

glandulosa commonest in the N, especially Sc.

7. C. vesicaria L. - *Beaked Hawk's-beard*. Erect, hairy perennial to 80cm; stem-leaves deeply sharply lobed, clasping stem at base; phyllaries usually with eglandular and often with glandular hairs; at least outer achenes 5-9mm incl. beak c. as long as body; 2n=8. Intrad-natd; grassy places, waysides, walls and rough ground; common in much of En, Wa, C & S Ir and Cl, very scattered elsewhere; Europe. Our plant is ssp. **taraxacifolia** (Thuill.) Thell. ex Schinz & R. Keller (ssp. *haenseleri* (Boiss. ex DC.) P.D. Sell). Plants found in Cambs in which the outer achenes have a very short beak have been provisionally named ssp. **stellata** (Ball) Babc. 719

8. C. setosa Haller f. - *Bristly Hawk's-beard*. Erect, usually hispid (very rarely subglabrous) annual or biennial to 75cm; stem-leaves usually toothed to sharply lobed, clasping stem at base; phyllaries with patent stiff eglandular hairs; achenes 3-5.5mm incl. beak c. as long as body; 2n=8. Intrad-casual; occasional with crops or grass or in rough ground; very scattered in Br, Man and N Ir; S Europe. 704
719

9. C. foetida L. - *Stinking Hawk's-beard*. Erect, hairy annual or biennial to 60cm, stinking when fresh; stem-leaves few, usually deeply sharply lobed, ± clasping stem at base; phyllaries with eglandular and glandular hairs; inner achenes 10-17mm incl. beak c. as long as body; outer achenes 6-9mm incl. beak much shorter than body; (2n=8, 10). Archaeophyte; waysides and rough ground; last found 1980 at Dungeness (E Kent), but now reintroduced on shingle, formerly scattered in SE En and intrd NW to Worcs. E
719

10. C. praemorsa (L.) Walther - *Leafless Hawk's-beard*. Erect, sparsely hairy perennial to 60cm; stem-leaves 0; basal leaves narrowly obovate, not or shallowly toothed; phyllaries sparsely hairy; achenes 3-4mm, not beaked; (2n=8). Possibly native; on natural calcareous grassy bank; Westmorland, discovered 1988. There is evidence that this sp. should be transferred to the genus *Lagoseris* M. Bieb. RRR
719

35. PILOSELLA Hill (*Hieracium* subg. *Pilosella* (Hill) Gray) - *Mouse-ear-hawkweeds*
Perennials, usually stoloniferous; stems usually leafless, sometimes with few leaves, with 1-many capitula; basal leaves oblanceolate to narrowly obovate or narrowly elliptic, hairy, subentire; phyllaries in several rows; receptacular scales 0 but achene-pits often variously fringed; pappus of 1 row of dirty-white to pale brown, simple hairs; ligules yellow to orange; achenes not flattened, 10-ribbed, not beaked, scarcely tapered towards apex.

Evidence for distinctness from *Hieracium* is equivocal.

Both apomictic and sexual plants occur, often within 1 sp; hybridisation is frequent wherever 2 spp. occur together. Of the native spp., *P. peleteriana* is always diploid and sexual, *P. flagellaris* is hexaploid, whereas *P. officinarum* may be sexual (diploid to tetraploid) or apomictic (pentaploid or hexaploid); the sexual plants are commoner in the S and rare or 0 in Sc, and the diploids and triploids are known only in E Anglia.

- | | | |
|---|---|--------------------------|
| 1 | All flowering stems with only 1 capitulum | 2 |
| 1 | At least some flowering stems with >1 capitulum | 3 |
| 2 | Stolons elongated, slender, with spaced out small leaves, 0 or few ending in leaf-rosette | 2. P. officinarum |
| 2 | Stolons few or 0, short (<5cm), stout, with full-sized ± crowded leaves, often ending in leaf-rosette | 1. P. peleteriana |
| 3 | Ligules orange-brown to brick-red, often turning purplish when dried | 7. P. aurantiaca |
| 3 | Ligules yellow, sometimes red-striped on lowerside | 4 |
| 4 | Capitula (1)2-4(7) per stem, not crowded; phyllaries (8)9-12mm | 3. P. flagellaris |
| 4 | Capitula (3)6-50 per stem, many closely crowded; phyllaries 5-9mm | 5 |

- 5 Largest leaves $\leq 12(20)$ mm wide; phyllaries mostly < 1 mm wide, acute
4. *P. praealta*
- 5 Largest leaves $\geq (12)15$ mm wide; phyllaries mostly > 1 mm wide, obtuse 6
 6 Leaves scarcely glaucous; capitula > 10 on well-developed
 inflorescences **5. *P. caespitosa***
- 6 Leaves distinctly glaucous; capitula < 10 per inflorescence
6. *P. x floribunda*

Other spp. - *P. lactucella* (Wallr.) P.D. Sell & C. West (*H. lactucella* Wallr.), from Europe, has 1-7 capitula per stem and glaucous, glabrous to very sparsely hairy leaves; ($2n=18$); it was formerly natd in S Wilts.

1. *P. peleteriana* (Mérat) F.W. Schultz & Sch. Bip. (*H. peleterianum* Mérat) - *Shaggy Mouse-ear-hawkweed*. Like a robust, large-headed *P. officinarum* with stolons 0 or short, thick and often ending in a leaf-rosette; phyllaries with dense long eglandular, few or 0 glandular, and usually few stellate hairs. Native; short grassland on well-drained soils, dunes; very local, but commoner in CI than *P. officinarum*. The sspp. are probably better as vars.

