2000 m. Taiwan (introduced), Xinjiang [Afghanistan, N India, Kashmir, Kazakhstan, Kyrgyzstan, Mongolia, W Russia, Tajikistan; N and NE Africa, SW Asia, Europe].

Because molecular analyses supported the earlier assumptions on morphological grounds that *Lactuca altaica* cannot be delimited from *L. serriola* they are treated as conspecific.

*Lactuca serriola* was first recorded in Taiwan in 2007 (C. M. Wang & C. H. Chen, Taiwania 55: 331–333. 2010) and seems to be naturalized there. It has also been introduced to S Africa, NE Asia, Australia, North America, Pacific islands (New Zealand), the Russian Far East, and S South America.


栓果菊属 *shuan guo ju shu*

Shi Zhu (石铸 Shih Chu); Norbert Kilian

Ammoseris Endlicher; *Brachyrhamphus* Candolle; *Hexinia* H. L. Yang; *Lomatolepis* Cassini; *Microrhynchus* Lessing; *Paramicrorhynchus* Kirpiznikov; *Rhabdotheca* Cassini.

Herbs, perennial, often rosulate, sometimes acaulescent, (almost) glabrous. Stem erect, ascending-erect, procumbent, or creeping. Leaves undivided and subtent or sinuate-dentate to pinnately divided. Synflorescence corymbiform or paniculiform, with few to numerous capitula or sometimes capitulum solitary. Capitula with 5–20(–30) florets. Involucre cylindric. Phyllaries with indistinct to conspicuous white scarious margin; outer phyllaries in several series, gradually longer centripetally, + imbricate with longest 1/2–3/4 as long as inner ones; inner phyllaries 5–8, ± equal in length, ± linear-lanceolate. Receptacle naked. Florets yellow. Achene whitish, grayish, blackish, or brownish, homomorphic and all with 5 main ribs or dimorphic and inner with 4 and outer with 5 main ribs, usually accompanied by 2 secondary ribs, smooth or transversely wrinkled, apex truncate to attenuate. Pappus white, of equal faintly scabrid bristles, caducous with pappus disk or persistent.

Fifty-four species: Africa, C, S, and SW Asia, S Europe; four species (one endemic) in China.

1a. Subshrubs; flowering stems hardened, intricately and divaricately branched, erect, with numerous capitula on subulate and after shedding of capitula subsessile peduncles ........................................ 2. *L. polydichotoma*

1b. Herbs; flowering stems herbaceous, creeping, procumbent, or erect, if divaricately branched then never intricate and never with subulate later subsessile peduncles.

2a. Plants with flagelliform branching runners on nodes with small leaf rosettes and solitary pedunculate capitula .......................................................... 4. *L. sarmentosa*

2b. Plants with procumbent to erect stems or acaulescent.

3a. Phyllaries (especially inner ones) with narrow to inconspicuous white scarious margin; achene 4–7 mm, homomorphic, with 5 main ribs; pappus persistent .............................................. 1. *L. acaulis* 2–4 mm, dimorphic, inner ones whitish to grayish with 4 thick main ribs, outer ones brownish to grayish, ± compressed, and with 5 main ribs; pappus caducous with pappus disk ................. 3. *L. procumbens*

3b. Phyllaries (especially outer ones) with broad and conspicuously white scarious margin; achene 2–4 mm, dimorphic, inner ones whitish to grayish with 4 thick main ribs, outer ones brownish to grayish, ± compressed, and with 5 main ribs; pappus caducous with pappus disk ......................... 1. *L. acaulis*

4–7 mm, homomorphic, columnar, cylindric, or subsessiform, 4–7 mm, with 5 main ribs, apex truncate. Pappus 6–8 mm, persistent. Fl. and fr. Apr.–May. 2n = 18.

Roadsides on mountain slopes, wastelands, sparsely forested steppes; 300–3600 m. Guangxi, Guizhou, Hainan, Sichuan, Yunan [Bangladesh, Bhutan, India, Kashmir, Laos, Myanmar, Nepal, N Thailand, N Vietnam].


河西菊 *he xi ju*

*Crepis polydichotoma* Ostenfeld in Hedin, S. Tibet 6(3): 29. 1922; *Hexinia polydichotoma* (Ostenfeld) H. L. Yang; *Zollikofeira polydichotoma* (Ostenfeld) Iljin.

Herbs 15–50 cm tall, perennial, spheroid. Caudex without residue of fibrous and lacerate sheath, with many stems. Stems erect, hardened to herbaceous, intricately and divaricately branched from base. Lower stem leaves sessile, linear, 0.5–4 × 0.2–0.5 cm, base semiamplexicaul, apex obtuse; leaves higher up on stem reduced and narrowly spatulate to narrowly lan-
ceolate and finally reduced to ovate-acute bracts. Synflorescence divaricately paniculiform, with numerous capitula. Capitula with 5–11 florets; peduncle subulate and after shedding of capitulum hardened and subspinescent. Involucre cylindric, 9–12 × 2–3 mm. Phyllaries glabrous, with indistinct scarios margin; outer phyllaries triangular-ovate to lanceolate, longest ca. 3/4 as long as inner phyllaries; inner phyllaries (4 or)5. Achenes pale yellow to yellowish brown, homomorphic, cylindric to ob-columnar, 3–5 mm, with 5 main ribs, transversely wrinkled, apex truncate. Pappus 7–10 mm, deciduous. Fl. and fr. May–pale yellow to yellowish brown, homomorphic, cylindric to ob-columnar, 3–5 mm, with 5 main  ribs, transversely wrinkled, 3/4 as long as inner phyllaries; inner phyllaries (4 or)5. Achene 12 × 2–3 mm. Phyllaries glabrous, with indistinct scarious mar-capitulum hardened and subspinescent. Involucre cylindric, 9–ula with 5–11 florets; peduncle subulate and after shedding of cence divaricately paniculiform, with numerous capitula. Capit-ceolate and finally reduced to ovate-acute bracts. Synflorescence divaricately paniculiform, with numerous capitula. Capitula with 5–11 florets; peduncle subulate and after shedding of capitulum hardened and subspinescent. Involucre cylindric, 9–12 × 2–3 mm. Phyllaries glabrous, with indistinct scarios margin; outer phyllaries triangular-ovate to lanceolate, longest ca. 3/4 as long as inner phyllaries; inner phyllaries (4 or)5. Achenes pale yellow to yellowish brown, homomorphic, cylindric to ob-columnar, 3–5 mm, with 5 main ribs, transversely wrinkled, apex truncate. Pappus 7–10 mm, deciduous. Fl. and fr. May–pale yellow to yellowish brown, homomorphic, cylindric to ob-columnar, 3–5 mm, with 5 main  ribs, transversely wrinkled, 3/4 as long as inner phyllaries; inner phyllaries (4 or)5. Achene 12 × 2–3 mm. Phyllaries glabrous, with indistinct scarious mar-capitulum hardened and subspinescent. Involucre cylindric, 9–ultra with 5–11 florets; peduncle subulate and after shedding of cence divaricately paniculiform, with numerous capitula. Capit-ceolate and finally reduced to ovate-acute bracts. Synflorescence divaricately paniculiform, with numerous capitula. Capitula with 5–11 florets; peduncle subulate and after shedding of capitulum hardened and subspinescent. Involucre cylindric, 9–12 × 2–3 mm. Phyllaries glabrous, with indistinct scarios margin; outer phyllaries triangular-ovate to lanceolate, longest ca. 3/4 as long as inner phyllaries; inner phyllaries (4 or)5. Achenes pale yellow to yellowish brown, homomorphic, cylindric to ob-columnar, 3–5 mm, with 5 main ribs, transversely wrinkled, apex truncate. Pappus 7–10 mm, deciduous. Fl. and fr. May–pale yellow to yellowish brown, homomorphic, cylindric to ob-columnar, 3–5 mm, with 5 main  ribs, transversely wrinkled, 3/4 as long as inner phyllaries; inner phyllaries (4 or)5. Achene 12 × 2–3 mm. Phyllaries glabrous, with indistinct scarious mar-capitulum hardened and subspinescent. Involucre cylindric, 9–uла with 5–11 florets; peduncle subulate and after shedding of cence divaricately paniculiform, with numerous capitula. Capit-63. SONCHUS Linnaeus, Sp. Pl. 2: 793. 1753.

Herbs, annual, biennial, or perennial. Stem erect, not or sparsely branched below synflorescence, leafy. Leaves pinnate to undi-vided. Synflorescence corymbiform or paniculiform, with few to numerous capitula. Capitula with usually 70–300 florets. Involucre campanulate to broadly campanulate, as peduncle often with stipitate glandular hairs and basally ± white tomentose. Phyllaries green, glabrous or glandular hairy; outer phyllaries in several series, gradually longer centripetally, ± imbricate with longest 1/2–3/4 as long as inner ones; inner phyllaries 8–15, ± equal in length, linear-lanceolate to linear. Receptacle naked. Florets yellow. Achene
brownish, ovoid to ellipsoid, compressed, narrowed toward both ends, with (4 or)5 main ribs usually accompanied by 2 secondary ribs, smooth or transversely wrinkled. Pappus white, caducous or persistent, of numerous soft fine outer bristles intermixed with some thicker often ± easily caducous inner bristles.

About 90 species in its wider circumscription: Africa, Asia, Australia, Europe, Pacific islands (New Zealand); five species (two introduced) in China.

The revised, wider circumscription of Sonchus is based on molecular phylogenetic analyses by S. C. Kim et al. (Molec. Phylogen. Evol. 44: 578–597. 2007) and includes several former segregates, which, however, are not present in China.

The main diversity of this genus is in E Africa, the W Mediterranean region, and the mid-Atlantic archipelagos.

1a. Achene distinctly oblanceolate in outline, strongly or distinctly compressed, space between slender ribs much wider than main ribs; annuals (or biennials).
    1b. Achene narrowly ellipsoid, moderately to weakly compressed, space between ribs usually narrower than ribs; perennials.

2a. Achene strongly compressed, ± winged, smooth when fully mature; auricles of middle stem leaves rounded and appressed ................................................................. 4. S. asper
    2b. Achene distinctly compressed, not winged, distinctly wrinkled when fully mature; auricles of middle stem leaves usually acutely prostrate ........................................................................... 5. S. oleraceus

3a. Outex phyllaries triangular-ovate to lanceolate, 1.5–3 mm wide; peduncles and involucres never glandular hairy; pappus persistent, 1.1–1.2 cm ................................................................................................................... 1. S. brachyotus
    3b. Outex phyllaries ± linear-lanceolate, 1–2 mm wide; peduncles and involucres mostly glandular hairy or more rarely non-glandular; pappus persistent or caducous, 6–9 mm.

4a. Pappus persistent; peduncles and involucres glandular hairy or not; achene ± elliptic in cross section, with 1(or 2) weakly prominent main rib(s) on either face; plants with a taproot ............................................. 2. S. wightianus
    4b. Pappus caducous ± as a unit; peduncles and involucres always glandular hairy; achene ± quadrangular in cross section, with 1 very strongly prominent main rib on either face; plants with a short thick rhizome ........................................................................................................... 3. S. palustris

1. Sonchus brachyotus Candolle, Prodr. 7: 186. 1838.

Cinhongxingcai chang lie ku ju cai

Sonchus arenicola Voroschilov; S. arvensis Linnaeus subsp. arenicola (Voroschilov) Voroschilov; S. arvensis f. brachyotus (Candolle) Kirpicznikov; S. arenicola subsp. brachyotus (Candolle) Kitamura; S. brachyotus var. potaninii Tzvelev; S. cavaleriei H. Léveillé; S. chinensis Fischer; S. fauriei H. Léveillé & Vaniot; S. laquezii H. Léveillé.

Herbs 30–100 cm tall, perennial. Taproot with shoot-bearing lateral roots. Stem usually unbranched below synflorescence, glabrous. Basal and lower stem leaves narrowly elliptic to oblanceolate, 5–20 × 1–3(–5) cm, undivided or rarely pinnatifid to pinnatifidate, glabrous, base semiamplexicaul to shortly auriculately clasping, margin denticulate and often sinuate-dentate, apex rounded, obtuse, or subacute; lateral lobes triangular to narrowly triangular if any. Middle and upper stem leaves similar to lower leaves but smaller. Synflorescence corymbiform, with few to several capitula. Capitula with very many (usually 170–300) florets; peduncle 0.5–7 cm, slender, glabrous or more rarely white tomentose apically and glabrescent. Involucre broadly campanulate, ca. 1.5 cm, glabrous or more rarely basally faintly white tomentose. Phyllaries mostly glabrous, apex acute; outer phyllaries triangular-ovate to lanceolate, 1.5–3 mm wide. Corolla 1.6–2.6 cm. Achene narrowly ellipsoid, 2–4 mm, subcompressed, with 1–3 main ribs on either face, weakly rugose. Pappus 1.1–1.2 cm, persistent. Fl. and fr. May–Sep. 2n = 18.

Grassy slopes in mountains, by rivers, alkaline areas; 300–4000 m. Fujian, Gansu, Guangdong, Guangxi, Hebei, Heilongjiang, Henan, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan, Zhejiang [Japan, Kazakhstan, Kyrgyzstan, Mongolia, SE Russia, Thailand].

The diploids Sonchus brachyotus and S. wightianus together with the diploid Mediterranean and SW to C Asian S. maritimus Linnaeus and the chiefly European polyploid S. arvensis Linnaeus (see also note under S. wightianus) form a group of closely related species. Identity and delimitation of S. brachyotus, S. wightianus, and S. arvensis (incl. S. uliginosus M. Bieberstein) had long been misunderstood, before Boulos (Bot. Not. 126: 155–196. 1973) clarified their taxonomy. Due to the confusion in the past, the distribution of S. brachyotus in China is probably still incompletely known. Two conceptual problems surrounded this species. 1) The name S. transscapicus Nevski was applied (e.g., FRPS 80(1): 66. 1997) for plants of this group with glabrous, non-glandular involucres and undivided leaves, and that species was considered as widely distributed in China, except for the southeast. Sonchus transscapicus, however, is a name coined for C Asian populations of S. maritimus (see, e.g., Kirpicznikov, Fl. URSS 29: 244–260. 1964). The alleged minor differences in leaf shape are not consistent and do not justify the recognition of two taxonomic entities, as has been concluded already by Boulos (loc. cit.) and more recently confirmed by Sennikov (Bot. Zhurn. 85(12): 90–94. 2000). The easternmost occurrences of S. maritimus/S. transscapicus are in Tajikistan and Kyrgyzstan (according to Sennikov, loc. cit.) or, more likely, even further west in E Turkmenistan (Boulos, loc. cit.; Tzvelev, Rast. Tsentral. Azii 14B: 77. 2008). The species is also not given in the treatment of Sonchus for the immediately adjacent Chinese province of Xinjiang (C. H. An, Fl. Xinjiang. 5: 434–438. 1999). Sonchus transscapicus sensu FRPS (80(1): 66. 1997) instead refers to the frequent undivided-leafy form of S. brachyotus. The latter species, like S. arvensis and in contrast to S. maritimus, does not actually have a rhizome, although often stated in the literature, but has lateral roots that produce new shoots even after the root system has been fragmented. Moreover, S. maritimus/S. transscapicus is a species with glaucous leaves, smaller capitula with 80–150 florets, a corolla with the tube much shorter than the ligule, achene of 2–3 mm only, and...
habitually similar in hybrids. The maternal species, such as S. vernalis, which is possibly a tetraploid (2n = 36) and has been used as a reference, can be distinguished by its lower leaf morphology, which is more lanceolate in shape. Some records, however, from the northern provinces of China indicate that this species can sometimes be confused with S. arvensis subsp. vernalis, especially when the latter subspecies is underrepresented.


Herbs 30–150 cm tall, perennial, with a taproot. Stems branched from base or higher, glabrous below synflorescence. Basal and lower stem leaves oblanceolate to elliptic, 6–24 × 1.5–5 cm, undivided or pinnatifid to pinnatipartite, glabrous, base narrowed (in basal leaves) to auriculately clasping (in upper stem leaves). Synflorescence corymbiform, with several to many capitula. Capitula with many (usually 70–90) florets; peduncle slender, densely glandular hairy. Involucre ± campanulate, 1.2–1.5 cm, base ± white villous tomentulose. Pappus ca. 7 mm, ± caducous. Fl. and fr. May–Oct. 2n = 18.

Grasslands on mountain slopes, forested areas, forest margins, thickets, beside fields, moist places or near water, wastelands on mountain slopes, gravelly areas by rivers; 300–2300 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangsu, Ningxia, Shaanxi, Sichuan, Taiwan, Xinjiang, Xinjiang, Yunnan, Zhejiang [NE Afghanistan, Bhutan, India, Indonesia (Java), Kashmir, Laos, Malaysia (Peninsular), Myanmar, Nepal, Pakistan, Philippines (Luzon), Sri Lanka, N Thailand, N Vietnam].

*Sonchus wightianus* has frequently been misidentified with the habitually similar *S. arvensis*, which is chiefly restricted to Europe (but also introduced to North America) and a hybridogenous species, in which a tetraploid (2n = 36) *S. arvensis* subsp. uliginosus (M. Bieberstein) Nyman (with non-glandular capitula and peduncles) and a hexaploid (2n = 54) *S. arvensis* subsp. arvensis (with glandular capitula and peduncles) are distinguished. *Sonchus arvensis* is probably derived from hybridization, in which *S. brachyotus* and/or *S. wightianus* on the maternal side and *S. maritimus* and/or *S. tessellatus* Poir et Willdenow on the paternal side are involved (C. C. Kim et al., Molec. Phylog. Evol. 44: 576–597, 2007). The diploid *S. wightianus* has adaxially often reddish marginal florets and does not, in contrast to *S. arvensis* and *S. brachyotus*, produce shoot-bearing roots. Also, in *S. wightianus* plants with non-glandular or glandular peduncles and capitula occur. The former have been distinguished as *S. wightianus* subsp. *uliginosus* and referred to in FRPS (80(1): 66. 1997) as *S. uliginosus* (= *S. arvensis* subsp. *uliginosus*), but they seem to be neither geographically nor ecologically separated. Absence of glandular indumentum is a variation not uncommon in *Sonchus*, as in the case of *S. wightianus*, and apparently is without systematic value. *Sonchus lingianus*, described from China, is a mere form of *S. wightianus* with spatulate to narrowly elliptic, undivided leaves.


Herbs to 1.8 m tall, perennial. Rhizome short, 4–5 cm thick. Stems stout, base ca. 3 cm in diam., branched apically. Lower stem leaves sessile, oblanceolate to lanceolate, 15–35 × 5–20 cm, undivided to pinnatifid, glabrous, base sagittately clasping, margin denticulate, apex acuminate; lateral lobes if present 1–3 pairs, lanceolate, apex acute; terminal lobe triangular to triangular-lanceolate. Middle and upper stem leaves lanceolate; uppermost stem leaves reduced, linear-lanceolate to linear. Synflorescence corymbiform to paniculately corymbiform, with many capitula. Capitula with many (usually 70–90) florets; peduncle slender, densely glandular hairy. Involucre campanulate, to 1.5 cm. Phyllaries abaxially glandular hairy, apex acute to acuminate; outer phyllaries linear-lanceolate, 1–2 mm wide; inner phyllaries linear-lanceolate. Corolla ca. 1.2 cm. Achene narrowly ellipsoid, ca. 4 mm, weakly compressed, ± quadrangular in cross section, weakly rugose, between lateral ribs usually with 1 very strongly prominent main rib and several secondary ribs on either face. Pappus 7–8 mm, caducous ± as a unit. Fl. and fr. Jun–Sep. 2n = 18.

By water and lakes; 400–900 m. Xinjiang [Kazakhstan, Kyrgyzstan, W Russia, Tajikistan, Turkmenistan, Uzbekistan; Europe].


Herbs 20–50 cm tall, annual. Stem usually unbranched and glabrous below synflorescence. Basal and lower stem leaves extremely variable, obovate, spatulate, or elliptic, 7–13 × 2–5 cm, undivided or ± irregularly pinnatisect, glabrous, adaxially dark green and ± glossy, base attenuate and ± auriculate, margin usually densely spinulose dentate, apex acute, acuminate, or obtuse; lateral lobes ± triangular, semi-elliptic, or elliptic. Middle and upper stem leaves spatulate to lanceolate, base auriculately clasping with conspicuous rounded and appressed auri- cles, otherwise similar to lower leaves. Synflorescence densely corymbiform, with few to some capitula. Capitula with many florets; peduncle 0.5–5 cm, slender, glabrous or densely glandular hairy. Involucre ± campanulate, ca. 1.2 cm. Phyllaries abaxially glabrous or more rarely glandular hairy, apex acute; outer phyllaries narrowly lanceolate, 1–2 mm wide. Corolla ca. 1 cm. Achene ± broadly obclavate, 2–3 mm, strongly compressed, ± winged, between lateral ribs usually with 3 slender ribs on either side, space between slender ribs much wider than ribs, smooth with only lateral ribs usually antorsely finely spinulose. Pappus ca. 7 mm, ± caducous. Fl. and fr. May–Oct. 2n = 18.
Mountain slopes, forest margins, by water, field margins, ruderal areas; 1500–3700 m. Naturalized in Guangxi, Hubei, Jiangsu, Shaan- dong, Sichuan, Taiwan, Xinjiang, Xizang, and Zhejiang [presumably originating from Europe and Mediterranean region].

*Sonchus asper* is naturalized in areas adjacent to China including Afghanistan, Bhutan, India, Japan, Kashmir, Kazakhstan, Korea, Kyrgyzstan, Nepal, Pakistan, Russia, Tajikistan, Thailand, Turkmenistan, Uzbekistan, and Vietnam. The species is also naturalized in sub-Saharan Africa, Asia, Australia, New Guinea, North and South America, and Pacific islands (New Zealand).


do is naturalized in areas originating from Europe and Mediterranean region.

About 30 species: mostly in C and SW Asia and the Mediterranean region; ten species in China.

64. **CHONDRILO** Linnaeus, Sp. Pl. 2: 796. 1753.

*Chondrilla juncea* Linnaeus has been introduced to Australia, North and South America, and Pacific islands (New Zealand) but has not yet been reported from China.

1a. Capitula with 5 or 6 florets; inner phyllaries 5(–7).

2a. Achene with a conspicuous 0.5–1.5 mm beak, body with well-developed apical corona of scales .......................... 9. *C. pauciflora*

2b. Achene shortly attenuate into a rudimentary stout beak of 0.1–0.3 mm, body without apical corona of scales or corona at most very indistinct ................................................................. 10. *C. ambiguia*

1b. Capitula with 9–12 florets; inner phyllaries ca. 8.

3a. Beak of mature achene without fine transversal articulation preforming rupture of beak; plants rustyolate but rosette leaves withered at anthesis.

4a. Stem leaves linear-lanceolate to linear, to 0.6 cm wide, subglabrous; stem and branches glabrous; achene body with corona of 5 variably shaped entire to weakly 3-lobed scales to 0.5 mm ....................... 1. *C. brevirostris*

4b. Stem leaves lanceolate to broadly ovate, 1–3 cm wide, pubescent; stem and branches arachnoid pubescent to tomentose; achene body with corona of 5 linear-lanceolate, entire to sometimes 3-lobed, and acute scales to 1 mm ....................................................................................................................... 2. *C. aspera*

3b. Beak of mature achene with fine transversal articulation preforming rupture of beak; plants never rustyolate.

5a. Achene beak articulation approximately in its middle; inner phyllaries dark green or blackish, bristles blackish if present.

6a. Achene body below corona smooth or with isolated tubercles, beak constricted at articulation .... 3. *C. phaeocephala*

6b. Achene body below corona with few scales, beak not constricted at articulation ................................................. 4. *C. ornata*
5b. Achene beak articulation distinctly below its middle, near its base, or below or slightly above upper edge of corona; inner phyllaries green, light green, or grayish green, bristles pale if present.

7a. Corona scales of achene of approximately quadrangular shape, upper margin weakly 3-lobed or entire.

8a. Achene body below corona usually without scales or more rarely with few very small toothlike scales, beak 0.8–1.5 mm ................................................................. 5. C. piptocoma

8b. Achene body below corona with few rows of conspicuous quadrangular scales similar to corona scales, beak 1–2.5 mm ................................................................. 6. C. laticoronata

7b. Corona scales of achene distinctly triangular and undivided or deeply divided with distinctly triangular lobes.

9a. Corona scales of achene deeply and ± equally to very unequally (with dominating middle lobe) 3-lobed; achene body below corona with few rows of tubercles and narrow scales; beak 1.3–3(–4) mm, articulation below its middle and above upper edge of corona terminating basal conical portion ................................................................. 7. C. leiosperma

9b. Corona scales of achene undivided and narrowly triangular; achene body below corona with few rows of short and wide scales; beak 1.2–2.3 mm, articulation at its base near upper edge of corona ................................................................. 8. C. rouillieri


2. **Chondrilla filifolia** Iljin.

Herbs 30–60 cm tall, perennial, rosulate, becoming broomlike. Stem strongly erect-spreadingly branched from base, basically somewhat setaceous otherwise glabrous; branches slender, virgate. Rosette leaves spatulate to elliptic, 7–11 × 0.5–1.5 cm, wither at anthesis, runcinately pinnate, glabrous or abaxially with sparse rigid hairs. Lower and middle stem leaves lanceolate to linear, 2–11 cm × 1–5 mm, weakly but ± sharply incised or entire, glabrous or abaxially with sparse rigid hairs. Capitula with usually 9–12 florets. Involucre 1–1.2 cm, arachnoid hairy, occasionally with very few bristles. Phyllaries grayish green; outer phyllaries broadly triangular-ovate, longest ca. 2 mm; inner phyllaries 8. Achene body 4–5 mm, with a corona of 5 variably shaped entire to weakly 3-lobed erect scales of 0.2–0.5 mm, below corona with 1 to few rows of short rounded scales; beak 0.5–2.5 mm, without articulation. Pappus 6–9 mm. Fl. and fr. Jun–Sep. 2n = 15.

Desert steppes, grasslands in forests; ca. 1300 m. Xinjiang [Kazakhstan, Kyrgyzstan, Russia (W Asian and E and S European parts)].

2. **Chondrilla aspera** Poiret, Encycl. Suppl. 2: 329. 1811.


4. **Chondrilla maracandica** Bunge.
Gravelly areas in deserts; 900–4000 m. Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan].

Chondrilla maracandica, treated as a species of the flora of Xinjiang by C. H. An (Fl. Xinjiang. 5: 430. 1999; see also Leonova, Fl. URSS 29: 578. 1964; Tzvelev, Rast. Tsentral. Azii 14b: 84. 2008), appears not convincingly distinct from C. phaeocephala and is here tentatively considered as conspecific.


Herbs 40–70 cm, perennial, broomlike. Stem strongly branched from base, basally arachnoid hairy; branches yellowish green, slender, virgate, glabrous, ± leafy. Lower stem leaves narrowly elliptic to linear, early deciduous, abaxially with bristles on midrib and at margin, margin denticulate. Middle and upper stem leaves filiform, 1–3 cm × ca. 1 mm, glabrous, margin entire. Capitula with ca. 11 florets. Involucre ca. 1.1 cm, scattered arachnoid hairy. Phyllaries dark green; outer phyllaries triangular-ovate, longest ca. 1.5 mm; inner phyllaries 8. Achenes body 3–5 mm, apically with a corona of 5 wide en- tire to weakly and obtusely 3-lobed scales of 0.1–0.2 mm, be- ak stout, 0.5–1 mm, with fine articulation approximately in its middle. Pappus 5–7 mm. Fl. and fr. Jul–Sep. 2n = 20.

Rocky gravelly slopes; 400–1000 m. Xinjiang [Kyrgyzstan].

No material of Chondrilla ornata has been seen by the present authors. The description is based on Iljin (loc. cit.), Leonova (Fl. URSS 29: 579. 1964), and C. H. An (Fl. Xinjiang. 5: 429. 1999).


Herbs 35–120 cm tall, perennial, ± broomlike. Stem basally erect-spreadingly and higher up divaricately branched; branches slender, densely arachnoid hairy to more rarely ± glabrous, ± leafy. Lower stem leaves narrowly obovate, 3.5–7 cm × ca. 4 mm, early deciduous, margin runcinately pinnate or sparsely dentate. Middle and upper stem leaves linear to filiform, 4–6 cm × 0.5–1 mm, glabrous or arachnoid hairy, margin entire. Capitulum with 9–12 florets. Involucrce ca. 1.3 cm, ± densely arachnoid hairy. Phyllaries greyish to light green; outer phyllaries triangular-ovate, longest ca. 2 mm; inner phyllaries 8. Achene body 3.5–4.5 mm, with approximately quadrangular corona scales with truncate and entire to somewhat erose margin, below corona with few rows of conspicuous quadrangular scales similar to corona scales; beak 1–2.5 mm, with fine articulation near its base below or slightly above upper edge of corona. Pappus white, 6–7 mm. Fl. and fr. Jul–Sep.

Gravelly areas; 1000–2200 m. Xinjiang [Kazakhstan, SC Russia].

The delimitation between Chondrilla laticornata and C. pipto- comá should be reassessed. See note under the latter species, above.


Herbs 20–60 cm tall, perennial, ± broomlike. Stem erect-spreadingly branched from base, basally usually densely arachnoid hairy and sometimes with sparse rigid hairs; branches light green, slender, ± leafy. Leaves glabrous or with arachnoid hairs. Lower stem leaves narrowly lanceolate, ca. 3 cm × 3–7 mm, early deciduous, margin entire or weakly dentate. Middle and upper stem leaves linear, narrowly linear, or almost filiform, 1.5–2.5(–5) cm × 0.5–2 mm, margin entire. Capitula with 9–11 florets. Involucre 1–1.3 cm, ± white tomentose. Phyllaries whitish grayish green; outer phyllaries narrowly triangular-ovate, longest ca. 2 mm; inner phyllaries 8, sometimes with a few pale bristles on midvein. Achene body 3.5–4.5 mm, with approximately quadrangular corona scales with truncate and entire to somewhat erose margin, below corona with few rows of conspicuous quadrangular scales similar to corona scales; beak 1–2.5 mm, with fine articulation near its base below or slightly above upper edge of corona. Pappus white, 6–7 mm. Fl. and fr. Jul–Sep.

Gravelly areas; 1000–2200 m. Xinjiang [Kazakhstan, SC Russia].

The delimitation between Chondrilla laticornata and C. pipto- comá should be reassessed. See note under the latter species, above.


Herbs 30–120 cm tall, perennial, ± broomlike. Stem erect-spreadingly branched at base, basally ± densely arachnoid hairy, sometimes with few rigid hairs; branches slender, rather sparsely branched, glabrous or pubescent, ± leafy. Lower stem leaves narrowly elliptic to lanceolate, 3–10 × 0.4–1.2 cm, early deciduous, glabrous or arachnoid hairy, margin dentate to weakly ± runcinately pinnate to more rarely almost entire. Middle and upper stem leaves narrowly elliptic, narrowly lanceolate, or linear, 1–5(–7) cm × 1–2 mm, glabrous or with arachnoid hairs, margin entire. Capitula with 9–11 florets. Involucre 1–1.3 cm, arachnoid hairy. Phyllaries greyish green; outer phyllaries triangular-ovate, longest ca. 3 mm; inner phyllaries 8, abaxially sometimes with pale bristles on midvein. Achene body 3.5–5 mm, with corona scales deeply and ± equally to very unequally 3-lobed with middle lobe then dominating, below corona with few rows of tubercles and narrow scales; beak 1.3–3(–4) mm, with fine articulation below its middle and above upper edge of corona terminating basal conical portion. Pappus 5–8 mm. Fl. and fr. May–Sep. 2n = 15.

Mountain slopes; 200–1500 m. Xinjiang [Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, Uzbekistan].

基叶粉苞菊 ji ye fen bao ju

Herbs 40–90 cm tall, perennial. Stem erect, branched particularly higher up or more rarely from base, basally usually arachnoid hairy and with sparse rigid hairs or more rarely glabrous; branches slender, virgate, glabrous or sometimes apically sparsely arachnoid hairy. Lower stem leaves narrowly elliptic to narrowly lanceolate, 4–6 × 0.3–0.6 cm, early deciduous, with bristles on margin and abaxially on midvein, margin remotely dentate. Middle and upper stem leaves linear to almost filiform, 0.5–5 × 0.1–0.4(–0.6) cm, glabrous, margin entire. Capitula with 9–11 florets. Involucre 1–1.3 cm, densely arachnoid hairy. Phyllaries grayish green to light green; outer phyllaries 8, sometimes with a few bristles on midvein. Achene body 3.5–4(–5) mm, with corona scales narrowly triangular and undivided, below corona with few rows of short and wide scales; beak 1.2–2.3 mm, with fine articulation at its base near upper edge of corona. Pappus 6–7 mm. Fl. and fr. Jun–Sep. 2n = 15.

Gravelly areas in river valleys, sandy soil, forests; 700–900 m. Xinjiang [Kazakhstan, SC Russia].


少花粉苞菊 shao hua fen bao ju

*Chondrilla kossinskii* Iljin; *C. saisianensis* Iljin; *C. squamate* Iljin; *C. thoraciforma* Iljin.

Herbs 40–110 cm tall, perennial, broomlike, basally sometimes woody. Stem ± intricately basally erect-spreadingly and higher up divaricately branched; branches slender, glabrous, ± leafy. Lower stem leaves lanceolate to lanceolate, 3–7 × 0.2–0.5 cm, early deciduous, glabrous, margin entire or sometimes very scarcely dentate, apex acute. Middle and upper stem leaves linear-lanceolate to filiform, usually shorter and only 1–1.5 mm wide, otherwise like lower stem leaves. Capitula with ca. 5 florets. Involucre 1.2–1.4 cm, glabrous or sparsely arachnoid hairy especially basally. Phyllaries green to yellowish green; outer phyllaries broadly triangular-ovate, 1–2 mm; inner phyllaries 5(–7). Achene 5–7.5 mm; body apically with a corona of 5 erect 3-lobed to irregularly lobed scales of (0.1–)0.2–0.3 mm with lobes of ± equal length, below with 1 or 2 series of tubercles and/or scales; beak stout, 0.5–1.5(–2) mm, without articulation. Pappus 7–9 mm. Fl. and fr. May–Sep. 2n = 15.

Sand dunes, gravel and loess areas; 300–800 m. Xinjiang [Kazakhstan, Russia (E European part), Turkmenistan, Uzbekistan].


沙地粉苞菊 sha di fen bao ju

Herbs 40–100 cm tall, perennial, broomlike, basally sometimes woody. Stem basally erect-spreadingly and higher up densely and intricately divaricately branched; branches slender, glabrous, ± leafy. Lower stem leaves linear-lanceolate to lanceolate, 3–7 × 0.2–0.5 cm, early deciduous, glabrous, margin entire or sometimes very scarcely dentate, apex acute. Middle and upper stem leaves linear-lanceolate to filiform, usually shorter and only 1–1.5 mm wide, otherwise like lower stem leaves. Capitula with ca. 5 florets. Involucre 1.2–1.4 cm, glabrous or sparsely arachnoid hairy especially basally. Phyllaries green to yellowish green; outer phyllaries broadly triangular-ovate, 1–2 mm; inner phyllaries 5(–7). Achene 5–7.5 mm; body apically with a corona of 5 erect 3-lobed to irregularly lobed scales of (0.1–)0.2–0.3 mm with lobes of ± equal length, below with 1 or 2 series of tubercles and/or scales; beak stout, 0.5–1.5(–2) mm, without articulation. Pappus 7–9 mm. Fl. and fr. May–Sep. 2n = 15.

Sand dunes, gravel and loess areas; 300–800 m. Xinjiang [Kazakhstan, Russia (E European part), Turkmenistan, Uzbekistan].


还阳参属 huan yang shen shu

Shi Zhu (石铸 Shih Chu); Norbert Kilian

*Barkhausia* Moench; *Berinia* Brignoli; *Hieracioides* Vaillant; *Lepicaune* Lapeyrrouse; *Soyeria* Monnier.

Herbs, perennial, biennial, or annual, rhizomatous or with a taproot. Stems leafy or leafless. Leaves pinnate or not divided, margin entire or toothed. Synflorescence corymbiform, paniculiform, or racemiform, rarely a solitary capitulum. Capitula erect, medium to large in size. Involucre cylindric to campanulate. Phyllaries in several series; outer phyllaries ± imbricate, centripetally gradually longer, longest 1/4–2/3 or more as long as inner ones; inner phyllaries usually equal in length, linear-lanceolate, abaxially usually with simple and/or glandular hairs, rarely glabrous, adaxially glabrous or with appressed silky hairs. Receptacle naked [or more rarely paleate or with bristles]. Florets yellow [or more rarely reddish purple]. Achene cylindric to fusiform, with 10–20 equal finely spinulose or smooth and glabrous ribs, apex distinctly attenuate, constricted, or beaked. Pappus white to pale yellowish, soft to rigidulous, scabrid, persistent or caducous.

About 200 species: Africa, Asia, Europe, North America; 18 species (five endemic) in China.

1a. Plants with a horizontal, vertical, or oblique rhizome.

2a. Leaf blade of at least some leaves pinnately lobed, otherwise stem leafless; stem leafless or leafy.
3a. Stem leafless or almost so.
   4a. Phyllaries abaxially densely with white arachnoid hairs, and stiff, greenish, glandular hairs along midvein; anther tube 1–2 mm ................................................................. 1. *C. multicaulis*
   4b. Phyllaries abaxially sparsely with white arachnoid hairs, and with blackish glandular hairs along midvein; anther tube 2–3 mm ........................................................................... 2. *C. elongata*

3b. Stem leafy with leaves ± clasping stem.
   5a. Involucre 7–9 mm, abaxially with short blackish glandular hairs and often with setaceous simple hairs; achene 3.5–4 mm .............................................................. 3. *C. lyrata*
   5b. Involucre 10–13 mm, abaxially glabrous or sparsely white hairy (especially at apex) or with black long simple hairs on midvein; achene 4–6 mm .............................................................. 6. *C. coreana*

2b. Leaf blade not divided and stem always leafy.
   6a. Involucre 1.4–1.6 cm or longer.
      7a. Stem especially apically with white arachnoid and with stiff subulate greenish hairs; leaf blade margin irregularly and coarsely toothed; involucre abaxially densely with pale stiff subulate hairs especially on midvein .................................................. 5. *C. sibirica*
      7b. Stem sparsely apically arachnoid hairy and densely so under capitula, also with long dark green to blackish hairs; leaf blade margin subentire; involucre abaxially white arachnoid hairy and with dark green to blackish long hairs .................................................. 9. *C. chrysantha*
   6b. Involucre 0.8–1.3 cm.
      8a. Involucre 1–1.3 cm, abaxially glabrous to sparsely white hairy (especially at apex) or with black long simple hairs on midvein ................................................................. 6. *C. coreana*
      8b. Involucre 0.8–1 cm, abaxially with stipitate blackish glandular hairs on midvein ........................................ 17. *C. shihii*

1b. Plants without rhizomes but with a taproot.
   9a. Synflorescence racemiform to very narrowly paniculiform with some to numerous capitula ....................... 14. *C. napifera*
   9b. Synflorescence of a solitary capitulum or corymbiform and of 2 to numerous capitula.

10a. Inner phyllaries adaxially appressed hairy (as seen with a lens).
   11a. Stem leafy; leaves sagittately clasping stem, margin of upper stem leaves revolute; synflorescence of some to many capitula; involucre 0.7–0.9 cm .................................................. 4. *C. tectorum*
   11b. Stem leafless or sparsely leafy; leaves not clasping stem, margin not revolute; synflorescence of a solitary capitulum or of few capitula; involucre 0.9–1.5 cm.
      12a. Involucre 0.9–1.1 cm; phyllaries abaxially with white arachnoid hairs along midvein but without thicker yellow hairs ........................................................................... 7. *C. oreades*
      12b. Involucre 1–1.5 cm; phyllaries abaxially with white arachnoid hairs and especially along midvein with thicker yellowish glandular or partly non-glandular hairs ........................................................................ 8. *C. crocea*

10b. Inner phyllaries adaxially glabrous (as seen with a lens).
   13a. Plants only with well-developed basal leaves or with basal leaves and lower stem leaves well developed and these larger than upper stem leaves, largest leaves ob lanceolate to elliptic and 2–5 cm wide.
      14a. Plants subcaulescent, 3–5 cm tall ....................................................................................... 18. *C. tianshanica*
      14b. Plants with well-developed stems, 20–60 cm tall.
         15a. Stems leafless or almost so with stem leaves (if present) much reduced and not clasping stem ................................................................................... 15. *C. subscaposa*
         15b. Stems with well-developed leaves clasping stem ................................................................... 16. *C. darvazica*
   13b. Basal leaves or lower stem leaves reduced, linear-subulate, triangular, or bractlike, middle and upper stem leaves well developed, largest stem leaves lanceolate to linear and 1–25 mm wide.
      16a. Middle and upper stem leaves lanceolate, elliptic, or narrowly elliptic-lanceolate, 0.3–2.5 cm wide .................................................................................................................. 10. *C. phoenix*
      16b. Middle and upper stem leaves linear, 1–10 mm wide.
         17a. Leaf blade soft in texture, dark green; stems smooth and dark green; capitula with 18–30 florets ........................................................................................................... 11. *C. bodinieri*
         17b. Leaf blade rigid in texture, usually pale yellowish green; stems angular and pale green; capitula with 7–12 florets (only exceptionally more).
            18a. Plants sparsely to moderately and divaricately branched from base, above middle, or at apex; stem leaves to 8 cm ........................................................................ 12. *C. rigescens*
            18b. Plants strongly and fastigiate branched from base or below middle; stem leaves to 3 cm ........................................................................................................ 13. *C. lignea*


多茎还阳参 duo jing huan yang shen
Regel & Herder; C. multicaulis subsp. subintegri folia Tolmat chew & Rebrikova; C. stol iczae C. B. Clarke.

Herbs 8–60 cm tall, perennial, with a short ± oblique rhizome, rosulate. Stems few to numerous, rarely solitary, rather slender, erect or curved-ascending, branched apically, glabrous or basally with sparse arachnoid hairs, usually ± leafless. Rosette leaves narrowly elliptic-lanceolate, ovate-ob lanceolate, elliptic, or spatulate, 3.5–11 × 0.7–2 cm, undivided or pinnatifid to pinnatipartite, both surfaces short white pubescent, base at- liptic, or spatulate, 3.5–11 × 0.7–2 cm, undivided or pinnatifid sette leaves narrowly elliptic-lanceolate, ovate-oblanceolate, el- dor basally with sparse arachnoid hairs, usually ± leafless. Ro- zome, rosulate. Stems few to numerous, rarely solitary, rather
reduced in size, linear, margin entire. Synflorescence paniculi- toward leaf base, apex obtuse to acute. Stem leaves 0–2, much
reduced in size, linear, margin entire. Synflorescence paniculi-
form or corymbose so, with few to several capitula. Capitula
with 30–40 florets; peduncle slender, often curved-erect, with
dense white arachnoid hairs and stiff greenish glandular hairs. Involucre cylindric, 7–9 × 3–5 mm. Outer phyllaries triangular-
oveate to lanceolate, longest to 3 mm, apex acute to obtuse; inner phyllaries 8–10, abaxially with white arachnoid hairs and stiff
greenish glandular hairs along midvein, adaxially glabrous, margin scarious, apex acute to obtuse. Anther tube 1–2 mm. Achenes reddish brown, fusiform, straight or subcurved, ca. 4
mm, with 10–12 ribs. Pappus white, ca. 4 mm. Fl. and fr. May–Aug. 2n = 10.

Forests, forest margins, open places in forests, grasslands, gravelly
areas by streams and water, floodplains; 1600–3600 m. Xinjiang [Kashmir, Kazakhstan, Kyrgyzstan, Mongolia, Pakistan, C and SW Russia, Tajikistan, SW Asia, N Europe].

Crepis multicaulis and C. elongata are closely related, and their delimitation needs reassessment.


琴叶还阳参 qin ye huan yang shen

Crepis tibetica Babcock.

Herbs, perennial, with a horizontal or oblique rhizome. Stem solitary to few, 25–65 cm tall, erect, unbranched or moder-
ately branched from basal third or higher up, with conspic-
uously erect and usually rather long branches, apically ± densely with blackish long glandular hairs. Leaves mostly bas al, rosulate to crowded, ob lanceolate to elliptic, (3–)5–16–22 × 0.8–2.2 cm including a winged petiole 1/3–1/2 rest of leaf, both faces with long yellowish hairs, base cuneate-attenuate to abruptly narrowed, margin sinuate-dentate to pinnatifid with triangular segments, apex obtuse to rounded. Stem leaves 0–2, similar to basal leaves or bractlike and reduced, ± linear, margin
tire. Synflorescence corymbose to panically corymbiform, with (1–)3–12 capitula. Capitula with 30–40 florets; peduncle slender, 0.5–5 cm, sparsely to more densely white to-
tomentose and with ± dense blackish glandular hairs. Involucre
green to dark green, cylindric to campanulate, 7–9 × 4–8
mm. Phyllaries abaxially with short blackish glandular and of-
ten with setaceous simple hairs; outer phyllaries linear, longest 1/4–1/2 as long as inner ones, apex acute; inner phyllaries adax-
ially glabrous, apex acute. Anther tube ca. 3.5 mm. Ache ne brown, fusiform, 3.5–4 mm, with 20 slender ribs, apex slightly constricted. Pappus white, 4–5 mm, persistent. Fl. Jun–Jul. 2n = 12.

Moist meadows, stream banks; 1200–2400 m. Xinjiang [Kazakhstan, C Russia].


Hieracioides tectorum (Linnaeus) Kuntze.

Herbs 30–90 cm tall, annual or biennial, ± rosulate, with taproot. Stem usually solitary, erect, branched from base or
middle, subglabrous to arachnoid pubescent, sparsely glandular and with white bristles, leafy. Basal and lower stem leaves lin-
ear-lanceolate, lanceolate, or ob lanceolate and attenuate into a
winged petiole-like basal portion, 5–15 × 0.5–1 cm, undivided
or more rarely sinuate to pinnatisect, subglabrous to pubescent
with glandular and simple hairs, base cuneate-attenuate, margin
sparsely dentate, apex acute; lobes (if present) lanceolate to linear. Middle stem leaves similar to lower stem leaves but usu-

Mountain slopes, thickets, forests, forest margins, meadows;
2600–4200 m. W Sichuan (Kangding), Xizang, Yunnan [Bhutan, NE India, Nepal].

Babcock’s names Crepis elongata and C. tibetica are of equal pri-
ority. The first synonymization of the latter with the former name in FRPS (80(1): 114. 1997) has therefore established the priority of C. elongata over C. tibetica.


琴叶还阳参 qin ye huan yang shen

West Siberian yellow garden.


Herbs 0.5–1 m tall, perennial, with stout horizontal to oblique rhizomes. Stem solitary, stout, vertically branched, especially apically with white arachnoid hairs and stiff subulate greenish hairs, leafy. Basal leaves and lower stem leaves with a winged petiole 6–15 cm or more; leaf blade narrowly oblong-elliptic, oblong-ovate, ovate, or elliptic, 16–20 × 5.5–10 cm, abaxially scabrid and white hispid and hirsute on veins, adaxially glabrous, margin hispid, base abruptly narrowed to rarely attenuate, margin ± coarsely dentate, apex acute to acuminate. Middle stem leaves similar to lower stem leaves but petiole shorter, more broadly winged, dentate, and basally clasping; leaf blade ovate to lanceolate, basally attenuate. Upper stem leaves sessile and smaller, otherwise similar to middle stem leaves; uppermost stem leaves elliptic to linear-lanceolate, reduced in size, margin entire, synflorescence laxly corymbiform, with few to several capitula. Capitula with many florets; peduncle 1.5–4 cm or more. Involucre dark green to blackish, broadly cylindric to campanulate, 1–1.3 × 0.7–1 cm. Phyllaries abaxially glabrous or sparsely white hairy (especially at apex) or with black long simple hairs on midvein, apex acute; outer phyllaries narrowly triangular to lanceolate, longest ca. 6–7 mm. Anther tube 3.5–4 mm. Achene ± cylindric to fusiform, 4–6 mm. Pappus white, ca. 6 mm. Fl. and fr. Jul.–Sep.

Forest margins, grasslands in valleys, fields, wastelands; 900–1800 m. Heilongjiang, Nei Mongol, Xinjiang [Kazakhstan, Mongolia, Russia; Europe].


宽叶还阳参


Forest margins, grasslands in valleys, fields, wastelands; 900–1800 m. Heilongjiang, Nei Mongol, Xinjiang [Kazakhstan, Mongolia, Russia; Europe].

Herbs 0.5–1 m tall, perennial, with a short ± oblique rhizome. Stem solitary, erect, branched from middle or in apical portion, rarely unbranched, sparsely arachnoid hairy sometimes mixed with black rigid hairs especially in synflorescence. Basal leaves present at anthesis; petiole 1.5–11.5 cm, winged; leaf blade spatulate to elliptic, 4–8 × 2–3.5 cm, glabrous or sparsely arachnoid hairy, margin sharply and pectinately dentate to rarely lyrate-pinnatifid, base cuneately attenuate, apex obtuse, rounded, or acute. Lower stem leaves with winged petiole 3.5–6 cm, base subclasping or not; leaf blade elliptic, 7–13 × 2–2.5 cm, margin sharply and pectinately dentate, otherwise similar to basal leaves. Middle stem leaves sessile, elliptic, 7–11.5 × 2–4 cm, base cordate and clasping, apex acute to acuminate, otherwise similar to lower stem leaves. Upper stem leaves similar to middle stem leaves but smaller upward on stem and apex more acuminate. Synflorescence corymbiform, with few to several capitula. Capitula with many florets; peduncle 1.5–4 cm or more. Involucre dark green to blackish, broadly cylindric to campanulate, 1–1.3 × 0.7–1 cm. Phyllaries abaxially glabrous or sparsely white hairy (especially at apex) or with black long simple hairs on midvein, apex acute; outer phyllaries narrowly triangular to lanceolate, longest ca. 6–7 mm. Anther tube 3.5–4 mm. Achene ± cylindric to fusiform, 4–6 mm. Pappus white, ca. 6 mm. Fl. and fr. Jul.–Sep.

Forest margins, grasslands, meadows, steppes; 1600–2200 m. Jilin, Liaoning [NE Korea].

*Crepis coreana* was originally described and until recently included in *Hieracium*. H. S. Pak (Fl. Coreana 7: 378. 1999) and Sennikov and I. D. Illarionova (Bot. Zhurn. 86(3): 37–59. 2001) first stated its actual affinity to *Crepis* and transferred the species correspondingly. It is possibly related to *C. sibirica*.


山地还阳参

Hieracium oreades var. cinerascens Fischer & C. A. Meyer; *Hieracioides oreades* (Schrenk ex Fischer & C. A. Meyer) Kuntze.

Herbs 10–25[–30] cm tall, perennial, rosulate, with taproot sometimes shoot-bearing. Caudex 1–3 cm, covered with brown leaf bases of former leaves, simple or branched and thus with 1 or few leaf rosettes. Stems one or a few, slender, ascending to erect, simple or forked, sparsely white arachnoid hairy apically [sometimes additionally with long dark green to blackish glandular hairs], usually ± leafless. Rosette leaves numerous, oblanceolate to elliptic, 4–8 × 0.5–1 cm, shallowly pinnatifid to pinnatisect, abaxially weakly white arachnoid hairy [sometimes additionally with glandular hairs], base attenuate into a petiole-like portion, margin sinuate-dentate or entire; lateral lobes narrowly triangular, lanceolate, or sublinear, apex acute; terminal lobe triangular to lanceolate, apex acute. Stem leaves 0–2, ± linear, reduced in size, margin entire, apex acute. Capitula 1 or 2 per stem, with many florets. Involucrre narrowly campanulate, 9–12 × 5–8 mm. Phyllaries abaxially white arachnoid hairy especially alon midvein [sometimes additionally with long dark green to blackish glandular hairs]; outer phyllaries linear-lanceolate, longest ca. 5 mm, apex acute; inner phyllaries ca. 12, adaxially appressed hairy, margin scarious, apex acute. Another tube ca. 4 mm. Achene orangish brown, fusiform, 5–6 mm,
straight or subcurved, with 10–15 ribs, apex weakly attenuate. Pappus white, 4–6 mm. Fl. Jul.

Gravelly areas on mountain slopes; 1000–3800 m. Qinghai, Xinjiang [Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan].

The diploid *Crepis oreades* and the tetraploid, hybridogenous *C. crocea* (presumably *C. oreades × C. bungei* L. ex Candolle) are very similar. In China, *C. oreades* is of much more restricted distribution, and the very limited material seen is of the (typical) form with involucres and peduncles exclusively white arachnoid hairy, whereas in adjacent Kyrgyzstan and Tajikistan the form (described as *C. oreades* var. *cinerascens*) additionally with blackish glandular hairs on involucres and peduncles prevails.


Hieracium croceum Lamarck, Encycl. 2: 360. 1786; Berinia crocea (Lamarck) Schultz Bipontinus; *Crepis areea* Reichenbach var. *crocea* (Lamarck) Candolle; *C. gmellinii* Schultes var. *grandifolia* Tausch; *C. pallasi* Turczaninow, nom. illeg. superfl.; *C. turczanzinii* C. A. Meyer; *Hieraciodies crocea* (Lamarck) Kuntze.

Herbs 8–30 cm tall, perennial, rosulate, with taproot frequently shoot-bearing. Caudex 0.5–2 cm, simple or usually very shortly branched and thus with 1 or few leaf rosettes, covered with brown leaf bases of former leaves. Stems 1 or a few, slender, ascending to erect, simple or 1- to few forked, arachnoid hairy and with yellow longer and shorter strong glandular and non-glandular hairs especially apically, usually ± leafless. Rosette leaves numerous, oblong-ecliptic to elliptic, 2.5–10 × 1–2.5 cm, shallowly pinnatifid to pinnatisect, both faces white arachnoid hairy and with yellow green to blackish, campanulate, 1.4–1.6 × 0.8–1.2 cm. Phyllaries axially white arachnoid hairy and with dark green to blackish long hairs, apex acute to obtuse; outer phyllaries lanceolate, longest to 2/3 as long as inner ones, spreading; inner phyllaries 15–18, adaxially appressed hairy. Anther tube 4–5 cm. Achene reddish brown to dark purple, fusiform, ca. 7 mm, straight or subcurved, with 12–15 ribs, apically attenuate. Pappus white, 5–7 mm, persistent. Fl. and fr. Jul–Sep.

Gravelly areas on floodplains, stony slopes; 500–1500 m. Xinjiang [Kazakhstan, Mongolia, Russia].


*Hieracium chrysanthum* L. ex Can–bei, Nei Mongol, Qinghai, Shaanxi, Shanxi [Mongolia, E Russia].

Herbs 10–25 cm tall, perennial, with a vertical to oblique rhizome. Stems solitary or several, green or basally tinged with purple, unbranched or 1-branched, sparingly arachnoid hairy but apically densely so under capitula and with dark green to blackish long hairs. Basal leaves crowded, oblong-ecliptic, narrowly elliptic-oblancoleate, or spatulate, 3–7 × 0.4–1.5 cm, glabrous or adaxially sparsely arachnoid hairy, base attenuate into a petiole-like portion, margin sinuate-dentate to subentire, apex obtuse. Stem leaves 2 or 3(or 4), similar to basal leaves but smaller and narrower, base attenuate, margin subentire, apex obtuse to acute. Capitulum solitary or 2, many flowered. Involucre dark green to blackish, campanulate, 1.4–1.6 × 0.8–1.2 cm. Phyllaries axially white arachnoid hairy and with dark green to blackish long hairs, apex acute to obtuse; outer phyllaries lanceolate, longest to 2/3 as long as inner ones, spreading; inner phyllaries 15–18, adaxially appressed hairy. Anther tube 4–5 mm. Achene reddish brown to dark purple, fusiform, ca. 7 mm, straight or subcurved, with 12–15 ribs, apically attenuate. Pappus white, 5–7 mm, persistent. Fl. and fr. Jul–Sep.

The entire plants are used medicinally.


*Crepis polytricha* (Ledebour) Turczaninow; *Hieracioides chrysanthana* (Ledebour) Kuntze; *Hieracium frigidum* Steven ex Candolle; *H. polytrichum* Ledebour; *Soyeria chrysantha* (Ledebour) D. Dietrich.

Herbs 10–25 cm tall, perennial, with a strong taproot. Caudex woody, simple or branched, leafless. Stem dark green, erect, apically branched and setose, basally glabrous and with few scalelike leaves only in and above middle with well-developed leaves. Lower scalelike stem leaves lanceolate, 0.5–2 × ca. 0.3 mm, apex acute. Middle stem leaves sessile, lanceolate, narrowly elliptic, or narrowly elliptic-lanceolate, 2–8 × 0.3–2.5 cm, glabrous to setose, base cuneate, margin entire or sinuate-dentate, apex acute. Upper stem leaves similar to middle stem leaves but smaller, uppermost ones bractlike. Synflorescence corymbiform, with few to some capitula. Capitula with 20–25 florets; peduncle shorter or slightly longer than capitulum, slender. Involucre cylindric, 8–11 × 3–4 mm. Phyllaries axially somewhat tomentose and setose on midvein; outer phyllaries linear to linear-lanceolate, longest 1/2 as long as inner ones, apex acute to obtuse; inner phyllaries 12–14, adaxially glabrous, margin broadly scarious, apex obtuse. Anther tube 4–5 mm. Achene brown, fusiform, 4–5 mm, with 10 ribs, apically attenuate. Pappus white, 5.5–6.5 mm. Fl. and fr. Jul–Oct.

Mountain slopes, ca. 2000 m. Yunnan.

The entire plants are used medicinally.

*Crepis phoenicea* and the following three species of fairly restricted distribution in chiefly S China are closely related and seem to form a complex, in which introgression and hybridization and diploid and polyploid cytotypes in all species occur. Delimitation of species in this complex is difficult and has already been stated as tentative by Babcock (Univ. Calif. Publ. Bot. 22: 632ff. 1947). A revision of the complex based on field and population studies is still needed.

果山还阳参 guo shan huan yang shen

Herbs 40–50 cm tall, perennial, with a strong taproot. Caudex woody, simple or branched, leafless. Stems solitary or several, green, dark green, or tinged with purple, erect, apically branched, smooth, glabrous, basally only with a few scalelike leaves, in and above middle with well-developed leaves. Lower scalelike stem leaves linear-lanceolate, 5–10 × 1–3 mm. Middle stem leaves sessile, linear, 2–14 × 0.1–1 cm, abaxially somewhat canescent tomentulose, margin entire and revolute, apex acute to acuminate. Upper stem leaves similar to middle stem leaves but smaller, uppermost ones bractlike. Synflorescence corymbiform, with few to some capitula. Capitula with 18–30 florets; peduncle shorter or slightly longer than capitulum, slender. Involucre cylindric, 8–10 × 3–4 mm. Phyllaries tomentulose; outer phyllaries linear to linear-lanceolate, longest 1/2–2/3 as long as inner ones, apex acute; inner phyllaries adaxially glabrous, apex obtuse. Anther tube ca. 4 mm. Achene brown, fusiform, ca. 4 mm, with 14 ribs, apically attenuate. Pappus white, 4–5 mm. Fl. and fr. Feb–Aug.

See remarks under *Crepis phoenix*, above.

- Forests, thickets; 1500–2900 m. Xizang, Yunnan.

See note under *Crepis phoenix*, above.


还阳参 huan yang shen

*Crepis rigescens* subsp. *lignescens* Babcock.

Herbs 20–60 cm tall, perennial, with a strong taproot. Caudex woody, simple or branched, leafless. Stems solitary or several, erect, basally woody, sparsely to moderately and ± divaricately branched from base, middle, or near apex; branches tomentose and mucronulate or more rarely acute. Leaves pale yellowish green, glabrous; basal leaves very small, scalelike; middle stem leaves sessile, linear, 3–8 × 0.1–5 cm, rigid in texture, margin entire and revolute, apex acute. Synflorescence ± divaricately corymbiform, with few to several capitula. Capitula with 10–12 (sometimes more) florets. Involucre narrowly cylindric, 8–9 × 2.5–2.8 mm. Phyllaries glabrous or arachnoid hairy; outer phyllaries linear to lanceolate, longest ca. 1/2 as long as inner ones, apex acute; inner phyllaries with white scabrous margin, apex acute. Anther tube ca. 3.5(–4.5) mm. Achene dark brown, fusiform, ca. 4 mm, with 10–16 ribs, apically attenuate. Pappus white, 4–5 mm. Fl. and fr. Feb–Jul.

Forest margins, along streams, wastelands, roadsides; 1600–3000 m. Sichuan, Yunnan [N Myanmar].

See note under *Crepis phoenix*, above.


芜菁还阳参 wu jing huan yang shen


Herbs 40–150 cm tall, perennial, rosulate. Taproot cylindric to narrowly turpinite, ca. 1 cm in diam. Caudex 0.5–3 cm, woody, sometimes branched, with rather sparse leaf rosette and below covered with bases of old leaves and brown lanate. Stem slender, erect, unbranched in proximal portion, usually leafless, apically with narrow synflorescence. Rosette leaves obovate to oblanceolate, 5–26 × 2–6.5 cm, on both faces with short subulate hairs, base attenuate into a 0.5–3 cm petiole-like portion, margin entire or sinuate-dentate to shallowly pinnatifid with orbicular to broadly triangular segments, apex obtuse to rounded and mucronulate or more rarely acute. Stem leaves (if present in lower part) similar to rosette leaves but smaller. Synflorescence racemiform to very narrowly paniculiform, with some to numerous capitula. Capitula with 5–10 florets; peduncle filiform, 1–5 mm. Involucre cylindric, 7–9 × 2–3 mm. Phyllaries green to dark green, ciliate near and at apex otherwise both faces glabrous; outer phyllaries lanceolate, longest 1/3–1/2 as long as inner ones, apex acute; inner phyllaries 5( or 6), apical acute to obtuse. Anther tube 3.5–4 mm. Style branches dark (blackish) upon drying. Achene pale brown, cylindric to fusiform, ca. 4 mm, with 10 ribs, apically attenuate. Pappus yellowish white, ca. 4 mm. Fl. and fr. Jun–Oct.

- Mountain slopes, forests in river valleys; 1400–3300 m. Guizhou, Sichuan, Yunnan.


抽茎还阳参 chou jing huan yang shen

Herbs 30–50 cm tall, perennial, rosulate. Taproot woody.
Caudex woody, with rather sparse leaf rosette and 1–3 stems. Stems erect, apically sparsely branched and white pubescent, almost leafless. Rosette leaves oblanceolate to elliptic, 5–10 × 2–3 cm, both surfaces pubescent with short glandular hairs, base attenuate into a short winged petiole-like portion, margin denticulate and irregularly sinuate to dentate, apex obtuse to acute. Stem leaves (if present) few, remote, bractlike, narrowly lanceolate, apex acute. Synflorescence laxly corymbose, with few to some capitula. Capitula with 20–30 florets; peduncle wiry, 1–4 cm. Involucre broadly cylindric to narrowly campanulate, 7–10 × 4–6 mm. Phyllaries sparsely pubescent with white glandular hairs, covered with leaf bases of former capitula. Capitula with 20–30 florets; peduncles usually 1–9 cm, slender. Involucre cylindric to narrowly campanulate, 8–10 × 4–6 mm. Phyllaries green to blackish green, abaxially with blackish stipitate glandular hairs, leafy. Basal leaves incompletely known, lanceolate, small, margin entire or subentire, withered at anthesis. Lower and middle stem leaves sessile, lanceolate to oblanceolate, 3.5–5 × 1–2 cm, glabrous, base auriculately clasping, margin entire, apex rounded and mucronulate. Upper stem leaves bractlike, lanceolate. Synflorescence laxly corymbiform, with 3–5 capitula. Capitula with 20–30 florets; peduncles usually 1–9 cm, slender. Involucre cylindric to narrowly campanulate, 8–10 × 4–6 mm. Phyllaries green to blackish green, abaxially with blackish stipitate glandular hairs on midvein; outer phyllaries lanceolate to linear-lanceolate, longest ca. 1/2 as long as inner ones, apex acute; inner phyllaries with short blackish rigid subulate hairs on midvein, adaxially glabrous, apex obtuse. Achene dark brown, fusiform, 5–6.5 mm, with 10–12 echinulate ribs, apically strongly attenuate. Pappus white or pale yellowish, 4–5 mm. Fl. and fr. Jul.–Aug.

Mountain slopes, moist pastures, fields; 1400–2200 m. Yunnan [N Laos, N Myanmar].


新疆还阳参 xin jiang huan yang shen

Crepis rigida Waldstein & Kitaibel var. songorica Karelin & Kirilov; C. songorica (Karelin & Kirilov) Babcock.

Herbs 20–60 cm tall, perennial, with a taproot. Stems solitary or more rarely 2–4, from a short woody caudex, erect, sparsely branched apically or rarely from middle, sparsely white arachnoid hairy and especially proximally with rigid subulate partly glandular hairs, covered with leaf bases of former leaves, leafy. Basal and lower stem leaves elliptic-oblancoate, covered with leaf bases of former leaves, leafy. Basal and lower stem leaves elliptic-oblancoate, 5–24 × 2–5 cm, both faces with rigid mostly glandular hairs but especially abaxially, base attenuate, margin sinuate-dentate, apex obtuse to acute. Middle and upper stem leaves ovate to narrowly elliptic-lanceolate, base auriculately clasping, margin sparsely dentate or entire, apex acute to acuminate, otherwise similar to lower leaves; uppermost stem leaf reduced, bractlike. Synflorescence laxly corymbiform, with few to several capitula. Peduncle 1–6 cm, straight or slightly curved. Involucre campanulate, 1.2–1.6 × 0.6–1 cm. Phyllaries abaxially white arachnoid hairy and especially basally and along midvein with ± dense yellowish brown short rigid glandular hairs; outer phyllaries triangular-ovate, triangular, or lanceolate, longest 1/3–2/3 as long as inner ones, apex ± acute; inner phyllaries 12–14, adaxially glabrous, margin scarious, apex obtuse. Anther tube 4.5–5.5 mm. Achene dark reddish brown, fusiform, 7–10 mm, with 16–20 ribs. Pappus white, 8–10 mm. Fl. and fr. Jun.–Aug.

Rocky or gravelly mountain slopes; 1300–2600 m. Xinjiang [E Kazakhstan, Kyrgyzstan, Tajikistan].

Crepis darvazica has been reported generally from the border range between China, E Kyrgyzstan, and NE Tajikistan (Czerenpanov, Fl. URSS 29: 633, 1966), but so far no substantiated records from Chinese territory are known (C. H. An, Fl. Xinjiang, 5: 456, 1999). The above description is based on material from E Kazakhstan and the descriptions by Czerenpanov (loc. cit.) and Babcock (Univ. Calif. Publ. Bot. 22: 426. 1947).


全叶还阳参 quan ye huan yang shen


Herbs, perennial, with a horizontal rhizome. Stem solitary, ca. 25 cm tall, slender, erect, apically sparsely branched and with blackish stipitate glandular hairs, leafy. Basal leaves incompletely known, lanceolate, small, margin entire or subentire, withered at anthesis. Lower and middle stem leaves sessile, lanceolate to oblanceolate, 3.5–5 × 1–2 cm, glabrous, base auriculately clasping, margin entire, apex rounded and mucronulate. Upper stem leaves bractlike, lanceolate. Synflorescence laxly corymbiform, with 3–5 capitula. Capitula with 20–30 florets; peduncles usually 1–9 cm, slender. Involucre cylindric to narrowly campanulate, 8–10 × 4–6 mm. Phyllaries green to blackish green, abaxially with blackish stipitate glandular hairs on midvein; outer phyllaries lanceolate, longest to 4 mm; inner phyllaries 8–10?, adaxially glabrous. Anther tube 3–3.5 mm. Style branches yellow. Achene yellowish brown, fusiform, ca. 5 mm, with 15 ribs, apex truncate. Pappus white, ca. 6 mm. Fl. and fr. Jun. Herbs, perennial, with a horizontal rhizome. Stem solitary, ca. 25 cm tall, slender, erect, apically sparsely branched and with blackish stipitate glandular hairs, leafy. Basal leaves incompletely known, lanceolate, small, margin entire or subentire, withered at anthesis. Lower and middle stem leaves sessile, lanceolate to oblanceolate, 3.5–5 × 1–2 cm, glabrous, base auriculately clasping, margin entire, apex rounded and mucronulate. Upper stem leaves bractlike, lanceolate. Synflorescence laxly corymbiform, with 3–5 capitula. Capitula with 20–30 florets; peduncles usually 1–9 cm, slender. Involucre cylindric to narrowly campanulate, 8–10 × 4–6 mm. Phyllaries green to blackish green, abaxially with blackish stipitate glandular hairs on midvein; outer phyllaries lanceolate, longest to 4 mm; inner phyllaries 8–10?, adaxially glabrous. Anther tube 3–3.5 mm. Style branches yellow. Achene yellowish brown, fusiform, ca. 5 mm, with 15 ribs, apex truncate. Pappus white, ca. 6 mm. Fl. and fr. Aug.

Grasslands; 1300–1400 m. N Xinjiang (Altay Shan). Crepis shihii is a conspicuous species of unclear affinities only known from the type collection and superficially appears to be a diminutive version of C. darvazica.


天山还阳参 tian shan huan yang shen

Pseudoyoungia tianshanica (C. Shih) D. Maity & Maui; Tibetoseris tianshanica (C. Shih) Tzvelev.

Herbs 3–5 cm tall, perennial. Stem erect or ascending-erect, pubescent, leafy. Leaves oblanceolate, 2.5–4 × 0.5–0.8 cm, lyrate pinnatipartite to pinnatisect, both faces sparsely pubescent or abaxially glabrous, base attenuate or abruptly narrowed into a petiole-like portion; lateral lobes 3 or 4 pairs, triangular, rhomboid, or irregularly rhomboid, margin entire, apex acute, obtuse, or rounded; terminal lobe elliptic, ovate, hastate, or sagittate, apex obtuse to acute. Capitula 2, terminal. Involucre cylindric to narrowly campanulate, ca. 1.2 cm. Phyllaries dark, abaxially sparsely arachnoid hairy and with blackish multicellular hairs on midvein; outer phyllaries narrowly elliptic-lanceolate, longest more than 1/2 as long as inner ones, apex acute; inner phyllaries adaxially glabrous, apex acute to obtuse. Achene not seen when mature. Pappus white, ca. 4 mm. Fl. Jul. Herbs 3–5 cm tall, perennial. Stem erect or ascending-erect, pubescent, leafy. Leaves oblanceolate, 2.5–4 × 0.5–0.8 cm, lyrate pinnatipartite to pinnatisect, both faces sparsely pubescent or abaxially glabrous, base attenuate or abruptly narrowed into a petiole-like portion; lateral lobes 3 or 4 pairs, triangular, rhomboid, or irregularly rhomboid, margin entire, apex acute, obtuse, or rounded; terminal lobe elliptic, ovate, hastate, or sagittate, apex obtuse to acute. Capitula 2, terminal. Involucre cylindric to narrowly campanulate, ca. 1.2 cm. Phyllaries dark, abaxially sparsely arachnoid hairy and with blackish multicellular hairs on midvein; outer phyllaries narrowly elliptic-lanceolate, longest more than 1/2 as long as inner ones, apex acute; inner phyllaries adaxially glabrous, apex acute to obtuse. Achene not seen when mature. Pappus white, ca. 4 mm. Fl. Jul.

**Pseudoyoungia** D. Maity & Maiti.

Herbs, perennial or annual, acaulescent or caulescent, often ± rosulate, glabrous or somewhat to sparsely arachnoid hairy or pubescent. Synflorescence corymbiform or paniculiform-corymbiform, exceptionally secundly racemiform. Capitula with 5–25 florets. Involucre cylindric, cylindric-campanulate, campanulate, or broadly cylindric. Phyllaries abaxially glabrous or more rarely somewhat arachnoid hairy, very rarely glandular; outer phyllaries few to several, centripetally longer, at most 1/4(–1/2) as long as inner ones; inner phyllaries usually linear-lanceolate, equal in length, midvein subapically crested and corniculate or flat. Receptacle naked. Florets yellow. Achene ± fusiform, columnar, or ± cylindric, inconspicuously compressed or subcompressed, with 4 or 5 main ribs each accompanied by (1 or) 2 or more slender secondary ribs, ribs usually finely spiculate especially apically, apex attenuate or rarely with a stout short beak. Pappus white, rarely gray or pale brownish, scabrid.

