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## Taxonomy of the *Hieracium fritzei* Group (*Asteraceae*) in the Sudeten Mts and the West Carpathians. (Studies in *Hieracium* sect. *Alpina* II.)

By

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With 13 Figures

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### Summary

CHRTEK J. jun. & MARHOLD K. 1998. Taxonomy of the *Hieracium fritzei* group (*Asteraceae*) in the Sudeten Mts and the West Carpathians. (Studies in *Hieracium* sect. *Alpina* II.). – *Phyton* (Horn, Austria) 37 (2): 181–217, 13 figures – English with German summary.

The *Hieracium fritzei* group is represented in the Sudeten mountains and the West Carpathians in the Czech Republic, Poland and Slovakia by the following species: *H. fritzei* F. SCHULTZ (2n=27), *H. uechtritziatum* G. SCHNEID. (2n=?), *H. schneiderianum* ZLATNÍK (2n=27), *H. rohlenae* ZLATNÍK (2n=27), *H. nigrostylum* ZLATNÍK (2n=?), *H. slovacum* CHRTEK jun. (2n=36), *H. crassipedipilum* (PAWL. & ZAHN) CHRTEK jun. (2n=36), *H. pinetophilum* (DEGEN & ZAHN) CHRTEK jun. (2n=27), and *H. krivanense* (WOL. & ZAHN) ŠLJAKOV (2n=?). For each of these taxa the description, synonymy, data on their distribution and representative specimens are provided. In several cases lecto- or neotypes for the correct names and synonyms are designated.

### Zusammenfassung

CHRTEK J. jun. & MARHOLD K. 1998. Taxonomie der *Hieracium fritzei*-Gruppe (*Asteraceae*) in den Sudeten und West-Karpaten. (Studien an *Hieracium* sect. *Alpina*

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II). – *Phyton* (Horn, Austria) 37 (2): 181–217, 13 Abbildungen. – Englisch mit deutscher Zusammenfassung.

Die *Hieracium fritzei*-Gruppe ist in den Sudeten und West-Karpaten in Tschechien, Polen und der Slowakei durch folgende Arten vertreten: *H. fritzei* F. SCHULTZ (2n=27), *H. uechtrizianum* G. SCHNEID. (2n=?), *H. schneiderianum* ZLATNÍK (2n=27), *H. rohlenae* ZLATNÍK (2n=27), *H. nigrostylum* ZLATNÍK (2n=?), *H. slovacum* CHRTEK jun. (2n=36), *H. crassipedipilum* (PAWL & ZAHN) CHRTEK jun. (2n=36), *H. pinetophilum* (DEGEN & ZAHN) CHRTEK jun. (2n=27), and *H. krivanense* (WOL. & ZAHN) ŠLJAKOV (2n=?). Für jedes dieser Taxa werden Beschreibung, Synonymie und Verbreitungsangaben gebracht sowie repräsentative Belege zitiert. In einigen Fällen wurden Lecto- bzw. Neotypen für korrekte Namen und Synonyme festgelegt.

## 1. Introduction

This paper is the second in a series dealing with the section *Alpina* F. N. WILLIAMS of the genus *Hieracium*. It provides taxonomic revision of the *H. fritzei* group, one of the most intricate groups of sect. *Alpina* in the Sudeten Mts and the West Carpathians.

### 1.1. Systematic Position

The *Hieracium fritzei* group occupies, together with the *H. sudeticum* group and *H. riphaeum* (Fig. 1), an intermediate position between the *H. alpinum* and *H. prenanthoides* groups. It is more closely related to *H. alpinum* which is reflected by the formula  $H. alpinum \geq prenanthoides$ . It is extremely difficult to draw a line between the *H. alpinum* and *H. fritzei* groups. Due to numerous transient types the delimitation seems to be always arbitrary. On the contrary, the subsequent species group towards to *H. prenanthoides*, i.e. the *H. sudeticum* group (see Fig. 1) is separated quite well.

The members of the *H. fritzei* group resemble those of the *H. alpinum* group in their habitus, in having small glandular hairs on the leaf margins, large solitary or less numerous heads, usually long hairs on all parts, numerous roof-like arranged involucre bracts, the outer ones loose, often patent (sometimes sub-foliaceous). They are distinguished from the *H. alpinum* group by their more or less amplexicaul cauline leaves (most conspicuous is the second lowest leaf).

Besides the difficult delimitation towards the *H. alpinum* group, the *H. fritzei* group is not distinctly separated from the *H. nigritum* group (occupying an intermediate position among the *H. alpinum*, *H. murorum* and *H. prenanthoides* groups). For details see the account of *H. krivanense*.

The representatives of the *H. nigrescens* group ( $H. alpinum \geq murorum$ , see Fig. 1), rather similar in habitus and ecological requirements, differ in having less numerous stem leaves 0–3 (–5); those are usually shortly petiolate, sometimes (but always in less than one half of stem leaves) sessile, never semiamplexicaul. The involucre bracts are appres-

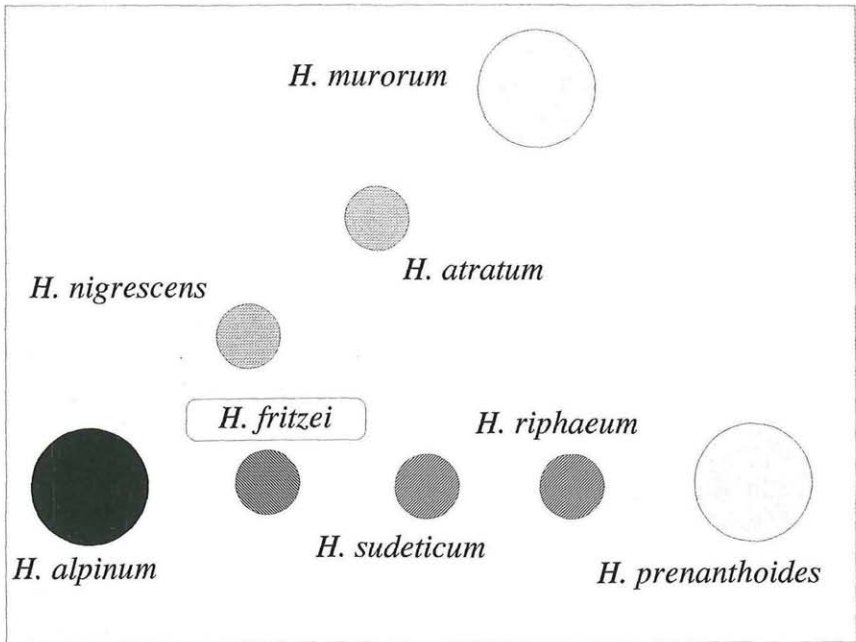


Fig. 1. Systematic position of the *Hieracium fritzei* group. All names symbolize groups.

sed, only the outermost are  $\pm$  lax. The plants with stylose florets are very rare in this group.

### 1.2. Delimitation of the *Hieracium fritzei* Group

Our delimitation of the *H. fritzei* group corresponds with that in Flora Europaea (SELL & WEST 1976), i.e. the *H. fritzei* group includes two ZAHN's species intermediae ("Zwischenarten") – *H. fritzei* (cf. ZAHN 1936a: 239–243) and *H. scitulum* (cf. ZAHN 1936b: 244–245). Nevertheless, some minor changes have been made:

1. *H. alpinum* subsp. *crassipedipilum* PAWL. & ZAHN has been transferred to the *H. fritzei* group.

2. Two subspecies of *H. scitulum* from ZAHN's monograph (see above), i.e. *H. scitulum* subsp. *aquaealbae* KORB & ZAHN and *H. scitulum* subsp. *asciburgense* ZAHN are without any doubt more closely related to *H. nigrescens* WILLD. s.l. (the *H. nigrescens* group). They are therefore excluded from the present account and will be discussed as a part of the *H. nigrescens* group. (CHRTEK jun., in prep.).

## 1.3. History

ZAHN 1936a: 239–243 distinguished within the “Zwischenart” *H. fritzei* seven subspecies, namely *H. fritzei* subsp. *fritzei*, subsp. *spathulifrons* (BORBÁS) ZAHN, subsp. *uechtritzianum* (G. SCHNEID.) ZAHN, subsp. *foliosum* ZAHN, subsp. *stanisorae* JÁV. & ZAHN, subsp. *pinetophilum* DEGEN & ZAHN, and subsp. *pseudopersonatum* (G. SCHNEID.) ZAHN. This classification was based mainly on the detailed studies of *H. fritzei* s.l. by SCHNEIDER 1886, 1887, 1890–1895. SCHNEIDER used names *H. montanum* G. SCHNEID. and later *H. polymorphum* G. SCHNEID. for this taxon. Both these names are, however, illegitimate (see below). The name *H. fritzei* subsp. *spathulifrons* is based on the illegitimate name *H. polymorphum* var. *spathulifrons* BORBÁS. This name should be typified by the material from the context of *H. polymorphum* var. *spathulifolium* G. SCHNEID., because BORBÁS 1891 published the name var. *spathulifrons* as nomen novum, which had to replace var. *spathulifolium*. Most of the SCHNEIDER’s original material, deposited in WRSI, and identified as *H. polymorphum* var. *spathulifolium*, corresponds well with the protologue, but it belongs to the *H. nigrescens* group. *H. fritzei* subsp. *foliosum* ZAHN and subsp. *stanisorae* JÁV. & ZAHN does not occur in the area treated by the present paper and thus they are not further considered.

Considerable attention to the *H. fritzei* group in the West Sudeten Mts was paid by ZLATNÍK 1938, 1939. After a detailed study of the plants from the Krkonoše Mts he rejected ZAHN’s classification and suggested to distinguish ten taxa within the group “Gruppe III.”, namely *H. kablikianum* ZLATNÍK, *H. pedunculare* TAUSCH, *H. luteistylum* ZLATNÍK, *H. nigrostylum* ZLATNÍK, *H. uechtritzianum* “(G. SCHNEID.) ZLATNÍK” [correctly G. SCHNEID.], *H. rohlenae* ZLATNÍK, *H. schneiderianum* ZLATNÍK, *H. krajinae* ZLATNÍK (≡ *H. tauschianum* ZLATNÍK, nom. illeg.), *H. fritzei* F. SCHULTZ, and *H. pseudeximium* (G. SCHNEID.) ZLATNÍK. Three species of this “Gruppe III” do not belong to the *H. fritzei* group in our sense and are not treated within the present paper. The first of them, *H. pseudeximium* belongs undoubtedly to the *H. nigritum* group; the second one, *H. kablikianum* was not confirmed in the field (not even at the localities mentioned by ZLATNÍK in the protologue) and according to the original material (deposited in the herbarium SAV) it represents an intermediate type between the *H. fritzei* and *H. nigritum* groups and requires further study; the last one, *H. pedunculare* is a well established species related to *H. sudeticum* STERNB.

