

- Tyler, T. and Jönsson, J. 2009. Ploidy analysis of apomictic *Hieracium* (Asteraceae) reveal unexpected patterns and variation. – Nord. J. Bot. 27: 490–502.
- Tyler, T. and Jönsson, J. 2012. Patterns of plastid and nuclear variation among apomictic polyploids of *Hieracium*: evolutionary processes and taxonomic implications. – Ann. Bot. 111: 591–609.
- Tyler, T. and Sennikov, A. S. 2015. Typification of species of *Hieracium* s. str. described by Norrlin from central Scandinavia. – Ann. Bot. Fenn. 52: 46–52.
- Wainio, E. A. [Vainio] 1878. Kasvistonsuhteista Pohjais-Suomen ja Venäl Scandialan rajaseuduilla. – Helsinki.
- Westerlund, C.G. 1890. Bidrag till kännedomen om Ronnebytraktens fauna och Flora. – Stockholm.
- Wiinstedt, K. 1922. *Hieracium*. – In: Raunkiær, C. (ed.), Dansk Ekskursionsflora, ed. 4.
- Wiinstedt, K. 1939. Nogle nye Hieraciumarter i Danmark. – Dansk Bot. Arkiv. 9: 10.
- Zahn, K. H. 1921–1923. *Hieracium*. – In: Engler, A. (ed), Das Pflanzenreich IV: 280. Leipzig. (pp. 1–576 4. Feb. 1921, pp. 577–1146 18. Oct. 1921, pp. 1147–1705 27. Feb. 1923).

Appendix 2

Nomenclatural checklist of Swedish *Hieracium* sect. *Vulgata*

The correct names of all accepted species are given in alphabetical order. Species believed to be relatively recent introductions to Sweden are marked (omplectens. Oxonii: e prelo Clarendoniano. Iwn and therefore only provisionally accepted (mostly stenoendemics and species known from very few preserved specimens) are marked (*).

All epithets published at the rank of variety and above are included, but many names published at the rank of forma are omitted since this rank has frequently been used to denote single monstrous specimens only. Nomenclaturally unavailable names (e.g. 'nom. nud.', 'nom. illeg. superfl.', 'ined.' etc.) are also included if they have been used in important exsiccates or herbarium collections. However, if validly published, for each epithet only combinations at the rank of species (and its basionym, if any) are included. Thus, there may be numerous additional combinations at lower ranks based on the same basionym that are not mentioned in this list. Likewise, combinations originally not validly and effectively published (e.g. nomina nuda) that have subsequently been validated with the epithet unaltered are not included. Names listed as 'included lower taxa' refer to taxa that are barely distinct and not explicitly accepted, but the distinctness and taxonomic value of which have not always been evaluated.

When there is a lectotype (or holotype) it is referred to by the text on the label given within single citation marks (and its basionym, if any) are inen has been selected syntype material is indicated as interpreted from the original diagnosis, but names of collectors ("leg.") are only given if different from the author(s) of the name concerned. For names first published by Zahn, any duplicates of the material included in the various exsiccata distributed by Dahlstedt, Norrlin and Johansson may be considered as syntypes as there is no indication that any other Scandinavian material was available to, or studied by, Zahn, and the actual specimens/duplicates studied by him were most probably lost when parts of herbarium B was destroyed during World War II. These exsiccata specimens are here referred to by their volume [fascicle] and number, plus province (abbreviated according to Swedish standards) and parish (or equivalent) as given on the exsiccata labels.

All literature referred to is included in Appendix 1.

? *H. abradenium* Norrl. (1893 p. 33).

Type: from Finland, Ostrobothnia Kajanensis.

Swedish records for this species have been published, but I have found no vouchers and thus cannot confirm its presence in Sweden.

H. acidodontum Dahlst., in Johanss. (1902 p. 80).

Synonyms: *H. diaphanoides* subsp. *praecipuum* Dahlst. ex Zahn (1921 p. 352).

– *H. murorum* subsp. *decorosum* Dahlst. nom. nud. (1893b).

– *H. murorum* subsp. *decorum* Dahlst. nom. nud. (1891a exs IV:91).

Type: 'Vrml. Filipstad 28/7 1897 leg. K. Johansson' in S (accession S-VR-12692) (lectotype: Tyler 2007d). – *H. diaphanoides* subsp. *praecipuum*: Dahlst. Herb. Hierac. Scand. V: 67 (from Jmt: Duved & Hls: Söderhamn), XIII: 76–77 (from Hrj: Glöte in Linsell & Funäsdalsberget).

H. acriserratum Ohlsén (1947 p. 4).

Type: Vg: Nolhaga park, in S.

H. acrochristum Dahlst. ex Johanss. (1907b p. 46).

Synonym: *H. anfractum* subsp. *eurycybe* Dahlst. (1894a p. 150).

Type: 'Mpd. Nedansjö i Stöde s:n 5/7 1906. Leg. K. Johansson.' (lectotype, Tyler 2009b.). – *H. anfractum* subsp. *eurycybe*: 'Småland; Heljaryds ängar på inskränkt lokal (torr mark) 7/7 1884; K. Johansson' in S (lectotype, Tyler 2006a).

H. acroleucum (Stenstr.) Dahlst. (1892b exs. II: 75).

Basionym: *H. murorum* subsp. *acroleucum* Stenstr. (1889 p. 55).

Synonym: *H. striaticeps* (Dahlst. ex Stenstr.) Dahlst. (1899, exs. XI: 55), basionym: *H. murorum* subsp. *striaticeps* Dahlst. ex Stenstr. (1889 p. 56).

Type: 'Värmland, Gillberga socken, Gårdsjö (österut); 13/7 1885; K.O.E. Stenström' (lectotype, Tyler 2000). – *H. striaticeps*: 'Verml.: Borgviks sn., Löfåsen 6/7 1885 K.O.E. Stenström.' in S (accession S-VR-14063) (lectotype, Tyler 2007d).

H. acutellum (Zahn) Johanss. (1927 p. 53).

Basionym: *H. vulgatum* subsp. *acutellum* Zahn (1921 p. 385).

Synonym: *H. acutatum* Dahlst. nom. nud. (1893b), non Jord. (1857). – *H. badiellum* E.G. Almq. (1955 p. 179).

Type: Dahlst., Herb. Hierac. Scand. V: 72 (from Srm: Österhaninge & Västerhaninge). – *H. badiellum*: 'Upl.: Dannemora; 28/7 1890; H. Dahlstedt; *H. badiellum* Er. Almq; vide Sv. Bot. Tidsk. 1955; Orig.-ex' in S (lectotype, Tyler 2006a).

H. adampliatum (Dahlst.) Dahlst. (1903 exs. XV:71).

Basionym: *H. gothicum* subsp. *adampliatum* Dahlst. (1894a p. 185).

Type: 'Ög.: Åtvids s:n, Karstorp. 10/7 1889, H. Dahlstedt' in S (lectotype, Tyler 2004b).

H. adiposum (Dahlst.) Dahlst. ex Johanss. (1927 p. 53).

Basionym: *H. turbiniceps* subsp. *adiposum* Dahlst. (1894a p. 99).

Type: 'Östergötland Wist, Sturefors 7/7 1887 H. Dahlstedt' in S (lectotype, Tyler 2004b).

H. adventicium Ohlsén (1947 p. 4).

Type: Vg: Alingsås, Nolhaga park, Ragnar Ohlsén, 16/6 1938' in S (holotype).

H. ahlfvengrenii (Dahlst. ex Zahn) Dahlst. ex Johanss. (1927 p. 54).

Basionym: *H. diaphanoides* subsp. *ahlfvengrenii* Dahlst ex Zahn (1921 p. 359).

Type: Dahlst., Herb. Hierac. Scand. X: 59 (from Sk: Lund).

H. albatipes (Dahlst.) Dahlst. ex Johanss. (1927 p. 54).

Basionym: *H. murorum* subsp. *albatipes* Dahlst. (1892a p. 165).

Synonym: *H. poliochlorodes* auct.

Type: 'Skåne; V. Vram s:n, Linderödsåsen, 27/6 1891, G.O.A:n Malme' in S (lectotype, Tyler 2000).

H. almquistianum (Zahn) Johanss. (1927 p. 54).

Basionym: *H. vulgatum* subsp. *almquistianum* Zahn (1922 p. 1145), replaced synonym: *H. murorum* subsp. *violascens* Alm. ex Dahlst. (1892a, p. 164), non Borbás (1878).

Synonym: *H. vulgatum* var. *latifolium* Fr. p. min. p.

Type: 'Sk. Ignaberga kalkbrott; d. 15 juni 1890.; Leg. G.O. A:n.' in S (lectotype, Tyler 2000).

H. amorphophyllum Dahlst. ex Johanss. (1907c p. 41).

Synonym: *H. epimedium* subsp. *amorphophylloides* Zahn (1921–23 p. 808).

Type: Ång: gränsen till Nätra in Själevad; Hrj: Funäsdalsberget (Dahlst., Herb. Hier. Scand. XII: 91) & Glöte (Dahlst., Herb. Hier. Scand. XVII: 97–99). – *H. epimedium* subsp.

amorphophylloides: Dahlst., Herb. Hier. Scand. XII: 91 (from Hrj: Funäsdalsberget).

H. ampicentrum Johanss. & Sam. (1924 p. 142).

Type: 'Värmland, Gräsmarks sn. Sandnäs, äng nedanför Getkärnsklätten, 8/7 1909. leg. P.A. Larsson' in S (accession S-VR-12782) (lectotype, Tyler 2007d).

H. anderssonii T. Tyler (2016, this paper).

Type: 'Västergötland, Gärdhems sn, Trollhättan, c:a 2700 m S–SSV om Gärdhems kyrka. Parken SO om Velandas säteri. Ca 10 m NV om N. brofästet. Hagmark intill körväg N om damm. Koord. 6460.47 / 1295.98. 2005.06.29. Lennart Andersson (Eriksro) no. 206' (holotype: LD)

H. anfracticeps Johanss. (1902 p. 89).

Included lower taxa: Var. *deamplians* (Johanss.) Johanss. & Sam. (1923a p. 13), basionym: *H. deamplians* Johanss. (1902 p. 91).

Type: 'Dalarne: Boda, Västanå 16/7 1901 leg. ipse [K. Johansson].' in UPS (lectotype, Tyler 2009a). – Var. *deamplians*: 'Dlr. Rättvik, Sjurberg 13/7 1898 leg. ipse [K. Johansson].' in S (lectotype, Tyler 2009a).

H. anfractum (Fr.) Fr. (1856 p. 148), emend. Dahlst. (1894a).

Basionym: *H. vulgatum* var. *anfractum* Fr. (1848 p. 116).

Type: 'Elmås, Femsjö' in Herb. Laestadius in UPS (lectotype, Sennikov 2003). (N.B. the lectotype indicated by Tyler (2000) is unacceptable).

H. arnoldii T. Tyler (2008b p. 159)

Type: 'Hälsingland: granskog på f.d. inägomark vid ödegården Moräng, Bjuråker s:n. Leg. Torbjörn Tyler, Anders Bertilsson & Arnold Larsson 12 Jul 2006' in LD (holotype).

H. arrogans Johanss. (1909 p. 79).

Type: 'Mpd. Borgsjö, Julåsen 13/8 1907. Leg. E. Collinder' in S (lectotype, Tyler 2009b.).

****H. arrosom*** (Stenstr.) Johanss. & Sam. (1923–26 exs. 12).

Basionym: *H. silvaticum* subsp. *arrosom* Stenstr. (1889 p. 14).

Type: 'Värmland, Borgviks socken, Södra Borgvik, 23.06.1885, K.O.E. Stenström' in S (lectotype, Sennikov 2003).

H. atrocaeruleum Ohlsén (1947 p. 5).

Type: Vg: Alingsås, Nohaga park, in S.

H. atronitens (Dahlst.) Dahlst., in Lindm. (1918 p. 621).

Basionym: *H. anfractum* subsp. *atronitens* Dahlst. (1894a p. 158).

Synonyms: *H. subampliatum* (Dahlst.) Dahlst., in Lindm., (1918 p. 621), basionym: *H. anfractum* subsp. *subampliatum* Dahlst. (1894a p. 157).

– *H. lampocranum* Johanss. & Sam. (1920 p. 38).

– *H. anfractum* var. *latifolium* Lindeb. nom. nud. (1868–78, exs. 134).

– *H. murorum* subsp. *purpurascens* Dahlst. nom. nud. (1889, exs II: 66).

Included lower taxa: f. *piliferum* Johanss. (1927, p. 56).

Type: 'ÖG. Åtvids s:n, Slefringe; 12/7 1889, H. Dahlstedt' in S (lectotype, Tyler 2000). – *H. subampliatum*: 'Srm.: Kila s:n, Ålberga; 7. 1875.; S. Almquist' in S (lectotype, Tyler 2000). – *H. lampocranum*: 'Vsm: Skinnskatteberg, norrut 1/7 1918; leg. K. Johansson' in S (lectotype, Tyler 2006a). – f. *piliferum*: not clearly specified.

See also *H. stipatiforme*!

H. austriniforme Dahlst. ex Johanss. (1927 p. 56).

Synonym: *H. pinnatifidum* subsp. *scanicum* Dahlst. p. min. p. (1894a p. 89).

Type: 'Östergötland ad Slefringe paroeciae Åtvid in colle tiliis obsito locis fertilibus, 10/8 1889' (ex Dahlst., Hier. exsicc. II: 74) in S (lectotype, Tyler 2004b).

H. austrinum Stenstr. (1896 p. 38).

Synonym: *H. scanicum* (Dahlst.) Ley. (? , post 1896), basionym: *H. pinnatifidum* subsp. *scanicum* Dahlst. p. p. (1894a p. 89).

Type: 'Sk.: Röstånga s:n, Röstånga; 11/6 1890; K.O.E. Stenström' in S (lectotype, Tyler 2000).

H. automorphum Omang (1915 p. 163).

Synonyms: *H. amblylepium* Dahlst. nom. nud. (1893b).

– *H. vulgatum* subsp. *amblylepioides* Zahn p.p. (1921 p. 382).

– *H. subramosum* subsp. *euamblylepium* Zahn (1921 p. 460).

Type: from Norway. – *H. vulgatum* subsp. *amblylepioides*: Dahlst., Herb. Hierac. Scand. IV: 61 (from Jmt: Mörvikshummeln), V: 87 (from Jmt: Åreskutan) – *H. subramosum* subsp. *euamblylepium*: Dahlst., Herb. Hierac. Scand. XIX: 99-100 (from Hrij: Glöte in Linsell).