About 30 species: E Asia; 28 species (22 endemic) in China.

The circumscription of *Youngia* has recently been changed by Semnikov and I. D. Illarionova (Komarovia 5: 96. 2008) based, in particular, on carpological analyses. Three species groups have been segregated into three newly established genera: *Crepidifolium*, *Sonchella*, and *Tibetoseris*. *Crepidifolium* includes Babcock and Stebbins’s (Publ. Carnegie Inst. Washington 484: 25. 1937) single species of their (not validly published) “Y. sect. Crepidopsis,” meanwhile divided into three separate species. Most recent molecular phylogenetic analyses of the *Crepidia* by J. W. Zhang et al. (in prep.) on the one hand confirmed that *Crepidifolium* is not part of *Youngia,* but on the other hand revealed that it is actually nested within *Crepidiastrum,* see there. *Sonchella* unites *Y. stenoma* of Babcock and Stebbins’s (not validly published) “Y. sect. Stenophyllum” and a second species formerly treated as *Prenanthes augustifolia* or *Crepis protoniens.* This genus has been confirmed in the molecular phylogenetic analyses by J. W. Zhang et al. (in prep.) as independent and is treated as such here. *Tibetoseris* included the five species of Babcock and Stebbins’s (not validly published) “Y. sect. Desiphylum” and a few later additions from China. *Tibetoseris* was most recently recircumscribed by D. Maity and Maiti (Compositae Newslett. 48: 22–42. 2010) to include only *Y. depressa,* while the other species, considered from morphology as unrelated, were segregated into the newly established genus *Pseudoyoungia.* While their assumption of *Tibetoseris* being diphylectic has been confirmed in the molecular phylogenetic analyses by J. W. Zhang et al. (in prep.), the exclusion of the species united in *Pseudoyoungia* from *Youngia* has not; they appear clearly nested in *Youngia.* *Pseudoyoungia* is here therefore sunk in the synonymy of *Youngia.* Finally, examination of the type material of *Y. blitii,* considered as an unusual and isolated species of *Youngia* since its inclusion by Babcock and Stebbins (Univ. Calif. Publ. Bot 18(11): 227–229. 1943, as *Y. setigera*), revealed that it is grossly misplaced in *Youngia* but conveniently fits into *Dubyaea,* where it is transferred in the present treatment. The genus is still in need of a revision at species level. Many species are known from few collections only and their justifications need to be confirmed by a thorough study of character variation on the basis of more material. The current treatment should be used with critical caution.

1a. Plants ca. 5(–8) cm tall, very rarely taller (to 15 cm) and acaulescent or stem very short and branched within or slightly above leaf rosette with capitula few to several, clustered; involucres 8–12 mm with longest outer phyllary 1/3–1/2(–2/3) as long as inner ones.

2a. Peduncle slender; involucres 1.2–1.6 cm; pappus 10–11 mm ................................................................. 3. *Y. simulatrix*

2b. Peduncle capillaceous; involucres 0.8–1.1 cm; pappus 5–7 mm.

3a. Phyllaries abaxially arachnoid hairy ........................................................................................................ 6. *Y. sericea*

3b. Phyllaries abaxially glabrous.

4a. Involucre 10–11 mm; longest outer phyllary 1/3–2/3 as long as inner ones; inner phyllaries adaxially appressed pubescent ......................................................................................................................... 7. *Y. conjunctiva*

4b. Involucre 8–10 mm; longest outer phyllary 1/3–1/2 as long as inner ones; inner phyllaries adaxially glabrous.

5a. Longest outer phyllary to 1/3 as long as inner ones; midvein of inner phyllaries subapically plane ................................................................................................................................. 4. *Y. gracilipes*

5b. Longest outer phyllary to 1/2 as long as inner ones; midvein of inner phyllaries subapically crested or corniculate ................................................................................................................... 5. *Y. cristata*

1b. Plants caulescent, usually very distinctly so, or if stem very short then capitula not clustered but all borne distinctly above leaf rosette and longest outer phyllary usually at most 1/4 as long as inner ones (if 1/3–1/2(–2/3) as long see *Y. conjunctiva* above); involucres 5–13 mm.

6a. Pappus ash-gray, yellowish brown, or pale brown.

7a. Pappus ash-gray; synflorescence corymbiform on a stem with well-developed distant leaves.

8a. Peduncle and involucre ± shortly glandular hairy (rarely glabrous); midvein of inner phyllaries subapically always plane; style branches yellow upon drying ........................................................................... 1. *Y. cineripappa*

8b. Peduncle and involucre glabrous; midvein of some inner phyllaries subapically crested or corniculate; style branches brown or green upon drying ............................................................ 2. *Y. atripappa*

7b. Pappus yellowish brown or pale brown; synflorescence corymbiform on a leafless stem, or else not corymbiform.
9a. Synflorescence corymbiform; capitula erect, with ca. 5 florets; involucre 6–7 mm ......................... 27. *Y. szechuanica*
9b. Synflorescence secundly racemiform; capitula nodding, with 10–20 florets; involucre 10–13 mm .............................................................................................................................................. 28. *Y. racemifera*

6b. Pappus white.
10a. Involucre 4–7 mm; synflorescence (except in depauperate plants) moderately to richly branched, with some, many, or numerous capitula; inner phyllaries with midvein subapically strictly plane.
11a. Leaves undivided; basal leaves with petiole to 15 cm, as long as hastate-cordate blade ............... 22. *Y. longipes*
11b. Leaves except early basal ones always pinnately lobed; basal leaves with basal petiole-like portion much shorter than remainder of leaf.
12a. Basal, lower, and middle stem leaves pinnatipartite to pinnatisect, lateral lobes as broad as terminal lobe .............................................................................................................................................. 21. *Y. rosthornii*
12b. Leaves at most pinnately lobed, lateral lobes usually much narrower and smaller than terminal lobe.
13a. Plants annual to perennial; stem leaves always well developed, pinnatipartite to pinnatisect, lateral lobes of all leaves ovate or elliptic, terminal lobe long acuminate; involucre 6–7.5 mm; achene 2.5–3 mm .......................... 20. *Y. heterophylla*
13b. Plants strictly annual; stem leaves mostly soon reduced and undivided, or if well developed and pinnately lobed then lateral lobes triangular or rhomboidal, terminal lobe obtuse, acute, or shortly acuminate; involucre 4–5(–7) mm; achene 1.5–2.5 mm.
14a. Achene light brown, dark reddish, or purplish brown, apex strongly attenuate; pappus persistent ..................................................................................................... 24. *Y. japonica*
14b. Achene clear red, apex contracted into a stout 0.2–0.4 mm beak; pappus ± deciduous.
15a. Involucre 4–6 mm; pappus 2.5–3 mm .................................................... 25. *Y. erythrocarpa*
15b. Involucre 6–7 mm; pappus 3–4 mm .................................................................. 26. *Y. rubida*

10b. Involucre (6–)7–10(–13) mm; synflorescence poorly to moderately branched, with few, some, or more rarely with many capitula; inner phyllaries either all with midvein plane or some with midvein subapically crested or corniculate.
16a. Midvein of all inner phyllaries plane.
17a. Inner phyllaries adaxially glabrous; later basal and stem leaves pinnatifid to pinnatisect, rachis often pectinate between lateral lobes ................................................................. 17. *Y. wilsonii*
17b. Inner phyllaries adaxially appressed pubescent; later basal and stem leaves pinnatisect, rachis not pectinate between lateral lobes.
18a. Lobes of pinnate leaves basally often with a large tooth; achene 3–3.5 mm ......................... 18. *Y. henryi*
18b. Lobes of pinnate leaves entire; achene 2–3 mm.
19a. Plants delicate, 10–30 cm tall; involucre ca. 7 mm; achene 2–2.5 mm ............... 15. *Y. hastiformis*
19b. Plants usually rather robust, to 60 cm tall; involucre 7–11 mm; achene 2.5–3 mm .............................. 16. *Y. prattii*

16b. Midvein of at least some inner phyllaries subapically crested or corniculate.
20a. Rosette leaves contracted or attenuate into a very long (to 9 cm) inconspicuously winged petiole-like basal portion at least as long as or longer than remainder of leaf ............... 19. *Y. terminalis*
20b. Rosette leaves without petiole-like portion, or if with one then distinctly shorter than remainder of leaf.
21a. Involucre 8–13 mm; inner phyllaries adaxially pubescent; pappus 5–9 mm.
22a. Plants to 100 cm tall; involucre (0.8–)0.9–1.3 cm; longest outer phyllaries 1.5–3 mm .............................................................................................................................................. 8. *Y. paleacea*
22b. Plants at most 30 cm tall; involucre 0.8–1 cm; longest outer phyllaries ca. 1.5 mm .............................................................................................................................................. 9. *Y. pilifera*
21b. Involucre 6–8 mm; inner phyllaries adaxially glabrous or appressed pubescent; pappus 2.5–5.5 mm.
23a. Stem very slender or capillaceous, almost leafless or leafless with 1–5 capitula.
24a. Involucre ca. (7–)8 mm; pappus 5–5.5 mm ................................................ 14. *Y. kangdingensis*
24b. Involucre 6–7 mm; pappus 2–5 mm.
25a. Plants delicate, 3–10 cm tall; rosette leaves 1–7 × 0.3–1 cm; stem capillaceous; pappus 4–5 mm ............................................................................. 13. *Y. yilingii*
25b. Plants more robust, 10–15 cm tall; rosette leaves 5–10 × 1–2 cm; stem slender; pappus ca. 2.5 mm .............................................................................................................................................. 23. *Y. bifurcata*
23b. Stem usually more robust, usually with few leaves and more than 5 capitula.
26a. Achene 2–2.5 mm; inner phyllaries adaxially pubescent.
27a. Leaves pubescent; longest outer phyllary to 1 mm; inner phyllaries adaxially densely appressed hairy ........................................... 12. Y. mairei
27b. Leaves glabrous; longest outer phyllary 1–2 mm; inner phyllaries adaxially sparsely appressed hairy ......................................... 15. Y. hastiformis
26b. Achene 3–4 mm; inner phyllaries adaxially glabrous or with only few appressed hairs.
28a. Stems especially at bifurcations, peduncles, and abaxial face of leaves brown arachnoid hairy; synflorescence with to 25 capitula .......... 10. Y. fusca
28b. Stems, peduncles, and leaves mostly rather sparsely pale or white arachnoid hairy; synflorescence with less than 10 capitula .................. 11. Y. lanata

鼠冠黄鹌菜 shu guan huang an cai


Herbs 40–150 cm tall, perennial. Rhizome horizontal or oblique?, with fleshy fibrous roots. Caudex short. Stems mostly solitary or more rarely few, erect, branched only apically, glabrous, leafy. Basal leaves obovate to oblanceolate, 6–25 × 2–4(–6) cm, undivided to pinnatifid or lyrate pinnatifid, glabrous, base attenuate into a cuneately winged petiole-like portion to 1/3 as long as leaf, margin subentire to sinuate-dentate, apex acute to obtuse; lateral lobes 4 or 5 pairs, triangular, broadly triangular-ovate, or elliptic, apex acute, obtuse, or rounded and mucronate; terminal lobe narrowly triangular, apex long acuminate. Stem leaves elliptic to lanceolate, 5–19 × 2–4(–7) cm, base attenuate into a short cuneately winged petiole-like portion, otherwise like basal leaves; uppermost stem leaves linear to subulate, reduced in size. Synflorescence cortyform, with few to many capitula. Capitula with ca. 15 florets; peduncle 1–1.5 cm, slender, glabrous. Involucre cylindric, 8–9 mm. Outer phyllaries 5 or 6, ovate to narrowly triangular, longest 1–1.5 mm, apex acute; inner phyllaries 8, abaxially with or rarely without stipitate glandular hairs on midvein, adaxially glabrous, midvein subapically crested, margin white scarious, apex acute to obtuse. Anther tube and style branches green to blackish upon drying. Achene brown, subfusiform, ca. 4 mm, somewhat more attenuate toward apex than base, ribs finely spiculate. Pappus grayish, 4–5 mm. Fl. and fr. Jul–Aug.

Forest margins, thickets, grassy cliffs; ?3000–?3600 m. SE Xizang [Bhutan, India (Sikkim)].

The epithet of the earliest legitimate name of this species, Crepis gracilis, is not available in Youngia, because of Y. gracilis Miquel, and the corresponding combination by Babcock and Stebbins is thus illegitimate. Instead, the epithet of C. atripappa, which was included as a synonym by Babcock and Stebbins, is available and has to be taken up (Vienna Code, Art. 11.4). Youngia stebbinsiana, published by S. Y. Hu (Quart. J. Taiwan Mus. 22: 37. 1969) as a replacement name for Y. gracilis of Babcock and Stebbins, was thus nomenclaturally superfluous when published and is therefore illegitimate.


无茎黄鹌菜 wu jing huang an cai


Herbs less than 5(–8) cm tall, perennial, rosulate, subacaulescent, with ?taproot and lateral shoot-bearing roots giving rise to secondary rosette shoots. Caudex short, unbranched or weakly branched, with residues of old leaf bases. Rosette leaves oblonglanceolate, 1–6 × 0.5–1.5 cm, both faces glabrous or abaxially somewhat pilose and adaxially puberulent, base attenuate into a petiole-like portion, margin entire to sinuate-dentate or more rarely pinnatifid, apex acute, rounded, or shortly acuminate; lobes (if present) triangular-ovate, apex obtuse to acute. Capitula 1–10, clustered, directly from axes of rosette leaves or from a branched, 5–10 mm stalk, each with 13–20 florets; peduncle 0.2–2(–6) cm, slender, glabrous or pilose. Involucre faces finely pubescent, base attenuate into a short cuneately winged petiole-like portion, margin coarsely sinuate-dentate, apex acuminate. Upper stem leaves similar to lower ones but smaller and elliptic to lanceolate; uppermost stem leaves linear or subulate, reduced in size. Synflorescence rather densely corymbiform, with few to several capitula. Capitula with ca. 15 florets; peduncle 1–1.5 cm, slender, glabrous. Involucre cylindric, 8–9 mm. Outer phyllaries 6 or 7, broadly ovate, ca. 1 mm, apex acute to obtuse; inner phyllaries 8, both faces glabrous, midvein subapically crested, margin white scarious, apex acute to obtuse. Anther tube and style branches green to blackish upon drying. Achene dark brown, subfusiform, ca. 4 mm, somewhat more attenuate toward apex than base, ribs finely spiculate. Pappus grayish, 4–5 mm. Fl. and fr. Jul–Aug.

Moist areas by water in mountain valleys, grasslands on mountain slopes, sparse forests, thickets; 600–3000 m. Guangxi, Guizhou, Sichuan, Yunnan [NE India, ?Myanmar, N Vietnam].

2. Youngia atripappa (Babcock) N. Kilian, comb. nov.

纤细黄鹌菜 xian xi huang an cai


Herbs 20–40 cm tall, perennial. Stem solitary, very slender, flexuous, erect, branched only apically, glabrous, leafy. Basal and lower stem leaves oblonglanceolate, 4–13 × 1–3 cm, both...
cylindric, 1.2–1.6 cm. Phyllaries dark green to pale yellowish green, abaxially glabrous, margin white scarious; outer phyllaries imbricate, ovate to lanceolate, longest 1/3–1/2 as long as inner ones, apex obtuse to acute; inner phyllaries 8–12, adaxially glabrous, apex acute. Anther tube and style yellow upon drying. Achene dark brown, ± fusiform, ca. 4 mm, ± compressed, apex truncate. Pappus white, 1–1.1 cm, persistent. Fl. and fr. Jul.–Oct.

Grasslands on mountain slopes, gravelly areas on floodplains, grassy beaches in river valleys; 2700–5000 m. Gansu, Qinghai, Sichuan, Xizang [India (Sikkim), Nepal].

*Tibetoseris lathygini* and *Taraxacum altune* are regarded as synonyms of *Youngia simulatrix* following Sennikov and I. D. Illarionova (Komarovia 5: 91. 2008) and not Ge and Zhai (Novon 9: 47. 1999).


细梗黄鹌菜 xi geng huang an cai

*Crepis gracilipes* J. D. Hooker, Fl. Brit. India 3: 396. 1881; *Pseudoyoungia angustifolia* (Tzvelev) D. Maity & Maiti; *P. gracilipes* (J. D. Hooker) D. Maity & Maiti; *Tibetoseris angustifolia* Tzvelev; *T. gracilipes* (J. D. Hooker) Sennikov; *T. gracilipes* subsp. *duthiei* D. Maity et al.

Herbs 3–10–15 cm tall, perennial, rosulate, subcaulescent or dwarf, with taproot and lateral shoot-bearing roots giving rise to secondary rosette shoots. Caudex short, with residues of old leaf bases, not or weakly branched. Rosette leaves oblancoate, elliptic, or narrowly elliptic, 2–5 × 0.3–1 cm, pinnatifid to pinnatifidate and sometimes lyrate so, sparsely pubescent, base attenuate into a petiole-like portion, margin entire to weakly sinuate-dentate; lateral lobes 3–6 pairs, opposite to subopposite, ovate to elliptic but basal lobes usually toothlike, apex rounded to obtuse; terminal lobe elliptic, apex rounded to obtuse. Capitula 3–14, clustered, directly from axils of rosette leaves or from a stalk, with 12–18 florets; stalk short, capillaceous, branched; peduncle capillaceous, 1–4 cm, ± pilose to apically ± tomentose, ± bracteate. Involucr cylindric, 8–10 mm. Phyllaries dark to blackish green, abaxially glabrous; outer phyllaries ovate to lanceolate, longest to 1/2 as long as inner ones, apex obtuse to acute; inner phyllaries 8–10, adaxially glabrous, margin scarious, subapically crested or corniculate, apex acute. Anther tube greenish upon drying. Achene not seen when mature. Pappus white, ca. 7 mm. Fl. Aug.

● Mountain slopes; ca. 3900 m. SE Xizang (Zayü).


角冠黄鹌菜 jiao guan huang an cai

*Pseudoyoungia sericea* (C. Shih) D. Maity & Maiti; *Tibetoseris sericea* (C. Shih) Sennikov.

Herbs 3–6 cm tall, perennial, rosulate, subcaulescent. Taproot and lateral shoot-bearing roots giving rise to secondary rosette shoots. Caudex short, unbranched or weakly branched, with residues of old leaf bases. Rosette leaves oblancoate to narrowly elliptic, 2–5 × 0.4–1.5 cm, pinnatifidate, base attenuate into a petiole-like portion; lateral lobes 4 or 5 pairs, opposite to obliquely opposite, narrowly triangular, basally broadly falcate; terminal lobe narrowly elliptic, elliptic-triangular, or orbicular, apex acute, obtuse, or rounded. Capitula 3–9, clustered, directly from axils of rosette leaves or on a stalk, with 9–15 florets; stalk capillaceous, short, branched; peduncle capillaceous, 1–3 cm, arachnoid hairy to tomentose, ± bracteate. Involucr cylindric, ca. 1 cm. Phyllaries dark green in fruit, arachnoid hairy; outer phyllaries narrowly ovate to lanceolate, longest ca. 1/3 as long as inner ones, apex obtuse to acute; inner phyllaries ca. 8, adaxially glabrous, margin broadly white membranous, apex acute to obtuse. Achene dark brown to blackish, subfusiform, 3.5–4 mm, apex truncate. Pappus white, ca. 6 mm, persistent. Fl. and fr. Jun.–Sep.

● Gravelly mountain slopes, rocky slopes; 3300–3400 m. SE Xizang (Zayü).

From the place of its first publication (C. Shih, Acta Phytotax. Sin. 33: 185. 1995), the name *Youngia sericea* was not validly published because two specimens of different gatherings were simultaneously designated as types (see *Vienna Code*, Art. 37.1 and 37.2). The name was validated with its original authorship in a nomenclatural note by Sennikov in 2007, as given above.

甘肃黄鹌菜 gan su huan an cai

_Crepis parva_ (Babcock & Stebbins) Handel-Mazzetti; _Pseudoyoungia conjunctiva_ (Babcock & Stebbins) D. Maiti & Maiti; _P. parva_ (Babcock & Stebbins) D. Maiti & Maiti; _Tibetoseris conjunctiva_ (Babcock & Stebbins) Sennikov; _T. parva_ (Babcock & Stebbins) Sennikov; _Youngia parva_ Babcock & Stebbins.

Herbs 4–12 cm tall, perennial, rostrate. Taproot and short woody caudex with residues of old leaf bases. Stem solitary, erect, branched apically or from near base, densely tomentose but glabrescent with age, distantly leafy. Rosette leaves oblong-celeolate, 1.5–6 × 0.5–1.2 cm, both faces tomentulose to glabrous; outer phyllaries lanceolate with 4–8 capitula. Capitula with 13–18 florets; peduncle usually 0.5–3 cm, slender. Involucre cylindric, (0.8–)0.9–1.3 cm. Outer phyllaries broadly ovate to lanceolate, longest 1.5–2(–3) mm, apex acute; inner phyllaries ca. 8, abaxially glabrous, adaxially appressed hairy, midvein subapically or laminae, margin white scarious, apex acute. Anther tube greenish. Style branches yellow upon drying. Achene brown to blackish, subfusiform, 3–4 mm, ribs finely spicate, apex attenuate. Pappus white, 5–7(–9) mm. Fl. and fr. May–Sep. 2n = 32*

Grassy slopes; 3800–4500 m. SW Gansu, N Sichuan. _P. parva_ (Babcock & Stebbins) Handel-Mazzetti; _Crepis parva_ Handel-Mazzetti.

Youngia conjunctiva and _Y. parva_, both only known from the type collections and simultaneously described by Babcock and Stebbins (Publ. Carnegie Inst. Washington 484: 35, 37. 1937), are strikingly similar in all features, except minor differences in the habit, and are from the same larger region adjacent to that of the supposed next relatives. The type of _Y. parva_ has an apically branching stem of 2–3 cm, that of _Y. conjunctiva_ one of 8–10 cm; their architecture, however, is basically identical. For these reasons it appears not justified to treat them as separate species, and they are here considered as conspecific. Doubts about their distinctness had already been expressed by Sennikov and I. D. Illarionova (Komarova 5: 91. 2008). Additional collections and further studies of this apparently rare species would be desirable. Its systematic position in Youngia also needs confirmation.


羽裂黄鹌菜 yu lie huang an cai


Herbs 8–30 cm tall, perennial, caudex often with residues of old leaf bases. Stem slender, erect, branched from base or middle third, almost leafless; branches sericeous below, glabrous above. Basal leaves elliptic, ovate-elliptic, broadly ovate, oblanceolate, or orbicular, 2–5 × 0.6–1.5 cm, hyaline pinnatifid or undivided, densely stellate, base attenuate or contracted into a winged petiolo-like portion, apex rounded to obtuse; lateral lobes 2–4 pairs, triangular or elliptic, margin entire, apex acute, rounded, or obtuse; terminal lobe elliptic, hastate, or irregularly hasteate, much larger than lateral ones, margin entire or retortentiously dentate, apex rounded to obtuse. Stem leaves 1 or 2, narrowly elliptic to linear, reduced in size, apex long acuminate. Synflorescence corymbose to paniculiform-corymbiform, with few to many capitula. Capitula with ca. 11 florets. Involucre narrowly cylindric, 8–10 mm. Phyllaries dark green, abaxially glabrous; outer phyllaries broadly ovate, longest ca. 1.5 mm, apex acute to obtuse; inner phyllaries ca. 8, adaxially appressed hairy, midvein subapically or laminae, margin white scarious, apex acute to obtuse. Achene not seen when mature. Pappus white, ca. 5 mm. Fl. Jul.

Thickets in mountain slopes, moist areas in river valleys; 1800–3800 m. Gansu, Sichuan, Xizang, Yunnan. _Y. paleacea_ is a fairly polymorphic species, probably representing a polyploid complex as was first noted by Babcock and Stebbins (Publ. Carnegie Inst. Washington 484: 68. 1937). Further studies are required also for the following species, _Y. pilifera_.


糙毛黄鹌菜 cao mao huang an cai

Herbs 8–30 cm tall, perennial, caudex often with residues of old leaf bases. Stem slender, erect, branched from base or middle third, almost leafless; branches sericeous below, glabrous above. Basal leaves elliptic, ovate-elliptic, broadly ovate, oblanceolate, or orbicular, 2–5 × 0.6–1.5 cm, hyaline pinnatifid or undivided, densely stellate, base attenuate or contracted into a winged petiolo-like portion, apex rounded to obtuse; lateral lobes 2–4 pairs, triangular or elliptic, margin entire, apex acute, rounded, or obtuse; terminal lobe elliptic, hastate, or irregularly hasteate, much larger than lateral ones, margin entire or retortentiously dentate, apex rounded to obtuse. Stem leaves 1 or 2, narrowly elliptic to linear, reduced in size, apex long acuminate. Synflorescence corymbose to paniculiform-corymbiform, with few to many capitula. Capitula with ca. 11 florets. Involucre narrowly cylindric, 8–10 mm. Phyllaries dark green, abaxially glabrous; outer phyllaries broadly ovate, longest ca. 1.5 mm, apex acute to obtuse; inner phyllaries ca. 8, adaxially appressed hairy, midvein subapically or laminae, margin white scarious, apex acute to obtuse. Achene not seen when mature. Pappus white, ca. 5 mm. Fl. Jul.

Thickets in mountain slopes, moist areas in river valleys; 3200–3600 m. W Sichuan (Kangding).

Youngia pilifera is close to the polymorphic _Y. paleacea_ and possibly only a delicate dwarf morph of the latter. See also note under _Y. paleacea_.


厚绒黄鹌菜 hou rong huang an cai

Herbs 20–40 cm tall, perennial, rosulate. Taproot slender. Caudex from residues of old leaf bases. Stem solitary, erect, branched from near base or higher up, sparsely brown arachnoid hairy and somewhat more densely so at bifurcations, distantly leafy. Rosette and lower stem leaves oblanceolate, 4–10 × 1–3 cm, lyrate or runcinately pinnatifid to pinnatisect, abaxially ± strongly brown arachnoid hairy, adaxially short brown crinkled hairy, base attenuate into a short ± winged petiole-like portion and semiamplexicaul, margin sinuate-dentate; lateral lobes ovate, triangular, or elliptic, apex obtuse to acute; terminal lobe obovate, ovate, or broadly triangular, apex obtuse to acute. Middle stem leaves (if any) ± elliptic, smaller, otherwise similar to lower leaves; upper stem leaves linear, subulate, or bractlike, reduced in size, usually not divided. Synflorescence corymbiform, with to 25 capitula. Capitula with 10–12 florets; peduncle capillaceous, 0.2–2.5 cm, ± brown arachnoid hairy. Involute narrowly cylindric, 7–8 mm, abaxially glabrous. Outer phyllaries narrowly ovate, longest 1–1.5 mm, apex subacute; inner phyllaries 8, adaxially glabrous or only with a few appressed hairs, midvein often subapically crested, margin narrowly white scarious, apex subacute. Anther tube green. Style branches yellow upon drying. Achene dark brown, columnar, 3–3.5 mm, ribs finely spicate, apex attenuate. Pappus white, 4–5 mm. Fl. and fr. May–Sep.

- By streams, trailside in thickets, mountaintops; 2000–3500 m. Guizhou, Yunnan.


绒毛黄鹌菜 rong mao huang an cai

*Youngia nuijiangensis* C. Shih.

Herbs 9–30 cm tall, perennial, rosulate. Taproot slender, with shoot-bearing lateral roots. Caudex short, with residues of old leaf bases. Stems solitary or few, slender, ± erect, pale arachnoid hairy especially at bifurcations, sparsely leafy. Rosette leaves obovate to oblanceolate, 3–10 × 0.5–1.5 cm, almost undivided, or ± lyrate or pinnatifid to pinnatisect, abaxially pale arachnoid hairy, adaxially pubescent with short pale crinkled hairs, base attenuate into a short ± winged petiole-like portion, margin sinuate-dentate, apex obtuse to acute; lateral lobes obovate to triangular, apex rounded to acute and mucronate. Stem leaves 1–3, linear, reduced in size, undivided. Synflorescence corymbiform, with fewer than 10 capitula. Capitula with 9–11 florets; peduncle capillaceous, 4–15 mm, ± white arachnoid hairy. Involute narrowly cylindric, 6–8 mm, in fruit to 9 mm, abaxially glabrous. Outer phyllaries ovate, longest 1–1.5 mm, apex acute; inner phyllaries 8, adaxially glabrous, midvein often subapically with small crest or claw, margin white scarious, apex acute. Anther tube greenish yellow. Style branches yellow upon drying. Achene dark brown, fusiform, ca. 3.5 mm, subcompressed, ribs finely spicate. Pappus white, 3.5–5 mm. Fl. May–Jun.

- Among rocks, rock crevices, wastelands; 1700–2700 m. Yunnan.


东川黄鹌菜 dong chuan huang an cai


Herbs 15–25 cm tall, perennial, rosulate. Taproot slender. Caudex with residues of old leaf bases. Stem solitary, slender, erect, branched from middle third or higher, glabrous. Rosette leaves oblanceolate, 3–7 × 1–1.5 cm, undivided, both faces finely pubescent with yellow or brown many-celled hairs, base attenuate into a short petiole-like portion, margin mucronately sinuate-dentate, apex acute to acuminate. Stem leaves few, linear, reduced in size. Synflorescence corymbiform, with few to several capitula. Capitula with ca. 12 florets; peduncle capillaceous, 0.5–1.2 cm, ± submentulose. Involute cylindric to narrowly campanulate, 6–7 mm, abaxially glabrous. Outer phyllaries ovate, longest ca. 1 mm; inner phyllaries 8, adaxially pubescent with very shortly appressed shiny hairs, midvein subapically often somewhat crested, margin ± white scarious, apex acute and ciliate. Anther tube and style branches yellow upon drying. Achene brownish purple, columnar, ca. 2.5 mm, ribs finely spicate, apically subattenuate. Pappus white, 3.5–4 mm. Fl. Jun.

- Among rocks; ca. 2600 m. Yunnan.

*Youngia mairei* is only known from the type collection made in 1912 and is close to *Y. lanata* and *Y. fusca*.


艺林黄鹌菜 yi lin huang an cai

Herbs 3–10 cm tall, perennial, rosulate, delicate. Caudex strong, branching with age, with residues of old leaf bases. Stem solitary, capillaceous, simple or 1- or 2-branched from near base or higher up, sparsely hairy, leafless. Basal leaves spatulate, elliptic, or oblanceolate, 1–7 × 0.3–1 cm, both faces glabrous or sparsely white tomentose but abaxially glabrescent, undivided, weakly pinnatifid with 1 or 2 pairs of obtusely triangular to lanceolate lateral lobes, or pinnatipartite to pinnatisect with 2–6 opposite or alternate pairs of triangular to ovate, rounded to acute lateral lobes, base attenuate into a petiole-like portion, margin entire to sinuate-dentate, apex obtuse to acute. Capitulum synflorescent or synflorescence laxly corymbiform, with 2–5 capitula. Capitula with 9–15 florets. Involucrre narrowly campanulate, 6–7 mm. Phyllaries abaxially glabrous; outer phyllaries narrowly ovate, longest 1–1.5 mm, apex acute to obtuse; inner phyllaries 8, adaxially sparsely appressed hairy, midvein subapically mostly somewhat crested or cornulate, apex ± acute. Anther tube and style branches yellow upon drying. Achene dark brown, fusiform, 2.5–3 mm, ribs finally spicate, apex attenuate. Pappus white, 4–5 mm. Fl. and fr. May–Jun.

- Rocky slopes, rocks; 3000–3100 m. NW Yunnan (Zhongdian).
The original description of the apparently rare *Youngia yilingii* is based on a single collection from Zhongdian Xian of plants to 5 cm tall with entire to at most weakly pinnatifid, not more than 10 × 3 mm leaves. Another collection from the same county (B. Alden et al., Kunming Edinburgh Gothenburg Exped. 579; CAL 795201) is considered also to belong to this remarkable species. It indicates that the leaf shape of the species shows some variation even in the same individual. In this collection only the early leaves of a rosette are similar to the ones described for *Y. yilingii*, while the later ones are larger and all pinnatipartite to pinnatisect as described above.


**康定黄鹌菜** *kang ding huang an cai*

Herbs 7–20 cm tall, perennial. Taproot with shoot-bearing lateral roots. Stem solitary, slender, erect, sparsely branched from near base or middle. Basal leaves obovate, oblanceolate, or elliptic, 2–5.5 × 5–1.5 mm, pinnatipartite to pinnatisect, sparsely pubescent, base attenuate into a short petiole-like portion, margin sinuate-dentate; lateral lobes 1–4 pairs, broadly triangular, small; terminal lobes elliptic to obliquely triangular, margin entire, apex rounded, obtuse, or acute and mucronulate. Stem leaves absent or very few, similar to basal leaves but smaller or more strongly reduced. Synflorescence corymbose, usually with 3–5 capitula. Capitula with ca. 15 florets; peduncle capillaceous, mostly 1–5 cm, Involute narrowly cylindric, ca. (7–)8 mm. Phyllaries abaxially glabrous; outer phyllaries triangular to ovate, longest ca. 1 mm, apex obtuse; inner phyllaries 8, adaxially sparsely appressed hairy, midvein subapically mostly somewhat crested or coriaceous, apex acute. Achene brown, fusiform, ca. 3.5 mm, apex strongly attenuate. Pappus white, 5–5.5 mm. Fl. and fr. Jul.

- **Thickets; 1800–3300 m. W Sichuan (Kangding).**

*Youngia kangdingensis* and the following five species appear to be more closely related to each other, and all are insufficiently known with respect to the extent of their variation, distribution, and actual delimitation.


**顶戟黄鹌菜** *ding ji huang an cai*

Herbs 10–30 cm tall, perennial. Taproot with lateral shoot-bearing roots. Stem solitary, slender, erect, branched from lower third or higher up, glabrous, sparsely leafy. Basal and lower stem leaves obovate to oblanceolate, 1–5.5 × 0.5–2 cm, glabrous, base attenuate into a petiole-like portion; first leaves undivided and sinuate-dentate; following leaves runcinately or lyrate pinnatipartite with small lateral lobes and a large obovate terminal lobe; later leaves pinnatisect with lateral lobes 1–4 pairs, opposite or alternate, ± triangular to lanceolate, and apex acute to acuminate, with terminal lobe narrowly triangular to triangular-hastate and small. Middle stem leaves (if any) similar to lower stem leaves; upper stem leaves linear-elliptic to linear, reduced in size. Synflorescence laxly corymbose, with usually 5–12 capitula. Capitula with 9–14 florets; peduncle capillaceous, 0.5–5 cm, glabrous or sparsely white arachnoid hairy. Involute narrowly cylindric, ca. 7 mm. Phyllaries abaxially glabrous; outer phyllaries ovate to lanceolate, longest 1–2 mm, apex acute; inner phyllaries 8, adaxially sparsely appressed hairy, midvein subapically plane (or somewhat crested or coriaceous?), apex ± acute. Achene dark brown, fusiform, 2–2.5 mm, ribs finally spiculate, apex attenuate. Pappus white, ca. 5 mm. Fl. and fr. Apr–Jul.

- By streams, moist open areas; 2500–4000 m. Sichuan (Heishui, Xiangcheng).

The original description of the little-known *Youngia hastiformis*, based on a single collection from Heishui Xian, has been supplemented by two collections from Xiangcheng Xian made at somewhat higher elevations (D. E. Baudford et al. 28388A and 28925), which are apparently also referable to this species. See also note under *Y. kangdingensis*.


**川西黄鹌菜** *chuan xi huang an cai*


Herbs 15–60 cm tall, perennial, ± rosulate. Caudex with residues of old leaf bases. Stem solitary, ± slender, erect, branched from middle, glabrous, distantly sparsely leafy. Rosette leaves and lower stem leaves oblanceolate to narrowly elliptic, 5–13 × 1–3 cm, lyrate or runcinately pinnatifid to pinnatisect, glabrous, base attenuate into a ± winged petiole-like portion, margin subentire to sinuate-dentate; lateral lobes 3–6 pairs, opposite to obliquely opposite, ovate, triangular, linear-lanceolate, or falcate, central ones largest and others gradually smaller, lowermost ones usually toothlike; terminal lobe broadly triangular, linear-lanceolate, or narrowly linear, apex obtuse, acute, or long acuminate. Middle and upper stem leaves similar to lower stem leaves or reduced in size and undivided. Synflorescence corymbose, with few to many capitula. Capitula with 9–12 florets; peduncle usually 0.5–3 cm, very slender. Involute narrowly cylindric, 7–9 mm, to 1.1 cm in fruit. Phyllaries abaxially glabrous; outer phyllaries ovate, longest 1–2 mm, apex obtuse; inner phyllaries ca. 8, adaxially pubescent with appressed hairs, midvein subapically plane, margin scarious, apex obtuse to acute. Anther tube dark green. Style branches ± yellow upon drying. Achene brown, sub fusiform to columnar, 2.5–3 mm, ribs finely spiculate, apex attenuate. Pappus white, 4–5 mm. Fl. and fr. Jun–Sep.

- **Thickets or grasslands on mountain slopes; 1500–2700 m. Henan, Hubei (?Shanxi, Sichuan.**

See note under *Youngia kangdingensis*.


**栉齿黄鹌菜** *zhi chi huang an cai*


Herbs 13–40 cm tall, perennial, ± rosulate. Caudex with residues of old leaf bases. Stems solitary or few, erect to curved-erect, branched from middle third or higher, glabrous. Rosette leaves and lower stem leaves oblanceolate, 5–10 × 1–2.5 cm, undivided or pinnatifid to pinnatipartite, margin sharply

*The Cichorieae*
sinuate-dentate; lateral lobes 4–6 pairs, opposite to obliquely opposite and usually with a pair of teeth between them, broadly to narrowly triangular, apex acute; terminal lobe linear to narrowly triangular, apex acute to acuminate. Middle and upper stem leaves linear, reduced in size. Synflorescence corymbiform, with several to many capitula. Capitula with 9–14 florets; peduncle usually 0.5–3 cm, very slender, arcuate. Involucre narrowly cylindric, 7–9 mm. Phyllaries abaxially glabrous; outer phyllaries ovate, longest 1–2 mm, apex acute to obtuse; inner phyllaries 8, margin white scarious, adaxially glabrous, midvein subapically plane, apex acute to obtuse. Anther tube greenish. Style branches yellow upon drying. Achene pale brown, subfusiform to cylindrical, 3–3.5 mm, ribs finely spicate, apex attenuate. Pappus white, 4–5 mm. Fl. and fr. Jun–Sep.

- Grasslands; ca. 1500 m. Chongqing (Chengkou), Henan, Hubei.

See note under **Youngia kangdingensis**.


Herbs 15–80 cm tall, perennial, rosulate, with shoot-bearing roots. Caudex with residues of old leaf bases. Stem solitary, erect, branched from middle third or higher, glabrous, distinctly leafy. Rosette leaves distinctly dimorphic, to 6–10 × 2(–3) cm, glabrous, base with a sometimes brown lanate petiole-like portion. Early leaves broadly ovate, undivided and coarsely sinuate-dentate to pinnatifid, base contracted into a petiole-like portion; lateral lobes 1–6 pairs, triangular, apex acute; terminal lobe large, apex acute. Later leaves oblanceolate, elliptic, or lanceolate, pinnatifid to pinnatisect, base attenuate into a petiole-like portion; lateral lobes 4–6 pairs, narrowly lanceolate to linear, margin basally often with large teeth, apex acute; terminal lobe narrowly lanceolate to linear, apex acute. Lower and middle stem leaves few, lanceolate, pinnatisect, similar to latest rosette leaves. Synflorescence laxly corymbiform, with few to many capitula. Capitula with 9–14 florets; peduncle 0.5–3 cm, very slender, arcuate. Involucre narrowly cylindric, 7–9 mm; outer phyllaries ovate, longest ca. 1.5 cm; inner phyllaries 8, adaxially finely appressed pubescent, midvein subapically somewhat crested or tuberculate, margin scarious, apex acute and white ciliate. Anther tube green. Style branches yellow upon drying. Achene dark brown, subfusiform to cylindrical, ca. 3 mm, ribs obscurely spicate or muricate, apex attenuate. Pappus white, ca. 4 mm. Fl. and fr. Jul–Aug.

- Grasslands on mountain slopes; 1000–1800 m. W. Sichuan (Kangding).

*Youngia terminalis* is only known from two late 19th century gatherings made by Soulié. The original material preserved at B was destroyed during WWII. No other material has been traced so far, and the above description is based on the original description and a photograph and drawings of the original material. It is apparently closely related to *Y. henryi* and perhaps only a form of the latter from shaded moist habitats. See also note under *Y. kangdingensis*.


Herbs 30–110 cm tall, annual to perennial. Stems solitary or few, erect, branched usually in apical third, glabrous or sparsely hairy. Basal and lower stem leaves oblanceolate, to 32 × 11 cm, lyrate pinnatifid or sometimes undivided, both faces glabrous or ± pubescent with short hairs, base attenuate into a ± unwinged very variable in length (much longer when leaf undivided) petiole-like portion, margin sinuate-dentate; lateral lobes 1–8 pairs, opposite to obliquely opposite, elliptic to ovate, base truncate to attenuate and sometimes petiolulate, apex acute, obtuse, or rounded; terminal lobe elliptic, ovate, or lanceolate, much larger than lateral lobes, apex ± acute. Middle stem leaves similar to lower leaves but smaller and less (or more rarely not) divided, terminal lobe long acuminate; upper stem leaves narrowly elliptic, lanceolate, or linear-lanceolate, reduced in size. Synflorescence paniculiform-corymbiform, with many capitula. Capitula with 11–25 florets; peduncle capillaceous, usually 0.5–2 cm. Involucre narrowly cylindric, 7–8 mm; outer phyllaries ovate, longest ca. 1.5 mm; inner phyllaries 8, adaxially finely appressed pubescent, midvein subapically somewhat crested or tuberculate, margin scarious, apex acute and white ciliate. Anther tube green. Style branches yellow upon drying. Achene dark brownish purple, fusiform, 2–3 mm, ribs apically finely spicate, apex attenuate. Pappus white, 3–4 mm. Fl. and fr. Apr–Oct.
"Crepis bokiana" Diels (Bot. Jahrb. Syst. 29: 633. 1901) is based on the collection from Nanchuan, Chongqing. Bock & von Rosthorn 1593, which according to Babcock (Univ. Calif. Publ. Bot. 22: 916. 1947), who investigated a corresponding sheet from B, is a mixed gathering of a fragment with leaves and buds of Youngia heterophylla and a second completely sterile fragment with a single leaf of an unknown species. The sheet at B was apparently destroyed in 1943 and no other material of this collection is present at O, where the original set of the Bock and Rosthorn material is preserved. Therefore, the name is here treated as a synonym of Y. heterophylla. See also note under Y. rosthornii.

Youngia heterophylla may be confused with leafy-stemmed forms of Y. japonica subsp. longiflora. The latter, however, is strictly annual, its stem leaves have rather triangular or rhombic lateral lobes and an acute or shortly acuminate terminal lobe, and the pappus is of a single series of bristles only (vs. several bristles in a second series in Y. heterophylla).


**戟叶黄鹌菜** duo lie huang an cai


Herbs to 1 m tall or more, annual. Stem erect, branched above middle, glabrous, leafy. Basal leaves not seen. Lower and middle stem leaves broadly elliptic to ovate in outline, 11–20 × 7–14 cm, bipinnately compound, primary division pinnatisect; lateral lobes 3 or 4 pairs, opposite to obliquely opposite, ob lanceolate, elliptic, irregularly elliptic, or lanceolate, to 5 cm, irregularly pinnatifid to pinnatisect, base ± winged petiolulate, apex acute to acuminate; primary terminal lobe similar in shape and size to lateral lobes; secondary lateral lobes few, irregularly ovate, triangular-ovate, or elliptic. Upper stem leaves similar to middle stem leaves but smaller and with narrower lobes or linear-lanceolate, reduced in size, and undivided. Synflorescence paniculiform-corymbiform, with many capitula. Capitula with 20–25 florets; peduncle capillaceous, usually 0.5–3 cm. Involucre cylindric, ca. 6 mm. Phyllaries abaxially glabrous; outer phyllaries ovate, longest ca. 1 mm, apex ± acute; inner phyllaries ca. 8, adaxially ± appressed pubescent, midvein subapically plane, margin narrowly white scarious, apex acute. Achene pale red, finely mottled with yellow, fusiform, ca. 2 mm, ribs apically finely spiculate, apex strongly attenuate. Pappus white, ca. 4 mm. Fl. and fr. Jun–Oct.

- Mountain slopes; 500–1500 m. Chongqing, Guangdong, Hubei, Sichuan, Zhejiang.

Distinction of *Youngia rosthornii* from *Y. heterophylla* is not without doubt because forms of the latter occur that approach the leaf division of the former. *Youngia rosthornii* may represent only an extreme form of *Y. heterophylla*.


**戟叶黄鹌菜** ji ye huang an cai


Herbs 80–100 cm tall, annual. Stem erect, branched from middle third or higher, glabrous, distantly leafy. Basal leaves with petiole to 15 cm; leaf blade cordate-hastate to sometimes ovate, to 15 × 5 cm, glabrous, margin sinuate-denticulate, apex acute, obtuse, or rounded. Stem leaves with gradually shorter petiole upwardly on stem, leaf blade smaller than in basal leaves and otherwise similar or lyrate-pinnatisect; lateral lobes 1 or 2 pairs, alternate, narrowly ovate; terminal lobe broadly triangular, apex acuminate; uppermost leaves linear-lanceolate, reduced in size. Synflorescence paniculiform-corymbiform, with many capitula. Capitula with 15–20 florets. Involucre cylindric, 5–6 mm. Phyllaries abaxially glabrous; outer phyllaries ovate, longest less than ca. 1 mm, apex acute; inner phyllaries 8, adaxially appressed pubescent, midvein subapically plane, margin narrowly white scarious, apex acute. Achene pale red, finely mottled with yellow, fusiform, ca. 2 mm, ribs apically finely spiculate, apex strongly attenuate. Pappus white, ca. 4 mm. Fl. and fr. Jun.

- Sandy areas, valleys; 1000–1500 m. Hubei, Zhejiang.


**顶凹黄鹌菜** ding ao huang an cai

Herbs 12–13 cm tall, perennial, rosulate. Stems several, very slender, arcuate-erect or stoloniform, remotely 2-furcate, densely pubescent with pale brownish hairs especially at bifurcations, almost leafless. Rosette leaves and (if present) first basal leaf oblongate, to 10 × 2 cm, lyrate-pinnatifid to narrowly pinnatifid, pale ± brownish pubescent especially abaxially on midvein, base attenuate into a short narrowly winged petiole-like portion, margin faintly mucronulately sinuate-dentate or entire, apex obtuse; lateral lobes 3–5 pairs, semi-ochricordial to broadly triangular, ± retrorse, gradually diminishing in size toward leaf base, apex rounded and mucronulate; terminal segment ovate to elliptic. Syncarpe of 1–5 ± distant capitula. Capitula with ca. 12 florets; peduncle very slender. Involucre cylindric, 6–7 mm, glabrous. Outer phyllaries pale yellowish, ovate, longest ca. 2 mm, ± fleshy, apex acute to obtuse; inner phyllaries 8, adaxially pubescent with appressed hairs, midvein subapically crest, apex acute and white ciliolate. Anther tube green. Style branches yellow upon drying. Achene dark reddish brown, fusiform, 3–3.5 mm, compressed, ribs spiculate apically, apex attenuate. Pappus white, 1.5–2.5 mm, ± deciduous. Fl. and fr. Apr.–May.

- Cultivated land; ca. 2500 m. Yunnan (Dongchuan).

*Youngia bifurcata* is only known from the type collection made by E. E. Maire sometime in the first third of the 20th century.


**黄鹌菜** huang an cai

Herbs usually 10–150 cm tall, annual. Stems solitary or few, erect, branched from base, middle, or only apically, glabrous or basally often ± hairy, ± leafy or leafless. Basal leaves ± oblanceolate, to 15(–25) × 4(–6) cm, lyrate-pinnatifid or
2.5–3.5 mm. Fl. and fr. Feb–Dec.

Capitula with 10–20 florets; peduncle capillaceous. Involucre liform-corymbiform, usually with many to numerous capitula.

CICHORIEAE

Chondrilla japonica (Linnaeus) Poiret; Chondrilla lyrata (Thunberg) Bentham ex C. B. Clarke (1876), not (Linnaeus) Froelich (1838); Ixeris lyrata (Thunberg) Miqel; Lactuca pseudosenecio Vaniot; Prenanthes lyrata Thunberg; Youngia lyrata (Thunberg) Cassini; Y. pseudosenecio (Vaniot) C. Shih.

Herbs usually 0.5–1.5 m tall. Stem mostly solitary, mostly with well-developed leaves at least in lower half. Basal and lower stem leaves to 27 × 7 cm, pinnatipartite or sublyrate pinnatifid; lateral lobes 3–7-paired, remote, elliptic to triangular, gradually smaller toward leaf base, lowermost segment usually toothlike, apex acute to obtuse; terminal lobe elliptic, apex acute. Middle and upper stems leaves similar to lower ones but gradually smaller and less divided upward on stem, gradually reduced to bracts. Capitula with ca. 20 florets. Involucr cylindric, 4–5.5 mm. Outer phyllaries less than 1 mm. Anther tube usually 1.7–2 mm. Achene 1.5–2 mm. Pappus 2.5–3.5 mm. Fl. and fr. Feb–Dec. n = 16*.

Mountain slopes, mountain valleys, forests, forest margins, grasslands, moist areas, stream banks, trailsides, disturbed places, as a weed in gardens and fields; below 100–4500 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [present in all easterly and southerly neighboring countries; originating probably from China and introduced pantropically, extending into adjacent subtropical regions].


卵裂黄鹌菜 luan lie huang an cai

Crepis japonica var. elstonii Hochreutiner, Candollea 5: 340. 1934; Chondrilla lyrata (Thunberg) Poiret; Crepis lyrata (Thunberg) Bentham ex C. B. Clarke (1876), not (Linnaeus) Froelich (1838); Ixeris lyrata (Thunberg) Miqel; Lactuca pseudosenecio Vaniot; Prenanthes lyrata Thunberg; Youngia lyrata (Thunberg) Cassini; Y. pseudosenecio (Vaniot) C. Shih.

Herbs usually 0.5–1.5 m tall. Stem mostly solitary, mostly with well-developed leaves at least in lower half. Basal and lower stem leaves to 27 × 7 cm, pinnatipartite or sublyrate pinnatifid; lateral lobes 3–7-paired, remote, elliptic to triangular, gradually smaller toward leaf base, lowermost segment usually toothlike, apex acute to obtuse; terminal lobe elliptic, apex acute. Middle and upper stems leaves similar to lower ones but gradually smaller and less divided upward on stem, gradually reduced to bracts. Capitula with ca. 20 florets. Involucr cylindric, 4–5.5 mm. Outer phyllaries less than 1 mm. Anther tube usually 0.6–1 mm. Achene 1.7–2 mm. Pappus 3–3.5 mm. Fl. and fr. Apr–Nov.

Mountain slopes, mountain valleys, forests, forest margins, grasslands, moist areas, stream banks, trailsides, disturbed places, as a weed in gardens and fields; below 100–4500 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [present in all easterly and southerly neighboring countries; originating probably from China and introduced pantropically, extending into adjacent subtropical regions].


长花黄鹌菜 chang hua huang an cai

Crepis japonica subsp. longiflora (Babcock & Stebbins) Handel-Mazzetti; Youngia longiflora (Babcock & Stebbins) C. Shih; Y. taurianiana S. S. Ying.

Herbs usually 30–90 cm tall. Stems solitary or few, leafless or leafy. Basal leaves to 23 × 7 cm, lurately pinnatifid, lurately pinnatifid, inconspicuously runcinate-pinnatifid, or runcinate-pinnatifid; lateral lobes 3–8 pairs, opposite to obliquely opposite, elliptic, triangular, or rhombic, gradually smaller toward leaf base, apex rounded, obtuse, or acute; termi-
nal lobe elliptic to ovate, apex rounded. Stem leaves absent or to basal leaves but gradually smaller and less divided upward on stem. Capitula with 15–20 florets. Involucre cylindric, 6–7 mm. Phyllaries in 4 rows, abaxially glabrous; outer phyllaries to 1.5 mm. Anther tube usually 3–4 mm. Achenes usually dark purple brown, 2–2.5 mm. Pappus ca. 3.5 mm. Fl. and fr. Mar–Aug.

- Mountain slopes, field margins, stream banks, densely grassy areas by roads; below 100–3100 m. Anhui, Chongqing, Fujian, Guangdong, Guangxi, *Guizhou, Hunan, Jiangsu, Jiangxi, Sichuan, Taiwan, Zhejiang.


红果黄鹌菜  hong guo huang an cai


Herbs 30–100 cm tall, annual. Stem erect, subdivaricately branched from near base; branches closely and nearly regularly spaced, sparsely pubescent or glabrous. Basal leaves oblong-elliptic to oblanceolate, to 8 × 3 cm, lyrate, pinnatisect, glabrous or pubescent with multicellular hairs, base attenuate into a petiole-like portion, margin ciliate-dentate; lateral lobes 1 (or)2 or 3 pairs, elliptic to narrowly elliptic, upper lobe largest, apex acute; terminal lobe broadly ovate to broadly triangular, much larger than lateral lobes, apex acute. Stem leaves similar to basal leaves but rather lanceolate, gradually smaller upward on stem and finally reduced and bractlike. Synflorescencepaniculiform-corymbiform, with several to many capitula. Capitula with 10–15 florets; peduncle capillaceous. Involucre cylindric, 4–6 mm. Phyllaries abaxially glabrous; outer phyllaries triangular-ovate, longest ca. 1 mm, apex ± acute; inner phyllaries ca. 8, adaxially appressed pubescent, midvein subapically plane, margin narrowly white scarious, apex acute. Anther tube yellow. Style branches yellow upon drying. Achenes red, broadly fusiform, ca. 2 mm, subcompressed, ribs obscurely spicate, apex attenuate into a stout 0.2–0.4 mm beak. Pappus white, 3–4 mm, ± caducous. Fl. and fr. Jun–Nov.

- Forests, forest margins, under rocks, earthen walls; ca. 600 m. Guizhou, Hunan, Sichuan.

See note under *Youngia erythrocarpa* above.


少花黄鹌菜  shao hua huang an cai


Herbs 15–40 cm tall, perennial, rosulate. Caudex brown lanate, with residues of old leaf bases. Stems solitary or few, slender, erect, branched from base or higher, leafless or only with bracts. Rosette leaves oblong-lanceolate, to 20 × 7 cm, lyrate, pinnatifid, pinnatipartite, or pinnatisect, both faces pubescent with brown multicellular crinkled hairs, base attenuate into a petiole-like portion, margin mucronately ciliate-dentate; lateral lobes 5–8 pairs, opposite or alternate, semioblong-cuticular, elliptic, or triangular; gradually smaller toward leaf base, apex obtuse to rounded; terminal lobe ovate, 5–10 cm, much larger than lateral lobes, shallowly lobed, apex rounded. Synflorescence paniculiform-corymbiform, with numerous capitula. Capitula with ca. 5 florets; peduncle very slender. Involucre cylindric, 6–7 mm. Phyllaries abaxially glabrous; outer phyllaries ovate to lanceolate, longest ca. 1.5 mm, apex ± acute; inner phyllaries 5, adaxially glabrous, apex obtuse. Anther tube and style branches yellow upon drying. Achenes dark purplish brown, 3–4 mm, ± compressed, ribs obscurely spicate, apex attenuate into a stout 0.2–0.4 mm beak. Pappus white, 3–4 mm, ± caducous. Fl. and fr. Jun–Jul.

- Trailsides on mountain slopes; 900–1700 m. Sichuan.

Crepis szechuanica (1934), *Hieracium runcinatifolium* (1935), and *Youngia scaposa* (1937) are all replacement names for the illegitimate later homonym *C. scaposa* C. C. Chang. The earliest legitimate name for the species is *C. szechuanica*, and the correct name in *Youngia* must therefore be *Y. szechuanica*. The taxonomic placement of the species in *Youngia*, however, needs confirmation.


总序黄鹌菜  zong xu huang an cai

Herbs 10–50 cm tall, perennial, with a short-lived perennial, rosetulate. Leaves pinnatifid or pinnatisect. Capitula usually nodding, in fruit with 6–20 florets. Involucre narrowly cylindric at anthesis, broader in fruit, less than 7 mm, glabrous. Outer phyllaries much shorter than inner ones; inner phyllaries linear-lanceolate to lanceolate, of equal length, becoming broader in fruit. Receptacle naked. Flowers yellow. Achene narrowly ellipsoid, subcompressed, with 5 main ribs and each accompanied by 1 (or 2) secondary ribs. Fl. and fr. Apr–Jun. 2


**Prenanthes humilis** Thunberg in Murray, Syst. Veg., ed. 14, 715. 1784; *Lapsana humilis* (Thunberg) Makino; *L. mussahiensis* Hayata; *L. parviflora* A. Gray; *Youngia humilis* (Thunberg) Candolle.

Herb 10–50 cm tall, annual to short-lived perennial, rosulate, with a taproot. Stems few to several, slender, decumbent to ascending, branched in upper part, puberulent or glabrescent, almost leafless. Rosette leaves oblong-lanceolate, 3.5–10 × 2–4 cm, lorate pinnatifid or pinnatisect, base attenuate into petiole-like basal portion, margin sinuate-dentate; lateral lobes 2–7 pairs, elliptic to ovate; terminal lobe ovate, irregularly rhombic, or broadly triangular, much larger than lateral ones, apex rounded and mucronulate. Stem leaves 1 or 2, similar to rosette leaves. Synflorescence laxy corymbose, with several capitula. Capitula nodding in fruit, with 15–20 florets; peduncle capillaceous, 0.5–4 cm. Involucre cylindric and 4–5 mm at anthesis, ovoid to subhemispheric and 4–5 mm in fruit. Outer phyllaries 3 or 4, triangular-ovate, ca. 1 mm; inner phyllaries 8. Achene brown, 2–3 mm, minutely papillose, without hooked apical projections. Pappus yellowish to pale brown, 7–9 mm. Fl. and fr. Apr–Jun. 2


Herbs to 10 cm tall, short-lived perennial, rosulate. Taproot with lateral shoot-bearing roots producing secondary leaf rosettes. Stems few, flagelliform, very slender, creeping to 50 cm above ground, sparsely pilose; nodes 5–10 cm apart, with adventitious roots and a single leaf. Flowering stems from rosettes and leaf axils of creeping stems, to 7 cm, very slender, ascending, simple or more rarely 2-parted, ± leafless. Rosette leaves oblong, 4–9 × 1–2 cm, pinnatisect, rachis winged or not, pilose, base attenuate into a petiole-like portion, margin sinuate-dentate; lateral lobes 4–7 pairs, ovate, triangular, or rhombic, gradually smaller toward petiole-like base, apex rounded to acute and mucronulate; terminal lobe broadly ovate to suborbicular, much larger than lateral ones. Leaves of creeping stems similar to rosette leaves. Capitula 1 or 2 per flowering stem, with ca. 10 florets. Involucres cylindric, ca. 7 mm, in fruit ca. 4 mm wide. Outer phyllaries ca. 5, lanceolate, longest ca. 1 mm; inner phyllaries 8. Achene without hooked apical projections of main ribs. Fl. and fr. Jun–Aug. 2


Herbs 5–25 cm tall, annual to biennial, rosulate, with a taproot. Stems several, slender, ascending, branched from basal half or higher up, pubescent or glabrous, distantly leafy. Rosette leaves oblong-lanceolate, 3–15 × 1–2.5 cm, lyrate-pinnatisect, base attenuate into a petiole-like portion, margin subentire to mucronulate-sinuate-dentate; lateral lobes 2 or 3(4) pairs, ovate, elliptic, or hemispheric, apex mucronulate; terminal lobe ovate, rhombic, or elliptic, much larger than lateral ones, apex rounded and mucronulate. Stem leaves few, similar to basal leaves. Synflorescence laxly corymbiform to laxly paniculiform-corymbiform, with few to several capitula. Capitula nodding in fruit, with 5–20 florets; peduncle capillaceous, 1.5–5 cm. Involucres cylindric and 5–6 mm at anthesis, cylindric, campanulate, or obvoid and to 6.5 mm in fruit. Outer phyllaries 3 or 4, triangular-ovate, 1–1.5 mm; inner phyllaries 5 or 6. Achene straw-colored to reddish yellow, body ca. 3 mm, minutely papillose, 2–4 main ribs apically prolonged into slender hooked 1.2–2.2 mm appendages. Fl. and fr. Apr.


Herbs 5–10 cm tall, annual, rosulate, glabrous. Stems several, to 15 cm, slender, decumbent, branched in apical half, almost leafless. Rosette leaves oblong-lanceolate, 4–10 × 1–1.5 cm, pinnatisect to lyrate-pinnatisect, base attenuate into petiole-like portion, margin sinuate-dentate; lateral lobes 2–4 pairs, triangular to ovate; terminal lobe ovate, much larger than lateral ones, apex rounded and mucronulate. Stem leaves 0 or 1, similar to rosette leaves but reduced in size. Synflorescence laxly corymbose, with few to several capitula. Capitula nodding in fruit, with 10–12 florets; peduncle capillaceous, 1.5–5 cm. Involucres cylindric and 5–6 mm at anthesis, cylindric, campanulate, or obvoid and to 6.5 mm in fruit. Outer phyllaries 3 or 4, triangular-ovate, 1–1.5 mm; inner phyllaries 5 or 6. Achene straw-colored to reddish yellow, body ca. 3 mm, minutely papillose, 2–4 main ribs apically prolonged into slender hooked 1.2–2.2 mm appendages. Fl. and fr. Apr.


假还阳参与 shi zhu (石鱿 Shih Chiu); Norbert Kilian

Crepidifolium Sennikov; Geblera Kitagawa (1937), not Fischer & C. A. Meyer (1835); Paraixeris Nakai.

Herbs, annual, biennial, or perennial, sometimes subshrubs, often rosulate, with a taproot. Stems usually leafy. Leaves undivided or pinnately lobed; stem leaves often clasping. Capitula with 5–20 florets. Involucres narrowly cylindric. Phyllaries with narrow scarious margin; outer phyllaries few, longest ca. 1/4(–1/2) as long as inner ones; inner phyllaries 5 or 8, linear-lanceolate, equal in length. Receptacle naked. Florets yellow. Achene ± fusiform, slightly compressed, with 5 main ribs alternating with 1 or 2 secondary ribs, usually scabrid or antrorse acute papillae especially toward apex, rarely glabrous or muriculate, apex attenuate or with a beak less than 1/5 or to 1/2 of achene length. Pappus white, scabrid, usually ± caducous.

About 15 species: C and E Asia, including N Pacific Bonin (Ogasawara) Islands; nine species (two endemic) in China.

Crepidiastrum, in the circumscription used here, includes Paraixeris, following the conclusions by Pak and Kawano (Mem. Fac. Sci. Kyoto Univ., Ser. Biol. 15: 29–61. 1992) of their carpological and cytological investigations, which have been corroborated through recent molecular phylogenetic analyses by J. W. Zhang et al. (in prep.). The analyses by J. W. Zhang et al., moreover, revealed that the Youngia segregate *Crepidifolium*...
is also nested within the *Crepidiastrum* clade, thus confirming an earlier assumption by Sennikov (Bot. Zhurn. 82(5): 113–116. 1997), which Sennikov later revised in favor of establishing the separate genus *Crepidifolium* (Sennikov & I. D. Illarionova, Komarovia 5: 96. 2008). This genus is therefore also treated here as a congener of *Crepidiastrum*, extending its geographical range to C Asia. Its basic chromosome number is \( x = 5 \).

1a. Inner phyllaries 5; florets 5 or 6 ................................................................. 5. *C. chelidonifolium*

1b. Inner phyllaries (7 or)8; florets 8–19.

2a. Stem leaves never clasping.

2b. At least upper stem leaves conspicuously clasping.

3a. Abaxially including auricles pinnatifid, pinnatipartite, or subpinnatisect, and spicuously auriculately clasping, auricles ± rounded; blade in-rowly ovate, lanceolate, or rarely ± elliptic, 2.5–9 × 0.5–3 cm, base very conolate, or rarely ± elliptic, 2.5–9 × 0.5–3 cm, base very conolate, apex rounded. Middle stem leaves sessile, narrowly ovate, lanceolate, or rarely ± elliptic, 2.5–9 × 0.5–3 cm, base very conolate, apex rounded. Middle and upper stem leaves broadest in basal third; involucre 4.5–6.5 mm; anther tube and style pure yellow upon drying ............................................ 1. *C. sonchifolium*

3b. Stems 1 or few, paniculately branched.

4a. Inner phyllaries (7 or)8; florets 8–19.

4b. Outer phyllaries few, ovate, less than 0.5 mm, apex volucre 4.5–6.5 mm, narrowly cylindric. Phyllaries abaxially including auricles pinnatifid, pinnatipartite, or subpinnatisect, and spicuously auriculately clasping, auricles ± rounded; blade in-rowly ovate, lanceolate, or rarely ± elliptic, 2.5–9 × 0.5–3 cm, base very conolate, apex rounded. Middle and upper stem leaves sessile, narrowly ovate, lanceolate, or rarely ± elliptic, 2.5–9 × 0.5–3 cm, base very conolate, apex rounded. Middle and upper stem leaves broadest in middle third; involucre 6–9 mm; anther tube and style greenish to blackish upon drying ............................................ 4. *C. denticulatum*

5a. Involucre 0.8–1.1 cm, 2.5–3.5 mm wide at anthesis (in middle third); anther tube 3.5–5 mm; achene black to blackish ................................................................. 7. *C. tenuifolium*

5b. Involucre 1–1.4 cm, (3.5–)4–6 mm wide at anthesis (in middle third); anther tube 5–6 mm; achene usually brownish ................................................................. 8. *C. diversifolium*

6a. Annual or biennial herbs; achene with a beak 1/5–1/3 as long as achene.

6b. Perennial rosulate herbs with a woody caudex or subshrubs; achene without a beak or with a beak at most 1/5 as long as achene.

7a. Leaves undivided or pinnately lobed, margin entire to shallowly dentate; primary stems decumbent; middle and upper stem leaves obovate, ovate, or lanceolate, apex subacute to rounded ............................................ 2. *C. lanceolatum*

7b. Middle and upper stem leaves broadest in middle third; involucre 6–9 mm; anther tube and style greenish to blackish upon drying ............................................ 4. *C. denticulatum*

8a. Leaves undivided or pinnately lobed, margin entire to shallowly dentate; primary stems decumbent; middle and upper stem leaves obovate, ovate, or lanceolate, apex subacute to rounded ............................................ 2. *C. lanceolatum*

8b. Leaves always undivided, margin entire to denticulate; primary stems ascending-erect; upper stem leaves broadly elliptic to broadly ovate, apex mostly rounded ............................................. 3. *C. taiwanianum*


尖裂假还阳参 jian lie jia huan yang shen

Herbs 20–100 cm tall, annual or biennial. Root vertical, with many fibrous rootlets. Stem solitary, erect, branched predominantly in upper half, glabrous or rarely puberulent (subsp. *pubescens*). Leaves glabrous, or rarely puberulent (subsp. *pubescens*). Basal leaves and often lower stem leaves obovate, axil rounded. Middle and upper stem leaves sessile, narrowly ovate, lanceolate, or rarely ± elliptic, base very conspicuously auriculately clasping, auricles ± rounded; blade including auricles pinnatifid, pinnatipartite, or subpinnatisect and often lacinately so. Synflorescences terminating main stem and branches, corymbiform or paniculiform, with few to many capitula. Capitula with 12–20 florets; peduncle capillaceus. Involucre 4.5–6.5 mm, narrowly cylindric. Phyllaries abaxially glabrous; outer phyllaries few, ovate, less than 0.5 mm, apex acute; inner phyllaries ca. (7 or)8, plane or more often weakly to strongly crested or comiculate below apex. Achene fusiform, 2.4–2.2 mm including a slender 0.4–1.8 mm beak. Pappus white, 2–3 mm.

Grasslands on mountain slopes, thickets, floodplains, rocky stream beds, cliffs, roadsides; below 100–1900 m. Anhui, Chongqing, Gansu, ?Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan [Korea, Mongolia, E. Russia].

1a. Stems, branches, and leaves glabrous; achene ribs apically strongly muriculate, beak 1.2–1.8 mm and almost 1/2 as long as achene .......................... 1a. subsp. *sonchifolium*

1b. Stems, branches, and leaves puberulent; achene ribs apically strongly muriculate, beak 1.2–1.8 mm and almost 1/2 as long as achene .......................... 1b. subsp. *pubescens*

1a. *Crepidiastrum sonchifolium* subsp. *sonchifolium*

尖裂假还阳参(原亚种) jian lie jia huan yang shen (yuan ya zhong)

*Youngia sonchifolia* Maximowicz, Mém. Acad. Imp. Sci. St.-Pétersbourg Divers Savans 9: 180. 1859; *Crepidiastrum sonchifolium* var. *elegans* (Franchet) Sennikov; *Ixeridium elegans* (Franchet) C. Shih; *I. sonchifolium* (Maximowicz) C. Shih; *I. sonchifolium* (Maximowicz) Tzvelev; *I. serotina* (Maximowicz) Kitagawa; *I. sonchifolia* (Maximowicz) Hance; *I. sonchifolia* var. *serotina* (Maximowicz) Kitagawa; *Lactuca bungeana* Nakai; *L. denticulata* (Houttuyn) Stebbins var. *elegans* (Franchet) Stebbins; *I. sonchifolia* subsp. *sonchifolia* (Maximowicz) Stebbins; *I. serotina* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins; *I. sonchifolia* (Maximowicz) Stebbins.

Youngia sonchifolia Maximowicz, Mém. Acad. Imp. Sci. St.-Pétersbourg Divers Savans 9: 180. 1859; *Crepidiastrum sonchifolium* var. *elegans* (Franchet) Sennikov; *Ixeridium elegans* (Franchet) C. Shih; *I. sonchifolium* (Maximowicz) C. Shih; *I. sonchifolium* (Maximowicz) Tzvelev; *I. serotina* (Maximowicz) Kitagawa; *I. sonchifolia* (Maximowicz) Hance; *I. sonchifolia* var. *serotina* (Maximowicz) Kitagawa; *Lactuca bungeana* Nakai; *L. denticulata* (Houttuyn) Maximowicz var. *sonchifolia* (Maximowicz) Maximowicz; *L. elegans* Franchet; *L. sonchifolia* (Maximowicz) Debeaux (1876), not Willdenow (1803); *Paraixeris serotina* (Maximowicz) Tzvelev; *P. sonchifolia* (Maximowicz) Tzvelev; *P. sonchifolia* var. *serotina* (Maximowicz) Kitagawa; *Y. serotina* Maximowicz.

Basal leaves and often lower stem leaves obovate, apex rounded. Middle stem leaves sessile, narrowly ovate, lanceolate, or rarely ± elliptic, 2.5–9 × 0.5–3 cm, base very conspicuously auriculately clasping, auricles ± rounded; blade including auricles pinnatifid, pinnatipartite, or subpinnatisect, with short triangular (1–5 mm) to long narrowly triangular or sublinear (to 1.5 cm) acute lateral lobes and a larger acute ter-
minal lobe, margin entire or sharply dentate. Upper stem leaves similar to middle stem leaves but smaller, usually less incised, less dentate, or entire especially in upper part of blade, apex long acuminatum. Involucre 4.5–6.5 mm. Inner phyllaries plane or more often weakly to strongly crenate or coriaceous below apex. Anther tube and style yellow upon drying. Achene reddish brown, 2–3.2 mm including a slender 0.4–1 mm beak. Pappus 2–3 mm. Fl. and fr. Apr–Sep. 2n = 10*.

Grasslands on mountain slopes, thickets, floodplains, rocky stream beds, cliffs, roadsides; below 100–1900 m. Anhui, Chongqing, Gansu, ?Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan [Korea, Mongolia, E Russia].