Plants of the *H. fritzei* group from the West Carpathians were studied by REHMANN 1873, who described here “*H. alpinum* 2. *debile*” and by ZAHN (series of papers dealing with the genus *Hieracium* in the territory of the historical Hungarian Lands and Balkans published mostly in Magyar Botanikai Lapok, 1906–1934; for references see CHRTEK 1997) who revised material collected mainly by Hungarian botanists.



Within *H. scitulum* ZAHN 1936b: 244–245 recognized seven subspecies, namely *H. scitulum* subsp. “*eu-scitulum*” [correctly: subsp. *scitulum*], subsp. “*Kriwanense*” (WOŁ. & ZAHN) ZAHN [correctly: *krivanense*, cf. protologue cited below], subsp. *aquaealbae* KORB & ZAHN, subsp. *amoeno-schistum* NYÁR. & ZAHN, subsp. *orthobraccion* (WOŁ. & ZAHN) ZAHN, subsp. *asciburgense* ZAHN and subsp. *wysokae* (WOŁ. & ZAHN) ZAHN. Four of them were reported by ZAHN to occur within the area covered by the present paper either in the Sudeten Mts or in the West Carpathians or in both mountain ranges: *H. s. subsp. scitulum* was originally described from the East Carpathians, but a few localities were reported also for the West Carpathians, the present authors propose to keep this name on the level of species for the East Carpathian populations only; subsp. *krivanense*, originally described both from the West and East Carpathians, but following the typification in the present paper this name should be used only for the West Carpathian populations (see below); another two subspecies, namely subsp. *aquaealbae* and subsp. *asciburgense*, both originally reported from the Sudeten Mts and the West Carpathians, present authors propose to transfer into the *H. nigrescens* group (see above).

## 2. Material, Methods and Arrangement of the Data

The results presented here are based on the study of wild populations, cultivated plants, and on the examination of specimens housed at the following herbaria (abbreviations according to HOLMGREN & al. 1990): BP, BRA, BRNM, BRNU, BZB (Botanical Garden of the Komenský University, Blatnica, Slovakia), CL, KRA, KRAM, LW, PR, PRC, S, SAV, SLO, W, WRSL, WU, and the private herbaria of Drs W. GUTERMANN and E. HÖRANDL (both Vienna).

For the taxa nomenclatural ( $\equiv$ ) and taxonomic ( $=$ ) synonyms are presented, as well as invalid names ( $-$ ). Beneath the heading “Ind. loc.,” information from the protologue is cited concerning the distribution and locality of the original material. Data from the label of the type specimen are presented beneath the “Type” headings. Chromosome numbers for most of the taxa are provided, some of them being new counts. Further information concerns ecology, phytosociological relations and geographical distribution.

The phytogeographic division of the area studied follows SKALICKÝ 1988 for the Czech Republic, FUTÁK 1984 for Slovakia, and ČOPYK 1977 for the Ukrainian Carpathians. Distribution of taxa in Poland is given according to the geographic districts (KONDRACKI 1981). The term Sudeten (an orographic system) is used according to JENÍK 1961. The West (High) Sudeten Mts include the Jizerské hory and Krkonoše Mts, while the East (High) Sudeten Mts include Mt. Králický Sněžník and the Hrubý Jeseník Mts.

For chromosome number counts root tip cuttings of mature plants were used. The material was pretreated with a saturated solution of p-dichlorobenzene, fixed in a mixture of ethanol and acetic acid (3:1), and stored in 70% ethanol. The squash method and staining by lacto-propionic orceine were used. Voucher specimens are deposited in the herbarium of the Department of Botany of the National Museum in Průhonice (PR).

### 3. The *Hieracium fritzei* Group

#### 3.1. Morphological description of the group

Phyllopodous or hypophyllopodous plants. Stems (8–)12–30(–42) cm high, slender to robust, purplish at the base, simple one-headed or with 1–2(–5) branches developing from the upper or medium stem leaves' axils or occasionally from the stem base; with scattered to numerous simple eglandular hairs; few to scattered glandular hairs; and scattered, upwards numerous stellate hairs. Leaves with scattered simple eglandular hairs, sometimes glabrescent above, and with few, on the margins scattered short yellowish glandular hairs. Basal leaves less numerous (1–4) or sometimes withering at the time of flowering, oblanceolate or elliptical, attenuate below to winged petioles; cauline leaves oblanceolate, elliptical, oblong or lanceolate, diminishing upwards, subentire, denticulate or irregularly dentate (teeth triangular to falcate), at least the middle ones semiamplexicaul or with broad base sessile. Heads 1–4(–6), peduncles with scattered to numerous 0.8–4.0 (–7.0) mm long simple eglandular hairs, few to numerous 0.2–1.2 mm long dark glandular hairs and numerous to dense stellate hairs. Involucres barrel-shaped, subglobular or cylindrical, 10–15 (–17) mm long; phyllaries linear-lanceolate, blackish-green, with simple eglandular hairs and glandular hairs, the outer phyllaries  $\pm$  lax. Ligules yellow, flat, finely dentate at apex (see Fig. 3), or shortened and twisted; in the case of the outer florets bended out, deeply irregularly dentate at apex (stylose florets, see Fig. 4). Styles yellow to dark. Achenes 3.5–4.5 mm long, dark.

The main identification characters within the *H. fritzei* group are the shape and to some extent also the character of the leaf margins, indumentum (mainly on involucres and peduncles), the shape of the ligules (the flat ones vs. twisted and shortened ones), the shape of the involucre bracts (acute or obtuse at apex), and the color of the styles. When characterizing the group it is necessary to mention the frequent occurrence of plants with stylose florets (see above). In such case the styles markedly exert from the florets, although they are usually equally long as in the plants with linguulate florets. Also plants with considerably aberrant shoot architecture can be found, when the stem leaves are strikingly bundled in the bottom part of the stem.

Further detailed studies require plants of the *Hieracium fritzei* group from Mt. Babia hora/Babia Góra on the Polish-Slovak border in the Západné Beskydy/Beskid Żywiecki Mts and from the neighbouring Pasma Policy Mts in Poland. These plants do not correspond to any of species included in our taxonomic concept. Moreover, the intrapopulational variation at these localities is very high and makes their taxonomic evaluation very difficult. Nevertheless, these relatively small isolated localities represent the western limit of the Carpathian distribution of this group and

could be of crucial importance for the better understanding of the differentiation and microevolution in *Hieracium* sect. *Alpina*.

### 3.2. Chromosome Numbers

The chromosome numbers were known until now only for *H. fritzei* F. SCHULTZ (s.str.) ( $2n=27$ ) and for *H. rohlenae* ZLATNÍK ( $2n=27$ ) from the Krkonoše Mts (CHRTEK 1994). Numbers for *H. crassipedipilum* ( $2n=36$ ), *H. pinetophilum* ( $2n=27$ ), *H. schneiderianum* ( $2n=27$ ), and *H. slovacum* ( $2n=36$ ) are presented here for the first time.

### 3.3. Ecology

The taxa of the *H. fritzei* group are generally confined to the subalpine and alpine belts; occasionally they are found on convenient mountain localities in lower altitudes, such as meadows, naturally deforested slopes (avalanches tracks), etc. They grow in *Nardus* grasslands, dwarf shrub communities, krummholz stands, less often in open-canopy grasslands in the highest altitudes, occasionally in tall-grass communities. They are often spreading to the man-made sites with sparse plant cover and competition, such as surroundings of mountain chalets. Nearly all the members prefer acid soils. They occur in communities of the Nardo-Caricion rigidae NORDHAGEN 1937, Nardion BR.-BL. 1926, Pinion mughii PAWŁOWSKI, Juncion trifidi KRAJ. 1933, Loiseleurio-Vaccinion BR.-BL., Caricion firmae GAMS 1936, occasionally also Calamagrostion villosae PAWŁOWSKI in PAWŁOWSKI, SOKOŁOWSKI & WALLISCH 1928 and Poo chaixii-Deschampsion caespitosae JENÍK, BUREŠ & BUREŠOVÁ 1980.

### 3.4. Flowering Time

All taxa of the *H. fritzei* group flower from the second half of July until the first half of August. Only *H. fritzei* (s. str.) rarely flowers since the beginning of July.

### 3.5. General Distribution

The members of this group are found in the Krkonoše Mts and Mt. Králický Sněžník (both the Sudeten Mts, in the N Czech Republic and SW Poland), and in the Carpathians (in the West Carpathians and very rarely in the East and South Carpathians).

### 3.6. Identification Key to the Species of the *H. fritzei* Group

- 1a Peduncles with at least some glandular hairs longer than 0.7 mm (0.3–1.2 mm long); ligules always flat, not shortened . . . . . 2  
 1b Peduncles with 0.2–0.6 mm long glandular hairs; ligules flat or markedly shortened and twisted (the outer florets bent out) or ligules shortened and  $\pm$  tubular . . . . . 3

- 2a Plants in wild populations always one-headed; leaf-like cauline leaves 3–5, middle ones narrowly oblong, entire or denticulate; involucre (10–)11–13(–15) mm long . . . . . 8. *H. pinetophilum*
- 2b Plants 2–3-headed, stems branched in the upper part, if stems one headed then undeveloped flower bud in the axil of the upper cauline leaf; cauline leaves 4–8, middle ones elliptical or lanceolate with at least 2 distinct teeth in their lower part; involucre 14–17 mm long . . . . . 6. *H. slovacum*
- 3a Ligules flat, unshortened or only slightly shortened, finely dentate at apex; styles shorter than ligules, not exerted from the florets (cf. Fig. 3) . . . . . 4
- 3b Ligules shortened and twisted, deeply dentate at apex, in the case of the outer florets often bent out or ligules shortened and  $\pm$  tubular; styles distinctly exerted from the florets (stylose florets, cf. Fig. 4) . . . . . 6
- 4a Stems in the middle part with scattered short simple eglandular hairs or subglabrous; peduncles with scattered, 0.8–1.5 (–1.9) mm long, dark at the base (to 1/2–1/3 of their length); inner basal leaves 18–30 mm wide . . . . . 9. *H. krivanense*
- 4b Stems in the middle part with  $\pm$  long simple eglandular hairs; peduncles with numerous, 2–4 mm long, simple eglandular hairs with dark base (to 1/3–1/6 of their length); inner basal leaves 7–16 mm wide . . . . . 5
- 5a Ligules long, flat, finely dentate at apex, the outer to 19 mm long; styles yellow to brownish; leaf-like leaves in the upper half of stem elliptical or oblanceolate . . . . . 2. *H. uechtritzi*
- 5b Ligules flat, slightly shortened, finely to  $\pm$  deeply denticulate at apex, the outer 11–17 mm long; styles blackish; leaf-like leaves in the upper half of stem markedly lanceolate . . . . . 1. *H. fritzei*
- 6a Styles dark olivaceous with black scales . . . . . 5. *H. nigrostylum*
- 6b Styles yellow, melleous-yellow to olivaceous with darker scales . . . . . 7
- 7a Styles olivaceous with darker scales; peduncles with scattered simple eglandular hairs; leaves at least on the upper surface  $\pm$  glabrescent . . . . . 3. *H. schneiderianum*
- 7b Styles yellow to melleous-yellow, sometimes with brownish scales; peduncles with numerous simple eglandular hairs; leaves with scattered simple eglandular hairs on the upper surface . . . . . 8
- 8a Inner basal leaves and lower cauline leaves obtuse-acute or subacute at apex, entire or with few denticles or with few teeth in the middle part . . . . . 4. *H. rohlenae*
- 8b Inner basal leaves and lower cauline leaves distinctly acute at apex, entire to denticulate . . . . . 7. *H. crassipedilum*

#### 4. Taxonomic Account

##### 4.1. *Hieracium fritzei* F. SCHULTZ Flora N. S. 30: 281–282, 1872

##### Fig. 2

Ind. loc.: “Habitat in montibus Riphaeis (i. e. Riesengebirge) ad confinia Silesiae et Bohemiae, ubi d. R. Fritze legit.”