H. badiicolor Ohlsén (1947 p. 7).

Type: Vg: Alingsås, Nolhaga park, in S.

H. barbareifolium (Lönnr. ex Dahlst.) Johanss. (1897 p. 136).

Basionym: *H. anfractum* subsp. *barbareifolium* Lönnr. ex Dahlst. (1894a p. 152, '*barbareaefolium*').

Type: 'Småland in versuris graminosis herbiculis locis humidiusculis et siccioribus ad Bossgård paroeciae Gärdserum, 4/7 1889' (ex Dahlst., Hier. exsicc. II: 71) in S (lectotype, Tyler 2000).

H. barrimum (Johanss.) Dahlst. (1907 exs. XXI: 46–47).

Basionym: *H. leptogramnum* var. *barrimum* Johanss. (1902 p. 85).

Type: 'Suecia: Dalarne in colle calcareo sicco ad Grafrislet in monte Silfverberget par. Boda, 14–16/7 1900, leg. K. Johansson' (ex Dahlst., Herb. Hierac. Scand. XIV: 35) in S (lectotype, Tyler 2009a.).

H. basiserratum Johanss. (1909 p. 99).

Type: 'Mpd. Sundsvall, norra Stadsberget 27/8 1907. Leg. E. Collinder' in S (lectotype, Tyler 2009b.).

H. bogense Johanss. (1897 p. 98).

Type: 'Suecia: Gotland: loco aprico aperto ad Klinte par. Boge, 23/6 1894, leg. K. Johanson' (ex Dahlst., Herb. Hierac. Scand. IX: 57) in S (lectotype, Tyler 2004b).

H. cacuminatum (Dahlst.) Dahlst. (1899, exs. XI: 67).

Basionym: *H. anfractum* subsp. *cacuminatum* Dahlst. (1894a p. 151).

Type: 'Småland, Fagerhults socken in en trädbeväxt och bergig äng invid Fagerhults herrgård. 16/7 1883; K. J. Lönnroth' in S (lectotype, Tyler 2006a).

H. caespiticola Norrl. (1889 p. 110, 149).

Type: from Finland.

H. campylodon (Dahlst. ex Zahn) Johanss. & Sam. (1923–26, exs. 331).

Basionym: *H. vulgatum* subsp. *campylodon* Dahlst. ex Zahn (1921 p. 383).

Type: Dahlst., Herb. Hierac. Scand. II: 79 (from Srm: Sörgölsstugan in Stora Malm) & XI: 69 (from Srm: Kilen in Strängnäs).

H. canovittatum Ohlsén (1947 p. 7).

Type: Vg: Alingsås, Nolhaga park, in S.

H. causiatum Johanss. & Sam. (1923a p. 16).

Type: 'Dalarne: Transtrand, Mornäs (granlund) 29/7 1910. leg. Gunnar Samuelsson.' in S (lectotype, Tyler 2009a.).

H. ceramotum (Stenstr.) Dahlst. (1899, exs. XI: 78).

Basionym: *H. murorum* subsp. *ceramotum* Stenstr. (1889 p. 52).

Included lower taxa: Var. *phrixolepis* Johanss. (1902 p. 79).

Type: "Suecia: Värmland ad Kodråga paroeciæ Värmerud, 13/7 1888. Leg. K.O.E. Stenström" (ex Dahlst., Hier. exsicc. II: 82) in S (accession S-VR-12958) (lectotype, Tyler 2007d). – Var. *phrixolepis*: 'Dlr. Rättviks s:n, Lerdal 7/7 1898 Leg. K. Johansson.' in S (lectotype, Tyler 2009a.).

****H. chauliodon*** (Dahlst. ex Zahn) Dahlst. ex Johanss. (1927 p. 60).

Basionym: *H. angustatum* ssp. *chauliodon* Dahlst. ex Zahn (1921 p. 472).

Type: Dahlst., Herb. Hierac. Scand. X: 40 (from Jmt: Klövsjö).

H. chloocranum Johanss. (1902 p. 121).

Type: 'Dlr. Orsa s:n, Åberga, äng i skogskanten ofvanför landsvägen 9/7 1901, Leg. K. Johansson.' in S (lectotype, Tyler 2009a.).

H. chlorodes (Dahlst.) Dahlst. (1895, exs. IX: 66).

Basionym: *H. anfractum* subsp. *chlorodes* Dahlst. (1894a p. 148).

Type: 'Ö.G. Ydre, Sunds s:n, Broby; d 9/7 1883, Hugo Dahlstedt' in S (lectotype, Tyler 2000).

H. chloroleucum (Dahlst.) Dahlst. (1899, exs. XI: 54).

Basionym: *H. murorum* subsp. *chloroleucum* Dahlst. (1889, exs. I: 93).

Type: Norway: Bygdö, Malmön and Ulvön by Oslo, also cultivated in Hortus Bergianus.

H. chroocentrum (Dahlst. ex Zahn) T. Tyler (2016, this publication)

Basionym: *H. caesium* subsp. *chroocentrum* Dahlst. ex Zahn (Zahn 1921–23 p. 449).

Type: Dahlst. Herb. Hierac. Scand. XXIII: 73 (from Hvj: Storsjö)..

H. chrysophorum Sam., in Johanss. & Sam. (1923a p. 18).

Type: 'Dlr. Transtrand, Mornäs 15/7 1917 leg. K. Johansson' in S (lectotype, Tyler 2009a.).

H. chrysoprasium Wiinst. (1922 p. 319).

Type: 'Hansted Fredskov ved Horsens, 22/6 1921, leg. K. Wiinstedt' in C (holotype).

H. complexum Johanss. (1925 p. 486).

Type: 'Sdm Östertälje, Skärfsta, 6. 1896; Leg. O. Hagström; Det. K. Joh. 1924' in S (lectotype, Tyler 2006a).

H. concinnatum Ohlsén (1947 p. 8).

Type: Bl: Karlskrona, Villa Vik, leg. Hj. Hylander 1939, in S.

H. concretum (Dahlst. ex Zahn) Dahlst. ex Johanss. (1927 p. 61).

Basionym: *H. subramosum* subsp. *concretum* Dahlst. ex Zahn (1921 p. 459).

Synonym: *H. subramosum* subsp. *concretiforme* Dahlst. ex Zahn (1921 p. 459).

Type: Dahlst., Herb. Hierac. Scand. II: 95 (from Hrj: between Storherjeån and Snösvallen in Lillhärdal), X: 54 & XI: 89 (from Hrj: Stensåsen in Lillhärdal). – *H. subramosum* subsp. *concretiforme*: Dahlst., Herb. Hierac. Scand. X: 55 (from Hrj: Stensåsen in Lillhärdal), XV: 81 (from Hrj: Nordanhån in Lillhärdal).

H. confragifolium Johanss. (1907c p. 33).

Type: Ång: Mellansel and towards Nätra in Själeavad.

H. coniceps Dahlst. ex Johanss. & Sam. (1923 p. 19).

Type: 'Dlr. Lima: Risätra 22/7 1918 leg. K. Johansson.' in S (lectotype, Tyler 2009a.).

H. conspectum Ohlsén (1947 p. 9).

Type: Vg: Alingsås, Nohaga park, in S.

H. constringens Norrl. (1889 p. 111)

Replaced synonym: *H. orarium* subsp. *constrictum* Norrl. (1888 p. 108).

Synonyms: *H. subramosum* subsp. *semiconstringens* Dahlst. ex Zahn (1921 p. 464).

– *H. subramosum* subsp. *praetextum* Dahlst. ex Zahn (1921 p. 464).

Included lower taxa: Var. *alpestre* (Lindeb.) Johanss. (1909 p. 109), basionym: *H. caesium* var. *alpestre* Lindeb. (1874); based on the same type: *H. gravastellum* (Dahlst.) Elfst. (1890 p. 61), basionym: *H. murorum* subsp. *gravastellum* Dahlst. (1889 exs. 80–81).

– var. *malmeanum* Johanss. (1925 p. 487, 'Malmeanum').

Type: 'Norvegia, ad Stören 24/7 86' (ex Norrl., Hierac. Exsicc. I: 132a) in H (lectotype, Tyler & Sennikov 2015). – Var. *alpestre* & *H. gravastellum*: Lindeb., Hierac. Scand. exsicc. 61. – *H. subramosum* subsp. *semiconstringens*: Dahlst., Herb. Hierac. Scand. XII: 68 (from Hrj: Åsen in Lillherrdal) – *H. subramosum* subsp. *praetextum*: Dahlst., Herb. Hierac. Scand. IX: 53 (from Srm: Dunker). – Var. *malmeanum*: 'Upl. Bo: Rensätra, 17/7 1925; K. Johansson' in S (lectotype, Tyler 2006a).

H. continuum (Norrl. & H. Lindb. ex Zahn) Johanss. (1927 p. 62).

Basionym: *H. diaphanoides* subsp. *continuum* Norrl. & H. Lindb. ex Zahn (1921 p. 359).

Type: Norrl., Hierac. exsicc. IX: 86 (from Åland: Hammarland).

H. coriarium Johanss. (1909 p. 101).

Type: Mpd: Hafverö, leg. Nordlander.

H. cramiceps T. Tyler (2016, this publication).

Type: 'Lokal 414: vägskärning i granskog på grönsten i dalen V Lockeråsberg i Sunnemo s:n. RN: 66375 / 13801 (11D7g). 2005-07-07. Torbjörn Tyler & Owe Nilsson' (holotype: LD).

H. cruentifolium Dahlst. & Lüb., in Dahlst. (1894a p. 144).

Synonym: *H. vulgatum* Fr. (1817–1819 [1819] p. 128) nom. ambig. (ICBN Art. 57.1).

Type: 'Suecia: Blekinge loco aprico in prato ad Spjutsbygd, 28/6 1892; legg. M. Mellin & G. Puke; comm. H.G. Lübeck.' (ex Dahlst., Herb. Hierac. Scand. III: 98) in S (lectotype, Tyler 2002).
– *H. vulgatum*: 'Suecia: Blekinge, Spjutsbygd, 26.6.1892, Mellin & Puke, 28.6.1892' (ex Dahlst., Herb. Hierac. Scand. III: 98) in S (neotype, Greuter 2007).

H. ctenophyllum Ohlsén (1947 p. 10).

Type: Vg: Alingsås, Nolhaga park, in S.

H. cunctans (Johanss. ex Dahlst.) Johanss., in Johanss. & Sam (1923–26, exs. 76).

Basionym: *H. [macrotonum]* subsp. *cunctans* Johanss. ex Dahlst. (1894a p. 254).

Type: 'Suecia: Småland ad Tahe par Månsarp, in ericeto lapidoso loco aprico sicco, 23/7 1892.; leg. K. Johansson' (ex Dahlst., Herb. Hierac. Scand. IV: 37) in S (lectotype, Tyler 2002).

H. cuneolatum (Stenstr.) Dahlst. (1899, exs. XI: 84).

Basionym: *H. murorum* subsp. *cuneolatum* Stenstr. (1889 p 40).

Type: 'Värmland, Gillberga socken, Gårdsjö, Björkåsen. 8/7 1885. K.O.E. Stenström.' in S (accession S-VR-13043) (lectotype, Tyler 2007a).

H. cuspididentatum Ohlsén (1947 p. 11).

Type: Vg: Vårgårda säteri, in S.

H. daedalolepium (Dahlst.) Johanss. (1927 p. 63).

Basionym: *H. acroleucum* var. *daedalolepium* Dahlst. (1894a p. 71).

Type: 'Suecia: Gotland ad Kyrkljufves par. Vänge in prato inter frutices loco aperto duriusculo, 5/7 1890, leg. K. Johansson.' (ex Dahlst., Herb. Hierac. Scand. II: 65) in S (lectotype, Tyler 2004b).

H. dalicum Johanss. (1900 p. 49).

Synonym: *H. stenosphyrum* Omang (1905 p. 285).

Type: 'Dalsl. Dalskogs station 12/7 1899; leg. K. Johansson.' in S (lectotype, Tyler 2006a). – *H. stenosphyrum*: from Norway.

H. denigrans (Dahlst.) Johanss. (1927 p. 64).

Basionym: *H. tenebricosum* subsp. *denigrans* Dahlst. (1893a p. 151).

Type: 'Hab. inter Eskebäck et sacellum paroeciæ Fagerhult Smolandiae. 14/7 1883. Legi K. J. Lönnroth.' in S (lectotype, Tyler 2006a).

****H. deplumatum*** Johanss. (1927 p. 64).

Replaced synonym: *H. multiceps* var. *defloccatum* Johanss. (1914b p. 26).

Type: Jmt: Bräckeberget in Alsen.

H. diaphanoides Lindeb. (1882 p. 11).

Synonym: *H. murorum* var. *medium* Lindeb. (1874).

– *H. tenebrosum* Norrl. (1888 p. 106).

– *H. pellocranum* Johanss. (1907a p. 14).

– ? *H. leptogrammum* f. *striatellum* Dahlst. nom. nud. (1903 exs. XV: 62 & in Nordstedt 1903).

Included lower taxa: Var. *atricapillum* Lönnr. ex Dahlst. (1894a p. 167).

Type: 'Suec. Smol. et. OGoth. G.E. Hyltén-Cavallius et K. F. Dusén' (Ex. Lindeb., Hier. Scand. exsicc. 123), the left specimen, preserved separately in LD (lectotype, Tyler 2006a). – *H. tenebrosum*: 'Norvegia ad Singsaas, 18/7 86' (ex Norrl., Hierac. Exsicc. I: 129) in H (lectotype, Tyler & Sennikov 2015). – *H. pellocranum*: 'Gästrik. Torsåker s:n, Fors, vägkant öster om banan, 29/6 1904. Leg. K. Johansson.' (ex Johanss. & Sam., Hierac. Scand. exsicc. 86, with emended printed label) in S. (lectotype, Tyler 2009b.) – Var. *atricapillum*: 'Småland, Fagerhults socken vid vägen från gästgivaregården till Eskebäck nära gamla badhuset bland gräs och buskar. 14/7 1883. K. J. Lönnroth' in S (lectotype, Tyler 2006a).

**H. diaphanum* Fr. (1814-28 [1819] p. 75).

Type: 'Willköl Gästgifv. in Helleberga sn ... [?] 6 1818' in UPS (lectotype, Tyler 2006c).

H. dipterum (Dahlst. & Enander ex Zahn) Dahlst. & Enander ex Johanss. (1927 p. 65).

Basionym: *H. diaphanoides* subsp. *dipterum* Dahlst. & Enander ex Zahn (1921 p. 359).