- 1 Scapes up to $12(18)$ cm; rosette-leaves 9-20mm wide, not or scarcely tapered at base **a. ssp. *peleteriana***
- 1 Scapes (6)10-30cm; rosette-leaves 4-12(18)mm wide, long-tapered at base 2
 2 Phyllaries 11-15mm, lanceolate; capitula 12-17mm across excl. ligules
b. ssp. *subpeleteriana*
- 2 Phyllaries 10-12(13)mm, linear-lanceolate; capitula (9)10-12(14)mm across excl. ligules **c. ssp. *tenuiscapa***

a. Ssp. *peleteriana*. Phyllaries 11-15mm, lanceolate; capitula 12-20mm across excl. ligules; $2n=18$. CI (all islands), Dorset, Wight and E Kent (extinct in last). **RRR**

b. Ssp. *subpeleteriana* (Nägeli & Peter) P.D. Sell (*H. peleterianum* ssp. *subpeleterianum* Nägeli & Peter). Craig Breidden (Monts). **RRR**

c. Ssp. *tenuiscapa* (Pugsley) P.D. Sell & C. West (*H. peleterianum* ssp. *tenuiscapum* (Pugsley) P.D. Sell). $2n=18$. Jersey, S Devon, Staffs, Derbys and MW Yorks. **RRR**

1 x 2. *P. peleteriana* x *P. officinarum* = *P. x longisquama* (Peter) Holub (*H. x longisquamum* Peter, *P. x pachylodes* (Nägeli & Peter) Soják nom. illeg.) has occurred with the parents in Jersey, Guernsey, Staffs and E Kent; it is intermediate; ($2n=27$). Hybrids involve *P. peleteriana* ssp. *peleteriana* and *tenuiscapa*.

2. *P. officinarum* F.W. Schultz & Sch. Bip. (*H. pilosella* L.) - *Mouse-ear-hawkweed*. Stolons long, slender, with $\pm$ distant reduced leaves; scapes to 30(50)cm, with 1 capitulum, densely hairy; ligules yellow; capitula 7-12mm across excl. ligules; $2n=18, 27, 36, 45, 54$. Native; short grassland on well-drained soils, banks, rocky places; locally common throughout BI except Shetland. Very variable in scape height and robustness and in hairiness. Based mainly on colour, length and relative distribution of simple eglandular, simple glandular and stellate hairs on phyllaries, 7 taxa can be recognised. These are not or only partially geographically separated and are no more than vars.

2 x 6. *P. officinarum* x *P. aurantiaca* = *P. x stoloniflora* (Waldst. & Kit.) F.W. Schultz & Sch. Bip. (*H. x stoloniflorum* Waldst. & Kit.) occurs with the parents in scattered places from Guernsey to N Sc; it is intermediate in ligule colour and capitulum number per scape; $2n=c.63$. All our hybrids involve *P. aurantiaca* ssp. *carpathicola*.

3. *P. flagellaris* (Willd.) P.D. Sell & C. West (*H. flagellare* Willd.) - see sspp. for English names. Stolons long, stout, leafy; scapes to 40cm, with (1)2-4(7) capitula, with glandular and eglandular hairs; ligules yellow; phyllaries with numerous simple glandular and eglandular hairs and sparse stellate hairs.

a. Ssp. *flagellaris* - *Spreading Mouse-ear-hawkweed*. Scapes to 40cm; capitula 2-4(7);

peduncles with simple eglandular hairs 2-3mm; phyllaries with few to numerous simple eglandular hairs ≤ 1.5 mm; ($2n=36$, 42). Intrad-natd; grassy roadsides and railway banks as garden escape; scattered in C & CS En and CE Sc, first recorded 1869; C & E Europe.

b. Ssp. bicapitata P.D. Sell & C. West (*H. flagellare* ssp. *bicapitatum* (P.D. Sell & C. West) P.D. Sell) - *Shetland Mouse-ear-hawkweed*. Scapes to 18cm; capitula (1)2(-4); peduncles with simple eglandular hairs ≤ 7.5 mm; phyllaries with dense simple eglandular hairs ≤ 2.5 mm; $2n=54$. Native; dry rocky pastures, rocky slopes and outcrops; 3 localities in Shetland; endemic, discovered 1962. RRR

4. P. praealta (Vill. ex Gochnat) F.W. Schultz & Sch. Bip. (*H. praealtum* Vill. ex Gochnat) - *Tall Mouse-ear-hawkweed*. Stolons 0 to long; scapes to 65cm, with numerous capitula, hairy above but glabrous to subglabrous below; ligules yellow; ($2n=45$). Intrad-natd; garden escape on grassy roadsides, walls and railway banks; Europe.

a. Ssp. praealta. Stolons 0 or very short; phyllaries with numerous glandular and 0 or few eglandular hairs. Scattered localities in Br N to Ayrs, first recorded 1899.

b. Ssp. thaumasia (Peter) P.D. Sell (ssp. *arvorum* (Nägeli & Peter) P.D. Sell & C. West, ssp. *spraguei* (Pugsley) P.D. Sell & C. West, *H. pilosella* ssp. *thaumasium* (Peter) P.D. Sell). Stolons long and slender; phyllaries with numerous glandular and 0 to numerous eglandular hairs. Scattered localities in SC En and W Lothian, first recorded 1918.

5. P. caespitosa (Dumort.) P.D. Sell & C. West (*H. caespitosum* Dumort.) - *Yellow Fox-and-cubs*. Stolons strong, often above and below ground, with large leaves; scapes to 50(80)cm, with numerous crowded capitula, hairy; ligules yellow; ($2n=36$). Intrad-natd; garden escape on rough ground, walls and railway banks; scattered in Br and Ir, frequent in Sc; N & E Europe. Our plant is ssp. *colliniformis* (Peter) P.D. Sell & C. West (*H. pilosella* ssp. *colliniforme* (Peter) P.D. Sell).

6. P. x floribunda (Wimm. & Grab.) Arv.-Touv. (*H. x floribundum* Wimm. & Grab., *P. lactucella* ssp. *helveola* (Dahlst.) P.D. Sell & C. West, *H. helveolum* (Dahlst.) Pugsley; *P. lactucella* x *P. caespitosa*) - *Irish Fox-and-cubs*. Differs from *P. caespitosa* in scapes to 35(45)cm; leaves less hairy; fewer and less robust stolons; and see key (couplet 6); ($2n=36$). Intrad-natd; in *Calluna/Erica* heathland; S Hants since 1991, formerly Co Antrim; N & C Europe.

7. P. aurantiaca (L.) F.W. Schultz & Sch. Bip. (*H. aurantiacum* L.) - *Fox-and-cubs*. Stolons strong, often above and below ground, with large leaves; scapes to 40(65) cm, with numerous crowded capitula, hairy; ligules orange-brown to brick red. Intrad-natd; garden escape (setting abundant seed) on rough ground, walls, roadsides and railway banks; N & C Europe. The 2 spp. are of doubtful value.

a. Ssp. aurantiaca. Spreading mostly by rhizomes; basal leaves mostly 10-20 x 2-6cm; phyllaries 8-11mm; $2n=36$. Very scattered in Br.

b. Ssp. carpathicola (Nägeli & Peter) Soják (ssp. *brunneocrocea* (Pugsley) P.D. Sell & C. West, *H. aurantiacum* ssp. *carpathicola* Nägeli & Peter, *H. brunneocroceum* Pugsley). Spreading mostly by stolons; basal leaves mostly 6-10(16) x 1.2-2(3)cm; phyllaries 5-8mm. Frequent throughout BI.