Lectotypus (hoc loco designatus): Côtes pierreuses dans la région du *Pinus pumilio* sur le versant occidental des montagnes “Riesengebirge” au dessus de la Neue schlesische Baude, de 1200 à 1400 mètres, près le village Schreibershau (limites de la Bohême et la Silésie), 8-IX-1871 R. FRITZE PR,



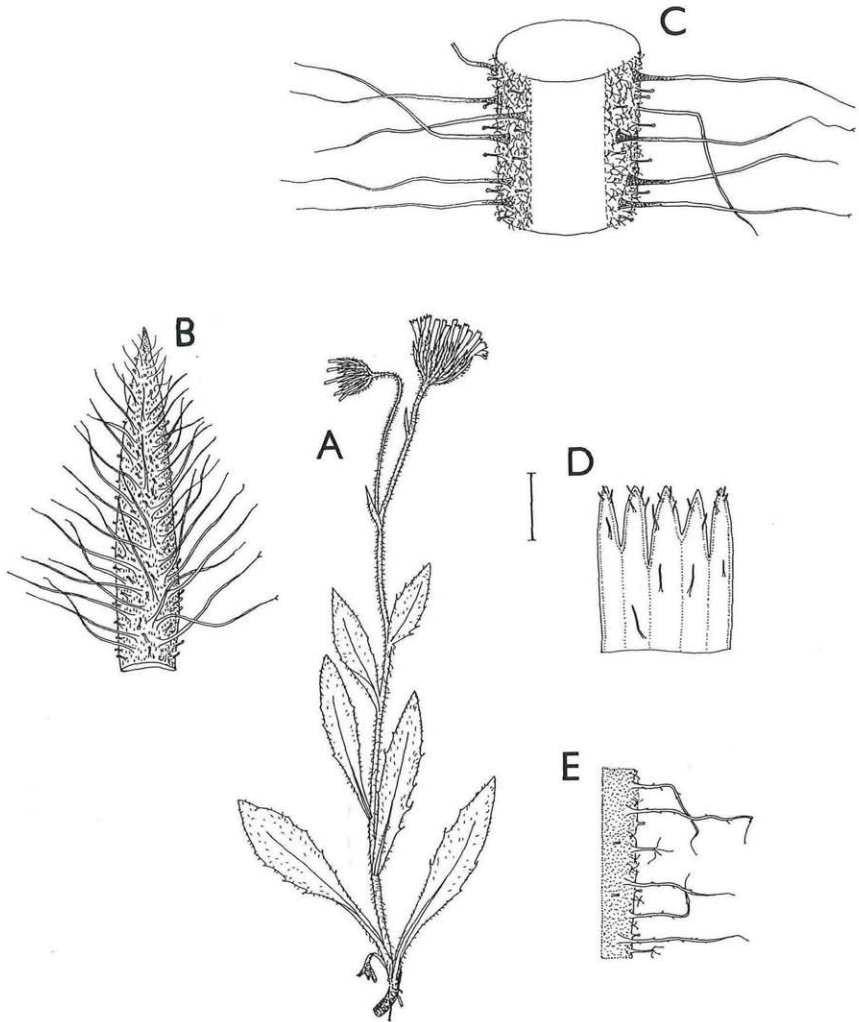


Fig. 2. *Hieracium fritzei*. A whole plant, B middle involucre bract, C peduncle, D top part of ligule, E leaf margin. – Scale bar = A: 2 cm, B: 2 mm, C–E: 1 mm.

no. P4S417/876, F. SCHULTZ & F. WINTER, Herbarium normale, Phanerogamia, Cent. 1, no. 91 (plant at the top of the sheet); Isolectotypi: PR, PRC, W.

≡ *Hieracium montanum* G. SCHNEID. Oesterr. Bot. Z. 36: 22–23, 1886, non SCOP Fl. Carniol., ed. 2, 2: 106, 1772 nec JACQ. Fl. Austr. 2: 54, 1774 nec NÄGELI & PETER Hierac. Mittel-Eur. 1: 681, 1885 (nom. illegit., Art. 52, 53).

- ≡ *Hieracium montanum* var. [a] *fritzei* (F. SCHULTZ) G. SCHNEID. Oesterr. Bot. Z. 36: 22–23, 1886 (nom. spec. illegit., Art. 52, 53).
- ≡ *Hieracium polymorphum* G. SCHNEID. Oesterr. Bot. Z. 37: 239–243, 1887 (nom. illegit., Art. 52).
- ≡ *Hieracium polymorphum* var. [a] *fritzei* (F. SCHULTZ) G. SCHNEID. Oesterr. Bot. Z. 37: 239–243, 1887 (nom. spec. illegit., Art. 52).
- = *Hieracium sudeticum* var. [β] *glossophyllum* WIMM. & GRAB. Fl. Siles. 2/2: 182, 1829 (e descr.).  
 Ind. loc.: “circa Albis fontes”.  
 Typus ignotus.

Description: Phyllopodous. Stem (10–)12–22(–26) cm high, with 1–3(–5) single-headed branch(es) developing from cauline leaf (leaves) axil(s), or sometimes stem single-headed, slender to robust, slightly striate, markedly purplish at the base, with scattered to numerous pale, towards the top of stem dark-based, 1.5–4.0 mm long simple eglandular hairs; few, in the upper part scattered dark glandular hairs; and with scattered, towards the top numerous stellate hairs. Leaves with scattered, on the margins, below on the midrib and on petioles numerous simple eglandular hairs; with few, on the margins scattered to short yellowish glandular hairs; and with scattered stellate hairs on the margins and below on the midrib, sometimes leaves glabrescent above. Basal leaves 0–4 at the time of flowering; primordial ones obovate, rounded at apex, cuneate-based, long petiolate, mucronate-denticulate; later oblanceolate, 4.5–10.0 × 0.9–1.5 cm, subacute at apex, attenuate below to winged petioles, denticulate, or with few mucronate teeth. Leaf-like (“proper”) cauline leaves 3–7 (–8), bract-like ones 0–2; lower leaves oblong-elliptical, 4.5–8.0 × 0.8–1.5 cm, acute at apex, sessile, remotely dentate; medium cauline leaves (narrowly) elliptical, acute at apex, subamplexicaul, remotely denticulate, upper leaves lanceolate, remotely denticulate to subentire. Heads (1–) 2–4 (–6); peduncles blackish green, with numerous (2.0–) 2.5–4.0 mm long, shortly (1/6–1/4 of their length) dark-based simple eglandular hairs, scattered to numerous 0.2–0.6 mm long dark glandular hairs and numerous to dense stellate hairs. Involucres barrel-shaped, 10–15 mm long; phyllaries linear lanceolate, acute at apex, blackish green (the inner with light grayish green margins), with numerous simple eglandular hairs, and scattered to numerous glandular hairs and microglands. Ligules ± flat, sometimes slightly shortened, apical teeth regular, small, or ligules deeply irregularly dentate at apex, with few very short hairs at apex and on outer surface, the outer ligules 11–17 mm long. Styles dark olivaceous with black scales. Achenes 3.8–4.4 mm long. –  $2n = 27$  (CHRTEK 1994: 96).

Distribution: Species endemic to the Krkonoše Mts. The centre of its distribution lies in the western part of this mountain range; it is less

common in its eastern part (*H. fritzei* is here partially replaced by *H. uechtritizianum*).

Representative specimens :

Czech Republic: 93. Krkonoše: Mt. Lysá hora, 1400 m (1948 ŠOUREK PR, ut *H. sudeticum* subsp. *pedunculare*); Labská louka meadows, 8 km NW of Špindlerův Mlýn (1895 TOCL PRC, ut *H. pedunculare*); Mt. Kotel [Kesselkoppe] (1887 TRAXLER W); Mt. Krkonoš, 5.3 km NW of Špindlerův Mlýn (1893 WILLKOMM PRC); Pančická louka meadows [Pantschewiese] (1880 Freyn BRNM).

Poland: Karkonosze: Hala pod Łabskim Szczytem, above the Schronisko pod Łabskim Szczytem [Neue schlesische Baude] chalet (1871 FRITZE PR); Mały Kociol Śnieżny [Kleine Schneeegrube] (1883 POLÁK PR); Slopes W of Wielki Staw Mountain lake, 1350 m (1947 ŠOUREK PR); Mały Staw mountain lake, slopes above the Strzecha Akademicka chalet (1993 CHRTEK jun. PR).

4.2. *Hieracium uechtritizianum* G. SCHNEID. Oesterr. Bot. Z. 36: 23, Jan 1886  
Fig. 3

Ind. loc.: "Habitat in Sudetis occidentalibus (Riesengebirge) rarissimum. Locis graminosis supra convallem „Aupagrund“, ad lacum „Grosser Teich“, ad pedem montis „Brunnenberg“, in monte „Krkonoš“."

Neotypus (hoc loco designatus): Riesengebirge, Grasplätze am Oberrand des Aupakessels, 1420 m, 13. VII. 1886 G. SCHNEIDER LW.

≡ *Hieracium polymorphum* var. [δ] *uechtritizianum* (G. SCHNEID.) G. SCHNEID. Oesterr. Bot. Z. 37: 275, 1887 (nom. spec. illegit. Art. 52).