Type: Dahlst., Herb. Hierac. Scand. XVII: 84–86 (from Hrj: Linsell).

H. dissomorphum (Dahlst. ex Zahn) Johanss. & Sam. (1923 p. 26).

Basionym: *H. diaphanoides* subsp. *dissomorphum* Dahlst. ex Zahn (1921 p. 354).

Synonym: *H. leptogrammum* var. *dissomorphum* Dahlst. p.p. nom. nud. (1907b exs. XXI: 44–45, sed non 1903 exs. XV: 61 (= *H. paeminosum*)).

Type: Dahlst., Herb. Hierac. Scand. XXI: 44–45 (from Hrj: Glöte in Linsell)

H. dolichorhachis Sam., in Johanss. & Sam. (1923 p. 27).

Type: 'Dalarne: Elfdalen, Däråberg 26.6.1906. leg. Gunnar Samuelsson.' in S (lectotype, Tyler 2009a).

H. drimyodon (Dahlst. ex Zahn) Dahlst. ex Johanss. (1927 p. 66).

Basionym: '*H. angustatum* subsp. *drimyodon* Dahlst. ex Zahn (1921–23 p. 471).

Type: Dahlst., Herb. Hierac. Scand. XXI: 28 (from Hrj: Tännäs).

H. duplicaticeps Folin (1928 p. 22).

Type: LyL: Jovattensån by Västansjö.

H. duplicatum (Almq. ex Dahlst.) Dahlst. (1893b, exs. IV: 58).

Basionym: *H. murorum* subsp. *duplicatum* Almq. ex Dahlst. (1891b p. 38).

Type: Jmt: Åreskutan, Tothummeln, Mörvikshummeln, Storlien and Renfjället, legg. Magnusson, Sundberg, & Elfstrand.

H. elongatifrons Omang (1903 p. 286).

Type: from Norway.

H. erithallum Johanss. & Sam. (1923 p. 28).

Type: 'Dlr. Transtrand, Kastarberget 11/7 1917 leg. K. Johansson' (ex Johanss. & Sam., Hierac. scand. exsicc. 236, with emended printed label) in S (lectotype, Tyler 2009a).

H. eustictum Dahlst. ex Omang (1901 p. 241).

Included lower taxa: Var. *multinodum* Johanss. & Sam. (1923 p. 31).

Type: from Norway. – Var. *multinodum*: 'Dlr. Orsa, Untorp 27/7 1908 leg. Gunnar

Samuelsson.' (Johanss. & Sam., Hierac. Scand. exsicc. 239, with emended printed label) in S (lectotype, Tyler 2009a).

***H. evae** T. Tyler (2004a p. 138).

Type: 'Hogrän, söder om anhalten på järnvägsvallen, 10/6 1937, E. Th. Fries' in S (holotype).

H. exsulans Ohlsén (1947 p. 12).

Type: Vg: Alingsås, Nohaga park, in S.

H. externum Ohlsén (1947 p. 13).

Type: Vg: Alingsås, Nohaga park, in S.

H. farreaticeps Dahlst., in Svenonius (1925 p. 478).

Type: Nb: Sävastön (leg. Svenonius?, 1922 & 1924) and Töre in Luleå (leg. Svenonius?, 1924).

H. fasciculare Fr. (1862 p. 21).

Synonym: *H. burseifolium* Fr. p. min. p. (1848 p. 115, '*burseaeifolium*').

Type: 'Christiania, in rupibus schistososis, Jul. leg. Blytt' (ex Fr., Herb. Norm. XII: 18) in UPS (lectotype, Sennikov 2003).

***H. femsioëense** Stenstr. (1896 p. 479).

Type: 'Sm.: Femsjö s:n, Valshult; 19/6 1890; K.O.E. Stenström' in S (lectotype, Tyler 2000).

***H. fuliginellum** Dahlst., in Svensson (1895 p. 26).

Type: LL: Ladnivare in Gellivare (leg. Hamner).

H. fuscoviolare Johanss. (1907c p. 36).

Synonym: *H. pilulaticeps* Johanss. (1907c p. 35).

Type: Ång: by Ö Faxälven in Helgum. – *H. pilulaticeps*: Ång: Ramsele; Edsele, Utanede; Helgum, Ö Faxälven; Mellansel.

H. grophosiceps Johanss., in Folin (1936 p. 48).

Type: 'Verml. Stafnäs s:n, vid norra sidan af St. Lesjön, på klippor med Ljung, 26/6 1899, leg. K. Johansson' (with additional labels with diagnoses in Johansson's hand) in S (accession S-VR-13415) (lectotype, Tyler 2007d).

H. guilielmi Johanss. & Sam., in Sam. (1922 p. 170. '*Guilielmi*').

Type: ÅsL: Laxbäckens by by Malgomaj in Vilhelmina, in S.

H. hemidiaphanum (Dahlst.) Brenner (1895 p. 29).

Basionym: *H. anfractum* subsp. *hemidiaphanum* Dahlst. (1894a p. 162).

Type: 'Östergötland in silvis umbrosis ad Grensholmen paroeciae Wånga, 9/7 1888.' (ex Dahlst., Hier. exsicc. I: 88) in S (lectotype, Tyler 2004b).

H. hemimaculatum T. Tyler (2016, this publication).

Type: 'Hl., Fjärås sn., Tjolöholm, lövbryn mot trädgård. 1297600 6369950. 10 juni 04 Kjell Georgson' in LD (holotype).

H. hispidiceps Dahlst. ex Johanss. & Sam. (1924 p. 144).

Type: Ång: Gånsvik on Härnön (legg. Johnsson & Lange).

H. hypoprasinum (Dahlst. ex Zahn) Dahlst. ex Johanss. (1927 p. 69).

Basionym: *H. subramosum* subsp. *hypoprasinum* Dahlst. ex Zahn (1921 p. 461).

Type: Dahlst., Herb. Hierac. Scand. XIV: 41 (from Dls: Bräcke in Edsleskog).

H. hypselophyes (Dahlst. ex Zahn) Dahlst. ex Johanss. (1927 p. 69).

Basionym: *H. levicaule* subsp. *hypselophyes* Dahlst. ex Zahn (1921 p. 404).

Type: Dahlst., Herb. Hierac. Scand. XXI: 24 (from Hls: Halla in Ängersjö).

H. imbricatiforme Johanss. & Sam. (1923a p. 34).

Type: 'Dlr. Transtrand, Millarsäteren 12/7 1917 leg ipse [K. Johansson]' in S (lectotype, Tyler 2009a).

H. imbricatum Lindeb. (1878, exs. 124).

Synonym: *H. eggedalense* Omang (1901 p. 231).

Type: Lindeb., Hier. Scand. exsicc. 124 (from Norway). – *H. eggedalense*: from Norway.

H. impressiforme (Dahlst.) Dahlst. (1896, exs. X: 43).

Basionym: *H. murorum* subsp. *impressiforme* Dahlst. (1892a p. 161).

Type: 'Sk. Oppmanna, Bokenäset.; d. 29 juni 1891; Leg. G.O. A:son Malme' in S (lectotype, Tyler 2000).

H. incurrens Saelan ex Norrl. (1889 p. 150).

Synonyms: *H. longilingua* Johanss. (1907b p. 35) [non Norrl. nom. nud. (1912a exs. XII: 45)].

– *H. dipterum* Dahlst. nom. nud. (1904c exs. XVII: 87).

– *H. vulgaticolor* Johanss. (1907c p. 32).

Type: from Finland (not specified). – *H. longilingua*: 'Mpd, Stöde, Nedansjö; 5/7 1906; Leg. K. Johansson' in S (lectotype, Tyler 2009b). – *H. vulgaticolor*: Ång: Ramsele.

H. infumatum Johanss. (1907 p. 34).

Type: 'Mpd. Alnö, Hörningsholm; 17/7 1904. Leg. Fale Ringius' in S (lectotype, Tyler 2009b).

H. inquilinum Ohlsén (1947 p. 14).

Type: Vg: Alingsås, Nohaga park, in S.

H. insertum Ohlsén (1947 p. 15).

Type: Vg: Alingsås, Nohaga park in S.

****H. interveniens*** (Dahlst.) Dahlst. (1893b, exs. IV: 41).

Basionym: *H. murorum* subsp. *interveniens* Dahlst. (1891a, exs. IV: 84).

Type: 'Suecia: Vestmanland prope Charlottenborg ad Kungsör locis subumbrocis, 17/7 1890. Leg. C. O. v. Porat.' (Dahlst., Hierac. exsicc. IV: 84) in S (lectotype, Tyler 2006a).

****H. isonomoum*** Johanss. & Sam. (1924 p. 145).

Type: 'Hall. Ullared: Hjärtared; 22/6 1920; K. Johansson' in S (lectotype, Tyler 2000).

H. jaeredense Johanss. & Sam. (1924 p. 146).

Type: 'Småland. Järeda: Nynäs, in margine viae, 28/6 1922; Leg. K. Johansson' (ex Johanss. & Sam., Hierac. Scand. exsicc. 256) in S (lectotype, Tyler 2000).

****H. kebnekaisense*** Dahlst., in Svensson (1895 p. 25).

Type: TL: Kebnekaisse.

H. koepingense Johanss. (1929 p. 334).

Type: 'Västmanl. Köping: Johannesdal 16/7 1928, K. Johansson' (Johanss. & Sam., Hierac. scand. exsiccata 477; with emended printed label) in S (lectotype, Tyler 2006a).

H. laetifolium (Dahlst. ex Zahn) Dahlst. ex Johanss. & Sam. (1923a p. 37).

Basionym: *H. angustatum* subsp. *laetifolium* Dahlst. ex Zahn (1921 p. 470).

Type: Dahlst., Herb. Hierac. Scand. II: 98 (from Hrj: Funäsdalsberget) & XXI: 10–11 (from Hrj: Funäsdalen).

H. lepidiceps (Dahlst.) Dahlst. (1900 exs. XII: 80).

Basionym: *H. irriguum* subsp. *lepidiceps* Dahlst. (1894a p. 128).

Synonyms: *H. murorum* subsp. *lepidum* Lönnr. ex Dahlst. nom. nud. (1892b, exs. II: 67–68). – *H. irriguum* subsp. *obscuriceps* Dahlst. (1894a p. 141).

Type: 'Småland, Gladhammars socken på en åkerren vid Thorsfall. 6/7 1883.; K.J. Lönnroth.; H. Dahlst. det.' in S (lectotype, Tyler 2000). – *H. irriguum* subsp. *obscuriceps*: Ög: Sund, and Adelsnäs, Karlstorp & Slefringe in Åtvid.

H. lepidiforme (Stenstr.) Johanss. (1927 p. 72).

Basionym: *H. murorum* subsp. *lepidiforme* Stenstr. (1889 p. 47).

Type: 'Dalsl.: Steneby s:n, Baldersnäs på ett litet berg. 25/7 1888, K. O. E. Stenström' in S (lectotype, Tyler 2006a).

H. lepidotum (Stenstr.) Dahlst. (1894a p. 113).

Basionym: *H. murorum* subsp. *lepidotum* Stenstr. (1889 p. 45).

Synonyms: *H. ericetorum* (Fr.) Dahlst., in Lindm. (1918), basionym: *H. lawsonii* var. *ericetorum* Fr. (1839 p. 47).

– *H. caligans* Johanss. (1927 p. 59), replaced synonym: *H. caligatum* (Dahlst.) Dahlst., in Lindm. (1918 p. 622) (non Arv.-Touv. & Gaut., 1897), basionym: *H. lepidotum* subsp. *caligatum* Dahlst. (1894a p. 115).

Type: 'Värmland, Gillberga socken, Odenstad, Ängen.; 10/7 1888, K.O.E. Stenström' in S (lectotype, Tyler 2000). – *H. ericetorum*: Fries Herb. Norm II: 15, Sm: Bålshult in Femsjö. *H. caligans*: 'Östergötland, Trehörna, Slangeryd; 13/7 1886; H. Dahlstedt' in S (lectotype, Tyler 2000).

H. lepidulum (Stenstr.) Dahlst. (1892b exs. II: 77).

Basionym: *H. murorum* subsp. *lepidulum* Stenstr. (1889 p. 50).

Type: 'Värmland, Gillberga socken; XVI 13/7, VII 12/7 1882; K.O.E. Stenström' in S (lectotype, Tyler 2000).

H. leptogrammum Dahlst., in Johanss. (1902 p. 82).

Synonym: *H. epimelas* Johanss. (1909 p. 92).

Included lower taxa: *F. bidentiforme* Dahlst., in Johanss. (1902 p. 83).

– Var. *macrescens* Dahlst. ex Zahn (1921 p. 360).

Type: Hrj: Långå and Tännäs. – *F. bidentiforme*: Hrj: by Funäsberget, Glöte in Linsell, and Dahlst., Herb. Hierac. Scand. XII: 85. – Var. *macrescens*: Dahlst., Herb. Hierac. Scand. XV: 60 (from Dlr: Foskvallen in Idre). – *H. epimelas*: 'Mpd. Stöde, Lillström; 3/7 1906. Leg. K. Johansson' in S (lectotype, Tyler 2009b).

H. leucodaedalum (Dahlst. ex Zahn) Dahlst. ex Johanss. & Sam. (1923a p. 42).

Basionym: *H. caesium* subsp. *leucodaedalum* Dahlst. ex Zahn (1921 p. 453).

Type: Dahlst., Herb. Hierac. Scand. XXIV: 73 (from Dlr: Åsbo in Falun).

H. leucotrachelum Johanss. (1902 p. 109).

Synonyms: *H. lampocranum* Johanss. var. *macrocolum* Johanss., in Johanss. & Sam. (1923 p. 39), replaced synonym: *H. vulgatum* subsp. *macrocolon* Johanss. ex Zahn (1921 p. 383).

– *H. villattingense* Johanss. (1914a p. 82).

– *H. isoptortum* Johanss. (1929 p. 333).

Type: 'Dlr. Smedjebacken, ängsbacke nordväst om byn 24/6 1901 Leg. K. Johansson.' in S (lectotype, Tyler 2009a). – var. *macrocolum*: 'Dlr. Ludvika 4/7 1898 leg. K. Johansson' in S (lectotype, Tyler 2009a). – *H. villattingense*: 'Sdm. Mellösa s:n, Nytorp; 19/6 1899; leg. K. Johansson.' (Johanss., Hierac. rar. exsicc. 100; with emended printed label) in S (lectotype, Tyler 2006a). – *H. isoptortum*: 'Östergötland. Mjölby: in pineto umbroso juxta oppidum 15/7 1927. Leg. K. Johansson.' (ex Johanss. & Sam., Hierac. Scand. exsicc. 476) in S (lectotype, Tyler 2004b).