Stebbins (J. Bot. 75: 43–51. 1937) distinguished Ixeris denticulata subsp. elegans from I. denticulata subsp. sonchifolia by the slightly smaller involucres, distinctly crenate or coriaceous inner phyllaries, and more finely dentate leaves. In the material studied, this delimitation does not appear to work. Although, for example, the inner phyllaries are strikingly coriaceous in the type of Lactuca elegans, there is no discontinuity but a rather continuous variation toward plants with only slightly crenate or even plane phyllaries. Similar observations regard the other features listed.

1b. Crepidiastrum sonchifolium subsp. pubescens (Stebbins) N. Kilian, comb. nov.

柔毛假还阳参 rou mao jia huan yang shen

Basionym: Ixeris denticulata subsp. pubescens Stebbins, J. Bot. 75: 49.1937.

Stems, branches, and leaves puberulent. Stem leaves lanceolate, 3–6 cm, pinnatifid; lateral lobes 5–10 pairs, margin entire or sharply dentate. Upper stem leaves obovate to ovate, base auriculate clasping, apex subacute to obtuse. Synflorescence corymbose, with few to several capitula. Capitula with 8–12 florets; peduncle slender. Involucre narrowly cylindric, 7–9 mm. Phyllaries glabrous; outer phyllaries few, ovate, longest ca. 2 mm, apex ± acute; inner phyllaries 8, apex subacute. Achene brownish, sub fusiform, 3–4 mm, scabrid, apically attenuate or with a less than 0.5 mm beak. Pappus white, 3–4 mm. 2n = 10*.

Rocky situations on hillsides in coastal areas. Taiwan [Japan, S Korea].


台湾假还阳参 tai wan jia huan yang shen

Crepidiastrum koschnense (Hayata) Nakai var. taiwani- anum (Nakai) Yamamoto; Ixeris taiwanihana (Nakai) Stebbins; Lactuca taiwanihana (Nakai) Makino & Nemoto.

Herbs 20–40 cm tall, perennial, sometimes shrubs, rosulate, with a woody caudex. Stems several from rosette leaf axils, ascending to erect, branched in apical third or half, leafy; older stems basally woody, developing in middle third a secondary leaf rosette with a single or few ± ascending-erect leaves secondary flowering stems. Rosette leaves spatulate, 4–12 × 1–4 cm, glabrous, base attenuate, margin entire or dentate, apex rounded. Lower stem leaves similar to rosette leaves but smaller, base semiamplexicaul. Middle and upper stem leaves broadly elliptic to broadly ovate, smaller than lower ones, base auriculately clasping, margin entire or faintly dentate, apex rounded. Syn florescence corymbose, with several to many capitula. Capitula with 8–12 florets; peduncle slender. Involucre narrowly cylindric, 6–8 mm. Phyllaries glabrous; outer phyllaries few, ovate, longest ca. 1.5 mm, apex ± acute; inner phyllaries 8, apex subacute. Achene brownish, subfusiform, ca. 4 mm, scabrid, apically attenuate or with a less than 0.5 mm beak. Pappus white, ca. 3 mm. 2n = 10*.

● Litoral areas; near sea level to 200 m. S Taiwan.

Crepidiastrum taiwanihana is closely related to C. lanceolatum. Closer investigation should show whether its status as a separate species is actually justified.


黄瓜假还阳参 huang gua jia huan yang shen

Herbs 30–120 cm tall, annual or biennial. Root vertical, with many fibrous rootlets. Stem solitary, erect, branched pre-
dominantly in upper half, glabrous. Leaves glabrous. Basal and lower stem leaves mostly withered in fruit, ± petiolate or sessile, usually oblancoolate, undivided or pinnately divided. Middle stem leaves sessile, base conspicuously auriculately clasping, auricles usually rounded; blade (including auricles) oblancoolate, obovate, pandurate, or ± elliptic, undivided, or pinnatifid or pinnatipartite, margin entire or dentate, apex rounded, acute, or acuminate. Upper stem leaves similar to middle stem leaves but smaller, usually less incised, less dentate, or entire. Synflorescences terminating main stems and branches, corymbiform or paniculiform, with few to many capitula. Capitula with 12–20 florets; peduncle capillaceous. Involucre narrowly cylindric, 6–9 mm. Phyllaries abaxially glabrous; outer phyllaries few, ovate, less than 0.5 mm, apex acute; inner phyllaries ca. (7 or)8, midvein subapically plane, crested, or coniculate. Anther tube and style greenish to blackish upon drying. Achenes blackish brown, narrowly ellipsoidal, 2.5–4.5 mm, with 10–15 apically scabrid ribs, apex attenuate into a beak 1/5–1/3 as long as achene. Pappus white, 3–5.5 mm.

Forests, forest margins, grasslands, dry slopes, among boulders, cliffs, field margins, roadsides; below 100–2000 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Shandong, Shanxi, Sichuan, Yunnan, Zhejiang [Japan, Korea, Mongolia, E Russia, Vietnam].

Based on the treatment by Stebbins (J. Bot. 75: 43–51. 1937) under Ixeris, excluding the misplaced L. denticulata subsp. elegans, L. denticulata subsp. pubescens, and I. denticulata subsp. sonchifolia (see subspecies of Crepidiastrum sonchifolium above), three subspecies are recognized in C. denticulatum. They are not always easily distinguishable and seem linked by transitional populations, but this approach may provide a fairly suitable basis for further, much needed studies.

1a. Involucre 6–7(–8) mm; midvein of inner phyllaries crested below apex; achene with 0.4–1 mm beak ca. 1/4–1/3 as long as achene .... 4e. subsp. ramosissimum

1b. Involucre 7–9 mm; midvein of inner phyllaries plane or crested below apex; achene with 0.2–0.6 mm beak ca. 1/5 as long as achene.

2a. Involucre 7–8 mm; midvein of inner phyllaries plane below apex; achene including beak 2.5–3.5 mm; pappus 3.5–4.5 mm .................... 4a. subsp. denticulatum

2b. Involucre 8–9 mm; midvein of inner phyllaries crested below apex; achene including beak 3.5–4 mm; pappus 4.5–5.5 mm ....................... 4b. subsp. longiflorum

4a. Crepidiastrum denticulatum subsp. denticulatum

4b. Crepidiastrum denticulatum subsp. longiflorum (Stebbins) N. Kilian, comb. nov.

长叶假还阳参 chang ye jia huan yang shen


Leaves similar to subsp. denticulatus. Involucre 8–9 mm. Inner phyllaries usually distinctly crested below apex. Achenes 3–4 mm including a 0.3–0.6 mm beak. Pappus 4.5–5.5 mm. Fl. and fr. (Aug.–Feb.) n=10*.

- Field margins; 400–1000 m. Fujian, Guangdong, Jiangxi.

4c. Crepidiastrum denticulatum subsp. ramosissimum (Bentham) N. Kilian, comb. nov.

枝状假还阳参 zhi zhuang jia huan yang shen

Basionym: Brachyramphus ramosissimus (Bentham) A. Gray. London J. Bot. 1: 489. 1842; Ixeris denticulata subsp. ramosissima (Bentham) Stebbins; I. ramosissima (Bentham) A. Gray.

Basal and lower stem leaves spatulate to obovate, to 24 × 7 cm, undivided or pinnatifid to pinnatisect (often lyrate so, but base cuneately attenuate into a winged or sometimes unwinged petiolar-like portion and semiamplexical to somewhat auriculately clasping, margin sinuately-dentate, apex rounded to acute; lateral lobes (if present) 2–5 pairs. Middle and upper stems leaves mostly spatulate but uppermost ones sometimes lanceolate, smaller, undivided or pinnatifid, base without petiolar-like portion but distinctly auriculately clasping, margin subentire to shallowly sinuate-dentate, apex rounded to
acute. Involucre 6–7–(8) mm. Inner phyllaries usually distinctly
crested below apex. Achene 2.8–4.5 mm including a beak 1/4–
1/3 as long as achene. Pappus ca. 3 mm. Fl. and fr. Jul–Nov. 2n = 10*

- Dry slopes, among boulders, cliffs, road-sides; 600–2000 m.
  Guangdong, Guangxi, Guizhou, Yunnan.

5. Crepidiastrum chelidonifolium (Makino) Pak & Kawano, Mem.

少花假还阳参 shao hua jia huan yang shen

Lactuca chelidonifolia Makino, Bot. Mag. (Tokyo) 12:
47. 1898 ["chelidonifolia"]; Ixeris chelidonifolia (Makino)
Stebbins; L. senecio H. Léveillé & Vaniot; Paraixeris chelidi-
nonifolia (Makino) Nakai; Youngia chelidonifolia (Makino) Kita-
mura.

Herbs 10–25–[50] cm tall, annual, glabrous. Stem solitary,
erect, branched from base. Basal leaves withered at anthesis.
Lower and middle stem leaves with a slender petiole often bas-
ally with well-developed dentate or denticate auricles; leaf blade
± elliptic, 2–6–[12] × 0.5–3–6 cm, irregularly and interrup-
tedly pinnatisect, rachis wingless; lateral lobes 1–4 pairs,
opposite to alternate, ovate, elliptic, falcate, rhombic, or oblan-
ceolate, margin sparsely dentate to incised; terminal lobe simi-
lar to lateral ones. Upper stem leaves similar to lower and mid-
dle stem leaves. Synflorescence of main stem and branches co-
rymbiform or paniculiform, with few to many capitula.
Capitula with ca. 5(or 6) florets. Involucre narrowly cylindric,
5–7 mm. Outer phyllaries few, ovate, longest 0.6–1 mm, apex obtuse
to acute; inner phyllaries 5, apex acute to obtuse. Anther tube
and style greenish to blackish upon drying. Achene brownish, fusi-
form, 2.5–3.5 mm, with 10–15 apically long papillose ribs,
apex attenuate or with a beak to 0.7 mm. Pappus white, 3.5–4.5
mm. Fl. and fr. Sep.–Oct. 2n = 10.

Mountain slopes, ravines, forests, moist cliffs; 1000–1700 m. Hei-
longjiang, Jilin [Japan, Korea, E Russia].

Etnogr. 12: 34. 1954, and repeated identically in Feddes Repert.
Spec. Nov. Regni Veg. 63: 289. 1961), based on a collection from Heilong-
jiang, is here considered as conspecific with Crepidiastrum chelidi-
Sennikov also noted (loc. cit.) that the name "I. saxatilis" was not validly
published because the alternative name "Lactuca saxatilis" was proposed
simultaneously (Vienna Code, Art. 34.2). Three later binomials referring
to, and based on, Baranov’s original description, where two gatherings
were cited, were also not validly published, because their authors failed
to indicate a single gathering as the type (Art. 37.1 and 37.2): "Ixeris
Carol. Prag. 1962: 50, 1962), "Paraixeris saxatilis" (Tzvelev, Fl. URSS 29:
400, 1964), and "Crepidiastrum saxatile" (Pak & Kawano, Mem. Fac.


心叶假还阳参 xin ye jia huan yang shen

Lactuca humifusa Dunn, J. Linn. Soc., Bot. 35: 512. 1903;
Crepis stolonifera H. Léveillé; Ixeris humifusa (Dunn) Steb-

bins; I. stebbinsiana Handel-Mazzetti; Paraixeris humifusa
(Dunn) C. Shih.

Herbs 15–40 cm tall, perennial, with long creeping runners
sometimes covering ground. Basal leaves present at anthesis,
with an unwinged sparsely hairy petiole to 13 cm; leaf blade
bovoid, elliptic, broadly ovoid, or semiorbicular, 5–8 × 4–9
mm, abaxially sparsely hairy, lyrate pinnatisect or pinnatipar-
tite, with 1 or 2(or more?) pairs of lateral lobes and a much
larger terminal lobe or margin coarsely sinuate-dentate, base
cordate to truncate, apex acute. Middle and upper stem leaves
and leaves on runners with unwinged petiole usually as long
as blade or longer; leaf blade broadly ovate, subtriangular,
or semiorbicular, margin coarsely sinuate-dentate, otherwise simi-
lar to basal leaves. Uppermost stem leaves petiolate; leaf blade
lanceolate to polygonal, not divided, base truncate to broadly
cuneate. Synflorescence laxly corymbiform with 2–7 capitula.
Capitula with 10–14 florets; peduncle capillaceus, 1–5 cm.
Involucre cylindric, 8.5–11 mm. Phyllaries abaxially glabrous;
outer phyllaries few, ovate to narrowly ovate, longest 1.5–2
mm, apex acute to obtuse; inner phyllaries 8, apex obtuse. An-
ther tube and style dark. Achene brown, ellipsoid, ca. 3.5 mm,
subcompressed, with ca. 10 ribs, apex attenuate into a thick ca.
0.5 mm beak. Pappus white, ca. 4 mm. Fl. and fr. Aug.–Sep.

- Cliffs in shaded and damp valleys; 900–2500 m. E Chongqing
  (Wushan), W Hubei (Badong, Shennongjia), ?Sichuan, NE Yunnan.

Crepidiastrum humifusum is apparently rare, of scattered distribu-
tion, and still little known. Its placement in Crepidiastrum should
be regarded as tentative and needs confirmation by more detailed inves-
tigations.

7. Crepidiastrum tenuifolium (Willdenow) Sennikov, Bot.

细叶假还阳参 xi ye jia huan yang shen

Crepis tenuifolia Willdenow, Sp. Pl. 3: 1606. 1803;
Barkhausia tenuifolia (Willdenow) Candolle; Berinia tenuifolia
(Willdenow) Schultz Bipontinus; Chondrilla baicalensis (Lede-
bour) Schultz Bipontinus; Crepis altaica (Babcock & Stebbins)
Roldugin; C. baicalensis Lebedour; C. pulcherrima Fischer ex
Link; Geblera tenuifolia (Willdenow) Kitagawa; Hieraciodes
tenuifolia (Willdenow) Kuntze; Lagoseris tenuifolia (Willde-
now) Reichenbach; Youngia altaica (Babcock & Stebbins)
Cze-
repanov; Y. tenuifolia (Willdenow) Babcock & Stebbins; Y. ten-
ufolia subsp. altaica Babcock & Stebbins.

Herbs 10–70 cm tall, perennial, rosulate. Taproot strong.
Caudex woody, branching with age, with residues of old leaf bases.
Stems solitary or few, erect, usually branching in upper half, leafy;
branches ascending-erect. Rosette leaves but gradually smaller and less or not divided up-
ward on stem. Synflorescence corymbiform or paniculiform-
corymbiform, with some capitula. Capitula with 10–15 florets.
Involucre narrowly cylindric, 8–11 mm. Phyllaries dark green,
abaxially sparsely curled pilose or rarely glabrous, frequently crested or corniculate below apex, apex acute; outer phyllaries few, narrowly ovate, longest 1/3–1/2 as long as inner ones, apex acute; inner phyllaries 8. Achene black to blackish, fusiform, 4–6 mm, with 10–12 ribs, shortly and rather inconspicuously scabrid, apex attenuate to weakly beaked. Pappus white, 4–6 mm. Fl. and fr. Jul–Sep. 2n = 10.

Mountain slopes, meadows, floodplains, by water, gravelly areas; 1500–4000 m. Hebei, Heilongjiang, Jilin, Liaoning, Nei Mongol, Xinjiang, Xizang [Mongolia, E Russia].

The related species, previously treated as Youngia seresanchiana (B. Fedtschenko) Babcock & Stebbins (incl. Y. distincta (Popov & Vvedensky) Babcock & Stebbins), distributed in Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan, and distinguished by a pale brownish pappus and inner phyllaries often with long pale bristles on the midvein, was also included for Xinjiang by C. H. An (Fl. Xinjiang. 5: 451. 1999), but this record is presumably erroneous (Sennikov & I. D. Illarionova, Komarovia 5: 96. 2008, under Crepidocephalum).


细裂假还阳参 xi lie jia huan yang shen


Herbs 18–40 cm tall, perennial, rosetulate. Taproot strong, woody. Cauldex woody, branching with age, with residues of old leaf bases. Stems solitary or few, erect, branching from base or middle, leafy. Rosette leaves petiolate; petiole 2–6 cm, long brown tomentose, base expanded; leaf blade narrowly elliptic, 6–9 × 2–4 cm, pinnatifid to pinnatisect; lateral lobes 6–9 pairs, lanceolate to linear, margin entire or with few teeth; terminal lobe similar to lateral ones. Stem leaves similar to rosette leaves but gradually smaller and less or not divided upward on stem. Synflorescence corymbiform or paniculiform-corymbiform, with some capitula. Capitula with 10–16 florets. Involucre broadly cylindrical, 1–1.4 cm. Phyllaries abaxially dark green, sparsely curled pilose, frequently crested or corniculate below apex; outer phyllaries few, ovate-lanceolate, longest 1/4–1/3 as long as inner ones, apex acute; inner phyllaries 8. Achene brown to blackish, fusiform, 5–7.5 mm, with 10–14 ribs, shortly scabrid, apex attenuate to weakly beaked. Pappus white, 4–6 mm. Fl. and fr. Jul–Sep. 2n = 15, 20.

Mountain slopes, rock slopes, gravelly areas on floodplains; 1800–4700 m. Gansu, Xinjiang, Xizang [N India, Kashmir, Kazakhstan, Mongolia, Nepal, E Russia].

Crepidocephalum diversifolum is a triploid or tetraploid taxon closely related to and perhaps not sharply delimited from C. tenuifolium, being distinguished mainly by larger involucres and florets. It was considered conspecific by Sennikov and I. D. Illarionova (Komarovia 5: 93. 2008, under Crepidocephalum); closer investigations are necessary.


叉枝假还阳参 cha zhi jia huan yang shen


Shrublets 10–25 cm tall, cushion-forming, roslulate. Taproot woody. Cauldex woody, branching with age, densely covered with residues of old leaf bases. Stems many, slender, rigid, hardened, erect, repeatedly, dichotomously, intricately, and di- or varicately branched almost from base, glabrous. Rosette leaves oblanceolate to narrowly elliptic, 2–8 × 0.5–3 cm, glabrous, pinnatifid to pinnatisect, basally attenuate; lateral lobes 5 or 6 pairs, broadly triangular toothlike to narrowly linear, unequal in length, margin entire, apex acute. Stem leaves few, much smaller, otherwise similar to basal leaves or linear to linear-subulate, reduced in size, undivided, and often bractlike. Synflorescence of each stem diversicately corymbiform, with some capitula. Capitula with 10–12 florets. Involucre narrowly cylindric, 8–9 mm. Phyllaries dark green, abaxially glabrous to slightly puberulent, frequently crested or corniculate below apex; outer phyllaries few, narrowly ovate to lanceolate, longest ca. 2 mm, apex acute; inner phyllaries 8, apex obtuse. Achene black to blackish, fusiform, 3.5–5.5 mm, with 10 ribs, shortly scabrid, apex attenuate. Pappus white, 4–6 mm, caducous. Fl. and fr. Jul–Sep. 2n = 42.

Grasslands on mountain slopes, gravelly areas; 1400–4900 m. Gansu, Hebei, Nei Mongol, Xinjiang [Mongolia, E Russia].

Crepidocephalum akagii is superficially similar to and sometimes confused with Askellia flexuosa; for their distinction see there (p. 327). Crepidocephalum akagii is closely related to C. tenuifolium and C. diversifolium and, as was already assumed by Babcock and Stebbins (Pabul. Carnegie Inst. Washington 484: 52. 1937), a “polyploid apomict.” No maternal has been seen of Youngia nansensis, which was provided by its authors with a very poor description and said to be glabrous but otherwise similar to C. akagii (Y. Z. Zhao & L. Ma, Bull. Bot. Res., Harbin 24: 133. 2004); it is provisionally sunk in the synonymy of the latter. The largely neglected Y. alashanica H. C. Fu (in Ma, Fl. Intramongol., ed. 2, 4: 849. 1993), said to have affinities to C. akagii as well, in contrast, is certainly completely unrelated and actually represents with high probability Launaea procumbens (see there, p. 239).


异喙菊属 yi hui ju shu

Shi Zhu (石铸 Shih Chu); Norbert Kilian

Herbs, annual. Stem leaves sagittately clasping. Capitula solitary or few, terminal on or in axils of branches, with numerous florets. Involucre hemispheric in fruit. Phyllaries in 2 rows; outer phyllaries 2–5; inner phyllaries lanceolate. Receptacle naked. Flo-
rets yellow. Achene dimorphic; outer achenes with short stout beak; inner achenes with a long slender beak. Pappus absent in outer achenes and mostly present in inner achenes, white, of scabrid bristles.

One species: C and SW Asia, SE Europe.


异喙菊 yi hui ju

Heteracia epapposa (Regel & Schmalhausen) Popov; H. szovitsii var. epapposa Regel & Schmalhausen.

Herbs 5–30(–40) cm tall, annual. Taproot slender. Stem erect to ascending, sparsely furcately branched from base, glabrous. Basal leaves narrowly elliptic, obovate, or narrowly spatulate, 3–8 × 0.5–1.5 cm, undivided or shallowly pinnatifid to pinnatisect, glabrous, base attenuate, margin entire or sinuate-dentate, apex rounded to acute; lateral lobes (if present) triangular to narrowly elliptic, unequal. Stem leaves narrowly ovate to lanceolate, 3–7 × 0.5–1.5 cm, base sagittately clasping, otherwise similar to basal leaves. Capitula solitary or few, terminal or in axils of branches, sessile or on a distally somewhat thickened peduncle to usually ca. 4 cm at fruiting, with 20–50 florets. Involucre stout cylindric and 4–6 × 4–5 mm at anthesis, flat hemispheric and 5–10 mm in diam. in fruit. Outer phyllaries 2–5, triangular, 1–2 mm, subequal; inner phyllaries lanceolate, ca. 8, subequal. Achene with body 3–4 mm, of 2 kinds; outer achenes grayish brown, broadly obconical, compressed, with 5 ± rugose ribs, lateral ribs strongly winglike and enlarged, with a stout to slender 0.8–1.8 mm beak; inner achenes slender obconical, with 5 unequal, apically acute verruciform or scaly ribs, with a filiform beak to 8–10 mm strongly exceeding involucre. Pappus absent in outer achenes, mostly present or more rarely absent in inner achenes, white, 3–5 mm. Fl. and fr. Apr–Jun. 2n = 8.

Deserts or semideserts; 800–1000 m. Xinjiang [Kazakhstan, Kyrgyzstan, Russia (E European part), Tajikistan, Turkmenistan, Uzbekistan; SW Asia].


小疮菊属 xiao chuang ju shu

Sti Zhu (石铸 Shih Chu); Norbert Kilian

Herbs, annual. Leaves mostly rosulate, undivided to pinnatisect. Capitula few to many, cymose on stout branches. Involucre campanulate. Phyllaries in 2 rows; outer phyllaries inconspicuous; inner phyllaries linear-lanceolate, hardened, thickened in fruit. Receptacle naked. Florets yellow. Achene columnar, ± incurved, minutely hairy; outer achenes apically attenuate and partly enclosed by inner hardened phyllaries; inner achenes attenuate into a long slender beak. Pappus white, of scabrid bristles to 1.5 mm.

Four species: C and SW Asia; one species in China.


小疮菊 xiao chuang ju

Rhagadiolus papposus (Boissier & Buhse) Kuntze.

Herbs 5–20(–40) cm tall, annual. Taproot slender. Stem erect, branched from base or basally, white pubescent and sometimes also with subulate stiff bristles. Basal leaves oblanceolate, narrowly elliptic-oblanceolate, or elliptic, 2–15 × 0.5–5 cm, lyrate pinnatifid to pinnatisect, base attenuate, margin ± dentate; lateral lobes 2–5-paired, lowermost ones small and toothlike, upper ones large and triangular to elliptic; terminal lobe triangular to elliptic, apex obtuse, acute, or rounded. Stem leaves few, similar to basal leaves or narrowly elliptic and divided or not. Capitula usually a few densely aggregated at nodes of branches, with 6–10 florets. Involucre stout cylindric and 4–5 × 3–4 mm at anthesis, 6–9 mm in fruit. Outer phyllaries few, inconspicuous; inner phyllaries linear-lanceolate, abaxially with rigid subulate bristles or rarely glabrous, hardened, carinate and incurved in fruit, partly enclosing outer achenes. Achene columnar, curved, with appressed hairs; outer achenes 4–5 mm, apically attenuate; inner achenes 7–10 mm, strongly exceeding involucre, apically attenuate into a long slender beak. Pappus of white, smooth to scabrid bristles of 0.2–1.5 mm, shorter in outer achenes, longer in inner achenes. Fl. and fr. Apr–Jun.

Plains, low mountain regions; above 600 m. Xinjiang [Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan; SW Asia].


蒲公英属 pu gong ying shu

Ge Xuejun (葛学军); Jan Kirschner, Jan Štěpánek

Herbs, rosulate, perennial, with a taproot, root head sometimes with a tunic (covered with dry brown remnants of petioles from previous years). Stems 1 to sometimes several, hollow, leafless (scape), unbranched, rarely with 1–3 branches. Plant indumentum consisting of arachnoid hairs; leaf and scape hairs sometimes on low protuberances or ridges; hairs on floret tube often straight and simple. Leaves entire or variously lobed, runcinate to pinnatisect. Capitulum pointing upward or downward after anthesis. Involucre with two distinct series of phyllaries. Some of phyllaries often corniculate or horned at apex; outer phyllaries variable in length and

CICHORIEAE
shape (imbricate) or almost uniform (not imbricate), usually substantially shorter than inner ones, appressed to reflexed, glabrous to ciliate or with arachnoid surfaces, unbordered to variously pale to whitish bordered. Receptacle naked, glabrous or sparsely arachnoid. Flores yellow, white, whitish yellow, pale or deep pink, orange, brownish orange, or reddish brown; ligules flat, involute, or tubular, adaxial epidermal cell cuticle ± domed and transversely striate. Achenes whithish, straw-brown, ochraceous, reddish, reddish brown, deep brown, or ± black, usually composed of a body, which includes a narrowed but equally colored cone, and apically with a beak but cone sometimes indistinct or not developed; body spinulose and/or squamulose in upper part (below cone), often tuberculate below or completely or almost smooth, or spinulose and tuberculate throughout, abruptly or gradually narrowing into cone (when cone developed); beak usually longer than achene body including cone or short, sometimes not developed at all, thin or thick. Pappus with numerous scabrid bristles, white, yellowish, or light reddish brown. Plants with agamospermous reproduction or sexual, self-incompatible or rarely self-compatible. Chromosome base number $x = 8$ (diploids to dodecaploids). Diploids always sexual, tetraploids usually agamospermous [three tetraploid sexual species known in Taraxacum sect. Ptesis], other polyploids agamospermous.

More than 2,500 species: mainly in the Arctic and temperate zones of the N Hemisphere with main diversity in mountains of Eurasia, a few species in temperate regions of the S Hemisphere; 116 species (81 endemic, three introduced) in China.

The genus Taraxacum represents a taxonomic complexity in the whole of its range and in China in particular. Basic features of dandelions relevant for the taxonomy at the species level are: 1) There is a low level of structural morphological differentiation. 2) There is a coexistence of agamospermy and sexuality. 3) There is complex hybridity. 4) There is extensive polyploidy. 5) There is a large number of taxa. Thus, any taxonomic study of this genus should follow a few principles: 1) A great attention should be paid to the reproduction in population structures because different modes of reproduction usually mean very different variation ranges, and species in Taraxacum differ substantially in this respect. 2) The taxonomic study must be started at the lowest level of recognizable units in order to avoid a loss of information, and later lumping should be a result of a knowledge of the population structure of all subordinate units. 3) The category of section is equally important as that of species in Taraxacum. Because of very different reproduction systems, the species have incommensurable variation ranges, and, for a non-specialist in particular, the most useful traditional rank covering both sexual and agamospermous taxa is that of section. Moreover, in an imperfectly explored region, there might be sections in which the species remain unknown or undescribed because of the insufficient material, although the very occurrence of the given section in the territory studied is unquestionable. The latter case requires using sections as one of the basic categories in taxonomic hierarchy.

Notes on descriptions: Achenes are measured to include the cone, a narrow part of the achene connecting achene body with the beak. Middle leaves are those well developed during full anthesis; outer leaves are the first spring leaves and are usually less deeply lobed or not divided. Inner leaves develop at the end of anthesis and are usually more deeply divided than the others. In the descriptions, middle leaves are taxonomically the most important. Outer phyllaries are described as imbricate when the outermost ones of them are broader and shorter than the successive more inner ones (often the outermost ones are ovate to ovate-lanceolate and the others lanceolate to narrowly lanceolate; the distal parts of the latter are clearly visible above the outermost ones). In species with imbricate outer phyllaries, the bracket measurements usually refer to the innermost outer phyllaries (the longest and the narrowest ones).

In several Chinese Taraxacum sections achene color substantially changes before maturity. Particularly in T. sect. Tibetana and T. sect. Emodensia, two color series can be recognized: in one series achenes are pale reddish ochraceous or ochraceous when immature and become darker red to reach deep reddish castaneous brown or deep red when mature, and the other series starts with pale reddish ochraceous or ochraceous when immature and become reddish brown, deep brown, or ± black, usually composed of a body, which includes a narrowed but equally colored cone, and apically with a beak but cone sometimes indistinct or not developed; body spinulose and/or squamulose in upper part (below cone), often tuberculate below or completely or almost smooth, or spinulose and tuberculate throughout, abruptly or gradually narrowing into cone (when cone developed); beak usually longer than achene body including cone or short, sometimes not developed at all, thin or thick. Pappus with numerous scabrid bristles, white, yellowish, or light reddish brown. Plants with agamospermous reproduction or sexual, self-incompatible or rarely self-compatible. Chromosome base number $x = 8$ (diploids to dodecaploids). Diploids always sexual, tetraploids usually agamospermous [three tetraploid sexual species known in Taraxacum sect. Ptesis], other polyploids agamospermous.

Variation is also observed in the development of a horn on the outer phyllaries. The first capitula to blossom often have flat or callose outer and/or inner phyllaries while later capitula have a distinct horn near the apex of the phyllaries. This characteristic mainly concerns Taraxacum sect. Borealia, T. sect. Emodensia, and T. sect. Mongolica.


1a. Achene smooth or with very sparse spinules or tubercles above, spinules minute.
2a. Achene cone subcylindric and clearly developed .............................................................. 15. T. sect. Glaabra (p. 316)
2b. Achene cone not developed at all or broadly conic and forming a gradual transition from achene body to beak.
3a. Outer phyllaries sparsely to densely arachnoid on abaxial and/or adaxial surfaces; outer phyllary margin densely to sparsely arachnoid; achene usually 5–6.5 mm; beak not fragile, usually almost as thick as achene body; pappus easily breaking off ....................................................... 4. T. sect. Oligantha (p. 280)
3b. Outer phyllaries glabrous on both surfaces; outer phyllary margin glabrous or subglabrous; achene usually 4–5 mm; beak fragile, thick or slightly thickened but narrower than achene body; pappus not easily breaking off .............................................................. 13. T. sect. Atrata (p. 314)
1b. Achene sparsely to densely spinulose and/or squamulose above, spinules evident and not minute.
4a. Most of outer phyllaries patent, arcuate-patent, recurved, or flexed.
5a. Achene red, reddish brown, or deep brown.
6a. Achene longer than 4.2 mm; plants medium-sized to subrobust; tunic not evident ............... 19. T. sect. Erythrocarpa (p. 321)
6b. Achene 3.2–4.2 mm; plants small; tunic evident ................................................................. 22. T. sect. Erythrosperma (p. 323)
5b. Achene light grayish straw-colored brown, light olivaceous brown, yellowish, or pale ochraceous.
7a. Near apex of outer phyllaries flat, callose, or minutely corniculate (check later flowering capitula).

8a. Outer phyllaries 3–5 mm wide and leaves subprostrate to erect-patent and not subleathery ... 10. T. sect. Qaisera (p. 303)
8b. Outer phyllaries usually 1.5–3 mm wide, or if broader then leaves erect and subleathery.

9a. Leaves erect, subleathery; achene (4–)5–6.1 mm; cone subcylindric, 1–2.2 mm .................... 9. T. sect. Turrita (p. 301)
9b. Leaves erect-patent to subprostrate, not subleathery; achene 3–4.5 mm; cone conic to subcylindric, 0.2–0.9 mm ................................................................. 23. T. sect. Taraxacum (p. 324)

7b. Near apex of outer phyllaries (check later flowering capitula) or sometimes only inner phyllaries with a conspicuous horn.

10b. Ligules deep yellow; outer phyllaries to 25.

11a. Outer phyllaries 15–25, 6–13 mm; leaves subleathery; achene 4–6.1 mm ...................... 9. T. sect. Turrita (p. 301)
11b. Outer phyllaries less than 15, to 6 mm; leaves not subleathery; achene 3–4 mm .... 12. T. sect. Macrocornuta (p. 313)

4b. Outer phyllaries appressed, loosely appressed, or erect, a minority of them may be erect-patent.

12a. Outer phyllaries or sometimes only inner ones or both with conspicuous horns.

13a. Achene body 1.1–2 mm wide when mature.
13b. Achene body 0.7–1.1 mm wide when mature.

15a. Achene cone broadly conic to subconic; achene body abruptly to subabruptly narrowing into cone; scapes usually growing from lateral side to leaf rosette ........................................... 16. T. sect. Borealia (p. 317)
15b. Achene cone cylindric to subcylindric; achene body gradually to subgradually narrowing into cone; scapes growing from center of leaf rosette.

16a. Outer phyllaries 13–24; leaves deeply dissected or pinnatisect, lateral lobes linear, linear-triangular, or rarely to narrowly triangular ........................................ 3. T. sect. Stenoloba (p. 278)
16b. Outer phyllaries 8–14; leaves shallowly pinnatisect to pinnatifid, lateral lobes broadly triangular, deltoid, or broadly deltoid-triangular ....................................... 11. T. sect. Ceratoidea (p. 312)

12b. Outer phyllaries flat, callose, or minutely corniculate.

17a. Outer phyllaries 3.5–8 mm wide.
17b. Outer phyllaries 1–3.5 mm wide.

21a. Outer phyllaries light glaucous-green to light green, dark color confined to a narrow middle strip, flat near apex ................................................................. 17. T. sect. Parvula (p. 318)
21b. Outer phyllaries blackish, blackish green, dark green, or deep green, if light green then corniculate.

22a. Achene light grayish straw-colored brown or light grayish brown.
22b. Achene conic ± conic or subcylindric, 0.4–0.5 mm wide; beak thickened or thin.

24a. Achene body spinules (particularly upper ones) coarse, usually curved upward .... 2. T. sect. Leucantha (p. 273)
24b. Achene body spinules long or short and thinly or shortly subconic, straight, erect-patent to suberect ............................................................. 6. T. sect. Tibetana (p. 285)

23a. Achene cone ± conic or subcylindric, 0.2–0.3 mm wide; beak thin.
25a. Pappus white to yellowish white; flowering spring to early summer; dry subsaline or steppe to substeppe habitats ................................................................. 3. T. sect. Stenoloba (p. 278)
25b. Pappus light pinkish brown; flowering late summer and autumn; wet saline habitats .... 18. T. sect. Piesis (p. 320)

22b. Achene reddish, red, dark olivaceous brown, deep brown to blackish brown, or blackish.

26a. Achene cone cylindric, thin; achene 3.2–3.8 mm ..................................................... 21. T. sect. Dissecta (p. 323)
26b. Achene cone conic or subconic, if ± cylindric then thick; achene 3.7–5.5 mm.

27a. Achene beak longer than body usually by 1.5 mm or more ....................................... 6. T. sect. Tibetana (p. 285)
27b. Achene beak shorter than or equaling body.
28a. Achene blackish brown; stigmas blackish; leaf lateral lobes few .......................... 14. T. sect. Arctica (p. 316)
28b. Achene reddish brown; stigmas pale grayish green; leaf lateral lobes numerous ..... 20. T. sect. Suavia (p. 322)


垂头蒲公英组 chui tou pu gong ying zu

Hairs on scapes and on some leaves often on low protuberances. Capitulum nodding after anthesis. Outer phyllaries very numerous, linear-lanceolate, irregularly recurved, apical part attenuate, apex with a horn; inner phyllaries equaling outer ones. Florets brownish orange. Stigmas dark blackish violet when dry. Achene pale brown, medium-sized; body ± broad, apically subgradually narrowing into a 0.5–0.8 mm subconic cone; beak 1–1.5 cm. Pappus dirty white to brownish white. Sexual.

- One species: China.

The section was described on the basis of the report of a biennial life cycle in cultivated material. The bienniality of Taraxacum nutans is excluded on the basis of the study of plants collected in the wild. They often have a root head with a tuft (see the generic description). Field observations show almost complete absence of sterile leaf rosettes in natural populations (almost all plants flowering), another feature supporting the most common Taraxacum pattern.


垂头蒲公英 chui tou pu gong ying

Herbs to 45 cm tall, robust, perennial but often mistakenly reported to be biennial. Leaves basally indistinctly narrowed into a winged green or purplish petiole; leaf blade pale grayish green, oblanceolate to narrowly oblanceolate, 20–30 × 3–5 cm, arachnoid to densely arachnoid, margin usually dentate or rarely with patent acute lobules. Scapes pale brownish green, sparsely arachnoid near base but very densely arachnoid below capitulum, hairs pale brownish. Capitulum 5–6 cm wide. Involucre lanceolate, 1.5–1.8 × 0.2–0.3 cm, irregularly recurved, apically attenuate, middle part paler green, venation prominent, border purplish or membranous, margin dentate and apically ciliate, apex with a large acute horn; inner phyllaries 1.5–1.7 cm, narrow. Ligules yellowish orange, later light brownish orange; outer ligules flat, striped purplish; inner ligules involute. Stigmas deep brownish grayish green, dark blackish violet when dry. Anthers polliniferous; pollen grains regular in size. Achene pale brown, 3.5–5 × 1–1.5 mm; body apically densely spinulose-squamulose and subabruptly narrowing into a 0.5–0.8 mm subconic cone; beak 1.2–1.5 cm. Pappus 6–7 mm. Fl. late summer. Sexual. 2n = 16*

- Mountain grassland slopes and forests, along paths; 1100–3200 m. W Hebei, S Ningxia, Shaanxi, Shanxi.


白花蒲公英组 bai hua pu gong ying zu

Leaves and scapes sparsely arachnoid to subglabrous. Capitulum erect after anthesis. Outer phyllaries (9 or) 10–16 (–19), greenish to dark green, imbricate or sometimes not so, ovate to lanceolate, usually tightly appressed, border paler or reddish and usually broad or less often narrow or absent, usually not corniculate near apex. Florets white, whitish yellow, pale yellowish (more deeply yellow in center of capitulum), or yellow. Achene pale grayish or brownish straw-colored, subdensely coarsely spinulose with subacute stout spinules often slightly curved upward, apically subgradually to subabruptly narrowing into a usually subcylindric 0.7–1 × 0.4–0.5 mm cone; beak 5–7 mm, sometimes thick but usually thin. Pappus white or brownish discolored, 5–7 mm.

About 23 species: Afghanistan, China, India, Mongolia, Kazakhstan, Kyrgyzstan, Pakistan, Russia, Tajikistan; 13 species (four endemic) in China.

Part of the sectional diversity center is in SW China.

In Hebei, Nei Mongol, Shaanxi, and Shanxi sexual representatives of Taraxacum sect. Leucantha were detected. They are very variable in leaf shape and by their outer phyllary characters belong to the group of T. sinicum and T. dealbatum. Further research is needed.

Taraxacum leucanthum (Ledebour) Ledebour (Fl. Ross. 2: 815. 1846) has been reported as a member of the Chinese flora (FRPS 80(2): 14. 1999; Higher Pl. China 11: 769. 2005). The name usually covers most of the diversity of the whole section in the literature. We failed to find any specimen belonging to this species in the material studied. However, T. leucanthum might be found in NW Xinjiang. High mountain plants from Gansu, Qinghai, and Xizang reported in the literature under this name belong to other taxa (in part, probably to T. candidatum), but a revision is inevitable.

1a. Pollen absent.
2a. Outer phyllaries evenly black to blackish green, border not developed ........................................ 2. T. albiflos
2b. Outer phyllaries green to dark green in middle, paler borders developed.
3a. Scapes glabrous; achene cone 1–1.1 mm, beak 5–6 mm .......................................................... 4. T. niveum
3b. Scapes arachnoid; achene cone 0.7–1 mm, beak 4–5 mm ......................................................... 6. T. candidatum
1b. Pollen present.
2a. Pollen grains regular in size (plants sexual) .................................................. see comment above
2b. Pollen grains irregular in size.
3a. Stigmas yellow or ± yellow.
   3a. Achene beak 2–3 mm, thick ................................................................. 8. T. armeritifolium
   3b. Achene beak 4–5 mm, thin.
   4a. Achene 3.5–3.9 mm; pappus 4–5 mm .................................................... 11. T. pseudoleucanthum
   4b. Achene 5.2–5.7 mm; pappus ca. 7 mm ............................................... 12. T. ilense
5a. Stigmas discolored (grayish, greenish, dark, yellowish green).
   6a. Inner florets involute to subtubular, cream to pale yellowish white .......... 14. T. cereum
   6b. Inner florets canaliculate, all yellow or at least only outer ones white.
   9a. All florets yellow.
      10a. Involute beeches, 7–10 mm wide; outer phyllaries ovate to broadly ovate .......... 9. T. ikonnikovii
      10b. Involute beeches ± subobconic, 6–8 mm wide; outer phyllaries ovate-lanceolate to lanceolate.
         11a. Leaf lateral lobes linear to linear-triangular, not lingulate; achene 3.5–4.4 mm,
             cone 0.7–1 mm ............................................................................... 7. T. sinicum
         11b. Leaf lateral lobes lingulate; achene 4.5–4.8 mm, cone 1.2–1.5 mm ............. 13. T. patiens
      9b. At least outer florets ± white inside.
         12a. Outer phyllaries with dark blackish green middle part, border white and 0.9–1.3 mm wide ...... 3. T. album
         12b. Outer phyllaries with green to dark middle part, border whitish and 0.5–1 mm wide.
            13a. Pappus ± yellowish white .................................................................. 5. T. dealbatum
            13b. Pappus conspicuously brownish pinkish white ........................................ 10. T. luridum

2. Taraxacum albiflos Kirschner & Štěpánek, sp. nov.

白花蒲公英  bai hua pu gong ying

Planta agamospermae foliis linearibus integris vel denticulatis, scapis superne dense araneosis, phyllaris involucralibus exterioribus 11 ad 14, adpressis, aterrimis, ovatis vel ovato-lanceolatis, parte mediana obscure nigrescenti-viridi, marginibus pallidis non evolutis, ligulis exterioribus albis, extus stria atro-rosea notatis, interioribus pallide luteencentibus, antheris polline carentibus, stigmaticis extus nigricantibus.

Herbs to 10–14 cm tall, slender, perennial. Leaves mid-green but pale green at base, linear, 5–9 × 0.3–0.4 cm, almost glabrous, margin entire, remotely denticate, or rarely remotely shallowly sublobulate, apex obtuse. Scapes brownish green, to 8 cm, ± equaling leaves, sparsely arachnoid at base but densely arachnoid below capitulum. Capitalum 1.5–3 cm wide. Involucre 5–7 mm wide, base rounded. Outer phyllaries 11–14, black but median part often blackish green, subimbricate, ovate to ovato-lanceolate, 3.5–5.5 × 1.6–2.5 mm, appressed, without a paler border, margin not ciliate, apex acute, pale pinkish, and often with small black horn or ± flat; inner phyllaries blackish, narrowly linear, 0.9–1.2 cm, apex coriaceous. Outer ligules white or very pale yellowish white but outside striped blackish pink, flat; inner ligules pale yellowish with blackish apical teeth. Anthers without pollen. Stigmas abaxially blackish, adaxially gray, broad pubescent. Achene unknown. Agamosperm.

* Wet subsaline meadows; ca. 3800 m. S Xinjiang.

Taraxacum albiflos is distinct in having a blackish involucre, whitish ligules, linear leaves, and anthers without pollen. In T. sect. Leucantha, T. albiflos can be compared with T. candidatum. The latter has green, pale-bordered outer phyllaries and a very sparsely arachnoid scape. Outside of T. sect. Leucantha, T. albiflos is similar to T. staticifolium of T. sect. Tibetana. Taraxacum staticifolium has flat (not ciliate), narrower, and not tightly appressed outer phyllaries with a ciliate margin and also ± yellow ligules.


白花蒲公英  bai pu gong ying

Herbs 10–14 cm tall. Petiole usually purple, narrowly winged in outer and middle leaves, ± unwinged in inner ones; leaf blade bright green and often with a purplish midvein, ± linear, 7–10 × 0.7–1.2 cm, subglabrous, margin almost entire, dentate, or irregularly lobed; lateral lobes (if present) 3 or 4 pairs, triangular, 3–4 × 3–4 mm, ± patent, blades of inner leaves often deeply dissected into linear to linear-triangular lobes; interlobes short, 3–4 mm wide, margin entire or with minute acute teeth near distal base of lobes; terminal lobe not distinct in middle leaves, to 2 cm in inner leaves, margin usually entire. Scapes brownish green, ± equaling leaves, densely arachnoid below capitulum. Capitalum 2–3 cm wide. Involucre 1–1.2 cm wide, base rounded to slightly truncate. Outer phyllaries 10–13, middle part dark blackish green and 0.6–1.5 mm wide, not imbricate, ovate, outermost ones 6.7–7.5 × 2.5–3.5 mm and ca. 1/2 as long as inner ones, ± appressed, with a very distinct whitish membranous 0.9–1.3 mm border, margin glabrous to sparsely ciliate at apex, apex distinctly coriaceous; inner phyllaries 1.2–1.4 cm, coriaceous below apex. Ligules outside pure white; outer ligules flat to cucullate, outside striped purplish gray; inner ligules white to slightly pinkish white, with grayish teeth. Stigmas grayish to blackish green. Anthers sparsely polliniferous; pollen grains irregular in size. Achene pale grayish, 3.9–4.2 mm; body apically spinulose and subapically narrowing into a cylindric to subcylindric 0.8–1 mm cone, spinules long and coarse; beak 4–5 mm, thin. Pappus pale yellowish, 6.5–7.5 mm. Fl. summer. Agamosperm.

* Wet saline marshes, wet pastures, along rivers; 2000–3000 m. W Xinjiang [Kyrgyzstan].
**Taraxacum album** is a rather marginal species in this section, with some resemblance to species of *T. sect. Suavia*.

### 4. Taraxacum niveum
Kirschner & Štěpánek, Preslia 78: 35. 2006.

雪白蒲公英  *xue bai pu gong ying*

Herbs 6–13 cm tall. Petiole usually pinkish, long, narrow, unwinged; base subequaling or slightly overtopping leaves, ± sparsely arachnoid. Leaf blade dull green, linear, 6–8(–11) × 0.4–0.8(–1) cm, ± glabrous, margin usually subdenticulate above, with ± distinct whitish 0.2–0.4 mm wide border, margin often entire or dentate; lateral lobes 3 or 4 pairs, linear, to 4 mm, patent to bent upward, margin entire; interlobes usually 5–8×(1–2) mm, margin entire; terminal lobe linear to linear-lingulate, (4–)6–10(–20) mm, margin entire. Scapes greenish, equaling or slightly overtopping leaves, glabrous or rarely with a few arachnoid hairs. Capitulum 1.5–2 cm wide. involucre 6–7 mm wide, base ± rounded. Outer phyllaries 12–14, deep green but often suffused pinkish apically, imbricate, outermost ones ovate and 3–4.2 × 2.2–2.5 mm, middle ones ovate-lanceolate, 5–5.5 × 2–2.3 mm, and 1/3–1/2 as long as inner ones, appressed, with ± distinct membranous to ± whitish (0.2–)0.3–0.4 mm wide border, margin entire or dentate and usually sparsely ciliate near apex, apex flat; inner phyllaries 9–10 mm, apex flat. Ligules inside pure white; outer ligules almost flat, outside striped grayish pink; inner ligules with white apical teeth. Stigmas yellowish green. Anthers without pollen. Achene light grayish, to callose. Ligules inside ± white; outer ligules ± flat, outside a callosity near apex; inner phyllaries 1.1–1.4 cm, apex ± flat. Terminal lobe narrow, elongated, base sagittate, apex ± acute. Scapes brownish green, ± subdenticulate above, gradually narrowing into a subcylindric 0.7–(1–)1.1 cm cone, spinules thin and erect-patent; beak 3.2–5.5 mm, thin. Pappus yellowish white, 5.5–6.5 mm. Fl. spring to early summer. Agamosperm. 2n = 32.

Wet saline meadows, along rivers; ca. 1200 m. NW Xinjiang [Russia (Altai)].

### 5. Taraxacum dealbatum
Handel-Mazzetti, Monogr. Taraxacum, 30. 1907.

粉绿蒲公英  *fen lu pu gong ying*

Herbs 10–20 cm tall. Petiole purple, narrow, unwinged; leaf blade mid-green to slightly bluish green, linear-ob lanceolate, 7–13 × (0.7–)0.9–1.3(–2) cm, usually ± arachnoid, later often subglabrous, margin in outer leaves shallowly to minutely dentate but in middle leaves deeply lobed to dissected; lateral lobes 6–8(–10) mm, ± linear, 1–1.5(–2.2) mm wide, ± remote, ± patent, often bent upward, margin entire; interlobes usually 1.2–1.5(–2.5) mm wide, margin entire; terminal lobe usually ± linear, elongated, narrow, apex ± acute. Scapes greenish, ± overtopping leaves, arachnoid. Capitulum 2–2.5 cm wide. Involucre 6–7 mm wide, base ± subobconic. Outer phyllaries 12–18, deep green to dark green but with reddish apex, imbricate, usually lanceolate to ovate-lanceolate, outermost ones 4–5.2(–6) × (1.3–)1.6–2.5 mm and ca. 1/2 as long as inner ones, appressed, with ± distinct whitish 0.3–0.5 mm wide border, margin glabrous, apex often acuminate from ± ovate base, with a callosity near apex; inner phyllaries 1–1.1 cm, apex ± flat to callosate. Ligules inside ± white; outer ligules ± flat, outside striped pink to grayish pink; inner ligules probably yellowish, ± flat, with pale reddish or reddish gray apical teeth. Stigmas pale green with darker pubescence. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, 3.3–3.8 × ca. 0.9 mm; body subsparsely spinulose above, subabruptly narrowing into a subcylindric 0.8–1.1 × 0.3–0.4 mm cone, spinules coarse and distinct; beak 5–6 mm, ± thin. Pappus yellowish white, 5.5–6 mm. Fl. spring to early summer. Agamosperm.

Subsaline steppe depressions, pastures along rivers; 600–1000 m. Nei Mongol [Russia (Siberia)].

**Taraxacum dealbatum** was reported from Xinjiang (Higher Pl. China: 11: 769, 2005), but this report is almost surely erroneous.

### 6. Taraxacum candidatum

纯白蒲公英  *chun bai pu gong ying*

Herbs to 10 cm tall, delicate. Petiole purplish to greenish, narrow to narrowly winged, ± sparsely arachnoid; leaf blade ± mid-green, linear, 3–7 × (0.2–)0.3–0.5(–0.7) cm, sparsely arachnoid, margin often entire but sometimes dentate to shallowly lobed; lateral teeth or lobules mostly 4–7 pairs, narrowly triangular, mostly 1–1.5 mm, patent; interlobes broad, margin entire; terminal lobe not distinctly developed. Scapes brownish green, subequalling leaves, ± sparsely arachnoid. Capitulum 1.5–2 cm wide. Involucre 5–7 mm wide, base ± rounded. Outer phyllaries (10–)14–17, deep to light green, often with a narrow light green middle strip, and darker apically, ± imbricate, outermost ones ovate and 4.5–5 × 2.7 mm, middle ones ovate-lanceolate, ca. 5 × 2 mm, and 1/3–1/2 as long as inner ones, appressed, with a membranous 0.1–0.2 mm wide border, margin almost glabrous, apex flat to callosate; inner phyllaries 8–9 mm, apex flat. Ligules inside pure white; outer ligules almost flat, outside striped pinkish or faintly grayish pink; inner ligules white, with white or pinkish apical teeth. Stigmas greyish green to almost black. Anthers without pollen. Achene light greyish, (3.7–)4.4–5.5 × ca. 0.9 mm; body almost smooth below, subsparsely spineulose above, gradually narrowing into a subcylindric 0.7–1(–1.1) mm cone, spinules thin and erect-patent; beak 3.2–5.5 mm, thin. Pappus yellowish white, 5.5–6.5 mm. Fl. spring to summer. Agamosperm.

Temporarily wet subsaline to saline alpine grasslands, wet saline meadows in mountains; 2000–3000 m. S Xinjiang, W Xizang [Afghanistan, India, Tajikistan].

In areas adjacent to China *Taraxacum candidatum* reaches an elevation of ca. 5300 m.

### 7. Taraxacum sinense

华蒲公英  *hua pu gong ying*

**Taraxacum sinense** Dahlstedt, Acta Horti Gothob. 2: 168. 1926, not Poiret (1816); *T. borealisinense* Kitamura, nom. illeg. superfl.

Herbs 8–15(–25) cm tall. Petiole brownish purple, narrow; leaf blade ± mid-green, linear-ob lanceolate, 7–10(–15) × 0.6–1 cm, subglabrous to sparsely arachnoid, margin usually pinnatifid, pinnatisect, or very deeply dissected or rarely undivided; lateral lobes 5–7(–9) pairs, linear to linear-triangular, ± recurved; interlobes narrow, usually 5–7 mm, margin entire; terminal lobe narrow, elongated, base sagittate, apex ± acute. Scapes brownish green, ± overtopping leaves, arachnoid and...
dissolved red. Imbricate, outermost one ovate-lanceolate and 4.5–6.5 × 1.8–2.7 mm, middle ones × 7.8–8 × 1.5–2 mm, and 7/13–1/2 as long as inner ones, appressed, with a ± conspicuous membranous to whitish 0.2–0.4 mm wide border, margin glabrous, apex ± flat to slightly ciliate; inner phyllaries 10–13 × ca. 1 mm, apex flat. Ligules deep yellow; outer ligules ± flat, outside striped dark gray; inner ligules with yellow to grayish apical teeth. Stigmas grayish gray. Anthers polliniferous; pollen grains irregular in size. Achene light yellow to grayish apical teeth. Stigmas greenish gray. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored, 3.9–4.5 mm; body apically subsparsely spinulose, gradually narrowing into a ± cylindrical 0.9–1.2 mm cone, spines thin, erect-patent; bead 5–7–8 mm, thin. Pappus slightly yellowish white, 5–6 mm. Fl. summer. Agamosperm. 2n = 24.

Saline areas, temporarily wet to wet pastures and grasslands, steppe areas; 1500–2800 m. Hebei, Ningxia, Xinjiang, Xizang [Afghanistan, India, Mongolia, Tajikistan].

In areas adjacent to China Taraxacum armeriifolium reaches an elevation of ca. 4800 m.


Herbs 10–15(–25) cm tall. Petiole usually purplish or greenish, unwinged; leaf blade mid-green, ± linear to linear-oblong-lanceolate, 4(–)6(–)9 (–15) × 0.6–1(–1.5) cm, ± subglabrous, margin usually pinnatiset or rarely ± entire; lateral lobes 4–6 pairs, linear-triangular to narrowly triangular, 3–8 × 3–4 mm, recurved, margin entire; terminal lobe short, 3–4 mm wide, margin entire; terminal lobe elongated, linear-triangular, base sagittate, margin entire, apex acute. Scapes greenish, sparsely arachnoid mainly below capitulum. Capitulum 2–2.5 cm wide. Involucre 7–10 mm wide, base rounded. Outer phyllaries 13–17, deep green to dark green, conspicuously imbricate, ovate to broadly ovate, outermost ones 4–5(–7.5) × (2–)2.5–3.5 mm and 1/4–1/2 as long as inner ones, appressed, with a distinct whitish membranous 0.4–0.8 mm border, margin glabrous to sparsely ciliate at apex, apex ± coriaceous; inner phyllaries 1–1.3 cm, ± coriaceous below apex. Ligules inside yellow to pale yellow; outer ligules flat, outside striped gray. Stigmas pale green. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 3.9–4.5 mm; body apically subsparsely spinulose, gradually narrowing into a ± cylindrical 0.9–1.2 mm cone, spines thin, erect-patent; bead 5–7–8 mm, thin. Pappus slightly yellowish white, 5–6 mm. Fl. summer. Agamosperm.

Wet saline meadows, pastures along rivers; 3600–4000 m. SW Xinjiang [Tajikistan].


Red jiao pu gong ying

Herbs 5–10 cm tall. Petiole usually greenish, seldom pinkish, ± narrowly winged; leaf blade mid-green to slightly bluish green, ± linear, 5–7(–8) × 0.6–0.9(–1.1) cm, ± subglabrous or glabrous, margin usually sinuate-dentate to pinnatifid lobed but often entire to subentire; lateral lobes 4–8 pairs, linear to linear-triangular, to 6 × 0.5–1.3 mm, usually patent, sometimes recurved or curved upward, margin ± entire; interlobes 5–10 mm, entire; terminal lobe often elongated, to 1.5 cm, sometimes not distinct, entire. Scapes greenish brown, subequaling leaves, sparsely arachnoid, later glabrescent. Capitulum 2–2.5 cm wide. Involucre 6–8 mm wide, base rounded. Outer phyllaries 8 or 9(–13), ± not imbricate, broadly ovate to lanceolate, outermost ones 4–5 × 2.7–3 mm and 2/5–1/2 as long as inner ones, appressed to loosely so, with a ± conspicuous membranous 0.5–0.8(–1) mm border, margin glabrous to sparsely ciliate at apex, apex callose to coriaceous; inner phyllaries 1–1.1 cm, ± coriaceous below apex. Ligules flat; outer ligules outside striped greenish gray to pinkish gray, inside white; inner ligules pale yellowish at base but otherwise white. Stigmas pale grayish yellowish green. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 3.5–3.8–4.2(–4.5) mm; body apically sub-
sparsely spinulose, subgradually narrowing into a ± cylindrical medium-thick (0.7–0.9)–1.2 mm cone, spinules coarse; beak 3–4.2 mm, ± thin. Pappus brownish pinkish white, 5–6 mm. Fl. summer. Agamosperm. $n = 24$.

Subalpine meadows, along streams; 2800–5000 m. SW Xinjiang, S Xizang [India, Kyrgyzstan, Tajikistan].


假白花蒲公英 jia bai hua pu gong ying

Herbs 5–10 cm tall. Petiole pinkish or greenish, 2–4 mm wide, very narrowly winged; leaf blade ± mid-green, linear to linear-oblancoceolate, 5–8 × 0.6–0.9 cm, subglabrous, margin usually remotely dentate to lobulate but often subentire; lateral lobules or teeth 3–6 pairs, triangular to broadly triangular, 0.5–1(–2.5) mm, ± recurved; interlobes broad, undivided part of blade usually broader than divided one, margin; terminal lobe usually not discernible, apex subacute. Scapes brownish green, ± equaling leaves, arachnoid. Capitulum 1.5–2 cm wide. Involucr e 6–8 mm wide, base flat-rounded. Outer phyllaries with deep green middle part and a gradual transitioning into whitish membranous to 1 mm border but later in season with only a 0.2–0.4 mm wide border; outer phyllaries in early spring plants 11–14, suffused reddish in distal ca. 1/3, ± imbricate, broadly ovate to ovate-lanceolate, outermost ones 4–5 mm and to 1/2 as long as inner ones, appressed, apex calloose to coriocolate; outer phyllaries in early summer flowering plants 18–21, conspicuously imbricate, ovate-lanceolate to narrowly lanceolate, outermost ones 5–6 × 2.5–3 mm and 2/5–1/2 as long as inner ones, apex usually reddish calloose; inner phyllaries ca. 1.2 cm, flat to ± coriocolate below apex. Ligules deep yellow, ± flat; outer ligules outside striped purplish grayish brown; inner ligules canaliculate, with purplish apical teeth; ligule tube pubescent. Stigmas grayish yellow. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, 5.2–5.7 × ca. 1 mm; body with prominent lateral ridges, ± sparsely spinulose mainly on ridges in upper ca. 2/3 and elsewhere in upper ca. 1/3, very gradually narrowing into a thick ± subconic 1.3–1.5 mm cone, spinules long, thin, and erect and with some also on cone; beak 4.5–5 mm, ± thin. Pappus ± white, ca. 7 mm. Fl. spring and summer. Agamosperm.

- Alluvial pastures, shrubby meadows; ca. 600 m. W Xinjiang.

12. Taraxacum iliense Kirschner & Štěpánek, sp. nov.

伊犁蒲公英 yi li pu gong ying


Plantae agamospermae foliis pinnatisectis lobis lateralis remotis, recurvatis, angustis, vulgo integris, phyllaris involucralibus exterioribus adpressis, imbricatis, late ovatis usque anguste lanceolatis, viridibus, marginibus albo-membranaceis, ligulis saturate luteis, stigmatibus sordide luteis, antheris polliniferis, achenis eximie longis, subalatis, sparse spinulosis, sensim in pyramidam longam aberrantibus.

Herbs 10–17 cm tall. Petiole grayish purple, unwinged; leaf blade grayish mid-green with a grayish purple midvein, ± linear, 12–16 × (1.2)–1.5–1.8 cm, ± subglabrous, pinnatisect; lateral lobes 5 or 6 on each side, usually alternate, narrowly triangular or from a broader base abruptly narrowed into linear-oblong distal part, 5–9 × 3–4 mm, usually recurved, proximal margin entire, distal margin entire or with a single tooth, apex acute; interlobes 8–14 × 2–3(–4) mm, margin entire or with a single tooth; terminal lobe narrowly triangular, 1.5–2 × 0.8–1.4 cm, margin entire but distally concave, apex acuminate. Scapes greenish brown to purplish, ± equaling leaves, arachnoid. Capitulum 3–3.5 cm wide. Involucr e 6–8 mm wide, base flat-rounded. Outer phyllaries with deep green middle part and a gradual transitioning into whitish membranous to 1 mm border but later in season with only a 0.2–0.4 mm wide border; outer phyllaries in early spring plants 11–14, suffused reddish in distal ca. 1/3, ± imbricate, broadly ovate to ovate-lanceolate, outermost ones 4–5 mm and to 1/2 as long as inner ones, appressed, apex calloose to coriocolate; outer phyllaries in early summer flowering plants 18–21, conspicuously imbricate, ovate-lanceolate to narrowly lanceolate, outermost ones 5–6 × 2.5–3 mm and 2/5–1/2 as long as inner ones, apex usually reddish calloose; inner phyllaries ca. 1.2 cm, flat to ± coriocolate below apex. Ligules deep yellow, ± flat; outer ligules outside striped purplish grayish brown; inner ligules canaliculate, with purplish apical teeth; ligule tube pubescent. Stigmas grayish yellow. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, 5.2–5.7 × ca. 1 mm; body with prominent lateral ridges, ± sparsely spinulose mainly on ridges in upper ca. 2/3 and elsewhere in upper ca. 1/3, very gradually narrowing into a thick ± subconic 1.3–1.5 mm cone, spinules long, thin, and erect and with some also on cone; beak 4.5–5 mm, ± thin. Pappus ± white, ca. 7 mm. Fl. spring and summer. Agamosperm.
late-linear distal part, 5–10 × 2–3 mm, patent to slightly recurved, proximal margin ± straight and entire or with one tooth, distal margin concave to sigmoid and entire or with one tooth; interlobes to 12 × 2 mm, margin ± entire; terminal lobe 3-partite, basal segments patent, terminal segment lingulate-elongated, 7–14 × 2.5–4 mm, and apex ± acute. Scapes brownish green, ± overtopping leaves, arachnoid. Capitulum ca. 2 cm wide. Involucre 6–7 mm wide, base subobconic. Outer phyllaries in early flowering plants 9–15, dark olivaceous green with reddish brown apex, ± not imbricate, ovate to lanceolate, 3.5–6.5 × 2–3.5 mm, appressed, with a ± conspicuous whitish green to 0.5 mm wide border, apex ± flat to callose; outer phyllaries in late flowering plants 17–22, imbricate, lanceolate to linear-lanceolate, 4.5–6 × 1.8–2.6 mm, with light green middle part and a whitish green or membranous ca. 0.5(–0.8) mm wide border; inner phyllaries ca. 1 cm, apex ± flat. Ligules yellow; outer ligules ± flat, outside striped pinkish pale gray; inner ligules with yellow to dirty yellow apical teeth; ligule tube pubescent. Stigmas dirty yellow to yellowish green. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, robust, 4.2–4.4 × 0.9–1 mm; body sparsely spinulose above, ± gradually narrowing into a thick subcylindric 1.2–1.5 × ca. 0.4 mm cone, spinules thin and erect-patent; beak 3.5–4.5 mm. Pappus yellowish white, 6–7 mm. Fl. spring to summer. Agamosperm.

- Subsaline pastures, flooded meadows, grasslands; 3400–3900 m. W Sichuan, S Xizang.

14. Taraxacum cereum Kirschner & Štěpánek, sp. nov.

蜡黄蒲公英 la huang pu gong ying


Plantae agamospermae foliis subintegris usque profunde multisectum, lobis lateralis ± linearibus, capitulis subopertos pallide luteolis usque cereis, phyllariis involucrilibus exterioribus ± ovatis, deinde ± lanceolatis late pallide marginatis, flocculis exterioribus canaliculatis, interioribus subtubalosis tubo pubescente, stigmatibus obscure luteo-violidibus, achenis robustis, grosse subsparsa spinulosis, spinulis saepe sursum curvatis, corpore in pyramidem subcylindricam crassam ca. 1 mm longam subabrupte transiente.

Herbs 16–22 cm tall. Petiole purplish, narrow, brownish arachnoid at base; leaf blade ± light green, linear to narrowly oblanceolate, 8–14 × (0.2–)0.8–2.7 cm, arachnoid, in early flowering plants margin subentire or denticulate but in later plants pinnatisect; lateral lobes in late flowering plants 5–8 pairs, ± linear to linear-triangular, 7–13 × 1–3 mm, ± patent, margin entire, apex acute; interlobes 5–12 × ca. 2 mm, margin entire; terminal lobe lingulate-elongated, narrow, 3-partite, basal segments patent, terminal segment 2.5–4 × 0.3–0.5 cm and apex ± acute. Scapes brownish purple, ± equaling leaves, ± densely arachnoid and densely so below capitulum. Capitulum not fully opening, ca. 2 cm wide. Involucre 7–9 mm wide, base subtruncate. Outer phyllaries 12–16 and ovate-lanceolate to broadly ovate in early plants, 15–25 and ± lanceolate in later flowering plants, deep green with darker apical part, ± imbricate, outermost ones 5–7 × 2.5–3.5 mm and ca. 1/2 as long as inner ones, appressed to loosely appressed, with membranous to whitish green border to 1.1 mm wide, margin glabrous and minutely sparsely denticulate, apex ± callose; inner phyllaries ca. 1 cm, apex callose or subcorniculate. Ligules pale cream yellow or pale yellowish white, deeper so at base; outer ligules canalicate, ± erect, outside striped gray purplish; inner ligules subtubular, with reddish or cream apical teeth; ligule tube densely pubescent. Stigmas yellowish green, almost not exerted in outer florets, not exerted in inner florets, blackish pubescent outside. Anthers polliniferous; pollen grains irregular in size. Achen light grayish straw-colored brown, robust, 4.2–4.4 × ca. 1.2 mm; body subsparsely spinulose above, subapruptly narrowing into a subcylindric ca. 1 × 0.4 mm cone, spinules coarse, curved upward, larger on ridges, and usually 1 or 2 on cone; beak 6–7 mm. Pappus dirty white, ca. 7 mm. Fl. spring to summer. Agamosperm.

- Mountain calcareous pastures; 2100–2200 m. W Xinjiang.


深裂蒲公英组 shen lie pu gong ying zu

Leaves usually pinnatisect to deeply dissected. Outer phyllaries usually numerous, ovate-lanceolate to linear-lanceolate, most often loosely appressed to recurved at apex or ± patent, narrowly pale bordered, outer and/or inner ones usually corniculate to horned. Florets yellow. Achene narrow, almost smooth below, ± densely spinulose in upper ca. 1/4; body subapruptly narrowing into a ± thin cylindric or rarely subcylindric usually 0.9–1.2 × 0.2–0.3 mm cone, spinules minute; beak 7–9 mm, thin.

About seven species: China, Kazakhstan, Mongolia, Russia; four species (two endemic) in China.

Members of this section usually occur in dry substeppe to steppe habitats with a center of distribution in Mongolia and Russia (S Siberia).


The name Taraxacum heterolepis Nakai & Koidzumi ex Kitagawa (Bot. Mag. (Tokyo) 47: 829. 1933) is based on a holotype specimen that lacks important characters and cannot be safely classified, not even to the section. It is accepted in FRPS (80(2): 80. 1999) as the correct name for T. multisectum (see below) but differs from the latter in the shape and posture of outer phyllaries and in important achene features.

Type material of the name Taraxacum falcilobum Kitagawa (Rep. Inst. Sci. Res. Manchoukuo 2: 312. 1938), also referred to this group in FRPS.
Representatives of this section often appear under the name *Taraxacum asiaticum*, the lectotype of which (Kirschner & Štěpánek, Preslia 83: 498. 2011) proved to belong to *T. scariosum* (see below), a taxon often called *T. stenolobum*. *Taraxacum asiaticum* was reported to occur in a number of Chinese provinces (FRPS 80(2): 19. 1999), but a revision of the material is required.

1a. Stigmas yellow ................................................................. 16. *T. scariosum*

1b. Stigmas discolored (grayish green, greenish).

2a. Outer phyllaries 20–24, 1–1.5 mm wide .......................... 15. *T. sinomongolicum*

2b. Outer phyllaries 13–17, 2–4 mm wide.

3a. Achene body with short dense spinules, beak 7–9 mm ................... 17. *T. abax*

3b. Achene body with long subdense spinules, beak 10–11 mm .................. 18. *T. multisectum*


with a few linear patent acute lobules or teeth; terminal lobe 3-partite, apical segment linear to linear-lingulate, 10–15 × 1.5(–3) mm, and apex acute; late summer leaves with broader lobes. Scapes greenish brown, ± equaling leaves, arachnid but later sparsely so. Capitulum 2–3 cm wide. Involucre 1–1.2 cm wide, base ± rounded. Outer phyllaries 13–17, deep green to ± dark green, usually slightly glaucous and often suffused reddish in upper part, subimbricate, ± lanceolate, outermost ones 7–9(–10) × (2.2–)2.6–3.1 mm and ca. 3/5 as long as inner ones, loosely appressed to ± erect, some slightly recurved at apex, with whitish membranous ca. 0.3 mm border, margin ± glabrous, apex with distinct horn or corniculate; inner phyllaries 1.2–1.5 cm, narrow, apex distinctly corniculate. Ligules deep yellow; outer ligules flat, outside striped grayish greenish pink; inner ligules with reddish apical teeth. Stigmas grayish green, densely dark pubescent. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 3.9–4.3 × 0.8–0.9 mm; body apically ± densely shortly spinulose, subgradually to subapically narrowing into a thin cylindrical 0.9–1.2 mm cone, spinules thin; beak 7–9 mm, thin. Pappus yellowish white, 6.5–7 mm. Fl. spring and summer. Agamosperm. 2n = 24.

Dry substeppe grasslands, pastures, roadsides; 700–2000 m. Hebei, Xinjiang [Russia (Siberia)].


异苞蒲公英  yi bao pu gong ying

Herbs 11–20 cm tall. Petiole pale green or purplish, sparsely arachnoid at very base but otherwise glabrous, unwinged; leaf blade mid-green, narrowly oblong, 7–16 × 1.2–2.4 cm, sparsely arachnoid, pinnatifid-partite; lateral lobes 3–5 pairs, ± linear, 8–16 × 1.2–2.3 mm, ± patent, margin ± entire, apex acute; interlobes 3–12 × 1–2 mm, margin filiform-dentate or lobulate; terminal lobe 3-partite, margin of segments entire, apex acute. Scapes brownish green, ± overtopping leaves, arachnoid. Capitulum 3–3.5 cm wide. Involucre 0.9–1.1 cm wide, base rounded. Outer phyllaries 10–14, dark green, margin and apical part often purple, with a gradual transition into paler border and a sharply delimited whitish ca. 0.3 mm wide border, not imbricate, usually broadly lanceolate to narrowly ovate, outermost ones (6–)7–9 × (2.5–)4 mm and ca. 1/2 as long as inner ones, appressed, later to erect-patent, margin ± glabrous or sparsely ciliate, apex ± callose, rarely flat; inner phyllaries 1.4–1.6 cm, apex ± flat to coriaceous. Ligules yellow; outer ligules ± flat, outside striped gray. Stigmas grayish green. Anthers polliniferous; pollen grains irregular in size. Achene light yellowish grayish straw-colored brown, 4.6–5 × 0.8–0.9 mm; body subsparingly spinulose above, gradually narrowing into a ± cylindrical 0.9–1 mm cone, spinules long with longest ones to 0.5 mm, thin, erect-patent, acute, and some also on cone base; beak 1–1.1 cm, thin. Pappus ± white, ca. 7 mm. Fl. spring. Agamosperm.