≡ *Hieracium fritzei* subsp. *uechtritizianum* (G. SCHNEID.) ZAHN in HALLIER E. & WOHLFAHRT R. [ed.], KOCH's Syn. Deutsch. Schweiz. Fl., ed. 3, p. 1887, 1901.

= *H. alpinum* var. [η] *foliosum* TAUSCH Flora 11 (Erg.-Bl.) 1: 63, 1828.

Ind. loc.: "in Sudetis"

Lectotypus vel neotypus (hoc loco designatus): Von Brunberge im Riesengebirge (ex Tausch: Plantae selectae Florae Bohemicae fascic. 1), s. a., Tausch PRC.

= *H. alpinum* var. [γ] *foliolosum* WIMM. & GRAB. Fl. Siles. 2/2: 178, 1829 (e descr.).

Ind. loc.: "Habitat in sudetorum jugis et cacuminibus summis".

Typus ignotus.

= *H. sudeticum* TAUSCH Flora 20 (Beibl. 1): 68, 1837, non STERNBERG Denkschr. Bayer. Bot. Ges. Regensburg 2: 62, 1818 (nom. illeg. Art. 53).

Ind. loc.: "Riesengebirge".

Typus ignotus.

= *Hieracium montanum* var. [d.] *pseudopersonatum* G. SCHNEID. Oesterr. Bot. Z. 36: 23, 1886 (nom. spec. illeg., Art. 52)

Ind. loc.: "Habitat in Sudetis occidentalibus (Riesengebirge) locis graminosis lapidosis haud rarum: in monte „Gehänge“, ad pedem montis „Schneekoppe“ praecipue retro hospitium „Riesenbaude“, ad lacum

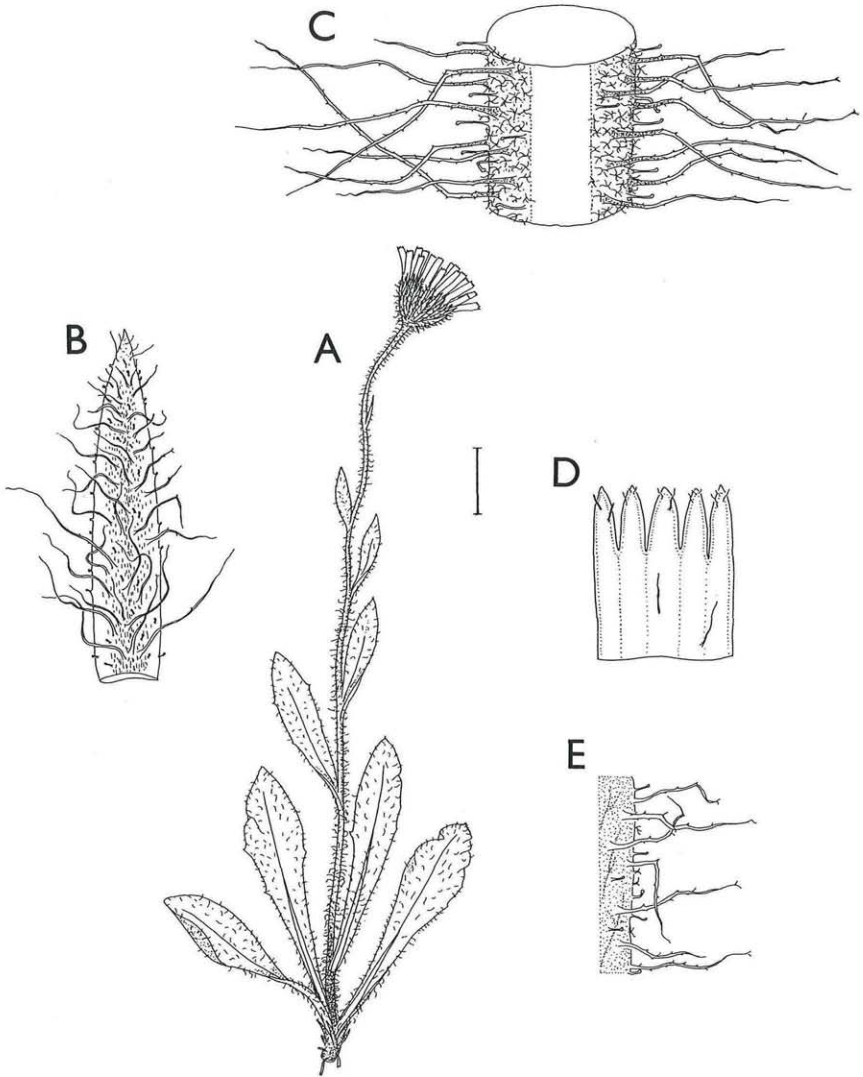


Fig. 3. *Hieracium uechtritzianum*. – A whole plant, B middle involucre bract, C peduncle, D top part of ligule, E leaf margin. – Scale bar = A: 2 cm, B: 2 mm, C–E: 1 mm.

„Kleiner Teich“, in herbis supra lacus „Grosser et Kleiner Teich“, in fauce „Melzergrube“ et in monte „Kleine Sturmhaube“.

Lectotypus (hoc loco designatus): Riesengebirge. Auf Wiesen über dem Kleinen Teich, 1350 m, 2. VIII. 1884 G. SCHNEIDER PRC.



≡ *Hieracium fritzei* subsp. *pseudopersonatum* (G. SCHNEID.) ZAHN in HALLIER E. & WOHLFAHRT R. [ed.], KOCH's Syn. Deutsch. Schweiz. Fl., ed. 3, p. 1886, 1901.

= *Hieracium tauschianum* ZLATNÍK Stud. Bot. Čechosl. 1: 190–192, 1938 non R. UECHTR. 1881

Ind. loc. (ZLATNÍK 1938: 136): II [Montes Corcontici, pars orientalis] A f-g [Kamenitá pláň, Luční hora], B [Planities], C [Margo planitiei (. . . Aupakessel . . .)], D 27 [Rýchory].

Lectotypus (hoc loco designatus): Krkonoše, Nardetum u pramenů Úpy [Krkonoše Mts, nearby the source of the river Úpa = Aupakessel], 1927 ZLATNÍK SAV.

≡ *Hieracium krajinae* ZLATNÍK Stud. Bot. Čechosl. 1: 242, 1938, nom. nov.

≡ *Hieracium zlatnikii* HOLUB Preslia 51: 281, 1979, nom. nov. superfl.

Description: Phyllopodous or hypophyllopodous. Stem (11–) 15–26 (–42) cm high, simple one-headed or with 1(–2) single-headed branch(es) developing from medium cauline leaf (leaves) axil(s), slender to robust, slightly striate, markedly purplish at the base, with numerous pale, towards the top of stem dark-based, 1.5–4.0 mm long simple eglandular hairs; few, in the upper part scattered, dark glandular hairs; and with scattered, towards the top numerous stellate hairs. Leaves with scattered, on the margins, below on the midrib and on petioles numerous simple eglandular hairs; with few, on the margins scattered to numerous short yellowish glandular hairs; and with scattered stellate hairs on the margins and below on the midrib. Basal leaves 0–2 at the time of flowering; primordial ones obovate, rounded at apex, cuneate-based, long petiolate, denticulate; later oblanceolate, 4.0–8.5 × 1.0–1.9 cm, rounded–obtuse to subacute at apex, attenuate below to winged petioles, denticulate, sometimes subentire or irregularly remotely dentate, the midrib markedly white. Leaf like (“proper”) cauline leaves (3–) 4–7 (–8), bract-like ones 1–2; lower leaves oblanceolate to oblong–oblanceolate, 4.5–9.0 × 0.8–1.7 cm, obtuse–acute at apex, attenuate below to broadly winged petioles, denticulate, subentire or sometimes with few (usually 1–3) teeth in the middle part; medium cauline leaves oblong or oblanceolate, ± acute at apex, subamplexicaul, entire to ± denticulate, upper leaves linear–elliptical, entire. Heads generally solitary or sometimes 2–3; peduncles greyish green, with numerous to dense (2.0–) 2.5–4.0 (–6.0) mm long, shortly (1/6–1/4 of their length) dark-based simple eglandular hairs, scattered 0.2–0.6 mm long dark glandular hairs and numerous to dense stellate hairs. Involucres barrel-shaped to subglobular, 11–15 mm long; phyllaries linear lanceolate, acute at apex, blackish green (the inner with bright green margins), with numerous to dense simple eglandular hairs, and scattered glandular hairs and microglands. Ligules flat, with few very short hairs at apex and on

outer surface, the outer 15–19 mm long. Styles yellow to brownish. Achenes 3.8–4.5 mm long. –  $2n = ?$

Distribution: Species endemic to the Sudeten Mts. It is confined to the Krkonoše Mts and Mt. Králický Sněžník. In the Krkonoše Mts more localities of this taxon are found in their eastern part (where it is scattered to locally common) than in the western part (where it is rare). At Mt. Králický Sněžník this taxon occurs only in the highest altitudes. However, the plants from Mt. Králický Sněžník are not fully identical with those from the Krkonoše Mts; detailed comparative studies using isozyme and DNA markers are in progress.

Representative specimens:

Czech Republic: 93. Krkonoše: Mt. Studniční hora, W slopes, near the chapel in the saddle between Mt. Studniční hora and Mt. Luční hora, 5 km NW of Pec pod Sněžkou (1995 CHRTEK jun. & HARČARIK PR); Úpská jáma glacial cirque, 4.5 km NNW of Pec pod Sněžkou (1962 ŠOUREK PR, ut *H. krajinae*); Mt. Růžová hora above Pec pod Sněžkou, 1300 m (1946 ŠOUREK PR, ut *H. krajinae*).

Poland: Karkonosze: Wielki Staw mountain lake [Grosser Teich], glacial cirque (1901 WOLLER PR, ut *H. alpinum* var. *foliosum*); Srebrny Upłaz ridge, above the Wielki Staw mountain lake [near the former Prinz Heinrich Baude] (1993 CHRTEK jun. & HARČARIK PR).

#### 4.3. *H. schneiderianum* ZLATNÍK Stud. Bot. Čechosl. 1: 187–190, 1938

Fig. 4

Ind. loc. (ZLATNÍK 1938: 136): “I [Montes Corcontici, pars occidentalis] A f–h [Krkonoš, Kotel, Lysá hora], B [Planities (. . . Pančavská louka . . .)], D 6 [Petrovka, Dívčí louka]; II [Montes Corcontici, pars orientalis] A a–k [Malý Šišák, Stříbrný hřeben, Sněžka, Černá kupa, Růžová hora, Kamenitá pláň, Luční hora, Planina, Liščí hora], B [Planities (. . . Bílá louka . . .)], C [Margo planitie (Grosser Teich Grube, Kleiner Teich Grube, . . ., Melzergrund, . . ., Dlouhý důl, Kozí hřbety, . . .)], D 9 [Sedlo u Špindlerovy boudy], 14 [Lesní hřeben], 16–25 [Sedlo u Pomezních bud, Lví rokle, Modrý důl, Richtrovky, Grünbach apud Pec, declivitas meridionalis montis Liščí hora, Bobí boudy, Lesní hora, Černá hora, Pláň]”.