36. HIERACIUM L. - Hawkweeds

Perennials, without stolons or rhizomes; stems leafy or sometimes not, with (1)few-several capitula, with or without basal rosette of leaves at flowering; phyllaries in several rows; receptacular scales 0 but achene-pits often variously fringed; pappus of 1 row of dirty-white to pale brown, simple hairs; ligules yellow; achenes not flattened, 10-ribbed, not beaked, scarcely tapered towards apex.

All the taxa are obligate apomicts and are triploids with $2n=27$ or tetraploids with $2n=36$ so far as is known, except for the pentaploid ($2n=45$) *H. pentaploideum* P.D. Sell & D.J. Tennant in sect. *Alpina* and the single sp. of section *Hieracioides* (*H.*

umbellatum L.), which exists as diploid sexual plants with 2n=18 and triploid apomictic plants with 2n=27. 411 microsp. are currently recognised in BI, of which many are endemic and probably a considerable number are aliens. In this work they are not treated in full, but are aggregated into 15 sections that are recognisable after a little practice. The sectional classification adopted follows the views of P.D. Sell. For a full account see the monograph of Sell & Murrell (2006).

Plants often exhibit a second phase of flowering on new growth, either naturally or if the first growth is damaged. Only the first growth provides reliable diagnostic characters. As a rule of thumb, identification should not be attempted on plants with 0-1 stem-leaves after mid-Jun, on plants with 2-8 stem-leaves after mid-Jul, and on others after mid-Aug.

- 1 Stem-leaves 8-many except in dwarfed plants; rosette of leaves usually 0 at flowering 2
- 1 Stem-leaves 0-8(15); rosette of leaves usually present at flowering 7
 - 2 Middle stem-leaves not or scarcely clasping stem at base 3
 - 2 Middle stem-leaves distinctly clasping stem at base, though often very narrowly so 5
- 3 Leaves all sessile, often linear-lanceolate, ± all of similar shape, with recurved margins; phyllaries (except innermost) with recurved tips; styles yellow when fresh 1. H. sect. Hieracioides
- 3 Lower leaves petiolate, usually broader than the above, middle and upper ones sessile or nearly so, not with recurved margins; phyllaries very rarely with recurved tips; styles usually dark when fresh 4
 - 4 Stem-leaves rarely <15, often crowded, upper ones with broad rounded bases 2. H. sect. Sabauda
 - 4 Stem-leaves usually <15, rarely crowded, upper ones narrowed to base 4. H. sect. Tridentata
- 5 Middle stem-leaves slightly constricted just above the broad clasping base; peduncles with dense glandular hairs; achenes pale brown 5. H. sect. Prenanthoidea
- 5 Middle stem-leaves not constricted, with narrow clasping base; peduncles with 0-few glandular hairs; achenes purplish- or blackish-brown 6
 - 6 Stem-leaves c.10-30, the lower ones clasping stem at base to merely sessile; phyllaries sparsely hairy and glandular; ligules glabrous at tip 3. H. sect. Foliosa
 - 6 Stem-leaves c.2-10(15), the lower ones subpetiolate; phyllaries moderately hairy and glandular; ligules glabrous or hairy at tip 6. H. sect. Alpestris
- 7 Stem-leaves 1-7(12), clasping stem at base 8
- 7 Stem-leaves 0-8(12), not clasping stem at base 9
 - 8 Stem-leaves yellowish-green; plant sticky-glandular 11. H. sect. Amplexicaulia
 - 8 Stem-leaves glaucous-green; plant not sticky-glandular 12. H. sect. Cerinthoidea
- 9 Stems, leaves and phyllaries with dense, white, patent hairs; E Norfolk 13. H. sect. Andryaloidea
- 9 White patent hairs not dense on stems, leaves and phyllaries 10
- 10 Leaves with small glandular hairs on margins and sometimes on surface; phyllaries usually with shaggy hairs; almost confined to Sc, N Wa and Lake District 11
- 10 Leaves without stalked glands; phyllaries without shaggy hairs; widespread 12

- 11 Stem-leaves 0-4, narrow and bract-like; capitula 1(-5); plants to 15(30)cm
15. **H. sect. Alpina**
- 11 Stem-leaves (0)1-4, usually at least one leaf-like; capitula (1)2-5; plants to 50cm
14. **H. sect. Subalpina**
- 12 Leaves usually bristly at least along margins; phyllaries erect in bud, without dense white stellate hairs
13
- 12 Leaves variously hairy but not bristly; phyllaries incurved in bud, with dense white stellate hairs at least on margins
14
- 13 Stem-leaves 2-10(12); basal leaves few (mostly ≤4)
10. **H. sect. Oreadea**
- 13 Stem-leaves 0-1(2); basal leaves numerous
9. **H. sect. Stelligera**
- 14 Stem-leaves 0-2(3); basal leaves numerous
7. **H. sect. Hieracium**
- 14 Stem-leaves 2-8(15); basal leaves few (commonly 2-4), often withering at flowering
8. **H. sect. Vulgata**

1. H. sect. Hieracioides Dumort. (sect. *Umbellata* (Fr.) Gremli). Plants normally >30cm; basal leaves 0 at flowering; stem-leaves normally >15, ovate-lanceolate to linear, all sessile, not clasping stem at base; capitula few to many; phyllaries ± obtuse, at least outer ones patent to recurved; vegetative parts with rather sparse eglandular simple and stellate hairs; capitula and peduncles sparsely hairy and with some small glandular hairs. 1 microsp. placed here (**H. umbellatum** L.). Native; sandy heathland, dunes and dry rocky places, often near the coast; scattered throughout BI but mostly in W & S. Ssp. **bichlorophyllum** (Druce & Zahn) P.D. Sell & C. West has broader leaves (the lower narrowly ovate to oblong, not linear to linear-lanceolate) and is confined to S & W Wa, SW En, W Ir and CI.

