

## Eleven new British species of *Hieracium* L. section *Alpina* (Fries) F. N. Williams

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### ABSTRACT

Eleven new species of section *Alpina* (Fries) F. N. Williams of *Hieracium* L. (Asteraceae), ***Hieracium calvum*** P. D. Sell & D. J. Tennant, **sp. nov.**, ***H. completum*** P. D. Sell & C. West, **sp. nov.**, ***H. kennethii*** P. D. Sell & D. J. Tennant, **sp. nov.**, ***H. leptodon*** P. D. Sell & D. J. Tennant, **sp. nov.**, ***H. milesii*** P. D. Sell & C. West, **sp. nov.**, ***H. mundum*** P. D. Sell & C. West, **sp. nov.**, ***H. optimum*** P. D. Sell & C. West, **sp. nov.**, ***H. pensum*** P. D. Sell & C. West, **sp. nov.**, ***H. perscitum*** P. D. Sell & C. West, **sp. nov.**, ***H. probum*** P. D. Sell & C. West, **sp. nov.** and ***H. subglobosum*** P. D. Sell & C. West, **sp. nov.** and three new forms, ***H. hanburyi*** forma **pusillum** P. D. Sell & D. J. Tennant, **forma nova**, ***H. insigne*** forma **celsum** P. D. Sell & D. J. Tennant, **forma nova** and ***H. marginatum*** forma **chaetocephalum** P. D. Sell & C. West, **forma nova**, are described and their distributions given. In addition, a new status is given to two taxa, ***H. eximium*** forma **tenellum** (Backh.) P. D. Sell & C. West, **stat. nov.** and ***H. hanburyi*** forma **atraticeps** (Pugsley) P. D. Sell & D. J. Tennant, **stat. nov.**

KEYWORDS: hawkweeds, Scotland.

### INTRODUCTION

Section *Alpina* (Fries) F. N. Williams is probably the most difficult group of species of the genus *Hieracium* L. occurring in the British Isles. During the 1970s, P.D.S. and C.W. attempted a revision of the group, based particularly on the fine series of specimens in CGE collected by A. G. Kenneth and by B. A. Miles. They discovered a number of new species and prepared descriptions of them. The retirement from active work of C.W. in 1980, followed by his death in 1986, and long periods of ill-health for P.D.S. since 1981 have delayed publication of the new species. This has been beneficial in that D.J.T., who has long made a special study of the group, has been able to revise and add to the descriptions. Alone or with A. G. Kenneth, he has seen all the species in the field, and he has grown them all side by side in his garden. In the course of his work three more new species have been discovered.

This paper gives only the Latin diagnoses and descriptions, in order to validate the species. A second paper will follow in which comparable English descriptions of all the species in section *Alpina* found in the British Isles will be given. The distinction of the species in this section is so critical that the diagnosis should be taken only as a guide; the detailed description should always be checked for certain identification. The chromosome counts given in this paper are derived from Stace *et al.* (1995).

Most of the taxa described in this paper are rare plants, some populations being restricted to only a few specimens. In the interests of their conservation, therefore, it is important that they are not collected without expert knowledge.

## DESCRIPTIONS OF NEW SPECIES AND FORMS

**Hieracium calvum** P. D. Sell & D. J. Tennant, **sp. nov.**

HOLOTYPE: Rock-ledges in east-facing coire of Carn Crom on the west side of Glen Derry, South Aberdeen, v.c. 92, GR NO/02.95, 6 August 1978, *D. J. Tennant no. D1/78* (CGE).

Ab *Hieracio larigensi* (Pugsley) P. D. Sell & C. West et *H. globosifloro* Pugsley et *H. granitico* W. R. Linton folio caulino infimo plerumque grandiore, involucri angustiore, involucri squamis paulo latioribus, caule pilis stellatis paucioribus in parte superiore ornato differt; ab *H. backhousei* F. J. Hanb. foliis basalibus integrioribus, folii caulini infimi margine pilis simplicibus densioribus longioribusque vestito, involucri angustiore villosiore, involucri squamis acutioribus distinguitur; ab *H. milesii* P. D. Sell & C. West et *H. hanburyi* Pugsley involucri pilis glanduliferis brevioribus sparsioribusque vestito differt; a speciebus ceteris britannicis Sectionis *Alpinorum* stylis flavis ornatis foliis suis basalibus in pagina superiore plerumque glabris distinguitur.

*Planta* phyllopora. *Caulis* 13–20(–27) cm altus, interdum 2 vel aliquot, gracilis vel subrobustus, saepe flexuosus, ad basin interdum rubriusculoviolaceus; in parte inferiore pilis simplicibus eglanduliferis paucis vel numerosis mediocribus longisque sinuosis albis nigricantibus (basin versus densioribus longissimis), pilis glanduliferis paucis vel aliquot perbrevisimis flaviusculis, pilis stellatis paucis vel nullis vestitus; in parte superiore pilis simplicibus eglanduliferis numerosis mediocribus longisque (vel in parte suprema longissimis) pallidis vel griseiusculis ad bases crassis nigris, pilis glanduliferis dispersis brevissimis obscuris, pilis stellatis aliquot vel numerosis sed non densis vestitus. *Folia* pallidiuscule vel mediocriter vel raro intensiuscule viridia, interiora in pagina superiore plerumque nitida, in pagina marginibusque interdum rubriusculoviolaceotincta, in pagina inferiore pallidiora, in pagina tota superiore plerumque glabra, sed ad margines petiolumque pilis simplicibus eglanduliferis numerosis vel densis longis vel longissimis sinuosis albis nigricantibus, in pagina inferiore pilis simplicibus eglanduliferis dispersis vel numerosis pallidis vel nigricantibus, in pagina inferiore et ad margines pilis glanduliferis paucis perbrevisimis flaviusculis, ad margines interdum pilis stellatis paucis vestita; folia basalia pauca vel numerosa, exteriora 10–45 mm longa, 6–26 mm lata, plerumque late elliptica vel ovata, ad apicem late rotundo-obtusa vel subacuta vel interdum apiculata, integra vel denticulata, ad basin caneuata vel breviter contracta, interiora 30–90 mm longa, 5–22 mm lata, rigida et coriacea, saepe canaliculata, elliptica vel anguste elliptica vel oblanceolata, ad apicem saepe tortum plerumque acuta saepe acuminata aliquando subacuta, plerumque integra interdum undulata vel serratodentata, dentibus paucis haud profundis vel anguste mammiformibus, ad basin longe attenuata vel aliquando breviter angustata; petioli magis minusve (saepe late) alati, basin versus saepe rubriusculoviolaceotincti; folia caulina 1–2(–3), infimum 10–110 mm longum, 1.5–12 mm latum, semipatens, lineari-oblanceolatum vel anguste ellipticum, ad apicem acutum vel acuminatum vel raro obtusum, integrum, ad basin attenuatum, sessile vel petiolatum, in pagina superiore glabrum, sed in marginibus et pagina inferiore pilis simplicibus eglanduliferis numerosis longiusculis et pilis stellatis aliquot vestitum, cetera folia caulina plerumque linearia acuta integra vel interdum bracteiformia, unum raro gemma rudimentali in axilla praeditum. *Capitulum* plerumque solitarium, interdum 2, vel 2 vel plura a caulibus e rosula basali exorientibus portata, 40–50 mm diametro; involucrum facie obscure viridiusculogrisea vel viridiuscula, anguste campanulatum, ad basin breviter angustatum vel rotundatum; pedunculi (si adsunt) cauli superiori similiter vestiti. *Involucri squamae* ante anthesin incumbentes, atriunculovirides, interiores marginibus pallidius viridiusculis; omnes pilis simplicibus eglanduliferis longis sinuosissimis albis vel aliquantum griseiusculis nigricantibus inaequaliter distributis (nonnumquam sparsis sed ad basin semper numerosis crispissimis saepe perlongis), pilis glanduliferis numerosis brevissimis vel brevibus pallidis vel obscuris, a pilis simplicibus eglanduliferis partim modo tectis, vestitae, sine pilis stellatis, interiores ad apicem pilis simplicibus nonnullis brevissimis ornatae; squamae interiores 10–15 mm longae, 1–2 mm latae, appressae vel laxae appressae, linearilancelatae, ad apicem acutissimae vel abrupte acutae vel acuminatae, interdum violaceotinctae; squamae exteriores breviores, ad apicem subacutae vel acutae. *Ligulae* mediocriter flavae; exteriores ad 4(–4.6 cult.) mm latae, ad apicem magis minusve discretae et saepe profunde dentatae, haud profunde concavae, in pagina inferiore pilis simplicibus eglanduliferis paucissimis vel aliquot breviusculis pallidis vel obscuriusculis vestitae, ad apicem pilis talibus brevissimis vel brevibus paucis vel nullis ultra dentium margines protrudentibus. *Styli* flavi vel flaviusculi, in sicco

saepe obscuriusculi. *Receptaculi alveoli* margine breviter dentati. *Cypselae* 3·8–4·1 mm longae, purpureiusculonigrae.  $2n = 36$ .

Extremely local and very scarce in crevices and on ledges of shelving coarse-grained granite rocks and boulders, between 800 and 980 m: on Carn Crom and Derry Cairngorm on the west side of Glen Derry in South Aberdeen (v.c. 92), and on the east side of Cairngorm in Easternness (v.c. 96). Endemic.