Lectotypus (hoc loco designatus): Krkonoše, Nardetum na Bílé louce u Luční boudy [Krkonoše Mts, Nardetum at Bílá louka nearby Luční bouda chalet], 1933 ZLATNÍK SAV.

= *Hieracium alpinum* var. [δ] *macrostylum* TAUSCH Flora 11 (Erg.-Bl. 1): 63, 1828.

Ind. loc.: “in Sudetis”.

Lectotypus vel neotypus (hoc loco designatus): Von der weißen Wiese im Riesengebirge, s.a., TAUSCH, PRC.

≡ *Hieracium sudeticum* var. [δ] *macrostylum* (TAUSCH) TAUSCH Flora 20 (Beibl. 1): 69, 1837.

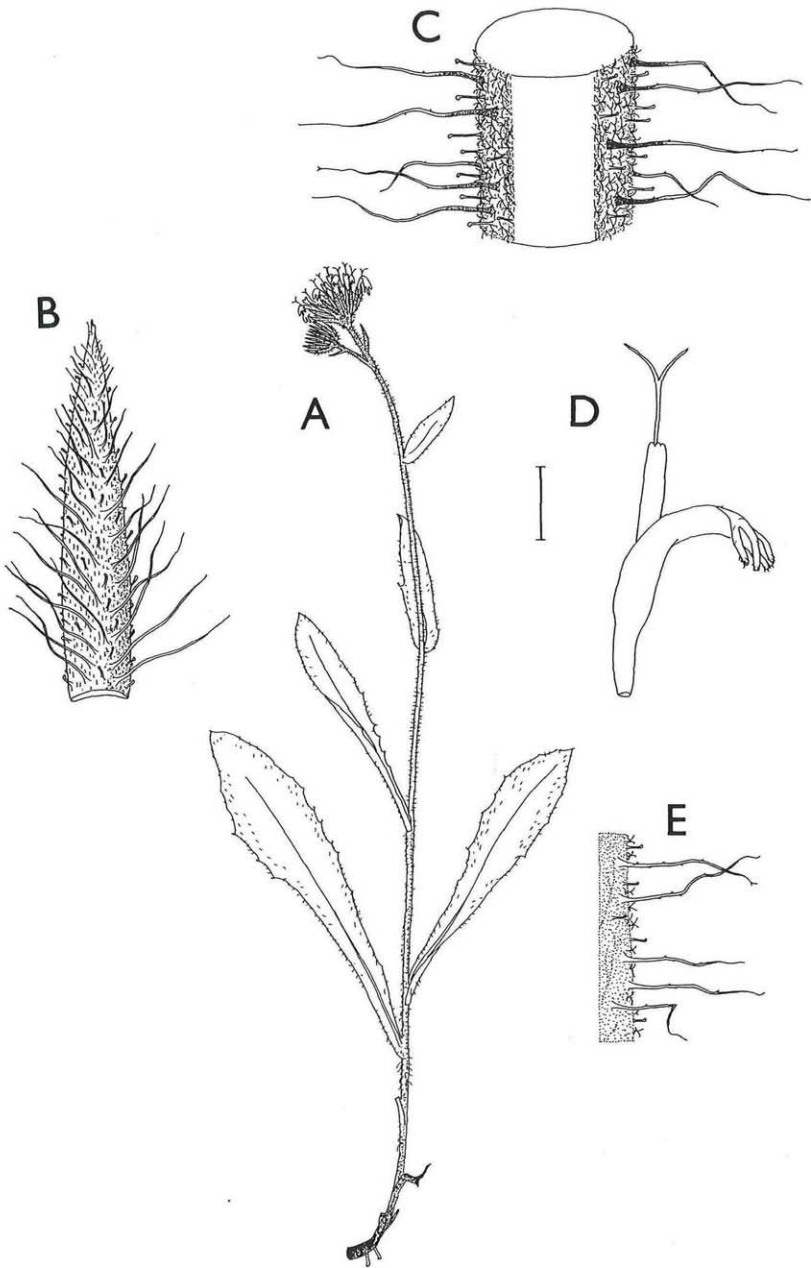


Fig. 4. *Hieracium schneiderianum*. – A whole plant, B middle involucre, C peduncle, D floret, E leaf margin. – Scale bar = A: 2 cm, B: 2 mm, C: 1 mm, D: 2.5 mm, E: 1 mm.

= *Hieracium sudeticum* var. [ε] *nudiusculum* TAUSCH Flora 20 (Beibl. 1): 69, 1837 (e descr.; nom. spec. illegit., Art. 53).

Ind. loc.: "Riesengebirge".

Typus ignotus.

– *H. halleri* var. *macrostylum* TAUSCH Flora 11 (Erg.-Bl. 1): 63, 1828 (nom. nud.).

Nomenclatural note:

Although ZLATNÍK stated in the protologue of *H. schneiderianum*: "PO.: MNP, UB [Plantae originales.: Herbaria Musei Nationali Pragae, Instituti Botanici Universitatis Masarykianae Brunensis]" no original material is deposited either in the herbarium PR, or BRNM. The same holds for the original material of other names published by ZLATNÍK 1938 and typified in the present paper (*H. rohlenae*, *H. nigrostylum*, *H. luteistylum*, and *H. tauschianum* [(= *H. krajinae*)]). As in the case of the original material of the name *Hieracium alpinum* subsp. *augusti-bayeri* ZLATNÍK (CHRTEK & MARHOLD 1996: 302) it was probably only his intention to deposit original specimens in the above-mentioned herbaria. When ZLATNÍK unexpectedly died in 1979, his herbarium of the genus *Hieracium* (later acquired by the herbarium SAV) still contained not only full original material of his study, published in 1938, but also an amount of specimens from other herbaria borrowed for the revision.

Undoubtedly original material of *H. schneiderianum* in the herbarium SAV includes the following specimens: Krkonoše, u Hančovy mohyly, blíže vodopádu Pančavy [Krkonoše Mts, nearby waterfall of Pančava rivulet = Pančavská louka], 1936, ZLATNÍK, SAV; Krkonoše, Nardetum na hřebeni Silberkammu [Krkonoše Mts, at Silberkamm = Stříbrný hřeben], 1925, 1927 ZLATNÍK SAV; Krkonoše, na jižním svahu Sněžky [Krkonoše Mts, southern slope of Mt. Sněžka], 1933 ZLATNÍK SAV; Krkonoše, na jižním svahu Kamenité [Krkonoše Mts, southern slope of Kamenitá pláň], 1933 ZLATNÍK SAV; Krkonoše, na jižním svahu Vysoké Loučné [Krkonoše Mts, southern slope of Mt. Vysoká Loučná = Luční hora], 1933 ZLATNÍK SAV; Krkonoše, Nardetum na Bílé louce u Luční boudy [Krkonoše Mts, Bílá louka, nearby Luční bouda chalet], 1933 ZLATNÍK SAV (populations sample); Krkonoše, Nardetum na Bílé louce [Krkonoše Mts, Bílá louka], 1924 ZLATNÍK SAV; Krkonoše, svahy u Vel. Rybníka [Krkonoše Mts, slopes nearby Velký Rybník = Grosser Teich Grube], 1924 ZLATNÍK SAV; Krkonoše, u Malého rybníka [Krkonoše Mts, nearby Malý rybník = Kleiner Teich Grube], 1933 ZLATNÍK SAV; Krkonoše, v rokli Melzergrund [Krkonoše Mts, Melzergrund], 1927, 1933 ZLATNÍK SAV; Krkonoše, v horní části Dlouhého dolu [Krkonoše Mts, in the upper part of Dlouhý důl], 1924 ZLATNÍK SAV; Krkonoše, na jižním svahu Kozích hřbetů [Krkonoše Mts, southern slope of Mt. Kozí hřbety], 1924 ZLATNÍK SAV; Krkonoše, na louce u Černé boudy na Černé hoře [Krkonoše Mts, at Mt. Černá hora, nearby Černá bouda Chalet], 1927 ZLATNÍK SAV (population sample); other material of this taxon in the herbarium SAV, collected by ZLATNÍK includes few specimens of cultivated plants and those of "modificationes reducta, subinsueta, tenuis", later specimens are represented also in the herbarium PR.

Description: Phyllopodous or hypophyllopodous. Stem 15–30 cm high, simple one-headed or with 1–3 single headed branch(es) developing from medium or upper cauline leaf axil(s) or occasionally from stem base, slender to robust, slightly striate, ± purplish at the base, with few to scattered pale, towards the top of stem dark-based, 1.5–3.0 mm long simple



eglandular hairs; few, towards the top scattered 0.2–0.5 mm long dark glandular hairs; scattered, towards the top numerous stellate hairs; and with scattered microglands (<0.2 mm) throughout. Leaves with few, on the margins and below on the midrib scattered simple eglandular hairs, sometimes glabrescent; with few, on the margins scattered short yellowish glandular hairs; and with few stellate hairs on the margins and below on the midrib. Basal leaves 0–2 at the time of flowering, oblanceolate, obtuse to subacute at apex, attenuate to winged petioles, subentire, denticulate, or less often (in robust plants) with few teeth; leaf-like (“proper”) cauline leaves (3–)4–6(–8), bract-like ones 0–1; lower leaves oblanceolate to oblong, obtuse–acute at apex, attenuate below to broadly winged subamplexicaul petioles, denticulate, or less often with few small teeth in the middle part; medium cauline leaves oblanceolate, oblong or lanceolate, subacute at apex,  $\pm$  amplexicaul, subentire to mucronate-denticulate; upper leaves linear, bract-like, sometimes larger, resembling medium cauline leaves. Heads solitary or 2–3; peduncles greyish green, with few to scattered 1.5–3.5 mm long, shortly (1/6–1/4 of their length) dark-based simple eglandular hairs, scattered 0.2–0.6 mm long dark glandular hairs and numerous to dense stellate hairs. Involucres barrel-shaped to subglobular, 10–15 mm long; phyllaries linear lanceolate,  $\pm$  acute, hairy at apex, dark blackish green, with scattered to numerous simple eglandular hairs, and scattered to numerous short glandular hairs and microglands, outer phyllaries  $\pm$  patent. Ligules shortened and curved (stylose florets), deeply dentate at apex, with few very short hairs at apex and on outer surface; the outer to 10 mm long. Styles exerted, olivaceous with  $\pm$  dark scales. Achenes 3.8–4.5 mm long. – 2n = 27.