H. linguiforme Dahlst. ex Johanss. (1907b p. 44).

Synonym: *H. intonsum* Dahlst. nom. nud. (1903, exs. XV: 66).

Included lower taxa: *F. consanguineum* (Dahlst. ex Zahn) Johanss. (1927 p. 73), basionym: *H. murorum* subsp. *consanguineum* Dahlst. ex Zahn (1921 p. 337).

Type: 'Medelpad: Stöde, Lillström; 3/7 1906; leg. C.A. Nordlander' in S (lectotype, Tyler 2009b). – *F. consanguineum*: Dahlst., Herb. Hierac. Scand. XXIII: 75 (from Jmt: Böle i Rätan).

H. longidens Ohlsén (1947 p. 17).

Type: Hls: Älrviks herrgård in Söderala, leg. Folin 1937, in S.

H. longilobum (Dahlst. ex Zahn) T. Tyler (2010a p. 3).

Basionym: *H. murorum* subsp. *longilobum* Dahlst. ex Zahn (1921–23 p. 297).

Type: Dahlst., Herb. Hierac. Scand. V: 85–86 (from Jmt: Storlien & Renfjället), XI: 94–95 (from Hlj: Funäsdalen), XXIII: 64 (from Hlj: Storsjö & Tännäs).

H. loriferum Johanss. (1907b p. 31).

Type: 'Mpd. Stöde, Lillström; 3/7 1906. Leg. K. Johansson' in S (lectotype, Tyler 2009b).

H. ludoviciense Johanss. (1905 p. 112).

Type: 'Dlr. Ludvika, söderut 7/7 1898 Leg. K. Johansson.' in S (lectotype, Tyler 2009a).

H. luebeckii (Dahlst.) Dahlst. ex Johanss. (1927 p. 75).

Basionym: *H. anfractum* subsp. *luebeckii* Dahlst., in Svanlund (1902 p. 109; '*Lübeckii*').

Type: 'Ronneby brunnsparck; 1892 8/8, leg. ipse; Dt determ.' (F. Svanlund, Herbarium Blekingiense) in LD (lectotype, Tyler 2000).

H. lugubre (Malme) Dahlst. (1896, exs. X: 47).

Basionym: *H. murorum* subsp. *lugubre* Malme [Andersson] (1890 p. 93).

Type: 'Suecia: Södermanland ad Brännkärr paroecia Stora Malm, ineunte Julio 1890.; Leg. Gustaf Andersson.' (Dahlst., Hierac. exsicc. IV: 79) in S (lectotype, Tyler 2000).

H. maciatum Ohlsén (1947 p. 18).

Type: Vg: Alingsås, Nolvaga park, in S.

H. macrocentrum (Johanss.) Johanss. (1902 p. 97).

Basionym: *H. acroleucum* var. *macrocentrum* Johanss. (1900 p. 56).

Type: 'Dlr. Mora, Färnäs 10/7 1898 leg. K. Johansson.' (Dahlst., Herb. Hierac. Scand. XII: 78, with emended printed label) in S (lectotype, Tyler 2009a).

H. maculato-ornatum T. Tyler (2016, this publication).

Type: 'Skåne: villapark med gräsfröinkomlingar vid en villa i Pålsjö, Helsingborg s:n. RN 130537/621965. T. Tyler no. 14046b, juni 2003' in LD (holotype).

H. maculatum auct.

Type: not identified (not from Scandinavia).

H. malacophyllum Ohlsén (1947 p. 19).

Type: Vg: Alingsås, Nolhaga park, in S.

H. marifugum (Johanss.) Johanss. (1927 p. 76).

Basionym: *H. infumatum* var. *marifugum* Johanss. (1914b p. 25).

Type: Jmt: Östersund; Åre & Dillne in Oviken.

H. mataeum Johanss. & Sam. (1923a p. 44).

Type: 'Dalarna: Transtrand, Hemfjället, granlund 18/7 1913. leg. Gunnar Samuelsson.' in S (lectotype, Tyler 2009a).

H. megalodon Dahlst. ex Johanss. (1907c p. 28).

Included lower taxa: Var. *falcatidens* Dahlst. ex Johanss. (1907c p. 30).

Type: Dahlst., Hierac. exs. II: 78 (from Jmt: Åreskutan) & Herb. Hierac. Scand. V: 69-70 (from Jmt: Åreskutan, Renfjället & Munsfjället) & XVII: 88 (from Hvj: Glöteåsen). – Var. *falcatidens*: 'Suecia: Helsingland ad Söderhamn in prato solo duriusculo, 24/7 1892. leg. A. Magnusson.' (Dahlst., Herb. Hierac. Scand. IV: 45) in S (lectotype, Tyler 2009b).

H. megavulgatum T. Tyler (2005a p. 490)

Replaced synonym: *H. subvulgatiforme* Schljakov (1989), non Wiinst. (1926), replaced synonym: *H. vulgatiforme* (Dahlst.) Brenner (1897 p. 9), non Arv.-Touv. (1872 p. 14), basionym: *H. vulgatum* subsp. *vulgatiforme* Dahlst. (1894 p. 81).

Type: 'Småland, Wisingsö vid sjöbranterna på gränsen mellan Stigby och Näs egor 4/8 1877; J.-E. Zetterstedt.' in S (lectotype, Tyler 2000).

H. mesopoliotrichum Ohlsén (1947 p. 20).

Type: Vg: Alingsås, Nolhaga park, in S.

H. microcymon Johanss. (1902 p. 123).

Type: 'Suecia: Dalarna in prato silvatico humidiusculo ad Stackmora par. Orsa, 27/7 1898, leg. K. Johansson.' (ex Dahlstedt, Herb. Hierac. Scand. XIV: 87) in S (lectotype, Tyler 2009a).

H. minuriens Dahlst., in Johanss. (1907c p. 27), emend. Johanss. (1927 p. 77).

Synonym: *H. chalybaeum* Dahlst. nom. nud. (1893b exs. IV:43), non Arv.-Touv. (1894).

Included lower taxa: Var. *vindelense* (Johanss.) Johanss. (1927 p. 77), basionym: *H. vindelense* Johanss. (1907c p. 24). – Var. *sublaetifolium* (Dahlst. ex Zahn) Johanss. (1927 p. 77), basionym: *H. levicaule* subsp. *sublaetifolium* Dahlst. ex Zahn (1921 p. 404).

Type: LL: Koskivare (leg. Sundberg). – Var. *vindelense*: Nb: Boden & Älvsbyn. – Var. *sublaetifolium*: Dahlst., Herb. Hierac. Scand. IV: 44 (from Nb: Gransjö).

H. multiceps (Dahlst.) Dahlst. ex Johanss. (1914b p. 25).

Basionym: *H. constringens* subsp. *multiceps* Dahlst., in Johanss. (1909 p. 109), replaced synonym: *H. caesium* subsp. *submulticeps* Zahn (1921 p. 450).

Type: 'Suecia: Herjedalen [sic!] par. Ängersjö in colle aprico prati Åstakten dicti 17/7 1903,

legg. H. Dahlstedt & M. Östman.' (Dahlst., Herb. Hierac. Scand. XIX: 89a) in S (lectotype, Tyler 2009b).

H. naevosiforme (Dahlst. ex Zahn) Dahlst. ex Johanss. (1927 p. 78).

Basionym: *H. subrigidum* subsp. *naevosiforme* Dahlst. ex Zahn (1921 p. 525).

Type: Dahlst., Herb. Hierac. Scand. XIV: 52 (from Dls: Bräcke in Edsleskog) & XVII: 92 (from Vrm: Storön in Tveta).

H. neopinnatifidum Pugsley (1946 p. 343).

Replaced synonym: *H. pinnatifidum* (Lönnr. ex Dahlst.) Dahlst. (1894a p. 88), non Willd. (1800), basionym: *H. murorum* subsp. *pinnatifidum* Lönnr. ex Dahlst. (1892 p. 163).

Synonyms: *H. vulgatum* var. *latifolium* Fr., in Ringius (1836 exs. II: 8),
– *H. vulgatum* var. *nemorosum* Lindeb. nom. nud. ([1868 ?], exs. 74).

Included lower taxa: *H. pinnatifidum* var. *vivarium* Lönnr. ex Dahlst. (1892 exs. II: 87–88).

Type: 'Sk. Vestra Vram på Linderödsåsen d. 27/8 1891; Leg. G.O. A...son Malme' in S (lectotype, Tyler 2000). – var. *vivarium*: 'Suecia: Gotland loco arido aprico as Vibble pr. Visby, 6/7 1890, leg. K. Johansson' (Dahlst., Herb. Hierac. Scand. II: 87) in S (lectotype, Tyler 2004b).

H. oblaqueatum Johanss. (1900 p. 43).

Synonyms: *H. diaphanoides* subsp. *lonchodontum* Dahlst. & Östman ex Zahn (1921 p. 352)
– *H. persbergense* Johanss. (1905 p. 114).

Type: 'Dalarne: par. Rättvik, Lerdal, in pratis hudiusculis [sic!] 11/7 1898 leg. K. Johansson.' (Dahlst., Herb. Hierac. Scand. XII: 88, with emended printed label), in S (lectotype, Tyler 2009a). – *H. persbergense*: 'Verml. Persbergs gruffält 25/6 1897 Leg. K. Johansson' in S (accession S-VR-13706) (lectotype, Tyler 2007d).

H. obrigens Johanss. & Sam. (1924 p. 147).

Type: 'Vrm. Nordmarkshyttan 30/6 1921, K. Johansson' (Johanss. & Sam., Hierac. Scand. exsicc. 266, with emended printed label) in S (accession S-VR-13617) (lectotype, Tyler 2007d).

H. oestmanii T. Tyler (2008b p. 155).

Type: 'Suecia: Herjedalen loco subumbroso in rupibus praeruptis "Digerbergsfliget" dictis par. Ängersjö, 22 Aug 1904, leg. M.Östman.' (Dahlst., Herb. Hierac. Scand. XXI: 46) (holotype in S, isotype in LD).

H. oinopolepis (Malme ex Dahlst.) Dahlst. (1896 exs. X: 60).

Basionym: *H. anfractum* subsp. *oinopolepis* Malme ex Dahlst. (1894a p. 155).

Included lower taxa: Var. *umbrigenum* (Dahlst.) Dahlst. ex Johanss. (1927 p. 79), basionym: *H. anfractum* var. *umbrigenum* Dahlst. (1894a p. 149), synonym: *H. vulgatum* var. *umbrosum* Lindeb. (1868–1878, exs. 73) nom. nud.

Type: 'Suecia: Södermanland in prato silvatico loco aperto ad Brännkärr par. Stora Malm, 28/6 1890,; leg. G. A:n Malme' (Dahlst., Herb. Hierac. Scand. X: 60) in S (lectotype, Tyler 2000). – Var. *umbrigenum*: Lindeb., Hierac. exs. 73. & Dahlst. Herb. Hier. Scand. II: 60.

H. oletatum (Johanss. & Sam.) T. Tyler (2005b p. 403).

Basionym: *H. incurrens* var. *oletatum* Johanss. & Sam. (1920 p. 37).

Synonym: *H. porphyrites* Dahlst. & Enander nom. nud., in Dahlst. (1906, exs. XVII: 89–90).

Type: 'Västmanland: Ljusnarsberg. Sunds Näset, björkbacke; 25/6 1910; leg. Gunnar Samuelsson' in S (lectotype, Tyler 2006a).

H. oligophyllum Norrl. (1888 p. 107).

Synonym: *H. impressum* (Norrl.) Dahlst. (1892b exs. III: 74), basionym: *H.* [sp. non indic.] subsp. *impressum* Norrl. (1889 p. 148 nota).

Type: 'Suecia ad Åre in devexo prati, 2/7 86' (Norrl., Hierac. Exsicc. I: 130) in H (lectotype, Tyler & Sennikov 2015).

H. oligostictum Ohlsén (1947 p. 21).

Type: BhG: Göteborg, Rödbo, Elesbo (leg. H. Fries 1937), in S.

****H. olliceptis*** Johanss. (1909 p. 70).

Type: 'Mpd, Njurunda, Galtström, 5/8 1908. Leg E. Collinder' in S (lectotype, Tyler 2009b).

H. opochloroides Johanss. & Sam. (1923a p. 50).

Type: 'Dalarne. Idre, Lillfjäten 31.7.1906. leg. Gunnar Samuelsson.' (Johanss. & Sam., Hierac. Scand. exsicc. 267, with emended printed label) in S (lectotype, Tyler 2009a).

H. opochlorum Johanss. & Sam. (1923a p. 51).

Type: 'Dlr. Idre, Ulandshögen (granlund) 8/8 1912 leg. Gunnar Samuelsson' (Johanss. & Sam., Hierac. Scand. exsicc. 268, with emended printed label) in S (lectotype, Tyler 2009a).

H. orarium Lindeb. (1872, exs. 85).

Type: Lindeb., Hierac. exsicc. 85. (from Norway).

H. ornatiforme (Dahlst. ex Zahn) Dahlst. ex Johanss. & Sam. (1923a p. 52).

Basionym: *H. diaphanoides* subsp. *ornatiforme* Dahlst. ex Zahn (1921 p. 360).

Type: Dahlst., Herb. Hierac. Scand. II: 71 (from Hls: Strand in Söderhamn) & V: 68 (from Hls: Blötängarna by Söderalavägen).

H. ornatum (Dahlst.) Dahlst. (1900 exs. XII: 86).

Basionym: *H. diaphanoides* subsp. *ornatum* Dahlst. (1894a p. 167).

Type: 'Sm. Forserum s:n, Alarp; d. 19/7 1888; Determ. Dahlst., Leg K. Johansson' in S (lectotype, Tyler 2000).

****H. orphnocephalum*** (Dahlst. ex Zahn) Dahlst. ex Johanss. (1927 p. 80).

Basionym: *H. diaphanoides* subsp. *orphnocephalum* Dahlst. ex Zahn (1921 p. 354).

Type: Dahlst., Herb. Hierac. Scand. XXIV: 78 (from Hlj: Funäsdalsberget).

H. orsense Johanss. (1902 p. 111).

Type: 'Suecia: Dalarne in prato humidiusculo prope Stackmora par. Orsa, 27/7 1898, leg. K. Johansson.' (Dahlst., Herb. Hierac. Scand. XIV: 51) in S (lectotype, Tyler 2009a).

H. orthocolon Johanss. (1900 p. 40).

Synonym: *H. caesium* subsp. *subreclinatum* Dahlst. ex Zahn (1921 p. 453).