***Hieracium completum* P. D. Sell & C. West. sp. nov.**

HOLOTYPE: East-facing cliffs, c. 808 m, Coire Etchachan, South Aberdeen, v.c. 92, GR NO/017.997, 3 August 1966, R. W. Jones & B. A. Miles no. 66/147 (CGE).

A plerisque Sectionis *Alpinorum* speciebus britannicis maculis suis fusciusculoviolaceis in pagina superiore foliorum basaliu dispersis distinguitur. Ab *Hieracio probo* P. D. Sell & C. West foliis basalibus clarioribus nitidioribus plerisque ovatis praecipue differt.

*Planta* phyllopada. *Caulis* 13–30 cm altus, diametro mediocri, interdum robustus et ad basin lignosus, plerumque infra involucrium incrassatus, striatus, plerumque ad basin rubriusculoviolaceus et interdum in porcis in parte inferiore guttatus, pilis simplicibus eglanduliferis paucis vel numerosis pallidis nigricantibus (basin versus et ad petiolos plerumque multis longis, in parte superiore brevioribus sed longius nigricantibus), pilis glanduliferis paucis vel numerosis brevissimis pallidis obscurisque, pilis stellatis nonnullis (utrisque in parte superiore numerosioribus) vestitus. *Folia* pallidiuscule vel mediocriter clare viridia, plerumque subnitida raro hebetata, plerumque per totam paginam superiorem obscure fusciusculoviolaceomaculata vel marmorata, in pagina inferiore saepe pallidiora, costa rubriusculoviolaceotincta; folia basalia plerumque numerosa, aliquando coriacea, pleraque in pagina superiore et ad margines pilis simplicibus eglanduliferis paucis vel numerosis magis minusve uniformiter dispersis brevibus mediocribusque longiusculisque graciliusculis subrigidis sinuosis vel ad apicem curvatis albis plerumque pallidibus, in pagina inferiore pilis simplicibus eglanduliferis numerosis brevibus vel mediocribus gracilibus mollioribus sinuosis, in utraque pagina et in marginibus pilis glanduliferis paucis brevissimis flaviusculis vestita, exteriora 5–45 mm longa, 3–35 mm lata, subrotunda vel ovata vel elliptica vel raro obovata, ad apicem rotundo-obtusa vel obtusa saepe mucronulata, denticulata, ad basin plerumque late cuneata interdum truncata, interiora 10–70(–100) mm longa, 4–30 mm lata, plerumque ovata interdum late elliptica vel late lanceolata, ad apicem late acuta vel subacuta raro obtusa plerumque mucronata vel apiculata, interdum convoluta, magis minusve ordinate serratodentata, dentibus anguste mammiformibus acutis, interdum denticulata, ad basin cuneata vel attenuata; petioli breves vel longi, plerumque rubriusculoviolaceotincti praecipue ad basin, pilis simplicibus eglanduliferis paucis vel numerosis mediocribus vel longis interdum appressis vestiti; folia caulina 1–3(–4), infimum 1–60 mm longum, 20–30 mm latum, basalia interiora saepe simulans, lanceolatum vel ellipticum vel anguste ovatum, ad apicem acutomucronatum vel acuminatum, denticulatum vel irregulariter serratodentatum, dentibus paucis angustis acutis, ad basin saepe cuneatum et perspicue petiolatum, cetera linearia acuta vel magis minusve bracteiformia erecta, summum filamentosum, omnia folia caulina pilis simplicibus eglanduliferis numerosis, pilis glanduliferis nonnullis minutis, saepe in pagina inferiore pilis stellatis nonnullis vestita. *Capitulum* plerumque solitarium, interdum 2–3, 35–50 mm diametro; involucrium facie atriuscula vel obscure viridiusculogrisea, late campanulatum, ad basin valde constrictum; pedunculi (si adsunt) cauli superiori similiter vestiti. *Involucri squamae* ante anthesin incumbentes, viridiusculoatrae, interiores marginibus indistinctis viridiusculis; omnes pilis simplicibus eglanduliferis densiusculis mediocribus vel longis (ad 3 mm) gracilibus pallidis vel griseiusculis ad bases longas incrassatas nigris, pilis glanduliferis numerosis brevissimis vel brevibus flaviusculis obscurisque, a pilis simplicibus eglanduliferis partim modo tectis, vestitae, sine pilis stellatis sed interiores ad apicem pilorum ramosorum simpliciumque brevium caespite ornatae; squamae interiores 11–15(–18) mm longae, 1·2–1·8(–2·0) mm latae, inaequales, valde appressae, magis minusve late lineari-lanceolatae, ad apicem abrupte acutae vel subacutae; squamae exteriores breviores erectae, ad apicem magis minusve obtusae. *Ligulae* clare intensiuscule vel raro mediocriter flavae; exteriores latiusculae (ad 4·5 mm), ad apicem magis minusve discretae et profunde dentatae, concavae apicemque versus valde ascendentes, in pagina inferiore pilis simplicibus eglanduliferis paucis brevissimis vel brevibus pallidis vestitae vel nullis, ad apicem pilis talibus aliquot perbrevisimis ultra dentium margines protrudentibus. *Styli* uniformiter obscurissimi

(griseiusculi). *Receptaculi alveoli* margine breviter dentati. *Cypselae* 3.6–4.5 mm longae, purpureiusculonigrae.  $2n = 36$ .

Rock-ledges, dry gullies and stream-banks on both schist and granite between 600 and 1200 m: on the Cairnwell in East Perth (v.c. 89); in several localities in and around the heads of Glen Clova and Glen Isla in Angus (v.c. 90); in Glen Callater, on Lochnagar and at Dubh-loch in South Aberdeen (v.c. 92); in the Cairngorm Range on Creag an Dail Bheag [Little Craigandail] and in Coire Etchachan (both in v.c. 92) and on many of the mountains bordering both sides of the Lairig Ghru Pass (v.c. 92 and 96); in Glen Einich and Coire Garbhach in the Cairngorm mountains and on the adjacent Monadhliath Hills, Easternness (v.c. 96). Endemic.

This species was mistakenly known to F. J. Hanbury, E. F. and W. R. Linton, E. S. Marshall and other earlier botanists as *H. curvatum* Elfstrand, a species now considered not to occur in the British Isles. Most of the specimens later referred to *H. pseudocurvatum* (Zahn) Pugsley (1948) belong to *H. completum*. *H. pseudocurvatum* is in fact restricted to two localities on the Cairngorms.

**Hieracium eximium** Backh., *Monogr. Brit. Hier.* 20 (1856).

Forma **eximium**.

*Styli* viridiusculogrisei vel obscurissime grisei.  $2n = 36$ .

Forma **tenellum** (Backh.) P. D. Sell & C. West, **stat. nov.**

BASEONYM: *H. eximium* var. *tenellum* Backh., *Monogr. Brit. Hier.* 21 (1856).

*Styli* flavi vel aliquantum sordide flavi.  $2n = 36$ .

Other than style colour there is little to distinguish these two forms, but forma *eximium* shows a preference for schistose rock and forma *tenellum* for granite.

**Hieracium hanburyi** Pugsley in *J. Bot. (London)* 79: 178 (1941).

Forma **pusillum** P. D. Sell & D. J. Tennant, **forma nova**

HOLOTYPE: Rock-ledge on schistose rock, c. 760 m, at head of Canness Glen, Glen Isla, Forfar [Angus], v.c. 90, GR NO/20.77, 12 July 1982, *D. J. Tennant, no. C1/82 (CGE)*.

*Planta* parva; *folia* subintegra vel haud profunde dentata; *involucris squamae* abrupte acutae vel subacutae vel obtusae, pilis glanduliferis et simplicibus eglanduliferis numerosis ornatae; *styli* obscuro.  $2n = 36$ .

Forma **hanburyi**

SYNONYM: *H. hanburyi* var. *humile* Pugsley in *J. Linn. Soc. London (Bot.)* 54: 52 (1948).

*Planta* saepe major; *folia* magis dentata; *involucris squamae* anguste acutae, pilis glanduliferis et simplicibus eglanduliferis numerosis ornatae; *styli* flavi vel aliquantum discolors.  $2n = 36$ .

Forma **atraticeps** (Pugsley) P. D. Sell & D. J. Tennant, **stat. nov.**

BASEONYM: *H. hanburyi* var. *atraticeps* Pugsley in *J. Linn. Soc. London (Bot.)* 54: 51 (1948).

*Planta* saepe magna; *folia* magis minusve dentata; *involucris squamae* anguste acutae, pilis glanduliferis densis, pilis simplicibus eglanduliferis nullis vel sparsis ornatae; *styli* magis minusve flavi.  $2n = 36$ .

*Hieracium hanburyi* is a very variable species whose limits are difficult to define. We recognise the three most distinct variants as forms. P.D.S. and C.W. once recognised forma *atraticeps* as a distinct species because of the characteristic clothing of the heads, but it grows with forma *hanburyi* and intermediates occur. Forma *pusillum* is known only from the Glen Isla and the Clova Mountains, Angus (v.c. 90). *H. persciturum* and *H. hanburyi* can easily be confused on herbarium sheets, but they look very different in the field.

**Hieracium insigne** Backh. in *Phytologist (Newman)*, Series 2, 4: 806 (1853).

LECTOTYPUS: Near Loch Ceannidin, Aberdeenshire, v.c. 92, August 1852, *J. Backhouse jun. (CGE)*.

Forma **insigne**

*Capitulum solitarium*, 45–65 mm diametro; *involucris squamae* 13–20 mm longae, 0.7–1.5 mm latae, laxiores, apicibus angustissimis.  $2n = 36$ .