Localities of the chromosome number records:

1. Czech Republic, Krkonoše Mts, Mt. Luční hora, S slopes, 5 km NW of Pec pod Sněžkou, 1430 m, 23. VII. 1993, leg. CHRTEK jun. (PR).
2. Poland, Karkonosze Mts, Strebny Uplaz, near the rocks of Słonecznik, 6.5 km SW of Karpacz, 1. VII. 1992, leg. CHRTEK jun. & HARČARIK (PR).

Distribution: Species endemic to the Krkonoše Mts. In the western part of these mountains it is known from only a few places, more abundant populations occur in their eastern part.

Representative specimens:

Czech Republic: 93. Krkonoše: Mt. Lysá hora, 5 km NE of Rokytnice nad Jizerou (1901 DOMIN PRC); Mt. Krkonoš, 5.3 km NW of Špindlerův Mlýn (1883 POLÁK PRC, ut *H. foliosum* var. *stylosum*); Luční bouda chalet [Wiesenbaude], 6 km NNW of Pec pod Sněžkou (1895 A. SCHULTZ PRC, ut *H. polymorphum* var. *fritzei*); Stříbrný hřeben [Silberkamm] (1925 ZLATNÍK SAV); Mt. Luční hora, S slopes (1992 CHRTEK jun. PR); Mt. Svorová hora [Černá kupa, Schwarze Koppe] (1910 LIEBALDT PR); Mt. Černá hora, 1240–1260 m (1927 ZLATNÍK SAV).

Poland: Karkonosze: Mt. Mały Szyszak, N slopes, near the path between the Špindlerovka chalet and Mt. Śnieżka (1991 CHRTEK jun. PR); Slopes of Mt. Kopa [Koppenplan], 4 km SSW of Karpacz (1873 ČELAKOVSKÝ PR, ut *H. sudeticum* FRIES);

Mt. Śniezka, NNW slopes, 1570 m (1991 CHRTEK jun. PR); Srebrny Uplaz ridge, above Wielki Staw mountain lake [near the former Prinz Heinrich Baude] (1993 CHRTEK jun. & HARCARIK PR).

4.4. *Hieracium rohlenae* ZLATNÍK Stud. Bot. Čechosl. 1: 185–186, 1938

Fig. 5

Ind. loc. (ZLATNÍK 1938: 136): “I. [Montes Corcontici, pars occidentalis] Ae [Dívčí kameny], B [Planities, pars septentrionalis (Labská louka)]; II. [Montes Corcontici, pars orientalis] A c–d [Sněžka, Černá kupa], f–g [Kamenitá pláň, Luční hora], B [Planities (. . . Bílá louka . . .)], C l–r [Grosser Teich-Grube, Kleiner Teich-Grube, Seifengrube et Gehänge, Melzergrund, Obří důl (. . . Aupakessel . . .), Dlouhý důl], D 9 [Sedlo u Špindlerovy boudy], 14 [Lesní hřeben], 16 [Sedlo u Pomezních bud], 27 [Rýchory].”

Lectotypus (hoc loco designatus): Krkonoše, Nardetum na jižním svahu Kamenité [Krkonoše Mts, on the southern slope of Kamenitá pláň], 1933 ZLATNÍK SAV.

= *Hieracium luteistylum* ZLATNÍK Stud. Bot. Čechosl. 1: 178–179, 181, 1938

Ind. loc. (ZLATNÍK 1938: 136): “II [Montes Corcontici, pars orientalis] A c–d [Sněžka, Černá kupa], C n–p [Seifengrube et Gehänge, Melzergrund, Obří důl (. . . Kiesberg . . .)] D 13 [Schonungen am Gehängewege oberhalb Krummhübel] (Schneider 1883 Br [= WRSL]), 14 [Lesní hřeben].”

Lectotypus (hoc loco designatus): Krkonoše, travnatá stráž v rokli Melzergrund [Krkonoše Mts, Melzergrund], 1933 ZLATNÍK SAV.

Nomenclatural note:

The original material of *H. rohlenae*, deposited currently in the herbarium SAV includes the following specimens: Krkonoše, v nardetu na Labské louce [Krkonoše Mts, Labská louka], 1933 ZLATNÍK SAV; Krkonoše, Na jižním svahu Kamenité v Calamagrostidetu [Krkonoše Mts, southern slope of Kamenitá pláň], 1924 ZLATNÍK SAV; Krkonoše, Nardetum na jižním svahu Kamenité [Krkonoše Mts, southern slope of Kamenitá pláň], 1933 ZLATNÍK SAV (population sample); Krkonoše, Nardetum mezi klečí nad vodopádem Úpy (Bílá louka) [Krkonoše Mts, Bílá louka, above the waterfall of Úpa river], 1924 ZLATNÍK SAV; Krkonoše, Nardetum na Bílé louce [Krkonoše Mts, Bílá louka], 1924 ZLATNÍK SAV; Krkonoše, v rokli Seifengrube [Krkonoše Mts, Seifengrube], 1933 ZLATNÍK SAV; Krkonoše, v rokli Melzergrund [Krkonoše Mts, Melzergrund], 1933 ZLATNÍK SAV; Krkonoše, Nardetum u úpských pramenů [Krkonoše Mts, nearby source of Úpa river = Aupakessel], 1933 ZLATNÍK SAV (population sample); Krkonoše, na okraji Úpského kotle [Krkonoše Mts, Úpský kotel cirque = Aupakessel], 1933 ZLATNÍK SAV. Few specimens taken from plants cultivated by ZLATNÍK are deposited in the herbarium SAV as well, together with specimens of “modificationes tenuis”, later specimens are represented also in the herbarium PR.

Description: Phyllopodous. Stem 15–34(–36) cm high, simple one-headed or with 1(–2) single headed branch(es) developing from medium cauline leaf (leaves) axil(s) or from stem base, slender, slightly striate, ± purplish at the base, with numerous pale, towards the top of stem dark-

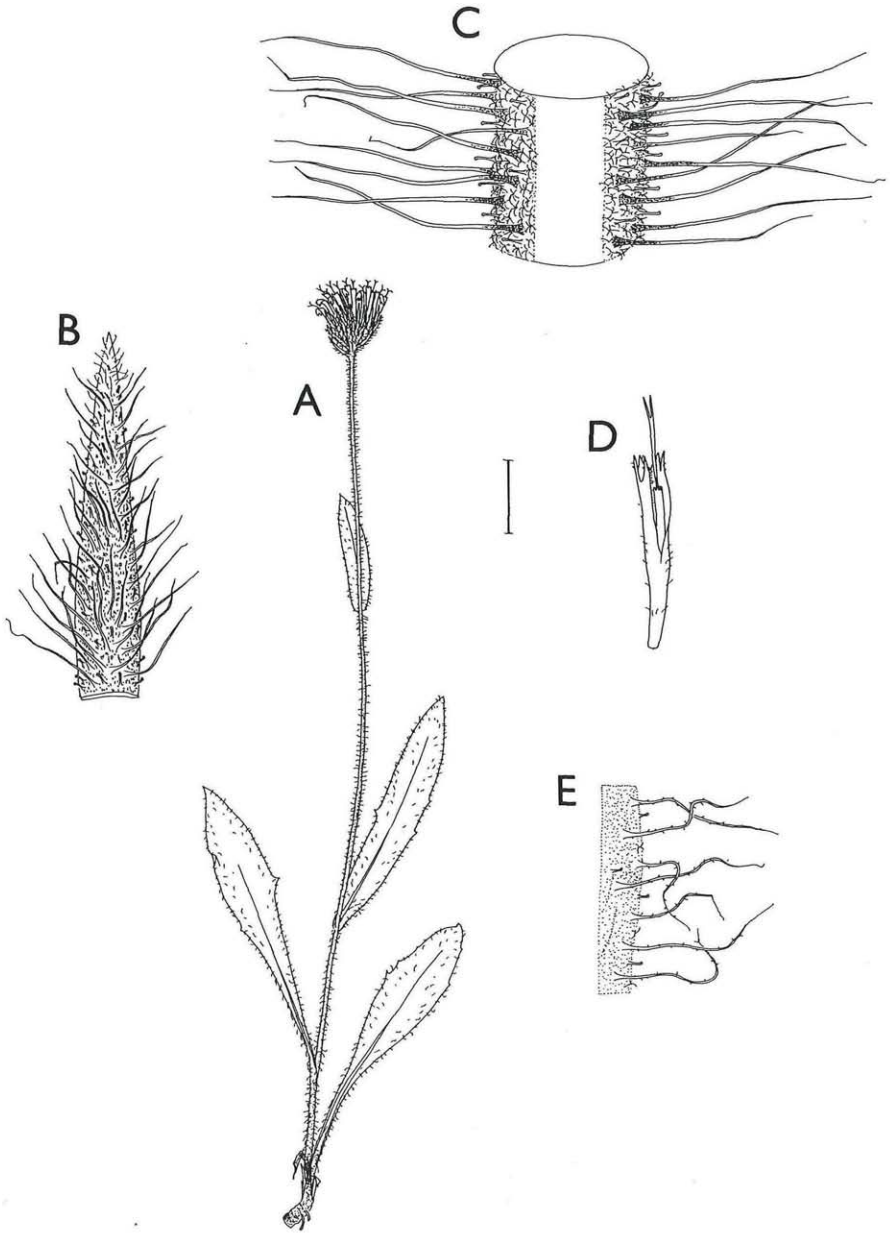


Fig. 5. *Hieracium rohlenae*. – A whole plant, B middle involucral bract, C peduncle, D floret, E leaf margin. – Scale bar = A: 2 cm, B: 2 mm, C: 1 mm, D: 2.5 mm, E: 1 mm.

based, 2–4 mm long simple eglandular hairs, few, towards the top scattered dark glandular hairs and with scattered, towards the top numerous stellate hairs. Leaves bright green above,  $\pm$  glaucous green below, with few to scattered, on the margins and below on the midrib scattered to numerous long simple eglandular hairs; and with few, on the margins scattered short yellowish glandular hairs. Basal leaves 0–3 at the time of flowering; primordial ones obovate, obtuse at apex, attenuate to  $\pm$  winged long petioles, subentire, denticulate, or less often (in robust plants) with few teeth; later oblanceolate to oblong,  $6.0\text{--}11.0 \times 1.0\text{--}2.2$  cm, obtuse or obtuse-acute at apex, long attenuate to petioles, subentire, remotely denticulate or (in robust plants) with few (usually 2–3) teeth; leaf-like (“proper”) cauline leaves 2–5, bract-like ones 1–2; lower leaves (broadly) oblanceolate to elliptical,  $5.0\text{--}12.5 \times 1.0\text{--}2.2$  cm, subacute at apex, attenuate below to broadly winged petioles or sessile, subentire, denticulate, or less often with few teeth in the middle part; medium cauline leaves oblong-elliptical to oblong, obtuse-acute to acute at apex, shortly contracted at base, subamplexicaul or sessile, subentire; upper leaves linear, bract-like, sometimes larger, resembling medium cauline leaves. Heads solitary or rarely 2–3; peduncles greyish green, with numerous to dense (2.5–)3.0–4.0(–5.0) mm long, shortly (1/6–1/4 of their length) dark-based simple eglandular hairs, scattered 0.2–0.5 mm long dark glandular hairs and numerous to dense stellate hairs. Involucres subglobular, 10–15 mm long; phyllaries linear lanceolate, acute at apex, blackish green, with numerous to dense simple eglandular hairs, and scattered short glandular hairs and microglands, outer phyllaries  $\pm$  patent. Ligules shortened and curved (stylose florets), deeply dentate at apex, or shortened and  $\pm$  tubulose, with scattered very short hairs at apex and on outer surface; the outer ligules to 11 mm long. Styles exerted, melleous yellow with  $\pm$  dark scales. Achenes 3.5–4.5 mm long. –  $2n = 27$  (CHRTEK 1994: 96).