- Steppe grasslands, pastures; below 100–300 m. Jilin, Liaoning, ?Nei Mongol.

The occurrence of Taraxacum multisectum in Nei Mongol is probably correct, but this record needs to be confirmed. Taraxacum multisectum is similar to T. abax, but substantially differs in having conspicuously long spinules on the achenes, longer beak, not horned, and seldom coriaceous outer phyllaries.


短喙蒲公英组  duan hui pu gong ying zu

Plants small, base usually densely hairy. Leaves usually arachnoid; petiole ± unwinged; leaf blade deeply lobed; lobes usually patent. Involucre narrow, usually to 6 mm wide. Phyllaries abaxially sparsely to densely arachnoid or less often surface glabrous, margin often long ciliate; outer phyllaries 6–10(–12), imbricate or subimbricate, broadly lanceolate to ovate, usually less than 5–6(–7) mm, appressed, margin with paler central part, apically coriaceous or with a horn at apex, horn usually blackish and erect. Receptacle glabrous or with a few arachnod hairs. Florets few (usually less than 30 but sometimes less than 15), yellow. Achene grayish straw-colored brown to grayish brown, 5–6.5 mm; body almost smooth or very sparsely spinulose above, very gradually and indistinctly narrowing into beak, cone not visible or thick and broadly conic, spinules few and remote; beak 0.2–4 mm, thick. Pappus yellowish white to pale brownish, 4.5–6 mm, often fragile.

About 15–18 species: centered in C Asia; two species in China.

In addition to the species listed below, Taraxacum pseudominutilobum Kovalevskaja was reported to occur in China (FRPS 80(2): 12. 1999). However, this name is based on the material from the Chatkal Range, W Tian Shan, and Angren Plateau, both in Uzbekistan, and the material studied shows that it is probably confined to these regions. No similar plants from China were seen.

1a. Leaf blade undivided; ligules pale yellow; achene beak 1–2 mm ................................................................. 19. T. syrtorum
1b. Leaf blade pinnatifid; ligules mid-yellow; achene beak 0.2–1 mm .............................................................. 20. T. minutilobum


高山耐旱蒲公英  gao shan nai han pu gong ying

Herbs to 10 cm tall; plant base with remnants of old petioles. Petiole ± glabrous, unwinged; leaf blade ± light green, ± linear, 3–8 × 0.1–0.3(–0.5) cm, glabrous, not divided, margin entire or rarely minutely remotely dentate, apex subacute. Scapes greenish, ± equaling leaves, arachnoid and densely so below capitulum. Capitulum to 2 cm wide. Involucre 8–9 mm wide, base ± subobconic. Outer phyllaries 8–10(–12), light green often suffused pinkish in upper part, subimbricate, ± lanceolate to narrowly triangular, outermost ones 5–7(–8) × 2–3 mm and ca. 1/2 as long as inner ones, appressed, abaxial surface slightly arachnoid, with a narrow whitish membranous border, margin densely arachnoid, near apex pale to blackish
corniculate; inner phyllaries (8–)10–12 × 1.1–1.5 mm, apex corniculate. Ligules pale yellow (becoming pinkish); outer ligules flat, outside striped faintly grayish. Achene gray straw-colored brown, ca. 6 × 1 mm; body apically totally smooth, with cone not discernible; beak 1–2 mm, very thick. Pappus brownish white, 5–6 mm. Fl. summer.

High alpine and subsaline slopes; ca. 4000 m. W Xinjiang (Wuqia) [Kyrgyzstan]


毛叶蒲公英 mao ye pu gong ying

Herbs to 8 cm tall, slender, delicate, tunic usually developed. Petiole pale green, densely arachnoid, unwinged but dilated at very base; leaf blade grayish green, linear to oblanceolate, 3–6 × 0.4–1.2 cm, densely arachnoid to lanate, sometimes glabrescent, pinnatifid to pinnatisect; lateral lobes 3–5 pairs, narrowly oblong, 1.5–6 × 1.1–1.5 mm, patent, some subrecurved or pointing upward, margin entire; interlobes usually 2–4 × ca. 1 mm, margin entire but sometimes with a few minute teeth; terminal lobe 3-partite, margin entire, basal segments ± recurved, terminal segment to 16 × 1.5 mm and apex subacute to acute. Scapes ± green, shorter than leaves, arachnoid. Capitulum to 1.5 cm wide. Involucre narrow, 3–4 mm wide, base obconic. Outer phyllaries 8–13, grayish olivaceous green, sub-imbricate, lanceolate to narrowly lanceolate but outermost ones to ovate-lanceolate or triangular, outermost ones 4–6 × 2–3 mm and 1/3–1/2 as long as inner ones, ± appressed to loosely appressed, abaxially densely arachnoid, with a whitish membranous 0.2–0.5 mm wide border, apex with a distinct blackish horn to 1 mm; inner phyllaries usually 8 or 9, 8–10 × 1.1–2.5 mm, abaxially arachnoid but later glabrescent, border pink, apex corniculate. Ligules yellow; outer ligules flat to canaliculate, outside striped dark; inner ligules with reddish or yellow apical teeth. Stigmas deep yellow. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, ± cylindrical, 5.5–6.1 × ca. 1 mm, totally smooth or with almost indistinct sparse minute tubercles, cone not discernible; beak whitish, 0.5–1 mm. Pappus dirty yellowish white to white, 5–6 mm, easily breaking off. Fl. summer. Agamosperm.

Stony slopes in high mountains; 3500–4500 m. S Xizang [Afghanistan, India (Ladakh), Pakistan, Tajikistan, Uzbekistan].

The problem surrounding the name Taraxacum brevirostre Handel-Mazzetti (Monogr. Taraxacum, 46. 1907) requires further study. In the literature, this name usually covers what is here called T. minutilobum, in accordance with the majority of original syntypes. The lectotype of this name comes from the Pamirs (Pamir region, 3900–4600 m, Alcock 17727, lectotype BM, no. det. 8426, fide Soest in K. H. Rechiner, Fl. Iranica 122: 234. 1977), and the type is intermediate between T. sect. Oligantha and T. sect. Atrata. The taxon represented by the lectotype is known only from the type collection and has not been found in China, although reported from Gansu, Qinghai, and Xizang (FRPS 80(2): 14. 1999).


大头蒲公英组 da tou pu gong ying zu


Plants robust. Petiole often winged; leaf blade shallowly to deeply lobed. Capitulum 3–6 cm wide. Involucre usually more than 1.5 cm wide. Outer phyllaries usually more than 10 × 4 mm, imbricate or not so, broadly ovate to lanceolate, appressed or rarely to patent, border usually distinct and pale, apex usually corniculate. Ligules yellow. Stigmas dark. Achene dark brown to straw-colored brown, large, usually 4.5–5.5 × 1.1–2 mm, ± densely spinulose above, subapically to abruptly narrowing into usually thick subconic to subcylindric 0.8–1.4 mm cone; beak usually 8–10 mm. Pappus white.

• Eight species: China.

The highest diversity of this section is in Sichuan. Sexuality is relatively common in this section.

1a. Outer phyllaries erect-patent to patent ................................................................. 25. T. grypodon
1b. Outer phyllaries appressed to erect.

2a. Achene 0.9–1 mm thick.

3a. Stigmas yellow to greenish yellow, rarely in populations plants with blackish green stigmas; outer phyllaries 9–14, usually narrowly lanceolate to ovate-lanceolate ............................................. 23. T. peccator
3b. Stigmas black; outer phyllaries 13–17, usually ovate to ovate-lanceolate ............................................. 24. T. forrestii

2b. Achene 1.1–2 mm thick.

4a. Achene cone 1.2–1.4 mm.

5a. Leaves undivided to shallowly lobed, lateral lobes 3–5, interlobes well developed and entire .... 22. T. platypecidum
5b. Leaves deeply pinnatisect, lateral lobes 5 or 6, interlobes with a large acute tooth or lobule ............ 24. T. forrestii

4b. Achene cone 0.4–1.1 mm.

6a. Outer phyllaries without a paler border or border green, very narrow, and indistinct.

7a. Outer phyllaries 17–25, lanceolate to narrowly lanceolate; achene 1.2–1.4 mm thick ................. 26. T. lanigerum
7b. Outer phyllaries 11–19, broadly ovate to ovate-lanceolate; achene 1.5–2 mm thick ..................... 27. T. lugubre

6b. Outer phyllaries with a distinct paler (whitsih to greenish white) border.

8a. Outer phyllaries narrowly lanceolate to linear-lanceolate, 1.2–1.5 cm; stigmas blackish purple but probably brownish gray when fresh ......................................................... 28. T. pseudonutans
8b. Outer phyllaries broadly ovate to ovate-lanceolate, 0.6–1.3 cm; stigmas black, blackish green, or deep green.
9a. Outer phyllaries 2–4.5 mm wide; plants not robust, usually less than 10 cm tall ................................. 24. T. forrestii
9b. Outer phyllaries 4–8 mm wide; plants robust, 10–35 cm tall.
10a. Pappus 8–11 mm ................................................................................................................. 21. T. calanthodium
10b. Pappus 6–7.5 mm .................................................................................................................. 27. T. fugubre


丽江蒲公英 lì huā pù gōng yīng

*Taraxacum canitiosum* Dahlstedt; *T. connectens* Dahlstedt.

Herbs 20–35 cm tall, robust. Petiole purplish, narrow; leaf blade pale green, oblong-cylindrical to broadly oblong-cylindrical, 9–15 × 3–4.5 cm, sparsely to densely arachnoid, margin shallowly lobed and remotely dentate to deeply lobed; lateral lobes 3–6, triangular to linear-triangular, patent, often with recurved distal part or recurved; interlobes short, lobulate; terminal lobe broad, apex subobtuse to acute and sometimes with a distinct terminal lobule. Scapes brownish green, overlapping leaves, apically yellowish arachnoid. Capitulum 5–6 cm wide. involucre 1.5–2 cm wide, base broadly rounded. Outer phyllaries (12–)15–24, pale green at base, suffused reddish, and getting darker then blackish toward apex, ± imbricate or not so, ovate to ovate-lanceolate, outermost ones 9–13 × 4–8 mm and ca. 4/5 as long as inner ones, appressed, border white and 0.4–1.5 mm, margin sparsely ciliate, apex blunt and coriaceous; inner phyllaries 1.6–1.8 cm but to 2.3 cm in fruit. Ligules yellow; outer ligules outside faintly striped purplish; inner ligules with pinkish apical teeth; floret tube sparsely puberulent. Stigmas blackish green to green. Anthers polliniferous; pollen grains slightly irregular in size. Achene yellowish dirty white, 7–9 mm. Fl. summer. Agamous.

- Subalpine meadow slopes; 1900–3000 m. Gansu, Hebei, Shanxi.

The report of *Taraxacum platypecidum* for a number of additional provinces and for Korea and Japan (FRPS 80(2): 43 1999; Higher Pl. China 11: 778. 2005) is probably incorrect. However, although not yet seen by the authors among the specimens studied, the species should be looked for in the mountainous provinces adjacent to Hebei and Shanxi.

23. Taraxacum peccator Kirschner & Štěpánek, sp. nov.

五台山蒲公英 wǔ tái shān pù gōng yīng

*Taraxacum platypecidum* Diels var. angustibracteatum Y. Ling.


Herbs 12–40 cm tall, robust. Petiole narrow; leaf blade deep green, narrowly oblong-lanceolate, (6–10)–18 × 2–4 cm, arachnoid, margin subentire, dentate, shallowly lobed, or rarely to deeply pinnatisect; lateral lobes 3–5, broadly triangular, recurved; interlobes (when developed) with margin entire. Scapes brownish green, overlapping leaves, white arachnoid but whitish to brownish tomentose below capitulum. Capitulum 4–5 cm wide. Involucre 1–1.3 cm wide, base ± rounded. Outer phyllaries 14–19, subimbricate, ovate-lanceolate to ovate, 8–15 × (2.5–)3–4.5(–6) mm, appressed to loosely so, not distinctly veined, median part blackish green, with a whitish green to whitish 1–2 mm wide border, margin conspicuously densely whitish ciliate and blackish callose below apex (sometimes surface arachnoid in upper ca. 1/3); inner phyllaries 1.5–1.7 cm. Ligules yellow; outer ligules outside striped faintly purplish gray. Stigmas blackish to dark green. Anthers without pollen or polliniferous; pollen grains irregular in size. Achene grayish brown to light brown, (4.5–)5.5 × 1.5–2 mm; body spinulose-arachnoid in upper ca. 1/3, tuberculate below, ± abruptly narrowing into a thick subcylindric 1.2–1.4 mm cone; beak ca. 9.5 mm. Pappus yellowish dirty white, 7–9 mm. Fl. summer. Agamosperm.

- Subalpine meadow slopes; 1900–3000 m. Gansu, Hebei, Shanxi.
achenis grisoe-stramineis 4.5–4.9 mm longis pyramide subconica solum 0.6–0.8 mm longa.

Herbs (4–)12–20(–30) cm tall. Petiole green to purplish, often 3–6 cm, narrow, sparsely arachnoid; leaf blade mid-green, of variable shape, oblongate to narrowly oblongate, (2–)5–10(–15) × 1.5–3.5 cm, arachnoid and usually densely so, margin almost undivided and sinuate-dentate or more often deeply pinnatisect; lateral lobes (3–)5–9(–11) pairs, narrowly triangular to narrowly deltoid, ± approximate, ± patent, sometimes subrecurved, margin entire or rarely ± dentate and on distal side usually sigmoid; interlobes short, narrow; terminal lobe triangular to 3-partite, terminal segment narrowly triangular and apex acute to subobtuse. Scapes brownish green or purplish, triangular to 3-partite, terminal segment narrowly triangular and apex acute to subobtuse. Scapes brownish green or purplish, triangular to 3-partite, terminal segment narrowly triangular and apex acute to subobtuse. Scapes ± equaling acute tooth or lobule, apex acute to acuminate; terminal lobe angular, ± patent, distal margin and/or interlobes with a large falcate, recurved, margin entire or on distal side with a single tooth, apex subacute to tip often elongated into a very narrow
variously pointing terminal part; interlobes short and broad, margin ± entire, dentate, or lobulate; terminal lobe triangular to narrowly triangular, margin entire or sparsely denticulate and sometimes distally with a distinct incision, apex acute to subacute, basal segments recurved to subpatent. Scapes brownish green, subequalling leaves, apically densely whitish brown arachnoid but sometimes glabrescent. Capitulum 3.5–5 cm wide. Involucre 0.7–1.2 cm wide, base broadly rounded. Outer phyllaries 17–25, blackish green to olivaceous green, ± not imbricate, lanceolate to narrowly lanceolate, outermost ones 7–13 × 3–5 mm and 2/3–4/5 as long as inner ones, loosely appressed to erect, unbordered to very narrowly paler bordered, margin sparsely to densely ciliate or subglabrous, distally often suffused brownish purple; inner phyllaries 1.3–1.7 cm. Ligules yellow; outer ligules flat, outside striped gray to grayish purple; sparsely to densely ciliate or subglabrous, distally often suberect, unbordered to very narrowly paler bordered, margin ± bricate, lanceolate to narrowly lanceolate, outermost ones 7–13 × 1.5–2 mm; body densely spinulose and squamulose above, ± smooth to tuberculate below, ± abruptly narrowing into a conic 0.4–1.1 mm cone; beak 6–10 mm. Papus brownish white, 6–7 mm. Fl. summer. Sexual.

- Alpine meadows and grasslands; 4000–4600 m. Sichuan.

Taraxacum lugubre was also reported from Gansu, Qinghai, and Xizang (FRPS 80(2): 40. 1999; Higher Pl. China 11: 777. 2005), but a revision of the material is required.

### 28. Taraxacum pseudonutans Kirschner & Štěpánek, sp. nov.

**Type:** China. Ningxia: “Haiyuan County [海原县], Jiangyang Qu,” 7 Sep 1956, Yellow River Expedition 5240 (holotype, PE, no. det. 24853).

**Paratypes:** China. Gansu: “Near Mawu [马坞], Minhsien [岷县], on weedy summit,” 2600 m, 27 Jun 1938, F. P. Wang, 4613 (PE, no. det. 24832). Ningxia: “Haiyuan County [海原县], Nanhua Mt. [南花山],” 10 Jul 1956, Yellow River Expedition 3507 (PE, no. det. 24854); “Jingyuan County [泾源县],” 18 Jul 1956, Yellow River Expedition 5419 (PE, no. det. 24852); “Lung-ti-kuo, in marg. viae” [probably Longde Xian [隆德县]], ca. 2600 m, 5 Jul 1930, D. Hummel, S. Hedin Expedition 3933c (S, no. det. 23066 et no. det. 23030).

**Plantae agamospermae, in comparatione Taraxaci nutans tis Dahlstedt (e Taraxaco sect. Taraxaci nutantis Dahlstedt, Acta Horti Gothob. 2: 148. 1926).**


- Subalpine to alpine meadows and grasslands; 3500–4200 m. Sichuan.

Taraxacum lanigerum was also reported from Xizang (FRPS 80(2): 40. 1999; Higher Pl. China 11: 777. 2005), but the material under this name in herbarium collections belongs to other taxa.

**28. Taraxacum pseudonutans** Kirschner & Štěpánek, sp. nov.

**Type:** China. Ningxia: “Haiyuan County [海原县], Jiangyang Qu,” 7 Sep 1956, Yellow River Expedition 5240 (holotype, PE, no. det. 24853).

**Paratypes:** China. Gansu: “Near Mawu [马坞], Minhsien [岷县], on weedy summit,” 2600 m, 27 Jun 1938, F. P. Wang, 4613 (PE, no. det. 24832). Ningxia: “Haiyuan County [海原县], Nanhua Mt. [南花山],” 10 Jul 1956, Yellow River Expedition 3507 (PE, no. det. 24854); “Jingyuan County [泾源县],” 18 Jul 1956, Yellow River Expedition 5419 (PE, no. det. 24852); “Lung-ti-kuo, in marg. viae” [probably Longde Xian [隆德县]], ca. 2600 m, 5 Jul 1930, D. Hummel, S. Hedin Expedition 3933c (S, no. det. 23066 et no. det. 23030).

**Plantae agamospermae, in comparatione Taraxaci nutantis Dahlstedt (e Taraxaco sect. Taraxaci nutantis Dahlstedt, Acta Horti Gothob. 2: 148. 1926).**


**28. Taraxacum pseudonutans** Kirschner & Štěpánek, sp. nov.

**Plantae agamospermae, in comparatione Taraxaci nutantis Dahlstedt (e Taraxaco sect. Taraxaci nutantis Dahlstedt, Acta Horti Gothob. 2: 148. 1926).**
pollen grains irregular in size. Achene (only not fully ripe ones available) light brown, 4.7–5 × 1.2–1.6 mm; body ± densely spinulose and squamulose above, spinules short, obtuse, and ± tuberculate to smooth below, ± subgradually nar-rowing into a conic 0.7–1 mm cone; beak probably long. Pappus dirty white. F1. summer. Agamosperm.

- Mountain grasslands, pastures, along paths; 2300–2800 m. S Gansu, Ningxia.


西藏蒲公英组 xi zang pu gong ying zu

Plants usually small, delicate. Petiole ± unwinged; leaf blade usually with recurved lateral segments, their distal margin often sigmoid. Outer phyllaries (5–)9–13(–22), black or black green, not imbricate or ± imbricate, ovate-lanceolate, lanceolate, or sometimes linear-lanceolate, appressed, unbordered or less often with a pale border, apex flat or callose. Stigmas usually black or blackish green, rarely yellow. Achene usually 4–5.5 × (1–)1.2–1.4 mm; body most often densely shortly spinulose or squamulose above, sometimes with longer erect spinules, gradually to subabruptly narrowing into a conic to thickly subcylindric 0.6–1.7 mm cone; beak 5–10 mm. Pappus white or yellowish, 5–8 mm. Sexual or agamospermous.

About 25 species: highest diversity in S Xizang, N Yunnan, and W Sichuan; 17 species (15 endemic) in China.

In China this section contains sexual species with wider variation ranges (i.e., Taraxacum apargiiforme and T. eriopodum) and an array of agamospermous species, which are usually known from only rather scanty material.

1a. Pollen absent.
  2a. Stigmas yellow .......................................................... 32. T. atrocarpum
  2b. Stigmas blackish to dark grayish green.
  3a. Outer phyllaries unbordered .................................................. 31. T. suberiopodum
  3b. Outer phyllaries with a distinct whitish or whitish green 0.2–0.7 mm wide border.
    4a. Outer phyllaries 19–22, border 0.5–0.7 mm wide ................................. 42. T. delicatum
    4b. Outer phyllaries 10 or 11, border ca. 0.2 mm wide ................................ 43. T. centrasiaticum

1b. Pollen present.
  5a. Pollen grains regular in size.
    6a. Outer phyllaries 15–18; involucre base broadly rounded; achene cone 1–1.5 mm ..................... 29. T. eriopodum
    6b. Outer phyllaries 11–13; involucre base obconic; achene cone 0.6–0.7 mm ............................. 37. T. apargiiforme
  5b. Pollen grains irregular in size.
    7a. Stigmas yellow .......................................................................................... 33. T. mutatum
    7b. Stigmas blackish to dark grayish green.
      8a. Outer phyllaries with a distinct whitish border.
        9a. Leaf lateral lobes in 5–9 pairs; outer phyllaries not imbricate .................................. 35. T. subcoronatum
        9b. Leaf lateral lobes in 2–4 pairs; outer phyllaries ± imbricate.
          10a. Outer phyllary border 0.3–0.4 mm wide; leaf lateral lobes not remote .................. 40. T. chionophyllum
          10b. Outer phyllary border ca. 0.2 mm wide; leaf lateral lobes remote ................... 43. T. centrasiaticum
      8b. Outer phyllaries unbordered or with an indistinct paler border to 0.1 mm wide.
        11a. Outer phyllaries usually 7–9 mm .............................................................. 30. T. tibetanum
        11b. Outer phyllaries usually 4–7 mm.
          12a. Outer phyllaries densely ciliate.
            13a. Achene dark grayish olivaceous, light straw-colored brown when unripe; cone conic .................................................................................. 39. T. apargia
            13b. Achene reddish brown to dark reddish brown, ochraceous reddish when unripe; cone cylindric to subcylindric.
              14a. Achene 3.9–4.2 mm ................................................................. 44. T. austrotibetanum
              14b. Achene 4.3–5.1 mm ................................................................. 45. T. suavissimum
          12b. Outer phyllaries ± glabrous or very sparsely ciliate.
            15a. Leaves undivided but margin sometimes remotely minutely denticate .......... 41. T. staticifolium
            15b. Leaves pinnatifoliate, pinnatisect, or at least lobulate.
              16a. Outer phyllaries 5–9; involucre 5–7 mm wide; leaf terminal lobe elongated .................. 38. T. mastigophyllum
              16b. Outer phyllaries 10–14; involucre 8–10 mm wide; leaf terminal lobe not elongated.
                17a. Ligules deep yellow; outer phyllaries 2–3 mm wide .............................. 34. T. przevalskii
                17b. Ligules pale yellow; outer phyllaries 1.5–2.2 mm wide ........................ 36. T. roseoflavescens
29. Taraxacum eriopodum (D. Don) Candolle, Prodr. 7: 147. 1838.

Leontodon mao bing pu gong ying

Herbs 6–13(–20) cm tall, usually small, base whitish to brownish arachnoid. Petiole green, unwinged; leaf blade mid-green to bright green, oblong-lanceolate to broadly oblong-lanceolate, 8–10(–12) × 1.5–2.5 cm, whitish brown arachnoid on outer leaves but ± subglabrous on middle ones, usually lobed or rarely undivided; lateral lobes (when present) 3 or 4 short to moderately long pairs, to 1 × 1 cm, ± patent to recurved, distal margin minutely dentate, apex obtuse; interlobes broad, margin ± entire; terminal lobe rounded-obtuse, 1.5–3 cm, usually broader than lateral lobes, margin entire. Scapes brownish green, ± overtopping leaves, brownish arachnoid. Involucr 1.1–1.4 cm wide, base broadly rounded. Outer phyllaries 15–18, blackish green and suffused red (black when dry), subimbricate, ± lanceolate, outermost ones (5.5–)6.5–7.5 × 2–2.5(–3) mm and ca. 1/2 as long as inner ones, appressed to without a paler border, flat to minutely cornculate below apex; inner phyllaries 1.2–1.4 cm, flat to cornculate near apex. Ligules yellow, flat; outer ligules outside striped greenish gray; inner ligules with gray or pink apical teeth. Stigmas dark (black when dry). Anthers polliniferous; pollen grains regular in size. Achene deep red or pale straw-colored brown, 4.5–5 × 1.1–1.3 cm; body ± densely spinulose above, ± gradually narrowing into a conic 1–1.3 mm cone, spinules short; beak ca. 1 cm. Pappus yellowish white, 7–8 mm. Fl. summer. Agamosperm.

Alpine grasslands and pastures; 3800–5000 m. Sichuan, Xizang [India (Sikkim)].

Records of Taraxacum tibetanum from Qinghai and Yunnan (FRPS 80(2): 55. 1999; Higher Pl. China 11: 782. 2005) should be re-examined. The species was reported from W China and Bhutan (Soest, Wentia 10: 51. 1963), but material is outside the limits of T. tibetanum. The description is compiled on the basis of the lectotype (J. D. Hooker s.n.; K, no. det. 8781; a flowering capitulum of the lectotype specimen is depicted in Handel-Mazzetti, Monogr. Taraxacum, pl. II. 1907), the K and BM syntypes fully corresponding to the lectotype, and H. Smith 10711:1 (PRA, UPS). The description of fruit is based on the latter specimen; achene description in the protologue was prepared using another original syntype (J.-A. Soulé 574, K) not conspecific with the lectotype and is disregarded here.


山北蒲公英 dian bei pu gong ying

Herbs 12–20 cm tall. Petiole pinkish, narrow to narrowly winged; leaf blade narrowly oblong-lanceolate, 10–18 × 1.5–3.5 cm, ± glabrous, undivided and remotely lobulate to pinnatifid; lateral lobes usually in 3 or 4 pairs, remote, to 1.2 cm, from a broad flat triangular base abruptly narrowed into lingulate lobule, recurved, often reduced to patent lobules; interlobes long, to 1.5 cm wide, margin entire or distal margin with 1 or 2 teeth; terminal lobe ± elongated triangular, 3–5 cm. Scapes brownish green, ± equaling leaves, subglabrous at base but densely whitish brown arachnoid below capitulum. Capitulum 2.5–3 cm wide. Involucre broadly rounded, 1–1.2 cm wide. Outer phyllaries 11–15, brownish green, ± not imbricate, ovate-lanceolate, outermost ones 5.5–6 × 2.5–3 mm and 1/3–1/2 as long as inner ones, loosely appressed, venation not distinct, unbordered, margin sparsely ciliate, flat below apex; inner phyllaries to 1.4 cm. Ligules yellow; outer ligules flat and outside striped grayish purple; inner ligules with long blackish purple teeth. Stigmas ± black. Anthers without pollen (so far as it can be observed in late blossom). Achene straw-colored brown, 5–5.5 mm; body apically densely spinulose, subabruptly narrowing into a subconic 1–1.3 mm cone, spinules short; beak ca. 1 cm. Pappus dirty white, ca. 7 mm. Fl. summer. Agamosperm.

Mountain calcareous shrubby slopes; 3100–3400 m. NW Yunnan.
Herbs 12–20 cm tall. Petiole ± greenish, narrow, sparsely arachnoid; leaf blade mid-green, narrowed oblong-ob-lanceolate, 5–11 × 1–2 cm, sparsely arachnoid, pinnaissent; lateral lobes 3–5 pairs, narrowly triangular, ± patent to subcurved, proximal margin concave and entire, distal margin sigmoid or straight and often with 1–3 teeth; apex subacute; interlobes narrow, margin entire or denticulate; terminal lobe narrowly triangular, elongated. Scapes ± overtopping leaves, sparsely arachnoid. Capitulum 3.5–3.7 cm wide. Involucre 1–1.1 cm wide, base rounded. Outer phyllaries 15–19, blackish green, imbricate, narrowly ovate to narrowly lanceolate, often from an ovate basal part abruptly narrowing into a narrow apical part, outermost ones 4.5–7.5 cm × 2.2–3 mm and ca. 2.5 as long as inner ones, appressed, dark middle part with a ± gradual transition into greenish white 0.3–0.7 mm wide border, margin ciliate, ± flat below apex; inner phyllaries 1.3–1.5 cm, apex flat. Ligules yellow; outer ligules ± flat, outside striped gray purplish; inner ligules with purplish apical teeth. Stigmas yellow. Anthers without pollen. Achene dark gray to blackish but straw-colored when unripe, 4.1–4.4 × 1.2–1.3 mm; body apically with ± dense squamules, subapically narrowing into a ± cylindrical 1.2–1.4 × ca. 0.4 mm cone; beak 6–7 mm. Pappus yellowish white, 5–6 mm. Fl. summer. Agamosperm.

- Alpine meadows; ca. 3200 m. NW Yunnan.

33. Taraxacum mutatum Kirschner & Štěpánek, sp. nov.

变化蒲公英 bian hua pu gong ying


Planta agamospermae foliis pinnatifolios vel pinnatisec-
appressed, paler border absent, margin glabrous, apex ± flat; inner phyllaries blackish green, 1–1.3 cm. Ligules yellow; outer ligules flat, outside striped pale grayish. Stigmas blackish. Anthers polliniferous; pollen grains irregular in size. Achene (when unripe) brownish, 4–5 mm; body apically distinctly spinulose, subgradually narrowing into a 0.4–0.6 mm cone. Pappus white, ca. 6 mm. Fl. summer. Agamosperm.

- Alpine slopes; ca. 5000 m. Xizang.

*Taraxacum przewalskii* is known from the type specimens only.


*亚冠蒲公英* ya guan pu gong ying

Herbs 8–20 cm tall, brownish hairy at base. Petiole purple, narrow; leaf blade mid-green, narrowly oblanceolate, 4–7 × 0.8–1 cm, sparsely arachnoid, shallowly to deeply lobed; lateral lobes 5–9 pairs, ± triangular-deltoid, ± patent to recurved, margin entire, apex acute; terminal lobe triangular, often elongated. Scapes ± overtopping leaves, base purplish, apically brownish white arachnoid. Capitulum 2–3 cm wide. Involucrake blackish green, 8–10 mm wide, base ± rounded. Outer phyllaries 11–16, blackish green, not imbricate, narrowly triangular to narrowly lanceolate, usually widest in middle, outermost ones 6–8 × 1.8–2.5 mm and ca. 1/2 as long as inner ones, appressed, with a whitish 0.1–0.2 mm wide margin, margin almost not ciliate, apex whitish and ± flat; inner phyllaries blackish green, 1.3–1.5 cm. Ligules pale yellow; outer ligules flat, outside striped grayish pink. Stigmas blackish. Anthers polliniferous; pollen grains irregular in size. Achene (mature unknown) normally straw-colored brown, ca. 4 mm, apically sparsely spinulose, abruptly narrowing into a conic 0.5–1 mm teeth. Stigmas dark greenish. Anthers polliniferous; pollen grains regular in size. Achene (mature unknown) probably straw-colored brown, ca. 4 mm, apically sparsely spinulose and subabruptly narrowing into a conic 0.6–0.7 mm cone; beak at least 5 mm. Pappus white, ca. 5 mm. Fl. summer. Sexual.

- Alpine slopes along rivers; ca. 4500 m. Qinghai or N Xizang.

*Taraxacum subcoronatum* is known from the type specimen only, and it is uncertain if this collection is from N Xizang or Qinghai, although FRPS (80(2): 74. 1999) gives the locality as N Xizang. The original material of *Taraxacum subcoronatum* is known from the type specimen only.


*二色蒲公英* er se pu gong ying

Herbs 5–12 cm tall, slender. Petiole pale green or purplish, narrow; leaf blade narrowly oblanceolate, ± glabrous, margin undivided and remotely dentate or pinnatisect; lateral lobes in 4 or 5 pairs, approximate, ± recurved, distal margin sigmoid, apex with an elongated tip; interlobes short, margin entire; terminal lobe ± triangular, with a lingulate tip. Scapes brownish green, overtopping leaves, glabrous. Capitulum ca. 3 cm wide. Involucrake obconic, 5–7 mm wide. Outer phyllaries 11–13, blackish green, ± not imbricate, ovate to lanceolate, outermost ones 4.2–6.5 × 1.3–2 mm and 1/3–1/2 as long as inner ones, loosely appressed, venation not visible, unbordered, margin whitish ciliate, flat below apex; inner phyllaries 1–1.1 cm. Ligules (pale) yellow; outer ligules flat and striped pinkish outside; inner ligules with blackish purple teeth. Stigmas black. Anthers polliniferous; pollen grains regular in size. Achene (mature unknown) probably straw-colored brown, ca. 4 mm, apically sparsely spinulose and subabruptly narrowing into a conic 0.6–0.7 mm cone; beak at least 5 mm. Pappus white, ca. 5 mm. Fl. summer. Sexual.

- Alpine meadows; ca. 4000 m. Sichuan.


The original material of *Taraxacum apargiiforme* listed by Dahlstedt in the protologue is not homogeneous, and we exclude *H. Smith 4196*. The figure of the achene in Dahlstedt (loc. cit.: pl. III: 21) is excluded as *H. Smith 4196* does not belong to this species and is agamospermous, and the figure is based on a damaged immature achene. Dahlstedt also mistakenly listed *H. Smith 4171*, not at all present in the original material (he himself gave the correct number, *H. Smith 4173*, in the caption to fig. 14, c, d).

38. *Taraxacum mastigophyllum* Kirschner & Štěpánková, sp. nov.

*剑叶蒲公英* jian ye pu gong ying

Type: China. Sichuan: “Sze-ch’uan bor.-occid.: Tsiipula, fjälläng i passet,” ca. 4000 m, 5 Aug 1922, H. Smith, Pl. Sin. 4173 (lectotype, designated here, UPS; isolectotype, S).

*Taraxacum mastigophyllum* f. integrifolium Dahlstedt.

Herbs to 15 cm tall, slender. Petiole pale green or purplish, narrow; leaf blade narrowly oblanceolate, ± glabrous, margin undivided and remotely dentate or pinnatisect; lateral lobes in 4 or 5 pairs, approximate, ± recurved, distal margin sigmoid, apex with an elongated tip; interlobes short, margin entire; terminal lobe ± triangular, with a lingulate tip. Scapes brownish green, overtopping leaves, glabrous. Capitulum 2–3 cm wide. Involucrake obconic, 5–7 mm wide. Outer phyllaries 11–13, blackish green, ± not imbricate, ovate to lanceolate, outermost ones 4.2–6.5 × 1.3–2 mm and 1/4–1/2 as long as inner ones, loosely appressed, venation not visible, unbordered, margin whitish ciliate, flat below apex; inner phyllaries 1–1.1 cm. Ligules (pale) yellow; outer ligules flat and striped pinkish outside; inner ligules with blackish purple teeth. Stigmas black. Anthers polliniferous; pollen grains regular in size. Achene (mature unknown) probably straw-colored brown, ca. 4 mm, apically sparsely spinulose and subabruptly narrowing into a conic 0.6–0.7 mm cone; beak at least 5 mm. Pappus white, ca. 5 mm. Fl. summer. Sexual.

- Alpine meadows; ca. 4000 m. Sichuan.
Conic 0.7–0.8 mm cone, spinules subsparse, to 0.7 mm, thin, apically squamulose, apically subabruptly narrowing into a 1.1–1.2 mm; body subsparsely spinulose and sometimes also others polliniferous; pollen grains irregular in size. Achene dark (probably) dark blackish 0.5–1 mm teeth. Stigmas blackish. Anthers polliniferous; pollen grains irregular in size. Achene dark grayish olivaceous but straw-colored when unripe, 4.2–4.5 × 1–1.2 mm; body apically with distinct erect spinules and squamules, subgradually narrowing into a conic 0.7–0.9 mm cone; beak 6–6.5 mm. Pappus slightly yellowish white, 5–6 mm. Fl. summer. Agamosperm.

- Alpine meadows; 3700–4200 m. W Sichuan.

Taraxacum apargia is similar to T. apargiiforme but differs in having involucre rounded at base, outer phyllaries usually with a very narrow paler border, achenes ± densely covered with distinct spinules and squamules above, pollen irregular, and agamospermous reproduction.


Herbs 7–9 cm tall, delicate. Petiole greenish or pinkish, narrow; leaf blade deep green, oblancoate, 2.5–5 × 1–1.5 cm, subglabrous, margin shallowly pinnatilobed; lateral lobes 3 or 4 pairs, narrowly triangular, ca. 5 mm, approximate, patent, distal margin entire or with 1 minute tooth; interlobes short, margin sometimes with 1 tooth or lobule; terminal lobe ± broadly triangular. Scapes slightly overtopping leaves, densely arachnoid below capitulum. Capitulum 2–3 cm wide. Involucre ± blackish green, 5–7 mm wide, base narrowly rounded. Outer phyllaries 9–13, ± black, linear-lanceolate to narrowly lanceolate, outermost ones 4.8–5.8(–8) × 1.3–1.8 mm, unequal, and ca. 1/3(–2/3) as long as inner ones, appressed to apically recurved, with a whitish indistinct border becoming pinkish and 0.3–0.4 mm wide near apex, margin densely long ciliate, apex flat and not corniculate; inner phyllaries blackish green, 1.1–1.3 cm. Ligules (?pale) yellow; outer ligules flat, outside striped greenish pink; inner ligules with dark blackish 0.5–0.7 mm teeth. Stigmas black. Anthers polliniferous; pollen grains irregular in size. Achene dark greenish pink; inner ligules with dark blackish 0.5–0.7 mm teeth. Stigmas black. Anthers polliniferous; pollen grains irregular in size. Achene dark grayish olivaceous but straw-colored when unripe, 4.2–4.5 × 1–1.2 mm; body apically with distinct erect spinules and squamules, subgradually narrowing into a conic 0.7–0.9 mm cone; beak 6–6.5 mm. Pappus slightly yellowish white, 5–6 mm. Fl. summer. Agamosperm.
Anthers polliniferous; pollen grains irregular in size. Achene unknown. Fl. summer. Agamosperm.

- Wet alpine sites; ca. 4200 m. S Xizang (Gyangzê).

Taraxacum staticifolium is known from a single type plant, which was mistakenly reported to have pollen absent.

42. Taraxacum delicatum Kirschner & Štěpánek, sp. nov.

柔弱蒲公英 rou ruo pu gong ying


Paratypes: China. Qinghai: “Tongde Xian [同德县]. Longmuer Xiuma, between Jungong (Gyumgo) and Hebei on the N side of the Huang He,” 3650 m, 22 Jul 1993, Ho Ting-nung, B. Bartholomew & M. Gilbert 174 (CAS, PE, duplicate at HNWP not seen).

Plantaæ agamospermae delicatae, subtunicatae, foliis pro-funde pinnatisectis vel pinnatifariptatis, lobis lateralius ab不至于, patent, distal margin entire or with a single tooth at lobe base and straight or ± sigmoid with apical

Herbs 10–15 cm tall, with base with remnants of old petioles. Petiole purplish, narrow; leaf blade light green, ± oblong-lanceolate, ± patent, distal margin entire or with a single tooth at lobe base and straight or ± sigmoid with apical part bent upward; lower lobes often slightly recurved, proximal margin entire and ± concave; interlobes usually 2–3 × ca. 5 mm, margin ± entire; terminal lobe 1–1.8 × 0.8–1.7 cm, 3-partite, basal segments narrowly lingulate, to 7 mm, and patent, apical segment narrowly lingulate, to 2 mm wide, and apex subacute. Scapes ± equaling leaves, ± densely arachnoid. Capitulum 3.5–4 cm wide. Involucrè 0.9–1.1 cm wide, base rounded. Outer phyllaries usually 19–22, ± not imbricate, lanceolate to lineal-lanceolate, outermost ones (5–)7–9 × (1.5–)2–3 mm and 2/5–1/2 as long as inner ones, ± loosely appressed, middle part con-

Herbs 12–22 cm tall. Petiole usually suffused purplish, long, unwinged; leaf blade deep green, ± linear to linear-oblan-

44. Taraxacum austrotibetanum Kirschner & Štěpánek, sp. nov.

藏南蒲公英 zhang nan pu gong ying

Type: China. Xizang: “Tibet meridionalis, ca. 55 km situ occid a Gongbo-Gyamda [工布江达],” ca. 4000 m, 29 Jul 1992, L. Businská & R. Businský 12, cultivated as JŠ 5099 (holotype, PRA; isotype, PRA).

Plantaæ laminis foliorum glaberrimis, phyllariis involu-

Herbs 10–20 cm tall. Petiole greenish or pale pinkish, nar-

中亚蒲公英 zhong ya pu gong ying

Herbs 12–22 cm tall. Petiole usually suffused purplish, long, unwinged; leaf blade deep green, ± linear to linear-oblan-

CICHORIEAE
spicuous, and to 0.1 mm wide, margin ± densely whitish to yellowish ciliate, apex flat; inner phyllaries 1.2–1.4 cm, apex flat. Ligules white; outer ligules ± flat, outside striped light grayish purple; inner ligules ± pale yellowish, with grayish purple apical teeth. Stigmas gray-green. Anthers polliniferous; pollen grains irregular in size. Achene reddish brown to ochraceous reddish brown when fully ripe, 3.9–4.2 × ca. 1.1 mm; body densely spinulose throughout, less densely at base, subabruptly narrowing into a subcylindric 0.8–1 mm cone, spinules coarse, erect to sickle-shaped pointing upward, and usually laterally compressed; beak ca. 6 mm. Pappus pale yellowish white, ca. 6 mm. Fl. summer. Agamosperm.

**Taraxacum suavissimum** Kirschner & Štěpánek, sp. nov.


Planta foliis demum pinnatisectis lobis lateralis saepe sursum curvatis, in parte distali linearibus, interlobis integris vel univel bilobulis, phyllariis involucralibus exterioribus non imbricatis anguste lanceolatis usque linear-i-lanceolatis, adpressis, minute coniculatis, ligulis pallidissime luteis, achenis immaturis laete ochraceo armeniaco, in maturitate obscure brunneo-rubescentibus, corpore superne distincte spinuloso, in pyramidem crassam ± cylindricam subsessimem transiente.

**Herbs** 12–20 cm tall. Petiole green or purple, narrow, very sparsely arachnoid at base; leaf blade light green to mid-green, linear-oblancoecate, (8–)12–16 × 1.2–3 cm, sparsely arachnoid, usually almost undivided to shallowly lobed for early leaves, pinnatisect for later leaves; lateral lobes or teeth 4–6 pairs, from a broad base abruptly narrowing into a ± linear 3 × 1.5–2 mm distal part, often slightly broadened near apex or evenly broad and apex acute, usually ± recurved or patent and distally curved upward, proximal margin ± straight or convex and entire, distal margin ± concave and entire or with one basal tooth; interlobes with margin entire or with a 1 or 2 teeth or lobules; terminal lobe ± elongated, 3-partite, basal segments patent and similar to lateral lobes, terminal segment narrowly triangular and margin entire or with 1 tooth. Scapes purplish green, ± overtopping leaves, arachnoid. Capitulum 3–4 cm wide. Involuc re 1–1.2 cm, base ± rounded. Outer phyllaries (9–)11–15(–17), dark blackish green, ± not imbricate, narrowly lanceolate to ± linear-lanceolate, outermost ones 5–6(–8) × (1–)1.7–2.2 mm and 1/3–1/2 as long as inner ones, appressed, paler border not developed, margin ± ciliate, apex usually minutely corniculate; inner phyllaries 1.2–1.5 cm, apex ± minutely blackish corniculate. Ligules pale yellowish white; outer ligules ± flat, outside striped grayish purple; inner ligules with grayish purple apical teeth. Stigmas grayish green. Anthers polliniferous; pollen grains irregular in size. Achene initially (when al-

角苞蒲公英  jiao bao pu gong ying

Herbs 15–20 cm tall. Petiole pinkish, ± unwinged; leaf blade light green, narrowly oblongellate, 7–14(–17) × 1.2–3 cm, sparsely arachnoid, pinnatifid to pinnatisect, midvein pinkish; lateral lobes (3 or)4–7 pairs, usually hamate-recurred, 1.5–2 cm, narrow, margin apically sparsely, minutely, or coarsely dentate (to lobulate) or rarely entire; interlobes short, margin entire, dentate, or lobulate; terminal lobe helmet-shaped to triangular, 1.5–2 × 1.2–2.2 cm, margin usually entire. Scapes brownish green, ± equaling leaves, sparsely arachnoid at base but densely arachnoid below capitulum. Capitulum 3–4 cm wide. Involucre 5–7 mm wide, base narrowly rounded. Outer phyllaries 22–25, pale green, ± not imbricate, linear-lanceolate, outermost ones 7–8 × 1.2–1.8 mm and ca. 3/4 as long as inner ones, ± subappressed, with a paler 0.2–0.3 mm wide border, margin glabrous to sparsely ciliate, apex with a thin perpendicular ca. 5 mm horn; inner phyllaries 5–7 mm, with a thin horn below apex. Ligules (pale) yellow; outer ligules flat, outside striped purplish; inner ligules with purple teeth; floret tube outside pubescent. Stigmas dirty yellow to greenish. Anthers polleniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 3.8–4.4 × 1–1.2 mm; body apically spinulose, ± gradually narrowing into a subconic ca. 1.2 mm cone; beak 6–7 mm. Pappus ± white, 5–6 mm. Fl. summer. Agamosperm.

- Disturbed mountain grasslands; 3000–3600 m. NW Sichuan.


灰果蒲公英  hui guo pu gong ying

Herbs 5–6 cm tall, delicate. Petiole narrow; leaf blade deep green, broadly linear, 3–5.5 × 0.6–0.9 cm, sparsely arachnoid, deeply lobed; lateral lobes 3–5 pairs, narrowly triangular, recurved, margin entire; interlobe margin entire; terminal lobe elongated sagittate. Scapes ± overtopping leaves, sparsely arachnoid but more densely arachnoid below capitulum. Capitulum ca. 2.5 cm wide. Involucre ± narrowly rounded to broadly ob-
conic, 6–7 mm wide. Outer phyllaries 14–19, blackish green, linear-lanceolate, outermost ones 5–9 × 0.9–1.3 mm, unequal, and 1/3–2/3 as long as inner ones, loosely appressed, with a paler indistinct ca. 0.2 mm wide border, margin sparsely ciliate, apex attenuate and with a evident blackish 0.7–1 mm horn; inner phyllaries blackish, 1.1–1.2 cm. Ligules yellow; outer ligules flat, outside striped grayish purple; inner ligules with blackish teeth. Stigmas blackish. Anthers polliniferous; pollen grains irregular in size. Achene blackish brown, 3.3–3.7 × ca. 1 mm; body apically minutely spinulose, subabruptly narrowing into a subconic 1–1.1 mm cone; beak ca. 7 mm. Pappus yellowish white, 5–6 mm. Fl. summer. Agamosperm.

- Alpine grasslands; ca. 4000 m. W Sichuan.

We did not see material confirming reports of *Taraxacum maurocarpum* from Qinghai, Xizang, and Yunnan (FRPS 80(2): 70. 1999; Higher Pl. China 11: 785. 2005).


大刺蒲公英 da ci pu gong ying

Herbs 5–20 cm tall. Petiole purplish, ± unwinged but dilated at very base; blade leaf light green to grayish green, narrowly oblanceolate, 5–15 × 1.5–2 cm, subglabrous, remotely pinnatifid, midvein pale green; lateral lobes 2 or 3(or 4) pairs, to 1 cm, narrow, usually recurved to patent, margin usually entire; interlobes long, margin entire; terminal lobe elongated, to 5 cm, margin usually entire. Scapes brownish green, ± overtopping leaves, sparsely arachnoid below capitulum. Capitulum 3–4 cm wide. Involucre 7–11 mm wide, base ± rounded. Outer phyllaries 14–18, pale green to deep green, ± not imbricate, linear-lanceolate, outermost ones 8–9 × 2.5–3.5 mm and ca. 4/5 as long as inner ones, ± loosely appressed with whitish narrow border 0.3–0.4 mm, margin ± glabrous, flat or indistinctly coniculate below apex; inner phyllaries 1.3–1.6 cm, flat to coniculate below apex. Ligules yellow; outer ligules flat, outside striped grayish pink; inner ligules with purple to blackish teeth. Stigmas discolored, brownish yellow. Anthers polliniferous; pollen grains probably slightly irregular in size. Achene (when unripe) yellowish straw-colored brown, 4–4.4 × 1.4–1.6 mm; body apically densely coarsely spinulose with acute spinules and squamules, ± tuberculate to smooth below, abruptly narrowing into a conic 1.1–1.3 mm cone; beak ca. 6 mm. Pappus dirty white, ca. 5 mm. Fl. summer. Probably agamosperm.

- Alpine grassland slopes; 3900–4200 m. Xizang.

Reports of *Taraxacum glaucophyllum* from Qinghai, Sichuan, and Yunnan (FRPS 80(2): 70. 1999; Higher Pl. China 11: 786. 2005) should be revised.

Achenes described in the protologue of *Taraxacum glaucophyllum* probably come from the paratype specimen (Lhasa, H. E. Richardson 3074, BM) and are not conspecific with the holotype. The holotype achenes, although also immature, show signs of darkening, and the description of ripe ones (mainly from JŠ 6223B, PRA) is included in the present description.

50. *Taraxacum glaucophylloides* Kirschner & Štěpánek, sp. nov.

灰叶蒲公英 hui ye pu gong ying


* A specie valde simili, Taraxaco glaucophyllo Soest, plantae nostrae praecipue phyllaris involucralibus exterioribus longioribus, densius cliatis, achenis stramineis vel ochraceo-stramineis, longioribus, omno notabiliter densius spinulosis, in pyramide subcrescass 1–1.2 mm longam abeuntibus differant.

Herbs 10–15 cm tall. Petiole purple, unwinged; leaf blade light grayish green often suffused purplish, linear to ± oblong-linear, 5–10 × 0.7–1.6 cm, sparsely arachnoid, usually pinnatilobed to pinnatisect; lateral lobes or teeth 3–5 pairs, ± linear-triangular, slightly pointing upward or patent, margin entire; interlobes ± broad, margin entire; terminal lobe triangular to narrowly triangular, margin entire, basal segments usually obtuse and ± patent. Scapes purplish green, equaling leaves, arachnoid. Capitulum 2.5–3 cm wide. Involucre 9–10 mm wide, base narrowly rounded. Outer phyllaries usually 11–15, ± not imbricate, narrowly lanceolate to ± linear-lanceolate, outermost ones 7–10 × 1.5–2.5 mm and ca. 2/3 as long as inner ones, appressed to ± loosely appressed or erect, middle part blackish green, border evident, paler, greenish white or white often suffused purplish near apex, and ca. 0.5 mm wide, margin ciliate, apex
with large blackish purple horn; inner phyllaries 1.3–1.6 cm, apex purple and with a large blackish horn below it. Ligules yellow; outer ligules ± flat, outside striped blackish purple; inner ligules with ± yellow long apical teeth. Stigmas grayish green. Anthers polliniferous; pollen grains irregular in size. Achene straw-colored brown to slightly ochraceous straw-colored brown when fully ripe, ± laterally compressed, 4–4.5 × 1.3–1.5 mm; body densely spinulose throughout but particularly on ridges, subapartly to ± abruptly narrowing into a thick ± cylindric 1–1.2 × ca. 0.4 mm cone, spinules crowded and erect to bent upward; beak 7–8 mm. Pappus pale yellowish white, 6–7 mm. Fl. summer. Agamosperm.

- Alpine calcareous meadows; 4100–4300 m. W Sichuan.

Taraxacum glaucophylloides is similar to T. glaucophyllum but has totally different achenes.


拉萨蒲公英 la sa pu gong ying

Herbs 12–15 cm tall, base often thickened by remnants of old petioles. Petiole pale green, ± unwinged; leaf blade mid-green to slightly grayish green, narrowly oblancoolate to broadly linear in outline, 10–13 × 1.5–1.8 cm, sparsely arachnoid, pinnatifid to pinnatisect but some almost undivided, midvein pale green; lateral lobes of inner leaves 3–5 pairs, linear-triangular, narrow, usually ± patent to recurred, margin entire or distal side with a single tooth on base; interlobes long, narrow, to 1.5 × 0.3 cm, margin entire; terminal lobe subobtuse, margin usually entire, basal segments ± patent. Scapes brownish green, ± equaling leaves, sparsely arachnoid to subglabrous. Capitulum 2–2.5 cm wide. Involucre 7–10 mm wide, base ± rounded. Outer phyllaries (11–)13–19, blackish green, ± not imbricate, linear-lanceolate, outermost ones 5–8 × 1.3–2 mm and ca. 3/4 as long as inner ones, ± appressed, with a whitish narrow ca. 0.4 mm border, margin glabrous to sparsely ciliate, apex with a conspicuous horn; inner phyllaries 1–1.2 cm, calllose below apex. Ligules yellow; outer ligules flat, outside striped pinkish gray; inner ligules with grayish purple teeth. Stigmas slightly grayish or greenish pale yellow. Anthers polliniferous; pollen grains irregular in size. Achene light gray straw-colored brown when unripe but later getting darker and becoming blackish gray(-brown), 4.5–5.9 × 1.1–1.4 mm; body spinulose in upper 1/2–3/5 on ridges and apically also elsewhere, ± subgradually narrowing into a cylindrical 1–1.5 mm cone, spinules thick and acute; beak 4–5.5 mm. Pappus ± white, ca. 6 mm. Fl. late spring. Agamosperm.

- Alpine calcareous meadows; 3500–3600 m. Xizang.


In the region of Lhasa, Xizang, sexual plants similar to Taraxacum sherriffii are found. They are characterized by obconic involucres and smaller and paler achenes. Further study is needed.

52. Taraxacum badiocinnamomeum Kirschner & Štěpánek, sp. nov.

棕色蒲公英 zong se pu gong ying


Plantae agamospermae, foliis oblongo-linearibus pinnatisectis, lobis lateralisibus 4 ad 7 unirameis, ± integris, anguste triangularibus vel lineari-triangularibus, phyllariis involucralibus exterioresibus sæpe lineari-lanceolatis, conspicue cornutis, marginibus albidos distinctis, stigmatibus pallide virescenti-luteis vel subluteis, achenis magnis, saturate cinnamomeo-baditis vel saturate baditis, dense spinuloso-squamulosis, in pyramidem subcassam 1.2–1.4 mm longam subabrupte abeuntibus insignes.

Herbs 12–17 cm tall. Petiole green or pinkish, arachnoid, unwinged or narrowly winged in outer leaves, midvein pinkish; leaf blade ± light green, ± oblong-linear, 5–11 × 1–2 cm, sparsely arachnoid, usually pinnatisect but outer leaves usually shallowly pinnatifid; lateral lobes 4–7 pairs, narrowly triangular to ± linear-triangular, ± patent to subrecurved, margin entire or on distal side with a single tooth near base; interlobes ± narrow, margin entire; terminal lobe ± triangular, margin ± entire, apex subobtuse. Scapes purplish green, equaling leaves, arachnoid. Capitulum 2.5–3 cm wide. Involucre 0.9–1.1 cm wide, base rounded Outside phyllaries usually 15–22, ± not imbricate, narrowly lanceolate to ± linear-lanceolate, outermost ones 7.9–1.3–2.5 mm and ca. 2/3 as long as inner ones, appressed to ± loosely appressed, middle part blackish green, border evident, paler, greenish white to whitish and often suffused purplish near apex, membranous, and 0.3–0.5 mm wide, margin ciliate, apex with large blackish horn; inner phyllaries 1.3–1.7 cm, apex with a blackish horn. Ligules yellow; outer ligules ± flat, outside striped gray; inner ligules with purple long apical teeth. Stigmas pale greenish yellow (almost yellow). Anthers polliniferous; pollen grains irregular in size. Achene initially pale ochraceous brown then getting darker to become deep cinnamon brown or brown when fully ripe, 5.5–6.5 × 1.2–1.4 mm; body densely spinulose-squamulose in upper half, subapartly narrowing into a subcylindrical 1–1.2 × ca. 0.4 mm cone; beak 5–6 mm. Pappus yellowish white, 5–6 mm. Fl. summer. Agamosperm.

- Alpine calcareous meadows; 3800–4300 m. S Xizang.

Taraxacum badiocinnamomeum is similar to T. sherriffii but has a substantially different achene color.


林周蒲公英 lin zhou pu gong ying

Herbs to 35 cm tall. Petiole purplish, to 10 cm, ± unwinged; leaf blade paler mid-green, narrowly oblancoolate, 15–20 × 1.6–2.5 cm, ± glabrous, pinnatifid, midvein pale green or pinkish; lateral lobes 4–6 pairs, triangular, to 1.2 cm, usually ± patent to ± recurved, margin usually entire or rarely with a single tooth or lobule, base broad, apex attenuate and acute; interlobes 10–13 × 5–8 mm, margin entire or rarely with a single tooth or lobule; terminal lobe narrowly triangular-sagittate, elongated to 3.5 cm, margin usually entire, apex acute.
Scapes brownish green but purplish at base, overtopping leaves, arachnoid below capitulum. Capitulum 3–4 cm wide. Involucre 1–1.5 cm wide, base rounded. Outer phyllaries 13–18, dark (blackish) green, ± not imbricate, linear-lanceolate, outermost ones 6–8(–10) × 1.5–2 mm and 2/3–3/4 as long as inner ones, ± appressed, with a pale almost indistinct very narrow border, margin glabrous to sparsely ciliate, with a horn below apex; inner phyllaries 1.2–1.4 cm, with a broad membranous margin, corniculate below apex. Ligules yellow; outer ligules flat, outside striped grayish pink; inner ligules with blackish purple teeth. Stigmas dirty green. Anthers polliniferous; pollen grains probably irregular in size. Achene unknown. Fl. summer.

Mountain grassland slopes; ca. 4200 m. Xizang (Lhünzhusubak).

*Taraxacum ludlowii* is known only from the type specimen. Reports of collections from other counties in Xizang (FRPS 80(2): 71. 1999) are incorrect.

### 54. *Taraxacum deludens* Kirschner & Štěpánek, sp. nov.

**假蒲公英** jia pu gong ying

**Type:** China. Sichuan: “Sikang [西康], Taofu [道孚] distr., Taofu, in terra ‘loess,’” 3000 m, 16 Sep 1934, *H. Smith* 11458 (holotype, UPS; isotype: PRA).

**Paratypes:** China. Sichuan: “Sikang [西康], Taofu [道孚], Taining (Ngata),” *H. Smith* 11088 (PRA, UPS); *H. Smith* 12210 (PRA, UPS); *H. Smith* 12015 (CAS, UPS); *H. Smith* 11865 (UPS); *H. Smith* 11758 (UPS); *H. Smith* 11920 (UPS).

*Plantae sexuales foliis plerumque profunde pinnatisectis, phyllariis involucralibus exterioribus lineari-triangulatis et viridibus, usque ad 5.2 mm longis, 1.1–1.4 mm crassis, phyllariis involucralibus exterioribus lineari-triangulatis et viridibus, usque ad 1.9 mm longa.*

**Herbs** 5–13 cm tall, delicate. Petiole pale green or sometimes pinkish, ± unwinged; leaf blade mid-green, narrowly oblancoate in outline, 2–8 × 0.8–1.5(–2.3) mm, sparsely arachnoid, pinnatilobed to pinnatisect, midvein pale green or purplish; lateral lobes 2–5 pairs, variably shaped from hamate-triangular to linear-triangular, 2–13 mm, strongly recurved or rarely to ± patent, margin usually entire or rarely sparsely denticate, apex ± obtuse; interlobes short, narrow, margin entire or with 1 or 2 minute teeth; terminal lobe narrowly helmet-shaped to lingulate, margin entire, apex subobtuse. Scapes brownish green, sparsely to densely arachnoid below capitulum. Capitulum 1.5–3 cm wide. Involucrre 5–7 mm wide, base narrowly rounded to ± obconic. Outer phyllaries 13–18, green to blackish green, ± not imbricate, linear-lanceolate to linear-triangular, outermost ones (3–)5–8 × 0.9–1.5 mm and to 3/4 as long as inner ones, appressed to erect, border whitish green and ca. 0.2 mm or not visible, margin sparsely ciliate, with a horn 1–1.5 mm or corniculate below apex or sometimes apex flat; inner phyllaries green, 1–1.4 cm, apex flat to corniculate. Ligules (pale) yellow; outer ligules ± flat, outside striped grayish green to grayish purple; inner ligules with long apically blackish or yellow teeth. Stigmas green. Anthers polliniferous; pollen grains irregular in size. Achene gray, straw-colored brown, yellowish, blackish brown, or brick red, 3–3.5 × 1–1.2 mm; body distally subsparingly spinulose, finely squamulose, or ± smooth below, subabruptly narrowing into a subconic 0.4–0.8(–1) mm cone; beak 6–7.5 mm. Pappus yellowish white, 4–5 mm. Fl. late summer. Sexual.

Mountain grasslands, trail margins, open ground; 3000–3700 m. W Sichuan.

*Taraxacum deludens* is a variable sexual representative of *T. sect. Emodenia*. It is similar to *T. maurocarpum* and *T. stenoceras*. It differs from both in its sexual reproduction, from the former by darker stigmas and much shorter cone, and from the latter by much shorter achenes and cone.

### 55. *Taraxacum macula* Kirschner & Štěpánek, sp. nov.

**斑点蒲公英** ban dian pu gong ying

**Type:** China. Sichuan: “Sikang [西康], Kangting [康定] (Tachienlu), mont. occid., in prato aprico, graminoso,” 3200 m, 15 Jul 1934, *H. Smith* 10470 (holotype, UPS; isotype: PRA).

**Paratypes:** China. Sichuan: “Sikang [西康], Kangting [康定] (Tachienlu) distr., Tapaoshan,” 4500 m, *H. Smith* 10463 (UPS).

*Plantae sexuales folis pinnatisectis, phyllariis involucralibus exterioribus lineari-triangulatibus atenuatis, ± plantis, dense ciliatis, ± immarginatis, stigmatibus viridibus, achenis stramineo-brunneis usque atro-badiis, usque ad 5.2 mm longis, 1.1–1.4 mm crassis, pyramide cylindrica, usque ad 1.9 mm longa*.

**Herbs** 6–15 cm tall, slender. Petiole green but grayish purple at very base, unwinged; leaf blade mid-green, narrowly oblancoate in outline, 3–9 × 0.8–1.9 cm, sparsely arachnoid, usually pinnatisect but sometimes almost undivided, midvein usually pale green; lateral lobes 3–7 pairs, usually linear-angular, to 9 mm, subpatent to recurved, distal margin usually sigmoid and entire; interlobes usually short, narrow; terminal lobe narrowly triangular-sagittate, terminal segment often elongated and 2–2.5 cm and margin entire. Scapes pale brownish green, equaling to overtopping leaves, usually densely arachnoid. Capitulum 2–4 cm wide. Involucre 5–6 mm wide, base obconic. Outer phyllaries 10–16, green to blackish green, ± not imbricate, linear to linear-triangular with attenuate apex, outermost ones 3.5–6.5 × 0.7–1.2 mm and 1/3–2/5 as long as inner ones, ± appressed, some recurved at apex, ± unbudded or indistinctly bordered, margin densely ciliate, apex ± flat to callose; inner phyllaries 1.1–1.5 cm, apex ± flat. Ligules (pale) yellow; outer ligules ± flat, outside striped grayish pink; inner ligules with long teeth grayish purple at apex. Stigmas green. Anthers polliniferous; pollen grains regular in size. Achene pale brown to blackish brown, 4.8–5.2 × 1.1–1.4 mm; body usually ± smooth below, distally with erect acute subsparsely spinules, ± abruptly narrowing into a cylindric 1.2–1.9 mm cone; beak ca. 7 mm. Pappus yellowish white, ca. 5 mm. Fl. summer. Sexual.

Alpine meadows and grasslands; 3200–4500 m. W Sichuan.

*Taraxacum macula* is another sexual representative of *T. sect. Emodenia*. It is distinct in having an unusually long cylindrical cone; outer phyllaries very narrow, distally attenuate, and densely ciliate; and, as a rule, distinctly pinnatisect leaves.
56. Taraxacum sikkimense Handel-Mazzetti, Monogr. Taraxacum, 103. 1907.

锡金蒲公英  xi jin pu gong ying

Type: India. Sikkim: “Lachen,” 12,000 ft, Jul 16/18[49], J. D. Hooker s.n. (lectotype, designated here: K, no. det. 8783).

Herbs (2.5–)6–10(–12) cm tall. Petiole usually purplish, unwinged; leaf blade ± mid-green, narrowly oblong-lanceolate in outline, 2.5–8(–12) × 0.9–1.5 cm, ± sparsely arachnoid, pinnatisect, midvein usually purplish; lateral lobes 3 or 4 pairs, narrowly triangular, strongly recurved, proximal margin ± straight and entire, distal margin at base straight or convex and entire, apex subacute to obtuse; interlobes long, narrow; terminal lobes narrowly triangular-sagittate or almost 3-partite, margin entire, apex often obtuse. Scapes brownish green, ± equaling leaves, arachnoid. Capitulum 2–3 cm wide. Involucre 0.9–1.2 cm wide, base narrowly rounded. Outer phyllaries 13–19, ± blackish green, subimbricate, linear-triangular to linear-lanceolate, outermost ones 4.5–6 × 1–1.3(–2) mm and 1/3–1/2 as long as inner ones, ± subglabrous, with a whitish to pinkish 0.2–0.3 mm bordered gradual transition into a dark middle band, ± flat or callose below apex; inner phyllaries black-green, 1.1–1.4 cm, apex ± flat. Outer ligules whitish to whitish yellow, ± flat, outside striped purplish; inner ligules pale yellow. Stigmas blackish to dark grayish green. Anthers polliniferous; pollen grains irregular in size. Acene deep red, 4.5–4.8 × 1–1.1 mm; body ± smooth below, distally densely spinulose, ± abruptly narrowing into a cylindric 1–1.3 mm cone, spinules suberect and acute; beak 5–6 mm. Pappus white to slightly yellowish white, ca. 6 mm. Fl. summer. Agamosperm.

Alpine grasslands; 3800–5000 m. Xizang [India (Sikkim), Nepal].

Taraxacum sikkimense is also reported from Qinghai, Sichuan, and Yunnan (FRPS 80(2): 58. 1999; Higher Pl. China 11: 783. 2005), but more evidence is needed.


蒙古蒲公英组  meng gu pu gong ying zu


Plant base whitish arachnoid. Middle leaves usually arachnoid. Petiole unwinged to narrowly winged; leaf blade deeply lobed. Scapes usually arachnoid. Capitulum pointing upward after anthesis. Involucre base rounded. Outer phyllaries 9–17, light green or green, imbricate or not so, linear-lanceolate to ovate, appressed or loosely appressed to erect, usually with distinct venation, almost unbordered or pale bordered, margin usually densely ciliate. Ligules light yellow, yellow, or rarely white. Achene usually pale grayish straw-colored brown, deep brown, straw-colored olivaceous, or rarely reddish, 4–6 × (0.9–)1.1–1.4(–2) mm; body frequently spinulose and tuberculate throughout, usually densely spinulose and squamulose in upper 1/5–1/3, gradually to subapically narrowing into a subcylindric to less often subconic 0.7–1.5 mm cone; beak 6–10 mm, thin. Pappus white or yellowish, (4–)6–8 mm.

About 45 species: centered in Japan and NE China; 11 species (nine endemic) in China.

A number of specific names, based on specimens from China belonging to this section, remain unclear.

The names Taraxacum mongolicum var. caninum G. Jacot, T. mongolicum var. laeve G. Jacot, and T. duplex G. Jacot are based on the material collected by G. Jacot in 1927–1928 in “Tsinan” (now Jinan) in Shandong and originally deposited at SCU, later to be transferred to JSPC. The material, however, was destroyed, probably during WWII, and is not extant. Obvious lectotypes for the names are achene figures 1a, 1b, and 1c, respectively (G. Jacot, J. N. China Branch Roy. Asiat. Soc. 61: pl. 1. 1930). As this problem requires further study, the names remain uninterpreted in the present treatment.

Taraxacum ohwianum Kitamura, described from N Korea, was several times reported to occur in China (e.g., FRPS 80(2): 43. 1999). The holotype, depicted in Kitamura (Mem. Coll. Sci. Kyoto Imp. Univ., Ser. B, Biol. 24: pl. III, f. 4. 1957) is no longer extant, and we have to rely on the present treatment.

The names Taraxacum antungense Kitagawa (J. Jap. Bot. 22: 173. 1948), T. argutedenticulatum Nakai & Koidzumi (Bot. Mag. (Tokyo) 50: 142. 1936), T. falcilobum Kitagawa (Rep. Inst. Sci. Res. Manchoukuo 2: 312. 1938), T. glaucanthum Nakai & Koidzumi (Bot. Mag. (Tokyo) 50: 91. 1936, not (Ledebour) Candolle, 1838), T. hangchouense Nakai & Koidzumi (Bot. Mag. (Tokyo) 50: 144. 1936), T. honkai Nakai & Koidzumi (Bot. Mag. (Tokyo) 50: 143. 1936), T. mongolicum var. laeve G. Jacot, and T. urbanum Kitagawa (J. Jap. Bot. 22: 174. 1948) are all based on the material from China collected in the 1930s by Japanese botanists. In spite of a great effort of curators of TI and KYO, and the well-documented type material of H. Koidzumi in TNS, the type material for these names was not found in the collections. All these names, according to their protologues, probably belong to T. sect. Mongolica. As the original material is missing, and the protologue descriptions are not satisfactorily informative, we leave these names for further investigation.

1a. Ligules white or very pale whitish yellow ................................................................. 61. T. coreanum
1b. Ligules of other colors.

2a. Ligules conspicuously orange-colored ................................................................. 65. T. aurantiacum
2b. Ligules yellow.

3a. Achene reddish brown to light red ....................................................................... 63. T. junpeianum
3b. Achene of other colors, usually light straw-colored brown to deep brown.

4a. Outer ligules completely tubular ................................................................. 64. T. siphonanthum

4b. Outer ligules flat to canaliculate.

5a. Outer phyllaries ovate to broadly lanceolate.

6a. Achene 0.9–1 mm thick, body gradually narrowing into a thin cylindric cone; outer phyllaries ± imbricate .................................................................................. 62. T. albomarginatum

6b. Achene 1.1–1.3 mm thick, body abruptly narrowing into a thick or medium-thick conic to subcylindric cone; outer phyllaries ± not imbricate.

7a. Outer phyllaries 12–15; leaf interlobes with a distinct brownish purple spot, filiform dentate to lobulate .................................................................................. 66. T. variegatum

7b. Outer phyllaries 8–12; leaf interlobes green, unspotted, subentire or remotely dentate, not lobulate ................................................................................. 67. T. lamprolepis

5b. Outer phyllaries linear-lanceolate to narrowly lanceolate.

8a. Achene light (yellowish) straw-colored brown; achene body ± abruptly narrowing into cone .................................................................................................. 66. T. variegatum

8b. Achene mid-brown, deep brown, or grayish brown; achene body gradually narrowing into cone.

9a. Pollen grains regular in size (plants sexual); pappus 4–5 mm ................................ 57. T. formosanum

9b. Pollen grains irregular in size; pappus 5–10 mm.

10a. Outer phyllaries 9–15; stigmas pale green ................................................ 58. T. mongolicum

10b. Outer phyllaries 15–20; stigmas dark.