Forma **celsum** P. D. Sell & D. J. Tennant, **forma nova**

HOLOTYPE: Schistose cliffs, c. 2400 ft [720 m], south side of Coire Garbhach, Glen Feshie, Easternness, v.c. 96, GR NN/880.941, 12 August 1966, *R. W. Jones & B. A. Miles no. 66/216 (CGE)*.

*Capitula* 1–3, 25–50 mm diametro; *involucri squamae* 10–17 mm longae, 1.0–1.5 mm latae, appressae, apicibus interdum minus angustis.  $2n = 27, 36$ .

Forma *insigne* is known only from cliffs above Loch Kander (Loch Ceannidin) in Glen Callater, South Aberdeen (v.c. 92). Forma *celsum* occurs in Coire an Lochaine Uaine, Cairntoul, in South Aberdeen (v.c. 92), in Coire Garbhloch, in Glen Feshie and on Creag an Leth-choin in the Lairig Ghru Pass, both in Easternness (v.c. 96), and in several places on Beinn na Socaich, Glen Spean, Westernness (v.c. 97). Endemic.

***Hieracium kennethii*** P. D. Sell & D. J. Tennant, **sp. nov.**

HOLOTYPE: An Teallach, West Ross, v.c. 105, GR NH/055.865, c. 650 m, 1984, *A. G. Kenneth no. 5184* (CGE).

Ab *Hieracio perscito* P. D. Sell & C. West foliis coraceis nitidis, folio caulino infimo magis petiolato pilisque stellatis paucis vestito, involucri squamis pilis glanduliferis manifestis multo paucioribus vestitis; ab *H. subgloboso* P. D. Sell & C. West foliis basalibus exterioribus ad basin magis truncatis plerumque clarius viridibus, folio caulino infimo majore saepe dentato, involucri squamis minus acutis, ligulis intensius flavis; ab *H. mundo* P. D. Sell & C. West foliis basalibus latoribus clarioribus nitidioribus, exterioribus saepe magis truncatis et dentibus latis obtusis instructis, folio caulino infimo sine dentibus spinulosis, involucri squamis saepe acutioribus; ab *H. penso* P. D. Sell & C. West foliis coriaceis nitidis claris plerumque in pagina superiore uniformiter pilosis, involucri ad basin angustiore, squamis magis appressis, ligulis intensius flavis distinguitur. Ab omnibus aliis Sectionis *Alpinorum* speciebus britannicis aut stylis suis obscuris aut separatione geographica distinguitur.

*Planta* phyllopoða. *Caulis* 10–24 cm altus, gracilis vel mediocris, interdum flexuosus, aliquando ad basin rubriusculoviolaceotinctus, in parte inferiore pilis simplicibus eglanduliferis paucissimis vel paucis vel numerosis mediocribus vel longis (ad 3 mm) saepe gracillimis sinuosis albis nigricantibus, pilis glanduliferis dispersis brevissimis flaviusculis, pilis stellatis paucissimis vel dispersis vestitus, in parte superiore pilis simplicibus eglanduliferis paucis vel numerosis mediocribus et longis (ad 2 mm) pallidis vel griseiusculis nigricantibus, pilis glanduliferis numerosis vel numerosissimis brevissimis vel brevibus vel mediocribus (ad 1.0 mm) obscuris, pilis stellatis numerosis vel densis vestitus. *Folia* mediocriter vel intensiuscule clare viridia, supra subtusque nitida, in pagina inferiore paulo modo pallidiora, in pagina superiore marginibusque pilis simplicibus eglanduliferis numerosis vel densis magis minusve uniformiter dispersis mediocribus et longis (ad 2 mm) gracilibus subrigidis albis pallidibus (folia exteriora saepe pilis paucis circa costam vestita), in pagina inferiore pilis simplicibus eglanduliferis paucis vel numerosis vel numerosissimis, in paginis marginibusque pilis glanduliferis paucis brevissimis flaviusculis, interdum in utraque pagina circa costam pilis stellatis paucis vestita; folia basalia aliquot vel numerosa, exteriora 5–35 mm longa, 4–30 mm lata, subrotunda vel late ovata vel obovata, saepe asymmetrica, ad apicem late rotundo-obtusa interdum retusa vel apiculata, denticulata vel magis minusve sinuatodentata, dentibus aliquot irregularissimis et interdum dentibus paucis retrorsis late mammiformibus (aliquando angustioribus), ad basin late cuneata vel truncata, interiora 6–45 mm longa, 4–25 mm lata, subcoriacea, ovata vel elliptica, ad apicem late acuta apiculataque vel obtusa, sparse denticulata vel irregulariter serratodentata, dentibus mediocribus vel angustis patentibus mammiformibus, ad basin late cuneata vel breviter contracta raro attenuata; petioli breves vel longiusculi, pilis simplicibus eglanduliferis longis albis dense vestiti; folia caulina 1–5, infimum 13–60 mm longum, 2–16 mm latum, semipatens, oblanceolatum, aliquando ellipticum, interdum fere ad basin caulis positum et basalia interiora simulans, ad apicem acutum vel obtusum interdum acuminatum vel cuspidatum, integrum vel dentibus aliquot irregularibus acutis serratodentatum, ad basin in petiolum plerumque angustiusculum attenuatum vel anguste contractum, in utraque pagina et ad margines pilis simplicibus eglanduliferis paucis vel magis minusve irregulariter dispersis pallidis (in petiolo densioribus, in pagina inferiore nigricantibus), in utraque pagina aliquando pilis stellatis aliquot (praesertim in costa) vestitum, cetera folia caulina parva magis minusve acuta integra vel bracteiformia. *Capitulum* plerumque solitarium, interdum 2, 30–48 mm diametro; involucrum facie griseiusculoviridi vel viridiusculoatra, campanulatum, ad basin angustatum; pedunculi (si adsunt) cauli superiori similiter vestiti. *Involucri squamae* ante anthesin incumbentes, atriusculovirides vel virides; omnes pilis simplicibus eglanduliferis numerosis mediocribus longisque

(ad 3 mm) gracilibus sinuosis pallidis vel griseiusculis nigricantibus, pilis glanduliferis numerosis brevibus brevissimisque atriusculis (a pilis simplicibus eglanduliferis pro parte majore tectis) vestitae, sine pilis stellatis sed interiores ad apicem pilorum brevium caespitate manifesto ornatae; squamae interiores 11–15 mm longae, 1.2–1.8 mm latae, inaequales, strictim appressae, lineari-lanceolatae, ad apicem plerumque abrupte acutae interdum subacutae vel obtusae; squamae exteriores breviores erectae semiappressae. *Ligulae* uniformiter intensiuscule flavae vel aliquando mediocriter flavae; exteriores 3–4 mm latae, ad apicem aliquantum discretae et magis minusve profunde dentatae, fere rectae vel aliquantum concavae, in pagina inferiore pilis simplicibus eglanduliferis paucissimis vel aliquot brevissimis pallidis vestitae, ad apicem pilis nullis talibus vel aliquot perbrevisimis vel aliquando paucis brevissimis ultra dentium margines protrudentibus. *Styli* magis minusve uniformiter obscure viridiusculogrisei. *Receptaculi alveoli* margine dentati. *Cypselae* 3.9–4.3 mm longae, purpureiusculonigrae.  $2n = 36$ .

Rocky knolls and steep grassy slopes from c. 600 to 700 m on Torridonian Sandstone on Mac is Mathair and elsewhere, rather locally, on the north-eastern and north-western sides of the An Teallach Range. Dundonnell, in West Ross (v.c. 105); also on Cnoc na Creige, near Glen Coùl, from c. 450 to 550 m, West Sutherland (v.c. 108). Endemic.

Named after Archibald Graham Kenneth (1915–1989), in recognition of his fine work over many years on the hawkweeds of western Scotland.

***Hieracium leptodon* P. D. Sell & D. J. Tennant, sp. nov.**

HOLOTYPE: North-east corrie, Ben More, Mid Perth, v.c. 88, August 1978, *D. J. Tennant* (CGE).

*Hieracio calendulifloro* Backh., *H. eximio* Backh. et *H. notabili* P. D. Sell & C. West simile, sed folio caulino infimo conspicuo, in plantis bene effectis dentibus multis longissimis gracillimis acutis prorsum curvatis ornato distinguitur.