Type: 'Suecia: Dalarne in colle sico prati silvatici ad Orsbeck par. Orsa, 27/7 1898., leg. K. Johansson.' (Dahlst., Herb. Hierac. Scand. XII: 89) in S (lectotype, Tyler 2009a).

H. paeminosum Johanss. & Sam. (1920 p. 44).

Type: 'Västmanland: Ljusnarsberg, Brattberg, björkbacke; 16/7 1909. leg. Gunnar Samuelsson' in S (lectotype, Tyler 2006a).

H. paralium Dahlst. ex Johanss. & Sam. (1924 p. 148).

Type: 'Sm. Järeda; vid ett torp v. om Fröreda 28/6 1922' (Johanss. & Sam., Hierac. Scand. exsicc. 271) in S (lectotype, Tyler 2000).

***H. paurophyllum** (Dahlst. ex Zahn) Dahlst. ex Johanss. (1927 p. 81).

Basionym: *H. subramosum* subsp. *paurophyllum* Dahlst. ex Zahn (1921 p. 466).

Type: Dahlst., Herb. Hierac. Scand. XIX: 98 (from Hrbj: Sällbackshån in Storsjö).

H. pertinacifolium Johanss. (1907c p. 37).

Type: Ång: Gala etc in Mo; Mellansel; Själevad.

H. phaedrophyllum Johanss. (1900 p. 53).

Type: 'Dlr. Rättvik, Utby 18/7 1898 leg. K. Johansson.' in S (lectotype, Tyler 2009a).

H. phaeodermum Johanss. & Sam., in Johanss. (1926 p. 336).

Type: 'Vrml. Eda: Åmotsfors, vid stationen, på väggkant och åkerren, 11/7 1924. K. Johansson' (Johanss. & Sam., Hierac. Scand. exsicc. 483, with emended printed label) in S (accession S-VR-13712) (lectotype, Tyler 2007d).

H. phaeopsis Dahlst. ex Johanss. & Sam. (1920 p. 46).

Type: 'Suecia: Vestmanland solo caespitoso humidiusculo in prato prope sacellum par. Grythytte, 13/7 1897, leg. K. Johansson' (Dahlst., Herb. Hierac. Scand. XI: 81) in S (lectotype, Tyler 2006a).

H. phaliotrichum Johanss. (1905 p. 116).

Type: 'Dlr, Ludvika, ängsbacke, sydost om bruket 4/7 1898 Leg. K. Johansson.' in S (lectotype, Tyler 2009a).

H. pholidotum (Stenstr.) Dahlst. (1903 exs. XV: 77).

Basionym: *H. murorum* subsp. *pholidotum* Stenstr. (1889 p. 46), replaced synonym: *H. cuspidatum* Lindeb. (1878 exs. 135), non Jord. (1857).

Synonym: *H. thyrsophorum* Omang (1903 p. 328).

Type: 'Norveg. med. occidental. in rupib. litoral. a Christiansund ad Throndhjem. Christiansund fine Julii Ipse et Joh. Lossius.' (Lindeb., Hierac. Scand. Exsicc. 135) preserved separately in LD (lectotype, Tyler 2007d). – *H. thyrsophorum*: from Norway.

H. phrygionium Johanss. (1905 p. 118).

Type: 'Sm. Hjelmserys s:n, N. Hetseryd; 27/6 1893; leg. K. Johansson' in S (lectotype, Tyler 2006a).

H. plicatum Lindeb. (1872, exs. 86).

Synonyms: *H. plicatiforme* (Dahlst.) Dahlst. ex Johanss. & Sam. (1920 p. 47), basionym: *H. subramosum* var. *plicatiforme* Dahlst. (1894a p. 104).

– *H. kuusamoëense* Vain. (1878 p. 26), included lower taxa: f. *ortovareense* Johanss. (1927 p. 71).

– *H. formicarium* Th. Fr. ex Elfstr. (1894 p. 28).

Type: 'Norveg. subalp. Land ad Sköjen et Torpen ad Hugeliängen C. Elgenstierna, ad Bränna ipse initio Aug.' (Lindeb., Hierac. exs. 86) preserved separately in LD (lectotype, Tyler 2004b). – *H. plicatiforme*: 'Ö.G. Svanshals, St. Kullen, Rosendalsängen d 24/6 1884 Hugo Dahlstedt' in S (lectotype, Tyler 2004b). – *H. kuusamoëense*: from Finland. – *F. ortovareense*: TL: Ortovare (leg. Nordström 1926).

H. polystilbum Johanss. (1914a p. 84).

Type: Ång: Säbrå (legg. Peters 1907, Stéenhoff 1909), Helgum in Säbrå (leg. Lange 1912); Stenhammar & Kappelsberg in Härnön (leg. Johnsson).

H. praepilulatum Johanss. (1902 p. 105).

Included lower taxa: Var. *ejuncescens* Johanss. (1909 p. 94).

Type: 'Dlr. Silfverberget, Grufriiset 22/7 1898 Leg. K. Johansson' in S (lectotype, Tyler 2009a).
– Var *ejuncescens*: Mpd: "några ställen på höjderna kring Ljungans dalgång".

H. praeviride Johanss. & Sam. (1923a p. 57).

Type: 'Dlr. By, Strandmora (björkbacke) 19/6 1911 leg. Gunnar Samuelsson' in S (lectotype, Tyler 2009a).

H. pristophyllum Johanss., in Johanss. & Sam. (1924 p. 149).

Synonyms: *H. angulatum* (Stenstr.) Dahlst. (1899 exs. XI: 85), non Brenner (1897), basionym: *H. murorum* subsp. *angulatum* Stenstr. (1889 p. 59).

– *H. irriguiforme* (Dahlst.) Dahlst. ex Johanss. (1927 p. 70), basionym: *H. irriguum* subsp. *irriguum* var. *irriguiforme* Dahlst., in Svanl. (1902 p. 108).

– *H. irriguiforme* var. *nettrabyense* Johanss. & Sam. (1924 p. 144).

Type: 'Östergötland. Jonsberg: Jonsbergs säteri, inter frutices, 28/7 1922. Leg. K. Johansson.' (Johanss. & Sam., Hierac. Scand. exsicc. 277) in S (lectotype, Tyler 2004b). – *H. angulatum*: 'Vrm.: Gillberga sn., Gårdsjö, S Ö. Torserud 11.7.1885' in S (accession S-VR-12836) (lectotype, Tyler 2007d). – *H. irriguiforme*: 'Bl. Ronneby brunnsparck; 15/7 1897 leg. ipse [F. Svanlund]' in LD (lectotype, Tyler 2000). – Var. *nettrabyense*: Bl: Skärva & Marielund in Nättraby (legg. Holmgren 1920 & Samuelsson).

H. progrediens Norrl., in Cajander (1906 p. 709).

Synonym: *H. leptogrammmum* var. *subuliginosum* Johanss. (1902 p. 84).

Type: from Finland. – *H. leptogrammmum* var. *subuliginosum*: 'Dlr. Orsa, Kallmora, fuktig löfäng 7/7 1901 Leg. K. Johansson.' in S (lectotype, Tyler 2009a).

H. prolatatum Johanss. (1897 p. 134).

Replaced synonym: *H. [caesium]* subsp. *meridionale* Dahlst. (p.p.) (1894a p. 252), also replaced by: *H. subramosum* subsp. *submeridionale* Zahn (1921 p. 464).

Type: 'Gotland ad Skäggs par. Vestkinde in prato humidiusculo locis apertis, 1892-06-29, leg. K. Johansson.' (Dahlst., Herb. Hierac. Scand. IV: 25) in S (lectotype, Sennikov 2003).

H. prolatescens Johanss. & Sam. (1924 p. 51).

Type: 'Småland. Oskarshamn, 29/6 1906.; Leg. E. Köhler.' (Johanss. & Sam., Hierac. Scand. exsicc.) in LD (lectotype, Tyler 2000).

H. prolinguatum Johanss. & Sam. (1924 p. 152).

Type: 'Upl.: Värmdön, Löfberga, 2/7 1906; Leg. G. O. Malme; determ. K. Joh. 1923' in S (lectotype, Tyler 2006a).

H. pseudodiaphanum (Dahlst.) Johanss. (1902 p. 88).

Basionym: *H. diaphanum* subsp. *diaphanum* var. *pseudodiaphanum* Dahlst. (1894a p. 172).

Synonyms: *H. murorum* subsp. *nigroglanduliferum* C.G. Westerl. (1890 p. 114).

– *H. jonsbergense* T. Tyler (2004a p. 138)

Type: 'Smål. Sommens järnvägsstation; /7 1883, Hugo Dahlstedt' in S (lectotype, Tyler 2000).
– *H. murorum* subsp. *nigroglanduliferum*: 'Ronneby, Helsobrunnen. 20/6 1890. Leg. C. G.

Westerlund' in S (lectotype, Tyler 2006a). – *H. jonsbergense*: 'Ög. Jonsberg: Gässlingbo 20/7 1899. J.A. Lewin' in S (holotype).

H. pseudoplicatum (Dahlst. ex Zahn) Johanss. (1927 p. 84).

Basionym: *H. subramosum* f. *pseudoplicatum* Dahlst. ex Zahn (1921 p. 458).

Type: Dahlst., Herb. Hierac. Scand. XV: 78 (from Vrm: Vångäng in Gillberga).

H. pubicuspis Johanss., in Johanss. & Sam. (1924 p. 152).

Synonyms: *H. violascens* var. *badioviolaceum* Johanss. ex Dahlst. (1894a p. 139).

– *H. irriguum* subsp. *bathylepium* Dahlst. p.p. (1894a p. 142).

Type: 'Ödestugu s:n, Elgaryd; 28/7 1892, leg. K. Johansson' in S (lectotype, Tyler 2000). – *H. violascens* var. *badioviolaceum*: 'Smål. Forserums s:n, Lättarp (torr löväng) 19/7 1888. K. Johansson' in S (lectotype, Tyler 2006a).

H. pumicatifolium Johanss. (1897 p. 102).

Synonym: *H. virenticeps* (Dahlst.) Dahlst. (1901a p. 40), basionym: *H. porrigens* subsp. *virenticeps* Dahlst. (1894a p. 53).

Type: 'Visby, Skogslund, 5.07.1895, K. Johansson' in S (lectotype, Sennikov 2003). – *H. virenticeps*: 'Östergötland in collibus et versuris humidiusculis prati silvatici sparssim crescens ad Skållerud par. Väderstad 10.VII.1886, H. Dahlstedt' (Dahlst., Herb. Hierac. Scand. II: 33) in S (lectotype, Sennikov 2003).

H. punctillaticeps Johanss. (1897 p. 136).

Replaced synonym: *H. irriguum* subsp. *frondosum* Lönnr. ex Dahlst. (1894a p. 134).

Type: 'Småland, Fagerhults socken invid en bergkulle in en trädbeväxt äng invid Fagerhults herrgård. 13/7 1883; K.J. Lönnroth.; H. Dahlst. det.' in S (lectotype, Tyler 2000).

H. punctillatum (Almq. ex Dahlst.) Johanss. (1927 p. 84).

Basionym: *H. pinnatifidum* subsp. *punctillatum* Almq. ex Dahlst. (1894a p. 93).

Type: 'Östergötland; Åtvids s:n, Adelsnäs; 7/7 1889, H. Dahlstedt' in S (lectotype, Tyler 2000).

H. ragnarii T. Tyler (2016, this publication).

Type: 'Dalsland, Dalskogs sn. 550 m VNV Halängen. Vägslänt vid väg 166. leg. 15/6 2009 Kjell Eriksson. 65204, 12943' in LD (holotype).

H. reclinatiforme (Dahlst.) Johanss. (1909 p. 89).

Basionym: *H. porrigens* subsp. *reclinatiforme* Dahlst. (1894a p. 63).

Type: 'Suecia: Helsingland, Söderhamn in monte Åsberget et locis adjacentibus arenosis, 5/7 1889. Leg. Axel Magnusson.' (Dahlst., Hierac. Exsicc. II: 57) in S (lectotype, Tyler 2009b).

H. respondens Johanss. (1909 p. 66).

Type: 'Medelpad: Stöde, Nedansjö 6/7 1907, leg C.A. Nordlander. det. K. Johansson.' in S (lectotype, Tyler 2009b).

H. resupinatum (Almq. ex Stenstr.) Dahlst. (1892b exs. II: 37).

Basionym: *H. murorum* subsp. *resupinatum* Almq. ex Stenstr. (1889 p. 58).

Included lower taxa: *F. pectinosum* (Dahlst.) Johanss. (1927 p. 85), basionym: *H. porrigens* subsp. *pectinosum* Dahlst. (1894 p. 60).

Type: 'Vermland, Borgviks socken, Löfåsen, 29.07.1885, K.O.E. Stenström' in S (lectotype, Sennikov 2003). – *F. pectinosum*: 'Vestmanland prope Skuggan ad Kungsör locis apertis, 24.VII.1890, C.O. v. Porat' (ex Dahlst., Hierac. exs. IV: 75) in S (lectotype, Sennikov 2003).

****H. retrorsum*** Folin (1928 p. 37).

Type: LyL: Västansjö by Jovattensån.

H. retusulum Ohlsén (1947 p. 22).

Type: Upl: Bondkyrka, Flottsund på en villatomt (leg. E. Almq. 1931, 1933, 1939) in S.

H. rhomboides (Stenstr.) Johanss. (1927 p. 85).

Basionym: *H. murorum* subsp. *alpestre* var. *rhomboides* Stenstr. (1889 p. 38).

Type: 'Värmland, Gillberga socken, Gårdsjö, Björkåsen. 7/7 1885. K.O.E. Stenström.' in S (accession S-VR-13905) (lectotype, Tyler 2007d).

H. saurotum Johanss. (1900 p. 52).

Type: 'Vsm. Norberg, ängsbit nära Klackbergs grufva; 30/7 1898; leg. K. Johansson' in S (lectotype, Tyler 2006a).

H. schlegelii Almq. ex Dahlst., in Johanss. (1902 p. 86).

Type: 'Suecia: Helsingland ad Kårböle in prato graminoso solo lapidoso, 25/7 1895, legg ipse & S.J. Enander' (Dahlst., Herb. Hierac. Scand. X: 64) in S (lectotype, Tyler 2009b).

H. schlyteri (Lindeb. ex Dahlst.) Johanss. (1902 p. 119).

Basionym: *H. subramosum* subsp. *schlyteri* Lindeb. ex Dahlst. (1894a p. 110 nota).