11a. Achene deep pure brown; achene body 1.3–1.4 mm thick, cone 0.9–1.2 mm ......................................................................................................................... 59. T. liaotungense

11b. Achene grayish brown; achene body 1.1–1.3 mm thick, cone 1.1–1.5 mm ......................................................................................................................... 60. T. erythropodium


台湾蒲公英 tai wan pu gong ying

Herbs 8–15 cm tall. Leaves numerous, prostrate to erect-patent; petiole narrow; leaf blade grayish green, narrowly ob-lanceolate to linear, 6–18 × 1–3 cm, almost glabrous, pinnati-lobed to pinnatisect; lateral lobes 3–5 pairs, broadly triangular, often with obtuse broad tooth on apical margin; interlobes broad, margin entire; terminal lobe triangular to helmet-shaped, 1.5–3 × 1–2 cm, often pentagonal, apex rounded to subobtuse. Scapes brownish green, equaling to slightly overtopping leaves, scattered arachnoid. Capitulum ca. 3 cm wide. Involucre pale green, 6–8 mm wide, base ± rounded. Outer phyllaries 13–15, mid-green, ± imbricate, linear-lanceolate to narrowly lanceolate, outermost ones 4.5–6 × 0.8–1.5 mm and 1/3–2/5 as long as inner ones, loosely appressed, distinctly veined, border indistinct, paler green to membranous, and to 0.2 mm wide, margin ± glabrous, apex with a green or purplish thick horn to 1 mm; inner phyllaries 1.1–1.3 cm, apex corniculate. Ligules yellow; outer ligules outside striped blackish purple; inner ligules with blackish apical teeth. Stigmas pale green to ± yellow. Anthers polliniferous; pollen grains regular in size. Achene brown, ca. 4 × 1–1.2 mm; body tuberculate throughout, apically tuberculate-squamosulate, gradually narrowing into a subcylindric 0.8–1 mm cone; beak 7–10 mm. Pappus white, 4–5 mm. Fl. Mar–Apr. Sexual. 2n = 16*.

- Seashore dunes, open ruderal places; below 200 m. Taiwan.

This species was also reported from Liaoning (Kitagawa, Bot. Mag. (Tokyo) 47: 830–831. 1933), but the material belongs to other species.


蒙古蒲公英 meng gu pu gong ying

Herbs 8–25 cm. Petiole usually narrow; leaf blade mid-green, oblongulate, 6–15 × 2–3.5 cm, subglabrous to sparsely arachnoid, pinnati-lobed, pinnatisect, or rarely undivided; lateral lobes 3 or 4 pairs, broadly triangular, obtusely deltoid, or broadly linear, patent to recurved, distal margin sparsely dentate or entire, apex obtuse; interlobes broad, sometimes spotted dark purple, margin entire to sparsely dentate; terminal lobe broadly triangular, apex broadly obtuse. Scapes single or rarely branched with an ascending side scape, brownish green, equaling to slightly overtopping leaves, scattered arachnoid but densely arachnoid below capitulum. Capitulum 3–4 cm wide. Involucre mid-green, 1–1.2 cm wide, base ± rounded. Outer phyllaries 9–15, mid-green to pale green, ± not imbricate, linear-lanceolate to narrowly lanceolate, outermost ones 6–9 × 0.8–2.5 mm and ca. 1/2 as long as inner ones, loosely appressed, distinctly veined, border indistinct, paler green to membranous, often suffused pink, and 0.1–0.3 mm wide, margin ± densely ciliate, apex with a green or purplish thick horn to 1.5 mm; inner phyllaries 1.1–1.5 cm, apex flat to corniculate. Ligules yellow; outer ligules outside striped grayish purple; inner ligules with blackish to purple apical teeth. Stigmas pale green. Anthers polliniferous; pollen grains irregular in size. Achene ± brown to grayish brown, 4.2–4.6 × 1.1–1.3 mm; body tuberculate throughout, apically densely tuberculate-squamosulate, gradually narrowing into a subconic 1–1.2 mm cone; beak 7–10 mm. Pappus yellowish, ca. 6 mm. Fl. spring, occasionally also to late summer. Agamosperm. 2n = 24*.

- Abandoned fields, grasslands, along paths and roads; 800–2000(–2800) m. Anhui, Fujian, Guangdong, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangsu, Jilin, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Xizang, Zhejiang.
The stated distribution of *Taraxacum mongolicum* is based on the report in FRPS (80(2): 34, 1999), but material has not been revised and can only be confirmed for Hebei, Shanxi, Sichuan, and Xizang. However, the reported occurrences in Gansu, Qinghai, Taiwan, and Yunnan are improbable, and material under that name in herbaria from these provinces belongs to other taxa.

For *Taraxacum mongolicum* var. caninum and *T. mongolicum* var. laeve see the discussion of *T. sect. Mongolica*, above.


辽东蒲公英 liao dong pu gong ying

*Taraxacum liaotungense* f. lobulatum Kitagawa.

Herbs 10–15 cm tall. Petiole ± green, arachnoid at base, winged in most leaves but unwinged in inner ones; leaf blade slightly grayish mid-green with a light green midvein, linear-oblancculate, 7–10 × 1–1.5 cm, sparsely arachnoid, pinnatifid to pinnatisect; lateral lobes (4 or) 5 or 6(or 7) pairs, ± triangular to oblong-triangular, 4–8 mm, sometimes from broad base abruptly narrowed into a lingulate distal part, recurved or sub-patent, proximal margin entire, distal margin straight to ± concave and entire or with a single tooth; interlobes sometimes faintly spotted light brownish pink, 3–8 × 2–3 mm, margin entire or with a few unequal teeth or lobules; terminal lobe narrowly to narrowly helmet-shaped or 3-partite, distinctly developed, 1–2.3 × 0.8–1.5 cm, distal margin often dentate or incised, apex subacute to acute. Scapes brownish green, subequealing leaves, arachnoid. Capitulum ca. 2.5 cm wide. Involucre 7–8 mm wide, base ± rounded. Outer phyllaries 15–19, mid-green to light green with darker middle part and a gradual transition into a whitish border, ± not imbricate, linear-lanceolate to narrowly lanceolate, outermost ones 6–7 × 1.7–2 mm and ca. 1/2 as long as inner ones, ± appressed, margin sparsely ciliate or glabrous, apex with a blackish purple thick horn to 1.5 mm; inner phyllaries 1–1.1 cm, apex corniculate. Ligules yellow; outer ligules flat, outside striped dark gray. Stigmas dark. Anthers polliniferous; pollen grains irregular in size. Achene grayish brown, 4.9–5.4 × 1.1–1.3 mm; body densely tuberculate throughout, apically densely tuberculate-squamulose, coarsely spinulose on ridges, very gradually narrowing into a narrowly conic 1.1–1.5 mm cone; beak 5–9 mm. Pappus brownish white, ca. 7 mm. Fl. spring. Agamosperm.

- Roadsides, grasslands; 100–400 m. Jilin, Liaoning.

*Taraxacum erythropodium* is very close to *T. liaotungense*. Most of the differences are found in achenes (color, thickness, length of cone) and also leaf coloration.


朝鲜蒲公英 chao xian pu gong ying

*Taraxacum pseudoalbidum* Kitagawa; *T. pseudoalbidum* var. *lutescens* Kitagawa.

Herbs 20–25 cm tall. Petiole suffused purplish or ± green, whitish brown arachnoid above, ± winged; leaf blade mid-green and often ± suffused purplish, ± linear-oblancculate, 13–20 × (2–) 2.5–3.5 cm, sparsely arachnoid, deeply pinnatisect; lateral lobes (3 or) 4–6, usually linear-deltoid to linear-triangular, patent, margin subentire to minutely dentate in outer leaves but dentate and often lobulate in middle and inner ones; lobules also patent, margin sometimes dentate, apex acute to lingulate; interlobes winged, margin dentate-lobulate or rarely entire; terminal lobe flat rhombic to flat triangular, basal segments ± triangular, acute. Scapes brownish green to purplish, ± equaling leaves, arachnoid below and densely arachnoid-lanate below capitulum. Capitulum 2.5–3.5 cm wide. Involucre light green, 0.9–1.1 cm wide, base narrowly rounded. Outer phyllaries 10–12, light green to green, ± not imbricate, ± lanceolate, narrowly ovate, or sometimes to ovate, outermost ones 7–9 × 2.2–3.6 mm and 1/2–3/5 as long as inner ones, loosely appressed, distinctly veined, border not very distinct, ± membranous, to 0.5 mm wide, and sometimes suffused pink near apex, margin ciliate to sparsely so in apical part, with a dark ca. 1 mm horn near apex; inner phyllaries 1.3–1.6 cm, apex callose to corniculate. Ligules white or very pale whitish yellow; outer ligules outside ± pinkish and on both surfaces striped purplish gray; inner ligules with blackish apical teeth. Stigmas deep grayish green. Anthers polliniferous; pollen grains irregular in size. Achene ± straw-
colored brown to light brown, 5.6–6 × 1.4–1.6 mm; body tuberculate or minutely squamulose below, densely squamulose and spinulose in upper 1/5–1/3, subgradually narrowing into a subcylindric 1–1.4 mm cone; beak 8–9 mm. Pappus yellowish, ca. 7 mm. Fl. late spring and summer. Agamosperm. 2n = 32.

Grasslands, roadsides; below 100–500 m. Liaoning [N Korea].

**Taraxacum coreanum** is also reported from Hebei, Heilongjiang, and Jilin (FRPS 80(2): 35, 1999; Higher Pl. China 11: 775. 2005), but a revision of the material is needed.

### 62. Taraxacum albomarginatum

_Nakai ex Koidzumi._

Herbs 15–23 cm tall. Petiole reddish to green with a green to pinkish midvein, arachnoid, winged in outer leaves but narrow in innermost ones; leaf blade deep green, broadly oblancoate, 10–15 × 3–5 cm, ± arachnoid, pinnatilobed to pinnatisect; lateral lobes usually 3–5, short and broad in outer leaves, triangular to deltoid in middle ones, and linear-triangular in inner ones, ± patent to subrecurved, on proximal and distal sides usually dentate; interlobes broad and dentate-lobulate but narrow in inner leaves; terminal lobe broadly flat-triangular or reduced to 3 teeth at apex of almost undivided leaves, margin often minutely dentate, acute and on inner leaves dentate. Scapes brownish green, floccose-arachnoid but densely so below capitulum. capitulum 3–4 cm wide. involucre 1.1–1.2 cm wide, base rounded to slightly truncate. outer phyllaries 11–16, slightly imbricate, ovate, outermost ones 5.5–8(–9) × 3–5 mm and 2/5–1/2 as long as inner ones, appressed, surface with visible but not conspicuous venation, middle part dark green and 2/5–1/2 as long as inner ones, appressed, surface with a distinct venation, with an indistinct paler membranous whitish green border to 1 mm wide, margin subglabrous, coriaceous near apex; inner phyllaries 1.3–1.4 cm. ligules yellow; outer ligules ± flat, margin subglabrous, corniculate near apex; inner phyllaries 1.4–1.7 cm, callose to flat near apex. Ligules yellow; outer ligules ± flat, outside broadly striped grayish green; inner ligules with grayish apical teeth; floret tube pubescent. stigmas grayish green. Anthers polliniferous; pollen irregular in size. achene reddish brown to light red, (3.4–)3.6–4(–4.2) × 0.7–0.9 mm; body spinulose above, subgradually narrowing into a thin cylindric 0.7–0.8 mm cone, spinules ± erect-patent and acute; beak 8–9 mm. Pappus yellowish white, 5–6 mm. Fl. spring. Agamosperm.

- Grasslands; ca. 300 m. Jilin.

The sectional position of *Taraxacum junpeianum* is rather uncertain. The characters of outer phyllaries point to _T_. sect. *Mongolica*, but achene traits are outside the generally accepted limits of the section. In any case, the character combination is unique, and the name cannot be equated with any related taxon of _T_. *Mongolica* as was done in FRPS (80(2): 44. 1999).

### 64. Taraxacum siphonanthum

_X. D. Sun, X. J. Ge, Kirschner & Štěpánek, Folia Geobot. 36: 210. 2001._

花蒲公英 _guan hua pu gong ying_

Herbs 10–20 cm tall. Petiole green or suffused pinkish, narrowly winged; leaf blade deep green to slightly grayish dark green, ± oblancoate, 8–13 × 2.5–3.5 cm, subglabrous to sparsely arachnoid, pinnatifid to pinnatisect; lateral lobes 4–6, triangular to narrowly triangular, patent, margin entire or with a few minute teeth near base of distal side; interlobes short, ca. 5 mm wide, margin entire; terminal lobe triangular to 3-partite, short, margin entire, apex acute. Scapes brownish green, overtopping leaves, arachnoid below capitulum but later often glabrescent. capitulum 2–3 cm wide. involucre 0.9–1.1 cm wide, base subconic to ± narrowly rounded. outer phyllaries 9–12, green with midvein or middle part blackish green, not imbricate, ovate to narrowly ovate, outermost ones 5–7.5 × 2.2–3 mm and 2/5–1/2 as long as inner ones, ± appressed, surface with a distinct venation, border paler, membranous-whitish green, and usually 0.4–0.6 mm wide, margin glabrous or sparsely ciliate, with a near apex coriaceous or with a horn; inner phyllaries 1.4–1.7 cm, apex coriaceous or with a horn. Ligules yellow; outer ligules completely tubular, not striped; inner ligules completely tubular, with darker apical teeth; ligule tube pubescent. Stigmas pale brownish yellow, not exserted. Anthers polliniferous; pollen grains irregular in size. achene light grayish to pale brownish, 5.2–5.7 × ca. 1 mm; body ± smooth below, subdensely spinulose above, subgradually narrowing into a thin cylindric ca. 1 mm cone, spinules long, ± erect-patent, and acute; beak 8–10 mm. Pappus white, 7–8 mm. Fl. late spring. Agamosperm.

- Open woodlands with _Populus davidiana, Betula mongolica_, and _Spiraea spp._; 800–1200 m. N. Mongolia.
In regards to structural differences, *Taraxacum siphonanthum* does not deviate from the pattern observed in other sections of the genus, and its recognition as a separate genus is not justified.


*Jui Huang Pu Gong Ying*—ju huang pu gong ying

Herbs 8–20 cm tall. Petiole purple on midvein or green, winged to narrowly winged in outer and middle leaves and unwinged in inner ones, base densely arachnoid; leaf blade glaucous-green and with a purplish or green midvein, narrowly elliptic to narrowly oblanceolate, 6–12 × 1.5–2.5 cm, arachnoid, ± pinnatisect or rarely outer leaves undivided; lateral lobes 3 or 4 pairs, triangular to narrowly triangular, recurved to subcurved but distal part sometimes patent, apex acute, proximal margin entire or with a few teeth, distal margin usually sigmoid to ± straight and most often entire but sometimes with 1 or 2 acute teeth; interlobes spotted dark brownish purple, 3–5 × 3–4 mm, margin irregularly dentate; terminal lobe narrowly triangular to linguately elongated, distal margin concave or sigmoid and usually entire, apex acute. Scapes purplish green, equaling to overtopping leaves, densely arachnoid to almost tomentose. Capitulum 3–4(–5) cm wide. Involucre light olive green, ca. 1 cm wide, base ± rounded. Outer phyllaries 13–17, light olive green, ± not imbricate, narrowly lanceolate to linear-lanceolate, outermost ones 6–7 × (1.5–)2–3 mm and ca. 2/3 as long as inner ones, erect but distal part often erect-arcuate, distinctly veined, border not distinct, suffused brownish purple or membranous, and 0.1–0.3 mm wide, margin ± long ciliate, apex with purplish brown horn; inner phyllaries 1.1–1.3 cm, apex dark corniculate. Ligules orange; outer ligules flat, outside striped faintly brownish purple; inner ligules with dark brownish purple apical teeth. Stigmas dark (brownish) purplish. Anthers without pollen. Achene light (yellowish) straw-colored brown, (4–)4.1–4.4(–4.6) × 1.1–1.3 mm; body densely spinulose-squamulose throughout or only in upper ca. 1/2 and then other parts ± rugose, ± abruptly narrowing into a subconic (0.7–)0.8–0.9(–1) × 0.3–0.4 mm cone, spines or squamules short; beak 8–9.5 mm, thin. Pappus yellowish white, 5–6 mm. Fl. spring. Agamosperm.

● Grasslands, roadsides; below 100–400 m. Jilin, Liaoning.


*Guang Bao Pu Gong Ying*—guang bao pu gong ying

Herbs 7–18 cm tall. Petiole purplish, narrowly winged or (in inner leaves) unwinged; leaf blade mid-green, narrowly oblong, 7–15(–18) × 0.8–3.5 cm, sparsely arachnoid, pinnatisect; lateral lobes 4–6(7) pairs, narrowly triangular, linear-triangular, or seldom ± linear, usually 9–17 × 2.5–7 mm, recurved, proximal margin straight and usually entire, distal margin ± straight and entire or with 1–3 teeth; interlobes narrow, margin most often remotely dentate; terminal lobe narrowly triangular-sagittate or ± triangular, usually elongated, with 1 or 2 irregular lobules or incisions, apex acute. Scapes purplish green, equaling or ± overtopping leaves, sparsely arachnoid. Capitulum 3–4 cm wide. Involucre 8–10 mm wide, base ± narrowly rounded. Outer phyllaries 8–12, dark or deep green but sometimes light green or blackish green, ± not imbricate, broadly lanceolate to ovate, outermost ones (6–)7–9(–10) × 2.5–4 mm and 1/2–3/5 as long as inner ones, ± loosely appressed but later often erect-patent, venation often prominent and midvein dark, border paler, light green to whitish green but often suffused purplish, 0.3–1 mm wide, membranous, and with a gradual transition to darker middle part, margin sparsely ciliate near apex, apex ± flat in early capitula but with a thick horn in later ones; inner phyllaries 1.4–1.7 cm, apex ± flat. Ligules yellow; outer ligules flat, outside striped dark gray. Stigmas deep dirty yellow to grayish yellow. Anthers polliniferous; pollen grains irregular.
in size. Achene ± light straw-colored, 3.7–4.2 × 1.2–1.3 mm; body densely spinulose in upper ca. 1/3, abruptly narrowing into a conic to subcylindric 0.5–0.8 mm cone, spinules short, thin, erect-patent to sometimes patent, and acute; beak 8–9 mm, thin. Pappus yellowish white, 6–8 mm. Fl. spring. Agamosperm.

- Hill slopes, fields; 100–300 m. Jilin.

_Taraxacum lamprolepis_ was described from Jilin. FRPS (80): 19. 1999 reported it from Heilongjiang, Liaoning, and E Nei Mongol, but re-examination of the material is needed.

In the original description _Taraxacum lamprolepis_ is compared with _T. sinicum_, but in FRPS (80): 19. 1999 _T. lamprolepis_ is included in _T_. sect. _Sinensis_, corresponding in this conception to our _T_. sect. _Stenoloba_. Neither the achene features nor outer phyllaries point to _T_. sect. _Stenoloba_. The large thick horns developing on outer phyllaries of a few young flowering capitula, reticulate venation of outer phyllaries, relatively thick achenes, and outer phyllary shape all place this taxon in _T_. sect. _Mongolica_.


塔状蒲公英组 ta zhuang pu gong ying zu

Type: _Taraxacum turritum_ Kirschner & Štěpáněk.

_Plantae agamospermae subserotinae, plerumque altae, turritae, foliis erectis, rectis, subcoriaceis, pinnatisectis, lobis laterialisbus et lobo terminali acuminatis, petiolis anguste alatis, capitulis magnis, phyllariis involucralibus exterioribus numerosis (15 ad 25), angustis, lineari-lanceolatis usque lanceolatis, suberectis usque arcuato-patentibus, olivaceo-viridibus, anguste indistincte marginatis, obscure calloso vel corniculatis, ligulis luteis, tubo florescularum pubescente, acheniis pallide stramineo-brunneis vel pal-

2a. Achene 5.3–5.6 mm, cone 1.3–1.6 mm ................................................................. 69. _T_. celsum
2b. Achene 4.2–4.4 mm, cone ca. 1 mm ........................................................................ 70. _T_. orientale

About six species: C Asia to China; three species (all endemic) in China.

1a. Pollen absent .................................................................................................................. 68. _T_. turritum
1b. Pollen present.

68. _Taraxacum turritum_ Kirschner & Štěpáněk, sp. nov.

塔状蒲公英 ta zhuang pu gong ying


_Plantae agamospermae, robustae, foliis ± subcoriaceis, plerumque pinnatisectis, lobis lateralisbus numerosis, lineari-triangulatius vel linearius, lobo terminali acuminato, phyllariis involucralibus exterioribus 18 ad 20, angustis, lineari-lanceolatis, erecto-arcuatis usque arcuato-patentibus, ecorniculatis, stigmatibus luteo-viridibus, antheris polline carentibus, achenis griseo-stramineis, sensim vel subabrupte in pyramidem angustam subcylindricam (1–)1.2–2.2 mm longam transiente, rostro 0.8–1.2 cm, pappo albito-lutescente 7–8 mm longo._

Plants usually tall. Leaves erect, straight, subleathery; petiole usually narrowly winged; leaf blade narrow, pinnatisect; lateral and terminal lobes usually acuminate at apex. Capitulum large. Outer phyllaries 15–25, linear-lanceolate to lanceolate, narrow, from suberect to arcuate-patent (of almost evenly “echinate” appearance), olivaceous green, indistinctly narrowly bordered, apex dark callose to less often corniculate. Ligules yellow; floret tube pubescent. Achenes light grayish straw-colored brown to light olivaceous brown, (4–)5–6.1 × 1–1.3 mm; body sparsely to densely spinulose and/or squamulose in upper ca. 1/3, gradually to subabruptly narrowing into a ± thin subcylindric (1–)1.2–2.2 mm cone; beak 0.8–1.2 cm, thin. Pappus yellowish white to light brownish white, 7–8 mm. Agamosperms.

Herbs 15–22 cm tall, usually robust. Petiole pinkish, broadly to narrowly winged; leaf blade light mid-green, ± ob lanceolate to linear-oblanccolate, 11–22 × 2–3.5 cm, ± subleathery, sparsely to ± densely arachnoid, usually pinnatisect; midvein usually pinkish near base otherwise pale green; lateral lobes 6 or 7(–9), to 1.8 cm, from ca. 0.8 cm wide at base narrowing into linear or linear-triangular acute distal part, usually ± patent, proximal margin ± straight and entire, distal margin concave and usually with a distinct basal lobe and/or a few teeth; interlobes 3–5 mm wide, margin sparsely dentate; terminal lobe ± narrowly triangular, 1.5–2.5 × ca. 1.5 cm, basal segments patent to subrecurved or ± curved upward, terminal with distal margin concave or straight and usually entire and apex acuminate. Scapes light green but light pinkish at base, ± equaling
leaves, ± densely arachnoid. Capitulum 3.5–4.5 cm wide. Involucre 8–10 mm wide, base broadly obconic. Outer phyllaries 18–20, dark brownish green, narrowly lanceolate to linear-lanceolate, outermost ones 7–9 × 2–3 mm and 2.3/4–5.4 as long as inner ones, variously erect-arcuate to arcuate-patent but ± patent after anthesis, border paler membranous and 0.1–0.2 mm wide, margin sparsely ciliate and often remotely serrulate, apex dark callose; inner phyllaries 1.2–1.3 cm, apex ± flat. Ligules deep yellow; outer ligules ± flat, outside striped distinctly grayish green; inner ligules with yellow apical teeth. Stigmas grayish yellowish green. Anthers without pollen. Achene grayish straw-colored brown, 5.3–5.6 × 1–1.3 mm; body ± densely spinulose in upper ca. 1/3, sub abruptly narrowing into a sub-cylindrical 1.3–1.6 mm cone, spinules long, thin, ± suberect; beak ca. 1 cm. Pappus dirty white, 7–8 mm. Fl. late spring. Agamosperm.

- Grazed alpine meadows, margins of Abies forests; 3200–4300 m. NW Yunnan.

69. Taraxacum celsum Kirchn & Štěpánek, sp. nov.


Plantae agamospermae altae, foliis erectis subcoriaceis pinnatisectis, lobis lateralis plumereus sursum curvatis, parte distali lingulatis, acutis, lobis terminalis vulgo mucronulato, scapis dense araneosis, calathis usque ad 5 cm latis, saturea latefoliis, phyllariis involucratis exterioribus 20 ad 25, lanceolatis vel anguste lanceolatis, phyllariis interioribus fere aequilongis, apice arcuatis usque arcuato-recurvatis, callosis usque cornutis, stigmatibus luteo-viridibus, antheris polliniferis, achenis griseo-stramineis, eximie longis, corpinus dense araneosus, in pyramidem subcylindricam ca. 1.3–1.6 mm longam sub abrupte aequilongis.

Herbs 25–35 cm tall, robust. Petiole purple, broadly winged in outer leaves but almost unwinged in inner ones; leaf blade light bright green and usually with a pale grayish pink midvein, ± narrowly oblongate to linear-lanceolate, 15–25 × 3.5–4.5 cm, subleathery, sparsely to ± densely arachnoid, pinnatisect; lateral lobes 4 or 5 (or 6), ca. 2 cm, from ca. 1 cm wide abruptly narrowing into a lingulate acute distal part, usually conspicuously pointing upward but less often ± patent, proximal margin ± straight, distal margin sigmoid, dentate, and incised; interlobes to 2 cm, margin sparsely dentate, teeth long and narrow; terminal lobe ± broadly triangular to deltoid, 1.5–2(–3.5) × 2–3.5 cm, basal segments patent to curved upward, terminal segment with distal margin concave and entire and apex acute and submucronate. Scapes light green but purplish at base, overtopping leaves, densely arachnoid. Capitulum ca. 3 cm wide. Involucre 8–10 mm wide, base broadly obconic to flat. Outer phyllaries 15–19, dark olivaceous green but later adaxially often brownish purple, lanceolate to narrowly lanceolate, outermost ones 6–9 × 2–3 mm and 2/5–1/2 as long as inner ones, of various posture from suberect-arcuate to arcuate-recurved, paler border indistinct, margin glabrous, apex often callose; inner phyllaries 1.2–1.3 cm. Ligules deep yellow; outer ligules ± flat, outside striped light grayish pink; inner ligules with reddish or yellow apical teeth. Stigmas greenish dirty yellow. Anthers polliniferous, striped brownish red on edges; pollen grains irregular in size. Achene grayish straw-colored brown, 4.2–4.4 mm longis, corpinus dense araneosus, pyramidem ± cylindricum ca. 1.5 mm longum ± abrupte transiente.

- Mountain meadows; 3100–3300 m. W Sichuan.

70. Taraxacum orientale Kirschner & Štěpánek, sp. nov.


Plantae agamospermae, mediocres, foliis pinnatilobis usque pinnatisectis, lobis lateralis triangularibus, lobo terminali anguste triangulari, petiolis anguste alatis, phyllariis involucratis exterioribus 15 ad 19, lanceolatis vel anguste lanceolatis, suberecto-arcuatis usque arcuato-recurvatis, immarginatis, ecorcinolatis, stigmatibus luteo-viridibus, antheris polliniferis, achenis griseo-stramineis, 4.2–4.4 mm longis, corpinus dense araneosus, in pyramidem ± cylindricum ca. 1.5 mm longum ± abrupte transiente.

Herbs 15–25 cm tall, medium-sized. Petiole dark purple, narrowly winged; leaf blade light green, linear-oblong to ± narrowly oblongate, 8–20 × 2–4 cm, ± subleathery, sparsely arachnoid, pinnatifolobed on outer leaves to pinnatisect in middle ones, midvein usually brownish purple but distally often light green; lateral lobes (3–)5–7, triangular and distally ± abruptly narrowing into a narrow acute apex, small, subrecurved or less often ± patent, proximal margin straight and entire, distal margin sigmoid and usually entire but sometimes dentate; interlobes short and broad, margin usually entire; terminal lobe ± narrowly triangular, (1–)1.5–2.3(–3.5) × 1–1.5 cm, basal segments patent to subrecurved and apex acuminate, terminal segment with distal margin sigmoid and entire or with a few asymmetric teeth and apex acute to acuminate. Scapes light green but later brownish, often pinkish at base, overtopping leaves, arachnoid but glabrescent. Capitulum ca. 3 cm wide. Involucre 8–10 mm wide, base broadly obconic to flat. Outer phyllaries 15–19, dark olivaceous green but later adaxially often brownish purple, lanceolate to narrowly lanceolate, outermost ones 6–9 × 2–3 mm and 2/5–1/2 as long as inner ones, of various posture from suberect-arcuate to arcuate-recurved, paler border indistinct, margin glabrous, apex often callose; inner phyllaries 1.2–1.3 cm. Ligules deep yellow; outer ligules ± flat, outside striped purplish grayish brown; inner ligules with reddish or yellow apical teeth. Stigmas yellowish green. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 4.2–4.4 × 1–1.2 mm; body densely spinulose in upper ca. 1/3, ± abruptly narrowing into a thin ± cylindric ca. 1 mm cone, spinules ± long; beak 8–9 mm. Pappus ± white, ca. 7 mm. Fl. late spring. Agamosperm.

- Moist alpine meadows; ca. 3500 m. W Sichuan.

Plants medium-sized. Leaves light green to deep green, arachnoid, not thickened; petiole usually purplish or pinkish, usually broadly to narrowly winged but in inner leaves sometimes unwinged; leaf blade usually pinnatisect; lateral lobes usually triangular, subrecurved. Outer phyllaries usually 13–19, ovate, broadly ovate, or sometimes ovate-lanceolate, usually appressed, loosely appressed erect, or ± erect-patent, venation distinct or not clearly visible, border narrow to broad, apex usually flat or sometimes corniculate. Ligules yellow; ligule tube pubescent with straight hairs. Achene greyish straw-colored brown, 3.6–5 × 0.9–1.2 mm; body often with prominent lateral ridges (narrowly winged), densely shortly spinulose above, abruptly to almost gradually narrowing into a conic to subcylindric 0.4–0.8(–1.1) mm cone; beak usually 6–10 mm, thin. Pappus white or yellowish white.

About 35 species: centered in C Asia; 20 species (19 endemic) in China.

The sectional type, *Taraxacum qaiseri* Abedin from Pakistan, is based on a single, imperfectly prepared and preserved specimen, and it is difficult to interpret the section on this basis. The members of *T.* sect. *Qaisera*, as understood here, are superficially similar to those of *T.* sect. *Taraxacum* but have outer phyllaries very broad, usually ovate to broadly ovate, appressed to erect-patent, and sometimes even imbricate; petioles usually broadly winged; and ligule tube with straight hairs. *Taraxacum* sect. *Qaisera* is comprised of mostly agamospermous hybridogenous species of unknown parentage. We can hypothesize on the basis of morphological similarity that one of the parental taxa may belong to *T.* sect. *Calanthodina*.


*Taraxacum pseudoroseum* Schischkin (Fl. Kazakhst. 9: 437, 571, 1966) and *T. pseudoroosum* Schischkin (Fl. URSS 29: 528, 744, 1964), described from C Tian Shan, belong to *T.* sect. *Qaisera*. They were reported as members of the Chinese flora (FRPS 80(2): 71–72. 1999), but we failed to find any specimens of these two taxa from China.

<table>
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<tr>
<th>1a. Pollen absent.</th>
<th>2a. Stigmas yellow .................................................</th>
<th>75. <em>T. florum</em></th>
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</thead>
<tbody>
<tr>
<td>1b. Pollen present.</td>
<td>2b. Stigmas discolored ........................................</td>
<td>83. <em>T. aeneum</em></td>
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<tr>
<th>3a. Pollen grains regular in size ................................</th>
<th>86. <em>T. xinyuanicum</em></th>
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</thead>
<tbody>
<tr>
<td>3b. Pollen grains irregular in size.</td>
<td></td>
</tr>
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</table>

| 4a. Outer phyllaries with thick horns ......................... | 90. *T. brevicorniculatum* (see also key to *T.* sect. *Ceratoidea*) |

| 4b. Outer phyllaries flat to ± minutely corniculate. |  |

| 5a. Outer phyllaries patent, arcuate-patent, erect-patent or subrecurved, not appressed to erect. |  |
| 6a. Outer phyllaries imbricate; leaves ± glabrous ................................................................. | 79. *T. tonsum* |

| 6b. Outer phyllaries not imbricate; leaves sparsely arachnoid. |  |

| 7a. Outer phyllaries with a broad paler border to 2 mm wide ........................................ | 71. *T. horizontale* |

| 7b. Outer phyllaries with a narrow pale border 0.1–0.2 mm wide. |  |

| 8a. Achene cone subcylindric, 0.8–0.9 mm ................................................................. | 72. *T. perplexans* |

| 8b. Achene cone ± conic, 0.5–0.7 mm ................................................................. | 80. *T. dammable* |

| 5b. Outer phyllaries appressed, loosely appressed, or erect. |  |

| 9a. Outer phyllaries not imbricate. |  |

| 10a. Achene body abruptly narrowing into a ca. 0.4 mm cone ........................................ | 77. *T. icterinum* |

| 10b. Achene body gradually narrowing into a 0.8–1.1 mm cone. |  |

| 11a. Outer phyllaries 8–9 mm ................................................................. | 84. *T. simulans* |

| 11b. Outer phyllaries 4–7 mm. |  |

| 12a. Stigmas yellow ................................................................................ | 81. *T. adaglabrum* |

| 12b. Stigmas light discolored .................................................................. | 88. *T. puberulum* |

| 9b. Outer phyllaries imbricate. |  |

| 13a. Stigmas yellow ............................................................................... | 79. *T. tonsum* |

| 13b. Stigmas discolored. |  |

| 14a. Involucre base obconic .................................................................. | 78. *T. cyathiforme* |

| 14b. Involucre base rounded to truncate. |  |

| 15a. Outer phyllaries 6–8 mm wide ......................................................... | 82. *T. subcontristans* |

| 15b. Outer phyllaries 3–5 mm wide. |  |

| 16a. Paler border to outer phyllaries 0.5–1 mm wide. |  |

| 17a. Achene body subabruptly narrowing into a conic 0.7–0.9 mm cone; beak ca. 6 mm; stigmas blackish green .................................................. | 87. *T. potaninii* |

| 17b. Achene body ± gradually narrowing into a subcylindric 0.8–1 mm cone; beak ca. 9 mm; stigmas yellowish green ................................ | 89. *T. protractifolium* |

| 16b. Paler border to outer phyllaries not developed or 0.1–0.2 mm wide. |  |
71. Taraxacum horizontalе Kirschner & Štěpánek, sp. nov.

平枝蒲公英  jìng zhī pú gōng yìng

Type: China. Xinjiang: “Tian Shan [天山], pars montium Borohoro Shan [婆罗科努山], 2109 m, 29 Sep 2004, P. Sekerka, P. Hanželka & I. Bulánková 04/27, cultivated as JŠ 7957 (holotype, PRA; isotypes, MO, PE, PRA).

Plantae agamospermae, mediocres, foliis laete viridibus, pinnatisectis, lobis lateralis 4 vel 5 utrinque, interlobis maculatis, lobo terminali triangulari vel late triangulare, petiolis perlatis alatis, phyllaris involucralibus exterioribus 15 ad 20, pallide viridibus, lanceolatis vel ovato-lanceolatis, irregulariter patentibus vel erecto-patentibus usque arcuato-patentibus, stigmatibus sordide luteo-virenscentibus, anthers polliniferis, achenis pinnatisectis, in pyramidem conicum ca. 0.5 mm longis et conspicue latis, superne dense spinulosis, in pyramidem conicum ca. 0.5 mm longam subabrupte abeuntibus.

Herbs 15–20 cm tall. Petiole light green to faintly pinkish, very broadly winged; leaf blade yellowish green and usually with a faintly brownish purple midvein, oblanceolate, 11–20 × 4–5.5 cm, sparsely arachnoid, regularly pinnatisect; lateral lobes 4 or 5 pairs, ± narrowly triangular, 2.5 × 1.5 cm, patent to subcurved, distal margin slightly convex or ± sigmoid and usually entire, apex acute; interlobes evident, with purplish brown spots, margin dentate; terminal lobe triangular to broadly triangular, 1.5–2.5 × ca. 1.5 cm, margin entire, apex subacute. Scapes light brownish green, subequaling leaves, usually densely arachnoid. Capitulum ca. 4.5 cm wide. Involute 1–1.2 cm wide, base ± rounded. Outer phyllaries 15–20, abaxially light green suffused pinkish and with a slightly darker middle part, adaxially slightly glaucous-green, ± not imbricate, lanceolate to ovato-lanceolate, outermost ones 10–12 × (3–)3–4 × 5 mm and ca. 3/4 as long as inner ones, ± irregularly patent, erect-patent, or arcuate-patent, laterally with gradual transition into a whitish green border to 2 mm wide and a membranous fringe 0.2–0.3 mm wide, margin sparsely ciliate, apex ± flat; inner phyllaries ca. 1.5 cm. Ligules deep yellow; outer ligules ± flat, outside striped purplish gray; inner ligules with grayish purple teeth at apex; ligule tube pubescent. Stigmas grayish greenish yellow. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, 3.6–3.8 × 1.2–1.4 mm; body subdensely spinulose-squamulose above, subapruptly narrowing into a conic ca. 0.5 mm cone; beak 8–10 mm. Pappus dirty white, 6–7 mm. Fl. late spring. Agamosperm.

● Montane meadows and pastures; 2000–2200 m. W Xinjiang.

72. Taraxacum perplexans Kirschner & Štěpánek, sp. nov.

惊喜蒲公英  jīng xǐ pú gōng yìng

Type: China. Xinjiang: “montes Altaj [阿尔泰山], situ boreal. a Qinghe [青河],” 1557 m, 23 Sep 2004, P. Sekerka, P. Hanželka & I. Bulánková 04/06, cultivated as JŠ 7959 (holotype, PRA; isotypes, MO, PE, PRA).

Paratypes: China. Xinjiang: “ibidem, 1557 m, 23 Sep 2004, P. Sekerka, P. Hanželka & I. Bulánková 04/06, cultivated as JŠ 7959 (PRA); Korla Xian [库尔勒县], May 1999, P. Sekerka, Zhang Dao Yuan & V. Huml s.n., cultivated as JŠ 7383 (PRA); “Tian Shan [天山], Wang Mu Miao monastery near Tian Chi lake [天池湖],” [probably Xiwang Muzumiao 西王祖庙], 1950 m, 2 Oct 2003, P. Sekerka 03/2, cultivated as JK 4947 (PRA).

Plantae agamospermae, mediocres vel subrobustae, laminis foliorum sativate viridibus, saepissime anguste ob lanceolatis, pinnatisectis, lobis lateralis (4 ad)6 vel 7 utrinque, anguste triangulare patantibus, interlobis purpureo-marginatis, petiolis foliorum exteriorum late salatis, phyllaris involucralibus exterioribus 17 ad 20, lanceolatis vel ovato-lanceolatis, irregulariter patentibus, stigmatibus late-viridibus, anthers polliniferis, achenis pinnatisectis, in pyramidem subcilindricam 0.8–0.9 mm longam abrupte abeuntibus.

Herbs 15–22 cm tall. Petiole light purplish green, broadly winged in outer leaves but narrowly so in middle ones; leaf blade deep green, narrowly elliptic to narrowly oblanceolate, 10–23 × 3–5.5 cm, ± sparsely arachnoid, pinnatisect, midvein adaxially brownish purple throughout; lateral lobes (4–)6 or 7 pairs, ± narrowly triangular, 1–2.5 × 1–1.5 cm, ± patent but sometimes slightly bent upward, distal margin of upper lobes ± entire but denticulate in lower ones, apex acute; interlobes evident, bordered purplish brown and with raised denticulate margin; terminal lobe triangular to broadly triangular, 1.3–5 × 1.4–3 cm, margin entire or with 1 or 2 asymmetric incisions, apex subacute. Scapes purplish green, ± equaling leaves, usually
densely arachnoid. Capitulum ca. 4 cm wide. Involucre 1–1.2 cm wide, base ± truncate. Outer phyllaries 17–20, abaxially light olivaceous green suffused brownish pink near apex, adaxially pale grayish green, ± not imbricate, ± lanceolate to ovate-lanceolate, outermost ones 9–13 × 3.5–5.5 mm and ca. 2/3 as long as inner ones, ± irregularly patent to sometimes arcuate-patent, with whitish membranous 0.1–0.2 mm wide border, margin sparsely ciliate, apex ± flat; inner phyllaries ca. 1.3 cm. Ligules deep yellow; outer ligules ± flat, outside stripped purplish or greenish; inner ligules with yellow teeth at apex; ligule tube pubescent. Stigmas greenish yellow, abaxially dark pubescent. Anthers polliniferous; pollen grains irregular in size. Achene light grayish olivaceous brown, 3.7–3.9 × 1–1.2 mm, with distinct lateral and ventral ridges; body densely spinulose in upper ca. 1/3, ± abruptly narrowing into a conic 0.5–0.6 × ca. 0.3 mm cone, spinules thin and often slightly recurved; beak ca. 1.1 cm. Pappus dirty white, 6–7 mm. Fl. late spring. Agamosperm.

- Submontane steppe meadows and pastures; ca. 1500 m. Xinjiang.

74. Taraxacum pseudocalanthodium Kirschner & Štěpánek, sp. nov.


Plantae agamospermae, foliis laete griseo-viridibus, latero lanceolatis vel ovato-lanceolatis, pinnatisectis vel runcinato-pinnatisectis, lobis lateralisibus (3 vel)4 vel 5 utrinque, petiolis late usque anguste alatis, phyllariis involucralibus exterioribus 14 ad 17, obscure olivaceo-viridibus nigricantibus, imbricatis, late lanceolatis vel ovato-lanceolatis, late adpressis, stigmaticis laete luteo-viridibus, antheris polliniferis, achenis vulgaris 4.3–4.5 mm longis, superne dense squamuloso-spinulosis, in pyramidem conicam 0.9–1.1 mm longam abrupte abeuntibus.

Herbs 15–20 cm tall. Petiole light purplish green, broadly winged in outer leaves but narrowly winged in middle ones; leaf blade light grayish green with a faintly brownish purple midvein, broadly ob lanceolate to ob lanceolate, 9–12 × 2–3 cm, sparsely arachnoid, pinnatisect to runcinato-pinnatisect; lateral lobes (3 or)4 or 5 pairs, ± triangular to ± deltoid-triangular, sub-recurved, proximal margin straight to slightly concave and entire, distal margin convex and entire or with a few acute teeth, apex acute to sometimes ± obtuse; interlobes usually spotted purplish brown, short, margin often raised and entire; terminal lobe usually helmet-shaped, 2.5–4 × 2.5–3 cm, margin ± entire and often with 1 or 2 incisions, apex subacute. Scapes green but pinkish at base, ± ovetopping leaves, usually sparsely arachnoid to glabrescent. Capitulum 3–3.5 cm wide. Involucrum ca. 1 cm wide, base ± truncate. Outer phyllaries 14–17, abaxially dark (blackish) olivaceous green and wholly suffused brownish purple, ± imbricate, broadly lanceolate to ovate-lanceolate, outermost 8–9 × 3.5–4.5 mm and ca. 2/3 as long as inner ones, loosely appressed, paler border ± not developed or with membranous ca. 0.1 mm border, margin subglabrous or sparsely ciliate, apex ± flat; inner phyllaries ca. 1.3 cm, apex flat. Ligules deep yellow; outer ligules ± flat, outside striped purplish gray; inner ligules with purplish teeth at apex; ligule tube pubescent. Stigmas light greenish yellow, outside dark pubescent. Anthers polliniferous; pollen grains irregular in size. Achene light grayish olivaceous brown, 4.3–4.5 × ca. 1 mm; body ± densely spinulose-squamulose above, ± abruptly narrowing into a ± thin conic (0.9–)1–1.1 mm cone; beak 9.5–10.5 mm. Pappus white, 6–7 mm. Fl. late spring. Agamosperm.

- Field margins, roadsides; 1800–2000 m. W Xinjiang.
Plantae agamospermae mediocres, foliis saturate viridibus, anguste oblongaceolis usque oblongataitis, pinnafatidis vel pinnafatcircis, lobis lateralisibus 3 vel 4 utrunge, petioli foliorum exteroriorum late alatis, violaceis, phyllariis involucralibus exterioribus 17 ad 19, atr-o-viridibus usque obscure olivaceoviridibus, imbricatis, ovatis vel ovato-lanceolatis, laxe adpressis, stigmatibus luteo-viridibus, antheris polliniferis, achenis valgo 3.4–3.5 mm longis, superne dense squamuloso-squamulosis, in pyramidem subconicum 0.4–0.5 mm longam subsensim abuentibus.

Herbs 12–15 cm tall. Petiole purple, broadly winged in outer leaves but ± unwinged in middle ones; leaf blade deep green with a purplish midvein, narrowly oblongolate to oblongolate, 7–9 × 2–3 cm, sparsely arachnoid, pinnafatide pinnafatidsect; lateral lobes 3 or 4 pairs, ± triangular, ± recurved to hamate-recurved, proximal margin entire, distal margin convex and entire, apex acute; interlobes short and broad, margin often raised but entire; terminal lobe broadly triangular, margin entire, apex subobtuse. Scapes pale brownish green, overtopping leaves, arachnoid. Capitulum to 4.5 cm wide. Involucrume 1–1.2 cm wide, base ± truncate. Outer phyllaries 17–19, abaxially dark olivaceous green to blackish green and suffused brownish purple in upper ca. 1/3, ± imbricate, ± ovate to ovate-lanceolate, outermost ones 8–9 × (3.5–)4.5–5 mm and 1/2–3/5 as long as inner ones, loosely appressed, venation slightly prominent, with whithish membranous border ca. 0.1–0.2 mm wide, margin sparsely ciliate, apex flat; inner phyllaries 1.4–1.5 cm, apex flat. Ligules deep yellow; outer ligules ± flat, outside striped greenish pinkish gray; inner ligules with grayish purple teeth at apex; ligule tube pubescent. Stigmas greenish yellow, abaxially dark purplish green. Anthers polliniferous; pollen grains irregular in size. Achene light grayish olivaceous brown, 3.4–3.5 × ca. 0.9 mm; body ± densely spinulose-squamulose above, subgradually narrowing into a subconic ± 0.4–0.5 mm cone; beak ca. 9.5 mm. Pappus ± white, ca. 6 mm. Fl. late spring. Agamosperm.

- Montane meadows and pastures; 1800–2800 m. W. Hubei.

77. Taraxacum icterinum Kirschner & Štěpánek, sp. nov.

Herbs 12–20 cm tall. Petiole brownish purplish green, narrowly winged or unwinged; leaf blade deep green slightly suffused brownish purple, ± oblongolate, 10–20 × 1.5–3.5 cm, sparsely arachnoid on purplish brown midvein, pinnafatsect; lateral lobes 3–5 pairs, ± narrowly triangular, 6–17 × 5–10 mm, ± patent to subrecurved, proximal margin straight and entire, distal margin ± straight to ± sigmoid and entire or with a few acute teeth, apex acute; interlobes with margin ± entire; terminal lobe broadly triangular, margin entire, apex subacute to mucronate. Scapes purplish brown, subequating leaves, sparsely arachnoid to glabrescent. Capitulum ca. 3 cm wide. Involucre ca. 8 mm wide, base ± rounded. Outer phyllaries 15–18, abaxially dark (blackish) grayish green, slightly pruinose, and suffused brownish purple in upper ca. 1/3, subimbricate, broadly ovate to ovate-lanceolate, outermost ones (5–)6–7 × (3–)3.5–4.5 mm and ca. 1/2 as long as inner ones, loosely appressed, border whitish and 0.1–0.2 mm wide, margin subglabrous but ± sparsely ciliate, apex flat; inner phyllaries 1–1.1 cm, apex flat. Ligules deep yellow; outer ligules ± flat, outside striped greenish pinkish gray; inner ligules with grayish purple teeth at apex; ligule tube pubescent. Stigmas greenish yellow, abaxially dark purplish green. Anthers polliniferous; pollen grains irregular in size. Achene light grayish olivaceous brown, 3.4–3.5 × ca. 0.9 mm; body ± densely spinulose-squamulose above, subgradually narrowing into a subconic 0.4–0.5 mm cone; beak ca. 9.5 mm. Pappus ± white, ca. 6 mm. Fl. late spring. Agamosperm.

- Montane meadows and pastures; 1800–2800 m. W. Hubei.

75. Taraxacum florum Kirschner & Štěpánek, sp. nov.

Herbs 12–20 cm tall. Petiole deep brownish purplish green, narrowly winged or unwinged; leaf blade deep green with a purplish midvein, narrowly oblongolate to oblongolate, 7–9 × 2–3 cm, sparsely arachnoid, pinnafatide pinnafatsect; lateral lobes 3 or 4 pairs, ± triangular, ± recurved to hamate-recurved, proximal margin entire, distal margin convex and entire, apex acute; interlobes short and broad, margin often raised but entire; terminal lobe broadly triangular, margin entire, apex subobtuse. Scapes pale brownish green, overtopping leaves, arachnoid. Capitulum to 4.5 cm wide. Involucrume 1–1.2 cm wide, base ± truncate. Outer phyllaries 17–19, abaxially dark olivaceous green to blackish green and suffused brownish purple in upper ca. 1/3, ± imbricate, ± ovate to ovate-lanceolate, outermost ones 8–9 × (3.5–)4.5–5 mm and 1/2–3/5 as long as inner ones, loosely appressed, venation slightly prominent, with whitish membranous border ca. 0.1–0.2 mm wide, margin sparsely ciliate, apex flat; inner phyllaries 1.4–1.5 cm, apex flat. Ligules deep yellow; outer ligules ± flat, outside striped greenish pinkish gray; inner ligules with grayish purple teeth at apex; ligule tube pubescent. Stigmas greenish yellow, abaxially dark purplish green. Anthers polliniferous; pollen grains irregular in size. Achene light grayish olivaceous brown, 3.4–3.5 × ca. 0.9 mm; body ± densely spinulose-squamulose above, subgradually narrowing into a subconic 0.4–0.5 mm cone; beak ca. 9.5 mm. Pappus ± white, ca. 6 mm. Fl. late spring. Agamosperm.

- Montane meadows and pastures; 1800–2800 m. W. Hubei.
Herbs 15–20 cm tall. Petiole purple, broadly winged; leaf blade deep green, sometimes suffused brownish purple, and with a purplish midvein, narrowly oblanceolate to narrowly oblong, 7–15 × 1.5–3 cm, sparsely arachnoid, shallow pinnatifid to pinnatisect, margin sometimes undivided and entire in distal ca. 1/3; lateral lobes 4 or 5 pairs, ± broadly triangular, recurved, proximal margin entire, distal margin shallowly sigmoid and entire but dentate in lower lobes, apex acute; interlobes short and broad, margin ± entire; terminal lobe narrowly triangular to heliomer-shaped, margin acute, apex acute to mucronate. Scapes brownish green, overlapping leaves, sparsely arachnoid. Capitulum ca. 4 cm wide. Involucre 1–1.2 cm wide, base rounded. Outer phyllaries 13–15, abaxially blackish green, suffused brownish purple in upper part, and slightly pruinose, ± not imbricate, ± ovate-lanceolate, outermost ones 11–13 × 3–6 mm and almost as long as inner ones, loosely appressed, with a whitish 0.1–0.2 mm wide border, margin very sparsely ciliate, apex flat; inner phyllaries 1.5–1.6 cm, apex flat. Ligules deep yellow; outer ligules ± flat, outside striped purplish brownish gray; inner ligules with yellow or faintly pink teeth at apex; ligule tube sparsely pubescent to glabrous. Stigmas grayish green, abaxially blackish pubescent. Anthers polliniferous; pollen grains irregular in size. Achene grayish green, abaxially blackish pubescent. Anthers polliniferous; pollen grains irregular in size. Achene long, 7–15 × 3–4 mm, ± entire or irregularly dentate; terminal segment elongated, usually entire. Scapes brownish green but purplish at base, equaling leaves, sparsely arachnoid. Capitulum 3.5–4 cm wide. Involucre 9–10 mm wide, base oblong. Outer phyllaries 12–17, abaxially grayish green and slightly pruinose, ± not imbricate, linear-lanceolate to lanceolate, outermost ones 7–9 × 2–3.3 cm and ca. 2/3 as long as inner ones, loosely appressed to erect, with a whitish 0.1–0.2 mm wide border, margin subglabrous, apex purplish and initially flat but in later capitula horned; inner phyllaries ca. 1.2 cm, apex ± flat. Ligules deep yellow; outer ligules ± flat, outside striped purplish brown; inner ligules with reddish teeth at apex; ligule tube sparsely pubescent to glabrous. Stigmas grayish green, abaxially blackish pubescent. Anthers polliniferous; pollen grains irregular in size. Achene light grayish brown, 3.5–3.9 × ca. 1.1 mm; body densely spinulose-squamulose above, ± abruptly narrowing into a subconic ca. 0.4 mm cone; beak ca. 5.5 mm. Pappus ± white, ca. 6 mm. Fl. late spring. Agamosperm.

Montane meadows and pastures; 2600–3500 m. W Sichuan.

78. Taraxacum cyathiforme Kirschner & Štěpánek, sp. nov.

しんとうむも 7379 (holotype, PRA; isotypes, MO, PE, PRA).


Plantaee agamospermae medioecies, folis glaucescenti-viridibus, oblan eolateis, febre glabris, pinnatisectis, lobis lateralibus 3 vel 4 utrinque, petiolatis, phyllaris involucralibus exterioribus 17 ad 20, pallide olivaceo-viridibus, conspicue albo-marginatis, marginibus 0.2–0.4 mm latis, saepissime late ovatis vel ovatis, laxe adpressis, apice acutis, apice plano vel subcornutulis, stigmatibus saturate luteis, antheris polliniferis, achenis plerumque 4–4.2 mm longis, superne subdense spinulosis, in pyramidem subcylindricam 0.5–0.6 mm longam subabrupte abruptibus.

Herbs 15–20 cm tall. Petiole pinkish purple, narrowly to broadly winged; leaf blade grayish green with a faintly pinkish midvein, oblanceolate, 9–19 × 1.7–2.8 cm, ± glabrous, regularly shallowly to deeply pinnatisect; lateral lobes 3 or 4(or 5) pairs, triangular to broadly so, 5–10 × ca. 10 mm, ± patent to subrecurved, distal margin straight to subconca ve and sparsely minutely dentate or ± entire, apex acute; interlobes unspotted, 5–8 × ca. 5 mm, margin sparsely dentate or entire; terminal lobe triangular to narrowly triangular, 1–4 × 0.8–2.3 cm, rarely 3-partite, margin entire or sparsely dentate, apex subacute. Scapes light green but purplish at base, subequaling leaves, usually sparsely arachnoid. Capitulum 2–2.5 cm wide. Involucre 8–10 mm wide, base flat, rounded. Outer phyllaries 17–20, light olivaceous green but suffused purplish apically, imbricate, usually ovate to broadly ovate but some ovate-lanceolate, outermost ones (5,5–)7–8 × (3)3.5–5 mm and 1/2–3/5 as long as inner ones, loosely appressed to erect-patent, with a distinct whitish 0.2–0.4 mm wide border, margin very sparsely ciliate, apex ± flat but subcircular in later capitula; inner phyllaries 1.4–1.5 cm. Ligules yellow; outer ligules ± flat, outside striped purplish black; inner ligules with yellow or faintly pink teeth at apex; ligule tube subpubescent. Stigmas pure deep yellow. Anthers polliniferous; pollen grains irregular in size. Achene grayish light brown, 4.4–2 × 0.9–1.1 mm; body with prominent lateral
ridges, subdensely spinulose, subabruptly narrowing into a subcylindric 0.5–0.6 mm cone; beak 8–8.5 mm. Pappus dirty white, ca. 6 mm. Fl. late spring. Agamosperm.

- Grasslands, ruderal lawns, pastures; 1200–1400 m. SW Xinniang (Kashi).

80. Taraxacum damnabile Kirschner & Štěpánek, sp. nov.


Plantaeg agamospermae mediocres, foliis obscure viridibus, pinnatisectis, lobis lateralisibus numerosis, (4 vel)5 vel 6(vel 7) ursinque, triangularibus, subrecurvis, plerumque lineari-elongatis, interlobis bado-purpureis, petiolis alatis, phyllaris involucralibus exterioribus 16 ad 22, irregulariter paten-tibus usque acutato-recurvis, ovato-lanceolatis vel lanceolatis, glaberrimis, stigmatibus subgriseo-luteis, anthers polliniferis, achenis 3.7–3.9 mm longis, superne dense squamuloso-spinulosis, in pyramide conicum 0.5–0.7 mm longam subsensim abeuntibus.

Herbs 14–17 cm tall. Petiole green or purplish, very broadly winged in outer leaves but narrowly so in inner ones; leaf blade dark green, usually suffused bronze, and with a brownish pink midvein, broadly linear-oblancoate to narrowly oblong, 10–17 × 2–3.5 cm, arachnoid, pinnatisect; lateral lobes (4 or)5 or 6(vel 7) pairs, ± triangular, subrecurved, distal part sometimes ligulate-elongated, proximal margin straight and entire, distal margin shallowly sigmoid to ± straight and usually sparsely denticulate or sometimes entire, apex acute; interlobes with deep purple brown spots, short, 4–7 mm wide, margin irregularly dentate; terminal lobe broadly triangular to helmet-shaped, 1–3 × 1.5–2.5 cm, terminal segment elongated, margin usually entire or with irregular teeth or incisions. Scapes purplish green, subequalling leaves, ± densely arachnoid. Capitulum 3.5–4.5 cm wide. Involucrare ca. 1 cm wide, base ± rounded. Outer phyllaries 16–22, abaxially deep olivaceous green and apically brownish pink, ± not imbricate, ovato-lanceolate to lanceolate, outermost ones 9–11 × 3–5 mm and ca. 2/3 as long as inner ones, conspicuously irregularly patent to acutely recurved, border light grayish green but later abaxially also suffused brownish purple, membranous, and 0.1–0.2 mm wide, margin glabrous, apex ± callose; inner phyllaries 1.1–1.2 cm. Ligules deep yellow; outer ligules ± flat, outside striped greenish gray; inner ligules with dirty yellow or yellow teeth at apex. Stigmas grayish yellow, abaxially partly blackish pubescent. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, (3.5–)4.3–4.5 × 0.9–1 mm; body with prominent lateral ridges, densely spinulose-squamulose above, ± subgradually narrowing into a ± conic 0.5–0.7 mm cone; beak 1–1.1 cm. Pappus ± white, ca. 6 mm. Fl. late spring. Agamosperm.

- Pastures, shrubby slopes; 1000–2800 m. E Henan, W Hubei, SW Shaanxi.

81. Taraxacum adglabrum Kirschner & Štěpánek, sp. nov.


Plantaeg agamospermae submediocres, foliis glaucescenti-viridibus, linear-oblanceolatis, subglabris, pinnatisectis, lobis lateralisibus 4 ad 6 ursinque, late triangulari-bus, recurvis, petiolis alatis purpurascentibus, phyllaris involucralibus exterioribus 11 ad 13, ovato-lanceolatis usque ovatis, obscure viridibus, late pallide marginatis, laxe adpressis, stigmatibus saturate luteis, anthers polliniferis, achenis plerumque 4.3–4.5 mm longis, superne subparsa spinulosis, persensim in pyramide subcylindricam 0.8–1 mm longam abeuntibus.

Herbs to 15 cm tall. Petiole grayish purple to bright purple, winged; leaf blade grayish green, often slightly suffused brownish purple, and with a light purplish midvein, linear-oblancoate to narrowly oblong, 9–13 × 1.7–2.5 cm, very sparsely arachnoid, pinnatisect to shallowly pinnatisect but sometimes undivided and coarsely dentate; lateral lobes 4–6 pairs, broadly triangular, to 8 × 10 mm, recurved, proximal margin ± straight and usually entire, distal margin straight or shallowly sigmoid and entire or sparsely denticulate, apex acute; interlobes not conspicuous, short and broad, margin ± entire or with a few small teeth; terminal lobe ± narrowly triangular to almost helmet-shaped, 1.5–3 × 1.5–2 cm, terminal segment subacute to acute, distal margin ± convex and entire or irregularly shallowly lobulate-dentate. Scapes pinkish green at base, purple above after anthesis, ± equaling leaves, arachnoid but later glabrescent. Capitulum ca. 1.5 cm wide, remaining partly closed. Involucrare 8–9 mm wide, base flat to subtruncate. Outer phyllaries 11–13, dark green middle part with a gradual transition into light green to whitish green border, ± not imbricate, ovato-lanceolate to ovate, outermost ones 4–6 × 2.5–3.8 mm and 1/3–1/2 as long as inner ones, loosely appressed, border to 1.5 mm wide, margin 0.1–0.2 mm, membranous, subglabrous, and pubpilis on distal ca. 1/3, apex flat or dark callose; inner phyllaries ca. 1 cm. Ligules dirty yellow; outer ligules canaliculate, outside striped grayish purple; inner ligules with yellow or purplish teeth at apex; ligule tube pubescent. Stigmas deep yellow. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, (3.5–)4.3–4.5 × 0.7–0.8 mm; body with ± prominent lateral ridges, ± sparsely spinulose above, very gradually narrowing into a subcylindric 0.8–1 mm cone; beak ca. 7 mm. Pappus ± white, 6–7 mm. Fl. late spring. Agamosperm.
Plantae agamospermae subrobustae, foliis glaucescenti-viridibus, anguste lanceolatis vel angustis ellipticis, subglabris, irregulariter pinnatisectis, lobis lateralisibus 5 vel 6 utrinque, lineari-triangulatis vel anguste triangulatis, patentibus vel recurvis vel sursum curvatis, marginibus distibus dentatis et lobulatis, interlobis grosse dentatis vel lobulatis, petiolis alatis, griseo-purpureo-viridibus 0.2–0.6 mm latis, stigmatibus luteo-viridibus, antheris polliniferis, acheniis 4.5–4.7 mm longis, superne dense spinulosis, in pyramide subcylindricam 0.9–1.1 mm longam subabrupte abeuntibus.

Herbs 20–25 cm tall. Petiole grayish purple, winged; leaf blade grayish green, narrowly oblongate to narrowly elliptic, 16–20 × 4–5 cm, very sparsely arachnoid, pinnatisect with a complicated irregular pattern, midvein light purplish at base but otherwise light green; lateral lobes 5 or 6 pairs, linear-triangular to narrowly triangular, patent, rarely recurved, or curved upward, proximal margin entire, distal margin irregularly dentate and/or lobulate, apex acute; interlobes brownish purple spotted along midvein, to 1.5 cm, margin sparsely coarsely dentate or lobulate; terminal lobe narrowly to broadly triangular, 1.5–3.5 × 3–4 cm, terminal segment narrowly helmet-shaped to lingulate, distal margin concave and with teeth or incisions. Scapes pinkish green at base but otherwise light green, ± overtopping leaves, arachnoid. Capitulum 3.5–3.5 cm wide. Involucre ca. 1.2 cm wide, base flat to subtruncate. Outer phyllaries 13–17, light brownish olivaceous green suffused brown purplish distally, imbricate, ovate to orbicular-ovate, outermost ones 9–11 × 6–8 mm and 1/2–3/5 as long as inner ones, loosely appressed to erect, border pale green, (0.2–0.3–0.6 mm wide, and membranous, margin subglabrous, apex flat or cornicate; inner phyllaries 1.3–1.4 cm. Ligules deep yellow; outer ligules flat, outside striped purplish gray; inner ligules with purplish teeth at apex; ligule tube pubescent. Stigmas yellowish green, abaxially blackish pubescent. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, 4.5–4.7 × 1.1–1.2 mm; body ± winged with prominent lateral ridges, densely spinulose above, subabruptly narrowing into a subcylindric 0.9–1.1 mm cone; beak 1.1–1.2 cm. Pappus dirty white, ca. 8 mm. Fl. late spring. Agamosperm.

Paratypes: China. Xinjiang: “Urbs Kashi [喀什]; in locis caespitosis ad Kashgar Hotel,” May 1999, P. Sekerka, Zhang Dao Yuan & V. Huml s.n., cultivated as JŠ 7387 (PRA); “In pascuo, coord. geogr.: 41°49′56″N, 82°24′05″E” [Baicheng Xian 拜城县], 1127 m, May 1999, P. Sekerka, Zhang Dao Yuan & V. Huml s.n., cultivated as JŠ 7374 (holotype, PRA; isotypes, MO, PE, PRA).

Herbs 16–20 cm tall. Petiole grayish purple, unwinged; leaf blade slightly grayish green, often suffused brownish, and with a purplish brown midvein, ± narrowly oblongate, 12–18 × 2–3.5 cm, subglabrous, pinnatisect; lateral lobes 3 or 4(or 5) pairs, narrowly deltoid to hamate, patent with recurved distal part 0.8–1.5 cm, proximal margin entire, distal margin convex to sigmoid and with 1–3 distinct teeth, apex acute; interlobes brownish purple spotted, to 10 × 4 mm, margin usually entire; terminal lobe helmet-shaped to lingulate, 2–3.5 × 1.5–2.5 cm, distal margin concave and subentire or with asymmetric incisions. Scapes purplish at base, brown-purple below capitulum, and otherwise light green, ± equaling leaves, sparsely arachnoid. Capitulum ca. 2.5 cm wide. Involucre 8–10 mm wide, base rounded. Outer phyllaries 14–17, light green suffused purplish at apex, subimbricate, broadly ovate or ovate-lanceolate, outermost ones 7–8.5 × 3–5.5 mm and ca. 2/3 as long as inner ones, loosely appressed to irregularly erect-patent, venation visible, border 0.2–0.4 mm wide and membranous, margin sparsely ciliate, apex flat or callose; inner phyllaries 1.1–1.2 cm. Ligules yellow; outer ligules ± flat, outside striped purplish grayish brown; inner ligules with purplish teeth at apex; ligule tube pubescent. Stigmas yellowish green, abaxially blackish pubescent. Anthers without pollen or pollen sparsely developed; pollen grains irregular in size. Achene light grayish olivaceous brown, 4.4–4.5 × 0.9–1.1 mm; body ± winged with prominent lateral ridges, densely spinulose above and conspicuously so on ridges, subgradually narrowing into a subcylindric 0.9–1.1 mm cone; beak 8–9 mm. Pappus white, ca. 7 mm. Fl. late spring. Agamosperm.
84. *Taraxacum simulans* Kirschner & Štěpánek, *sp. nov.*


*Planta* *agamospermae* *subparvae*, *foliis* *saturate* *viridibus*, *saepissime* *angustae* *oblanceolatae*, *araneosae*, *pinnatsectae*, *lobis* *lateralibus* *4* *ad* *6* *utrinque*, *vulgo* *angustae* *triangularibus*, *patentibus*, *interlobis* *dentatis*, *petiolis* *dense* *araneosae*, *purpurascentibus*, *in* *foliis* *extrioribus* *perlate* *alatis*, *phyllarisis* *involucralibus* *exterius* *13* *ad* *17*, *obscura* *olivaceo-viridis*, *lanceolatis* *usque* *ovatis*, *laxe* *adpressis*, *stigmatibus* *luteo-virencentibus*, *antheris* *polliniferis*, *achenis* *plerunque* *4.3–4.5* *mm* *longis*, *superne* *dense* *spinulosis*, *in* *pyramidem* *saepissime* *subconicam* *vel* *subcylindricam* *1–1.1* *mm* *longam* *persensim* *abeuntibus*.

Herbs 9–13 cm tall. Petiole purple, densely arachnoid, broadly winged in outer leaves but ± narrow in inner ones; leaf blade deep green, narrowly oblongate to narrowly elliptic, 6–10 × 1.5–3 cm, arachnoid, pinnatsect, midvein light green but light purplish at base; lateral lobes 4–6 pairs, linear-triangluar to narrowly triangular, to 1 cm, patent but some subrecurved or pointing upward, proximal margin entire, distal margin ± straight to subconcave and irregularly dentate, apex acute; interlobes not spotted, 3–9 mm wide, margin irregularly dentate; terminal lobe narrowly to broadly triangular, 1.5–3.5 × 3–4 cm, terminal segment narrowly triangular to flat-deltoid, to 1 × 1.5 cm, margin entire, apex acute. Scapes pinkish green at base but otherwise light green, ± equaling leaves, arachnoid. Capitulum 4–4.5 cm wide. Involute 9–10 mm wide, base flat. Outer phyllaries 13–17, dark olivaceous green suffused purplish distally, not imbricate, lanceolate to ovate, largest ones 8–9 × (3–)3.5–4 mm and ca. 3/5 as long as inner ones, loosely appressed, border whitish membranous and 0.1–0.3 mm wide, margin sparsely ciliate, apex ± flat or corniculate; inner phyllaries 1.2–1.3 cm. Ligules deep yellow; outer ligules flat, outside striped greenish gray; inner ligules with yellow teeth at apex; ligule tube pubescent. Stigmas dirty yellow. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, 3.8–4 × 0.9–1 mm; body ± densely spinulose above, subabruptly narrowing into a subconic to subcylindric 0.8–0.9 mm cone; beak 8–8.5 mm. Pappus ± white, ca. 5 mm. Fl. late spring. Agamosperm.

- Montane grasslands; 2000–2500 m. Xinjiang (Tian Shan).

85. *Taraxacum subcalanthodium* Kirschner & Štěpánek, *sp. nov.*

**Type:** China. Xinjiang: “Tian Shan [天山]; ad locum Glacial Station in praeerupto alveo fluminis (convexo angustissimo) Houxia [后峡] dicto,” 2135 m, May 1999, *P. Sekerka, Zhang Dao Yuan & V. Huml* s.n., cultivated as JS 7396 (holotype, PRA; isotypes, MO, PE, PRA).

*Planta* *agamospermae* *submediocris*, *foliis* *glaucescenti-viridibus*, *saepissime* *brunnescentibus*, *oblanceolatis*, *pinnatisectis*, *lobis* *lateralibus* *4* *ad* *6* *utrinque*, *triangularibus* *vel* *angustae* *triangularibus*, *subrecurrvis*, *integrerrimis*, *phyllarisis* *involucralibus* *exterius* *17* *ad* *20*, *imbricatis*, *obscura* *olivaceo-viridis* *vel* *atro-viridis*, *lanceolatis* *usque* *ovatis*, *laxe* *adpressis*, *apice* *planis* *vel* *subcylindricis*, *stigmatibus* *luteo-virencentibus*, *antheris* *polliniferis*, *achenis* *3.8–4* *mm* *longis*, *superne* *dense* *spinulosis*, *in* *pyramidem* *saepissime* *subconicam* *0.8–0.9* *mm* *longam* *subabrupte* *abeuntibus*.

Herbs 12–15 cm tall. Petiole grayish purple, winged; leaf blade grayish green, usually suffused bronze, and with a light purplish gray midvein, narrowly oblongate to oblongate, 6–12 × 1.7–3.7 cm, very sparsely arachnoid, regularly pinnatif; lateral lobes 4–6 pairs, triangular or narrowly triangular, to 1.5 × 1.2 cm, subrecurved, distal margin ± straight and entire, proximal margin entire or with a single broadly triangular tooth at base, apex acute; interlobes not spotted or faintly spotted, ca. 6 × 4–8 mm, margin usually ± entire; terminal lobe triangular, broadly triangular, or sometimes ± helmet-shaped, terminal segment with an entire margin, apex acute. Scapes purple-green at base but otherwise light green, ± equaling leaves, arachnoid. Capitulum 2.5–3 cm wide. Involute 8–9 mm wide, base flat. Outer phyllaries 17–20, dark olivaceous green to blackish green and suffused purplish distally, imbricate, lanceolate to ovate, outermost ones 7–8 × 3–4 mm and 1/2–3/5 as long as inner ones, loosely appressed, border whitish membranous and 0.1–0.2 mm wide, margin sparsely ciliate, apex flat or ± corniculate; inner phyllaries 1.2–1.3 cm. Ligules deep yellow; outer ligules flat, outside striped greenish gray; inner ligules with yellow teeth at apex; ligule tube pubescent. Stigmas dirty (greenish) yellow. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored brown, 3.8–4 × 0.9–1 mm; body ± densely spinulose above, subabruptly narrowing into a subconic to subcylindric 0.8–0.9 mm cone; beak 8–8.5 mm. Pappus ± white, ca. 5 mm. Fl. late spring. Agamosperm.