Distribution: Endemic species to the Krkonoše Mts. Rare in the west part, more abundant populations occur in east part, most common in the upper parts of glacial cirques.

Representative specimens:

Czech Republic: 93. Krkonoše: Labská louka meadows (1933 ZLATNÍK SAV); Petrova bouda chalet (1964 ŠOUREK PR); Špindlerovka chalet [Spindlerbaude], mountain meadows (1909 MISSBACH PR); Úpska jáma glacial cirque [Aupagrund], 4.5 km NNW of Pec pod Sněžkou (1883 FIEK PRC, ut *H. fritzei*); Úpská hrana, along the path between the former Obří bouda chalet and Luční bouda chalet (1992 CHRTEK jun. PR); Mt. Studniční hora [Brunnberg], 4 km NW of Pec pod Sněžkou (1901 DOMIN PRC); Bílá louka meadows [Weiße Wiese], 5 km NW of Pec pod Sněžkou (1884 POLÁK PRC, ut *H. alpinum* var. *tubulosum*); Rýchory [Rehorn] (1881 PAX W).

Poland: Karkonosze: Mt. Kopa, SW slopes above the Kocioł Łomniczki [Melzergrube] glacial cirque, 1260–1280 m (1927 ZLATNÍK PR, ut *H. luteistylum*).



4.5. *Hieracium nigrostylum* ZLATNÍK Stud. Bot. Čechosl. 1: 181–183, 1938

Fig. 6

Ind. loc. (ZLATNÍK: 1938: 136): “I [Montes Corcontici, pars occidentalis] A f [Krakonoš], B [Planities (. . . Pančavská louka . . .)], C l–m [Labský důl, Velká Kotelná jáma et Malá Kotelná jáma], D 6 [Petrovka et Dívčí louka]; II [Montes Corcontici, pars orientalis] A c, f–g [Sněžka, Kamenitá pláň, Luční hora], B [Planities (. . . Bílá louka . . .)], C [Margo planitiei (. . . Grosser Teich–Grube . . . Kleiner Teich–Grube . . . Melzergrund . . . Kiesberg . . . Aupakessel . . . Dlouhý důl . . .)], D 9 [Sedlo u Špindlerovy boudy], 13 [Schonungen am Gehängewege oberhalb Krummhübel] (SCHNEIDER 1883 Br [= WRSL]), 18–19 [Modrý důl bei den Brunnbergbauden, Richtrovky]”.

Lectotypus (hoc loco designatus): Krkonoše, Nardetum na Pančavské louce [Krkonoše Mts, Pančavská louka], 1933 ZLATNÍK SAV.

Nomenclatural note:

The original material of *H. nigrostylum*, deposited currently in the herbarium SAV includes the following specimens: Krkonoše, na Pančavské louce pod Kotle [Krkonoše Mts, Pančavská louka, below Mt. Kotel], 1933 ZLATNÍK SAV; Krkonoše, Calamagrostidetum lichenosum na jižním svahu Sněžky [Krkonoše Mts, southern slope of Mt. Sněžka], 1933 ZLATNÍK SAV; Krkonoše, na jižním svahu Kamenitá pláň [Krkonoše Mts, southern slope of Kamenitá pláň], 1933 ZLATNÍK SAV; Krkonoše, Nardetum na Bílé louce u Luční boudy [Krkonoše Mts, Bílá louka, nearby Luční bouda chalet], 1933 ZLATNÍK SAV; Krkonoše, v kleči u Velkého rybníka [Krkonoše Mts, nearby Velký rybník = Grosser Teich], 1925 ZLATNÍK SAV; Krkonoše, U malého rybníka [Krkonoše Mts, nearby Malý rybník = Kleiner Teich], 1933 ZLATNÍK SAV; Krkonoše, v Calamagrostidetu v údolí Melzergrund [Krkonoše Mts, Melzergrund], 1927 ZLATNÍK SAV; Krkonoše, Calamagrostidetum villosae na Kiesberku [Krkonoše Mts, Mt. Kiesberg = Rudník], 1924, 1925 ZLATNÍK SAV; Krkonoše, Nardetum u Úpských pramenů [Krkonoše Mts, nearby source of Úpa river = Aupakessel], 1933 ZLATNÍK SAV; Krkonoše, na svahu Planiny do Dlouhého dolu [Krkonoše Mts, slopes of Planina above Dlouhý důl], 1925 ZLATNÍK SAV. Few specimens taken from plants cultivated by ZLATNÍK are deposited in the herbarium SAV as well, together with specimens of “modificationes tenuis” and “modificationes satūra”.

Description: Hypophyllopodous. Stem (15–) 18–33 (–42) cm high, simple, one-headed or rarely with 1 (–2) branch(es) developing from the stem base or from cauline leaf axil(s), slender, slightly striate, purplish at the base; with scattered to numerous, distinctly patent, 2–6 mm long, pale, towards the top of stem dark based simple eglandular hairs; few 0.2–0.5 mm long dark glandular hairs; scattered, towards the top numerous stellate hairs; and with scattered microglands (<0.2 mm) throughout. Leaves deep green, with scattered long simple eglandular hairs on both surfaces and margins; scattered short yellowish glandular hairs and with very rare stellate hairs (sometimes stellate hairs absent). Basal leaves usually withering at the time of flowering; oblanceolate to oblong, the inner 6.5–10.8 × 0.8–1.5 cm, rounded at apex, long attenuate towards the pe-

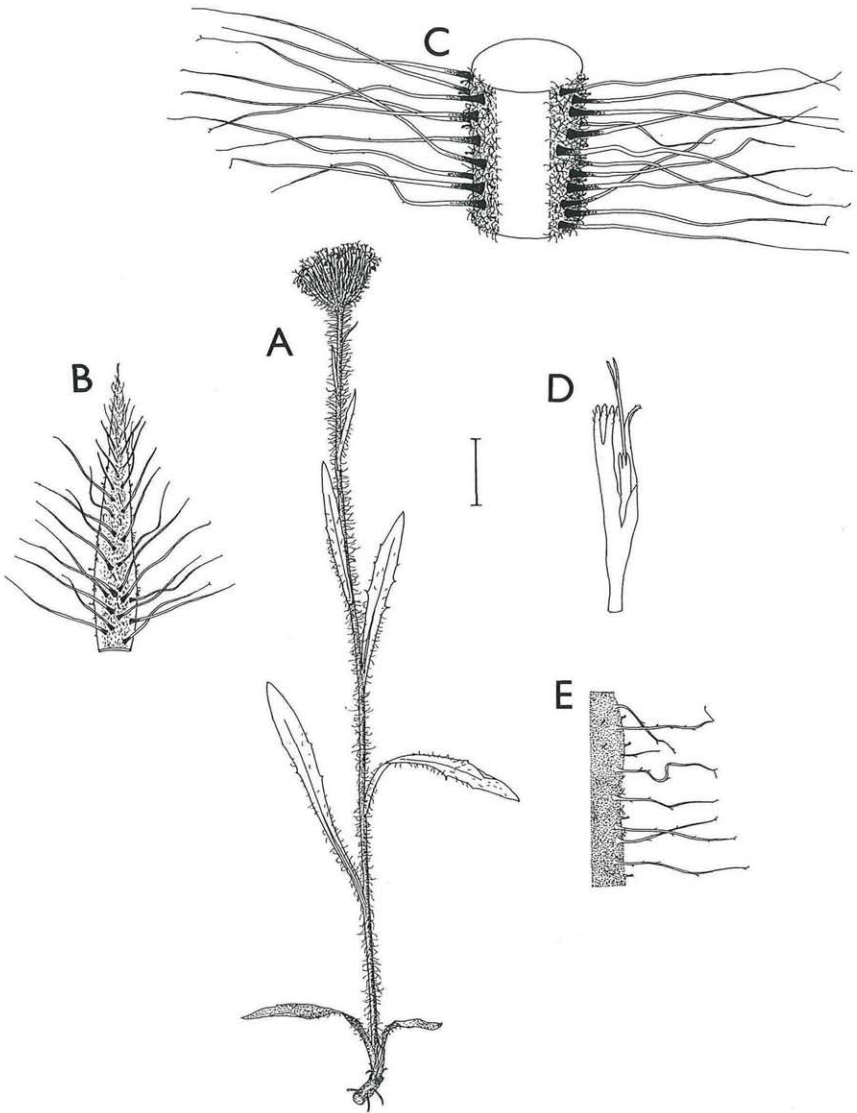


Fig. 6. *Hieracium nigrostylum*. – A whole plant, B middle involucre, C peduncle, D floret, E leaf margin. – Scale bar = A: 2 cm, B: 2 mm, C: 1 mm, D: 3 mm, E: 1 mm.

tiolles, entire or remotely denticulate (in robust plants with a few serrate teeth); medium cauline leaves narrowly oblong-ob lanceolate to linear,  $\pm$  acute at apex, sessile to semiamplexicaul, entire to denticulate; upper leaves bract-like, entire. Heads generally solitary, occasionally 2 (-3); ped-

uncles with numerous to dense, 3.5–7.5 mm long, shortly (1/6–1/4 of their length) dark-based simple eglandular hairs, scattered 0.2–0.5 mm long dark glandular hairs, and numerous to dense stellate hairs. Involucres cylindrical, barrel-shaped to subglobular, 11–17 mm long; phyllaries linear lanceolate, ± acute, hairy at apex, dark blackish green; with numerous to dense simple eglandular hairs; scattered short glandular hairs; and microglands; the outer phyllaries ± patent, shorter and broader than the inner ones. Ligules shortened and twisted (stylose florets), deeply dentate at apex, with scattered very short hairs at apex and on outer surface, the outer ones to 9 mm long. Styles exerted, dark olivaceous, with black scales. Achenes 3.5–4.5 mm long. –  $2n=?$

Distribution: Species endemic to the Krkonoše Mts; it appears rarely in both western and eastern part of the mountain range. Nevertheless, more localities are known in the eastern part.