*Planta* phyllopada. *Caulis* 12–30 cm altus, medius vel gracilis, interdum flexuosus, ad basin plerumque rubriusculoviolaceotinctus, in parte inferiore pilis simplicibus eglanduliferis dispersis vel numerosis mediocribus vel longis vel longissimis (ad 5 mm) gracilibus tenuibus sinuosis pallidis nigricantibus, pilis glanduliferis paucis perbrevisimis vel brevissimis pallidis vel obscurioribus, pilis stellatis paucis, in parte superiore pilis simplicibus eglanduliferis numerosis longe nigricantibus, pilis glanduliferis aliquot vel densis brevissimis vel brevibus nigriusculis, pilis stellatis aliquot vel numerosis sed non densis vestitis. *Folia* pallidiuscule vel mediocriter viridia, pruina levi caeruleogrisea ferentia, in pagina superiore hebetata vel paulo modo nitida, saepe rubriusculoviolaceotincta praecipue in marginibus, in pagina inferiore pallidiora; folia basalia numerosa, exteriora 8–50 mm longa, 5–25 mm lata, late elliptica vel ovata, ad apicem rotundo-obtusa raro retusa interdum apiculata, denticulata vel subintegra, interdum dentibus aliquot mammiformibus, ad basin rotundata vel cuneata vel breviter angustata interdum attenuata, interiora 25–90 mm longa, 9–22 mm lata, anguste vel late elliptica raro oblanceolata, ad apicem interdum tortum obtusa vel acuta saepe apiculata, denticulata vel dentata vel serratodentata, interdum undulata, dentibus regularibus vel irregularibus saepe ascendentibus anguste vel raro late mammiformibus ad apices longe rotundoapiculatis, in triente superiore saepe integra, ad basin breviter angustata vel attenuata, omnia pilis simplicibus eglanduliferis numerosis brevibus mediocribusque longisque (ad 3 mm) albis pallidibus vel nigricantibus (in paginis ambabus plerumque uniformiter distributis et in marginibus longis densis), pilis glanduliferis dispersis brevissimis flaviusculis vestita; petioli plerumque breves, alati, pilis simplicibus eglanduliferis densiusculis longissimis sinuosis vestiti, subtus saepe rubriusculoviolaceotincti; folia caulina 2–4(–5), infimum 10–90 mm longum, 2–20 mm latum, semipatens, anguste ellipticum vel elliptico-oblongum, ad apicem acutum vel subacutum, saepe serratodentatum vel serratum, dentibus irregularibus longissimis (ad 10 mm) angustis saepe prorsum curvatis apiculatis saepe spinulosis ornatum, ad basin angustatum sessile vel semiamplexicaule vel subpetiolatum, folium a basi secundum saepe dentibus paucis acutis angustis ornatum vel integrum, cetera linearia acuta integra vel bracteiformia vel filamentosa erecta. *Capitula* 1–3(–4), 35–50 mm diametro: involucrium facie viridiusculogrisea, cylindricum vel campanulatum, ad basin rotundatum vel truncatum; pedunculi longi graciles, cauli superiori similiter vestiti. *Involucri squamae* ante anthesin incumbentes, atriusculovirides; interiores 12–16 mm longae, 0.8–1.0 mm latae, appressae, lineari-lanceolatae, ad apicem plerumque gradatim acutae vel acutissimae interdum abrupte acutae, intimae interdum filamentosae; exteriores multo breviores semilaxae

erectae, ad apicem subacutae; omnes pilis simplicibus eglanduliferis numerosis vel densis mediocribus vel longis (ad 3 mm) pallidis vel griseiusculis nigricantibus, pilis glanduliferis numerosis brevissimis obscuris, a pilis simplicibus eglanduliferis plerumque omnino tectis, sine pilis stellatis, interiores ad apicem pilis paucis brevissimis vestitae. *Ligulae* pallide clare vel raro mediocriter flavae; exteriores numerosae, aliquantum angustae (ad 4 mm), ad apicem plerumque profunde et irregulariter dentatum magis minusve discretae, concavae supraque ascendentes, in pagina inferiore pilis simplicibus eglanduliferis numerosis vel densis brevissimis pallidis vestitae, ad apicem pilis talibus numerosis brevissimis nonnullisque brevibus ultra dentium margines protrudentibus. *Styli* intense viridiusculogrisei. *Receptaculi alveoli* margine breviter dentati. *Cypselae* 3.5–4.0 mm longae, purpureiusculonigrae.  $2n = 36$ .

Cliff-ledges and crevices in large boulders on muscovite-albite pelitic schist and other hard mica-schist rocks at 710–890 m in the north-east corrie of Ben More, Mid Perth (v.c. 88). Endemic.

***Hieracium marginatum*** P. D. Sell & C. West in *Watsonia* 6: 304 (1967).

Forma **marginatum**

*Involucris squamae* pilis simplicibus eglanduliferis numerosis vel densis, ad 2.5 mm longis, ornatae.  $2n = 36$ .

Forma **chaetocephalum** P. D. Sell & C. West, **forma nova**

HOLOTYPE: Summit corrie of Ben Dearg, East Ross, v.c. 106, 1976, *A. G. Kenneth no. 9076* (CGE).

A forma *marginato* involucris squamis pilis simplicibus eglanduliferis densis, ad 4 mm longis, ornatis distinguitur.  $2n = 36$ .

These two forms have the same area of distribution – Westernness (v.c. 97), Ross (v.cc. 105 and 106) and Sutherland (v.cc. 107 and 108) – but the single character in which they differ, the woolliness of the head, is so striking that it is worth distinguishing them by separate names.

***Hieracium milesii*** P. D. Sell & C. West, **sp. nov.**

HOLOTYPE: Cliff-ledges, c. 880 m, due south of Loch Kander, Glen Callater, South Aberdeen, v.c. 92, GR NO/190.807, 6 August 1966, *R. W. Jones & B. A. Miles no. 66/162* (CGE).

Ab *Hieracio tenuifronti* P. D. Sell & C. West foliis caulinis saepe magis effectis, involucris squamis laxioribus pilisque glanduliferis manifestis ornatis, stigmatibus flaviusculis distinguitur.

*Planta* phyllopoada. *Caulis* singularis vel duplicatus, 8–20(–28) cm altus, gracilis vel robustus, saepe flexuosus, ad basin interdum rubriusculoviolaceus, ubique pilis simplicibus eglanduliferis paucis vel numerosis brevibus mediocribusque longisque gracilibus sinuosis albis vel griseiusculis ad bases incrassatas nigricantibus (in parte inferiore modice vestitus, in parte superiore pilis numerosis brevibus vel mediocribus saepe griseiusculis), pilis glanduliferis aliquot vel numerosis brevissimis pallidis obscurisque (in parte superiore numerosis vel densis longioribus, ad 1.0 mm), pilis stellatis multis (in parte superiore densiusculis) vestitus. *Folia* pallidiuscule vel intensiuscule viridia aliquando glauciviridia, in pagina superiore hebetata vel nitida, in pagina inferiore pallidiora, saepe rubriusculoviolaceotincta: folia basalia pauca vel numerosa, exteriora 6–40 mm longa, 5–26 mm lata, ovata vel obovata vel late elliptica, interdum asymmetrica, saepe undulata vel convoluta, ad apicem late rotundo-obtusa, subintegra, denticulata vel serratodentata, dentibus aliquot haud profundis vel anguste mammiformibus plerumque ad marginum trientes duas inferiores limitatis, ad basin cuneata vel abrupte contracta, in pagina superiore pilis simplicibus eglanduliferis aliquot brevibus mediocribusque longisque uniformiter distributis vel aliquando ad margines limitatis, in pagina inferiore pilis talibus aliquantum brevioribus mollioribusque dispersis vel nullis, in utraque pagina et in marginibus pilis glanduliferis aliquot perbrevisimis flaviusculis, in marginibus interdum pilis ramosis paucis brevissimis vestita, interiora 15–75 mm longa, 3–30 mm lata, rigidiuscula et subcoriacea, anguste vel late elliptica, ad apicem late acuta saepe apiculata aliquando obtusa, subintegra vel irregulariter sinuatodentata vel dentibus magnis anguste vel late mammiformibus interdum cuspidatis, ad marginum trientes duas inferiores limitatis, ornata, ad basin cuneata vel attenuata vel raro subtruncata, in utraque pagina pilis simplicibus eglanduliferis plerumque numerosis brevibus mediocribusque longisque subrigidis ad bases plerumque bulbosas pallidis vel discoloribus vel aliquando nigriusculis uniformiter distributis vel prope et ad margines restrictis, pilis glanduliferis et interdum ramosis foliis exterioribus similiter vestita; petioli breviusculi vel

longi, magis minusve graciles, ad basin saepe valde rubriusculoviolacei, pilis simplicibus eglanduliferis paucis vel densiusculis mediocribus vel longis subrigidis pallidis vestiti; folia caulina (1-)2-4 (-5), infimum 10-60(-90) mm longum, 2-18 mm latum, rigide semi erectum vel patens, interdum undulatum, lineari-oblongatum vel anguste ellipticum, ad apicem acutum vel raro rotundobtusum, plerumque integrum, ad basin attenuatum, plerumque valde petiolatum, interdum aliquantum alatum et semiamplexicaule, in pagina superiore pilis simplicibus eglanduliferis saepe nigricantibus paucis vel nullis, in marginibus et aliquando in pagina inferiore et in paginae superioris costa pilis talibus aliquot brevibus vel mediocribus, pilis glanduliferis brevissimis pallidis, pilis stellatis paucis vel numerosis vestitum, folium a basi secundum minus (ad 45 mm longum, 4 mm latum) sed simile, interdum semipatens, cetera minora linearia bracteiformis semierecta vel ad caulem appressa. *Capitulum* solitarium, raro 2(-3), aliquando cum altero a secundo caule e basi exoriente portato, 25-40 mm diametro, interdum nutans; involucrium facie saturate viridiusculogrisea vel viridiusculonigra, campanulatum vel late campanulatum, ad basin rotundatum; pedunculi (si adsunt) cauli superiori similiter vestiti. *Involucri squamae* ante anthesin incumbentes, atriusculovirides, marginibus pallidioribus; omnes pilis simplicibus eglanduliferis densiusculis mediocribus et longis (ad 3 mm) gracilibus sinuosis griseiusculis vel intense griseis nigricantibus, pilis glanduliferis numerosis brevissimis brevibusque mediocribusque obscuris, a pilis simplicibus eglanduliferis plerumque leviter modo tectis, vestitae, sine pilis stellatis sed interiores ad apicem pilorum brevium pallidorum caespitibus definitissimo ornatae; squamae interiores 10-17 mm longae, 1.1-1.8 mm latae, late lineari-lanceolatae, ad apicem abrupte acutae saepe acuminatae interdum subacutae aliquando convolutae, aliquantum appressae vel sublaevae; squamae exteriores paulo breviores, interdum laxae, erectae, ad apicem subacutae. *Ligulae* pallide vel mediocriter flavae; interiores densae; exteriores mediae vel latiusculae (ad 4.5 mm latae), ad apicem magis minusve discretae et profunde dentatae dentibus magis minusve gracilibus, rectae vel haud profunde concavae, in pagina inferiore pilis simplicibus eglanduliferis paucis vel multis brevissimis vel brevibus pallidis (saepe aliquot aliquantum griseiusculis) vestitae vel nullis, ad apicem pilis talibus aliquot vel multis perbrevisimis (aliquando cum paucis brevissimis vel brevibus) ultra dentium margines protrudentibus. *Styli* flavi vel sordide viridiusculoflavi; stigmata flaviuscula. *Receptaculi alveoli* margine breviter dentati. *Cypselae* 3.2-4.0 mm longae, purpureiusculonigrae.  $2n = 36$ .