- Montane grasslands; 3200–3300 m. W Sichuan (Dêgê).


**Type:** China. Xinjiang: “Shan [山]; xin yuan pu gong ying

Herbs 5–18 cm tall. Petiole ± purplish, narrow; leaf blade mid-green, ± broadly oblongate, 4–10 × 1.5–3.5 cm, sparsely arachnoid but later glabrescent, deeply pinnatisect; lateral lobes 3–5, ± triangular to triangular-deltoid, subpatent to ± recurved, distal margin convex and entire or with 1 or 2 teeth; interlobes broad, margin dentate and/or lobulate; terminal lobe triangular to helmet-shaped, margin ± entire. Scapes greenish, ± overtopping leaves, sparsely arachnoid but densely so below capitulum. Involute 6–7 mm wide, base ± rounded. Outer phyllaries 12–15, pale green, not imbricate, ovate-lanceolate to lanceolate, outermost ones ca. 6 × 2–3 mm and 2/5–1/2 as long as inner ones, ± patent, margin glabrous to sparsely ciliate, flat below apex; inner phyllaries 0.9–1.2 cm, apically flat. Ligules yellow; outer ligules flat, outside faintly striped grayish; floret tube outside glabrous. Stigmas discolored. Anthers polliniferous; pollen grains regular in size. Achene grayish straw-colored brown, ca. 2.5 × 0.8–0.9 mm; body ± smooth below, apically spinulose, ± abruptly narrowing into a thick subconic 0.2–0.3 mm.
mm cone; beak ca. 5 mm. Pappus white, 5–6 mm. Fl. spring and summer. Sexual. 2n = 16*

- Gravelly slopes, roadsides; ca. 1500 m. Xinjiang.

Taraxacum xinyuancicum is the first sexual taxon recognized within T. sect. Qaisera.


新疆蒲公英  xin jiang pu gong ying

Herbs 15–35 cm tall. Petiole pinkish green, narrow; leaf blade pale green to mid-green, ± oblanceolate, 10–15 × 2.5–3.5 cm, sparsely arachnoid but later glabrescent, margin subentire to shallowly lobed; lateral lobes 2–5, ± flat triangular, ± recurved, distal margin straight and entire or dentate; interlobes indistinct; terminal lobe not clearly developed, broadly triangular, apex ± acute. Scapes brownish green, ± overtopping leaves, subglabrous. Involucre 9–10 mm wide, base rounded. Outer phyllaries 13–16, dark green with a broad paler border, subimbricate, ovate-lanceolate to lanceolate, outermost ones 7–9 × 3–4 mm and ca. 1/2 as long as inner ones, ± appressed, border 0.5–1 mm, margin sparsely ciliate, flat and not corniculate below apex; inner phyllaries 1.3–1.8 cm, apically flat. Ligules (?pale) yellow; outer ligules flat, outside striped dark; inner ligules with purplish long teeth. Stigmas dark to blackish green. Achene grayish straw-colored brown, 4.2–4.7 × 1–1.1 mm; body ± smooth below, apically spinulose with thin long acute spinules, ± gradually narrowing into a cylindric 0.8–1 mm cone; beak ca. 8 mm. Pappus pure white, 5–6 mm. Fl. spring. Agamosperm.

- Grasslands; ca. 1300 m. SW Xinjiang (Kashi).

Taraxacum puberulum is based on a single wild specimen and a few cultivated plants. The taxon has many features of T. sect. Cerasitoidea (achene characters, outer phyllary color, shape, and posture), but in other attributes it approaches T. sect. Qaisera.


长叶蒲公英 chang ye pu gong ying

Herbs to 25 cm tall, subrobust. Petiole purplish, winged; leaf blade grayish green with a pinkish midvein, oblanceolate to broadly linear, 10–18 × 2.5–5 cm, subglabrous, regularly deeply lobed; lateral lobes 3–6 pairs, triangular, ± patent, apical margin concave and entire or minutely dentate, apex acuminate; terminal lobe triangular, apex subobtuse. Scapes brownish green, ± equaling leaves, apically arachnoid when young. Capitulum ca. 4 cm wide. Involucre 1.1–1.5 cm wide, base broadly rounded. Outer phyllaries 15–19, ± imbricate, ovate to ovate-lanceolate, outermost ones 8–11 × 3–4.5 mm and ca. 1/2 as long as inner ones, loosely appressed to erect, usually not distinctly veined, middle part blackish green, border whitish pale green and to 1 mm wide, margin glabrous, not corniculate below apex; inner phyllaries 1.7–1.8 cm. Ligules deep yellow; outer ligules outside striped purplish; inner ligules with pinkish apical teeth; floret tube pubescent. Stigmas greenish. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 3.8–4 × 0.8–0.9 mm; body ± smooth below, apically spinulose with thin long acute spinules, ± gradually narrowing into a cylindrical 0.8–1 mm cone; beak ca. 8 mm. Pappus pure white, 5–6 mm. Fl. spring. Agamosperm.

- Grasslands. SW Xinjiang.


短角蒲公英 duan jiao pu gong ying

Herbs 10–20(–25) cm tall. Petiole pale green or sometimes pinkish, ± winged; leaf blade bright light green with a greenish midvein, oblanceolate, (8–)10–14(–23) × 2–3 cm, sparsely arachnoid, sometimes undivided, usually pinnatilobed to pinnatisect, sometimes lyrate-runcinate (lobes in lower ca. 1/2); lateral lobes 4 or 5, triangular to deltoid, ± patent to subrecurved, distal margin usually convex to ± sigmoid and subentire, apex acute; interlobes ca. 10 × 5–8 mm, margin entire or sparsely denticulate; terminal lobe flat-triangular to flat-deltoid, margin entire, apex mucronate. Scapes pale green at base but brownish green above, usually overtopping leaves, floccose-arachnoid and densely so below capitulum. Capitulum 2.5–3.5 cm wide. Involucre 9–10 mm wide, base rounded to slightly obconic. Outer phyllaries (12 or)13–15(or 16), light green, ± not imbricate, ovate-lanceolate to lanceolate, outermost ones 5.5–8
× 2–3 mm and 2/5–2/3 as long as inner ones, loosely appressed, erect to rarely irregularly patent, border ± distinct, whitish membranous, and 0.3–0.5–0.9 mm wide, margin ± glabrous, apex suffused red with a short obtuse horn to 1 mm; inner phyllaries 1.3–1.5 cm, calloose to minutely (ca. 0.3 mm) corniculate near apex. Ligules yellow; outer ligules ± flat, outside broadly striped grayish pink; inner ligules with dirty yellow or pinkish apical teeth. Stigmas dirty yellow to slightly greenish yellow. Anthers polliniferous; pollen grains irregular in size. Achene light grayish straw-colored 2
grayish pale brown, (3.6–)4.2–4.5(–5) × (0.8–)0.9–1.2 mm; body densely spinulose in upper 1/3–1/5, subgradually to sub-


角状蒲公英组 jiao zhuang pu gong ying zu

Leaves usually slightly fleshy, light green to pale glaucescent-green, sometimes suffused bronze, not spotted, subglabrous. Outer phyllaries usually light to yellowish green with an indistinct paler or whitish border but often reddish near apex, usually appressed to appressed or erect, ovate, lanceolate, or rarely linear-lanceolate, usually 4–6.5 × 1–3.5 mm, apex with horn or at least corniculate. Outer ligules usually pale yellow, outside striped faintly reddish. Stigmas pure yellow. Achene light grayish straw-colored brown, usually 3–5 mm, to 0.9 mm wide; body relatively densely spinulose above, gradually to subgradually narrowing into subcylindrical (0.7–0.8–1(–1.6) mm cone, spinules usually thin, straight, erect, and acute; beak (3.5–)5–7(–8.5) mm. Pappus white to snow white, usually 5–7 mm.

About six to eight species: centered in C Asia; two species in China.

Taraxacum glaucanthum (Ledebour) Candolle (Prodr. 7: 147. 1838, not Nakai & Koidzumi, 1936), another member of T. sect. Ceratoidea, was described from NE Kazakhstan in the vicinity of the Chinese border and might be detected in northwesternmost Xinjiang.

Taraxacum monochlamydeum Handel-Mazzetti (Monogr. Taraxacum, 43. 1907) was repeatedly reported to occur in Xinjiang (since G. E. Haglund in Persson, Bot. Not. 1938: 310. 1938). During that time, T. bicorne was believed to be a member of T. sect. Ceratophora (Handel-Mazzetti) A. P. Khokhrjakov (= T. sect. Boreala in the present treatment) and generally overlooked. Schischkin and Tzvelev (Fl. URSS 29: 483. 1964) recognized T. bicorne as a member of T. sect. Macrocornuta s.l. The Chinese material seen, partly also identified as T. monochlamydeum by G. E. Haglund, belongs to T. bicorne, and T. monochlamydeum probably is confined to more western parts of C Asia (being common in Turkmenistan and Uzbekistan). The occurrence of T. monochlamydeum in China remains to be confirmed, and further study is needed.

1a. Stigmas dirty yellow to light greenish yellow; pollen grains irregular in size; involucre 9–10 mm wide at base; paler outer phyllary border 0.3–0.9 mm wide ...

90. T. brevicorniculatum (see T. sect. Qaiser a)

1b. Stigmas pure yellow; pollen grains regular in size; involucre to 8 mm wide at base; paler outer phyllary border 0.1–0.4 mm wide.

2a. Leaf lateral lobes with entire distal margin; inner phyllaries with a thin horn; achene beak 3–4.5 mm ........ 91. T. koksaghyz

2b. Leaf lateral lobes with denticulate distal margin; inner phyllaries with a thick short horn; achene beak 7–9 mm ...

saghyz"].

橡胶草 xiang jiao cao

Herbs 4–15 cm tall. Petiole pale green, winged; leaf blade light grayish greenish green with a light green to rarely pinkish midvein, narrowly oblancoate to broadly oblancoate, 3–7(–10) × 1.2–3 cm, ± fleshy, very sparsely arachnoid to glabrous, undivided, margin remotely denticulate to regularly pin-natiolobed to pinnatifid; lateral lobes 2 or 3(–5) pairs, broadly triangular, patent to subcurvated, proximal margin ± straight and entire, distal margin convex and entire, apex obtuse to subacute; interlobes not spotted, broad, margin entire; terminal lobe usually triangular, margin entire, apex subobtuse. Scapes light green or pinkish, ± overtopping leaves, arachnoid. Capitulum 2–3 cm wide. Involucre 5–8 mm wide, base obconic-rounded. Outer phyllaries 8–13, light green sometimes distally suffused purplish, not imbricate, linear-lanceolate to narrowly ovate, outermost ones 5.5–7 × (1–)1.2–2.2(–2.5) mm and 1/2–4/5 as long as inner ones but sometimes equaling them, loosely appressed to erect, border whitish light green or ± membranous and 0.1–0.3 mm wide, margin sparsely ciliate to glabrous, apex with a 2.5–4 mm horn of perpendicular to erect position; inner phyllaries 8–12 mm, apex with a thin 1–2 mm horn. Ligules light yellow; outer ligules flat, outside not striped or faintly striped purplish; inner ligules with yellow teeth at apex. Stigmas pure yellow. Anthers polliniferous; pollen grains regular in
size. Achenes light grayish straw-colored brown, 2.8–3.8 × 0.7–0.9 mm; body ± densely spinulose above, subgradually narrowing into a subcylindric (0.5–)0.7–1 mm cone, spinules usually irregularly bent upward and not squamulose; beak 3–4.5 mm. Pappus ± white, 3.5–4.5 mm. Fl. late spring and early summer. Sexual. 2n = 16.

Medium-moist subsaline pastures with Achnatherum splendens, path margins, riverbanks; 1600–2000 m. W Xinjiang [Kazakhstan].


双角蒲公英  shuang jiao pu gong ying

Herbs 4–17 cm tall. Petiole pale green, narrowly winged; leaf blade glaucous-green with a light green to pinkish midvein, narrowly oblanceolate to narrowly oblong, 3–12 × 1.1–2.5 cm, slightly fleshy, glabrous, shallowly pinnatifid; lateral lobes usually 4 or 5 pairs, deltoid, falcate, or broadly deltoid-triangular; petiole ± unwinged; leaf blade glaucous green, blackish green, or mid-green but often with a purplish apex or borders or entirely suffused purplish or spotted on interlobes, usually thin, not thickened; petiole ± unwinged; leaf blade undivided to pinnatisect in a complicated manner. Outer phyllaries dark green, blackish green, or mid-green but often with a purplish apex or borders or entirely suffused purplish, linear-lanceolate to ovate-lanceolate, usually arcuate to patent or rarely erect-patent, apex callose to corniculate; inner phyllaries often of unequal width, apex flat to horned. Stigmas usually discolored. Achenes light grayish straw-colored brown, usually 3–4 × 0.8–1 mm; body ± densely spinulose above, subabruptly narrowing into a subcylindric 0.8–1 mm cone, spinules thin, usually suberect, and not squamulose; beak 7–9 mm. Pappus bright white, 5–6 mm. Fl. late spring and early summer. Sexual.

Subsaline pastures, grasslands; 600–1800 m. Gansu, Qinghai, Xinjiang [Kazakhstan, Kyrgyzstan].

Reports of Taraxacum bicorne from Nei Mongol and Ningxia (Higher Pl. China 11: 779. 2005) remain to be proven.


大角蒲公英组  da jiao pu gong ying zu

Leaves deep green and suffused purplish or spotted on interlobes, usually thin, not thickened; petiole ± unwinged; leaf blade undivided to pinnatisect in a complicated manner. Outer phyllaries dark green, blackish green, or mid-green but often with a purplish apex or borders or entirely suffused purplish, linear-lanceolate to ovate-lanceolate, usually arcuate to patent or rarely erect-patent, apex callose to corniculate; inner phyllaries often of unequal width, apex flat to horned. Stigmas usually discolored. Achenes light grayish straw-colored brown, usually 3–4 × 0.8–1 mm; body ± densely spinulose above, subabruptly narrowing into a subcylindric to cylindrical 0.4–2 mm cone, spinule usually long, thin, and erect-patent; beak usually longer than 7–8 mm, thin. Pappus snow white.

About 25 species: centered in the region from Iran to C Asia; one species in China.

Taraxacum sect. Macrocornuta in China requires additional study where only one species was identified with certainty, but the diversity might be higher.

Taraxacum sect. Macrocornuta was not subjected to a taxonomic revision. The names published on the material from the vicinity of China form a complex of agamospermous and sexual populations, and without a field population study it is difficult to delimit individual taxonomic units. Taraxacum latavicum Schischkin (Fl. URSS 29: 477, 731. 1964), T. lipskyi Schischkin (Fl. Turkmen. 7: 383. 1960), and T. longipyramidatum Schischkin (Fl. URSS 29: 489, 735. 1964) were reported from Xinjiang (C. H. An, Fl. Xinjiang. 5: 420, 425, 426. 1999; FRPS 80(2): 37, 48, 49. 1999), but both the complexity of the group and the lack of convincing material to prove the records make it advisable not to include these names in the present treatise. Taraxacum wallichii Candolle is a sexual taxon described from India; the name usually covers the whole section in the literature. We have failed to find any Chinese material approaching the morphology of T. wallichii.

The name Taraxacum repandum N. Pavlov refers to a taxon occurring in southwesternmost Tian Shan in Kazakhstan. It is a morphologically peculiar species, rather isolated in the flora of C Asia, and difficult to assign to a section. It might belong to T. sect. Macrocornuta as a marginal member, but further study is needed. We consider the report of its occurrence in China (FRPS 80(2): 63. 1999) as an error.


多裂蒲公英  duo ting pu gong ying

Herbs 12–25 cm tall. Petiole purple, unwinged; leaf blade mid-green with a pinkish midvein, narrowly oblanceolate, 4–17 × 1.5–3 cm, subglabrous to glabrous, shallowly pinnatifid; leaf blade undivided to pinnatisect but sometimes undivided and margin dentate; lateral lobes usually 2–4 pairs, deltoid to narrowly triangular, usually patent, proximal margin ± entire, distal margin ± entire or rarely remotely denticulate, apex subacute; interlobes broad, margin subentire; terminal lobe ± triangular, margin ± entire, apex subacute. Scapes purple, overtopping leaves, glabrescent. Capitulum 2.5–3.5 cm wide. Involucre ca. 1 cm wide, base rounded. Outer phyllaries 8–12, light green, slightly pruinose, and later suffused brownish pink, not imbricate, ovate to broadly lanceolate, outermost ones 4–7 × 2.5–4 mm and 1/3–1/2 as long as inner ones, reflexed with tips pointing toward scape, border indistinct, membranous, or pinkish and ca. 0.1 mm wide, margin ± glabrous, apex flat to corniculate; inner phyllaries 1.2–1.4 cm, apex dark corniculate. Ligules light yellow; outer ligules flat, outside striped brownish purple; inner ligules with yellow teeth at apex; ligule tube pubescent. Stigmas pure yellow. Anthers polliniferous; pollen grains regular in size. Achenes light grayish straw-colored brown, 3.7–4.2 × 0.8–0.9 mm; body ± densely spinulose above, subgradually narrowing into a subcylindric 0.8–1 mm cone, spinules thin, usually suberect, and not squamulose; beak 7–9 mm. Pappus bright white, 5–6 mm. Fl. late spring and early summer. Sexual.

Type: Taraxacum subglaciale Schischkin.

Planta alpinae vel subnivales graciles, foliis plerumque indivisis, lobulatis, lineari-lanceolatis vel oblongo-lanceolatis, scapus plerumque glaberrimis, phyllariis involucralibus exterioribus non imbricatis vel inconspicue imbricatis, anguste lanceolatis usque lanceolatis, plerumque in parte media latissimis, subobtusis, planis vel callosis, rarum minute ciliatis, 0.1–0.6 mm latis, glabris vel raro sparsissime ciliatis, phyllariis interioribus planis vel interdum callosis, achenis plerumque 4–5.5 mm longis (pyramide inclusa), omnino laevibus vel raro sublaevibus et tuberculatis sparsis minutissimis in parte superiore praeditis, pyramide carentibus vel in pyramidem indistinctam, rarissime conicum sensim abientibus, rostro crassiusculo disrupente 1.5–5(–7) mm longo, pappo albo-lutescente 4–7 mm longo.

Plants delicate, usually glabrous to subglabrous. Petiole unwinged; leaf blade usually narrow, undivided or shallowly lobed. Capitulum often nodding after anthesis. Outer phyllaries 7–15, blackish green to dark green, ± of equal length, appressed, loosely appressed, or rarely erect, narrowly lanceolate to lanceolate, usually broadest in middle, almost unbordered to bordered, margin usually glabrous but seldom sparsely ciliate, apex without a horn but sometimes callose. Ligules yellow, lilac, pinkish to violet. Achene usually grayish straw-colored brown to blackish brown, (3.9–)4.5–5(–5.7) × 0.8–1 mm; body smooth or less often sparsely minutely tuberculate above, cone absent or achene body gradually narrowing into an indistinct cone, cone (when developed) broadly conical to conical and 0.4–0.8 mm; beak 1.5–5(–7) mm, ± thick, easily breaking off. Pappusyellowish white or white, 4–7 mm.

About 15 species: C Asia; five species (one endemic) in China.

Taraxacum sect. Atrata has a center of diversity in NW China (W Xinjiang), Kazakhstan, Kyrgyzstan, NW Mongolia, and perhaps elsewhere in C Asia.

Taraxacum sect. Oligantha is the closest section to T. sect. Atrata but differs from it in having densely hairy scapes, imbricate and hairy outer phyllaries (often hairy on adaxial and/or abaxial surfaces and ciliate) of paler color, outer phyllaries with a blackish corniculate apex, achene beak very thick (not caducous), and pappus fragile. Another similar taxon, T. glabrum of T. sect. Glabra, differs in the well-developed distinctly narrower cone and thin beak.

In addition to the species given below, there is another name, Taraxacum alpigenum Dushman (Fl. Kirgizsk. S.S.R. 1: 116. 1967), based on the material from a border range between W Xinjiang and Kyrgyzstan (Torugart Range). We have not seen the original material, and the protologue does not give enough facts to compare the name with the other members of the section (with the exception of the achene characters). If it proves to be a separate species, it should be included in the Chinese flora.

1. Ligules deep pink to pinkish violet ................................................................. 98. T. lilacinum
2b. Achene body ± smooth; leaf blade ± linear ........................................... 97. T. subglaciale


Herbs 5–12 cm tall. Petiole pale green, ± unwinged; leaf blade probably mid-green, oblongate, 6–8 × 1.5–2 cm, glabrous, pinnatifid, midvein pale green; lateral lobes 2 or 3 pairs, triangular to deltoid, to 1 cm, usually patent, margin usually entire; interlobes short, broad, margin ± entire; terminal lobe triangular. Scapes brownish green, ± equalling leaves, glabrous. Capitulum 2–3 cm wide. Involucre 8–11 mm wide, base rounded. Outer phyllaries 11–14, almost black, ± imbricate, ovate to ovate-lanceolate, outermost ones 5–7 × 2.5–4 mm and ca. 1/2 as long as inner ones, ± appressed to suberect, unbordered, margin ± glabrous, flat below apex; inner phyllaries 1.3–1.7 cm, flat below apex. Ligules yellow; outer ligules outside striped grayish pink; inner ligules with purple to blackish teeth. Stigmas blackish green. Anthers polliniferous. Achene grayish straw-colored brown, 4.5–5.2 × 0.9–1 mm; body ± smooth or apically very sparsely minutely tuberculate, very indistinctly and gradually narrowing into a broadly conic 0.6–0.9 mm cone or cone not discernible at all; beak 4–5 mm, thick. Pappus ± white, 6–7 mm. Fl. summer.

● Alpine slopes; ca. 3500 m. W Xinjiang (Tian Shan).
**Taraxacum sinotianschanicum** is known from the type specimen only. It deviates from the most common pattern of *T*. *Atrata* in having outer phyllaries ± imbricate and of a broader shape.

**95. Taraxacum golos kokovii** Schischkin, Fl. URSS 29: 748. 1964.

小叶蒲公英  xiao ye pu gong ying

Herbs 5–8 cm tall. Petiole pinkish green, ± unwinged; leaf blade mid-green, linear-oblancoate, 5–8 × (0.3–)0.5–0.7 (–1.2) cm, glabrous, undivided, margin entire or with irregular short linear lateral teeth (1–3 on each side) or pinnatisect; lateral lobes 2 or 3 pairs, linear-triangual, to 5 mm, usually subrecurved, margin entire; interlobes narrow, margin ± entire; terminal lobe linear-triangular, base sagitate. Scapes brownish green, equaling leaves, glabrous. Capitulum ca. 1.5 cm wide. Involute 6–7 mm wide, base ± rounded. Outer phyllaries 10–15, deep grayish green, not imbricate, narrowly lanceolate, outermost ones 5–6 (–7) × 1.3–2 mm and ca. 1/2 as long as inner ones, ± appressed to loosely appressed, border paler, narrow, and indistinct or sharply delimited and 0.1–0.3 mm wide, margin glabrous, flat to blackish callose below obtuse apex; inner phyllaries 1–1.2 cm, flat to subcomniculate below apex. Ligules yellow; outer ligules outside striped pinkish black. Stigmas deep (paler brownish) yellow. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 4.5–5 × ca. 1.5 mm. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 3.9–4.1 × ca. 0.9 mm; body ± smooth or apically with a few almost invisible tubercles, cone not discernible or broadly conic and 0.6–0.8 mm; beak 4–4.5 mm, ± thick. Pappus ± white, ca. 5 mm. Fl. summer. Agamosperm.

Along alpine streams, stream terraces; 3000–3700 m. SW Xinjiang [Kazakhstan].


窄边蒲公英  zhai bian pu gong ying


Herbs 5–10 cm tall. Petiole ± green, narrowly winged; leaf blade mid-green, ± obovate to broadly obovate, 5–8 × 1.2–2 cm, glabrous, undivided to shallowly sinuate-lobed, margin entire; outer phyllaries 7–9, fairly long, ± imbricate, lanceolate to narrowly lanceolate, often broadest in middle or tapering from base, outermost ones 5–7 × 1.5–2.3 cm and ca. 1/2 as long as inner ones, ± appressed, border paler, narrow, and not always distinct or to 0.3 mm wide, margin glabrous or rarely sparsely ciliate, apex ± flat; inner phyllaries 1.1–1.4 cm, apex flat. Ligules yellow; outer ligules outside striped grayish pink. Stigmas yellow to dirty yellow. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 4.4–4.5 × ca. 0.9 mm, smooth to very sparsely minutely tuberculate above, cone indistinct with body very gradually narrowing in beak; beak 2.5–4 mm, ± thick. Pappus white, 5–6 mm. Fl. summer. Agamosperm.

Herbs 4–8 cm tall. Petiole purplish, unwinged; leaf blade mid-green, ± spatulate-oblancoate, 2.5–8 × 0.5–1.7 cm, glabrous, undivided, margin usually remotely dentate or less often with remote short triangular lobules, apex subacute. Scapes brownish green, usually overtopping leaves, glabrous. Capitulum ca. 2 cm wide. Involute 7–9 mm wide, base broadly rounded. Outer phyllaries 8–13, middle part deep grayish green to blackish green, ± not imbricate, ± lanceolate, often broadest in middle, outermost ones 4–5 (–8) × 1.5–2.3 cm and 1/2–2/3 as long as inner ones, ± appressed, border narrow or with a gradual transition into paler to whitish 0.1–0.3 mm wide border, margin glabrous, flat below apex; inner phyllaries 1.1–1.4 cm, ± flat below apex. Ligules deep pink to light pinkish violet; outer ligules faintly striped deeper pink. Stigmas dark (probably dark green). Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 4.4–4.5 × ca. 0.9 mm, smooth to very sparsely minutely tuberculate above, cone indistinct with body very gradually narrowing in beak; beak 2.5–4 mm, ± thick. Pappus white, 5–6 mm. Fl. summer. Agamosperm.

Alpine or subalpine grasslands; probably above 3000 m. Xinjiang (Ketmen Tau, Tian Shan) [Kazakhstan].


寒生蒲公英  han sheng pu gong ying

Herbs 4–8 cm tall. Petiole purplish, unwinged; leaf blade mid-green, ± linear, 4–6 × 0.5–0.8 cm, glabrous, usually with a few lobules or pinnatisect but sometimes undivided; lateral lobes 1 or 2 pairs, linear-triangual to linear, usually ± recurved, margin entire; interlobes narrow, margin entire; terminal lobe linear, elongated-lingulate, basal segments ± linear and subrecurved. Scapes brownish green, overtopping leaves, glabrous. Capitulum ca. 1.5 cm wide. Involute 5–6 mm wide, base subobonic. Outer phyllaries 8–10, middle part deep grayish green with a very gradual transition into paler border, not imbricate, ± narrowly lanceolate, outermost ones 4.5–5 × ca. 1.5 mm and ca. 1/3 as long as inner ones, ± appressed to loosely appressed, border narrow, paler grayish green to whitish, and 0.2–0.3 mm wide, margin glabrous, flat below apex; inner phyllaries 1–1.2 cm, ± flat to blackish callose below apex. Ligules yellow. Stigmas yellowish green. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 3.9–4.1 × ca. 0.9 mm; body ± smooth or apically with a few almost invisible tubercles, cone not discernible or broadly conic and 0.6–0.8 mm; beak 4–4.5 mm, ± thick. Pappus ± white, ca. 5 mm. Fl. summer. Agamosperm.

Alpine slopes, on moist shallow soils; 3500–4500 m. Xinjiang [Kazakhstan].


紫花蒲公英  zi hua pu gong ying

Herbs 4–12 cm tall. Petiole green to pinkish, unwinged; leaf blade mid-green, ± obovate-oblancoate, 2.5–8 × 0.5–1.7 cm, glabrous, undivided, margin usually remotely dentate or less often with remote short triangular lobules, apex subacute. Scapes brownish green, usually overtopping leaves, glabrous. Capitulum 2–2.5 cm wide. Involute 7–9 mm wide, base broadly rounded. Outer phyllaries 8–13, middle part deep grayish green to blackish green, ± not imbricate, ± lanceolate, often broadest in middle, outermost ones 4–5 (–8) × 1.5–2.3 mm and 1/2–2/3 as long as inner ones, ± appressed, border narrow or with a gradual transition into paler to whitish 0.1–0.3 mm wide border, margin glabrous, flat below apex; inner phyllaries 1.1–1.4 cm, ± flat below apex. Ligules deep pink to light pinkish violet; outer ligules faintly striped deeper pink. Stigmas dark (probably dark green). Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 4.4–4.5 × ca. 0.9 mm, smooth to very sparsely minutely tuberculate above, cone indistinct with body very gradually narrowing in beak; beak 2.5–4 mm, ± thick. Pappus white, 5–6 mm. Fl. summer. Agamosperm.

Wet alpine slopes, gravelly sites, alpine meadows; 3000–3800 m. Xinjiang (Ketmen Tau, Tian Shan) [Kazakhstan, Kyrgyzstan].

Plants morphologically similar to *Taraxacum iliacinum* but sexual have been reported (D. T. Zhang et al., Acta Bot. Boreal.-Occid. Sin. 17: 1–7, 1997), and their status remains to be studied.
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北极蒲公英组 bei ji pu gong ying zu

Plants small, delicate. Leaves usually subglabrous to glabrous; petiole unwinged or rarely narrowly winged; leaf blade undivided or shallowly to deeply lobed, indented sparse. Outer phyllaries usually few, 8–11(–15), ± blackish green to dark green, broadly ovate to broadly lanceolate, usually less than 5–6 mm, ± appressed to loosely appressed, rarely erect, unbordered or bordered whitish or purplish, margin usually glabrous or rarely ciliate, apex usually corniculate. Ligules yellow, pale yellow, whitish, white, or pinkish. Stigmas discolored. Achene brown, olivaceous brown, blackish, reddish, straw-colored brown, gray, etc., usually 3.5–4.5 mm, not thick; body very sparsely to ± densely spinulose and/or tuberculate above, ± gradually narrowing into a conic to subconic 0.3–0.8 mm cone; beak to 5 mm, thin to slightly thickened. Pappus white.

More than 40 species: tundra of European Arctic, Alps of Europe, mountains of C Asia; one species (endemic) in China.

Taraxacum sect. Arctica has rarely been reported to occur in C Asia or China, and reports (e.g., FRPS 80(2). 1999) did not cover members of the section. However, there are several taxa described from that territory that belong to it on the basis of achene and outer phyllary characters. They are T. junatovii Tzvelev (SW Mongolia), T. heptapotamicum Schischkin and T. atrans Schischkin (C Tian Shan), and T. tzvelevii Schischkin (Tajikistan). Taraxacum alatopetiolatum, endemic to China, also belongs to this group.

Taraxacum altaicum Schischkin (Sist. Zametki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kuybysheva 1949(1–2): 6. 1949), reported as a Chinese species in FRPS 80(2): 37. 1999, is a marginal member of T. sect. Arctica or an intermediate between T. sect. Arctica and T. sect. Borealia. It occurs in the Russian part of the Altai and perhaps might be found in northernmost Xinjiang. However, the description in FRPS does not correspond to the characters of the species, and no Chinese material of this species has been revised by us.


翼柄蒲公英 yi bing pu gong ying

Herbs 4–6 cm tall. Petiole narrowly winged; leaf blade ± mid-green, ob lanceolate, 2.5–4.5 × 0.5–0.9 cm, ± glabrous, not divided or margin shallowly pinnatifid to remotely dentate; lateral lobes or teeth 1 or 2 pairs, triangular, 1–2 mm, patent to subrecurved, margin entire; interlobes broad or not developed in undivided leaves, margin entire; terminal lobe triangular, margin entire, apex subacute. Scapes succused purplish, ± equaling leaves, arachnoid and densely white arachnoid below capitulum. Capitulum ca. 2 cm wide. Involucre 5–6 mm wide, base rounded. Outer phyllaries 11–15, surface evenly blackish or dark gray, ± imbricate, ovate to broadly ovate, outermost ones (2.2–)3–4.5(–5.5) × (2.5–)3–4.2 mm and 1/2–3/5 as long as inner ones, appressed, margin glabrous, apex almost flat in first capitula but black corniculate in later ones; inner phyllaries blackish, 1–1.3 cm, ± flat or corniculate below apex. Ligules golden yellow; outer ligules flat, outside striped gray; floret tube glabrous. Stigmas blackish. Achene blackish brown, 3.7–4.3 × 1–1.1 mm; body sparsely and minutely spinulose or tuberculate above, ± gradually narrowing into a conic 0.5–0.6 mm cone; beak 4–5 mm. Pappus slightly yellowish white, ca. 5 mm. Fl. summer.

● Wet alpine grasslands; ca. 3400 m. Xinjiang.

Taraxacum alatopetiolatum is similar to T. atrans Schischkin but differs in having more numerous outer phyllaries.


光果蒲公英组 guang guo pu gong ying zu

Herbs small, glabrous. Leaves undivided. Outer phyllaries blackish green, ± not imbricate, ovate-lanceolate to linear-lanceolate, erect to arcuate-patent, without a paler border, margin glabrous, apex acute and ± flat. Achene long, slender, usually 4.3–5.7 × ca. 0.8 mm; body smooth or very sparsely spinulose or tuberculate above, very gradually narrowing into a subcylindric to cylindric 0.4–0.8 mm cone; beak 5–7 mm, thin. Pappus white or yellowish white, 5–6 mm.

Two species: centered in the Asiatic Arctic and reaching mountains of S Siberia and adjacent regions; one species in China.

For differences between Taraxacum sect. Glabra and T. sect. Atrata see the description of the latter and comments there.

100. Taraxacum glabrum Candolle, Prodr. 7: 147. 1838.

光果蒲公英 guang guo pu gong ying

Herbs 6–20 cm tall, base glabrous. Petiole purplish, to 10 cm, very narrow, glabrous; leaf blade deep green with a purplish midvein, oblong-spatulate, 2.5–8 × 0.8–1.9 cm, glabrous, undivided, margin entire or remotely sinuate-dentate, apex subobtuse to obtuse; teeth 1–3 pairs, apex obtuse. Scapes brownish green, ± equaling but later overtopping leaves, glabrous. Capitulum 3–4 cm wide. Involucrc 7–10 mm wide, base rounded. Outer phyllaries 13–18, dark blackish green, ± not imbricate, ovate-lanceolate to narrowly lanceolate, outermost ones 5–7 × 1.9–2.6 mm and ca. 1/3 as long as inner ones, erect to patent, paler border not developed, margin glabrous, apex subacute and ± flat; inner phyllaries 1.2–1.5 cm, ± flat near apex. Ligules deep yellow; outer ligules outside faintly striped grayish green; inner ligules with dark apical teeth. Stigmas grayish green. Anthrers polliniferous; pollen grains irregular in size. Achene greyish light brown, 4.8–5.5 × ca. 0.8 mm; body smooth, very gradually narrowing into subcylindric to cylindric (0.6–)0.8 × ca. 0.3 mm cone; beak 5–7 mm. Pappus yellowish white, 5–6 mm. Fl. summer. Agamosperm. 2n = 24.

Wet mossy subalpine to alpine sites, vicinity of springs; 1600–3000 m. N Xinjiang [Kazakhstan, Mongolia, Russia (Altai)].

北方蒲公英组 bei fang pu gong ying zu

Plants medium-sized, rarely robust. Leaves usually mid-green, not thickened, sparsely arachnoid to subglabrous; petiole broadly winged to narrowly winged; leaf blade shallowly to deeply pinnatifid to pinnatisect; lobes most often patent. Scapes usually growing laterally from leaf rosette, not from center. Outer phyllaries green to blackish green, ± not imbricate, lanceolate to ovate, loosely appressed, erect or erect-patent, usually with a paler broad to narrow border, margin glabrous to sparsely ciliate, apex with a conspicuous horn or sometimes only so in later capitula. Ligules yellow or whitish. Achene grayish straw-colored brown, rarely brown or reddish, usually 4.5 × 0.9–1.1 mm; body shortly spinulose above, usually subabruptly narrowing into a conic to subcylin- dric 0.5–1.4 mm cone; beak usually 6–11 mm, thin. Pappus white or yellowish white.

About 80 species; mostly in circumpolar subarctic regions, many in mountains of C Asia; three species (two endemic) in China.

Several species of Taraxacum sect. Borealia were described from the vicinity of the Chinese border: *T. karakoricum* Soest from the Karakoram of Pakistan, *T. stanjukovičzii* Schischkin from Upper Badakhshan of Tajikistan, and *T. pavlovii* Orazova from SE Kazakhstan. They have not been found in the material available but their occurrence in China is not improbable.

Variation is often but not always observed in the development of horns in the outer phyllaries. The first capitula to blossom often have flat or callose outer/inferior phyllaries while later capitula have a distinct horn on the phyllaries.

1a. Ligules white .......................................................... 103. *T. pingue*

1b. Ligules yellow.

2a. Outer phyllaries with a sharply delimited pale 0.1–0.4 mm wide border ........................................ 101. *T. roborovskyi*

2b. Outer phyllaries with a gradual transition from dark middle part into a pale 0.6–1 mm wide border .... 102. *T. qirae*


高山蒲公英 gao shan pu gong ying

Herbs 20–35 cm tall. Petiole pinkish, narrowly winged; leaf blade mid-green with a pinkish midvein, oblanceolate, 15–25 × 3–4 cm, subglabrous, remotely and shallowly pinnatilobed; lateral lobes 2 or 3 pairs, deltoid, patent, margin ± entire; interlobes broad and long, margin entire; terminal lobe helmet-shaped to triangular, margin entire. Scapes brownish green, overtopping leaves, sparsely arachnoid below capitulum. Capitulum 30–40 mm wide. Involucre 1–1.2 cm wide, base rounded. Outer phyllaries ca. 19, black-green with sharply delimited white border, ± not imbricate, lanceolate, outermost ones 12–14 × 2.5–3.5 mm and 3/4–4/5 as long as inner ones, ± appressed, border (0.1–)0.3–0.4 mm wide, margin ± glabrous, with a thick large horn ca. 2 mm below apex; inner phyllaries 1.3–1.6 cm, with a thick horn below apex. Ligules yellow; outer ligules flat, outside striped purplish gray; inner ligules with purple teeth. Stigmas grayish green. Anthers without pollen. Achene unknown. Fl. summer. Agamosperm.

- Mountain meadows and pastures; ca. 3100 m. W Xinjiang (Tian Shan).

*Taraxacum roborovskyi* is known from the type specimen only.


策勒蒲公英 ce le pu gong ying

Herbs 5–12 cm tall. Petiole usually suffused purplish, winged in some leaves, base arachnoid; leaf blade mid-green with a green to pinkish midvein, ± oblanceolate, 2–9 × 1–1.5 cm, subglabrous, shallowly pinnatifid to remotely dentate; lateral lobes or teeth 3–5 pairs, broadly triangular, 2–4 mm, usually recurved, margin entire; interlobes broad or not developed in undivided dentate leaves, margin entire; terminal lobe triangular, margin entire, apex subobtuse, basal lobules or teeth ± recurved. Scapes suffused purplish, ± overtopping leaves, sparsely arachnoid to subglabrous. Capitulum 2.5–3 cm wide. Involucre 8–10 mm wide, base ± rounded. Outer phyllaries 8–11, middle part blackish with a gradual transition into a whitish to white border, not imbricate, narrowly lanceolate, outermost ones 9–14 × 2–4 mm and ca. 3/4 as long as inner ones, ± loosely appressed, border 0.6–1 mm wide, margin glabrous, apex conspicuously corniculate; inner phyllaries blackish, 1.3–1.8 cm, corniculate below apex. Ligules yellow; outer ligules flat, outside striped gray; inner ligules with gray apical teeth. Stigmas blackish. Anthers polliniferous; pollen grains irregular in size. Achene ochraceous brown when unripe but later getting darker and becoming dark brown, 4.2–4.5 × 1–1.1 mm; body spinulose above, ± abruptly narrowing into a subconic 0.8–0.9 mm cone, spinules thin, erect-patent, and acute; beak 5–6 mm. Pappus ± white, ca. 6 mm. Fl. summer. Agamosperm.

- Mountain meadows; probably above 2500 m. W Xinjiang (Qira).

*Taraxacum qirae*, a species described from the Kunlun Shan, is clearly a member of the sect. *Borealia*. Its closest relative, *T. pavlovii* Orazova, growing in C Tian Shan of Kazakhstan, differs in having substantially more numerous outer phyllaries and totally different achenes. The geographically closest member of this section, *T. karakoricum* Soest, lacks the whitish borders to the outer phyllaries and has a different leaf shape. The latter species might be found in China as it was described from the Karakoram of Pakistan, not far from the Chinese border.


尖角蒲公英 jian jiao pu gong ying

Herbs 5–10 cm tall. Petiole usually suffused pinkish, winged, base arachnoid; leaf blade mid-green, ± oblanceolate to narrowly ovate, 4.8–1 × 1–2.5 cm, sparsely arachnoid, undivided and dentate to remotely shallowly lobulate, midvein pale pur-
plish but distally green; interlobes not developed; leaf apex subobtuse to acute. Scapes brownish green, subequalling leaves, arachnoid. Capitulum 3–4 cm wide. Involucre 1.1–1.5 cm wide, base rounded. Outer phyllaries 13–19, ± blackish green with a whitish border, not imbricate, ovate-lanceolate, largest ones 5–11 × 2–3.5 mm and ca. 3/5 as long as inner ones, ± loosely appressed, border membranous and to 0.5 mm wide, margin sparsely ciliate to glabrous, apex with a conspicuous thick horn; inner phyllaries blackish, 1.3–1.9 cm, corinicate below apex. Ligules white; outer ligules flat, outside striped grayish purple. Stigmas blackish green. Anthers polliniferous; pollen grains irregular in size. Achene light straw-colored brown, 4.5–4.8 × ca. 1 mm; body subsparsely spinulose above, subapically narrowing into a thick conic 0.7–0.8 mm cone; beak 6.5–8 mm. Pappus ± white, ca. 8 mm. Fl. summer. AgamospERM.

Alpine meadows, below glaciers; 2800–3000 m. NW Xinjiang (summit area of Saur Mountains) [NE Kazakhstan].

Reports of Taraxacum pingue from Hejing Xian and Tashkorgan Xian (FRPS 80(2): 46. 1999) require further study.


小花蒲公英组 xiao hua pu gong ying zu

Plants usually small to medium-sized. Petiole usually narrowly winged; leaf blade light grayish green or glaucous green, pinnatilobed to pinnatisect; lobes not numerous, triangular, simple, margin usually entire or sparsely denticate. Involucre usually 7–10 mm wide, base subobconic to ± rounded. Outer phyllaries not numerous, usually 8–12(–20), pale green to light glaucous green with a narrow darker middle strip and paler surface, narrowly lanceolate to ± ovate, subimbricate, appressed to erect but sometimes some arcuate, border whitish and very narrow. Ligules yellow. Achene pale straw-colored brown, ochraceous, pale reddish straw-colored brown, or grayish to whitish straw-colored brown, 3.8–5.2 × 0.7–0.9(–1) mm; body sparsely spinulose above, usually very gradually narrowing into a subcylindric 0.8–1.4 mm cone; beak 6–8 mm, thin. Pappus white, 5–7 mm. Sexual or agamospermous.

About 20 species: centered in the Himalaya, mainly in India, Nepal, and Pakistan; five species (two endemic) in China.

The name Taraxacum indicum Handel-Mazzetti (Monogr. Taraxacum, 50. 1907) (see FRPS 80(2): 26. 1999), according to the majority of the syntypes, belongs to T. sect. Parvula. However, the heterogeneity of the syntypes and their unsatisfactory quality do not allow a safe interpretation. The name requires further detailed study and is not interpreted in the present treatment.

1a. Pollen absent .......................................................... 105. T. dasypodum
1b. Pollen present.

2a. Stigmas ± yellow .......................................................... 104. T. parvulum
2b. Stigmas pale greenish yellow to dark green.

3a. Outer phyllaries 11–14, 1.5–2.2 mm wide .......................... 108. T. mitalii
3b. Outer phyllaries 16–20, 3.5–5 mm wide.

4a. Achene grayish light brown, 4.8–5 mm; cone 1–1.2 mm .......................................................... 107. T. consanguineum
4b. Achene pale yellowish brown to pale grayish ivory white, 3.5–4.5 mm; cone (0.6–)0.7–0.9 mm .... 106. T. vendibile

104. Taraxacum parvulum Candolle, Prodr. 7: 149. 1838.

小花蒲公英 xiao hua pu gong ying

**Taraxacum himalaicu** Soest.

Herbs 5–10 cm tall, small. Petiole pale green to pinkish, arachnoid at base, narrow to narrowly ± winged; leaf blade pale grayish green, oblongulate to broadly oblanceolate, 4.9 × 1.2–2 cm, almost glabrous, pinnatilobed; lateral lobes 1–3 pairs, triangular to deltoid, recurved, margin ± entire; interlobes long, margin ± entire; terminal lobe triangular-sagittate, margin entire, apex ± acute. Scapes brownish green, ± equaling leaves, arachnoid. Capitulum 1.5–2.5 cm wide. Involucr 6–8 mm wide, base broadly subobconic to ± rounded. Outer phyllaries 8–10, pale grayish green, ± imbricate, ± lanceolate or narrowly so, outermost ones (4–)4.5–5.5 × (1.5–1) 1.8–2.3 mm and 1/3–1/2 as long as inner ones, appressed, narrow middle part blackish green, border getting paler from pale greenish near middle to whitish green near margin and 0.2–0.3 mm wide, margin subglabrous, apex bordered pinkish and ± flat; inner phyllaries 1–1.2 cm, apex ± flat. Ligules yellow; outer ligules outside faintly striped grayish pink. Stigmas yellow to pale grayish yellow. Anthers polliniferous; pollen grains ± regular in size. Achene pale brownish orange, 3.8–4.6 × 0.8–0.9 mm; body ± smooth below; subsparsely spinulose above, apically gradually narrowing into a subcylindric (0.8–)1–1.2(–1.4) mm cone, spinules short and thin; beak ca. 6 mm. Pappus white, 6–7 mm. Fl. late spring to summer. Predominantly sexual.

Grassland slopes, pastures, river terraces; 2000–4500 m. Sichuan, Xinjiang, Xizang, Yunnan [Bhutan, India, Myanmar, Nepal].


丽江蒲公英 li jiang pu gong ying

Herbs 4–7 cm tall, small, base thickened by remnants of old petioles and arachnoid. Petiole pale green, ± winged; leaf blade pale grayish green, oblongulate to broadly oblanceolate, 4–7 × 1.2–2 cm, sparsely arachnoid to glabrescent, pinnatilobed or shallowly so; lateral lobes 2 or 3, triangular to deltoid, ± patent to recurved, margin entire; interlobes short, margin entire; terminal lobe triangular, margin entire or sometimes with a single tooth, apex subobtuse. Scapes brownish green, ± equaling leaves, arachnoid. Capitulum ca. 2 cm wide. Involucr
6–7 mm wide, base broadly subconic. Outer phyllaries 8–11, pale green, ± imbricate, ovate to ovate-lanceolate, outermost ones 3–5 × 1.8–2.1 mm and ca. 1/2 as long as inner ones, appressed, narrow middle part blackish green, border getting paler from pale greenish near middle to whitish green near margin and 0.6–0.7 mm wide, margin subglabrous, apex subobtuse, bordered pinkish, and with a blackish callosity or ± flat; inner phyllaries 10–11 × ca. 2 mm, callose near apex. Ligules yellow; outer ligules outside faintly striped grayish pink; inner ligules with black apical teeth. Stigmas yellow. Anthers without inner phyllaries 10–11 × ca. 2 mm, callose near apex. Ligules golden yellow; outer ligules ± flat, outside striped dark green and adaxially sparsely arachnoid; lateral lobes 4–9, triangular, narrowly triangular, or deltoid, 0.8–1.2 × 4–10 mm, ± patent, proximal margin straight to ± concave and ± entire or sometimes with several minute teeth, distal margin ± straight to slightly sigmoid and entire or with a few teeth; interlobes spotted, 4–8 mm wide, margin dentate, teeth of variable length and density and with an attenuate apex; terminal lobe ± broadly triangular, distal margin ± straight and entire, apex acute or mucronate. Scapes pinkish to purplish green at base, ± equaling to slightly surpassing the capitula, ± densely floccose-arachnoid. Capitulum ca. 4 cm wide, ± broadly plano-convex, ± narrowly plano-convex,± narrowly plano-concave, apex ± depressed, capitula of various sizes and shapes.

**Taraxacum dasypodum** is known only from the type gathering.

106. *Taraxacum venabile* Kirschner & Štěpánek, sp. nov.

普通蒲公英 pu tong pu gong ying

Type: China. Yunnan: “Zhongdian [中甸] plateau (north), Napa Hai [纳帕海], meadows 7 km to NW of pass,” 4000–4230 m, Jun 1995, A. J. Richards s.n., cultivated as JK 4070 (holotype, PRA; isotypes, MO, PE, PRA).


**Planta**e agamospermae, medioeetrae altae, folis angustis, pinnatispartis, lobo terminali parvo, lobi lateralibus 4 ad 9 utrinque, parvis, triangularibus usque angustis triangularibus, interlobis latis dentatis, petiolo alato, conpice roseo-purpureo, scapis dense floccosis, phyllariis involucralibus externis 16 ad 20, erectis usque subpatentibus, ovatis usque lanceolatis, stria centralis griseo-viridi et marginibus latis pallidis, in parte superiore rubro-violaceis, stipitatae sordidae latius vel luteo-viridibus, achenis angustis, perfolio distantes, in pyramide angustum subcylindricam gradatim abeuntibus.

Herbs 12–16(–25) cm tall, ± medium-sized. Petiole pinkish to purplish, short, ± broadly winged; leaf blade grayish green and slightly suffused reddish brown, oblanceolate to narrowly oblanceolate in outline, usually 8–14 × 1.5–2.5(–4) cm, sparsely arachnoid, deeply pinnatilobed, midvein pale green and adaxially sparsely arachnoid; lateral lobes 4–9, triangular, narrowly triangular, or deltoid, 0.8–1.2 × 4–10 mm, ± patent, proximal margin straight to ± concave and ± entire or sometimes with several minute teeth, distal margin ± straight to slightly sigmoid and entire or with a few teeth; interlobes not spotted, 4–8 mm wide, margin dentate, teeth of variable length and density and with an attenuate apex; terminal lobe ± broadly triangular, distal margin ± straight and entire, apex acute or mucronate. Scapes pinkish to purplish green at base, ± equaling to slightly surpassing the capitula, ± densely floccose-arachnoid. Capitulum ca. 4 cm wide, ± narrowly plano-convex, ± densely floccose-arachnoid. Capitulum ca. 4 cm wide, ± narrowly plano-convex, ± densely floccose-arachnoid. Capitulum ca. 4 cm wide, ± narrowly plano-convex, ± densely floccose-arachnoid. Capitulum ca. 4 cm wide, ± narrowly plano-convex, ± densely floccose-arachnoid.
Mountain grasslands and pastures, along mountain paths; 3200–
4300 m. W Sichuan, SE Xizang, NW Yunnan [Russia].

A marginal member of Taraxacum sect. Parvula, T. vendibile is
widely distributed in Yunnan. While the achene characters (color,
narrow shape, a very gradual transition of achene body into the cone)
clearly belong to this section, the outer phyllary coloration is quite
unique. A comparable pattern is found only in the closely related T.
consanguineum.

107. Taraxacum consanguineum Kirschner & Štěpánek, sp.
nov.

近亲蒲公英  jin qin pu gong ying

Type: China. Xizang: “Zayü Co. [察隅县], middle valley
system of Dulong Jiang [独龙江] (Taron River) E branch,”
3900 m, 22 Jun 1999, R. Businský & L. Businská s.n., cultivated as JŠ 7434 (holotype, PRA; isotypes, MO, PE, PRA).

Paratype: China. Xizang: ibidem, R. Businský & L. Busin-
ská s.n., cultivated as JŠ 7433 (PRA).

A Taraxaco vendibili Kirschner & Štěpánek interlobiis fo-
liorum obscure fusco-violaceis, phyllarisis involucralibus exter-
nis longioribus, stigmatibus obscurioribus et achenis longior-
ibus fuscogriseisque differt.

Herbs 12–20 cm tall, ± medium-sized. Petiole pinkish to
purplish, short, ± broadly winged; leaf blade deep grayish green
and slightly suffused reddish brown, oblanceolate to narrowly
oblanceolate in outline, usually 8–14 × 1.5–3 cm, sparsely
arachnoid, deeply pinnatilobed, midvein pinkish and adaxially
sparingly arachnoid; lateral lobes 4–9, ± triangular, ± patent,
distal margin ± straight to slightly sigmoid and entire or with a
few teeth, proximal margin straight to ± concave and ± entire
but sometimes with several minute teeth; interlobes distinctly
colored brownish purple (spot often also covering bases of lat-
eral lobes), broad, margin dentate to lobulate, teeth and lobules
of variable length and density and with an attenuate apex; ter-
tinal lobe ± broadly triangular to 3-partite, distal margin ±
entire, apex acute or mucronate. Scapes pinkish to purplish
length at base, ± equaling leaves, ± densely floccose-arachnoid.
Capitulum 4–5 cm wide. Involucre 1–1.2 cm wide, base
rounded. Outer phyllaries 16–20, lanceolate to ovate, outermost
ones 9–11 × 3.5–5 mm and 1/2–2/3 as long as inner ones, ±
erect-patent, middle part dark grayish green with a gradual
transition into a pale whitish green ca. 1 mm wide border, apical
1/4–1/3, usually suffused purplish, margin sparsely ciliate, apex
often slightly recurved and usually flat at tip; inner phyl-
laries 1.2–1.4 cm, apex flat. Ligules golden yellow; outer lig-
ules ± flat, outside striped dark grayish, with black apical teeth;
inner ligules with reddish apical teeth. Stigmas pale greenish to
greenish, abaxially blackish pilose. Anthers polliniferous; pol-
len grains regular in size. Achene grayish brown, 4.8–5 × 1–1.1
mm; body narrow, shortly spinulose in upper ca. 1/4, very grad-
ually narrowing into an almost cylindric 1–1.2 mm cone, spin-
ules ± erect; beak 1–1.2 cm. Pappus dirty white, ca. 7 mm. Fl.
late spring to summer. Agamosperm.

Mountains; ca. 3900 m. SE Xizang.

Taraxacum consanguineum differs from the closely related T. ven-
dibile primarily in the color and size of achenes and cone length, in the
leaf coloration (a dark spot on the interlobes), longer outer phyllaries,
and darker color of stigmas.


窄苞蒲公英  ya dong pu gong ying

Herbs 8–15 cm tall. Petiole usually purplish to pinkish,
arachnoid at base, narrow to narrowly winged; leaf blade
grayish green, sometimes suffused brownish purple, ± oblan-
ceolate, 7–11(–13) × 1.3–2 cm, arachnoid but later sparsely so,
pinnatisect or less often pinnatilobed, midvein light green; lat-
eral lobes 2–4 pairs, triangular to deltoid, recurved, proximal
margin straight and ± entire, distal margin usually denticate
and straight or convex but in inner leaves often concave, apex
acute; interlobes short, margin often raised and with a few teeth;
terminal lobe triangular-sagittate but sometimes hastate, to 3
cm, margin ± entire or often with incisions or lobules, apex ±
crude. Scapes brownish purple, subequalling leaves, arachnoid.
Capitulum 2.5–3.5 cm wide. Involucre 8–9 mm wide, base ±
rounded. Outer phyllaries 11–14, light grayish green, subimbric-
ate, ± lanceolate or ovate-lanceolate, outermost ones 6–7 ×
1.5–2.2 mm and 1/2–3/5 as long as inner ones, appressed, some
erect-patent, narrow middle part blackish green, border getting
paler from pale greenish near middle to whitish green near mar-
gin and 0.1–0.3 mm wide, margin subglabrous, apex pinkish
and ± callose; inner phyllaries 1.2–1.5 cm, apex ± callose. Lig-
ules yellow; outer ligules outside striped blackish pink; inner
ligules with ± yellow apical teeth. Stigmas yellowish green but
dark green when dry. Anthers polliniferous; pollen grains irreg-
ular in size. Achene light grayish straw-colored brown, 3.9–4.3
× 0.9–1 mm; body ± smooth below, ± densely spinulose above,
apically subgradually narrowing into a subcylindric to subconic
0.9–1.1 mm cone, spinules thin and ± erect; beak ca. 7 mm.
Pappus white, ca. 5 mm. Fl. late spring to summer. Agamos-
sperm. 2n = 24

Mountain pastures and grasslands, along paths; 3000–4300 m. S
Xizang [India, Myanmar, Nepal].

Taraxacum mitalii has been mistakenly classified as a member of T.
sect. Tibetana, but leaf, outer phyllary, and achene characters point to T.
sect. Parvula.


窄苞蒲公英组  zhai bao pu gong ying zu

Pyrrhopappus sect. Piesis Candolle, Prodr. 7: 144. 1838.

Involucre usually narrow at base, 4–6 mm wide, rarely 9–10 mm wide. Outer phyllaries linear to linear-lanceolate, usually
appressed to erect, border usually pale greenish or pinkish, narrow, and membranous, apex callose to conspicuously coriunculate.
Achene only sparsely and shortly spinulose above, gradually to (rarely) subabruptly narrowing into a subcylindric 0.4–1.9 mm cone; beak well developed, 2–7.5 mm. Pappus dirty yellowish to pale pinkish brown. Only sexual, predominantly diploid species.

About eight species: from W Europe to C Asia, Russia (SW Siberia), and China, with highest diversity centered in Turkey and the Caucasus; one species in China.


窄苞蒲公英 zhai bao pu gong ying


Herbs 8–17 cm tall. Leaves prostrate to erect-patent, sub-glabrous; petiole pale green, rarely suffused pinkish, winged; leaf blade mid-green to pale yellowish green, narrowly oblan-

ceolate to narrowly elliptic, 8–18 × 1.5–2.5 cm, almost un-di-vided, dentate, or pinnatisect; lateral lobes 4–6, usually patent, often slightly forward pointing, rarely triangular and downward pointing, distal margin ± convex and with 1(or 2) prominent tooth, apex acuminate; interlobes usually short to indistinct or less often narrowly triangular-elodeate, margin usually entire; terminal lobe triangular to elongate, 1–2 × 0.8–1 cm, margin entire or sparsely dentate, apex acuminate to subobtuse. Scapes ± equaling leaves, sparsely arachnoid, rarely with bractlets be-

low capitulum. Capitulum 1–2 cm wide. Involucre almost cy-
lindric, 0.4–1.9 mm wide, base narrowly rounded to obconic. Outer

phyllaries 14–21, pale green to pale pinkish brown, linear to linear-lanceolate, (4–)5–6.5 × (0.6–)1–1.6(–2) mm, appressed, with an indistinct pale 0.2–0.4 mm wide border, slightly callose to minutely coriaceous below apex. Ligules pale yellow; outer

ligules subcanaliculate, outside striped reddish or pinkish gray;

inner ligules canaliculate, with yellow or reddish apical teeth. Stigmas yellow, dirty yellow, or pale green. Anthers pollini-

ferous; pollen grains regular in size. Achene pale grayish straw-

colored brown, (4.5–)5–5.5(–6.5) mm; body sparsely to densely

and usually shortly spinulose above, gradually to subabruptly

narrowing into a subcylindric 1.1–1.4(–1.7) mm cone; beak

4.5–5 mm. Pappus pale pinkish brown, 5.5–6.5 mm. Fl. Jul–

Oct. Sexual. 2n = 16.

Wet saline meadows and pastures; 400–2000 m. Ningxia, Xin-

jiang [Kazakhstan, Mongolia, Russia].

About 40 species: centered in the Mediterranean region and Iran; one species (endemic) in China.

The name *Taraxacum tianschanicum* Pavlov (Vestn. Akad. Nauk Kazakhsk. S.S.R. 8: 30. 1950) was published on the basis of the material from the southwesternmost Tian Shan and probably belongs to *T.* sect. *Erythrocarpa*. It was reported to occur in China (FRPS 80(2): 64. 1999). We failed to find any specimen of this taxon from China. Also, geographically the occurrence of *T. tianschanicum* in Xinjiang and an isolated locality in Ningxia might be a result of imperfect exploration of the regions between them. In particu-

lar, the species is to be looked for in W Nei Mongol.


紫果蒲公英组 zhi guo pu gong ying zu

Plants usually medium-sized, base without a tunic or with a few old petioles. Petiole unwinged or winged; leaf blade pinnati-

sect; lateral lobes few to numerous, usually triangular to narrow, margin often dentate or lobulate. Capitulum usually 3–4 cm wide. Outer

phyllaries usually 12–20, lanceolate to broadly ovate, long, often imbricate, appressed, loosely appressed, or less often arcuate-recurred, usually distinctly broadly or narrowly bordered, apex usually coriaceous or corned. Ligules yellow; floret tube glabrous. Achene red, reddish brown, brown, castaneous, or straw-colored brown, usually 4.3–5.5 mm; body usually densely spinulose above, usually subabruptly narrowing into a distinct cylindric 1–1.5 mm cone, spinules long and thin; beak usually 0.8–1.3 cm. Pappus ± white.

About 40 species: centered in the Mediterranean region and Iran; one species (endemic) in China.

The big gap between the common occurrence of *Taraxacum bessarabicum* in Xinjiang and an isolated locality in Ningxia might be a result of imperfect exploration of the regions between them. In particu-

lar, the species is to be looked for in W Nei Mongol.

110. *Taraxacum russum* Kirschner & Štěpánek, sp. nov.

红蒲公英 hong pu gong ying


Planta*es agamospermae, mediocrerit altae, foliis pinnati-

sectis, immaculatis, lobo terminali parvo, triangulae vel trilo-

bato, lobis lateralibus 5 ad 7 utrineque, ± patenibus, triangui-

laribus usque peranguste triangularibus, interlobiis subangus-

tis, petiolo angusto vel subalato, rubro-purpureo, scapis aran-

cosis, phyllariis involucralibus externis 15 ad 19, erectis usque arcuatu patentibus, lanceolatis usque ovatis, viridibus, sub apice coriiculatis, margine albido, ca. 0.4 mm lati, stigmatibus obscuris, polline irregularis, achenis angustis cinnamomeis, pyramide 1–1.2 mm longa angusta.

Herbs 9–15(–25) cm tall, base densely whitish arachnoid. Petiole purple, 2–3 cm, ± unwinged; leaf blade mid-green to slightly grayish green, oblanceolate to narrowly oblanceolate, usually 7–14 × 1.5–3 cm, sparsely to densely arachnoid, deeply pinnatisect, midvein arachnoid and axadially purple; lateral

lobes 5–7, narrowly triangular in outer leaves but in middle leaves from broad base abruptly narrowed into a linear distal part, ± patent to slightly recurved, proximal margin ± entire, distal margin sigmoid and with a few linear long teeth near
base; interlobes with purple-brown spots, to 5 mm, sparsely dentate, teeth large; terminal lobe ± triangular to 3-partite, basal and basal segments narrow, often lingulate, apex acute. Scapes pinkish green, ± equaling leaves, arachnoid. Capitulum 2.5–3 cm wide. Involucre 1–1.1 cm wide, base rounded. Outer phyllaries 15–19, dark green and slightly pruinose, densely spinulose above, very gradually narrowing into a conic-subcylindric 0.4–0.9 mm cone, spinules short and narrow; inner phyllaries 1.2–1.4 cm, often cucuritate near apex. Ligules (paler) yellow; outer ligules subcanaliculate, outside striped dark grayish; inner ligules with yellow to reddish apical teeth. Stigmas grayish green. Anthers without pollen. Achene cinnamon brown, 4.2–4.5 × 0.8–0.9 mm; body narrow, relatively densely shortly spinulose-squamulose above, very gradually narrowing into a cylindric 1–1.2 mm cone; beak 8–9.5 mm. Pappus slightly yellowish white, ca. 5 mm. Fl. late spring. Agamosperm.

- Ruderal sites, dry grasslands; 1500–2000 m. Guizhou, Yunnan.

**Taraxacum rassum** is probably native to China. The relatively robust growth; long, cucuritate, and distinctly bordered outer phyllaries; and relatively large achenes point to *T*. sect. *Erythrocarpa*. The species is characterized also by cinnamon brown achenes, absence of pollen, deep grayish green stigmas, spotted interlobes, and arachnoid leaves.


*香花蒲公英组*  *xiang hua pu gong ying zu*

Plant base with remnants of brownish dry petioles. Petiole narrow, unwinged; leaf blade deeply lobed, with lobes most often patent. Scapes densely arachnoid. Involucre base rounded to slightly truncate. Outer phyllaries 9–12, ± imbricate, orbicular-ovate to broadly ovate, mostly 5–6(–7) mm, apressed, with broad paler margin, apex usually cucuritate. Achene 4.5–5 mm; body grayish straw-colored or red, densely spinulose above, very gradually narrowing into a conic-subcylindric 0.4–0.9 mm cone, spinules short and thin; beak 3–6 mm, slightly thickened. Pappus white [or whitish yellow], 5–6 mm. Fl. early spring.

About ten species: from Russia (S Altai) to Mongolia, Kyrgyzstan, and N China; one species (endemic) in China.

The occurrence of members of this section is imperfectly explored due to early vernal flowering and scarce material in herbarium collections. For the time being, a single species is known from China. Several distinct taxa, however, are known to occur in the close vicinity of the Chinese border in Kyrgyzstan and may also be found in China (Kirschner & Štěpánek, Preslia 77: 263–276. 2005). *Taraxacum sumnevicii* Schischkin (Sist. Zametki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kuybysheva 1949(1–2): 8. 1949) was reported to occur in China (FRPS 80(2): 64. 1999) but the species was not present in the material studied by us. In all likelihood, the records are referable to *T. pseudosumnevicii*.

The name *Taraxacum wutaishanense* Kitamura (Acta Phytotax. Geobot. 40: 145. 1989), in all likelihood, belongs to *T*. sect. *Suavia*. However, the original material consists of a single plantlet without achenes, and the interpretation of the name is uncertain. The plant may also belong to *T*. sect. *Stenoloba* or *T*. sect. *Dissecta*.

Members of *Taraxacum* sect. *Suavia* are similar to those of *T*. sect. *Dissecta* but have longer achenes with a very gradual transition into a short conic-subcylindric cone, short beak, and suborbicular outer phyllaries.

### 111. *Taraxacum pseudosumnevicii* Kirschner & Štěpánek, sp. nov.

*假紫果蒲公英*  *jia zi guo pu gong ying*

**Type:** China. Xinjiang: “Tian Shan [天山], 43°02′16″N, 86°47′16″E, alpine meadows with *Stipa purpurea*” [Hejing Xian 和静县], 3255 m, 4 Oct 2003, *P. Sekerka 03/9*, cultivated as JK 4950 (holotype, PRA; isotype, PRA).

*A Taraxaco sumnevicii Schischkin, specie valde simili, phyllariis involucralibus minoribus, numerosis, late ovatis usque ovato-lanceolatis, calathiis vix opertis, floribus tubulosis, stigmatibus obscurioribus et pyramide espinulosa bene distinguendum.*

Herbs 6–10 cm tall, delicate, base arachnoid and with a tunic. Petiole purplish, 1–2 cm, ± unwinged; leaf blade pale green with a pale greenish midvein, ± narrowly oblanceolate in outline, 4–7 × 0.8–1.2 cm, sparsely to densely arachnoid, deeply pinnatisect; lateral lobes 6–8, ± linear, 4–5 × 1–1.5 mm, ± patent or sometimes slightly curved upward, proximal margin straight to concave and entire, distal margin straight to ± sigmoid and entire or with a single tooth near base; interlobes ± short and narrow, margin entire or very sparsely dentate; terminal lobe ± narrowly triangular, 3-partite, basal segments narrow, 3–4 × ca. 1 mm, and patent, terminal segment narrowly spatulate, 8–10 × 1–2 mm, and apex acute. Scapes green but base pinkish green, ± equaling leaves, ± densely arachnoid. Capitulum 1–1.5 cm wide, remaining unopened. Involucre 6–7 mm wide, base rounded. Outer phyllaries 11–15, dark green, broadly ovate to ovate-lanceolate, outermost ones 3.5–5 × 2–2.5 mm and ca. 1/3 as long as inner ones, loosely appressed, dark middle part with a gradual transition into a paler to whitish 0.2–0.5 mm wide border, margin sometimes sparsely dentillate and glabrous or sparsely ciliate near apex, apex ± flat or dark callose; inner phyllaries 1.2–1.3 cm, apex ± flat. Ligules ± yellow, short; outer ligules ± tubular, outside striped grayish red; inner ligules usually with yellow apical teeth. Stigmas pale grayish green. Anthers without pollen. Achene reddish brown, 4.4–5.1 × 1–1.2 mm; body densely shortly spinulose in upper ca. 1/3, very gradually narrowing into a thick subconic 0.6–1 mm cone, spinules thin and ± erect; beak ca. 4 mm, ± thick. Pappus white, 5–5.5 mm. Fl. spring. Agamosperm.

- Mountain steppe dry grasslands; 3000–3300 m. Xinjiang (Tian Shan).
21. 


多裂蒲公英组 duo lie pu gong ying zu

Early vernal small plants, base with a tune. Petiole unwinged; leaf blade arachnoid, deeply lobed, lateral lobes patent or recurved. Scapes arachnoid. Involucrc with round base, usually 7–10 mm wide. Phyllaries with apex flat and not corniculate or rarely slightly callose; outer phyllaries 10–16, imbricate or not so, appressed to patent, with a distinct paler margin, ciliolate. Florets yellow; stigma discolored. Outer and inner phyllaries flat, without corniculate at apex, rarely slightly callose. Achene grayish straw-colored brown, brown, or red, densely spinulose above, 3–4.4 × 0.7–0.9 mm; body subabruptly or ± abruptly narrowing into a cylindric to conic-subcylindric 0.5–0.9 mm cone; beak 6–9 mm. Pappus white.

About ten species: widespread from E Kazakhstan, S Siberia, and Mongolia to NW China; one species (endemic) in China.

**Taraxacum sect. Dissecta** is usually referred to under the name *T. dissectum* (Ledebour) Ledeboir, which is an agamospermous species of C Siberia and the Baical Lake region of Russia, probably not reaching China. Another species of this section, also reported to occur in China, is *T. compactum* Schischkin (Sist. Zametki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kuybyshva 1949(1–2): 5. 1949). It is known to occur in the Russian Altai and might be found in NW Xinjiang, but it has not been authoritatively identified in the Chinese material. *Taraxacum collinum* Candolle (Prodr. 7: 149. 1838) is an agamospermous species widespread in the Irkutsk region of Russia, and it might reach NE China (reported to occur in China by Tzvelev, Sosud. Rast. Sovetsk. Dal’nogo Vostoka 6: 398. 1992; Krasnikov, Fl. Sibir. 13: 277. 1997). However, no material of this taxon was observed in the herbarium material studied.

112. Taraxacum spadiceum Kirschner & Štěpánek, sp. nov.

枣红蒲公英 zao hong pu gong ying


*Plantae graciiles, foliis dissectis, lobis lateralis patentibus vel subrecurvis,* phyllariis involucralibus exterioribus 10 ad 13 saturate viridibus vel atro-viridibus, (3–)5–6 mm longis, 2.2–4 mm latiss, perangustae albomarginatiss, stigmatibus pallide griseo-viridibus, antheris polline carentibus, acheniis brunneis vel castaneo-brunneis, 3.2–3.8 mm longis, 0.7–0.8 mm latiss, in pyramide 0.6–0.8 mm longam cylindricam subabrupte abescuntibus.


红种蒲公英组 hong zhong zi pu gong ying zu

Plants usually small, base with a tunic. Petiole unwinged; leaf blade pinnatifid; lateral lobes numerous, usually narrow, often dentate or lobulate. Capitulum small, mostly 2–3 cm wide. Outer phyllaries usually 10–18, often imbricate, linear-oblanceolate to ovate, short, loosely appressed to arcuate-recurved, indistinctly bordered or pale bordered, apex usually corniculate. Ligules yellow; floret tube glabrous. Achene red, red-brown, brown, grayish pink, or straw-colored brown, 3.2–4.2 mm; body usually densely spinulose above, subabruptly to gradually narrowing into a distinct cylindric 0.7–1.2 mm cone; beak usually 4–9 mm. Pappus ± white.

About 180 species: mainly in Europe and the Mediterranean region; one species (introduced) in China.