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2. H. sect. Sabauda (Fr.) Arv.-Touv. (*H. sabaudum* L. group). Plants normally >30cm; basal leaves 0 at flowering; stem-leaves normally >15, ovate to ovate-lanceolate, the lower ones petiolate, not clasping stem at base; capitula many; phyllaries ± obtuse, rarely patent or recurved; hairiness as in sect. *Hieracioides*. 10 microsp. currently placed here. Native; common in rough ground, grassy and marginal places and on roadside and railway banks; En and Wa, rather local in Sc, very local in E Ir. **H. sabaudum** (*H. perpropinquum* (Zahn) Druce) is the commonest many-leaved *Hieracium* of S & C En and S Wa; **H. vagum** Jord. is the commonest in N En and N Wa.

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3. H. sect. Foliosa (Fr.) Arv.-Touv. (*H. inuloides* Tausch group, *H. crocatum* Fr. group). Plants normally >30cm; basal leaves 0 at flowering; stem-leaves c.10-30, ovate-lanceolate to lanceolate, the lower ones petiolate, narrowly clasping stem at base; capitula few to many; phyllaries ± obtuse, rarely patent or recurved; vegetative parts with rather sparse eglandular simple and stellate hairs; capitula and peduncles with eglandular and glandular hairs. 12 microsp. currently placed here. Native; grassy and rocky places; locally common in N Br S to S Wa and Peak District, very local in E, N & W Ir. **H. subcrocatum** (E.F. Linton) Roffey is the commonest sp. of the section in N En and Wa.

725

4. H. sect. Tridentata (Fr.) Arv.-Touv. (*H. laevigatum* Willd. group). Stems normally >30cm; basal leaves 0 or few at flowering; stem-leaves c.6-30, ovate-lanceolate to ± linear, the lower ones petiolate, not clasping stem at base; capitula few to many; phyllaries ± obtuse, appressed; hairiness as in sect. *Hieracioides*. 26 microsp. currently placed here. Native; grassy, rocky and marginal habitats; frequent in Br, rare in W & N Ir. Several spp. are locally but none widely common.

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5. H. sect. Prenanthoidea W.D.J. Koch (*H. prenanthoides* Vill. group, *H. juranum* Fr. group). Stems normally >30cm; basal leaves 0 at flowering; stem-leaves c.6-30, the lower ones oblanceolate with winged petiole, the upper ones ovate to ovate-lanceolate and broadly clasping stem at base; capitula usually numerous; phyllaries ± obtuse, appressed; vegetative parts with fairly dense simple and stellate eglandular hairs and sometimes some glandular hairs above; capitula and

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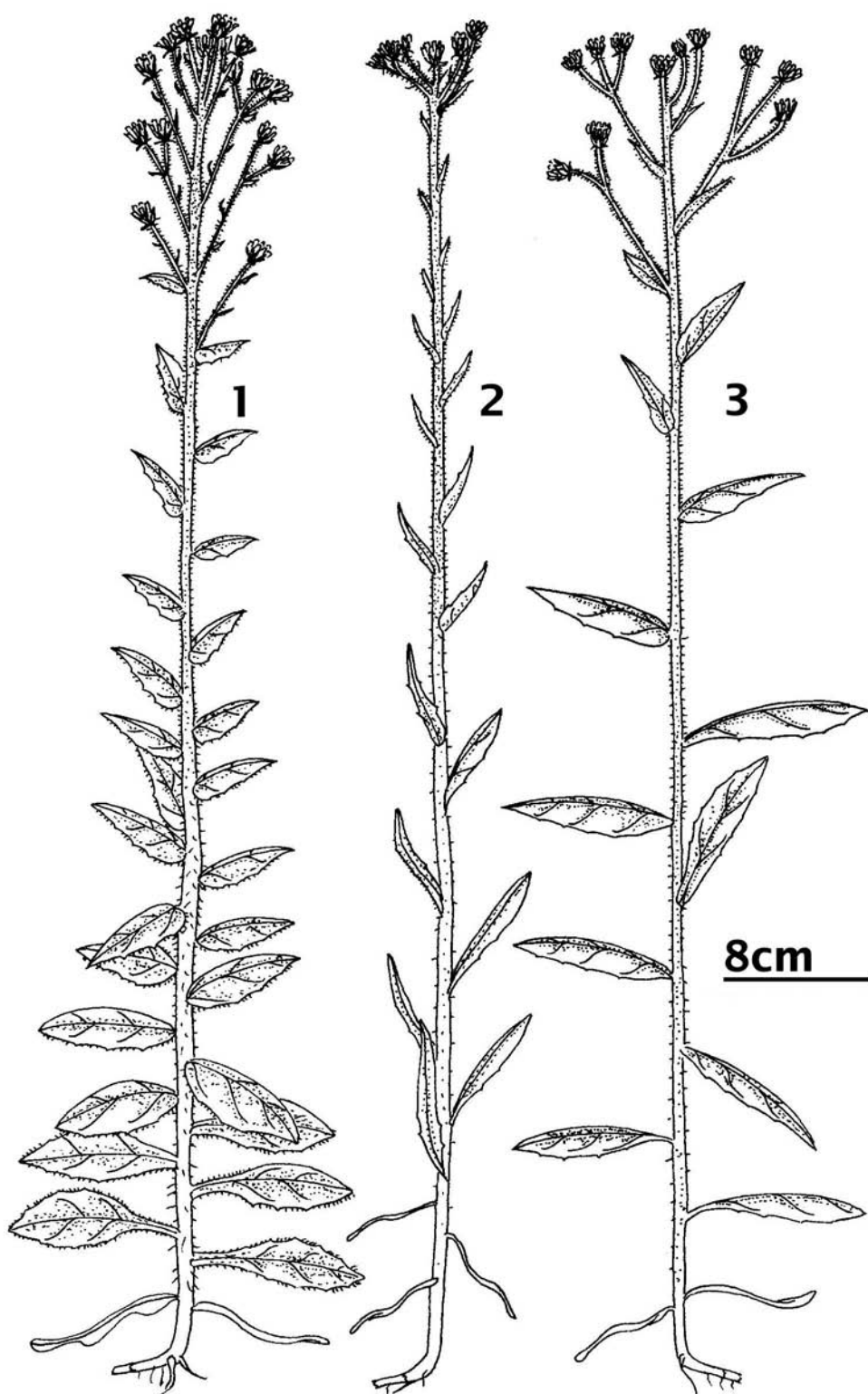


FIG 725 - *Hieracium*. 1, *H. vagum* (sect. *Sabauda*).
2, *H. umbellatum* (sect. *Hieracioides*). 3, *H. latobrigorum* (sect. *Foliosa*).