Type: 'Upl.: W. Löfsta s:n, Molneboparken; 25/7 1888. C. A. E. Lénström.' (with the later addition of a label in Dahlstedts hand with the same text) in S (lectotype, Tyler 2006a).

H. scotocranum (Johanss.) Johanss. (1902 p. 119).

Basionym: *H. subramosum* var. *scotocranum* Johanss. (1900 p. 59).

Type: 'Dlr. Orsa s:n, nära stackmore 27/7 1898 leg. K. Johansson.' (Dahlst., Herb. Hierac. Scand. XII: 79) in S (lectotype, Tyler 2009a).

H. scytophyllum Omang (1901 p. 235).

Synonyms: *H. caesium* subsp. *contortodes* Zahn (1921 p. 456).

– *H. coniertodes* Dahlst. nom. nud. (1896, exs. X: 38).

– *H. diachlorum* Dahlst. nom. nud. (1903, exs. XV: 56).

Type: from Norway. – *H. caesium* subsp. *contortodes*: Dahlst., Herb. Hierac. Scand. X: 38 (from Ög: Thorshag in Kvillinge).

H. semiornatum Dahlst. ex Ohlsén (1947 p. 23).

Type: 'Västergötland. Skallsjö, Nääs park 11/6 1943 Ragnar Ohlsén' (lectotype designated in this publication: S, acc. No S-ABH-1531. Isotype: LD).

H. separ Johanss. (1927 p. 86).

Validating diagnosis: Stenström (1889 p. 50) pro '*H. murorum* subsp. *irriguum* Fr.'

Type: 'Verml.: Gillberga sn. Gårdsjö norrut. 3/7 1885, K.O.E. Stenström.' in S (accession S-VR-13964) (lectotype, Tyler 2007d).

H. sillrense Johanss. (1909 p. 85).

Type: 'Mpd. Borgsjö s:n, Sillre nedanför gamla bron, 25/7 1907. Leg C.A. Nordlander' in S (lectotype, Tyler 2009b).

H. similigerum Johanss. (1902 p. 92).

Included lower taxa: Var. *majoriceps* Johanss. & Sam. (1923a p. 62), – Var. *oresignoum*

Johanss. (1902 p. 95), – Var. *subanthracinum* Johanss. & Sam. (1923a p. 63).

Type: the left individual plant on the sheet 'Dlr. Rättviks s:n, Lerdal, löfångar 25/7 1898 Leg. K. Johansson' (Dahlst., Herb. Hierac. Scand. XIV: 45, with emended printed label) in S (lectotype, Tyler 2009a). – Var. *oresignoum*: 'Suecia: Dalarne in prato silvatico in devexo australi montis Osmundsberget, 21/7 1898, leg. K. Johansson.' (Dahlst., Herb. Hierac. Scand. XIV: 46) in S (lectotype, Tyler 2009a). – Var. *majoriceps*: 'Dalarne: Säter, Tingsvallen, ängsbacke 19/6 1913. leg. Gunnar Samuelsson. det. K, Joh. 1917.' in S (lectotype, Tyler 2009a). – Var. *subanthracinum*: 'Dalarne: Säter, Karlsgårdarne 7/7 1910. leg. Gunnar Samuelsson. det. K. Joh. 1917.' in S (lectotype, Tyler 2009a).

H. smolandicum (Almq. ex Dahlst.) Dahlst., in Lindm. (1918 p. 623).

Basionym: *H. macrotonum* subsp. *smolandicum* Almq. ex Dahlst. (1894a p. 84).

Synonym: *H. rigidum* var. *crinita* Lönnr. (1882 p. 95).

Type: 'Sm. Öggestorp, Ljungarp d. 8 juli 1882, leg. K. Johansson' in S (lectotype, Tyler 2000).

H. stenocoloides Johanss. & Sam. (1923a p. 63).

Type: 'Dlr. Malung, Råberget 7/7 1917 leg. Gunnar Samuelsson.' (Johanss. & Sam., Hierac. Scand. exsicc. 288, with emended printed label) in S (lectotype, Tyler 2009a).

***H. stenocolum** Johanss. & Sam. (1923a p. 64).

Type: 'Dlr. Malung, Mo-Myckelberg 9/7 1917 leg. Gunnar Samuelsson' (Johanss. & Sam., Hierac. Scand. exsicc. 289, with emended printed label) in S (lectotype, Tyler 2009a).

? **H. stereophyton** Omang (1905 p. 288).

Type: from Norway.

Presence of this species in Sweden not confirmed.

H. stibeophyllum Dahlst. ex Johanss. & Sam. (1924 p. 154).

Type: 'Hall. Ullared: Fridhemsberg 25/6 1920' (Johanss. & Sam., Hierac. Scand. exsicc. 290; with emended printed label) in S (lectotype, Tyler 2006a).

? **H. stipatiforme** (Dahlst.) Dahlst. (1908 exs. XXIII: 57–58).

Basionym: *H. irriguum* subsp. *stipatiforme* Dahlst. in Nordst. (1903 p. 223).

Type: Vg: Trääsen in Sandhem (leg. Nordstedt) – sought for in vein in S & LD, probably lost. As applied by latter authors, this name is a synonym of either *H. atronitens* or *H. subatronitens*, but as the type appears to be lost neotypification might be the only possibility to fix its usage.

H. stipatum (Stenstr.) Omang, in Blytt (1906 p. 753)

Basionym: *H. murorum* subsp. *stipatum* Stenstr. (1889 p. 48).

Type: 'Värmland, Borgviks socken, Torserud, efter en dikeskant; 14/7 1885; K.O.E. Stenström' in S (lectotype, Tyler 2000).

H. storliense Norrl. (1888 p. 105).

Included lower taxa: Var. *pseudostorliense* (Johanss.) Johanss., in Johanss. & Sam. (1923a p. 66), basionym: *H. pseudostorliense* Johanss. (1909 p. 72), – Var. *similistorliense* Folin (1928 p. 39).

Type: 'Suecia, Jemtl. ad Storlien, 15/7 86, in clivo saxoso fertilior' (Norrl., Hierac. exsicc. I: 128b) in H (lectotype, Tyler & Sennikov 2015). – Var. *pseudostorliense*: 'Mpd, Stöde, Kärffsta, /7 1907. Leg. C.A. Nordlander' in S (lectotype, Tyler 2009b). – Var. *similistorliense*: LyL: Laxfjället, Gieravardo, N. Storfjället by Björkfors & Långfjället by Strimasund.

H. striatisquameum Ohlsén (1947 p. 24).

Type: Vg: Alingsås, Nolhaga allé, in S.

H. strimaëense Folin (1934 p. 20).

Type: LyL: Strimasund, Gräskovardo & Kåtaviken in Tärna.

H. subanfractum (Almq. ex Zahn) Almq. ex Johanss. (1927 p. 89).

Basionym: *H. vulgatum* subsp. *subanfractum* Almq. ex Zahn (1921 p. 386).

Type: Dahlst., Herb. Hierac. Scand. V: 65 (from Hls: Blötängarna in Söderhamn).

H. subarctoum Norrl. (1899 p. 557).

Synonyms: *H. praecipuiforme* Dahlst., in Birger (1904 p. 91),

– *H. acrogrammum* Omang (1910 p. 172).

– *H. congruens* (Norrl. ex Hamb.) Schljak. (1966), basionym: *H. sylvaticum* subsp. *congruens* Norrl. ex Hamb. (1897 p. 115), validating diagnosis: Norrlin (1889 p. 151) pro *H.* [sp. non indic.] *congruens*.

Included lower taxa: *F. dovrensiceps* Dahlst. ex Johanss. (1927 p. 89), – *F. leucostictum* (Dahlst. ex Zahn) Johanss. (1927 p. 89), basionym: *H. diaphanoides* subsp. *leucostictum* Dahlst. ex Zahn (1921 p. 301).

Type: 'Laponia ponojensis, ad promontorium Orlow, lerbrant vid udden Kenoverskoj, 3 verst v. om Pjalitza, 19/8 1889. leg. A. Osw. Kihlman' in H (lectotype proposed by A. Sennikov, but not yet formally published). – *F. dovrensiceps*: Dahlst., Herb. Hierac. Scand. IV: 50–52 (from Jmt: Åre & Renfjället) & X: 66 (from Jmt: Enafors). – *F. leucostictum*: Dahlst., Herb. Hierac. Scand. XI: 31 (from Hjr: O Småhamraforsen in Linsell). – *H. praecipuiforme*: Nb: Pajala, Esisaari holme in Torne älf 2/8 1902. – *H. congruens*: 'Ponojflodens nedre lopp, 5.9.1887, leg. J.A. Palmén' in H (lectotype proposed by A. Sennikov but not yet formally published).

H. subatronitens (Dahlst.) Dahlst. (1908 exs. XXIII: 56).

Basionym: *H. anfractum* subsp. *subatronitens* Dahlst., in Nordst. (1903 p. 226).

Included lower taxa: Var. *conturbans* Johanss. & Sam. (1924 p. 154).

Type: Vg: "Höganäs, Hulan under Smedstorp vid Tidån" (leg. Nordstedt), sought for in vein in S & LD, probably lost. – Var. *conturbans*: 'Smål. Femsjö: Ekornahult 18/7 1922; leg. K. Johansson' (Johanss. & Sam, Hierac. Scand. exsicc. no. 293, with emended printed label) in S (lectotype, Tyler 2006a).

H. subaustrinum Wiinst., in Raunk. (1922).

Type: 'Ludvigseje ved Hovedgård, 9/6 1920, leg. C. Wiinstedt' in C (holotype)

H. subedentatum Ohlsén (1947 p. 25).

Type: Vg: Alingsås, Nolhaga park, in S.

H. subglaucovirens Zahn ex Johanss. & Sam. (1923a p. 68).

Replaced synonym: *H. glaucovirens* (Dahlst. ex Stenstr.) Dahlst. (1892b exs. II: 66), non Jeanb. & Timb. (1883), basionym: *H. murorum* subsp. *glaucovirens* Dahlst. ex Stenstr. (1889 p. 55).

Synonym: *H. vulgatum* subsp. *subglaucovirens* Zahn (1921 p. 382) nom. illeg. superfl.

Type: 'Värmland in betuletis ad Löfåsen paroeciae Borgvik, 6.VII.1885. Leg. K. O. E. Stenström' (Dahlst., Hierac. exsicc. III: 48) in S (lectotype, Sennikov 2003).

H. subinquilinum Ohlsén (1947 p. 26).

Type: Vg: Alingsås, Nolhaga park, in S.

H. subirriguum (Dahlst.) Dahlst. (1899, exs. XI: 60).

Basionym: *H. murorum* subsp. *subirriguum* Dahlst., in Porat (1894 p. 42).

Synonym: ?*H. vagifrons* Johanss. & Sam. nom. nud.

Type: 'Suecia: Vestmanland ad Arboga in silva loco aperto, 20/6 1892. leg. C. O. von Porat' (Dahlst., Herb. Hierac. Scand. IV: 39) in S (lectotype, Tyler 2006a).

H. subnitidum Dahlst. ex T. Tyler (2004a p. 139).

Type: 'Norrköping: Torshag, Gransjön ad margin. silv. /7 1900 legit P. Olsson' in LD (holotype).

H. subpellucidum Norrl. (1888b index).

Validating diagnosis: Norrlin (1888 p. 104), pro *H.* [sp. non indic.] subsp. *subpellucidum*.

Synonym: *H. diaphanoides* subsp. *grammolepium* Dahlst. & Enander ex Zahn (1921 p. 359).

Type: 'Suecia, Åre (e locis diversis) /7 86' (Norrl., Hierac. Exsicc. I: 127), the right-hand specimen on this sheet in H (lectotype, Tyler & Sennikov 2015). – *H. diaphanoides* subsp. *grammolepium*: Dahlst., Herb. Hierac. Scand. XV: 65 (from Hrj: Glöte in Linsell).

H. subpilulatum (Johanss.) Johanss. & Sam. (1923 p. 70).

Basionym: *H. striaticeps* var. *subpilulatum* Johanss. (1902 p. 96).

Type: 'Suecia: Dalarne in margine agri ad "Fryksås fäbodan" par. Orsa, 11/7 1901, leg. K. Johansson' (Dahlst., Herb. Hierac. Scand. XIV: 49) in S (lectotype, Tyler 2009a).

H. subpunctillatum (Dahlst.) Dahlst. (1903 exs. XV: 72).

Basionym: *H. pinnatifidum* subsp. *subpunctillatum* Dahlst. (1894a p. 95).

Type: 'Östergötland ad Slefringe paroeciae Åtvid in quercetis herbidis locis humidiusculis subumbrosis, 11/7 1889' (Dahlst., Hierac. exsicc. II: 94) in S (lectotype, Tyler 2000).

H. subramosum Lönnr. (1882 p. 86).

Type: 'Småland i vägkilen vid Orrebäck in Madesjö socken 11/7 1882; K.J. Lönnroth' in S (lectotype, Tyler 2000).

H. subsilvaticum (Almq. ex Elfstr.) Dahlst. (1895 exs. IX: 72).

Basionym: *Hieracium glaucellum* subsp. *subsilvaticum* Almq. ex Elfstrand (1890 p. 66).

Type: Dahlst. Hier. Exsicc. III: 72 (from Jmt: Mörvikshummeln in Åre).

H. subsimile Norrl. (1889 p. 148).

Synonym: *H. reclinatum* (Almq. ex Dahlst.) Johanss. (1897 p. 264), basionym: *H. porrigens* subsp. *reclinatum* Almq. ex Dahlst. (1894a p. 61).

Type: from Åland. – *H. reclinatum*: 'Suecia: Vestmanland in Sandskogshagen locis lapidosis subumbrosis, (a) 12/7 1890 23/6 1890. Leg. C. O. v. Porat.' (Dahlst., Hierac. exsicc. IV: 76a) in S (lectotype, Sennikov 2003).

H. subterdentatum Johanss. & Sam. (1924 p. 155).

Type: 'Småland. Femsjö: Råhult, in prato frondoso 18/7 1922; leg. K. Johansson' in S (lectotype, Tyler 2000).

****H. subverniferum*** (Dahlst. & Enander ex Zahn) Dahlst. & Enander ex Johanss. (1927 p. 92).

Basionym: *H. caesium* subsp. *subverniferum* Dahlst. & Enander ex Zahn (1921 p. 455).

Type: Dahlst., Herb. Hierac. Scand. XVII: 79 (from Hrj: Tronäs in Linsell).

H. suppressum Folin (1928 p. 36).

Type: LyL: Yttervik & Tärnaby.