Several forms are found in China, but only one has been identified as a known species. The name *Taraxacum erythrospernum* Andrzejewski refers to a sexual member of this section, confined to the E part of C Europe; in the literature (e.g., FRPS 80(2): 65. 1999) it covers most of *T. sect. Erythrosperma*. 


CICHORIEAE

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Plants usually small, base with a tunic. Petiole unwinged; leaf blade pinnatifid; lateral lobes numerous, usually narrow, often dentate or lobulate. Capitulum small, mostly 2–3 cm wide. Outer phyllaries usually 10–18, often imbricate, linear-oblanceolate to ovate, short, loosely appressed to arcuate-recurved, indistinctly bordered or pale bordered, apex usually corniculate. Ligules yellow; floret tube glabrous. Achene red, red-brown, brown, grayish pink, or straw-colored brown, 3.2–4.2 mm; body usually densely spinulose above, subabruptly to gradually narrowing into a distinct cylindric 0.7–1.2 mm cone; beak usually 4–9 mm. Pappus ± white.

About 180 species: mainly in Europe and the Mediterranean region; one species (introduced) in China.

Several forms are found in China, but only one has been identified as a known species. The name *Taraxacum erythrospernum* Andrzejewski refers to a sexual member of this section, confined to the E part of C Europe; in the literature (e.g., FRPS 80(2): 65. 1999) it covers most of *T. sect. Erythrosperma*. 

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瑞典蒲公英 rui dian pu gong ying

Herbs 10–20 cm tall. Petiole purplish, ± unwinged; leaf blade deep green, narrowly elliptic, usually 5–10 × 1.5–2.5 cm, sparsely arachnoid to subglabrous, deeply pinnatisect, midvein green or adaxially purplish and sparsely arachnoid; lateral lobes 3–5, triangular to narrowly triangular in outer leaves but in middle leaves narrowly triangular to linear-triangular, ± patent to slightly recurved, proximal margin ± entire, distal margin sigmoid to straight and entire or with several teeth or lobules near base; interlobes often with purplish brown margin, narrow, margin dentate and lobulate; terminal lobe ± triangular in outer leaves but 3-partite in middle ones, terminal segment elongated, narrow, often lingulate, with a few teeth or lobules at base, and apex acute. Scapes pinkish green but later purplish, ± equalling leaves, arachnoid. Capitulum 2.5–3 cm wide. Involucre 7–9 mm wide, base ± rounded. Outer phyllaries 10–15, lanceolate to narrowly triangular, ± patent to almost reflexed, narrowly so, 6.5–9 × 1–3.5 mm, ± patent to almost reflexed, abaxially deep green, adaxially pale glaucous green, border adaxially ± evident, whitish, and 0.1–0.2 mm wide, margin sparsely ciliate, apex usually corniculate; inner phyllaries 1.2–1.5 cm, often corniculate near apex. Ligules yellow; outer ligules flat, outside striped dark grayish green. Stigmas yellowish green. Anthers polliniferous; pollen grains irregular in size. Achenes light brown to slightly reddish brown, 3.4–3.6 × 0.8–0.9 mm; body narrow, subdensely shortly spinulose above, subgradually narrowing into a thin cylindric 0.9–1 mm cone; beak 7–8 mm. Pappus slightly yellowish white, ca. 5 mm. Fl. spring. Agamosperm. 2n = 24.

Park grasslands, ruderal grasslands; 400–500 m. Liaoning [native to Europe].

This species is introduced from Europe, where the Taraxacum scanicum group consists of several closely related taxa (for review, see Vašut et al., Preslia 77: 197–210. 2005). The Chinese plant is in all respects, particularly in leaf shape, outer phyllaries, floret characters, and size and shape of achenes, almost identical with T. scanicum s.s., with the exception of the almost brown achenes (the European T. scanicum has achenes more reddish brown).

23. Taraxacum sect. Taraxacum

西洋蒲公英组 xi yang pu gong ying zu

Taraxacum officinale F. H. Wiggers, s.l.

Plants medium-sized or robust. Leaves numerous; petiole unwinged or winged; leaf blade usually broad (3–6 cm), deeply lobed to pinnatisect; lateral lobes variously triangular or deltoid, margin usually dentate or lobulate; interlobes evident, often spotted or bordered tan or brownish purple, margin usually dentate. Capitulum 3–7 cm wide. Involucre usually more than 1 cm wide, base rounded or flat. Outer phyllaries (12–)15–25(–28), usually mid-green to deep green and sometimes pruinose, variously arranged, broadly linear, linear-lanceolate, or less often lanceolate, usually 12–16 × 2.5–3.5 mm, usually irregularly patent to reflexed, unbordered or with inconspicuous narrow paler borders, apex usually flat but not infrequently callose or sometimes minutely corniculate. Ligules yellow; floret tube glabrous or sparsely arachnoid with variously curved soft thin hairs. Achenes grayish straw-colored brown or light olivaceous brown, usually 3–4.5 mm; body densely spinulose in upper 1/4–1/3, ± abruptly narrowing into a conic to subcylindric 0.2–0.9 mm cone; beak usually 0.9–1.3 cm, thin. Pappus white to dirty white, usually 6–7 mm. Sexual or agamospermous.

Numerous species: mostly known from Europe; three (or perhaps more) species (one endemic, two introduced) in China.

Taraxacum sect. Taraxacum in Europe has over 1,000 recognized agamospermous species, but in other continents the section is fragmentary. China has few agamospermous species in this section. One species described from China undoubtedly belongs to T. sect. Taraxacum, and another couple of agamospermous species were identified as T. oblongatum and T. rhodopodum. The low quality of herbarium material and lack of specialized collections do not allow any detailed taxonomic analysis. Taraxacum sect. Taraxacum is represented in China by several species, probably mostly introduced, and their taxonomy requires further study.

The name Taraxacum officinale is generally used to cover the diversity of this section. Until recently, the effective lectotypification restricted the usage of this name to what is most often called T. sect. Croceae M. P. Christiansen, a northern and alpine section. A corrected typification, returning the name to the most common usage (in the sense of T. sect. Ruderalis) was published recently (Kirschner & Štěpánek, Taxon 60: 219. 2011). From now on, the name T. officinale in its broad sense may be used for what is here treated as T. sect. Taraxacum (T. sect. Ruderalis), and the older records under T. officinale usually belong to this section, which is widespread in China.

The type specimen of Taraxacum brassicifolium Kitagawa (Rep. Inst. Sci. Res. Manchoukuo 2: 308. 1938) was not traced. From the description it is obvious that the type plant was an enormously robust “bloated” specimen. The taxon most probably belongs to T. sect. Taraxacum (the only feature not in full accordance with this assumption is the minute corniculation of outer phyllaries, but taxa in T. sect. Taraxacum do not infrequently have this trait). The whitish membranous bractlets on the receptacle margin are treated as a monstrosity. Because of the lack of material and insufficient original description, we do not include the taxon in this treatment.

As the following three species represent a minor fragment of totally unexplored morphological variation and taxonomic complexity of the section in China, we refrain from providing the identifying key.


椭圆蒲公英 tuo yuan pu gong ying

Herbs 10–25 cm tall. Petiole pinkish purple, winged; leaf blade deep green with a light green midvein sometimes pinkish near base, ± oblong-ob lanceolate, 7–18 × 3–4 cm, sparsely arachnoid to subglabrous, ± pinnatisect; lateral lobes 3–5 pairs,
Involucre narrowly cylindric. Phyllaries in few series, glabrous or setulose or arachnoid hairy; outer phyllaries usually less than 1/4, attenuate into a long petiole-like base, glabrous. Synflorescence mostly with rather few capitula. Capitula erect, with 5–15 florets. slender, often branched from base. Leaves in basal rosette or along stem, usually small, with orbicular to obovate and spatulate blade shaped or almost rounded, base often cordate, proximal margin ± straight or sigmoid, distal margin convex and ± entire, apex subobtuse to obtuse and mucronate. Scape light green but later brownish purple, ± arachnoid. Capitulum 3.5–5 cm wide. Involucre base ± rounded. Outer phyllaries 14–18, regularly arranged, linear-lanceolate to lanceolate, (10–)11–13 (–14) × 2.3–3.5 mm, arcuate recurved, abaxially dark green and often suffused purplish brown, adaxially grayish green, ± unbordered. Ligules deep yellow; outer ligules flat, outside striped light grayish brownish purple. Stigmas dark grayish green to almost blackish. Anthers polliniferous; pollen grains variable in size. Achene grayish straw-colored brown, (3.4–)3.8–4.3 mm, ± densely spinulose in upper ca. 1/4, ± abruptly narrowing into a ± conic 0.5–0.6 mm cone; beak 1–1.1 cm. Pappus ± white, ca. 6 mm. Fl. spring. Agamosperm. 2n = 24.

Lawns, ruderal sites. Yunnan [native to Europe].


阴山蒲公英 yin shan pu gong ying

Herbs to 35 cm tall, robust. Petiole probably pinkish, winged; leaf blade deep green or ± glaucous green, ± broadly oblanceolate, 10–25 × 2.5–4 cm, ± sparsely arachnoid, pinnatilobed to pinnatisect; lateral lobes usually 4 or 5, ± narrowly triangular, from broad base abruptly narrowing into a linear-triangular distal part, ± patent to pointing upward, proximal margin convex and usually denticulate, distal margin usually concave and ± denticulate at base, apex acute, midvein arachnoid and probably pinkish; interlobes broad, margin denticulate; terminal lobe broadly triangular to flat deltoid, basal lobules patent and with an acute apex, terminal segment with an acute apex. Scape brownish green, overtopping leaves, arachnoid. Capitulum ca. 5 cm wide. Involucre 1.2–1.5 cm wide, base ± rounded. Outer phyllaries 13–16, lanceolate to broadly lanceolate, 11–18 × 2–3 mm, recurved to reflexed, abaxially dark green, adaxially suffused brownish purple, margin ± glabrous, apex flat; inner phyllaries 1.5–1.8 cm, neighboring pairs often fused and then very broad. Ligules deep yellow; outer ligules flat, outside striped grayish green. Stigmas yellowish green. Anthers polliniferous; pollen grains irregular in size. Achene grayish straw-colored brown, 3.2–3.5 mm; body ± densely spinulose above, ± abruptly narrowing into a ± conic 0.5–0.6 mm cone, spinules thin and acute; beak 9.5–10.5 mm. Pappus ± white, ca. 7 mm. Fl. late spring. 2n = 24.

Mountain grasslands, along paths; 3600–3700 m. Naturalized in Yunnan [native to (or at least described from) Europe].


假苦菜属 jia ku cai shu

Shi Zhu (石铸 Shih Chu); Norbert Kilian


Herbs, perennial, usually rather delicate, with a slender taproot and often with shoot-bearing lateral roots. Stems rather low, slender, often branched from base. Leaves in basal rosette or along stem, usually small, with orbicular to obovate and spatulate blade attenuate into a long petiole-like base, glabrous. Synflorescence mostly with rather few capitula. Capitula erect, with 5–15 florets. Involucre narrowly cylindric. Phyllaries in few series, glabrous or arachnoid hairy; outer phyllaries usually less than 1/4, rarely to 1/3, as long as inner ones; inner phyllaries linear-lanceolate, equal. Receptacle naked. Florets yellow or more rarely pale purplish. Achene usually pale brown, slenderly cylindric to slenderly fusiform, with 10 thin equal ribs, apically truncate, attenuate, or shortly beaked. Pappus white, of scabrid bristles, usually caducous or persistent.

About 11 species: C, NE, and SW Asia, North America; six species (one endemic) in China.

Treatment of Askellia (with a basic chromosome number of n = 7) as a separate genus instead of as a section of Crepis (C. sect. Ixoridopsis) has been corroborated recently both by Sennikov and I. D. Illarionova (Komarovia 5: 57–115. 2008), based, in particular, on carpological investigations.
and Enke and Gemeinholzer (Taxon 57: 756–758. 2008), based on molecular phylogenetic analyses, yet with uncertain systematic position. More recently, J. W. Zhang et al. (in prep.) revealed in their molecular phylogenetic analyses of subtribe Crepidinae that Askellia is part of a well-supported clade including Ixeridium, Ixeris, and Taraxacum and sister to a clade including Ixeris and Ixeridium.

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Herbs 4–10 cm tall, perennial, glabrous, glaucescence. Roots and subterranean shoots often branched and slender. Stem dentate, erect, branched from base, leafy. Basal and lower stem leaves petiolate; petiole equaling or shorter to rarely longer than leaf blade; leaf blade elliptic, elliptic-oblancoate, or spatulate, 0.5–4.5 × 0.3–1.5 cm, undivided to pinnatifid, base gradually attenuate into petiole, margin subentire to sinuate-ulate, apex acute to obtuse. Middle and upper stem leaves usually sessile, only uppermost leaves smaller. Synflorescence corymbiform, with few capitula. Capitula with 10–12 florets; peduncle much shorter than involucre. Involucre narrowly cylindric, 8–10 cm. Phyllaries dark green, glabrous, apex ± acute; outer phyllaries ovate to lanceolate, longest 3–4 mm; inner phyllaries 8(–10), margin thin and scarios. Florets yellowish or sometimes tinged pink. Corolla 0.8–1.7 cm. Anther tube ca. 5 mm. Achene yellowish reddish brown, slenderly fusiform, 7–7.5 mm, apically conically attenuate. Pappus 5.5–6.5 mm, persistent. Fl. and fr. Jul–Aug. 2n = 14.

Alpine gravelly or rocky stream banks, scree slopes; 27500–4500 m. SW Xinjiang [E Kyrgyzstan, NE Tajikistan].

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Herbs 5–10 cm tall, perennial, inconspicuously white lanate; stem leaves (except uppermost) as large as basal leaves. Synflorescence corymbiform, with few to many capitula. Capitula with 10–12 florets; peduncle filiform, shorter than involucre. Involucre narrowly cylindric, 8–11 cm. Phyllaries dark green, glabrous, apex ± acute; outer phyllaries ovate to lanceolate, longest 3–4 mm; inner phyllaries 8(–10), margin thin and scarios. Florets orangish yellow or sometimes tinged pink. Corolla 1.1–1.4 cm. Anther tube 3–4 mm. Achene pale yellowish, fusiform, 4.5–7 mm, apically more attenuate. Pappus 5–8 mm. Fl. and fr. Aug.

Gravely or gravelly-sandy areas particularly on floodplains; 2600–4600 m. Qinghai, Xinjiang, [Xizang [Kazakhstan, Kyrgyzstan, SC Russia].

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Herbs 4–30 cm tall; branches several to usually many, ascending, repeatedly divaricately and intricately branched; leaves to 8 cm. Synflorescence corymbiform, with few capitula. Capitula with 10–12 florets; peduncle much shorter than involucre. Involucre narrowly cylindric, 8–11 cm. Phyllaries dark green, glabrous, apex ± acute; outer phyllaries ovate to lanceolate, longest 3–4 mm; inner phyllaries 8(–10), margin thin and scarios. Florets orangish yellow or sometimes tinged pink. Corolla 1.1–1.4 cm. Anther tube 3–4 mm. Achene pale yellowish, fusiform, 4.5–7 mm, apically more attenuate. Pappus 5–8 mm. Fl. and fr. Aug.

Gravely or gravelly-sandy areas particularly on floodplains; 2600–4600 m. Qinghai, Xinjiang, [Xizang [Kazakhstan, Kyrgyzstan, SC Russia].

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4. Askellia pygmaea (Ledebour) Ledebour var. caulescens Ruprecht; Y. pygmaea var. dentata Ledebour.

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5. Askellia minuta (Kitamura) Sennikov; C. minuta

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6. Askellia flexuosa (Ledebour) Kamelin.
Herbs 3–4(–10) cm tall, perennial, glabrous, glaucous. Roots and subterranean shoots often branched and slender. Stem delicate, erect or sometimes procumbent, branched from base or middle, leafy. Basal and lower stem leaves with a 1–1.5 cm petiole; leaf blade elliptic to narrowly elliptic-ovate, 7–10 × ca. 6 mm, base cuneate, margin entire or subulate-dentate, apex acute. Upper stem leaves similar to lower stem leaves but narrowly elliptic, smaller, sometimes tinged with purple, margin entire. Synflorescence corymbiform, with few to several capitula. Capitula with 10–12 florets; peduncle filiform, 0.5–2 cm. Involucre narrowly cylindric, 8–10 × 3–4 mm. Phyllaries abaxially glabrous but ciliate at apex; outer phyllaries green, ovate to lanceolate, longest 2–2.5 mm, margin thin and scarious, apex obtuse to acute; inner phyllaries 8, apex acute. Florets pale purplish, ca. 6 mm, base cuneate, margin entire or subentire; upper phyllaries 8, apex acute. Corolla 1.1–1.4 cm. Anther tube 3–4 mm. Achene yellowish brown, slenderly columnar to fusiform, 4–6 mm, apex only slightly attenuate. Pappus 5–6 mm. Fl. and fr. Jun–Aug.

Gravelly areas on floodplains; 3100–4000 m. Xinjiang, Xizang [Tajikistan].


弯茎假苦菜 wan jing jia ku cai

Prenanthes pygmaea Ledebour, Mém. Acad. Imp. Sci. St. Pétersbourg Hist. Acad. C. 553: 1815; Askellia nana (Richardson) W. A. Weber; Barkhausia nana (Richardson) Candolle; Crepis humilis Fischer ex Herder; C. nana Richardson; Hieracioïdes nana (Richardson) Kuntze; P. polymorpha Ledebour var. flaccida Ledebour; P. polymorpha subvar. integrifolia Ledebour; P. polymorpha var. lyrata Ledebour; P. polymorpha var. pygmaea (Ledebour) Ledebour; Youngia pygmaea (Ledebour) Ledebour; Y. pygmaea var. flaccida (Ledebour) Ledebour; Y. pygmaea var. lyrata (Ledebour) Ledebour; Y. pygmaea var. nana (Richardson) Ledebour.

Herbs 2–4 cm tall, perennial, glabrous, glaucous. Roots and subterranean shoots often branched and slender. Stem delicate, branched from base, leafy. Basal and stem leaves with a 4–14 mm petiole; leaf blade ovate, orbicular, or elliptic, 1–2.6[–3.5] × 0.4–1[–1.7] cm, base cuneate, margin entire, apex rounded to acute. Synflorescence tufted-corymbiform, with few to many capitula. Capitula with 9–11 florets; peduncle filiform, most shorter than involucre. Involucre narrowly cylindric, 9–10 × 2–3 mm. Phyllaries green, abaxially glabrous, margin scarious; outer phyllaries ovate to lanceolate, longest 2–3 mm, apex acute; inner phyllaries 8, apex acute. Flores yellow. Corolla 7–9 mm. Anther tube 2–2.5 mm. Achene pale yellowish, columnar to fusiform, ca. 5 mm, apically more strongly attenuate. Pappus 4–5 mm. Fl. and fr. Jun–Sep. 2n = 14.

Gravelly areas on floodplains and bases of slopes, stream banks; 4600–4700 m. Xinjiang, Xizang [Kazakhstan, Mongolia, E Russia; North America].


弯茎假苦菜 wan jing jia ku cai


Herbs to 17 cm tall, perennial, glabrous. Stem erect, branched apically, base with residue of old petioles. Lower and middle stem leaves elliptic to oblong-lanceolate, 5–9 × 0.5–1.1 cm including a 3–5.5 cm petiole, base narrowly cuneate, margin subulate-dentate, apex rounded. Upper stem leaves sessile, linear to lanceolate, base cuneate, margin entire or subentire; uppermost leaves bractlike. Synflorescence corymbiform, with 8–12 capitula. Capitula with ca. 11 florets; peduncle shorter than involucrum. Involucre narrowly cylindric, ca. 1.1 cm. Phyllaries abaxially glabrous; outer phyllaries narrowly ovate to lanceolate, longest ca. 2 mm, apex acute; inner phyllaries with a scarious margin, apex obtuse to acute. Flores yellow. Corolla 1–1.4 cm. Anther tube 3–4 mm. Achene brown, fusiform, ca. 6 mm. Pappus ca. 7 mm. Fl. and fr. Aug.

• Mountain slopes; ca. 2500 m. NW Xinjiang (Zhaosu).

This species is only known from the type collection.


弯茎假苦菜 wan jing jia ku cai

Prenanthes polymorpha Ledebour var. flexuosa Ledebour, Fl. Altaic. 4: 145. 1833; Askellia melanthera (C. H. An) Tzvelev; Barkhausia flexuosa (Ledebour) Candolle; B. flexuosa var. lyrata Schrenk; Crepis flexuosa (Ledebour) C. B. Clarke; ?Hieracium flexuosa (Ledebour) Kuntze; Youngia flexuosa (Ledebour) Ledebour; Y. flexuosa var. gigantea C. Winkler ex O. Fedtschenko; Y. glauca Edgeworth.

Herbs 3–10 cm tall, perennial, glaucous, glabrous. Roots and subterranean shoots often branched and slender. Caudex sometimes branched in older plants, with rosette leaves often well developed. Stem repeatedly divaricating and often intricately branched from base; branches few to numerous, usually rather delicate, ascending. Basal and lower stem leaves extremely variable, oblong-lanceolate, ovate, elliptic, lanceolate, or more rarely linear, 2–8 × 0.2–2 cm, shallowly pinnatifid to pinnatisect or more rarely undivided, base attenuate into a 0.5–1.5 cm petiole-like portion, margin entire to subulate-dentate, apex acute to rounded; lateral lobes (if present) (1–)3–5-paired, opposite or alternate, elliptic, linear, or toothlike, rarely pinnately divided. Middle and upper stem leaves similar to lower stem leaves but sessile or shortly petiolate and linear-lanceolate to narrowly linear, upward on stem gradually smaller. Synflorescence of each branch corymbiform and sometimes very densely so, with few to several capitula. Capitula with 9–13 florets; peduncle filiform, extremely variable in length and ranging from much longer than involucrum to almost absent. Involucre narrowly cylindric, 6–10 × 2–3 mm. Phyllaries green, abaxially glabrous; outer phyllaries ovate to ovate-lanceolate, longest usually ca. 2 mm, apex acute to obtuse; inner phyllaries 8, margin narrow and scarious, apex acute to obtuse. Flores yellow. Corolla 0.9–1.1 cm. Anther tube 3–4 mm. Achene pale yellow, fusiform, 4–6 mm, apex attenuate. Pappus 4–6 mm. Fl. and fr. Jun–Oct. 2n = 14*.

Stream banks, lake margins, marshes and floodplains, sandy areas, gravel and loess areas, rather sparsely covered mountain slopes, rocky outcrops, alpine meadows; 800–5100 m. Gansu, Nei Mongol, Ningxia,
Qinghai, Shanxi, Xinjiang, Xizang [Afghanistan, Kashmir, Kazakhstan, Kyrgyzstan, Mongolia, Nepal, Pakistan, SC Russia, Tajikistan; SW Asia].

Askellia flexuosa is the most widespread and frequent species of the genus in China, with a considerable ecological amplitude. The species is superficially similar to Crepidastrum akagii, but the latter differs by its blackish achene, with acute antrorse papillae and less attenuate apex, and its somewhat thicker involucre, with outer phyllaries somewhat longer.

Askellia melanthera (= Crepis melanthera), only known from the type (not seen) collected in a schoolyard of the city of Ürümqi, Xinjiang, poorly described and diagnosed by blackish anthers and style branches, may perhaps otherwise match A. flexuosa and is tentatively included here.

73. IXERIDUM (A. Gray) Tzvelev, Fl. URSS 29: 388. 1964.

小苦荬属 xiao ku mai shu

Shi Zhu (石铸 Shih Chu); Norbert Kilian


Herbs, perennial, often rostrate. Stem ascending-erect to erect, branched from base or higher up. Synflorescence usually corymbiform or paniculately corymbiform, with few to many capitula. Capitula with 5–11(–18?) florets. Involucre narrowly cylindric.

Phyllaries in few series, margin narrow and scarious; outer phyllaries few, very short (at most ca. 2 mm, usually less), $\neq$ unequal; inner phyllaries 5 or (7 or)8, linear-lanceolate, equal. Receptacle naked. Florets some shade of yellow [or rarely white]. Achene pale brown to brown, usually $\neq$ subfusiform, subcompressed, with 5 slender main ribs alternating usually with 1 (only exceptionally with 0 or 2) narrower to subequal secondary ribs, space between ribs widely U-shaped, apically often with antrorse acute papillae, apex attenuate into a short slender beak. Pappus yellowish to straw-colored or rarely ?white, of scabrid bristles.

About 15 species: E and SE Asia; eight species (three endemic) in China.

The revised circumscription of Ixeridium employed here basically follows the treatment by Pak and Kawano (Mem. Fac. Sci. Kyoto Univ., Ser. Biol. 15: 29–61. 1992), based on carpological and karyological investigations, which has been corroborated recently in molecular phylogenetic analyses of subtribe Crepidinae by J. W. Zhang et al. (in prep.). The placement of the two little-known species with a white pappus is, however, tentative; otherwise, the genus only comprises species with a yellowish or straw-colored pappus. Its basic chromosome number is $x = 7$.

1a. Pappus white.
2a. Rosette leaves oblong-lanceolate, lyrately lobed; leaf blade attenuate into a petiole much shorter than blade;

stems and branches very sparsely white echinulate .............................................................. 7. I. aculeolatum

2b. Rosette leaves triangular or pentagonal, pinnately lobed; leaf blade contracted into a winged petiole

longer than blade; stems and branches glabrous and smooth ...................................................... 8. I. sagittarioides

1b. Pappus yellowish or straw-colored.
3a. Inner phyllaries (7 or)8; florets 8–11.
4a. Basal leaves narrowly spatulate to almost linear, undivided, margin entire .......................................................... 1. I. gracile

4b. Basal leaves narrowly elliptic to linear-elliptic, undivided or more rarely pinnatifid, margin denticulate, sinuate-dentate, or more rarely entire .......................................................... 2. I. laevigatum

3b. Inner phyllaries 5; florets 5–8.
5a. Involucre 4.5–6.5 mm.
6a. Plants 20–80 cm tall; basal leaves crowded, 5–17 cm; pappus 2.5–3 mm .................................. 3. I. beaverdianum

6b. Plants only to 15 cm tall; basal leaves in a rosette, 2–4 cm; pappus ca. 4 mm ......................... 4. I. yunnanense

5b. Involucre 7–8 mm.
7a. Herbs 20–50 cm tall; stems slender; basal leaves oblanceolate to elliptic, 1–3 cm wide; stem leaves lanceolate, basally widened, usually clasping ................................................. 5. I. dentatum

7b. Herbs 10–20 cm tall; stems delicate; basal leaves narrowly elliptic to linear-elliptic, less than 1 cm wide; stem leaves (if any) linear-elliptic, basally attenuate, never clasping ........................................ 6. I. transnokoense


细叶小苦荬 xi ye xiao ku mai

Lactuca gracilis Candolle, Prodr. 7: 140. 1838; Ixeris gracilis (Candolle) Stebbins.

Herbs 10–50 cm tall, perennial. Stem erect to ascending erect, weakly to moderately branched from basal third or higher up, glabrous, distantly leafy. Basal leaves narrowly spatulate, narrowly elliptic, or almost linear, 4–15 $\times$ 0.4–1 cm, basally attenuate, margin acute. Stem leaves narrowly lanceolate to linear-lanceolate, base semiamplexicaul but never clasping. Synflorescence corymbiform to paniculiform-corymbiform, with some to many capitula. Capitula with 8–11 florets; peduncle capillaceous. Involucre narrowly cylindric, 7–8 mm. Phyllaries abaxially glabrous; outer phyllaries 4–6, ovate, less than ca. 1 mm, apex acute; inner phyllaries 7 or 8. Florets yellow. Anther tube and style greenish to blackish upon drying. Achene brown, subfusiform, 4.5–5.5 mm, apex attenuate into a slender 1–1.5 mm beak. Pappus pale yellow, ca. 3 mm. Fl. and fr. May–Jul.

Forests, forest margins; 1400–2700 m. Xizang, Yunnan [Bhutan, NE India, Nepal].
starting with J. D. Hooker (Fl. Brit. India 3: 410–411. 1881; see also FRPS 80(1): 257. 1997) and X. Zhuang (Fl. Yun nan. 13: 723. 2004), *Ixeridium gracile* has long been confused with the widespread *L. beauverdiana (= *I. makinoana*), see below, which has smaller involucres with only 5 inner phyllaries. Actually, *I. gracile* has a very restricted distribution and is a rather rare species. However, it is quite similar to *I. laevigatum*, and the delimitation between the two species should be reassessed.


Fukai 小苦荬 he guan xiao ku mai

*Prenanthes laevigata* Blume, Bijdr. 886. 1826; *Crepis laevigata* (Blume) Zollinger; *Ixeridium oldhamii* (Maximowicz) Sennikov; *Ixeridium laevigatum* (Blume) Engler & Maximowicz; *I. laevigata var. oldhamii* (Maximowicz) Kitamura; *I. oldhamii* (Maximowicz) Kitamura; *Lactuca laevigata* (Blume) Candolle; *L. izonica* S. Vidal; *L. oldhamii* Maximowicz; *L. stenophylla* Makino.

Herbs 10–90 cm tall, perennial, with short oblique rhizome and fibrous roots. Stems solitary or few, erect, branched from above middle or less frequently from further below, distantly leafy. Basal leaves crowded, usually present at anthesis, elliptic, narrowly elliptic, or linear-elliptic, 5–32 × 0.3–3.5 cm, undivided or more rarely pinnatipartite, basally attenuate and sometimes with an unwinged petiole-like portion, margin denticate, sinuate-dentate, apex acute to rounded and mucronulate. Stem leaves linear-lanceolate, smaller than basal leaves, base weakly narrowed and semiamplexicaul, otherwise similar to basal leaves. Synflorescence corymbiform to panicleform-corymbiform, with numerous capitula. Capitula with 5 or 6 florets; peduncle capillaceous. Involucre narrowly cylindric, 4.5–6.5 mm. Phyllaries abaxially glabrous; outer phyllaries 3 or 4, ovate, less than ca. 1 mm, apex acute; inner phyllaries 5. Florets (?pale) yellow, slightly exceeding involucre. Anther tube and style greenish to blackish upon drying. Achene pale brown, subfusiform, 3–3.5 mm, attenuate into a slender 0.5–1 mm beak. Pappus yellowish, 3–4 mm. Fl. and fr. May–Sep. 2n = 14.
with fibrous roots. Stems solitary or few, slender, erect, branched from base or higher up, glabrous, sparsely leafy. Basal leaves crowded, usually present at anthesis, narrowly oblanceolate, narrowly elliptic, or elliptic, 4–15 × 1–3 cm, undivided or pinnatifid, base attenuate into a winged or unwinged petiole-like portion, margin entire or with slender or very fine teeth especially in basal half, apex acute to obtuse and mucronate; lateral lobes (if present) 1–3 pairs, on basal half of leaf, narrowly triangular. Stem leaves ± lanceolate, undivided, base usually expanded and amplexicaul or auriculately clasping, margin entire or with slender or very fine teeth especially in basal half. Synflorescence corymbiform, with some to many capitula. Capitula with 5–7[–11] florets; peduncle capillaceae. Involucre cylindric, 7–8 mm. Phyllaries abaxially glabrous; outer phyllaries broadly ovate, ca. 1.5 × 1 mm; inner phyllaries 5[–8], apex acute. Florets yellow [or rarely white]. Anther tube and style greenish to blackish upon drying. Achene brown, fusiform, 4–5 mm, apex attenuate into a slender ca. 1 mm beak. Pappus straw-colored, 4–5 mm. Fl. and fr. Apr.–Aug. 2n = 14, 21, 28.


*Ixeridium dentatum* forms a polyploid complex, and several sub-species have been described to classify the diversity within this complex (Pak & Kawano, Mem. Fac. Sci. Kyoto Univ., Ser. Biol. 15: 42–45. 1992; Yahara in Iwatsuki et al., Fl. Japan 3b: 18–19. 1995, under *Ixeris*). In China only *Ixeridium dentatum* subsp. *dentatum* occurs; its distributional range has not been fully established yet. It has sometimes been confused with *L. laevigatum*, which is, however, clearly distinguished from *I. dentatum* subsp. *dentatum* through the involucres with 8 (instead of 5) inner phyllaries, 8–11 (instead of 5–7) florets per capitulum, and never (instead of usually) clasping stem leaves.


Herbs to 40 cm tall, perennial, rosalulate, with shoot-bearing lateral roots. Stem solitary, grayish green, erect, ± branched from middle, very sparsely white echinulate. Rosette leaves oblong, 3.5–5.5 × 1–1.5 cm, lyrately pinnatifid, abaxially very sparsely white echinulate on midvein, adaxially glabrous, base attenuate into a winged petiole-like portion, margin entire to sinuate; lateral lobes 2 or 3 pairs, ovate to suborbicular; terminal lobe ovate to orbicular, much larger than lateral ones. Stem leaves 2, similar to basal leaves but smaller. Synflorescence laxly paniculiform to corymbiform, with some capitula. Capitula with ca. 10 florets; peduncle wiry, ca. 1.5 cm to several cm, sparsely white echinulate. Involucre cylindric, ca. 8 mm. Outer phyllaries lanceolate, longest ca. 2 mm, apex acute; inner phyllaries abaxially very sparsely echinulate on midvein, apex acute to obtuse. Florets yellow. Achene pale brown, fusiform, ca. 4 mm, apex attenuate into a slender ca. 2 mm beak. Pappus white, ca. 6 mm. Fl. and fr. Sep.  

Only known from the type and of unclear relationship, this taxon is probably not a member of *Ixeridium* in its revised circumscription.


Herbs 15–35[–55] cm tall, perennial, rosalulate. Stem solitary, erect, branched from basal half or higher up, sparsely hairy. Rosette leaves petiolate; petiole 3–10[–30] cm, narrowly winged, margin entire or sinuate-dentate; leaf blade pentagonal or triangular, 2–8 × 1.5–6 cm, pinnately lobed, margin sinuate-dentate; lateral and terminal lobes triangular with an acute apex. Stem leaves none or few, similar to basal leaves but smaller and less incised or undivided. Synflorescence corymbiform, with some to many capitula. Capitula with 8–16 florets; peduncle wiry. Involucre narrowly cylindric, 7–8 mm. Outer phyllaries ovate to lanceolate, apex acute; inner phyllaries ca. 8–12], apex acute. Florets yellow. Achene brown [or dark purple, 3–4 mm], narrowly ovoid, apex attenuate into a slender 0.5–1 mm beak. Pappus white, 3–4 mm. Fl. Mar.

Grasslands on mountain slopes; 1900–2000 m. Yunnan [Bhutan, N India, N Myanmar, Nepal, N Thailand].

Insufficiently known and of unclear relationship, this taxon is probably not a member of *Ixeridium* and perhaps not even of subtribe Crepidinae but of subtribe Lactucinae.

苦荬菜属 ku mai cai shu

Shi Zhu (石铸 Shih Chu); Norbert Kilian


Herbs, annual or perennial, often rostrate. Stems ± erect, sometimes also long creeping and with erect flowering branches. Synflorescence usually corymbiform. Capitula with (12–)15–25(–40) florets. Involucre cylindric to narrowly campanulate. Phyllaries in several series, glabrous; outer phyllaries several, longest 1/4–1/2 as long as inner ones; inner phyllaries usually 8, linear-lanceolate to lanceolate, equal in length, glabrous, margin usually scarious. Receptacle naked. Florets yellow, rarely whitish or purplish. Achene brown, ± fusiform, not compressed, with 10 (5 main ribs alternating with 5 ± secondary ribs) very prominent ± winglike ribs, space between ribs narrowly V- or U-shaped, apex contracted or attenuate into a filiform or slender beak. Pappus white, bristles scabrid.

About eight species: E and S Asia; six species in China.

The revised circumscription of Ixeris employed here follows the treatment by Pak and Kawano (Mem. Fac. Sci. Kyoto Univ., Ser. Biol. 15: 29–61. 1992), based on carpo logic and karyological investigations, which also includes the former monotypic Chorisis accommodating I. repens. Pak and Kawano’s concept of the genus has been corroborated recently in molecular phylogenetic analyses of subtribe Crepidinae by J. W. Zhang et al. (in prep.). Its basic chromosome number is x = 8.

1a. Plants with (above or below ground) long creeping stems.

2a. Leaves palmately 3(–5)-lobed .............................................................. 3. I. repens

2b. Leaves undivided or pinnately lobed.

3a. Leaf blade spatulate, elliptic, or almost linear, 3–25–35 cm; involucre (0.8–)1–1.4 cm ............................................. 2. I. japonica

3b. Leaf blade orbicular, broadly elliptic, ovate, or obovate, ≤ ca. 3 cm; involucre ≤ 1 cm .................................. 4. I. stolonifera

1b. Plants without creeping stems.

4a. Stem leaves with sagittately clasping base with basal lobes distinctly directed backward; involucre 5–6 mm .................................................................................................................. 1. I. polycephala

4b. Stem leaves usually with narrowed semiamplexicaul base or exceptionally clasping with almost rectangularly side directed basal lobes; involucre 6–11 mm.

5a. Longest outer phyllary 1–1.5 mm; capitula with 15–25 florets .............................................................. 5. I. chinensis

5b. Longest outer phyllary ca. 3 mm; capitula with 25–40 florets ................................................................. 6. I. tamagawaensis

1. Ixeris polycephala Cassini ex Candolle, Prodr. 7: 151. 1838.

苦荬菜 ku mai cai

Crepis bonii Gagnepain; Ixeris dissecta (Makino) C. Shih; I. fontinalis Candolle; I. matsumurae (Makino) Nakai; I. polycephala f. dissecta (Makino) Ohwi; I. polycephala var. dissecta (Makino) Nakai; Lactuca biauriculata Vaniot & H. Léveillé; L. matsumurae Makino; L. matsumurae var. dissecta Makino; L. polycephala (Cassini) Bentham.

Herbs 10–50 cm tall, annual. Stem solitary, erect, branched already in lower half or higher up, glabrous, leafy. Basal leaves present at anthesis, narrowly ob lanceolate, lanceolate, linear-lanceolate, or linear, 6–22 × 0.3–1.5 cm, undivided or pinnatifid, partite to pinnatisect or runcinately so, base attenuate into a well-developed petiolo-like portion and ± semiamplexicaul, margin entire or dentate, apex acute; lateral lobes (if present) 2–5 pairs, on leaf blade basal 1/2–2/3. Stem leaves lanceolate to linear-lanceolate, smaller, rather undivided, base strongly sagittately clasping, margin mostly entire, otherwise similar to basal leaves. Synflorescence corymbiform, with few to some capitula. Capitula with 20–25 florets; peduncle capillaceous. Involucre cylindric and 5–6 × 2–3 mm at anthesis, broadly campanulate and 7–8 × 4–5 mm in fruit. Phyllaries abaxially glabrous, outer phyllaries 4–6, ovate, longest less than 1 mm, apex acute; inner phyllaries 8, apex acute to obtuse. Florets yellow or rarely white. Anther tube and style greenish to blackish upon drying. Achene brown to reddish brown, ellipsoid, ca. 4 mm, apex contracted into a slender 1–1.5 mm beak. Pappus ca. 4 mm, Fl. and fr. Feb.–Oct. 2n = 16.

Forest margins, thickets, grasslands, along rivers and streams, by fields, open areas; 100–2000 m. Anhui, Chongqing, Fujian, Guangdong, Guangxi, Guizhou, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Shandong, Sichuan, Taiwan, Yunnan, Zhejiang [Afghanistan, Bhutan, Cambodia, N India, Japan, Kashmir, Laos, Myanmar, Nepal, Vietnam].

The leaves of the species, as in other species of the genus, are very variable with respect to their division, ranging from entire to strongly dissected.

The entire plant is used medicinally. The many uses include detoxifying, stopping bleeding, promoting tissue regeneration, removing necrotic tissue, decreasing inflammation of soft tissues, and stopping uterine bleeding, but the main use is for treating furuncles.


剪刀股 jian dao gu

Lapsana japonica N. L. Burman, Fl. Indica, 174. 1768; Barkhausia repens (Loureiro) Sprengel; Chondrilla debilis
Herbs 15–35 cm tall, perennial, glabrous, rosulate. Taproot with lateral shoot-bearing roots producing secondary leaf rosettes. Stems several, flagelliform, long creeping above ground; nodes 1 to several cm apart, most with adventitious roots and a single leaf. Flowering stems from rosettes and leaf axils of creeping stems, erect, to 35 cm, with 0 or 1 leaf. Basal leaves present at anthesis, spatulate, elliptic, or almost linear, 3–25(–35) × 0.5–2(–3) cm, undivided or pinnatifid to pinnatipartite and sometimes lyrate, so, base attenuate into a petiole-like portion, margin entire or sinuate-dentate, apex obtuse to acute and sometimes lyrately so, base attenuate into a petiolo-like portion, margin entire or sinuate-dentate, apex obtuse to acute and mucronulate; lateral lobes (if present) 1 to few pairs, triangular to elliptic, apex acute to obtuse. Stem leaves (if any) similar to basal leaves but smaller. Synflorescence laxly and weakly corymbiform, with 1–6 capitula. Capitula with 20–25 florets; peduncle wiry, 0.5–3 cm, with ovate bracts. Involucrake cylindric, 10–12 × 4–5 mm at anthesis, to 1.4 cm in fruit. Phyllaries abaxially glabrous; outer phyllaries ovate to lanceolate, longest 4–6 mm, apex acute; inner phyllaries 8, apex acute. Florets yellow. Anther tube and style greenish to blackish upon drying. Achene brown, fusiform, 5–7 mm, apex attenuate into a moderately slender 0.5–2 mm beak. Pappus 5–6 mm. Fl. and fr. Apr.–Oct. 2n = 16*.

Open sandy beaches; near sea level. Fujian, Guangdong, ?Hainan, Hebei, Jiangsu, Liaoning, Shandong, Taiwan, Zhejiang [Japan, Korea, E Russia, ?Vietnam].


圆叶苦荬菜 yuan ye ku mai cai

*Ixeris capillaris* Nakai; *I. stolonifera* subsp. *capillaris* (Nakai) Kitamura; *I. stolonifera* var. *sinuata* (Makino) Takeda; *Lactuca nummulariafolia* H. Lévêillé & Vaniot; *L. stolonifera* (A. Gray) Bentham ex Maximowicz; *L. stolonifera* var. *sinuata* Makino.

Herbs 10–15 cm tall, perennial, rosulate, glabrous. Taproot with lateral shoot-bearing roots, producing secondary leaf rosettes. Stems several, flagelliform, long creeping above ground; nodes 1–7 cm apart, most with adventitious roots and a single leaf. Flowering stems from rosettes and leaf axils of creeping stems, erect, to 15 cm, leafless. Leaves present at anthesis; petiole 1–4 cm; leaf blade orbicular, broadly elliptic, ovate, or obovate, 1–3 × 0.8–1.5 cm, undivided or weakly pinnatifid, base rounded, cuneate, or truncate, margin entire, apex obtuse, rounded, or emarginate and often mucronulate; lateral lobes (if present) 1( or 2) pair(s), on basal half of leaf blade, triangular, small. Synflorescence laxly and weakly corymbiform, with 1–6 capitula. Capitula with 15–25 florets; peduncle capillaceous, to 10 cm. Involucrake narrowly cylindric, 7–8 × 3–4 mm at anthesis, to 10 mm in fruit. Phyllaries abaxially glabrous; outer phyllaries ovate to lanceolate, longest to 2( –3) mm, apex acute; inner phyllaries 8, apex acute to obtuse. Florets yellow. Anther tube and style greenish to blackish upon drying. Achene brown, fusiform, 4–6 mm, apex attenuate into a filiform 1.5–3 mm beak. Pappus 4–5 mm. Fl. and fr. May–Oct. 2n = 16*.

Moist areas on gravelly mountain slopes; 1500–2000 m. ?Anhui, Jiangsu, Jiangxi, Taiwan, Zhejiang [Japan, Korea; introduced to E North America].


中华苦荬菜 zhong hua ku mai cai
Herbs 5–50 cm tall, perennial, rosulate, glabrous. Taproot, often with shoot-bearing lateral roots. Stems usually few to several, rarely solitary, ascending-erect to erect, branched from base or higher up. Rosette leaves oblanceolate, elliptic, narrowly elliptic, or ± linear, 6–24 × 1–2 cm, undivided or pinnatifid to pinnatifidpartite, basally attenuate, margin entire or sinuate-dentate, apex obtuse, acute, or attenuate; lateral lobes 2–7 pairs, narrowly triangular, linear-triangular, or linear. Stem leaves (0 or)1–4, narrowly lanceolate to linear-lanceolate, mostly undivided or more rarely pinnatifid, base semipellucid and usually not or rarely with a basal pair of side- directed clasping lobes, margin entire, apex acuminate. Synflorescence laxly corymbiform, with few to many capitula. Capitula with 15–25 florets; pedicel wiry, ca. 1 to several cm. Involucre cylindric, 6–11 mm. Phyllaries abaxially glabrous, apex acute; outer phyllaries ± ovate, longest 1–1.5 mm; inner phyllaries ± ovate, longest 1–1.5 mm. Anther tube and style greenish to blackish upon drying. Achene brown, subfuscous, 4–6 mm, apex attenuate into a slender 2.5–3 mm beak. Pappus ca. 5 mm. Fl. and fr. Jun–Oct.

Grasslands on mountain slopes, forests, forest margins, along rivers, ravines, open areas, degraded shrublands, thickets, riverbanks, rock crevices, sandy soil areas, fields, field margins, wastelands, roadsides; below 100–4000 m. Anhui, Chongqing, Fujian, Gansu, Guangdong, Guizhou, Hainan, Hebei, Heilongjiang, Henan, Heilongjiang, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [*Cambodia, Japan, Korea, Laos, Mongolia, E Russia, Thailand, Vietnam].

Ixeris chinensis includes diploid, triploid, and tetraploid cytotypes. Pak et al. (Acta Phytotax. Geobot. 48: 187–196. 1997) have shown that all three cytotypes are present in mainland Asia, while in Taiwan only the diploid cytotype and in Japan only the triploid and tetraploid cytotypes occur. Otherwise, all three cytotypes frequently seem to occur sympatrically. The triploid and tetraploid cytotypes have been identified with I. chinensis subsp. strigosa (see Kitamura, Mem. Coll. Sci. Kyoto Imp. Univ., Ser. B, Biol. 23: 112–116. 1956), which has long involucres (9–10 mm) and achenes as well as whitish or pale purplish florets. The diploid cytotype has been identified with I. chinensis subsp. chinensis, which has involucres of 6–8 mm and yellow florets. The third sub-species recognized by Kitamura, I. chinensis subsp. versicolor (sometimes even treated as two separate species, I. graminea and I. graminifolia, see, e.g., under Ixeridium, in Tzvelev, Fl. URSS 29: 388–392. 1964; Rast. Tsentral. Aziz 14b: 62–65. 2008) appears rather to include forms intermediate between the former two at least with respect to involucre length (8–9 mm) and floret color (variably yellow, white, or purplish). It was not included in the analysis by Pak et al. (loc. cit.) and is little understood, even with respect to its actual delimitation from I. chinensis subsp. strigosa. Until further studies, such as started by Pak et al. (loc. cit.), are available that also include I. chinensis subsp. versicolor, the taxonomy of I. chinensis remains unsatisfactory. For the time being, it appears appropriate basically to maintain the classification of Kitamura (loc. cit. 1956) with three subspecies, the delimitation between them, however, not being clear-cut, and especially between I. chinensis subsp. versicolor and I. chinensis subsp. strigosa often questionable in material from China. The distribution ranges given below should therefore be taken with great caution. Leaf shape is very variable in I. chinensis; this variation, however, follows patterns not unusual in the genus and the tribe and is taxonomically of no value.

1a. Involucre 6–8 mm; florets bright or pale yellow; stem leaves usually 2–4 ....... 5a. subsp. chinensis


Grasslands on mountain slopes, open areas, degraded shrublands, thickets, riverbanks, rock crevices, fields, field margins, roadsides; below 100–4000 m. Anhui, Chongqing, Fujian, Gansu, Guangdong, Guizhou, Hainan, Hebei, Heilongjiang, Henan, *Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, *Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [*Cambodia, Korea, Laos, E Russia, Thailand, Vietnam].

5a. Ixeris chinensis subsp. chinensis


Herbs 25–50 cm tall. Stems solitary or few, erect. Rosette leaves to 24 cm. Stem leaves 1, 2, or rarely more. Capitula with 20–25 florets. Involucre 6–11 mm. Florets white to pale purplish. Achene 5–6 mm. Fl. and fr. Apr–Jul. 2n = 24, 32*.

Grasslands on mountain slopes, open areas; 500–1500 m. Anhui, Chongqing, Fujian, Gansu, Guangdong, Guangxi, Guizhou, Hainan, Hebei, Heilongjiang, Henan, *Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, Nei Mongol, Ningxia, Qinghai, Shaanxi, *Shandong, Shanxi, Sichuan, Taiwan, Xinjiang, Xizang, Yunnan, Zhejiang [*Cambodia, Korea, Laos, E Russia, Thailand, Vietnam].

5b. Ixeris chinensis subsp. strigosa


Herbs 25–50 cm tall. Stems solitary or few, erect. Rosette leaves to 24 cm. Stem leaves 1, 2, or rarely more. Capitula with 20–25 florets. Involucre 9–11 mm. Florets white to pale purplish. Achene 5–6 mm. Fl. and fr. Apr–Jul. 2n = 24, 32*.


Delimitation of Ixeris chinensis subsp. strigosa from I. chinensis subsp. versicolor needs thorough evaluation, and the present delimitation may perhaps be artificial. The distribution ranges of these two subspecies are therefore questionable.

多色苦荬  duo se ku mai

Lagoseris versicolor Fischer ex Link, Enum. Hort. Berol. Alt. 2: 289. 1822; Barkhausia versicolor (Fischer ex Link) Sprengel; Chondrilla versicolor (Fischer ex Link) Schultz Bipontinus; Crepis graminifolia Ledebour; C. vaniotii H. Léveillé; Ieridium biparum C. Shih; I. chinensis subsp. graminifolium (Ledebour) Tzvelev; I. chinoense subsp. versicolor (Fischer ex Link) Tzvelev; I. gramineum (Fischer) Tzvelev; I. graminifolia (Ledebour) Tzvelev; Ixeris chinensis subsp. graminifolia (Ledebour) Kitagawa; I. chinensis var. graminifolia (Ledebour) H. C. Fu; I. chinensis subsp. hallaisanensis (H. Léveillé) Kitagawa; I. chinensis var. intermedia Kitagawa; I. graminea (Fischer) Nakai; I. graminifolia (Ledebour) Kitagawa; I. lanceolata C. C. Chang (1932), not (Houttuyn) Stebbins (1937); I. scaposa Freyn; I. versicolor (Fischer ex Link) Candolle; Lactuca fischeriana Candolle; L. hallaisanensis H. Léveillé; L. rubrolutea Vaniot; L. versicolor (Fischer ex Link) Schultz Bipontinus; Paraixeris graminea (Fischer) H. S. Pak; Prenanthes graminea Fischer; P. versicolor (Fischer ex Link) Bunge.

Herbs usually 10–20 cm tall. Stems several, ascending-erect. Rosette leaves to 17 cm. Stem leaves usually (0 or) 2. Capitula with 15–25 florets. Involucr. 8–9 mm. Floret color variable within a population, white, purplish, pale yellow, or rarely also bright yellow. Achen 4–6 mm. Fl. and fr. Mar.–Sep.

Grasslands on mountain slopes, forests, forest margins, along rivers, ravines, wastelands, sandy soil areas; 100–4000 m. ?Anhui, ?Jiangsu, ?Jiangxi, Jilin, Nei Mongol, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan, ?Zhejiang [Korea, Mongolia, E Russia].

See note under the previous subspecies.


澤苦荬 ze ku mai

Lactuca tamagawaensis Makino, Bot. Mag. (Tokyo) 17: 90. 1903; Ixeris chinensis (Thunberg) Kitagawa subsp. arenicola (Makino) Kitamura; Lactuca versicolor (Fischer ex Link) Schultz Bipontinus var. arenicola Makino.

Herbs 15–30 cm tall, perennial, rossulate, glabrous, with a taproot. Stems solitary or few, ± erect, branched mainly apically, distantly leafy. Rosette leaves linear-lanceolate to linear, 6–15 × 0.2–1 cm, undivided, basally attenuate, margin entire or rarely very weakly sinuate-dentate, apex acute. Stem leaves 1–3, similar to rosette leaves but smaller, base semiamplexicaul. Synflorescence laxly corymbiform, with several to some capitula. Capitula with 25–40 florets. Involucre narrowly cylindric, 7–9 mm. Phyllaries abaxially glabrous; outer phyllaries ovate to lanceolate, longest ca. 3 mm, apex acute; inner phyllaries ca. 8, apex ± acute. Florets yellow. Anther tube and style greenish to blackish upon drying. Achen brown, fusiform, 5–6 mm, apex attenuate into a slender ca. 3 mm beak. Pappus ca. 5 mm. Fl. and fr. May–Aug. 2n = 16.

Open gravelly or rocky riverbanks. E Taiwan [Japan, Korea].


小苫苣菜属 xiao ku ju cai shu

Shi Zhu (石铸 Shii Chu); Norbert Kilián

Herbs, perennial, of ± saline habitats. Stem erect, ± leafy. Synflorescence narrowly racemiform or paniculiform. Capitula with ca. 10 florets. Involucr. 8–9 mm. Floret color variable within a population, white, purplish, pale yellow, or rarely also bright yellow. Achen 4–6 mm. Fl. and fr. Mar.–Sep.

Two species: N China, Mongolia, E Russia; two species in China.

Sonchella unites Youngia stenoma, the single species of Babcock and Stebbins’s (not validly published) “Y. sect. Stenophyton” (Publ. Carnegie Inst. Washington 484: 42. 1937), and a species formerly treated as Prenanthes angustifolia or Crepis pratensis. They are strikingly similar to each other except for their different synflorescence shape. Sonchella has been confirmed in the molecular phylogenetic analyses of subtribe Crepidinae by J. W. Zhang et al. (in prep.) as being rather distant from Youngia.

1a. Synflorescence racemiform, branches 1–3(–5) cm, appressed, upper secondary branches not exceeding main axis and primary branches; midvein of inner phyllaries subapically often conspicuously crested or carinate .......... 1. S. stenoma

1b. Synflorescence paniculiform, branches 3–10 cm, aruncate-spread, upper secondary branches exceeding main axis and primary branches; midvein of inner phyllaries subapically inconspicuously crested or plane .......... 2. S. dentata


碱小苫苣菜 jian xiao ku ju cai

Crepis stenoma Turczaninow ex Candolle, Prodr. 7: 164. 1838; Hieracoides stenoma (Turczaninow ex Candolle) Kuntze; Ixeris stenoma (Turczaninow ex Candolle) Kitagawa; Youngia stenoma (Turczaninow ex Candolle) Ledebour.

Herbs 10–50 cm tall, perennial, with a taproot and shoot-bearing lateral roots. Caudex with residues of old leaf bases. Stem solitary, erect, mostly unbranched below synflorescence, glabrous, leafy. Basal and lower stem leaves narrowly lanceolate, narrowly elliptic, or narrowly obovate, 3–12(–20) × 0.3–1 cm, often somewhat fleshy, glaucous, glabrous, base attenuate into a petiole-like portion and semiamplexicaul, margin entire or sinuate-dentate, apex ± acute. Middle and upper
stem similar to lower ones but gradually smaller and narrower toward stem apex, margin rather entire. Synflorescence narrowly racemiform, with many capitula. Peduncle wiry, 0.5–2 cm. Involucre brownish green, narrowly cylindric, 8–9 mm. Phyllaries abaxially glabrous; outer phyllaries ovate to lanceolate, longest 2.5–3 mm, apex acute; inner phyllaries ca. 8, mid-vein subapically often crested, apex acute and ± ciliate. Achene greenish brown, fusiform, 4.5–6.5 mm, apex truncate. Pappus ca. 6 mm. Fl. and fr. Jul–Sep. 2n = 16.

Sandy soil in steppes, alkaline areas; 900–1500 m. Gansu, Nei Mongol [Mongolia, E Russia].

All parts of this herb are used medicinally, in particular for treating serious cases of furuncles.


草甸小苦荬菜 cao dian xiao ku ju cai

Sonchus dentatus Ledebour, Icon. Pl. 1: 21. 1829; Crepis pratensis C. Shih; Prenanthes angustifolia Bolus; Sonchella dentata var. tibetica (Ostenfeld) Sennikov; S. pratensis (C. Shih) Tzvelev; S. tibetica (Ostenfeld) Tzvelev; Sonchus dentatus var. tibeticus Ostenfeld.

Herbs 15–50 cm tall, perennial, with a taproot and shoot-bearing lateral roots. Caudex with residues of old leaf bases. Stem solitary, erect, mostly unbranched below synflorescence, ± glabrous, leafy. Basal and lower stem leaves narrowly spatulate, 3–11 × 0.7–1.5 cm, often somewhat fleshy, glabrous, base attenuate into a petiole-like portion and semiamplexicaul, margin entire or sinuate-dentate, apex obtuse to acute. Middle and upper stem leaves few, lanceolate, similar to lower ones but gradually smaller and narrower toward stem apex, margin rather entire. Synflorescence paniculiform, with many capitula. Peduncle wiry, usually shorter than involucre. Involucre dark green, narrowly cylindric, 8–10 mm. Phyllaries abaxially ± glabrous (to setose along midvein); outer phyllaries ovate to lanceolate, longest 2.5–3 mm, apex acute; inner phyllaries 8, mid-vein subapically usually plane, apex ± acute. Achene brown, fusiform, ca. 5 mm, apex truncate. Pappus ca. 7 mm. Fl. and fr. Jun–Sep.

Marshes and saline meadows by lakes and streams; 2500–3700 m. Qinghai [Mongolia, E Russia].

76. DUBYAEAE Candolle, Prodr. 7: 247. 1838.

Shi Zhu (石铸 Shih Chu); Norbert Kilian

Herbs, perennial, often rosulate, cauléscant or rarely acaulescent with 1 or few scapes. Stems leafy or leafless, with ± stiff, yellowish brown, reddish to purplish brown, or blackish mostly glandular hairs, rarely glabrous. Synflorescence of a solitary capitulum or corymbose, rarely umbelliform, with few to several or rarely to 20 capitula. Capitula declined, pendent, or erect, with several (ca. 7) to numerous (ca. 70) florets. Involucre cylindric, broadly campanulate, or almost hemispheric. Phyllaries in several series, often dark green or purplish when dry, glabrous or with brownish, purplish, or blackish stiff mostly glandular hairs along mid-vein; outer phyllaries imbricate, centripetally longer, longest 1/3–4/5 as long as inner ones; inner phyllaries ca. 8 to many, linear-lanceolate to lanceolate, ± equal to somewhat unequal in length. Florets yellow or of some shade of purple (pale, bluish, reddish, or brownish), or blue. Receptacle naked. Achene ± fusiform, weakly ± compressed, with 5 usually prominent main ribs alternating with 1 or 2 more slender secondary ribs, apex truncate or attenuate. Pappus yellowish, brownish, brown, or rarely ?whitish, bristles scabrid.

About 15 species: Bhutan, SW China, N India, N Myanmar, Nepal; 12 species (eight endemic) in China.

Dubyaea forrestii Magin & R. R. Rao (Edinburgh J. Bot. 65: 1. 2008) was described from rocky alpine slopes in Gaoligong Shan in NE Myanmar, close to the border with China or possibly inside Yunnan (“[F]lank of the N’Maikha–Salwin [Nu Jiang] divide, lat. 26°30′N, alt. 11,000′ [3700 m]”). It was described as being similar to D. atropurpurea and is known only from the type, G Forrest 29660 (holotype, BM; isotype, E), collected in 1931.

1a. Florets yellow.

2a. Stems, branches, and phyllaries glabrous; leaves undivided and entire or very scarcely and shallowly dentate, mostly rosulate and stem with bracts only ................................................................. 5. D. tsarongensis

2b. Stems, branches, and phyllaries with stiff yellowish brown, reddish, purplish brown, or blackish mostly glandular hairs; leaves dentate to pinnately lobed, sometimes basally crowded but usually caulescent.

3a. Stem with yellowish brown stiff hairs .................................................................................... 4. D. emeiensis

3b. Stem with brown, reddish brown, purplish, or blackish stiff long glandular or non-glandular hairs.

4a. Capitula with 40–50 florets; involucre broadly campanulate .................................................... 1. D. hispida

4b. Capitula with less than 15 florets; involucre cylindric or narrowly cylindric.

5a. Involucre ca. 1.5 cm; capitula with ca. 7 florets; achene ca. 7 mm .............................................. 2. D. jinyangensis

5b. Involucre 1–1.1 cm; capitula with 9–13 florets; achene 4.5–5.5 mm ............................................ 3. D. blinii

1b. Florets of some shade of purple (pale, bluish, reddish, or brownish) or blue.

6a. Plants rosulate, acaulescent; capitula on 1–7 scapes, less than 10 cm.

7a. Rosettes with 3–7 scapes; plants with long stiff glandular hairs especially on scapes ........................................ 10. D. amoena

7b. Rosettes with a solitary scape; plants glabrous ............................................................................. 11. D. gombalana
6b. Plants rosetulate or not, caulescent with branched leafy or more rarely leafless but branched stem (15–30–100 cm tall).
8a. Capitula erect; pappus whitish ................................................................. 7. D. cymiformis
8b. Capitula nodding; pappus yellowish to brown.
9a. Lower and middle stem leaves at most tapering toward base but not contracted into a petiole-like rachis; stems, branches, and phyllaries glabrous ........................................ 9. D. glaucescens
9b. At least lower and middle stem leaves contracted into a petiole-like unwinged or winged rachis; long stiff blackish hairs present at least in apical portion of stem.
10a. Phyllaries glabrous except for a ciliate margin ............................................... 12. D. stebbinsii
10b. Phyllaries on abaxial midvein with long stiff brown to blackish glandular hairs.
11a. Involucre broadly campanulate, 1.5–2 × 1–1.5 cm ......................................... 6. D. atropurpurea
11b. Involucre campanulate, 1.5–1.7 × 1–1.5 cm .................................................. 8. D. rubra

1. Dubyaea hispida Candolle, Prodr. 7: 247. 1838.

厚喙菊 hou hui ju

Hieracium hispidum D. Don, Prodr. Fl. Nepal. 165. 1825, not Forsskål (1775); Crepis hispanica Hutchinson; C. dubya (C. B. Clarke) C. Marquand & Airy Shaw; Dubyaea hispida (Hutchinson) C. Shih; D. lanceolata C. Shih; D. pteropoda C. Shih; Lactuca dubya C. B. Clarke.

Herbs 20–60 cm tall, perennial, with creeping rhizomes. Stem erect, branched from below middle or higher up, leafy, with long blackish stiff glandular hairs and pale curly weak hairs. Basal and lower stem leaves sessile or base attenuate into a long petiole-like portion, oblancoate, elliptic, or narrowly elliptic, 5–18 × 1.5–6 cm, sinuate-dentate to shortly lyrately pinnatifid, both faces with hairs or mainly abaxially, base narrow to widened and ± clasping, margin mucronulately dentate, apex acute to acuminate. Middle and upper stem leaves similar to lower stem leaves but ± lanceolate, smaller, base auriculately clasping; uppermost stem leaves linear-lanceolate, reduced in size. Synflorescence corymbiform, with 2–7 capitula. Capitula nodding, with 40–50 florets; peduncle blackish pilose. Involucre campanulate, 1.8–2 × 1–1.5 cm. Phyllaries with long dark brown to blackish stiff glandular hairs on midvein except on innermost ones; outer phyllaries rather few, narrowly lanceolate to linear, closely approaching inner ones in length, apex acute to acuminate; inner phyllaries many, lanceolate, margin acutely often ± brownish ciliate to fringed. Florets yellow. Achene brown, 7–9 mm, with several ribs, apex long attenuate and paler. Pappus yellowish, 0.8–1.2 cm. Fl. and fr. Jul–Nov. 2n = 16.

Forests, forest margins, meadows, thickets; 2700–4500 m. Sichuan, Xizang, Yunnan [Bhutan, India (Sikkim), N Myanmar, Nepal].

Dubyaea hispida is here considered in the wider sense established by Stebbins (Mem. Torrey Bot. Club 19(3): 19. 1940) and taken up by X. Zhuang (Fl. Yunnan. 13: 704. 2004), who consequently included also the segregates D. lanceolata and D. pteropoda, distinguished only by minor differences in leaf shape. The underground parts are usually described as creeping rhizomes from which the stems arise; no specimen, however, has been seen where a true rhizome is preserved. The underground parts preserved in the material seen could also be interpreted as root-borne shoots.


金阳厚喙菊 jin yang hou hui ju

Herbs to 15 cm tall, perennial, with taproot. Stem solitary, erect, apically branched and with lanceolate bracts, with long stiff blackish hairs. Leaves sessile, narrowly elliptic, isomorphic, 7–8 × ca. 2 cm, abaxially with long reddish brown to brown hairs on veins, base auriculate and semiamplexicaul, margin coarsely dentate to ± lobed, apex acuminate. Synflorescence corymbiform, with ca. 9 capitula. Capitula erect, with ca. 7 florets. Involucre narrowly cylindric, ca. 1.5 × 0.5 cm. Phyllaries dark green, abaxially with long stiff blackish hairs on midvein; outer phyllaries rather few, ovate to lanceolate, 2.5–3 cm × 1 mm, apex acute to obtuse; inner phyllaries lanceolate, apex acute to obtuse. Florets yellow. Achene brown, ca. 7 mm, with 8 unequal ribs, apex truncate. Pappus brownish, ca. 7 mm. Fl. and fr. Sep.

Mountain slopes; ca. 3400 m. S Sichuan (Jinyang).

3. Dubyaea blinii (H. Léveillé) N. Kilian, comb. nov.

剛毛厚喙菊 gang mao hou hui ju


Herbs 15–35 cm tall, perennial, ± rosetulate. Caudex strong, with residues of old leaf bases, brown lunate in leaf axis. Stem erect or curved-erect, usually branched apically, densely setose with brownish to purplish spreading hairs, moderately leafy. Rosette leaves (present or not at anthesis) and lower stem leaves oblancoate to elliptic, 7–18 × 1.5–4 cm, undivided and coarsely sinuate-dentate or runcinate-dentate to pinnatifid, abaxially densely and adaxially sparsely setose with brownish to purplish spreading hairs, base attenuate into a cuneately winged petiole-like portion and semiamplexicaul, margin sinuate-dentate, apex acute to acuminate; lateral lobes triangular, ± retrorse, apex acute. Middle and upper stem leaves similar to lower leaves but smaller, base without a petiole-like portion but semiamplexicaul. Synflorescence densely corymbiform, with 10–20 capitula. Capitula erect, with 9–13 florets; peduncle 2–8 mm, densely setose with brownish to purplish spreading hairs. Involucre cylindric, 1–1.1 cm. Phyllaries abaxially brownish to purplish setose along midvein; outer phyllaries triangular to lanceolate, longest 2.5–3 mm, apex acute; inner phyllaries ca. 8, with thin scarious margin, apex acute. Florets yellow. Achene pale brown, 4.5–5.5 mm, with ca. 12 unequal ribs, glabrous, apex truncate. Pappus pale brown, 5–7 mm. Fl. and fr. Jul–Oct.

Mountain pastures, open grassy slopes; ca. 2600 m. W Sichuan, SW Yunnan.
Dubyaea bilinii has been considered as a species of Youngia since its inclusion by Babcock and Stebbins (Univ. Calif. Publ. Bot. 18: 227–229; 1943, as *T. setigera*) in that genus. Examination of the type material, however, revealed that it is grossly misplaced in Youngia, from which it differs by the indumentum of leaves, stems, and phyllaries, and its achene and pappus features, but conveniently fits into *Dubyaea*, where it may perhaps be more closely related to *D. jinyangensis*.


峨眉厚喙菊 e mei hou hui ju

Herbs to 13 cm tall, perennial. Stem erect, apically branched, purplish red and glabrous below middle, pale green and densely hispid with stiff yellowish brown hairs above middle, leafy. Lower and middle stem leaves oblanceolate to elliptic, 5–9 × 2–3 cm, thick, glabrous, abaxially dark purple, base cuneate-attenuate and tapering into a narrow or petiole-like portion, margin dentate, apex acute to acuminate. Upper leaflets subopposite, sessile, lanceolate, 5–6 × 2–3 cm, base rounded to cuneate, otherwise like middle stem leaves; uppermost leaflets reduced in size to broadly linear acuminate bracts. Synflorescence umbelliform, with 7 capitula each containing a peduncle of equal length. Capitula with 20–25 florets; peduncle ± thickened, with stiff brown hispid hairs. Involucre narrowly campanulate, 1.3–1.5 × 0.8 cm. Phyllaries abaxially blackish green and with stiff brown hairs on midvein; outer phyllaries triangular to lanceolate, longest ca. 4.5 × 1.2 mm, apex acute; inner phyllaries with apex obtuse to rounded. Florets yellow. Achene brown, ca. 5 mm, with ca. 14 unequal ribs. Pappus yellowish, ca. 7 mm. Fl. and fr. Jul.

- Forests; ca. 2500 m. Sichuan (Emei Shan).

*Dubyaea emeiensis* is a poorly known species only known from the type collection from Emei Shan.


察隅厚喙菊 cha yu hou hui ju


Herbs 6–30 cm tall, perennial, usually rosulate, with a taproot and a short ± subterranean caudex. Stem slender, usually unbranched or rarely 1-branched, glabrous, leafless and with only a few linear bracts or more rarely with a few leaves in basal portion. Rosette leaves oblanceolate to elliptic, 3–11 × 0.5–1.5 cm, glabrous, base usually attenuate into a petiole-like portion, margin entire or sparsely mucronulate-dentate, apex rounded and mucronulate. Stem leaves (if present) 1–3, oblanceolate to lanceolate, smaller than rosette leaves, base attenuate to ± auriculately clasping, otherwise similar to rosette leaves. Capitulum solitary or more rarely a pair, pendent, with 15–25 florets. Involucre narrowly campanulate, 1.2–1.6 cm. Phyllaries abaxially ± uniformly dark green, glabrous, apex acute; outer phyllaries ovate to broadly lanceolate, approaching inner ones in length; inner phyllaries ca. 8. Florets yellow. Achene not seen when mature, ca. 5 mm, apex truncate. Pappus yellowish, 6–8 mm. Fl. and fr. Aug–Oct.

Scree slopes, alpine meadows; 2500–4100 m. Yunnan [N Myanmar].

*Dubyaea chinensis* (W. W. Smith) Stebbins, formerly considered as conspecific with *D. tsarongensis* and distinguished only at infraspecific rank, is actually a markedly distinct species with a localized distribution in N Myanmar, as was first recognized by Stebbins (Mem. Torrey Bot. Club 19(3): 22–24. 1940). *Dubyaea tsarongensis* appears actually more closely related to *D. gombalana*.


紫花厚喙菊 zi hua hou hui ju

*Lactuca atropurpurea* Franchet, J. Bot. (Morot) 9: 294. Aug 1895, not Franchet (Jul 1895); *Dubyaea panduriformis* C. Shih.

Herbs 30–80(–120) cm tall, perennial, with a stout taproot. Stem stout, erect, branched from middle or higher up, with long stiff dark brown to blackish glandular hairs, leafy. Basal and lower stem leaves hairy or sometimes glabrescent, base narrowed and sometimes ± expanded and clasping, margin mucronulate-sinuate-dentate; terminal lobe triangular-ovate, to 20 × 20 cm, basally cordate to sagittate then contracted into a at least distally winged petiole-like rachis to 50 cm with ± paired of small somewhat distant broadly triangular lateral lobes in apical portion, apex obtuse, acute, or rounded. Middle and upper stem leaves similar to lower stem leaves but (much) smaller; leaf blade lanceolate, oblanceolate, or elliptic, less or not divided and sinuate-dentate, proximally much less narrowed and base distinctly clasping; uppermost stem leaves ± elliptic, with a narrow base. Synflorescence corymbiform, with 3–8 capitula. Capitula nodding, with 60–70 florets; peduncle usually long, blackish pilose. Involucre broadly campanulate, 1.8–2.2 × 2–2.5 cm. Phyllaries dark green to blackish, with stiff long blackish glandular hairs along midvein except for innermost ones; outer phyllaries few, narrowly lanceolate, approaching inner in length; inner phyllaries many, broadly lanceolate, 4–6 mm wide, margin apically brownish ciliate to fringed, apex acute to acuminate. Florets dark purplish. Achene brown, 6–8 mm, with several strong ribs. Pappus dirty yellowish to pale brownish, 7–10 mm. Fl. and fr. Jul.–Oct.