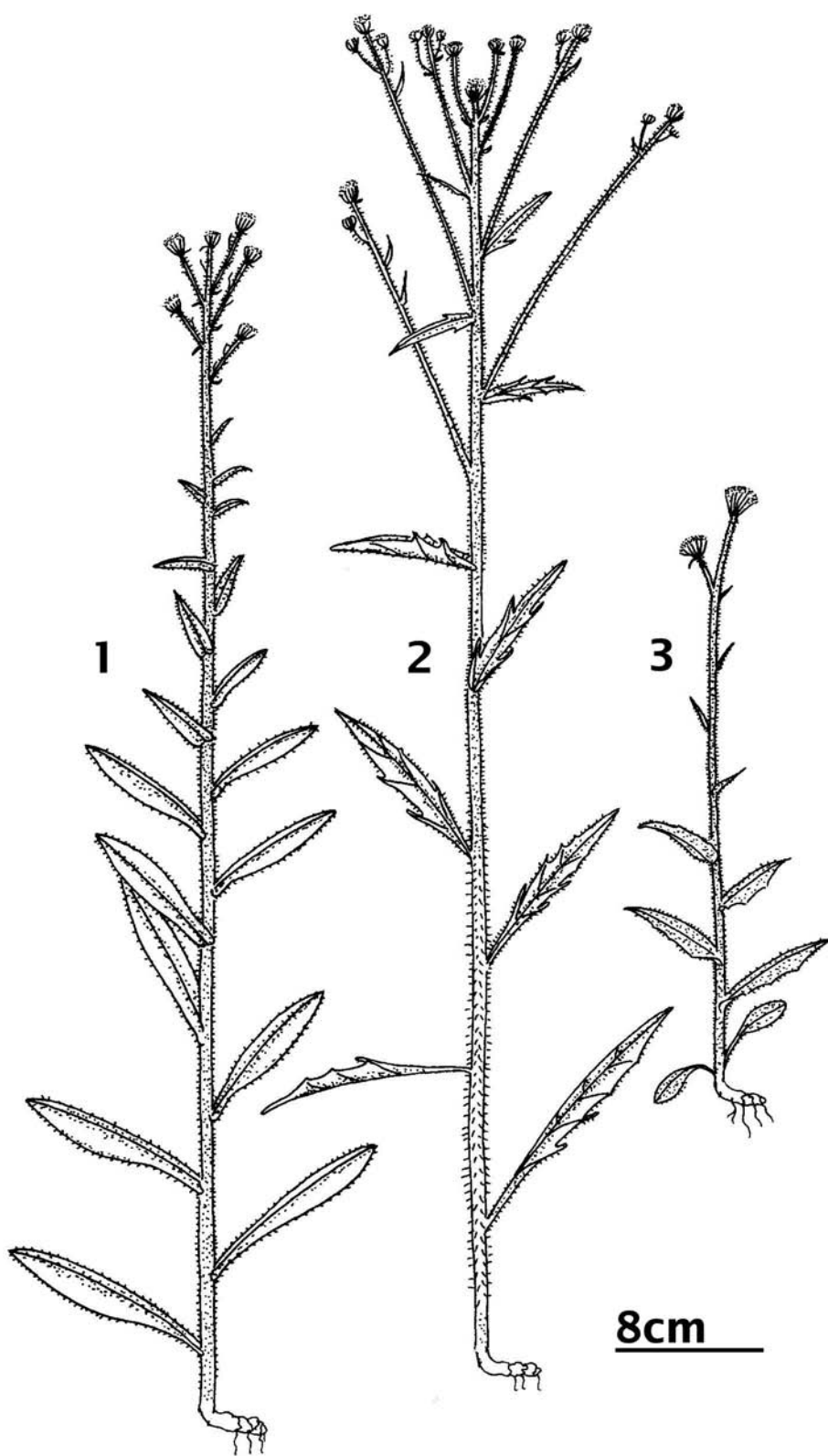


FIG 726 - *Hieracium*. 1, *H. prenanthoides* (sect. *Prenanthoidea*).
2, *H. trichocaulon* (sect. *Tridentata*). 3, *H. hethlandiae* (sect. *Alpestris*).