H. suriforme Johanss. & Sam. (1923a p. 71).

Type: 'Dalarne: Transtrand, Gusjön (skogskant) 24/7 1912. leg. Gunnar Samuelsson' (Johanss. & Sam., Hierac. Scand. exsicc. 298, with emended printed label) in S (lectotype, Tyler 2009a).

H. symmetricum Ohlsén (1947 p. 27).

Type: BhG: Göteborg, Rödbo, Ellesbo (leg. H. Fries 1937), in S, sought for in vein, probably lost.

H. taeniifolium Johanss. (1914a p. 85).

Type: 'Hälsingl. Bjuråkers s:n, Hedvigsfors bruk 11/7 1911. Leg. K. Johansson.' in S (lectotype, Tyler 2009b).

H. toerense Johanss. (1925 p. 487).

Type: 'Srm. Salem: Rönninge, i barrskog 30/7 1925. K. Johansson' in S (lectotype, Tyler 2006a).

H. trachlosimum Johanss. & Sam. (1923 p. 72).

Synonym: *H. trachlosimoides* Johanss. & Sam. (1923a p. 73).

Type: 'Dlr. Lima: Ö. Ärnäs 9/7 1918 leg. K. Johansson' in S (lectotype, Tyler 2009a). – *H. trachlosimoides*: 'Dlr. Lima: Östra Ärnäs 12/7 1918 leg. ipse [K. Johansson].' in S (lectotype, Tyler 2009a).

H. trichelliceptis Johanss. (1927 p. 92).

Replaced synonym: *H. trichellum* (Dahlst.) Johanss. & Sam. (1920 p. 50), non Arv.-Touv. (1913), basionym: *H. subramosum* subsp. *subramosum* var. *trichellum* Dahlst. (1894a p. 108).

Synonyms: *H. ferrimontanum* (Johanss.) Johanss., in Johanss. & Sam. (1920 p. 36), basionym: *H. subramosum* var. *ferrimontanum* Johanss. (1900 p. 57).

– *H. subramosum* subsp. *emmeles* Omang sensu Dahlst. (1911, exs. XXIV: 76).

– ? *H. ampliceptis* (Stenstr.) Johanss. (1927 p. 54), basionym: *H. murorum* subsp. *ampliceptis* Stenstr. (1889 p. 39).

– *H. celsum* Johanss. & Sam., in Johanss. (1929 p. 329).

Type: 'Värmland, Borgviks socken, Öfverud.; 7/7 1888; K.O.E. Stenström; determ. H. Dahlstedt' in S (lectotype, Tyler 2000). – *H. ferrimontanum*: 'Vsm, Grythytte s:n, Lönnhöjden; 3/7 1898; leg. K. Johansson' (Dahlst., Herb Hierac. Scand XII: 77, with emended printed label) in S (lectotype, Tyler 2006b). – *H. ampliceptis*: 'Wrml. Borgvik, 23/6 1885 leg. K.O.E. Stenström' in S (accession S-VR-12788) (lectotype, Tyler 2007d) – *H. celsum*: 'Vrml, Töcksmark: Töcksfors, in fossa glareosa, 2/7 1924. Leg. K. Johansson' (Johanss. & Sam., Hierac. Scand. exsicc. 411, with emended printed label) in S (accession S-VR-12950) (lectotype, Tyler 2007d).

H. tristicolor Ohlsén (1947 p. 28).

Type: Vg: Alingsås, Plantaget, in S.

H. triviale (Norrl.) Norrl., in Bergroth (1894 p. 77).

Basionym: *H. vulgatum* subsp. *triviale* Norrl. (1888 p. 104).

Synonym: *H. vulgatum* auct. Scand.

Type: from Finland.

H. turbiniceps Dahlst. (1894a p. 97).

Type: 'Suecia: Upland ad Dannemora in collibus et scopulis locis siccioribus in prato silvatico, 18/7 1890, legi ipse.' (Dahlst., Herb. Hierac. Scand. II: 56) in S (lectotype, Tyler 2006a).

H. varianifolium Johanss. (1897 p. 101).

Type: 'Katthammarsvik, strandvallar med gles tallskog, 1/7 1895, leg. K. Johansson' in S (lectotype, Tyler 2004b).

H. varianum Johanss. (1907b p. 36).

Synonym: *H. varianum* var. *varianiceps* (Johanss.) Johanss. (1927 p. 93), basionym: *H. varianiceps* Johanss. (1907b p. 38).

Type: 'Mpd. Stöde backar 1/7 1906. leg. K. Johansson' in S (lectotype, Tyler 2009b). – *H. varianiceps*: 'Mpd. Stöde, löfäng ofvanför stationen 1/7 1906 leg. K. Joh.' in S (lectotype, Tyler 2009b).

****H. vastulum*** Johanss. & Sam. (1924 p. 157).

Type: 'Hall. Ullared. Hjärtared, åkerren, 27/6 1920; K. Johansson' in S (lectotype, Tyler 2000).

H. vietulifolium (Johanss. & Sam.) T. Tyler (2016, this publication).

Basionym: *H. lepidiceps* var. *vietulifolium* Johanss. & Sam. (1924 p. 147).

Synonym: *H. irriguum* subsp. *bathylepium* Dahlst. p.p. (1894a p. 142).

Type: 'Södml. Länna bruk. 10/7 1899; Eugenè Köhler' in S (lectotype, Tyler 2006a).

****H. volutiferum*** Johanss. (1909 p. 74).

Type: Suecia: Medelpad in colle silvatico lapidoso ad Kärfsta par. Stöde, 3/8 1908. leg. C.A. Nordlander' (Dahlst., Herb. Hierac. Scand. XXIV: 85) in S (lectotype, Tyler 2009b).

H. xanthostylum (Dahlst.) Dahlst. ex Johanss. & Sam. (1920 p. 51).

Basionym: *H. subramosum* subsp. *subramosum* var. *xanthostylum* Dahlst. (1894a p. 105).

Type: 'Östergötland; V. Ryds s:n, Krämarbo 7. 1883, H. Dahlstedt' in S (lectotype, Tyler 2000).

H. xerampelinum Johanss. & Sam. (1924 p. 158).

Type: 'Vrml. N. Råda: Uddeholm (vägkant) 1/7 1921 K. Johansson' in S (accession S-VR-14484) (lectotype, Tyler 2007d).

Appendix 3

List of characters and character states used in the multivariate statistical analyses of *Hieracium* sect. *Bifida*, *Hieracium*, *Oreadea*, *Subalpina* and *Vulgata* (and for describing individual species).

Unless otherwise stated, (individual species).used in the multivariate statistical analysis cauline leaves in species without basal/rosette leaves) and are herein has been selected syntype material is indicated as interpreted from the literature. Intermediate values/character states also occasionally used to denote intermediate or variable character states.

0 Ploidy level

- 3 triploid
- 4 tetraploid
- 5 pentaploid

1 Petioles and basal part of stem; violet pigmentation

- 0 lacking (only the petioles sometimes with \pm violet stripes)
- 1 sometimes in the basal-most part
- 2 usually, at least in the basal-most part
- 3 \pm always, usually covering petioles and the lower third of the stem

2 Petioles and basal part of stem; subsetose indumentum (density)

- 0 sparse (\pm 0 on stem)
- 1 moderately abundant (restricted to basal-most part of stem)
- 2 dense (covering the lower third of the stem)
- 3 very dense (covering the lower half of the stem; petioles \pm woolly)

3 Petioles and basal part of stem; subsetose indumentum (length)

- 0 short (c. 2 mm)
- 1 moderate (2–3 mm)
- 2 long (3–4 mm)
- 3 very long (4–6 mm)
- 4 extreme (>6 mm)

4 Leaf lamina; color (green–blue pigments)

- 0 \pm yellowish pale green
- 1 \pm dark grass-green
- 2 slightly bluish (leek-green)
- 3 glaucous

5 Leaf lamina; \pm covering anthocyan (red–violet) pigmentation on lower or both surfaces

- 0 never
- 1 sometimes
- 2 \pm always on outer leaves

6 Upper surface of leaf lamina; brownish-violet spots/maculations

- 0 never present
- 1 developed when exposed to sun
- 2 \pm always present

7 Upper surface of leaf lamina; indumentum of simple hairs

- 0 ± 0
- 1 sparse and unevenly distributed
- 3 evenly but not densely distributed
- 4 evenly and relatively densely distributed

8 Leaf lamina; length:width ratio (excluding teeth)

- 0 < 1.8
- 1 1.8–2.3
- 2 2.3–2.8
- 3 2.8–3.3
- 4 3.3–4
- 5 4–5
- 6 > 5

9 Leaf lamina; position of largest width

- 0 below the middle (ovate–lanceolate in outline)
- 2 close to the middle (elliptic–oblong–linear in outline)
- 4 above the middle (obovate–oblanceolate in outline)

10 Leaf lamina; shape of the base

- 0 cordate–hastate
- 1 truncate
- 2 rounded
- 3 attenuate
- 4 cuneate

11 Leaf lamina; shape of the apex

- 0 broadly rotund
- 1 acute with arcuate (convex) sides
- 2 acute with straight–concave sides

12 Leaf lamina; length of longest teeth in relation to width of lamina (excluding teeth)

- 0 0 or only indicated
- 1 < 10%
- 2 10–15 %
- 3 15–25 %
- 4 >25 %

13 Leaf lamina; shape of teeth

- 0 with straight sides (triangular)
- 1 with one convex and one straight side (deltoid–falcate)
- 2 with convex sides (obtuse–mammiform)

14 Leaf lamina; length:width ratio of teeth

- 0 c. 1 (coarse)
- 1 c. 1.5 (narrowly triangular in outline)
- 2 ≥ 2 (subulate in outline)

15 Leaf lamina; regularity/symmetry of dentation

- 0 regular (with even intervals) and symmetric
- 2 somewhat irregular (some teeth at uneven intervals or 'misplaced')

4 very irregular and asymmetric (teeth of various sized \pm randomly distributed along margin)

16 Leaf lamina; direction of dentation in relation to leaf lamina

- 0 at $\approx 90^\circ$ (dentate)
- 2 slightly forward-directed
- 4 distinctly forward-directed (serrate)

17 Leaf lamina; distance between major teeth

- 0 c. 1 cm (densely dentate)
- 1 c. 1.5 cm
- 2 c. 2 cm (sparsely dentate)

18 Leaf lamina; size of juxtapositioned teeth (dimorphous dentation)

- 0 similar
- 2 occasionally uneven / irregular (solitary smaller teeth sometimes present)
- 4 regularly dimorphic (every second teeth much smaller)
- 5 bi-dentate (with \pm several small teeth on each major teeth)

19 Leaf lamina; flatness

- 0 \pm flat
- 2 strongly undulating / buckled

20 Leaf lamina; size of basal teeth in relation to other teeth

- 0 \pm same size (or leaf base entire)
- 1 larger/longer but of same shape and direction
- 2 larger/longer and more patent
- 3 larger/longer and \pm retrorse
- 4 larger/longer and \pm backward-directed (almost in parallell with the petiole)

21 Petiole; lamina fragments/teeth (without petiolus)

- 0 never present
- 1 sometimes present close to the base of the lamina
- 3 always present and \pm throughout the length of the petiole

22 Petiole; leaflet-like (with petiolus) lamina fragments

- 0 never present
- 2 always present

23 Cauline leaves; number

- 0 0-1 (if 1, then much smaller than the basal leaves)
- 1 1-2 (if 1, then \pm same size as the basal leaves)
- 2 2-3
- 3 3-4
- 4 4-5
- 5 6-7
- 6 > 7

24 Cauline leaves; shape of apex

- 0 \pm evenly tapering
- 2 \pm long and clearly delimited (cuspidate-caudate)

- 25 Cauline leaves; stellate hairs on lower surface
 0 \pm 0 or only few on main veins
 1 sparsely distributed
 2 densely distributed, \pm covering
- 26 Cauline leaves; glandular hairs along margin and on lower surface
 0 lacking
 1 solitary
 2 \pm numerous–abundant
- 27 Synflorescence; branching pattern
 0 simple/furcate (most branches with only one capitulum)
 3 densely compound/repeated (most branches with > 3 capitula)
- 28 Synflorescence; angles and direction of branches
 0 60° – 90°; branches strongly arcuate
 2 45° – 60°; branches somewhat arcuate
 4 < 45°; branches always straight
- 29 Synflorescence; relative position of branches
 0 \pm evenly distributed along upper part of stem (racemose)
 1 commonly congested (subumbellate)
- 30 Acladium (the stalk of the primary capitulum); length
 0 very short (0–2 cm)
 1 moderately long (2–4 cm)
 3 very long (mostly > 4 cm)
- 31 Peduncles; density of indumentum of glandular and simple hairs
 0 \pm 0
 1 with solitary–few trichomes (\approx 1–6 per 1 cm)
 2 with \pm sparse trichomes (\approx 7–10 per 1 cm)
 3 with moderately dense trichomes (\approx 10–25 per 1 cm)
 4 with dense trichomes (> 25 per 1 cm)
 5 with crowded trichomes (with almost as many as possible to place)
- 32 Peduncles; proportion of simple hairs to glandular hairs
 0 \pm only glandular hairs
 1 1–30 % simple hairs
 2 30–70 % simple hairs
 3 > 70 % simple hairs
 4 \pm only simple hairs
- 33 Phyllaries; length
 0 < 10 mm
 1 10–11 mm
 2 11–12 mm
 3 \geq 12 mm
- 34 Phyllaries; width

- 0 unusually broad (> 1 mm at the middle)
- 3 unusually narrow (< 0.5 mm at the middle)

35 Phyllaries; shape of apex

- 0 ± broadly obtuse/rounded
- 1 ± narrowly obtuse
- 2 shortly acute/triangular
- 4 subulate-filiform

36 Phyllaries; shape of apex

- 0 evenly tapering
- 2 ± long and clearly delimited (cuspidate)

37 Phyllaries; pigmentation

- 0 pale yellowish-green-olive-green
- 1 dark green
- 2 blackish green
- 3 greenish black – bluish black

38 Outer phyllaries, arrangement on involucre

- 0 densely appressed and positioned closely below the median phyllaries
- 2 ± loosely arranges and positioned at some distance below the median phyllaries

39 Glandular hairs on phyllaries/involucre; length of the 90% longest

- 0 short (< 0.5 mm)
- 2 medium-long (≈0.5–1.0 mm)
- 4 long (> 1.0 mm)
- 5 very long (> 1.5 mm)