Cliff-ledges and rock-crevices on granite, quartz porphyry and quartz-biotite mica-schist from 740 to 1010 m: local and scarce in East Perth (v.c. 89), on Carn nan Sac and Glas Tulaichean near Glenshee; in Angus (v.c. 90), above Loch Wharral, near Braedownie, at the head of Glen Fee and in Coire Sharrock, all in Glen Clova, at the heads of Caenlochan and Canness Glens in Glen Isla, and in Glen Prosen; in South Aberdeen (v.c. 92), not uncommon in the north-east coire of Lochnagar and in several localities above Loch Kander in Glen Callater, but local and very scarce in the Cairngorm Mountains in the Lairig Ghru Pass and Glen Geusachan at the southern and south-eastern foot of Cairntoul and on Creag an Dail Bheag [Little Craigandail]. Endemic.

Named after Beverley Allan Miles (1937-1970) in recognition of his fine set of alpine hawkweeds collected in the Scottish mountains.

***Hieracium mundum*** P. D. Sell & C. West, *sp. nov.*

HOLOTYPE: On flat rocks at c. 580 m, south-east of Loch a' Choire Ghranda, Beinn Dearg, East Ross, v.c. 106, GR NH/273.893, 27 July 1967, R. W. Jones & B. A. Miles no. 67/86 (CGE).

Ab *Hieracio leptodonti* P. D. Sell & D. J. Tennant (quod facie simulat) facie ubique generaliter minus dense pilosa, foliis minus pruinosis, involucri squamis minus acutis pilisque glanduliferis aliquot manifestis vestitis, ligulis intensius flavis; ab *H. perscito* P. D. Sell & C. West foliis basalibus angustioribus coriaceioribus ellipticis, exterioribus ad basin minus late cuneatis, folio caulino infimo dentibus longioribus spinulatis ornato, involucri squamis pilis glanduliferis paucis manifestis vestitis, pilis brevissimis aliquot vel multis ad ligularum apices protrudentibus; ab *H. subglobo* P. D. Sell & C. West foliis basalibus angustioribus, folio caulino infimo majore latiore spinuloserrato, involucri squamis obtusioribus, ligulis intensius flavis pilosioribusque; ab *H. eximio* Backh. planta tota valde rubriusculoviolaceotincta, foliis coriaceioribus minus dense pilosis, folio caulino infimo spinuloserrato, involucri squamis obtusioribus pilisque glanduliferis manifestis vestitis, ligulis intensius flavis distinguitur.

*Planta* phyllopora. *Caulis* 7-24(-30) cm altus, graciliusculus vel subrobustus, saepe flexuosus, ad



basin valde rubriusculoviolaceotinctus, ubique pilis simplicibus eglanduliferis paucis vel numerosis brevibus mediocribusque longisque gracilibus sinuosis albis vel aliquantum griseisculis ad bases incrassatas nigriusculis (in parte inferiore saepe densis longissimis sinuosissimis interdum retrorsis, in parte superiore minus densis mediocribus vel longis patentibus), in parte inferiore pilis glanduliferis paucissimis brevissimis obscuris, in parte superiore numerosis vel densis, ubique pilis stellatis numerosis, in parte superiore saepe densis. *Folia* aliquantum triste mediocriter vel intensiuscule viridia, in pagina superiore hebetata vel paulo modo nitida, in pagina inferiore pallidiora plerumque valde rubriusculoviolaceotincta vel maculata, praecipue in costa marginibusque dentibusque; folia basalia pauca vel numerosa, exteriora 6–55 mm longa, 4–23 mm lata, pleraque subrotunda vel elliptica, ad apicem rotundo-obtusa, plerumque denticulata, interdum dentata, ad basin cuneata, interiora 20–80 mm longa, 6–20 mm lata, rigidiuscula et subcoriacea, saepe subcanaliculata, aliquantum undulata, lanceolata vel oblanceolata vel anguste elliptica, ad apicem magis minusve obtusa (vel intima acuta), serratodentata vel incisa, dentibus magis minusve regularibus vel irregularibus angustis saepe apiculatis, ad basin attenuata, omnia folia basalia in pagina superiore pilis simplicibus eglanduliferis numerosis mediocribus vel longis gracilibus subrigidis ad bases bulbosas pallidis vel discoloribus (in foliis exterioribus plerumque sparsis, in interioribus magis minusve densis) uniformiter dispersis vel versus et ad margines restrictis, in pagina inferiore pilis talibus paucis vel numerosis magis minusve uniformiter distributis brevibus vel mediocribus saepe nigricantibus, in utraque pagina et in marginibus pilis glanduliferis aliquot perbrevisis flaviusculis et saepe pilis stellatis paucis vestita; petioli plerumque breviusculi, raro longi, rigidi, magis minusve alati, rubriusculoviolaceotincti; folia caulina (2–)3–6(–7), infimum 10–75 mm longum, 1–14 mm latum, basalibus interioribus saepe simile (in plantis robustis saepe usque ad 4 folia grandia, fere ad basin caulis sita), patens, saepe undulatum, lineare vel linearilanceolatum, ad apicem acutum vel subacutum, serratum vel ordinate spinuloserratum, dentibus longis angustis rubriusculoviolaceotinctis, rarissime integrum, ad basin attenuatum, in pagina inferiore marginibusque pilis simplicibus eglanduliferis densis mediocribus vel longis gracilibus sinuosis nigricantibus, in pagina superiore plerumque nullis, in utraque pagina pilis stellatis aliquot (praecipue in costa) vestitus; petiolus alatus magis minusve amplexicaulis, pilis simplicibus eglanduliferis (basin versus densissimis) vestitus; folia caulina superiora parva acuta vel magis minusve bracteiformia. *Capitulum* plerumque solitarium, interdum ad 3, 25–40(–47) mm diametro; involucrium facie obscurissime viridiusculogrisea vel nigriusculogrisea, campanulatum, ad basin rotundatum; pedunculi (si adsunt) cauli superiori similiter vestiti. *Involucri squamae* ante anthesin incumbentes, atriusculovirides vel rubrotinctae vel brunneotinctae; omnes pilis simplicibus eglanduliferis numerosis brevissimis vel brevibus vel longis (ad 2.5 mm) gracilibus sinuosis albis vel aliquantum griseisculis nigricantibus, pilis glanduliferis numerosis brevissimis vel brevibus (ad 0.8 mm) obscuris, a pilis simplicibus eglanduliferis partim modo tectis, vestitae, sine pilis stellatis sed interiores ad apicem pilorum brevium caespite manifesto ornatae; squamae interiores 11–15 mm longae, 1.0–1.5 mm latae, magis minusve appressae, lineari-lanceolatae, ad apicem pleraeque subacutae vel nonnullae obtusoapiculatae, intimae abrupte acutae; squamae exteriores multo breviores, erectae, ad apicem obtusae. *Ligulae* uniformiter mediocriter vel intensiuscule flavae; exteriores latiusculae (ad 4.3 mm), ad apicem discretae et aliquantum vel profunde dentatae, haud profunde concavae, in pagina inferiore pilis simplicibus eglanduliferis paucissimis vel numerosis brevissimis vel brevibus pallidis vel aliquantum discoloribus vestitae, ad apicem pilis talibus aliquot vel multis brevissimis ultra dentium margines protrudentibus. *Styli* magis minusve uniformiter obscure viridiusculogrisei. *Receptaculi alveoli* margine breviter dentati. *Cypselae* 3–4 longae, purpureisculonigrae.  $2n = 36$ .

Rocky knolls, detritus and crevices in shelving rocks, less frequently cliff-ledges, on fine-grained quartz-biotite and other rock, between 425 and 760 m: on Fannich Forest hills, Braemore, and Beinn Dearg Range in West and East Ross (v.c. 105 and 106); on Carn Dearg in East Sutherland (v.c. 107); on Foinaven, on Ben Hope and near Glen Coul in West Sutherland (v.c. 108). Endemic.

***Hieracium optimum* P. D. Sell & C. West. sp. nov.**

HOLOTYPE: Beinn a' Chreachain, Argyll, v.c. 98, 9 July 1976, A. G. Kenneth no. 1276 (CGE).