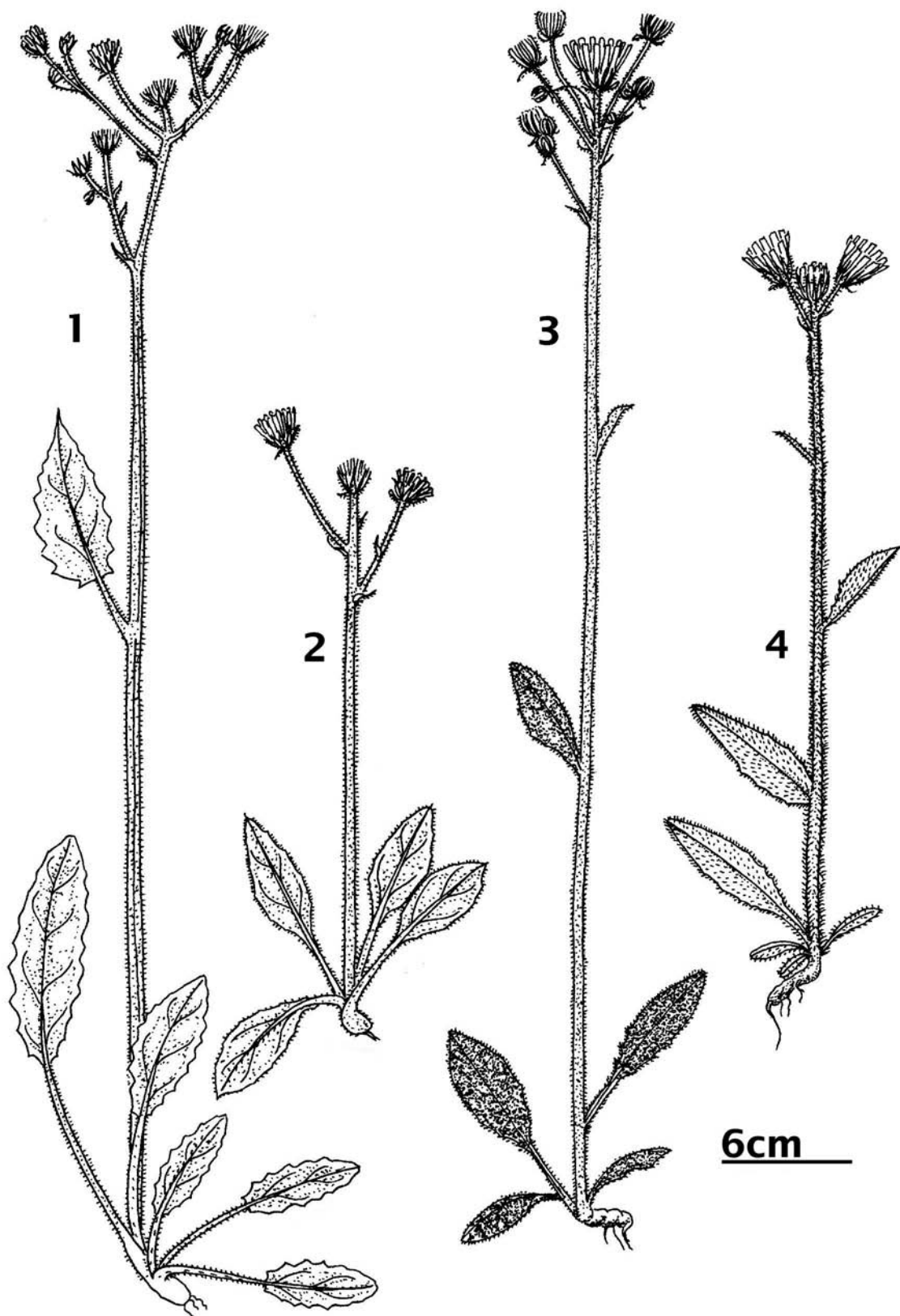


FIG 727 - *Hieracium*. 1, *H. exotericum* (sect. *Hieracium*). 2, *H. leyi* (sect. *Stelligera*). 3, *H. maculatum* (sect. *Vulgata*). 4, *H. proximum* (sect. *Oreadea*).

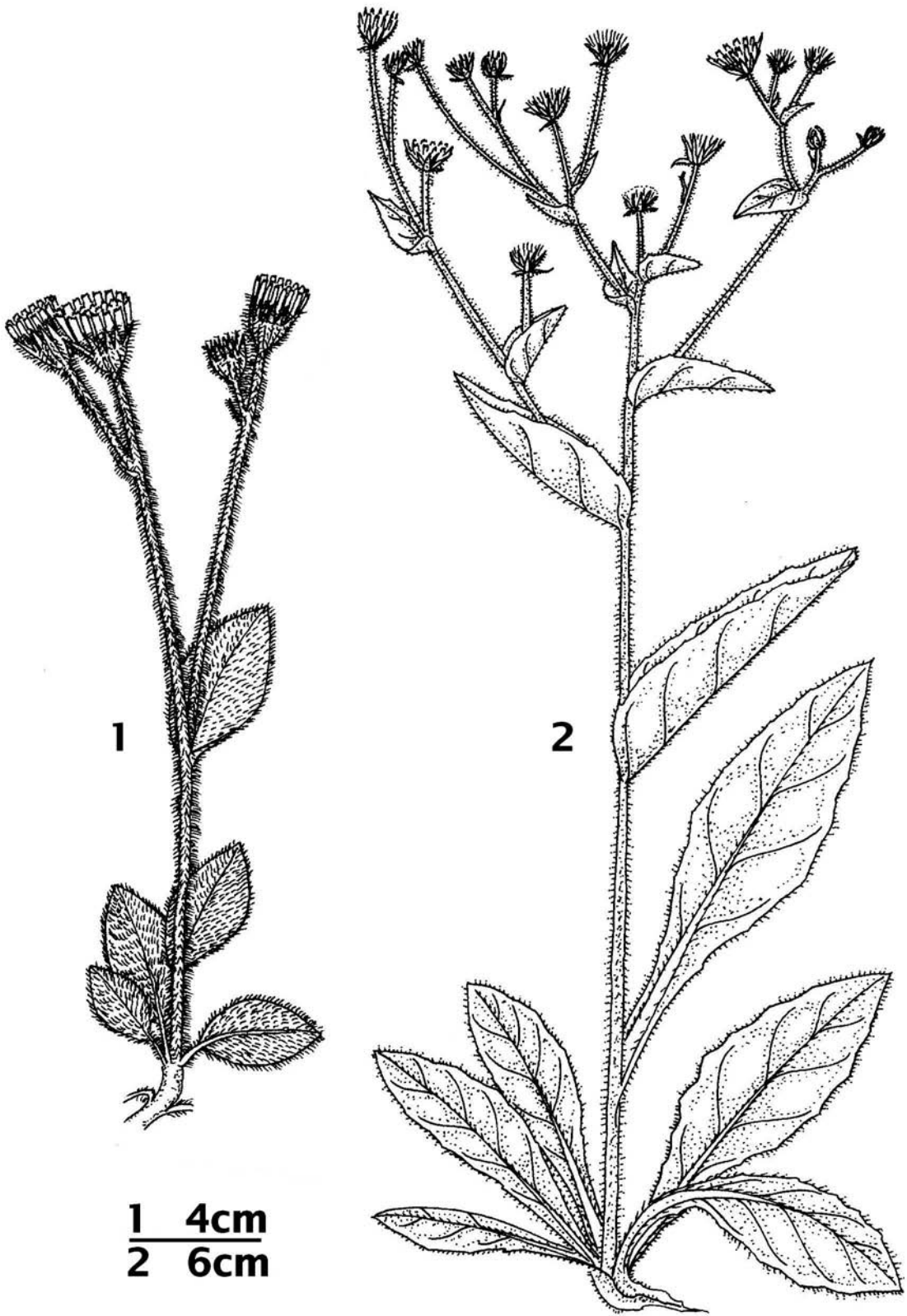


FIG 728 - *Hieracium*.
1, *H. lanatum* (sect. *Andryaloidea*). 2, *H. speluncarum* (sect. *Amplexicaulia*).

peduncles with stellate and numerous glandular hairs but 0-few simple eglandular ones. 3 microspp. placed here, **H. prenanthoides** with the sectional distribution, **H. lanceolatum** Vill. only from S Aberdeen, and **H. borrieri** Syme formerly in Selkirks but now extinct. Native; grassy and rocky places, often on limestone; local in N Br S to S Wa and Peak District, Co Antrim.