40 Glandular hairs on phyllaries/involucre; posture

- 0 straight, rigid and ± stout
- 2 slender and ± crisped when dried

41 Glandular hairs on phyllaries/involucre; pigmentation

- 0 black
- 1 ± dark brown
- 2 yellowish-brown-amber
- 3 yellowish – straw colored

42 Simple hairs on phyllaries/involucre; length of the longest

- 0 short (≤ 0.8 mm)
- 1 medium-long (0.8 - 1.3 mm)
- 2 long (1.3–1.8 mm)
- 3 very long (≥ 1.8 mm)

43 Simple hairs on phyllaries/involucre; pigmentation

- 0 blackish almost throughout
- 2 pale in upper half
- 4 pale almost from the base

44 Indumentum on phyllaries/involucre; density of simple and glandular hairs

- 0 very sparse (0–6 per 1 cm phyllary)
- 1 sparse (\approx 7–10 per 1 cm)
- 2 moderately dense (\approx 10–25 per 1 cm)
- 3 dense ($>$ 25 per 1 cm)
- 4 crowded (with almost as many as possible to place)

45 Indumentum on phyllaries/involucre; proportion of simple hairs to glandular hairs

- 0 only glandular hairs
- 1 1–10 % simple hairs
- 2 10–40 % simple hairs
- 3 40–60 % simple hairs
- 4 60–90 % simple hairs
- 5 $>$ 90 % simple hairs

46 Stellate hairs on phyllaries/involucre; abundance

- 0 0 – occasional
- 1 sparse
- 2 moderately abundant but not covering
- 3 abundant and partly covering / forming tomentum

47 Stellate hairs on phyllaries/involucre; horizontal distribution

- 0 evenly distributed
- 2 more abundant towards the base of the involucre
- 4 \pm restricted to the base of the involucre

48 Stellate hairs on phyllaries/involucre; vertical distribution

- 0 evenly distributed
- 2 more abundant towards the margins of the phyllaries
- 4 \pm restricted to the margins of the phyllaries

49 Apical tuft of pale short flexuose hairs (coma) at apex of phyllaries

- 0 lacking
- 1 inconspicuous
- 2 small but conspicuous
- 3 conspicuous and \pm decurrent along the margins of the phyllary

50 Styles; pigmentation when dried

- 0 pure yellow
- 1 scarcely dark-papillate ($>$ 80% yellow)
- 2 \pm densely dark-papillate (10–80% yellow)
- 3 \pm blackish ($<$ 10 % yellow)

51 Apex of ligules; ciliation

- 0 glabrous
- 2 shortly and inconspicuously ciliate
- 3 densely and longly ciliate

52 Ligules (calathia); length

- 0 unusually short ($<$ 20 mm from apex to the base of the involucre)
- 1 medium-long
- 2 unusually long ($>$ 25 mm from apex to the base of the involucre)

Appendix 4

Species of *Hieracium* sect. *Vulgata* sorted by species aggregate

***Hieracium acidodontum* agg.**

H. acidodontum Dahlst.
H. ceramotum (Stenstr.) Dahlst.
H. chrysoprasium Wiinst.
H. diaphanum Fr.
H. fuliginellum Dahlst.
H. guilielmi Johanss. & Sam.
H. ludoviciense Johanss.
H. megalodon Dahlst. ex Johanss.
H. oblaqueatum Johanss.
H. ornatiforme (Dahlst. ex Zahn) Dahlst. ex Johanss. & Sam.
H. ornatum (Dahlst.) Dahlst.
H. phaeopsis Dahlst. ex Johanss. & Sam.
H. phrygionium Johanss.
H. progrediens Norrl.
H. saurotum Johanss.
H. storliense Norrl.
H. subarctoum Norrl.

***Hieracium acroleucum* agg.**

H. acroleucum (Stenstr.) Dahlst.
H. causiatum Johanss. & Sam.
H. chloroleucum (Dahlst.) Dahlst.
H. confragifolium Johanss.
H. cremiceps T. Tyler
H. leucodaedalum (Dahlst. ex Zahn) Dahlst. ex Johanss. & Sam.
H. macrocentrum (Johanss.) Johanss.
H. marifugum (Johanss.) Johanss.
H. praepilulatum Johanss.
H. scytophyllum Omang
H. subnitidum Dahlst. ex T. Tyler
H. subpilulatum (Johanss.) Johanss. & Sam.
H. turbiniceps Dahlst.

***Hieracium almquistianum* agg.**

H. almquistianum (Zahn) Johanss.
H. arrosum (Stenstr.) Johanss. & Sam.
H. polystilbum Johanss.
H. prolinguatum Johanss. & Sam.
H. pubicuspis Johanss.
H. separ Johanss.
H. stipatum (Stenstr.) Omang
H. subirriguum (Dahlst.) Dahlst.
H. vastulum Johanss. & Sam.

***Hieracium anfractum* agg.**

- H. acrochristum* Dahlst. ex Johanss.
- H. albatipes* (Dahlst.) Dahlst. ex Johanss.
- H. anfracticeps* Johanss.
- H. anfractum* (Fr.) Fr.
- H. campylodon* (Dahlst. ex Zahn) Johanss. & Sam.
- H. longidens* Ohlsén
- H. oinopolepis* (Malme ex Dahlst.) Dahlst.
- H. subterdentatum* Johanss. & Sam.

***Hieracium atronitens* agg.**

- H. adimpliatum* (Dahlst.) Dahlst.
- H. amorphophyllum* Dahlst. ex Johanss.
- H. atronitens* (Dahlst.) Dahlst.
- H. cacuminatum* (Dahlst.) Dahlst.
- H. drimyodon* (Dahlst. ex Zahn) Dahlst. ex Johanss.
- H. isonomoum* Johanss. & Sam.
- H. jaeredense* Johanss. & Sam.
- H. lepidiceps* (Dahlst.) Dahlst.
- H. leucotrachelum* Johanss.
- H. retusulum* Ohlsén
- H. similigerum* Johanss.
- H. subatronitens* (Dahlst.) Dahlst.
- H. toerense* Johanss.
- H. vietulifolium* (Johanss. & Sam.) T. Tyler

***Hieracium austrinum* agg.**

- H. adventicium* Ohlsén
- H. anderssonii* T. Tyler
- H. atrocaeruleum* Ohlsén
- H. austrinum* Stenstr.
- H. canovittatum* Ohlsén
- H. exsulans* Ohlsén
- H. externum* Ohlsén
- H. inquilinum* Ohlsén
- H. maciatum* Ohlsén
- H. phaedrophyllum* Johanss.
- H. striatisquameum* Ohlsén
- H. subaustrinum* Wiinst.
- H. subinquilinum* Ohlsén
- H. symmetricum* Ohlsén

***Hieracium constringens* agg.**

- H. constringens* Norrl.
- H. hispidiceps* Dahlst. ex Johanss. & Sam.
- H. mataeum* Johanss. & Sam.
- H. oligophyllum* Norrl.
- H. opochloroides* Johanss. & Sam.
- H. opochlorum* Johanss. & Sam.
- H. orarium* Lindeb.

H. prolatatum Johanss.

***Hieracium cruentifolium* agg.**

H. cruentifolium Dahlst. & Lüb.

H. microcymon Johanss.

H. pristophyllum Johanss.

H. trachlosimum Johanss. & Sam.

***Hieracium diaphanoides* agg.**

H. diaphanoides Lindeb.

H. dissomorphum (Dahlst. ex Zahn) Dahlst. ex Johanss. & Sam.

H. leptogrammum Dahlst.

H. oestmanii T. Tyler

H. paeminosum Johanss. & Sam.

H. schlegelii Almq. ex Dahlst.

H. taeniifolium Johanss.

***Hieracium incurrens* agg.**

H. amphicentrum Johanss. & Sam.

H. arnoldii T. Tyler

H. automorphum Omang

H. barrimum (Johanss.) Johanss.

H. comanticeps Johanss.

H. continuum (Norrl. & H. Lindb. ex Zahn) Johanss.

H. coriarium Johanss.

H. cuneolatum (Stenstr.) Dahlst.

H. denigrans (Dahlst.) Johanss.

H. erithallum Johanss. & Sam.

H. grophosiceps Johanss.

H. hypselophyes (Dahlst. ex Zahn) Dahlst. ex Johanss.

H. imbricatiforme Johanss. & Sam.

H. incurrens Sael ex Norrl.

H. infumatum Johanss.

H. linguiforme Dahlst. ex Johanss.

H. oletatum (Johanss. & Sam.) T. Tyler

H. orphnocephalum (Dahlst. ex Zahn) Dahlst. ex Johanss.

H. paurophyllum (Dahlst. ex Zahn) Dahlst. ex Johanss.

H. rhomboides (Stenstr.) Johanss.

***Hieracium insertum* agg.**

H. acriserratum Ohlsén

H. ahlfvengrenii (Dahlst. ex Zahn) Dahlst. ex Johanss.

H. austriniforme Dahlst. ex Johanss.

H. badiicolor Ohlsén

H. concinnatum Ohlsén

H. conspectum Ohlsén

H. ctenophyllum Ohlsén

H. daedalolepium (Dahlst.) Johanss.

H. hypoprasinum (Dahlst. ex Zahn) Dahlst. ex Johanss.

H. insertum Ohlsén

H. malacophyllum Ohlsén
H. semiornatum Dahlst. ex Ohlsén
H. ragnarii T. Tyler
H. strimaëense Folin
H. tristicolor Ohlsén

***Hieracium lepidotum* agg.**

H. coniceps Dahlst. ex Johanss. & Sam.
H. elongatifrons Omang.
H. fasciculare Fr.
H. interveniens (Dahlst.) Dahlst.
H. laetifolium (Dahlst. ex Zahn) Dahlst. ex Johanss. & Sam.
H. lepidotum (Stenstr.) Dahlst.
H. scotocranum (Johanss.) Johanss.
H. stibeophyllum Dahlst. ex Johanss. & Sam.

***Hieracium maculatum* agg.**

H. hemimaculatum T. Tyler
H. maculato-ornatum T. Tyler
H. maculatum auct.

***Hieracium megavulgatum* agg.**

H. complexum Johanss.
H. impressiforme (Dahlst.) Dahlst.
H. megavulgatum T. Tyler
H. mesopoliotrichum Ohlsén
H. subdentatum Ohlsén

***Hieracium plicatum* agg.**

H. adiposum (Dahlst) Dahlst. ex Johanss.
H. chloocranum Johanss.
H. chroocentrum (Dahlst. ex Zahn) T. Tyler
H. concretum (Dahlst. ex Zahn) Dahlst. ex Johanss.
H. deplumatum Johanss.
H. duplicaticeps Folin
H. duplicatum (Almq. ex Dahlst.) Dahlst.
H. imbricatum Lindeb.
H. multiceps (Dahlst.) Dahlst. ex Johanss.
H. orsense Johanss.
H. plicatum Lindeb.
H. praeviride Johanss. & Sam.
H. pseudoplicatum (Dahlst. ex Zahn) Johanss.
H. schlyteri (Lindeb. ex Dahlst.) Johanss.
H. sillrense Johanss.
H. stereophyton Omang
H. subramosum Lönnr.
H. subsilvaticum (Almqu. ex Elfstr.) Dahlst.
H. suriforme Johanss. & Sam.
H. trichellicept Johanss.
H. xanthostylum (Dahlst.) Dahlst. ex Johanss. & Sam.

H. xerampelinum Johanss. & Sam.

***Hieracium prolatescens* agg.**

H. evae T. Tyler

H. prolatescens Johanss. & Sam.

***Hieracium pseudodiaphanum* agg.**

H. abradenium Norrl.

H. barbareifolium (Lönnr. ex Dahlst.) Johanss.

H. caespiticola Norrl.

H. chlorodes (Dahlst.) Dahlst.

H. dalicum Johanss.

H. femsioëense Stenstr.

H. hemidiaphanum (Dahlst.) Brenner

H. longilobum (Dahlst. ex Zahn) T. Tyler

H. obrigens Johanss. & Sam.

H. pseudodiaphanum (Dahlst.) Johanss.

H. stenocoloides Johanss. & Sam.

H. stenocolum Johanss. & Sam.

H. subglaucovirens Zahn ex Johanss. & Sam.

H. subverniferum (Dahlst. & Enander ex Zahn) Dahlst. & Enander ex Johanss.

***Hieracium punctillatum* agg.**

H. cuspididentatum Ohlsén

H. koepingense Johanss.

H. lepidulum (Stenstr.) Dahlst.

H. pumicatifolium Johanss.

H. punctillaticeps Johanss.

H. punctillatum (Almq. ex Dahlst.) Johanss.

H. subanfractum (Almq. ex Zahn) Almq. ex Johanss.

H. subpunctillatum (Dahlst.) Dahlst.

H. volutiferum Johanss.

***Hieracium smolandicum* agg.**

H. chauliodon (Dahlst. ex Zahn) Dahlst. ex Johanss.

H. fuscoviolare Johanss.

H. kebnekaisense Dahlst.

H. minuriens Dahlst.

H. naevosiforme (Dahlst. ex Zahn) Dahlst. ex Johanss.

H. oligostictum Ohlsén

H. pertinacifolium Johanss.

H. phaliostrichum Johanss.

H. smolandicum (Almq. ex Dahlst.) Dahlst.

***Hieracium subpellucidum* agg.**

H. acutellum (Zahn) Johanss.

H. farreaticeps Dahlst.

H. olliceptus Johanss.

H. subpellucidum Norrl.

***Hieracium subsimile* agg.**

H. basiserratum Johanss.

H. chrysophorum Sam.

H. dipterum (Dahlst. & Enander ex Zahn) Dahlst. & Enander ex Johanss.

H. lepidiforme (Stenstr.) Johanss.

H. loriferum Johanss.

H. luebeckii (Dahlst.) Dahlst. ex Johanss.

H. orthocolon Johanss.

H. phaeodermum Johanss. & Sam.

H. reclinatiforme (Dahlst.) Johanss.

H. resupinatum (Almq. ex Stenstr.) Dahlst.

H. retrorsum Folin

H. staticoides Johanss.

H. subsimile Norrl.

***Hieracium triviale* agg.**

H. bogense Johanss.

H. cunctans (Johanss. ex Dahlst.) Johanss.

H. dolichorhachis Sam.

H. lugubre (Malme) Dahlst.

H. neopinnatifidum Pugsley

H. paraliium Dahlst. ex Johanss. & Sam.

H. pholidotum (Stenstr.) Dahlst.

H. triviale (Norrl.) Norrl.

***Hieracium varianum* agg.**

H. arrogans Johanss.

H. eustictum Dahlst. ex Omang

H. respondens Johanss.

H. varianifolium Johanss.

H. varianum Johanss.