Ab *Hieracio grovesii* Pugsley foliis basalibus minus dentatis et in pagina superiore pilis stellatis numerosissimis (sed in pagina inferiore aliquantum paucioribus) vestitis, folio caulino infimo saepe

major, involucri obscuriore, stylis obscuris differt. Ab omnibus aliis Sectionis *Alpinorum* speciebus britannicis pilis stellatis densissimis in utraque foliorum basium pagina distinguitur.

*Planta* phyllopoða. *Caulis* 15–30 cm altus, striatus, ad basin saepe rubriusculoviolaceus, in parte inferiore pilis simplicibus eglanduliferis sparsis brevibus vel longis albiusculis nigricantibus, pilis glanduliferis sparsis brevissimis flaviusculis, pilis stellatis paucis, in parte superiore pilis simplicibus eglanduliferis numerosis brevibus vel longis aliquantum griseiusculis nigricantibus, pilis glanduliferis numerosis brevissimis et aliquot brevibus flaviusculis et obscuris, pilis stellatis numerosis vestitus. *Folia* tristiuscule mediocriter vel intensiuscule viridia, saepe partim triste rubriusculoviolaceotincta vel suffusa; folia basalia exteriora 5–60 mm longa, 5–2.5 mm lata, subrotunda vel late ovata, ad apicem obtusomucronata, integra vel denticulata vel dentibus paucis haud profundis instructa, ad basin magis minusve cuneata, interiora 25–70 mm longa, 5–25 mm lata, plerumque late vel anguste elliptica, raro oblanceolata vel obovata, ad apicem obtusomucronata vel subacuta, integra vel denticulata vel dentibus paucis haud profundis acutis instructa, ad basin attenuata, in utraque pagina et in marginibus pilis simplicibus eglanduliferis brevibus vel mediocribus albis pallidibus vel nigricantibus (in paginis sparsis, in marginibus densioribus), pilis glanduliferis paucis vel multis brevissimis flaviusculis, pilis stellatis numerosissimis vel densis vestita; petioli interdum longi, pilis simplicibus eglanduliferis numerosis mediocribus vel longis albis vestiti; folia caulina 1–2(–3), infimum 10–70 mm longum, 4–10(–20) mm latum, oblanceolatum vel lanceolatum, ad apicem obtusum vel acutum, integrum, ad basin attenuatum, pilis simplicibus eglanduliferis pilisque glanduliferis brevissimis nonnullis, pilis stellatis numerosis (praecipue in pagina inferiore) vestitum, petiolo brevi instructum, cetera magis minusve bracteiformia et similiter vestita, unum saepe gemma rudimentali in axilla praeditum. *Capitulum* plerumque solitarium, interdum 2, circa 30–50 mm diametro; involucrium facie atriusculoviridi, campanulatum, ad basin late rotundatum, supra basin constrictum; pedunculi (si adsunt) cauli superiori similiter vestiti. *Involucra squamae* ante anthesin incumbentes, atriusculovirides; omnes pilis simplicibus eglanduliferis densis longis (ad 5 mm) sinuosis albis vel griseiusculis nigricantibus, pilis glanduliferis numerosis brevibus nigriusculistipitatis flavicapitatis, a pilis simplicibus eglanduliferis magis minusve omnino tectis, vestitae, sine pilis stellatis sed interiores ad apicem pilis ramosis brevibus nonnullis ornatae; squamae interiores 15–17 mm longae, 1.5–2.0 mm latae, appressae, latiuscule lineari-lanceolatae, ad apicem acutissimum magis minusve gradatim protractae; squamae exteriores breviores. *Ligulae* clare mediocriter vel intensiuscule flavae; exteriores ad apicem magis minusve discretae et profunde irregulariterque dentatae, concavae, in pagina inferiore pilis simplicibus eglanduliferis paucis vel multis brevissimis vel brevibus pallidis vestitae, ad apicem pilis aliquot brevibus ultra dentium margines protrudentibus. *Styli* obscuri. *Receptaculi alveoli* margine breviter dentati. *Cypselae* 3.5–4.0 mm longae, purpureiusculonigrae.

Rock-ledges on Dalradian mica-schist from 700 to 820 m, on Meall Buidhe and Beinn a' Chreachain in Argyll (v.c. 98). Endemic.

***Hieracium pensum* P. D. Sell & C. West, sp. nov.**

HOLOTYPE: East-facing cliffs of Coire Ghranda, Beinn Dearg, East Ross, v.c. 106, GR NH/267.806, 27 July 1967, R. W. Jones & B. A. Miles no. 67/84 (CGE).

Ab *Hieracio mundo* P. D. Sell & C. West foliis minus rigidis minus coriaceis minus pilosis, capitulo saepe majore pilisque glanduliferis manifestioribus ornato; ab *H. perscito* P. D. Sell & C. West capitulo multo majore pilisque glanduliferis manifestis multo paucioribus ornato; ab *H. subglobo* P. D. Sell & C. West statura robustiore, involucrio majore; ab *H. kennethii* P. D. Sell & D. J. Tennant foliorum pagina superiore glabra differt. A ceteris Sectionis *Alpinorum* speciebus britannicis aut distributione geographica aut stylis obscuris distinguitur.

*Planta* phyllopoða. *Caulis* 10–30 cm altus, mediocris vel robustus, saepe flexuosus, ad basin interdum rubriusculopurpureotinctus; in parte inferiore pilis simplicibus eglanduliferis numerosis vel aliquantum densis mediocribus vel longis gracilibus sinuosis albis nigricantibus, pilis glanduliferis paucis brevissimis plerumque pallidis, pilis stellatis aliquantum sparsis vestitus; in parte superiore pilis simplicibus eglanduliferis aliquot vel multis longis gracilibus griseiusculis nigricantibus, pilis glanduliferis numerosis brevissimis vel brevibus obscuris, pilis stellatis densis vestitus. *Folia* pallidiuscule vel mediocriter viridia, pruinam dilute caesiam ferentia, hebetata vel

paulo modo nitida, venis conspicuis ornata, in marginibus et ad apicem interdum leviter rubriusculoviolaceotincta; folia basalia satis numerosa, exteriora 10–50 mm longa, 8–27 mm lata, subrotunda vel obovata vel elliptica, ad apicem rotundo-obtusa, acute denticulata vel dentibus paucis haud profundis vel anguste mammiformibus instructa, ad basin cuneata, interiora 20–80 mm long, 8–30 mm lata, oblanceolata vel obovata vel elliptica raro ovata, non coriacea, plana vel paulo canaliculata, raro leviter undulata, ad apicem interdum tortum obtusa perspicueque mucronata vel subacuta cuspidataque, serrata, dentibus irregularibus patentibus vel retrorsis anguste mammiformibus interdum cuspidatis (aliquando in petiolum descendentibus), ad basin cuneata vel attenuata, omnia in marginibus pilis simplicibus eglanduliferis numerosis vel densis mediocribus vel longis vel longissimis gracilibus subrigidis sinuosis pallidibasibus vestita, pleraque in pagina superiore sine pilis simplicibus eglanduliferis praeter intima (quae interdum uniformiter vestiuntur), in pagina inferiore pilis simplicibus eglanduliferis brevibus vel longis sinuosissimis interdum nigricantibus modice et uniformiter vel in costa densius vestita, in pagina inferiore marginibusque pilis glanduliferis aliquot minutis flaviusculis vestita; petioli mediocres vel sublongi graciles alati, interdum dentibus paucis instructi, plerumque pilis simplicibus eglanduliferis densis longis sinuosis patentibus vel retrorsis vestiti; folia caulina (2–)3–5(–7), infimum 10–55(–110) mm longum, 2–20 mm latum, interdum prope caulis basin situm, magis minusve patens, interdum undulatum, oblanceolatum vel anguste ellipticum, ad apicem anguste acutum, saepe dentibus parvis angustis nonnullis instructum vel denticulatum, ad basin attenuatum saepe petiolatum, in marginibus pilis simplicibus eglanduliferis densis longis nigricantibus (ad basin densissimis longissimis sinuosis), in pagina superiore pilis talibus paucis vel nullis, in pagina inferiore pilis talibus dispersis, in costa marginibusque pilis stellatis paucis vel nullis vestitum, cetera folia caulina anguste elliptica vel linearia integra, vel summum bracteiforme, unum interdum gemma rudimentali in axilla praeditum. *Capitulum* plerumque solitarium, aliquando 2 vel plura vel cum altero a secundo caule e basi exoriente portato, 35–58 mm diametro; involucrium facie obscure viridiusculogrisea vel viridiusculonigra, campanulatum, ad basin late rotundatum; pedunculi (si adsunt) cauli superiori similiter vestiti. *Involucri squamae* ante anthesin incumbentes, viridiusculoatrae; omnes pilis simplicibus eglanduliferis densis longis (ad 3.5 mm) albis vel aliquantum griseiusculis nigricantibus, pilis glanduliferis numerosis brevissimis vel brevibus et paucis mediocribus (ad 1.0 mm) obscuris, a pilis simplicibus eglanduliferis partim modo tectis, vestitae, sine pilis stellatis, interiores ad apicem pilorum brevium caespite ornatae; squamae interiores 12–20 mm longae, 1.1–1.8 mm latae, aliquantum laxae paulo curvatae lineari-lanceolatae, ad apicem plerumque acutissimae; squamae exteriores laxae erectae aliquantum breviores, ad apicem abrupte acutae. *Ligulae* pallidiuscule vel mediocriter flavae; exteriores latae (ad 4.7 mm), ad apicem semidiscretae et profunde et saepe irregulariter dentatae, fere rectae, in pagina inferiore pilis simplicibus eglanduliferis paucis brevissimis pallidis vestitae vel nullis, ad apicem pilis talibus paucis vel aliquot brevissimis (et interdum paucis brevibus) ultra dentium margines protrudentibus. *Styli* uniformiter obscure viridiusculogrisei. *Receptaculi alveoli* margine breviter dentati. *Cypselae* 3.5–4.0 mm longae, purpureusculonigrae.  $2n = 36$ .