6. H. sect. Alpestris (Fr.) Arv.-Touv. (incl. 4 sp. groups). Plants normally >20cm; basal leaves 0 or few at flowering; stem-leaves c.2-15, mostly lanceolate-elliptic, the lower ones petiolate, narrowly or very narrowly clasping stem at base; capitula c.2-

RR
726

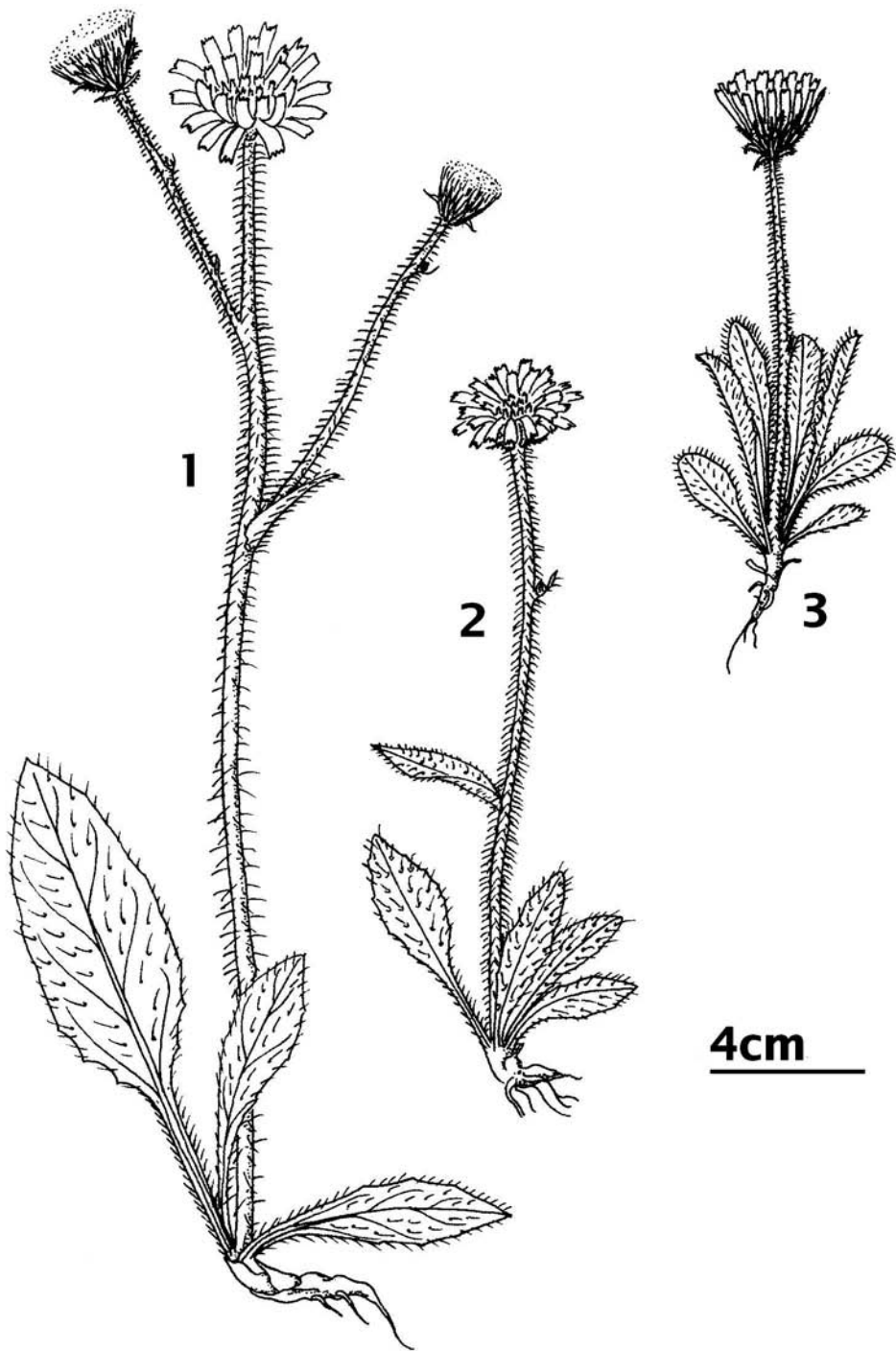


FIG 729 - *Hieracium*. 1, *H. anglicum* (sect. *Cerinthoidea*).
2, *H. lingulatum* (sect. *Subalpina*). 3, *H. alpinum* (sect. *Alpina*).

10; phyllaries $\pm$ obtuse, appressed; hairs often fairly dense, usually with glandular and simple and stellate eglandular hairs on all parts. 21 microsp. currently placed here. Native; rocky places, cliffs, hillsides; 14 microsp. endemic to Shetland, others very local in Sc and N En.

7. H. sect. Hieracium (sects. *Bifida* (Arv.-Touv.) A.R. Clapham, *Glandulosa* (Pugsley) A.R. Clapham, *Sagittata* (Pugsley) A.R. Clapham; incl. 4 sp. groups). Plants mostly $>(10)20$ cm; basal leaves normally numerous and present at flowering, variable in shape, long-petiolate, often violet on lowerside, sometimes glaucous, sometimes purple-spotted; stem-leaves 0-2(3), variable in shape, usually petiolate, not clasping stem at base; capitula mostly 2-20; phyllaries obtuse to acute, appressed; hairs usually not dense, variously of glandular and simple and stellate eglandular hairs but glandular hairs usually absent from leaves. 93 microsp. currently placed here. Native and intrd-natd; rough ground, woodland, marginal habitats, cliffs and rocky places; throughout BI. The commonest microsp. of lowland Br belong here and in *Vulgata*, and are the earliest to flower. They are particularly characteristic of railway and roadside walls and banks. 727

8. H. sect. Vulgata (Griseb.) Willk. & Lange (sect. *Caesia* (Almq.) A.R. Clapham; incl. 5 sp. groups). Differs from sect. *Hieracium* in basal leaves fewer (commonly 2-4), sometimes withering at flowering; and stem-leaves 2-8(15). 58 microsp. currently placed here. Native and intrd-natd; habitat and distribution as for sect. *Hieracium*. **H. maculatum** Sm. is the commonest but not the only sp. of the genus with heavily purple-blotched leaves. 727