*Pinus* forest margins, alpine meadows, thickets; 3000–4100 m. Sichuan, Yunnan [NE Myanmar].

The basionym *Lactuca atropurpurea* is illegitimate as a later homonym; thus, according to Art. 58.1 of the Vienna Code, the combination *Dubyaea atropurpurea* is treated as a replacement name.

Following X. Zhuang (Fl. Yunnan. 13: 705. 2004), *Dubyaea panduriformis*, distinguished from *D. atropurpurea* by minor leaf features only, is considered as conspecific.


伞房厚喙菊 san fang hou hui ju

Herbs to 45 cm tall, perennial. Stem erect, basally and middle tinged with purplish red, branched from basal portion, leafy; branches ascending, densely covered with dark brown to blackish long stiff glandular hairs. Basal and lower stem leaves oblanceolate to elliptic, ca. 18 × 4 cm, lyrate pinnatifid,
basally attenuate, margin mucronulately dentate; lateral lobes 4 or 5 pairs, elliptic to oblquiely ovate; terminal lobe broadly elliptic to oblanceolate. Middle stem leaves similar to lower stem leaves but base ± auriculately clasping; uppermost stem leaves linear to lanceolate, undivided or almost so, apex acute to rounded. Synflorescence corymbose, with ca. 15 capitula. Capitula erect, with numerous florets. Involucre broadly campanulate, ca. 1 × 2 cm. Phyllaries dark green, apex acute to acuminate; outer phyllaries rather few, narrowly lanceolate, with long brown stiff glandular hairs and weak curly pale uniseriate hairs on midvein and along margin; inner phyllaries except innermost ones with long, brown stiff glandular hairs along midvein. Florets purplish. Achene not seen when mature. Pappus with the whitish, ca. 1 cm. Fl. Jul.

Known only from the type, this species is probably related to Dubyaea oligocephala (Schultz Bipontinus) Stebbins from the W Himalaya and D. hispida.


*Chang bing hou hui ju*

_Dubyaea multiensis_ C. Shih.

Herbs 30–60 cm tall, perennial. Stem erect, branched apically or rarely from basal portion, and middle usually purplish-red, with long blackish stiff glandular hairs and pale curly weak hairs, leafy. Basal and lower stem leaves hairy particularly abaxially, margin mucronulately sinuate-dentate; terminal lobe triangular to triangular-ovate, 3.5–8 × 2.5–6 cm, basally cordate, truncate, or shortly cuneate and contracted into an unwinged or at least apically winged petiole-like rachis of 4–10 cm with 0–3 pairs of small sometimes indistinct triangular to ovate lateral lobes in upper portion, apex acute. Middle and upper stem leaves similar to lower stem leaves but without or with a short winged petiole-like rachis, lanceolate to ovate-lanceolate, small, base narrow to somewhat auriculately clasping. Synflorescence sparsely and ± distantly corymbose, with 3–6 capitula. Capitula nodding, with 50–60 florets; peduncle usually long blackish pilose. Involucre campanulate, 1.5–1.7 × 1–1.5 cm. Phyllaries dark green to blackish. Phyllaries with long blackish stiff glandular hairs along midvein except in innermost ones and all ± with weak curly pale multicellular uniseriate hairs especially along margin and apically, apex acute; outer phyllaries rather few, linear-lanceolate, approaching inner ones in length; inner phyllaries many. Florets pale purple. Achene brown, ca. 8 mm, with several ribs, apex long attenuate and paler than remainder. Pappus yellowish, ca. 8 mm. Fl. and fr. Aug.–Sep.


*Guang hua hou hui ju*

_Dubyaea grandis_ Handel-Mazzetti.

Herbs 40–60 cm tall, perennial, with a taproot. Stem erect, glabrous, apically sparsely branched, leafy. Leaves glabrous. Basal and lower stem leaves oblanceolate to obovate, 20–24 × 6–8 cm, sinuate-dentate to pinnatifid with triangular lobes, glabrous, basally attenuate to an auriculately clasping base, margin sparsely mucronulate-dentate, apex acute to acuminate. Middle stem leaves similar to lower stem leaves but smaller and rather more sinuate-dentate than shallower pinnatifid, less attenuate toward base and broadly auriculately clasping. Synflorescence sparsely and ± distantly corymbose, with 2–4 capitula. Capitula nodding, with numerous florets; peduncle 7–22 cm, stout. Involucre broadly campanulate, 1.8–2 × 1.5–2 cm. Phyllaries abaxially dark green and glabrous, apex acute; outer phyllaries ovate to triangular-ovate, largest 4–6 × 2–3 mm; inner phyllaries with margin and apex shortly brownish fimbriate. Florets blue to purple. Achene brownish, ca. 3.5 mm, apex truncate. Pappus yellowish to pale brownish, 9–10 mm. Fl. Jun–Jul.


*Zong mao hou hui ju*


Herbs to 7 cm tall, perennial, rosalate, acaulescent, with a taproot. Caudex short, ± subterranean, with 3–7 scapes. Rosette leaves oblanceolate to narrowly elliptic, 4–10(–12) × 1–3 cm, sinuate-dentate or lyrate pinnatifid to subpinnatisect; lateral lobes elliptic to triangular, gradually smaller toward leaf base, abaxially with dark brown multicellular uniseriate hairs on veins, adaxially glabrous, margin entire or very scarcely and shallowly mucronulate-dentate; terminal lobe ovate to triangular, apex rounded, acute, or shortly acuminate. Scapes sometimes with 1 or 2 linear bracts, with dense long dark brown stiff glandular hairs. Capitula erect, with 10–16 florets. Involucre narrowly campanulate, 1.5–1.8 × 0.7–1 cm. Phyllaries abaxially brownish purple and with deep brown long stiff glandular hairs on midvein; outer phyllaries narrowly triangular to linear-lanceolate, approaching inner ones closely in length, apex acute to obtuse; inner phyllaries 8–10. Florets blue to bluish purple. Achene brown to dark brown, 4.5–6.5 mm, with 5 main ribs, apex truncate. Pappus brown, 1–1.2 cm. Fl. Sept.–Oct.


*Ai xiao hou hui ju*


Herbs to 10 cm tall, perennial, rosalate, acaulescent, with a taproot. Caudex short, ± subterranean, with 3–7 scapes. Rosette leaves oblong to narrowly elliptic, 3.5–8 × 2.5–6 cm, sinuate-dentate to pinnatifid with triangular lobes, glabrous, basally attenuate to an auriculately clasping base, margin sparsely mucronulate-dentate, apex acute to acuminate. Middle stem leaves similar to lower stem leaves but smaller and rather more sinuate-dentate than shallower pinnatifid, less attenuate toward base and broadly auriculately clasping. Synflorescence very laxly corymbose, with 2–4 capitula. Capitula nodding with numerous florets; peduncle 7–22 cm, stout. Involucre broadly campanulate, 1.8–2 × 1.5–2 cm. Phyllaries abaxially dark green and glabrous, apex acute; outer phyllaries ovate to triangular-ovate, largest 4–6 × 2–3 mm; inner phyllaries with margin and apex shortly brownish fimbriate. Florets blue to purple. Achene brownish, ca. 3.5 mm, apex truncate. Pappus yellowish to pale brownish, 9–10 mm. Fl. Jun–Jul.
entire, apex acute to shortly acuminate. Capitula erect (to declined?), with 12–16 florets. Involucre narrowly campanulate, 1.5–1.8–2.4 cm at anthesis but unknown in fruit. Phyllaries abaxially brownish purple, glabrous; outer phyllaries triangular-ovate to lanceolate, approaching inner ones closely in length; inner phyllaries ca. 8. Florets blue to bluish purple. Achene not seen when mature. Pappus brownish, 1.3–1.5 cm. Fl. Jul–Aug.

- Ravens on mountain slopes, forests, alpine meadows; 3200–3900 m. Xizang, Yunnan.


合头菊属 he tou ju shu

Shi Zhu (石著 Shih Chu); Norbert Kilian

Herbs, annual or perennial, acaulescent and rosulate, or, exceptionally, acaulescent with thick and hollow, densely leafy stem, sometimes from thin, vertical, subterranean shoot with scaly leaves. Rosette shoot inflated at apex to a flat, convex, hollow receptacle, carrying usually some to numerous, densely crowded sessile or subsessile capitula, often with a reduced, linear subtending leaf. Capitula with 3 or 5 florets. Involucre narrowly cylindric. Phyllaries in 1 row; outer phyllaries absent; inner phyllaries 3 or 5, ± lanceolate, subequal in length, connate in basal part, hardened at maturity. Receptacle naked. Florets yellow or pale to medium purplish. Achene obconical, compressed, with 5 ribs, apex truncate. Pappus of grayish white, with scabrid bristles, usually caducous.

- Five species: China.

The species formerly treated as Syncalathium souliei (incl. S. orbiculariforme) is not a congener and is not even part of subtribe Crepidinae; it is a member of subtribe Lactucinae and included in the genus Melanoserd (see M. souliei, p. 225).

1a. Capitula with 5 florets; phyllaries 5; florets yellow.
   2a. Leaf blade narrowly obovate to narrowly oblancoate; florets with ligule ca. 3 mm ........................................ 1. S. disciforme
   2b. Leaf blade orbicular or ovate; florets with ligule 8–9 mm ................................................................. 2. S. chrysocephalum

1b. Capitula with 3 florets; phyllaries 3 or 4; florets purplish.
   3a. Leaf blade 3–8 cm; florets very pale rose ................................................................. 5. S. roseum
   3b. Leaf blade ≤ 3 cm; florets purple.
      4a. Involucre 1.1–1.3 cm; anthers 5–6 mm; pappus 10–12 mm ................................................................. 3. S. porphyreum
      4b. Involucre 0.7–0.9 cm; anthers 2.5–4 mm; pappus 6–8 mm ................................................................. 4. S. kawaguchii


盘状合头菊 pan zhuang he tou ju


Herbs 2–5 cm tall, perennial, rosulate, acaulescent. Taproot slender. Rosette leaves narrowly obovate to oblancoate, 2–5 × 0.4–1.5 cm, green or particularly on rachis tinged purplish red, sinuate-dentate to pinnately lobed with toothlike lobes ± pilose, base attenuate into a basally widened petiolo-like portion. Synflorescence flat conical, 2–7 cm in diam., with lately sinuate-dentate; terminal lobe to 15 × 12 cm, basally corollate to shortly cuneate then contracted into an unwinged peti-ole-like rachis to 7 cm with apically 1 or 2 pairs of elliptic to obovate lateral lobes 1–3 × 0.5–2 cm, apex acute. Upper stem leaves similar to middle stem leaves but gradually smaller and without lateral lobes. Synflorescence corymbiform, with 1–4 capitula. Capitula nodding, with numerous florets; peduncle 12–22 cm, apically pubescent. Involucre campanulate, 1.3–1.5 × 1–1.5 cm. Phyllaries blackish green, with a ciliate margin especially apically otherwise glabrous; outer phyllaries ovate to lanceolate, largest 8–10 × 3–4 mm; inner phyllaries many, 3–5 mm wide, apex acute to obtuse. Florets reddish mauve to bluish purplle. Achene not seen when mature, glabrous, with ca. 8 ribs, apex truncate. Pappus brownish, 8–10 mm.

Grassy slopes, [woodlands]; [3500–]3700–3800 m. SE Xizang (Nangxian) [Bhutan].


合头菊属 he tou ju shu

Herbs 3–5 cm tall, perennial, rosulate, acaulescent. Taproot slender. Rosette leaves ovate to ovate-orbicular, 2–8 × 0.8–1.5 cm, green or tinged purplish red, glabrous or ± villous, base abruptly contracted into a basally widened winged or unwinged petiole-like portion with or without a few pairs of small lateral lobes, margin dentate, apex obtuse, acute, or rounded. Synflorescence flat conical, 2–3 cm in diam., with few to some capitula. Capitula with 3 florets. Involucre narrowly cylindric, 10–12 × ca. 3 mm. Phyllaries 5, lanceolate, abaxially sparsely pilose, apex rounded. Florets yellow, ligule 8–9 mm. Achene brown, obconical, ca. 3 mm, compressed. Pappus 6–7 mm. Fl. and fr. Jul. 2 n = 16*.

● Sandy riverbanks; 3700–3800 m. SC Xizang (Zhanang).


Herbs 2–5 cm tall, perennial, rosulate, acaulescent. Taproot slender. Rosette leaves green to tinged purplish red, with an unwinged basally widened petiole-like portion to 2.5 cm and apically pubescent; leaf blade elliptic, obovate, or spatulate, 1–2 × 0.7–1 cm, abaxially glabrous, adaxially sparsely white pubescent, base broadly cuneate, margin with small irregular sharp teeth, apex obtuse. Synflorescence flat conical, with numerous capitula. Capitula with 3 florets. Involucre narrowly cylindric, 11–13 × 2–3 mm. Phyllaries 3 or 4, lanceolate, apically pubescent. Florets purple, ligule 7–9 mm. Anthers 2.5–4 mm. Achene brown, obconical, ca. 3 mm, compressed, apex truncate. Pappus 6–8 mm. Fl. and fr. Jun–Oct. 2 n = 16*.

● Mountain slopes; ca. 4500 m. Qinghai, Xizang.


Herbs 1–5 cm tall, rosulate, acaulescent to subacaulescent. Taproot slender. Rosette leaves petiolate; petiole 2–3 cm, wings sometimes dentate; leaf blade often dark purple, ovate, obovate, or elliptic, 1.5–3 × 0.5–2 cm, undivided to basally lyrate solitary, glabrous to white villous, base cuneate, margin shallowly to coarsely dentate, apex rounded to obtuse. Synflorescence flat conical, 2–6 cm in diam., with some to numerous capitula. Capitula with 3 florets. Involucre narrowly cylindric, 7–9 × 2–3 mm. Phyllaries 3 or 4, lanceolate, abaxially glabrous or white villous, apex obtuse. Florets purple, ligule 5–7 mm. Anthers 2.5–4 mm. Achene brown, obconical, ca. 3 mm, compressed, apex truncate. Pappus 6–8 mm. Fl. and fr. Jun–Oct. 2 n = 16*.

● Alpine steppes, scree slopes, gravelly areas in dry river valleys; 3800–4500 m. Qinghai, Xizang.

Syncalathium kawaguchii is certainly closely related to S. porphyreum, which, as the holotype shows, also has 3 florets and 3 or 4 phyllaries, and their delimitation should be reassessed on the basis of more material. Leaf shape is variable even within the same population from undivided to pinnately lobed.

2. Hololeion maximowiczii (Maximowicz) Zahn.


1a. Capitula with 20–25 florets; florets yellow; achene 7–8 mm

1b. Capitula with 5 florets; florets pale purplish, or whitish, or greenish; achene 3.5–4.5 mm


nate teeth, apex acute to acuminate. Upper and uppermost stem leaves similar to middle stem leaves in division but smaller and broadly triangular-ovate, linear-lanceolate, subrhombic, broadly ovate, or ovate, base truncate to cuneate, apex shortly to long acuminate. Synflorescence paniculiform, with some to many capitula. Capitula pendent at anthesis, erect in fruit, with ca. 5 florets; peduncle capillaceous, shorter than involucre, often densely pilose with multicellular hairs. Involucre narrowly cylindric, 10–13 × 1.5–2.5 mm. Outer phyllaries few, ovate to triangular-ovate, longest 2–3 mm, apex acute to obtuse; inner phyllaries 5, linear-lanceolate to linear, ± with scarious margin abaxially often sparsely pilose, apex obtuse to rounded. Florets pale purple, pink, whitish, or greenish. Anther tube brownish, purple. Achene brown, 3.5–4.5 mm, apex truncate. Pappus additionally with 1 pair of elliptic to obliquely ovate lateral lobes 0.6–5.5 × 0.4–4.5 cm. Upper and uppermost stem leaves with leaf blade broadly triangular-ovate, linear-lanceolate, subrhombic, broadly ovate, or ovate, similar to middle stem leaves but smaller and more frequently not divided, base truncate to cuneate, apex shortly to long acuminate. Fl. and fr. Aug–Oct. 2n = 16*.

Mountain slopes, forest margins, forests, grasslands, moist places by water, moist places with thick grass; 500–3000 m. Gansu, Hebei, Heilongjiang, Henan, Hubei, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shanxi, Sichuan, Yunnan [Korea, SE Russia].

Plants with ± deeply dissected terminal leaf lobe apparently occur in the central part of the distribution range of *Nabalus tatarinowii*, and they have been treated as a variety (*N. tatarinowii* var. *divisa*), subspecies (*Prenanthes tatarinowii* subsp. *macrantha*), or separate species (*P. macrophylla*). Stebbins (Contr. U.S. Natl. Herb. 28: 672. 1941) stated a correspondence of the pinnately lobed terminal leaf lobe with longer involucres (presumed to represent a tetraploid cytotype as inferred from pollen size). However, involucres to 1.3 cm also occur in plants with undivided terminal leaf lobes, and this corroborates Stebbins’s summarizing statement that the species “consists of a complex of closely interrelated diploid and polyploid forms” (loc. cit.). Today, still little is known about geographical and altitudinal distribution, ecology, and infrapopulational and interpopulational variation in this complex. For the time being, therefore, two entities are distinguished tentatively delimited by their conspicuous leaf features and, following Stebbins (loc. cit.), treated at the rank of subspecies. *Prenanthes angustiloba* and *P. leptantha*, each described on the basis of a single specimen from Sichuan with dissected leaves and delimited from this species by minor features of the leaf lobes, appear to fall within the range of variation of *N. tatarinowii* subsp. *macrantha*.

1a. Leaf blade or terminal leaf lobe of lower, middle, upper, and uppermost stem leaves undivided and at most shallowly sinuate-dentate

1b. Leaf blade or terminal leaf lobes of lower, middle, and upper stem leaves deeply pinnately or palmately lobed, uppermost stem leaves often at least coarsely and deeply sinuate-dentate or more rarely subentire

2a. *Nabalus tatarinowii* subsp. *tatarinowii*

2b. *Nabalus tatarinowii* subsp. *macrantha* (Stebbins) N. Kilian, comb. nov.

多裂耳菊 duo lie er ju

Basionym: *Prenanthes tatarinowii* subsp. *macrantha* Stebbins, Contr. U.S. Natl. Herb. 28: 672. 1941; *Nabalus angustiloba* (C. Shih) Sennikov; *N. leptantha* (C. Shih) Sennikov; *N. tatarinowii* var. *divisa* Nakai & Kitagawa; *P. angustiloba* C. Shih; *P. leptantha* C. Shih; *P. macrophylla* Franchet; *P. tatarinowii* var. *divisa* (Nakai & Kitagawa) Kitagawa.

Lower and middle stem leaves with leaf blade either ovate to triangular-ovate, 5–15 × 6–15 cm, undivided, base cordate, hastate, truncate, or cuneate, margin subentire to sinuate-dentate with mucronate teeth, and apex acute to acuminate or leaf blade additionally with 1 pair of elliptic to obliquely ovate lateral lobes 0.6–5.5 × 0.4–4.5 cm. Upper and uppermost stem leaves with leaf blade broadly triangular-ovate, linear-lanceolate, subrhombic, broadly ovate, or ovate, similar to middle stem leaves but smaller and more frequently not divided, base truncate to cuneate, apex shortly to long acuminate. Fl. and fr. Aug–Oct. 2n = 16*.

Mountain slopes, forest margins, forests, grasslands, moist places by water; 500–3000 m. Gansu, Hebei, Heilongjiang, Henan, Hubei, Jilin, Liaoning, Nei Mongol, Ningxia, Shaanxi, Shanxi, Sichuan, Yunnan [Korea, SE Russia].


绢毛菊属 juan mao ju shu

Shi Zhu (石铸 Shih Chu); Norbert Kilian

*Stebbinsia* Lipschitz; *Tibetoseris* Sennikov.

Herbs, perennial, rostrate, often acaulescent, sometimes from a stout vertical subterranean rosette shoot with scalelike leaves...
1b. Rosette leaves and lower stem leaves (if any) spatulate, elliptic, or lanceolate and very gradually attenuate
ular analyses. Also morphologically, distinction is not always easy, especially between
been shown by J. W. Zhang et al. (Taxon 60: 15–26. 2011), speciation in
umbrella
肉
Club 19(3): 33. 1940.
1. Soroseris umbrella
(Franchet) Stebbins, Mem. Torrey Bot.
Club 19(3): 33. 1940.
肉菊 rou ju
Crepis umbrella Franchet, J. Bot. (Morot) 9: 255. 1895;
Stebbinsia umbrella (Franchet) Lipschitz.

Herbs 3–15 cm tall, perennial, rosulate. Taproot ramose or
simple. Rosette shoot with conspicuous subterranean portion
with cataphylls. Cataphylls below rosette leaves numerous,
ovo to lanceolate but higher up also linear, 1–3 × 0.3–1 cm,
 apex acute. Above-ground leaves in a ± dense leaf rosette, often
purplish red; petiole-like basal portion 4–18 cm, sometimes
winged and apically pinnately lobed, sparsely brownish yellow
pilose; bladelike portion orbicular, ovate, or ovate-elliptic, 2–15 ×
(1.5–)3–11 cm, glabrous to ± pilose, base shallowly cordate to
cuneate, margin mucronately dentate and sinuate-dentate, apex
rounded. Synflorescence umbelliform to corymbiform, with
some to many capitula. Capitula with 15–30 florets; peduncle
of 1.5–8 cm, thick, ± pilose. Involucre campanulate, 1.4–2 ×
0.8–1.5 cm. Phyllaries dark green to blackish; outer phyllaries
few, linear, approaching inner ones in length, mostly pilose; in-
ner phyllaries 10–15, abaxially or on midvein pilose, apex acute
to obtuse. Florets white. Achene some shade of brown, colu-
men rounded. Synflorescence umbelliform to corymbiform, with
some to many capitula. Capitula with 15–30 florets; peduncle
of 1.5–8 cm, thick, ± pilose. Involucre campanulate, 1.4–2 ×
0.8–1.5 cm. Phyllaries dark green to blackish; outer phyllaries
few, linear, approaching inner ones in length, mostly pilose; in-
ner phyllaries 10–15, abaxially or on midvein pilose, apex acute
to obtuse. Florets white. Achene some shade of brown, column-
lar to obcolumnar, 4–6 mm, weakly ribbed, between main ribs
usually with ca. 3 often inconspicuous secondary ribs, apex
truncate. Pappus whitish, ca. 1 cm. Fl. and fr. Jul–Sep. 2n =
16*.

Alpine meadows, screes; 2600–4600 m. Sichuan, Xizang,
Yunnan [Bhutan, India (Sikkim)].

2. Soroseris depressa
(J. D. Hooker & Thomson) J. W. Zhang,
N. Kilian & H. Sun, comb. nov.
矮生绢毛菊 ai sheng juan mao ju
Basionym: *Crepis depressa* J. D. Hooker & Thomson, Fl. Brit. India 3: 397. 1881; *Lactuca cooperi* J. Anthony; *L. pseudumbrella* D. Maity & Mati; *Tibetoseris depressa* (J. D. Hooker & Thomson) Sennikov; *Younggia depressa* (J. D. Hooker & Thomson) Babcock & Stebbins.

Herbs 2–3 cm tall, perennial, rosulate, acaulescent, with a taproot. Caudex woody. Rosette leaves with a basally gradually widened petiole as long as or longer than blade; leaf blade orbicular, broadly ovate, or deltoid, 1.5–4 × 1–3.5 cm, adaxially puberulent, base broadly cuneate to rounded, margin subentire to sinuate-dentate, apex obtuse, rounded, or acute. Synflorescence subumbellate to ± hemispheric, 3–5 cm in diam., with some to many closely crowded capitula. Capitula with 15–20 florets; peduncle usually 0.5–2 cm. Involucre green or purplish red, cylindrical, 1.3–1.6 cm. Phyllaries ± setose along midvein; outer phyllaries several, linear-lanceolate, 3–4 mm, almost equal in length, apex acute; inner phyllaries ca. 8, midvein subapically often faintly crested, margin ± scarious, apex obtuse to acute. Florets yellow. Anther tube and style blackish. Achene brown, narrowly obconical, 5–8 mm, subequally ribbed and between main ribs usually with 3 or 4 secondary ribs, apex ± truncate. Pappus whitish or straw-colored and grayish apically, 7–11 mm. Fl. and fr. May–Sep. 2n = 16*, 32*.

Grasslands on mountain slopes, alpine meadows; 3200–4500 m. Xizang [Bhutan, India (Sikkim), Nepal].

A subspecies with pinnatisect leaves and shorter achene and pappus described from India (Sikkim) and Nepal (as *Tibetoseris depressa* subsp. *gauri* D. Maity, Candollea 65: 213. 2010) is so far not known to occur in China.


绢毛菊 juan mao ju

*Prenanthes glomerata* Decaisne in Jacquemont, Voy. Inde 4(Bot.): 99. 1843; *Crepis gillii* S. Moore var. *bellidifolia* Handel-Mazzetti; *C. glomerata* (Decaisne) Bentham & J. D. Hooker; *C. rosularis* Diels; *C. corophoalla* Hemsley; *Lactuca deasyi* S. Moore; *Soroseris bellidifolia* (Handel-Mazzetti) Stebbins; *S. deasyi* (S. Moore) Stebbins; *S. rosularis* (Diels) Stebbins.

Herbs, perennial, rosulate. Taproot ramose or not ramose. Rosette shoot with conspicuous subterranean portion with cataphylls. Cataphylls below leaf rosette numerous, ovate, long ovate, or narrowly lanceolate, 7–15 × 3–5 mm, apex acute. Above-ground leaves in a dense to loose rosette, with ± winged petiole-like 1.5–6 cm base; bladelike portion spatulate, broadly elliptic, or obovate, 2–3.5 × 0.4–1 cm, white villous or glabrous, base cuneate, margin entire or weakly dentate. Synflorescence flat to ± hemispheric, 3–5 cm in diam., with numerous closely crowded capitula. Capitula with 4 or 5 florets; peduncle 2–15 mm. Involucre narrowly cylindric, 10–15 × 2–3 mm. Outer phyllaries linear, shorter or longer than inner ones, ca. 1 mm wide, pilose; inner phyllaries 4 or 5, pilose or rarely glabrous, apex obtuse, acute, or rounded. Florets yellow or rarely white. Anther tube yellowish, reddish, or blackish. Style yellow, greenish, or blackish. Achene brown, narrowly obconical, 5–8 mm, subequally ribbed and between main ribs usually with 3 or 4 secondary ribs, apex ± truncate. Pappus whitish or straw-colored and grayish apically, 7–11 mm. Fl. and fr. May–Sep. 2n = 16*, 32*.

Meadows, scree slopes; 3200–5600 m. Gansu, Qinghai, Sichuan, Xinjiang, Xizang, Yunnan [N India, Kashmir, Nepal, Pakistan].

*Soroseris glomerata* is here treated in a wider sense, rather representing a complex, and including three little-known entities, *Soroseris bellidifolia*, *S. deasyi*, and *S. rosularis*. Variation, distribution, and delimitation of taxa (probably most appropriately on subspecies rank) in this complex are insufficiently known at present and in need of revision.


矮小绢毛菊 ai xiao juan mao ju

Herbs, perennial, rosulate, with a taproot. Rosette shoot with conspicuous subterranean portion with cataphylls. Cataphylls below rosette leaves several to many, ovate to narrowly lanceolate and higher up linear, apex acute. Above-ground leaves in a dense rosette, often abaxially purplish, with a 1–5 cm petiole; leaf blade spatulate, 0.5–2.5 × 0.3–1 cm, ± pilose, base cuneate, margin coarsely dentate to shallowly pinnatifid, apex obtuse. Synflorescence flat to ± hemispheric, with numerous closely crowded capitula. Capitula with 4 florets; peduncle 2–10 mm. Involucre narrowly cylindric, 7–9 × 3–4 mm. Outer phyllaries ca. 2, linear, slightly longer than inner ones, pilose; inner phyllaries 4, apex obtuse to subacute. Florets yellow. Anther tube and style blackish. Achene brown, subfusiform, 3.5–4.5 mm. Pappus whitish to straw-colored and grayish apically, 8–10 mm.

Scree slopes; 4300–4900 m. S Xizang (Yadong) [Bhutan, India (Sikkim)].


空桶参 kong tong shen


Herbs, perennial, usually conspicuously caulescent, usually without scalelike leaves above root. Taproot long. Stem solitary, 5–30 cm tall, 1–2 cm in diam., erect, hollow, leafy. Leaves oblanceolate, lanceolate, elliptic, or linear, 2–11 × 0.2–1.5 cm, base long attenuate, margin entire and flat or undulate, apex obtuse to rounded; upper leaves on stem similar but gradually smaller, glabrous or ± pilose; uppermost leaves on stem subtending capitula and on peduncles reduced in size, almost linear, 15–20 × < 1 mm, glabrous to pilose. Synflorescence ± hemispheric, with numerous closely crowded capitula. Capitula with 4 florets; peduncle usually shorter than capitulum. Involucre narrowly cylindric, 7–12 × 2–3 mm. Phyllaries olive to dark green, glabrous or sparsely pilose; outer phyllaries ca. 2, similar to uppermost reduced leaves, mostly ± as long as to longer than inner ones; inner phyllaries 4. Florets yellow. Anther tube and style blackish. Achene brown, subfusiform to obcolumnar, 4–6 mm, subequally ribbed and between main ribs...
usually with 2 or 3 secondary ribs. Pappus whitish to straw-colored and grayish apically, 7–11 mm. Fl. and fr. Jun–Oct. $2n = 16^*$. Alpine thickets, meadows, scree slopes; 3000–3500 m. Gansu, Qinghai, Shaanxi, Sichuan, Xizang, Yunnan [Bhutan, India (Sikkim), Nepal].

The entire plant is used medicinally mainly for treating fractures.

*Soroseris erysimoides* is the most widespread and common species of the genus in China. It shares the conspicuously developed leafy stem with the following two species.


皱叶绢毛菊 *zhou ye juan mao ju*

*Crepis hookeriana* C. B. Clarke, Compos. Ind. 255. 1876, not Ball (1873); *C. gillii* S. Moore; *C. gillii* var. *hirsuta* J. Anthony; *C. trichocarpa* Franchet; *Soroseris gillii* (S. Moore) Stebbins; *S. gillii* subsp. *handeli* Stebbins; *S. gillii* subsp. *occidentalis* Stebbins; *S. hirsuta* (J. Anthony) C. Shih; *S. occidentalis* (Stebbins) Tzvelev; *S. trichocarpa* (Franchet) C. Shih.

Herbs, perennial, with a long taproot, usually without cataphylls above root, acaulescent and rosulate to conspicuously caulescent with a solitary stem. Stem (if present) to 10(–20) cm tall, erect, hollow, distally glabrous or white to brownish pilose, leafy. Leaves lanceolate to oblanceolate, 2–9 × 0.3–2 cm, shallowly pinnatifid to runcinately pinnatisect or very rarely most leaves undivided, glabrous to pilose, base long attenuate into a ± winged or unwinged petiolo-like portion, margin flat or undulate, apex acute; lobes ± triangular, margin entire or sparsely dentate, apex acute; upper leaves on stem gradually smaller, mostly ± pilose; uppermost leaves on stem subtending capitula and on peduncles reduced, linear, pilose or more rarely glabrous, margin entire. Synflorescence ± hemispheric, with numerous closely crowded capitula. Capitula with 4 florets. Peduncle usually shorter than capitulum. Involucre narrowly cylindric, (8–)10–15(–17) × 2–3 mm. Phyllaries usually dark green, mostly pilose; outer phyllaries ca. 2, similar to uppermost reduced leaves, mostly ± as long as to longer than inner phyllaries; inner phyllaries 4, glabrous or abaxially pilose along midvein. Florets yellow, sometimes with blackish corolla tube and ligule base. Anther tube and style blackish. Achene brown, subcylindric to very narrowly obconic, 4–5 mm, subequally ribbed, between main ribs usually with 1 or 2( or 3) secondary ribs, often shortly acutely papillose, base attenuate, apex shorter or longer attenuate. Pappus whitish to straw-colored and mostly ± grayish apically, (0.7–)0.9–1.5 cm. Fl. and fr. Jul–Aug. $2n = 16^*$. Alpine meadows, scree slopes, rocky slopes, alpine thickets, rock crevices in glacial streams; 2800–5500 m. Gansu, Qinghai, Sichuan, Xizang, Yunnan [Bhutan, N India, Nepal].

Stebbins (Mem. Torrey Bot. Club 19(3): 41. 1940) has already stated that delimitation between *Soroseris hookeriana* and *S. gillii* is problematic and may need reconsideration. It still can be agreed with Stebbins that delimitation of his former *S. hookeriana* subsp. *erysimoides* (now treated as a separate species *S. erysimoides*) from both the typical subspecies and *S. gillii* appears sound. On the basis of the richer material meanwhile available, Stebbins’s delimitation of *S. gillii* (the correct name of which would actually be *S. trichocarpa*) from *S. hookeriana* subsp. *hookeriana*, however, fails, as does his infraspecific classification of the variation, mainly in the size of the involucres and in the indumentum, within *S. gillii*. Actually *S. gillii* and *S. hookeriana* belong to the same complex, widespread in W China, the subdivision of which (probably most appropriately at subspecies level) is in need of revision. Also included is *S. hirsuta*, based on *Crepis gillii* var. *hirsuta*, which separates the pilose plants of this complex and seems particularly artificial. For the time being, it appears at least a pragmatic solution to treat this complex as a single species.


序绢毛菊 *zhu xu juan mao ju*

Herbs, perennial, conspicuously caulescent, without cataphylls above root. Taproot long. Stem solitary, 10–33 cm tall, 1–2 cm in diam., erect, hollow, leafy. Leaves narrowly elliptic, 4–13 × 1.5–3.5 cm, pinnatipartite to pinnatisect, glabrous or sparsely pilose, lobes ± triangular; upper stem leaves similar but gradually smaller and densely pilose. Synflorescence cylindric, elongate, to 13 cm, with numerous densely crowded capitula. Capitula with 4 florets. Peduncle < 10 mm. Involucre narrowly cylindric, 10–11 × 2–3 mm. Phyllaries dark green, densely pilose; outer phyllaries 2, linear, ca. 10 × 0.5 mm, yellow pilose; inner phyllaries 4, brown villous, apex obtuse. Florets yellow. Anther tube and style blackish. Achene cylindric to subfusiform, ca. 5 mm, subequally ribbed and between main ribs usually with 3 or 4 secondary ribs, apex truncate. Pappus whitish but grayish apically, 0.9–1.1 cm. Fl. and fr. Jul–Sep. $2n = 16^*$. Alpine meadows, thickets; 3900–4300 m. S Xizang (Yadong) [Bhutan].


猫儿菊属 *mao er ju shu*

Shi Zhu (石铸 Shih Chu); Norbert Kilian

*Achyrophorus* Scopoli; *Trommsdorffia* Bernhardi.

Herbs, perennial or rarely annual, often rosulate, usually with rigid simple hairs. Stems solitary to few [or sometimes acaulescent], usually sparsely branched or more rarely simple, leafless or sparsely leafy. Synflorescence single-headed or weakly corymbiform with few to several capitula. Heads with ca. 20 to many florets. Involucre cylindric, narrowly campanulate, or broadly hemispheric. Phyllaries ± glabrous or hirsut; outer phyllaries in several series, gradually longer centripetally, ± imbricate, often ca. 3/4 or more as long as inner ones; inner phyllaries ± linear-lanceolate to linear, ± equal in length. Receptacle with linear scarios scales ± as long as involucr and enclosing base of florets. Florets yellow or white. Achene mostly rather long, homomorphic or dimorphic; body cylindric to fusiform, with 5 muricate main ribs, with or without secondary ribs, with or more rarely without a...
slender to capillaceous beak often longer than body. Pappus white or dirty white, with all bristles stiffly fimbriately plumose or inner ones plumose and outer ones scabrid.

About 60 species: Asia, Mediterranean region, South America; six species (four introduced) in China.

1a. Pappus of two series of bristles with inner ones plumose and outer ones scabrid.

2a. Florets slightly exceeding involucre; inner achenes beaked, marginal ones not beaked .......................................................... 3. H. glabra

2b. Florets much exceeding involucre; both inner and marginal achenes beaked .......................................................... 4. H. radicata

1b. Pappus of one series of plumose bristles.

3a. Florets slightly exceeding involucre; involucre cylindric to narrowly campanulate.

4a. Florets white; involucre glabrous; base of stem leaves not clasping .......................................................... 5. H. albiflora

4b. Florets yellow; involucre ± hirsute; base of stem leaves ± clasping .......................................................... 6. H. chillensis

3b. Florets much exceeding involucre; involucre broadly campanulate.

5a. Stem usually leafless except for 1–3 smaller leaves, simple or sparingly branched; capitula 1–3; outer phyllaries linear-lanceolate; achene long beaked .......................................................... 1. H. maculata

5b. Stem regularly leafy, simple; capitulum always 1; outer phyllaries ovate to broadly lanceolate; achene beakless .......................................................... 2. H. ciliata


新疆猫儿菊  xin jiang mao er ju

Achyrophorus maculata (Linnaeus) Scopoli; Trommsdorffia maculata (Linnaeus) Bernhardt.

Herbs 30–120 cm tall, perennial, rosulate, with a taproot. Stem erect, simple or sparingly branched, hirsute, leafless or with 1(–3) leaves, base with dark brown residues of old leaf bases. Rosette leaves subovate, lanceolate, elliptic, or oblanceolate, 6–15 × 2–4 cm, often with reddish brownish blotches, hirsute, basally ± attenuate, margin sinuate-dentate to subentire, apex obtusely rounded to acute. Stem leaf or leaves if any narrowly lanceolate to lanceolate, smaller than rosette leaves otherwise similar. Capitula 1–3, terminal, long pedunculate, with many florets. Involucre broadly campanulate to hemispheric, 1.5–2 × 1.5–2.5 cm. Outer phyllaries linear-lanceolate, hirsute, apex acute; inner phyllaries lanceolate, abaxially glabrous, apex acuminate. Florets yellow. Achene to 2 cm; body pale brown, ± fusiform, with 5 ribs, rugose, apically attenuate into a slender beak as long as or slightly longer than body. Pappus 7–12 mm, all bristles plumose. Fl. and fr. Jun–Aug. 2n = 10, 20.

Grassy slopes in mountainous regions, river valleys, forests, forest margins; above 1000 m. Xinjiang [Russia; Europe].


猫儿菊  mao er ju

Arnica ciliata Thunberg in Murray, Syst. Veg., ed. 14, 768. 1784; Achyrocoris aurantiacus Candolle; A. ciliata (Thunberg) Schultz Bipontinus; A. grandiflora (Ledebour) Ledebour; Hypochaeris grandiflora Ledebour; Trommsdorffia ciliata (Thunberg) Soják.

Herbs 20–60 cm tall, perennial, with a taproot. Stem erect, simple, glabrous or entirely or only basal half covered with rigid bristles, leafy, base with dark brown residue of old leaf bases. Basal leaves roslulate, elliptic, narrowly elliptic, or oblanceolate, 9–20 × 2–2.5 cm, scabrid, attenuate into winged petiole-like basal portion of 2–5 cm, margin ± sharply dentate, apex acute to rounded. Lower stem leaves similar to basal leaves; middle and upper stem leaves sessile, elliptic to ovate, smaller, ± sparsely arachnoid hairy, basally ± truncate and ± auriculately clasping, margin finely dentate, otherwise similar to lower leaves. Capitulum solitary, terminal on stem, with many florets. Involucre broadly campanulate to hemispheric, 1.5–2.5 × 1.5–2.5 cm. Phyllaries with ciliate margin and sparsely arachnoid hairy; outer phyllaries ovate to broadly lanceolate, conspicuously imbricate; inner phyllaries lanceolate. Florets golden yellow. Achene pale brown, cylindric, ca. 8 mm, with 15 ribs, apex slightly attenuate and truncate. Pappus ca. 1.5 cm, all bristles plumose. Fl. and fr. Jun–Sep. 2n = 10.

Grasslands on mountain slopes, forest margins, trailsides, thickets; 800–1200 m. Hebei, Heilongjiang, Henan, Jilin, Liaoning, Nei Mongol, Shanxi [Korea, Mongolia, Russia].


光猫儿菊  guang mao er ju

Herbs 10–30 cm tall, annual, roslulate. Stems 1 or few, ascending to erect, simple or apically sparsely branched, glabrous, leafless or with few triangular-ovate bracts. Rosette leaves obovate to oblanceolate, 3–5 × 0.5–1.5 cm, subglabrous to hirsute, base narrowed, margin sinuate-dentate, apex rounded to subacute. Synflorescence single-headed or weakly corymbiform with few to several capitula. Capitulum with usually 20–40 florets; peduncle long. Involucre cylindric to narrowly campanulate, 7–10 × 3–4 mm at anthesis, 1.3–1.5 mm in fruit. Phyllaries ± glabrous; outer phyllaries lanceolate; inner phyllaries linear-lanceolate. Florets yellow, slightly longer than involucre. Achene brown, dimorphic; outer achenes cylindric, 3–4 mm, ribbed, mucrate, truncate; inner achenes with fusiiform body, 3–4 mm, ribbed, mucrate, beak capillaceous and as long as or longer than body. Pappus 7–8 mm, inner bristles plumose, outer bristles scabrid and shorter. Fl. and fr. Mar–Apr. 2n = 10.

Roadsides, waste places; near sea level to 100 m. Naturalized in W Taiwan [native to N Africa and Europe].

Hypochaeris glabra has also been introduced to E and S Africa, S and SW Asia, Australia, Japan, North and South America, and Pacific islands (New Zealand).

The species was first collected in Taiwan in 2007 (M. J. Jung et al., Taiwania 53: 230. 2008). No material has been seen from Taiwan by the present authors. The description is based on the publication by the above authors and material from outside the area.

Crude English: Cat’s-ear

Herbs 15–60 cm tall, perennial, rosulate, with a taproot. Stems few to several, ascending to erect, simple or apically branched, leafless except for few to several bracts. Rosette leaves oblong-lanceolate, (4–)8–15(–30) × 1–3(–7.5) cm, undivided or pinnatifid, base narrowed, margin sinuate-dentate, apex rounded to subacute. Synflorescence sparsely corymbiform, with few to several capitula. Capitula with many (> 50) florets; peduncle long. Involucre cylindric to narrowly campanulate, 1–1.5 × 0.4–0.6 cm at anthesis, to 2 cm in fruit. Phyllaries minutely ciliolate at apex and ± hirsut if midrib or glabrous; outer phyllaries lanceolate, bluntly tipped; inner phyllaries linear-lanceolate. Florets bright yellow, much exceeding involucre. Achene brown; body fusiform, ca. 4 mm, ribbed and muricate; beak capillaceous, 4–5 mm. Pappus 7–8 mm, all bristles plumose. Fl and fr. Apr–May. 2n = 8.

Grassy areas of parks and urban areas, near sea level to 200 m. Naturalized in N Taiwan [native to SE South America].

Hypochaeris albiflora has also been introduced to S Africa, E Australia, and SE North America.

This species was first recorded in 2005 and has spread since (M. J. Jung et al., Taiwania 54: 391–398. 2009, as Hypochaeris microcephala var. albiflora). No material has been seen from Taiwan by the present authors. The description is based on the publication by the above authors and supplemented with material from outside the area.

This species was first recorded in 2009 (M. J. Jung et al., Taiwania 54: 391–398. 2009, as Hypochaeris microcephala var. albiflora). No material has been seen from Taiwan by the present authors. The description is based on the publication by the above authors and supplemented with material from outside the area.


Crude English: Cat’s-ear

Apargia chillensis Kunth in Humboldt et al., Nov. Gen. Sp. 4, ed. f°: 2. 1818; Achyrochum brasiliensis (Lessing) Schultz Bipontinus; A. chillensis (Kunth) Schultz Bipontinus; Hypochaeris brasiliensis (Lessing) Bentham & J. D. Hooker ex Grisebach; Porcellites brasiliensis Lessing.

Herbs 20–50(–?) cm tall, perennial, rosulate, with a taproot. Stems erect, apically sparsely branched, glabrous or hirsute basally, leafy. Rosette leaves narrowly elliptic, lanceolate, or oblong-lanceolate, 5–10(–?) × 1–2(–?) cm, undivided and margin coarsely sinuate-dentate and ciliate or pinnatifid with triangular to lanceolate lobes, abaxially sparsely pubescent on midrib, adaxially glabrous, base narrow, apex acute to acuminate. Stem leaves few, smaller, narrower, undivided, base ± clasping, otherwise similar to rosette leaves. Synflorescence corymbiform, with few to several capitula. Capitula with many (> 50) florets; peduncle long. Involucre cylindric to narrowly campanulate, 0.9–1.2 × 0.4–0.6 cm at anthesis, 1.5–1.8 cm in fruit. Phyllaries hirsute; outer phyllaries lanceolate to linear-lanceolate; inner phyllaries linear-lanceolate. Florets yellow, slightly longer than involucre. Achene brown; body fusiform, 4–5 mm, ribbed and muricate; beak capillaceous, 4–5 mm. Pappus 4–7 mm, all bristles plumose. Fl and fr. Jun–Jul. 2n = 8.

Roadsides; 500–600 m. Naturalized in N Taiwan [native to SE South America].

Hypochaeris chillensis has also been introduced to S Africa and SE North America.

This species was first recorded in 2009 (M. J. Jung et al., Taiwania 55: 412–416. 2010). No material has been seen from Taiwan by the present authors. The description is based on the publication by the above authors and supplemented with material from outside the area.

82. PICRIS Linnaeus, Sp. Pl. 2: 792. 1753.

Deckeria Schultz Bipontinus; Hagioseris Boissier; Medicusia Moench; Spitzelia Schultz Bipontinus.

Herbs, annual or perennial, rosulate or not, with rigid 2(–4)-hooked or more rarely simple hairs. Stem solitary, usually branched,
rarely stems few, low, and weak. Synflorescence corymbiform but sometimes weakly so. Capitula with usually 20–50 florets. Involucrue campanulate to urceolate. Phyllaries ± glabrous or hispid; outer phyllaries in several series, gradually longer centripetally, ± imbricate, mostly 1/2–2/3 as long as inner ones; inner phyllaries ± linear-lanceolate to linear, ± equal in length. Receptacle naked. Florets yellow. Achene ± homomorphic; body fusiform to narrowly ellipsoid, often somewhat curved, with 5 faintly secondarily ribbed main ribs, transversely wrinkled, apically truncate or contracted into a short beak sculptured as body (= cuspis). Pappus white or dirty white, of stiffly fimbriately plumose bristles, often outermost bristles shorter and ± scabrid [in marginal achene sometimes reduced to a minute crownlike structure].

About 50 species: Africa, Asia, Australia, Europe; seven species (four endemic) in China.

*Picris* has a primary center of diversity including SW Asia and the Mediterranean region and a secondary center in Australia (S. Holzapfel, Willdenowia 24: 97–218. 1994). In C, E, and S Asia the genus is in urgent need of a modern revision, especially with respect to the complex of *P. hieracioides*, which poses particular problems because of it being anthropogenically spread. For the time being, *P. hieracioides* is treated here, in contrast to S. Kitamura (Acta Phytotax. Geobot. 8: 123–127. 1939; Mem. Coll. Sci. Kyoto Imp. Univ., Ser. B, Biol. 22: 90–98. 1955) and, e.g., Fl. Taiwan (ed. 2, 4: 1032. 1998), in a narrow sense, with *P. japonica* as well as the two taxa endemic to Taiwan kept as separate species. This solution has been chosen for the sake of consistency, because including the Taiwan endemics as subspecies in *P. hieracioides* while keeping *P. japonica* separate, as in FRPS (80(1): 54–55. 1997), would imply an unintended taxonomic decision on the relationships of the Taiwan endemics. Moreover, the actual presence of *P. hieracioides* s.s. in E and S Asia and the delimitation between *P. japonica* and *P. hieracioides* need thorough reassessment, and the currently available distributional data are to be taken with caution.

1a. Leaves all basal or subbasal and usually rosulate; plants branched from base, without dominant main stem.

1b. Leaves both basally rosulate and on stem; plants usually with a solitary stem, branched mostly higher up.

2a. Involucre 1.5–1.7 cm; stems with yellowish green 2-hooked hairs; achene apex contracted into a 0.3–0.5 mm cusp.

2b. Involucre ca. 1 cm; stems with white 2-hooked hairs; achene apex truncate

3a. Stem especially basally covered with reddish to blackish purplish long mostly simple and few 2-hooked hairs; involucre 1.5–1.7 cm

3b. Stem covered with mostly 2-hooked hairs; involucre to 1.5 cm.

4a. Stem covered with dark green or blackish 2-hooked hairs

4b. Stem covered with whitish 2-hooked hairs.

5a. Achene apex truncate

5b. Achene apex contracted into a 0.3–0.5 mm cusp.

6a. Lower leaves linear-lanceolate, 0.5–0.8(–1.1) cm wide

6b. Lower leaves narrowly oblong-elliptic to lanceolate, 1.5–2 cm wide


3. *Picris davurica* Fischer ex Hornemann; *P. davurica* var. *koreana* (Kitamura) Kitagawa


8. *Picris koreana* (Thunberg) Vav. (ed. 2, 4: 1032. 1998), in a narrow sense, with *Picris tsekouensis* (V. N. Vassiljev (Fl. URSS 29: 221–222. 1964), *Picris japonica* can, moreover, be distinguished from *P. hieracioides* by the ligure of the corolla being less than 2 × as long as the tube, whereas it is 2–3 × as long as the tube in the latter species.

**1. Picris japonica**

*Picris japonica* is a species commonly known as *Picris japonica* Thunberg in Murray, Syst. Veg., ed. 14, 711. 1784. It is characterized by its yellow florets and reddish achene, which is often used in traditional medicine. The plant grows in waste places in forests, by fields, river margins, and alpine meadows, and its distribution ranges from 600–3700 m above sea level.

**2. Picris hieracioides**

*Picris hieracioides* is another species of the genus *Picris*, known for its white or dirty white florets and its ability to grow in various habitats such as waste places in forests, by fields, river margins, and alpine meadows. Its distribution includes various parts of the world, including SW Asia, the Mediterranean region, Australia, and parts of East and South Asia.
smaller, base semiamplexicaul to clasping, margin less dentate or entire, otherwise similar to lower stem leaves. Synflorescence corymbiform to corymbose paniculiform, with some to many capitula. Peduncle slender. Involucre cylindric-campanulate to ovoid, 0.9–1.2 cm. Phyllaries abaxially with whitish rigid 2-hooked hairs along midrib; outer and inner phyllaries ± linear-lanceolate, apex acute to acuminate. Florets yellow. Achene brown, fusiform, 3–5 mm, apex truncate. Pappus 5–6 mm, caducous. Fl. and fr. Jun–Oct. 2n = 10.

Grasslands, mountain slopes, forests, along ditches, fields, wastelands, sandy soils; 200–3600 m. Gansu, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Jilin, Shaanxi, Shandong, Shanxi, Sichuan, Xizang, Yunnan [Bhutan, N India, Kashmir, Kazakhstan, W Russia, Vietnam; SW Asia, Europe, Mediterranean region].

*Picris hieracioides* has also been introduced to SE Africa and North America.

Deinition between *Picris hieracioides*, *P. japonica*, and other Asian species of the genus needs urgent revision, even with respect to the actual presence of this species in China; see also note to the genus, above. Hence, the above data are to be taken with caution. See also the note under *P. japonica*. Presence in China and the status of *P. hieracioides* subsp. *kaizmensis* Kitamura, said to occur in the Himalaya as well as in NE Asia (Korea, Mongolia), need evaluation in the context of a revision of the *P. hieracioides* complex in E Asia.


台湾毛连菜 tai wan mao lien cai

*Picris hieracioides* Linnaeus subsp. *morrisonensis* (Hayata) Kitamura.

Herbs 20–70 cm tall, perennial, erect, with a taproot. Stem mostly solitary, erect, branched especially apically, hirsute with spreading rigid 2-hooked hairs, leafy. Basal and lower stem leaves narrowly elliptic to narrowly lanceolate, 6–16 × 0.5–0.8(–1.1) cm, hirsute with spreading rigid 2-hooked hairs, base attenuate, margin coarsely to shallowly sinuate-dentate, apex acuminate. Middle and upper stem leaves smaller than lower attenuate, margin coarsely to shallowly sinuate-dentate, apex acuminate. Middle and upper stem leaves smaller than lower basal and stem leaves, otherwise similar, narrowly lanceolate to linear-lanceolate, base truncate, apex obtuse to acuminate. Synflorescence loosely corymbiform, with several to many capitula. Peduncle usually 3–7 cm, slender, hirsute as stem and branches. Involucre cylindric-campanulate to ovoid, 0.9–1.2 cm. Phyllaries with spreading rigid 2-hooked hairs along midrib, apex acute to acuminate; outer and inner phyllaries linear-lanceolate. Florets yellow. Achene reddish brown, fusiform, 4–5 mm, apex contracted into a ca. 0.5 mm cusp. Pappus 5–7 mm, caducous. Fl. and fr. Apr–Nov. 2n = 10*.

- Mountain meadows, open sites in mountains; 1400–3500 m. Taiwan.


黄毛毛连菜 huang mao mao lian cai

*Picris hieracioides* Linnaeus subsp. *ohwiana* (Kitamura) Kitamura.

Herbs 7–20 cm tall, perennial, rosulate, with a taproot. Stem divaricately branched from base, hirsute with yellowish green rigid 2-hooked hairs, leafless to sparsely leafy. Rosette leaves lanceolate to oblanceolate, 3–9 × 0.5–2 cm, both surfaces hirsute, basally attenuate into a winged petiole-like portion, margin irregularly sinuate-dentate, apex obtuse to acute. Stem leaves similar to rosette leaves but somewhat smaller and basally truncate; upper stem leaves reduced to linear-lanceolate bracts. Synflorescence loosely corymbiform, with few to several capitula. Peduncle usually 3–6 cm, slender, hirsute as stem and branches. Involucre cylindric-campanulate to ovoid, 1.5–1.7 cm. Phyllaries abaxially with yellowish green rigid 2-hooked hairs along midrib; outer phyllaries blackish green, linear-lanceolate, unequal, apex acute to acuminate; inner phyllaries green, linear-lanceolate, apex acute to acuminate. Florets yellow. Achene reddish brown, fusiform, 5–6 mm, apex contracted into a ca. 0.5 mm cusp. Pappus 7–8 mm, caducous. Fl. and fr. Apr–Sep. 2n = 10*.

- Subalpine open stony or rocky places; above 3400 m. Taiwan (Dagwan Shan, Nanhu Dahan).


滇苦菜 dian ku cai

*Hypochaeris mairei* H. Léveillé.

Herbs 10–40 cm tall, short-lived perennial. Stems few to several, weak, erect, divaricately branched from base, with whitish rigid small 2-hooked hairs, glabrescent or glabrous toward apex. Basal leaves oblong-elliptic to oblong-obovate, base cuneate-dentate, margin sinuate-dentate or entire, apex acute, obtuse, or rounded. Stem leaves few, subbasal, sessile, broadly linear to narrowly oblong-obovate, small, with sparse simple rigid hairs especially on abaxial midvein, base semiamplexicaul, otherwise like basal leaves. Capitula 1 or 2 per stem. Involucre cylindric to narrowly campanulate, 9–10 mm. Phyllaries arachnoid hairy and with sparse rigid hooked hairs on midvein; outer phyllaries narrowly triangular to lanceolate, apex acute; inner phyllaries linear-lanceolate, apex acute. Florets yellow. Achene brown, narrowly ellipsoid, 4–5 mm, apex contracted into a tiny cuspis. Pappus 6–7 mm. Fl. and fr. Apr–Nov. 2n = 10*.

- Grasslands on mountain slopes, forest margins, thickets; 1400–3200 m. Xizang, Yunnan.


新疆毛连菜 xin jiang mao lian cai

*Picris afghanica* K. H. Rechinger & Kôic; *Picris hieracioides* Linnaeus var. indica Candolle; *P. hieracioides* subsp. *nuristanica* (Bornmüller) Kitamura; *P. nuristanica* var. *indica* (Candolle) Tzvelev; *P. similis* V. N. Vassiljev.

Herbs (10–)30–100 cm tall, annual or short-lived perennial. Stem erect, branched especially in apical portion, leafy; branches spreading-erect, ± densely covered with whitish 2-hooked hairs. Basal leaves narrowly oblong-elliptic to lanceolate, 8–12 × 1.5–2 cm, both surfaces with whitish rigid 2-hooked hairs, basally attenuate into a winged petiole-like portion, margin entire or sinuate-dentate, apex acuminate. Lower
Herbs, perennial. Stem solitary to few fascicled, branched or unbranched. Leaves petiolate or sessile, margin entire, deeply ciliate; inner phyllaries linear-lanceolate. Florets blue or exceptionally pink or bluish white. Achene brown, subcylindric to obovoid, 2–3 mm, stout, rugulose, apex truncate. Pappus (0.1–)0.2–0.3 mm. Fl. May–Oct. 2n = 18.

By rivers, wastelands along seashores, slopes, by ditches; low elevations. ?Gansu, Hebei, Heilongjiang, Henan, ?Jilin, Liaoning, Shaanxi, Shandong, Shanxi, Taiwan, Xinjiang [N Africa, C and SW Asia, Europe].

Escaped as a ruderal weed in many parts of the world, this species was formerly cultivated as a medicinal plant but more recently is grown as an ornamental and coffee substitute.

A second species, Cichorium pumilum Jacquin (as C. glandulosum Boissier & A. Huet) was reported for Xinjiang (Y. P. Gu & Y. S. Chen, Fl. Tsinling. 1(5): 391. 1985; C. H. An, Fl. Xinjiang. 5: 386. 1999). The presence of this Mediterranean–SW Asian species is highly unlikely, and, as also concluded by Tzvelev (Rast. Tsentral. Azii 14b: 1999). The presence of this Mediterranean–SW Asian species is highly unlikely, and, as also concluded by Tzvelev (Rast. Tsentral. Azii 14b: 1999).
toothed, or rarely lobed. Basal leaves rosulate, withered at anthesis, or absent. Stem leaves few to numerous [or 1 or reduced and bractlike or absent]. Synflorescence corymbose, paniculiform, racemiform, or pseudocymiform, sometimes capitulum solitary. Capitula with numerous florets. Involute campanulate, or basally turbinate, (0.8–0.9–1.2[–2]) cm. Phyllaries in several irregularly or regularly imbricate rows, linear-lanceolate. Florets yellow [or rarely white]. Achene cylindric, ellipsoid, or narrowly obconic, 2.5–5 mm, with 8–10[–14] equal ribs apically confluent in an obscure ring, apex truncate. Pappus white, dirty white, dirty yellow, or pale yellowish brown, of scabrid bristles.

About 800 species (broad species concept) with over 5,000 apomictic taxa (described as microspecies or subspecies): N Africa, Asia, Europe, North and South America; six species (one endemic) in China.

Hieracium hololeion has been shown by molecular phylogenetic analyses (see N. Kilian et al. in V. A. Funk et al., Syst. Evol. Biogeogr. Composite, 352–353. 2009) to be a member of subtribe Crepidinae (see there under Hololeion). Also Hieracium coreanum, as was first stated by H. S. Pak (Fl. Coreana 7: 378. 1999) and Sennikov and I. D. Illarionova (Bot. Zhurn. 86(3): 37–59. 2001), is actually a member of subtribe Crepidinae, belonging to Crepis.

1a. Basal and lower stem leaves absent at anthesis.
2a. Middle stem leaves lanceolate to narrowly linear, 0.5–2 cm wide, base cuneate ........................................ 1. H. umbellatum
2b. Middle stem leaves mainly ovate, 1.5–5 cm wide, base rounded or cordate and amplexicaul.
3a. Base of stem leaves cordate and amplexicaul; leaves often with rigid simple hairs on margin ................. 2. H. virosum
3b. Base of stem leaves rounded; leaves glabrous or with few rigid simple hairs on margin ......................... 3. H. robustum
1b. Basal leaves withered at anthesis or present in fruit.
4a. Basal leaves withered at anthesis; phyllaries abaxially with capitate stipitate glandular hairs .................... 6. H. regelianum
4b. Basal leaves present without or with capitate stipitate glandular hairs.
5a. Phyllaries abaxially with sparse stellate hairs to 0.3 mm and with moderate simple hairs ...................... 4. H. korshinskyi
5b. Phyllaries abaxially with dense capitulate stipitate glandular hairs to 1 mm but simple hairs lacking ................ 5. H. morti


Herbs, perennial, 30–100 cm tall. Stem solitary to few fascicled, basally pale purple, branchied apically, glabrous, scabrid, or very sparsely and minutely echinulate and with white minutely stellate hairs, rarely with long simple hairs, under capitula with minute stellate and somewhat rigid short simple hairs. Basal and lower stem leaves absent at anthesis. Middle and upper stem leaves sessile, lanceolate, 3–10 × 0.4–2 cm, glabrous or abaxially hirsute on veins and adaxially with sparse arachnoid hairs, base narrowly cuneate, margin entire, subentire, or with sparse and sharp teeth, apex acute to shortly acuminate. Upper stem leaves similar to middle stem leaves but gradually smaller. Synflorescence corymbose to corymbose paniculiform, with few to numerous capitula or rarely with solitary capitulum. Involute dark green, campanulate, ca. 1.5 cm in diam. Phyllaries in several [to many] rows, abaxially rarely with capitulate stipitate glandular hairs on midvein, abaxially glabrous, base sometimes with minute stellate hairs, apex acute; outermost and outer phyllaries lanceolate, 3.5–4.5 × 0.8–1.2 mm; innermost phyllaries ± linear-lanceolate, 8–10 × ca. 1 mm. Flores yellow. Achene dark purple, cylindric, ca. 3 mm, with 10 ribs. Pappus pale yellow, ca. 6 mm. Fl. and fr. Jul–Aug. 2n = 18, 27.

Forest margins, forests, dense grassy areas, sandy soils on floodplains, clear-cuttings; (200–)1000–3000(–3300) m. Guangxi, Guizhou, Hebei, Heilongjiang, Henan, Hubei, Hunan, Jiangxi, Liaoning, Nei Mongol, Shaanxi, Shandong, Shanxi, Sichuan, Xinjiang, Xizang, Yunnan [India, Japan, Kazakhstan, Mongolia, Pakistan, Russia, Uzbekistan; SW Asia, Europe, North America].


H. umbellatum

Herbs, perennial, 40–80[–120] cm tall, with thick rhizomes. Stem solitary to few fascicled, basally purple, stout, erect, glabrous or basally with sparse to moderate simple hairs, apically branched. Stem leaves (10–)25–40[–80], basal and lower stem leaves absent at anthesis. Middle stem leaves sessile, ovate, ovate-lanceolate, narrowly elliptic-lanceolate, or narrowly elliptic, 5–8 × 1.5–5 cm, glaucous, abaxially pale green and distinctly reticulately veined, margin or only abaxial veins with dense to sparse ± setose simple hairs, base cordate and amplexicaul, margin entire or with sparse and sharp teeth, apex acute to shortly acuminate. Upper stem leaves similar to middle stem leaves but gradually smaller. Synflorescence corymbose to long paniculiform, with (10–)15–50(–80) capitula. Peduncle glabrous. Involute campanulate or basally turbinate, 0.9–1.1 cm. Phyllaries in few rows, green or dark green, abaxially glabrous, apex obtuse to acute; outer phyllaries lanceolate, linear, or broadly linear, ca. 3 × 1 mm, often recurved; middle phyllaries lanceolate, 4.5–8 × ca. 1.5 mm; inner phyllaries lanceolate, ca. 1.1 cm × 1 mm. Flores yellow. Achene blackish brown, cylindrical, ca. 3 mm, with 10 ribs. Pappus pale yellow, ca. 6 mm. Fl. and fr. Jun–Oct. 2n = 27, 36.

Grasslands, forests, thickets; 1700–2100 m. Xinjiang [India, Japan, Kazakhstan, Mongolia, Russia, Uzbekistan; SW Asia, SE Europe].


H. virosum

Herbs, perennial, 40–80[–120] cm tall, with thick rhizomes. Stem solitary to few fascicled, basally purple, stout,
Hieracium korshinskyi Zahn in Engler, Pflanzenr. 76(IV. 280): 528. 1921.

高山柳菊 gao shan liu ju

**Crepis shawanensis** C. Shih.

Herbs, perennial, 30–60 cm tall, with long rhizomes. Stem purplish red, erect, branched apically or rarely unbranched, basally densely villous, apically with arachnoid and minutely stellate hairs, under capitula with long simple hairs mixed with capititate stipitate glandular hairs and minutely stellate hairs. Basal leaves present at anthesis; petiole winged; leaf blade elliptic to lanceolate, 6–16 × 1–6 cm, sparsely villous, base cuneate-attenuate, margin with sparse sharp teeth, entire, or subentire, apex acute to obtuse. Stem leaves few, similar to basal leaves. Lower stem leaves shortly petiolate or sessile; leaf blade basally cuneate-attenuate, subamplexicaul, or amplexicaul. Synflorescence corymbose, with (1 or)2 to several capitula. Involucre campanulate, ca. 6 mm in diam. Phyllaries in 3 rows, dark green, abaxially with sparse simple hairs and few minute stellate hairs; outer phyllaries linear-lanceolate to broadly linear, ca. 3.5 × 0.5 mm; middle phyllaries linear-lanceolate, ca. 9 × 1.2 mm, apex acute to obtuse. Florets yellow. Achene purple to purplish black, cylindric, ca. 3.2 mm, with 10 ribs. Pappus dirty white, pale yellow, or brownish, ca. 6 mm. Fl. and fr. Jul–Sep. 2n = 18, 27.

Forests, open places in forests; 1600–2200 m. Xinjiang [Kazakhstan, Mongolia, SC Russia].

Hieracium regelianum Zahn in Engler, Pflanzenr. 79(IV. 280): 936. 1922.

卵叶山柳菊 iuau ye shan liu ju

Herbs, perennial, 30–100 cm tall, with short and thick rhizomes. Stem solitary to few fascicled, erect, branched apically, basally brown or purplish red, dessed beneath capitula or abaxially pubescent or with capititate stipitate glandular hairs mixed with stellate hairs or sometimes mixed with simple hairs, glabrescent. Basal and lower stem leaves withered in fruit. Middle stem leaves sessile, ovate, ovate-lanceolate, elliptic-lanceolate, or narrowly elliptic, 4–9 × 1–3 cm, abaxially sparsely hirsute on veins, adaxially glabrous, base auriculate and semiamplexicaul, margin entire or minutely toothed and sparsely ciliate, apex acuminate. Upper stem leaves similar to middle stem leaves but gradually smaller. Synflorescence sparsely corymbose paniculiform, with capitula moderate in number. Involucre campanulate, ca. 1 cm. Phyllaries in 3 rows, dark green to ± dark green, abaxially usually with simple hairs on midvein intermixed with capititate stipitate glandular hairs and stellate hairs; outer phyllaries linear-lanceolate, ca. 2.0 × 0.7 mm, apex acute to obtuse; middle phyllaries linear-lanceolate, ca. 4.0 × 1.1 mm, apex acute to obtuse; inner phyllaries broader linear, ca. 1.1 cm × 1.2 mm, apex obtuse. Florets yellow. Achene brown, cylindric, ca. 4 mm, with 8–10 ribs, basally attenuate. Pappus dirty white, ca. 6 mm. Fl. and fr. Jul–Sep.

Open places in forests; 1700–2000 m. Xinjiang [Kazakhstan].

85. PILOSELLA Hill, Brit. Herb. 441. 1756.

细毛菊属 xi mao ju shu

Shi Zhu (石铸 Shih Chu); Günter Gottschlich

Herbs, perennial, rosetulate. Stem solitary to few fascicled, branched or unbranched. Rosette leaves sessile, rarely withered at anthesis, margin entire or rarely denticulate; stem leaves [absent or] few or [rarely] numerous. Synflorescence corymbose [or pseudocymose, sometimes capitulum solitary]. Capitula with numerous florets. Involucre ovoid to hemispheric, [4–]6–10–14 mm.
Phyllaries in several irregular rows, linear-lanceolate or rarely ovate-lanceolate. Florets yellow [rarely pale yellow or orangish red], sometimes outer ones red striped. Achene cylindric, ellipsoid, or narrowly obconic, 1–2–2.5 mm, with [8–10]–14 equal apically distinct ribs not confluent in an obscure ring, apex truncate. Pappus white or dirty white, of scabrid bristles.

About 110 species (broad species concept) with ca. 700 apomictic or hybrid taxa: N Africa, Asia, Europe; two species in China.

1a. Stem with spreading bristles; involucre [9–]10–11 mm .................................................................................................. 1. *P. procera*

1b. Stem with appressed or upward-curved bristles; involucre 6–9 mm  ...........................................................................  2. *P. echioides*

1. **Pilosella procera** (Fries) F. W. Schultz & Schultz Bipontinus, Flora 45: 431. 1862.

棕毛细毛菊  zong mao xi mao ju

 Hieracium procerum  Fries, Symb. Hieracium, 43: 1848; *H. persicum* Boissier.

Herbs, perennial, 20–60 cm tall, rhizomatous. Stem solitary to few fascicled, erect, branched apically, basally densely covered with light brown spreading bristles, apically bristles gradually sparser and intermixed with stellate hairs and capitula becoming white or yellowish pubescent, without capitulate stipitate glandular hairs. Leaves with light brown dense bristles and small stellate hairs. Basal leaves withered at anthesis. Stem leaves sessile, narrowly elliptic to lanceolate, 3–10 × 0.2–1.2 cm, apex acuminate. Upper stem leaves lanceolate. Synflorescence corymbiform, with many capitula. Involucule hemispheric, ca. [0.9–]1[–1.1] cm. Phyllaries in 3 or 4 rows, densely covered with stellate hairs and sparsely with long rigid and capitulate stipitate glandular hairs; outer phyllaries lanceolate, 3–4 mm, apex acute to subobtuse; inner phyllaries narrowly elliptic-lanceolate, 7–9 mm, apex acute to obtuse. Florets yellow. Achene dark brown, cylindric, ca. 2.2 mm, with 10 ribs. Pappus dirty white, ca. 7 mm. Fl. and fr. Jul–Aug. 2n = 36.

Dry mountain slopes; 1200–2500 m. Xinjiang [Kazakhstan, Uzbekistan; SW Asia].


刚毛细毛菊  gang mao xi mao ju

 Hieracium echioides  Lumnitzer, Fl. Poson. 348. 1791; *H. echioides* subsp. asiaticum Nägeli & Peter; *Pilosella asiatica* (Nägeli & Peter) Schljakov.

Herbs, perennial, 25–100 cm tall, with short rhizomes. Stem solitary to few fascicled, erect, branched apically, basally densely covered with appressed or upward-curved brown long bristles, apically bristles sparser and stellate hairs dense, under capitulum densely white pubescent. Basal leaves withered at anthesis. Lower stem leaves shortly petiolate; leaf blade lanceolate, linear-lanceolate, or narrowly elliptic-lanceolate, 4–16 × 0.5–2 cm, densely hirsute and stellate, base attenuate, apex acute to obtuse. Upper stem leaves sessile, lanceolate, gradually smaller, densely hirsute and stellate. Synflorescence corymbiform, with few to many capitula. Involucr ovoid to hemispheric, 6–9 mm. Phyllaries in 3 rows, brownish gray, abaxially densely pubescent and with or without sparse capitulate stipitate glandular hairs; outer phyllaries ovate-lanceolate, 3–5 mm, apex acuminate; inner phyllaries narrowly elliptic-lanceolate, apex acuminate. Florets yellow. Achene brown, narrowly cylindric, ca. 2.2 mm, with 10 ribs. Pappus dirty white, 4–5 mm. Fl. and fr. Jun–Sep. 2n = 18, 27, 36.

Desert steppes, dry valleys; ca. 2000 m. Xinjiang [Kazakhstan; C and E Europe].