Cliff-ledges and large rocks, infrequently rock detritus, on quartz-biotite mica-schist and weathered microgranite between 520 and 915 m: on Beinn Dearg, Seana Bhragh and Fannich Forest and Braemore Forest hills in West and East Ross (v.cc. 105 and 106). Endemic.

***Hieracium persciturum* P. D. Sell & C. West, sp. nov.**

HOLOTYPE: Rocky knoll, c. 530 m, An Teallach, West Ross, v.c. 105, GR NH/082.864, 29 July 1978, A. G. Kenneth & P. D. Sell no. 78/337 (CGE).

*Hieracio hanburyi* Pugsley simillimum, a quo foliis basalibus ovatis vel lanceolatis plerumque dentibus minoribus regularioribus ornatis, folio caulino infimo patente, involucri minoribus angustioribusque et pilis eglanduliferis multo longioribus quam pilis glanduliferis vestitis, stylis valde obscurioribus distinguitur.

*Planta* phyllopada. *Caulis* 10–27 cm, plerumque gracilis, saepe flexuosus, infra pallide violaceotinctus, basin versus pilis simplicibus eglanduliferis plus minusve numerosis vel densis mediocribus et longis vel longissimis gracilibus sinuosis albis plerumque nigricantibus, in parte superiore pilis talibus dispersis vel sparsis brevibus vel longis gracillimis sinuosissimis, in parte inferiore pilis

glanduliferis dispersis brevissimis pallidis, in parte superiore pilis talibus numerosioribus brevissimis vel brevibus obscuris, in parte inferiore pilis stellatis dispersis, in parte superiore pilis talibus numerosioribus vestitus. *Folia* pallidiuscule vel clariuscule mediocriter viridia vel intensius triste glauciusculoviridia, dilute nitida vel hebetata, in utraque pagina et in marginibus plerumque sordidoviolaceotincta vel notata (vel in pagina inferiore pallidiora); folia basalia pauca vel aliquot, exteriora 5–40 mm longa, 8–25 mm lata, subrotunda vel late ovata vel late elliptica, ad apicem late rotundo-obtusa, integra vel denticulata vel haud profunde sinuatodentata, ad basin cuneata vel rotundata, interiora 15–50 mm longa, 6–20 mm lata, interdum leviter undulata, subrigida sed non (vel leviter modo) coriacea, ovata vel ovato-lanceolata vel elliptica, ad apicem rotundo-obtusa vel subacuta vel acuta saepe apiculata, remote denticulata vel irregulariter serratodentata, dentibus angustis vel latis saepe ascendentibus rubriusculoviolaceis mammiformibus, ad basin cuneata vel aliquando attenuata, folia basalia omnia pilis simplicibus eglanduliferis dispersis vel satis densis brevibus et mediocribus et aliquando longis gracilibus mollibus vel subrigidis sinuosus albis ad bases bulbosas pallidis vel obscuris (in foliorum interiorum pagina superiore saepe uniformiter distributis, in marginibus densis sinuosissimisque, in pagina inferiore aliquantum paucioribus sed in costa saepe densis; in foliis exterioribus sparsius distributis), in utraque pagina et in marginibus pilis glanduliferis paucis perbrevisis flaviusculis vestita; petioli plerumque breviusculi, graciles, ad basin saturate rubriusculoviolaceotincti, pilis simplicibus eglanduliferis numerosis vel densis longis vestiti; folia caulina (0)–1–3(–5), infimum 10–50(–70) mm longum, 2–15(–20) mm latum, rigide patens, saepe undulatum, ad trientem vel dimidium inter caulis basin et apicem positum, plerumque lanceolatum, aliquando anguste ovatum, saepe folia basalia intima simulans, ad apicem gradatim acutum vel acuminatum vel magis minusve cuspidatum, denticulatum vel irregulariter serratum, dentibus paucis acutis vel anguste mammiformibus, ad basin saepe sessilem aliquando petiolatam semiamplexicaulem cuneatum vel attenuatum, in pagina superiore pilis simplicibus eglanduliferis sparsis interdum nigricantibus, in pagina inferiore marginibusque pilis talibus densioribus, in pagina inferiore pilis stellatis nonnullis vestitum, folium a basi secundum semipatens lineare vel lineari-lanceolatum integrum sessile, vel bracteiforme, in pagina superiore glabrum, in pagina inferiore pilis stellatis densis vestitum, cetera folia caulina (si adsunt) perminuta filamentosa acuta appressa vel semipatentia, unum interdum gemma rudimentali in axilla praeditum. *Capitula* 1–2, 23–42 mm diametro; involucrium facie viridiusculonigra vel nigriuscula, anguste campanulatum, ad basin rotundatum vel subtruncatum; pedunculi (si adsunt) cauli superiori similiter vestiti. *Involucri squamae* ante anthesin incumbentes, atriusculovirides, interiores marginibus aliquantum pallidioribus; omnes pilis simplicibus eglanduliferis numerosis mediocribus vel longis (ad 2 mm) gracilibus aliquantum griseiusculis nigricantibus, pilis glanduliferis numerosis brevissimis brevibusque obscuris (quorum pauci a pilis simplicibus eglanduliferis teguntur), pilis stellatis paucis vel nullis vestitae sed interiores ad apicem pilorum brevium caespite ornatae; squamae interiores 10–13 mm longae, 1.2–1.7 mm latae, arcte appressae, latiuscule lineari-lanceolatae, ad apicem pleraeque obtusae nonnullae subacutae; squamae exteriores breviores, magis minusve appressae. *Ligulae* clare mediocriter flavae; exteriores ad apicem magis minusve discretae et profunde dentatae vel laciniatodentatae, rectae vel aliquantum concavae, in pagina inferiore pilis simplicibus eglanduliferis paucis vel nullis pallidis vestitae, ad apicem pilis talibus brevissimis paucis vel nullis ultra dentium margines protrudentibus. *Styli* obscure viridiusculogrisei. *Receptaculi alveoli* margine interdum fimbriatodentati. *Cypselae* 3.9–4.7 mm longae, purpureiusculonigrae.  $2n = 36$ .

Rocky knolls, from 530 to 760 m, on Torridonian Sandstone and Moine Schist: An Teallach Range, Ben More Coigach, Braemore Forest and Fannich Forest hills in West and East Ross (v.c. 105 and 106). Endemic.

***Hieracium probum* P. D. Sell & C. West, sp. nov.**

HOLOTYPE: Cliffs at north-west side of Coire Ardair, near Loch Laggan, Westernness, v.c. 97, GR NN/430.884, 25 July 1966, R. W. Jones & B. A. Miles no. 66/68 (CGE).

A speciebus omnibus britannicis *Hieracii* Sectionis *Alpinorum* stylis obscuris ornatis (praeter quasdam geographice disjunctas) caulibus folisque suis sparsius pilosis, involucri squamis minus acutis minusque sericeis, ligulis saturate flavis distinguitur.

*Planta* phyllopada. *Caulis* 13–35 cm altus, singularis vel interdum plures, gracilis vel robustus,