9. H. sect. Stelligera Zahn (sect. *Suboreadea* Pugsley; incl. 4 sp. groups). Plants mostly 10-60cm; basal leaves normally numerous and present at flowering, ovate to lanceolate, long-petiolate, glaucous; stem-leaves mostly 0-1(2), often all or most much reduced, not clasping stem at base; capitula mostly 2-12; phyllaries acute, appressed; all parts variously with glandular and simple and stellate eglandular hairs. 68 microsp. currently placed here. Native; cliffs, rocky and grassy banks, often on limestone; scattered in Ir, Wa, Sc and W, C & N En. Despite the many spp. all are either scattered or local and none occurs in E or SE En. 727

10. H. sect. Oreadea (Fr.) Dahlst. (incl. 6 sp. groups). Differs from sect. *Stelligera* in basal leaves fewer, mostly ≤ 4 ; and stem-leaves 2-10(12). 21 microsp. currently placed here. Native; habitat and distribution as for sect. *Stelligera*. Differs from sect. *Stelligera* in same way that sect. *Vulgata* differs from sect. *Hieracium*, i.e. fewer basal leaves and more stem-leaves. 727

11. H. sect. Amplexicaulia (Griseb.) Scheele (*H. amplexicaule* L. group). Plants 10-60cm; basal leaves present at flowering, ovate to lanceolate, with winged petiole; stem-leaves 2-6(12), ovate-elliptic, broadly clasping stem at base; capitula 2-15(20); phyllaries acute to acuminate, appressed; whole plant with numerous sticky-glandular as well as simple and stellate eglandular hairs. 3 microsp. placed here. Intrd-natd; walls and rough ground; very scattered in En and Sc; C Europe to Pyrenees. 728

12. H. sect. Cerinthoidea Monnier (*H. alatum* Lapeyr. group). Plants 10-60cm; basal leaves normally present at flowering, ovate or obovate to narrowly elliptic, with $\pm$ winged petiole, glaucous; stem-leaves 1-7, same shape as basal, clasping stem at base; capitula (1)2-8(20), relatively large; phyllaries acute to acuminate, appressed; vegetative parts with simple eglandular hairs, and glandular and stellate hairs above; capitula and peduncles with glandular and simple and stellate eglandular hairs. 17 microsp. currently placed here. Native; cliffs and rocky streamsides; coastal and upland areas of Sc, N En, N & W Ir, 1 site in Wa. **H. anglicum** Fr. is the commonest sp. of the section in N En and Sc and the commonest *Hieracium* in Ir. R
729

13. H. sect. Andryaloidea Monnier. Plants 10-50cm; basal leaves present at flowering, ovate-elliptic, with winged petiole; stem-leaves 2-5(8), same shape as 728

basal, sessile, not clasping stem at base; capitula (2)3-7(12); phyllaries acute to acuminate, appressed; vegetative parts and capitula with dense white simple or tufted eglandular hairs, usually without glandular or stellate hairs. 1 microsp. (**H. lanatum** Vill.) placed here. Intrd-natd; on coastal dunes in E Norfolk since 1981; mountains of W Europe.

14. H. sect. Subalpina Pugsley (*H. senescens* Backh. f. group, *H. atratum* Fr. group, *H. rohacsense* Kit. ex Kanitz group). Plants 20-50cm; basal leaves present at flowering, narrowly to broadly elliptic, petiolate; stem-leaves (0)1-4, usually 1 leaf-like, the others much reduced, not clasping stem at base; capitula (1)2-5; phyllaries acute to obtuse, appressed; all parts variously with glandular and simple and stellate eglandular hairs, the simple hairs usually blackish-based. 46 microsp. currently placed here. Native; rock-ledges and rocky streamsides usually above 450m; local in mainland Sc, 2 microsp. extend to N En, 1 to Co Antrim, and 1 is endemic to the Lake District.

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729

15. H. sect. Alpina (Griseb.) Gremli (*H. alpinum* L. group, *H. nigrescens* Willd. group). Plants 5-15(30)cm; basal leaves present at flowering, very narrowly elliptic to obovate, petiolate; stem-leaves 0-4, usually all much reduced, not clasping stem at base; capitula 1(-c.5); phyllaries acute to obtuse, appressed to erect; all parts variously with glandular and eglandular blackish-based simple hairs, stellate hairs only on vegetative parts. 34 microsp. currently placed here. Native; rock-ledges, barish slopes and scree, grassy banks, usually above 650m; 31 microsp. endemic to mainland Sc, 1 endemic to the Lake District, 1 (**H. holosericeum** Backh. f.) endemic to Sc (over the whole range of the section) and the Lake District and Snowdonia, and 1 (**H. alpinum** L.) in Sc and widespread in Europe.

R
729

TRIBE 3 - ARCTOTIDEAE (genera 37-38). Plants not producing white latex, not spiny; capitula radiate, with sterile ligulate flowers with yellow to orange, usually 3-toothed ligules.

37. ARCTOTHECA J.C. Wendl. (*Cryptostemma* R. Br.) - *Plain Treasureflower*

Annuals or perennials (annuals in BI); lower leaves deeply pinnately lobed, white-tomentose on lowerside; phyllaries in several rows, free, glabrous to sparsely hairy, with conspicuous scarious, rounded to obtuse tips; receptacular scales 0; achenes densely hairy; pappus of distinct scales.

1. A. calendula (L.) Levyns (*Cryptostemma calendulacea* (Hill) R. Br.) - *Plain Treasureflower*. Stems decumbent, leafy only near base, to 40cm, white-hairy; all leaves usually deeply lobed; capitula on long peduncles; ligules pale yellow on upperside, purplish on lowerside; (2n=18). Intrd-casual; rather frequent wool-alien in arable fields and waste places; scattered in Br N to S Sc; S Africa.

38. GAZANIA Gaertn. - *Treasureflower*

Perennials differing from *Arctotheca* in outer phyllaries fused into cup-like structure, white-tomentose on lowerside, with acute to acuminate scarious tips; leaves sometimes all simple.

1. G. rigens (L.) Gaertn. (*G. uniflora* (L. f.) Sims, *G. splendens* Hend. & A.A. Hend.) - *Treasureflower*. Stems decumbent to ascending, to 50cm, often ± woody at base, white-tomentose below; lower leaves deeply pinnately lobed, upper ones ± entire; capitula on long peduncles; ligules orange-yellow with basal black blotch bearing central white spot, or rarely plain yellow (var. **uniflora** (L. f.) Roessler); (2n=10, 14). Intrd-natd; grown in gardens, ± natd on walls, rocks and cliffs near sea; Scilly, Wight, Man and CI; S Africa.