saepe flexuosus, valde striatus, in parte inferiore pilis simplicibus eglanduliferis pilisque glanduliferis pilisque stellatis sparsissimis, in parte superiore pilis simplicibus eglanduliferis paucis vel multis brevibus vel longis gracilibus sinuosis albusculis ad bases longas aliquantum tumidas nigris, pilis glanduliferis plus minusve numerosis brevissimis vel brevibus (ad 0.5 mm) nigriusculis, pilis stellatis sparsis vel densis vestitus. *Folia* pallidiuscule vel saturate tristiuscule viridia, subnitida vel hebetata, interdum subcoriacea, raro rubriusculoviolaceomaculata; folia basalia numerosa (8–14), exteriora 10–30 mm longa, 7–25 mm lata, interdum undulata, obovata vel subrotunda vel elliptica, ad apicem rotundo-obtusa interdum apiculata raro retusa, integra vel denticulata, ad basin attenuata vel cuneata vel subtruncata, interiora 35–70 mm longa, 13–25 mm lata, undulata, obovata vel oblanceolata vel elliptica, ad apicem saepe obtusa interdum subacuta plerumque apiculata leviterque torta, denticulata vel incisodentata vel serratodentata, dentibus irregularibus late vel anguste mammiformibus vel aquilinomammiformibus, ad basin cuneata vel attenuata, omnia in pagina superiore (vel modo ad vel prope margines) pilis simplicibus eglanduliferis paucis vel multis mediocribus vel longis (ad 2 mm) subrigidis sinuosis albis ad bases bulbosas pallidiusculis, in pagina inferiore pilis talibus paucis vel multis brevioribus magis minusve uniformiter distributis, in utraque pagina et in marginibus pilis glanduliferis paucis brevissimis gracilibus flaviusculis vestita; petioli aliquantum graciles, longi (ad 7 cm), late alati, interdum dentibus paucis instructi, ad basin rubriusculoviolacei, in marginibus pilis simplicibus eglanduliferis paucis vel multis mediocribus vel longiusculis interdum appressis vestiti vel fere glabri; folia caulina 1–3(–5), infimum 10–60 mm longum, 2–12 mm latum, erectum appressumque vel patens, interdum undulatum, anguste ellipticum vel lineari-oblanceolatum, ad apicem abupte acutum vel obtusum saepe tortum, subintegrum vel dentatum dentibus paucis, ad basin breviter cuneatum vel attenuatum interdum magis minusve petiolatum saepe alatum, in pagina superiore (saepe modo margines versus) pilis simplicibus eglanduliferis multis mediocribus pallidis, in pagina inferiore interdum pilis stellatis paucis vestitum, cetera folia caulina linearia abrupte acuta vel bracteiformia vel filamentosa erecta. *Capitulum* plerumque solitarium, interdum 2(–5), circa 35–45 mm diametro; involucrium facie obscure viridiusculogrisea vel viridiusculonigra, campanulatum vel late campanulatum; pedunculi (si adsunt) cauli superiori similiter vestiti. *Involucri squamae* ante anthesin incumbentes, atriusculovirides, interiores marginibus indistinctis pallidioribus; omnes pilis simplicibus eglanduliferis mediocribus vel longis (ad 3 mm) gracilibus pallidis vel aliquantum griseiusculis ad bases longas incrassatas nigris, pilis glanduliferis aliquot vel numerosis manifestis brevissimis vel brevibus (ad 0.4 mm) obscuris vestitae, sine pilis stellatis sed interiores ad apicem pilorum ramulosorum simpliciumque caespite definito ornatae; squamae interiores 15–17 mm longae, 1.0–1.7 mm latae, inaequales appressae linearilanceolatae, ad apicem interdum incurvatum plerumque abrupte acutae vel subacutae interdum obtusae vel acuminatae vel mucronatae, intimae saepe angustae acutae; squamae exteriores breviores appressae vel semilaxae. *Ligulae* saturate tristiuscule flavae; interiores densae; exteriores ad 4.2 mm latae, ad apicem discretae vel valde discretae, aliquantum concavae vel ad apicem profunde dentatum perspicue concavae, raro non evolutae (ad apicem convexae involutae), in paginae inferioris parte superiore pilis simplicibus eglanduliferis paucis pallidis vestitae vel nullis, pilis talibus paucis perbrevisis vel brevibus ultra dentium margines protrudentibus. *Styli* obscure viridiusculogrisei; stigmata aliquantum pallidiora. *Receptaculi alveoli* margine breviter dentati. *Cypselae* 3.2–4.2 mm longae, purpureiusculonigrae.  $2n = 36$ .

Rocks and ledges between 550 and 915 m: on hard mica-schist on Creagan Liatha, Stob Binnein and An Caisteal in West Perth (v.c. 87), on Cruach Ardrain in (?) Mid Perth (v.c. 88), and in Moy Corrie and Coire Ardair, both on Creag Meagaidh, and in the adjacent Coire nan Gall, Westernness (v.c. 97); on granitic rock on Aonach Mor and Aonach Beg, Westernness (v.c. 97); on Bidean nam Bian, Glen Coe, in Main Argyll (v.c. 98). Endemic.

***Hieracium subglobosum* P. D. Sell & C. West, sp. nov.**

HOLOTYPE: Cliff-ledges, c. 640 m, south of lochan in north-east corrie of Ben Hope, West Sutherland, v.c. 108, GR NC/484.503, 22 July 1966, *R. W. Jones & B. A. Miles no. 661/40 (CGE)*.

Ab *Hieracio globosifloro* Pugsley (quod est facie simillimum) statura saepe minore, foliis clarius viridibus, ligulis minus densis, stylis obscuris differt.

*Planta* phyllopoada. *Caulis* 6–20(–30) cm altus, gracilis vel mediocris, saepe flexuosus, ad basin

rubriusculoviolaceus, ubique pilis simplicibus eglanduliferis paucis vel multis brevibus mediocribusque longisque gracilibus sinuosis albis vel griseiusculis ad bases incrassatas nigriusculis, in parte inferiore pilis talibus dispersis pallidis interdum retrorsis, in parte superiore pilis talibus aliquot vel multis mediocribus vel longis (ad 4 mm) patentibus saepe griseiusculis ad bases longas nigris, in parte inferiore pilis glanduliferis dispersis brevissimis flaviusculis, in parte superiore pilis talibus numerosis vel densis brevibus mediocribusque (ad 1.0 mm) nigriusculis, in parte inferiore pilis stellatis dispersis, in parte superiore pilis talibus numerosis vel densis vestitus. *Folia* mediocriter saepe clare viridia, in pagina superiore nitida, in pagina inferiore pallidiora, saepe triste rubriusculoviolaceotincta (praecipue in pagina dentium marginumque superiore et in costa subtus); folia basalia aliquantum pauca vel numerosa, saepe parva, in foliorum satis regularium rosula, exteriora 3–50 mm longa, 3–25 mm lata, subrotunda vel ovata vel obovata, ad apicem late rotundo-obtusa, integra vel denticulata, ad basin cuneata, interiora 15–90 mm longa, 2–30 mm lata, aliquantum tenuia vel coriacea, aliquando canaliculata, anguste vel late elliptica vel obovato-lanceolata, ad apicem acuta vel obtusa saepe apiculata, subintegra vel denticulata interdum undulata vel irregulariter serratodentata vel incisa, dentibus aliquando magnis irregularissimis patentibus vel ascendentibus anguste mammiformibus vel aquilinomammiformibus, ad basin cuneata vel breviter attenuata, folia interiora in pagina superiore plerumque fere glabra sed versus et ad margines pilis simplicibus eglanduliferis aliquot vel numerosis mediocribus vel longis subrigidis albis ad bases bulbosas saepe discoloribus vel nigris (in foliis intimis pilis longioribus densioribusque), folia omnia in pagina inferiore pilis talibus dispersis mollioribus (in costa densis), in utraque pagina pilis glanduliferis paucis brevissimis flaviusculis (in marginibus nonnullis) pilisque ramosis paucissimis brevissimis vestita; petioli breves vel longi, graciles, saepe basin versus rubriusculoviolaceotincti, in marginibus interdum dentibus paucis pilisque simplicibus eglanduliferis dispersis vel densis (praecipue basin versus) mediocribus vel longis subrigidis interdum sinuosis ornati; folia caulina (0–)1–3(–5), infimum 6–60 mm longum, 1–7 mm latum, semipatens vel erectum, lineari-ellipticum, ad apicem attenuatoacutum vel rarissime obtusum, plerumque integrum raro remote denticulatum vel dentibus paucis acutis ornatum, ad basin attenuatum, in pagina superiore glabrum, in marginibus et pagina inferiore pilis simplicibus eglanduliferis mediocribus subrigidis saepe nigricantibus (basin versus longis saepe densis) pilisque stellatis dispersis vestitum, cetera folia caulina parva acuta vel filamentosa vel bracteiformia appressa. *Capitulum* solitarium, saepe parvum, raro 2, 25–40 mm diametro; involucrium facie nigriuscula vel raro obscure viridiusculogrisea, campanulatum vel anguste campanulatum, in pedunculum decrescens, sed ad basin rotundatum, supra basin constrictum; pedunculi (si adsunt) cauli superiori similiter vestiti. *Involucris squamae* ante anthesin incumbentes, atriusculovirides, interiorum nonnullae marginibus inconspicuis viridiusculis; omnes pilis simplicibus eglanduliferis aliquot vel densis mediocribus vel longiusculis (ad 4 mm) patentibus sinuosis albis vel frequentius griseiusculis ad bases longissimas incrassatas nigris, pilis glanduliferis numerosis brevissimis pallidis et brevibus nigriusculis, a pilis simplicibus eglanduliferis partim modo tectis, sine pilis stellatis sed ad apicem pilis ramosis nonnullis brevibus vestitae; squamae interiores 9–16 mm longae, 0.9–1.7 mm latae, inaequales, saepe curvatae, raro numerosissimae, satis arcte appressae, lineari-lanceolatae, intimae angustissimae, ad apicem acutissimum vel acuminatum attenuatae, raro subacutae vel obtusae; squamae exteriores breviusculae, erectae, ad apicem acutae. *Ligulae* clare pallide flavae, raro mediocriter flavae; exteriores ad apicem saepe valde discretae et profunde interdumque irregulariter dentatae, rectae vel haud profunde concavae, sine pilis vel interdum pilis simplicibus eglanduliferis paucissimis brevibus pallidis in pagina inferiore vestitae et aliquando pilis talibus paucis brevissimis magis minusve griseiusculis ultra dentium margines protrudentibus. *Styli* magis minusve uniformiter obscurissime grisei vel mediocriter viridiusculogrisei. *Receptaculi alveoli* margine breviter dentati. *Cypselae* 3.5–4.2 mm longae, purpureiusculonigrae.  $2n = 27$ .

Mainly on gentle rocky slopes or rocky knolls, occasionally on rock-ledges, on Moine and other schists, quartzite, microgranite and Torridonian Sandstone, usually between 550 and 850 m, but descending to 350 m just south of Cape Wrath. Widespread in the north-western Highlands, but often local in its individual localities: near Loch Cluanie and in Glen Affric and Glen Cannich near the western border of Easternness (v.c. 96), and on several hills in the northern part of Westernness (v.c. 97); on numerous hills in West Ross (v.c. 105) and several in East Ross (v.c. 106) including Seana Bhragh and Beinn Dearg and in Glen Carron (Achnasheen); on hills south and east of Loch More in East Sutherland (v.c. 107) and many hills throughout West Sutherland (v.c. 108). Endemic.

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