Representative specimens:

Czech Republic: 93. Krkonoše: Mt. Kotel, N slopes, 1400 m (1945 ŠOUŘEK PR); Mt. Krkonoš (1883 POLÁK PR); Mt. Luční hora, SE slopes (1996 CHRTEK jun. PR); Střibrný hřeben ridge, above the Wielki Staw mountain lake, 1410 m (1933 ZLATNÍK PR); Rudník (SW slopes of Mt. Sněžka) (1948 SKŘIVÁNEK PR); Mt. Růžová hora, 1300 m (1960 ŠOUŘEK PR).

Poland: Karkonosze: Srebrny Uplaz ridge, 6 km SW of Karpacz (1993 CHRTEK jun. PR).

#### 4.6. *Hieracium slovacum* CHRTEK jun., spec. nov.

Fig. 7

Description: Planta phyllopora. Caulis 16–35 cm altus, tenuis usque robustus, leviter striatus, ex axillis folium caulinarum superiorum 1–2 ramos monocephalos erectos emittens, pilis simplicibus eglanduliferis pallidis, (2.5–)3.0–5.0(–6.0) mm longis, patentis, atro suffultis ubique numerosis; pilis glanduliferis atris, 0.2–0.6 mm longis in parte media dispersis, ad apicem versus numerosis; microglandulis (<0.2 mm longis) dispersis ubique; floccis praecipue superne numerosis tectus. Folia in utraque pagine pilis simplicibus eglanduliferis pallidis dispersis, margine et inferne in mediocosto numerosis; ubique pilis glanduliferis 0.2–0.3 mm longis vestita. Folia basalia 1–3; oblanceolata usque oblongo-elliptica, (7.0–)8.5–15.0 cm longa, 1.2–2.0 cm lata, apice obtuso-mucronata vel subacuta, irregulariter remote mediocriter dentata dentibus mediocriter (utque 0.5 cm longibus), ± curvatibus, triangulatibus vel interdum falcatis et/vel denticulata, in petiolum late alatum longe attenuata; folia caulina 4–8; caulina infima (1–2) oblongo-oblanceolata vel oblongo-elliptica, sessilia; caulina intermedia elliptica usque lanceolata, semiamplectentia, ut praecedentia apice acuta, sparse vel crebre mediocriter vel grosse dentata; superiora lanceolata, integra vel denticulata. Capitula 2–3, rare caulis simplex monocephalus (in quarum axillis interdum gemmula una alterave

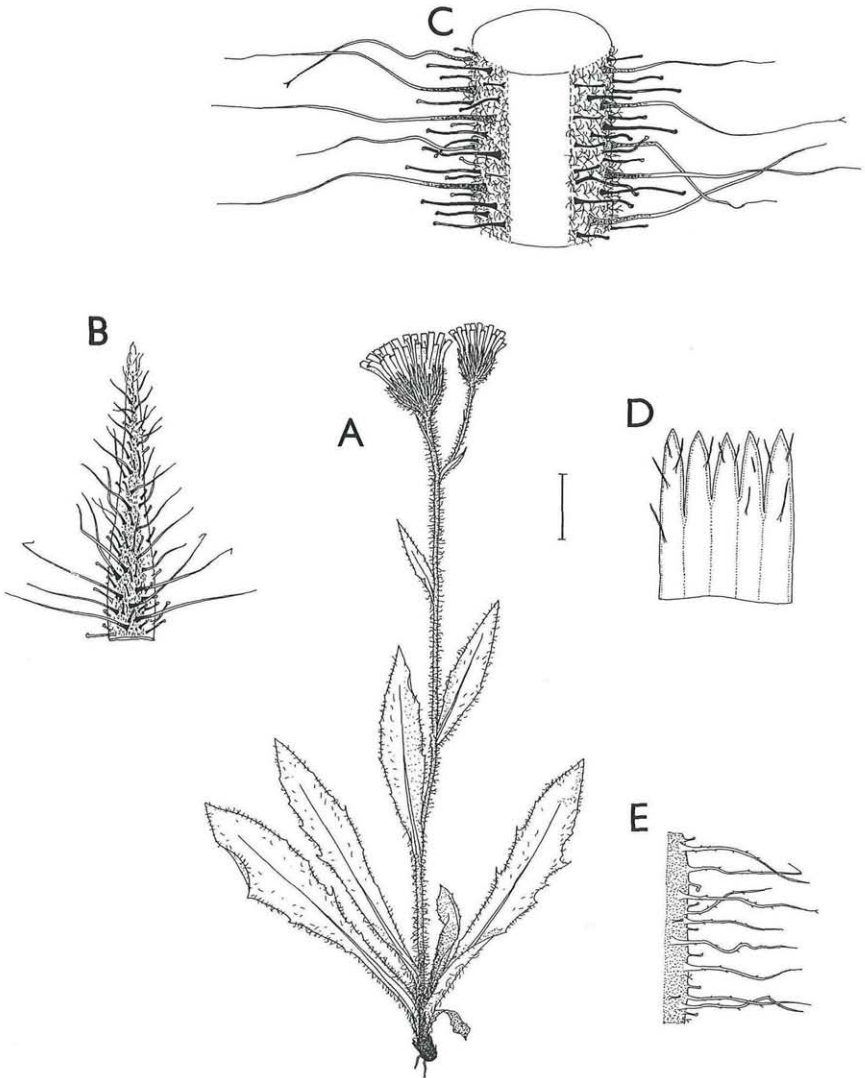


Fig. 7. *Hieracium slovacum*. – A whole plant, B middle involucral bract, C peduncle, D top part of ligule, E leaf margin. – Scale bar = A: 2 cm, B: 2 mm, C–E: 1 mm.

debilis provenit); pedunculis pilis simplicibus eglandulosis, 2.5–4.5(–6.0) mm longis dispersis, pilis glanduliferis 0.4–1.2 mm longis atris numerosis usque densis, pilis stellatis numerosis vestitus. Involucra dolioliformia, 14–17 mm longa; squamae lineari-lanceolatae, exteriores ± adpressae, atriusculo-virides, pilis simplicibus eglanduliferis numerosis usque densis, pilis glanduliferis atris dispersis usque numerosis vestitae. Ligulae evolu-



tae, apice et in parte aversa pilis simplicibus brevissimis 0.1–0.3(–0.5) mm longis dispersis obsitae, exteriores 16–18 mm longae. Styli mellei cum squamis atris. Cypselae 3.5–4.2 mm longae, nigrae.

Holotypus: Slovakia septentrionalis, montes Belianske Tatry: Loco Kopské sedlo ca 5.5 km situ merid.-occident. a vico Ždiar, prata alpina, 1735 m s.m., 20°13' E, 49°14' N, 9-VIII-1994, J. CHRTEK jun.; Holotypus: PR; Isotypi: PRC, SAV.

Description: Phyllopodous. Stem 16–35 cm high, slender to robust, slightly striate, in the upper part usually with 1–2 erect single-headed branches (peduncles), with numerous, patent, (2.5–)3.0–5.0(–6.0) mm long, dark-based simple eglandular hairs throughout; in the middle part scattered and towards the top numerous 0.2–0.6 mm long glandular hairs; with scattered microglands (<0.2 mm) throughout; and with numerous stellate hairs mainly in the upper part. Leaves with few to scattered, on the margins and below on the midrib numerous long simple eglandular hairs, and with scattered 0.2–0.3 mm long yellowish glandular hairs. Basal leaves 1–3, oblanceolate to oblong-elliptical, (7.0–) 8.5–15.0 × 1.2–2.0 cm, mucronate-obtuse or subacute at apex, irregularly remotely dentate, teeth medium sized (to 0.5 cm long), ± curved, triangulate or less often falcate, and/or denticulate, long tapering to broadly winged petioles. Cauline leaves 4–8, lower oblong-oblancheolate to oblong-elliptical, sessile; middle elliptical to lanceolate, semiamplexicaul, both middle and lower leaves acute at apex, with few medium sized to large teeth; upper leaves lanceolate, entire or dentate around the base. Heads 2–3, sometimes 1 (plants with single heads usually with aborted bud in in the axil of upper stem leaf); peduncles with scattered 2.5–4.5(–6.0) mm long simple eglandular hairs, numerous (to dense) 0.4–1.2 mm long dark glandular hairs and with numerous stellate hairs. Involucres barrel-shaped, 14–17 mm long, involucral bracts linear lanceolate, the outer ones ± lax, blackish green, with numerous to dense simple eglandular hairs and scattered to numerous glandular hairs. Ligules flat, with scattered 0.1–0.3(–0.5) mm long hairs at apex and on the outer surface, the outer 16–18 mm long. Styles melleous yellow with black scales. Achenes 3.5–4.2 mm long. Flowering: second half of July to first half of August. – 2n = 36 (Slovakia, Belianske Tatry Mts, the Kopské sedlo Saddle, 5.5 km SW of the settlement of Ždiar, locus classicus).

*H. slovacum* closely resembles *H. halleri* Vill. (the *H. alpinum* group) but differs firstly in its usually 2–3 headed stems (if stem single-headed, then with aborted bud in the axil of upper stem leaf) (single headed stems in *H. halleri*), dark styles (purely yellow in *H. halleri*), more cauline leaves and in leaf shape.

Distribution: As far as we are aware, the first specimens of this taxon were collected in the saddle Kopské sedlo in the limestone area of the Belianske Tatry Mts (the West Carpathians, N Slovakia) in 1986.

However, it was only in 1994 when it was collected again and recognized as a new taxon. Although many botanists paid attention to this area, no other specimens have been traced in any of the herbaria studied. The localities known hitherto are within the altitudes of (1500–) 1700 to 1920 m a.s.l. *H. slovacum* seems to be an endemic taxon to the Belianske Tatry Mts.

Specimens studied:

Slovakia: Carpathicum occidentale. 23c. Belianske Tatry: Kopské sedlo saddle, 5.5 km SW of the village of Ždiar, 1735 m (1994, 1996 CHRTEK jun. PR); Mt. Ždiarska Vidla, SE slopes above the Široké sedlo saddle, 4.8 km SW of the village of Ždiar, 1850 m (1994 CHRTEK jun. PR); Mt. Hlúpy, S slopes, above the Kopské sedlo saddle, 5.0 km SW of the village of Ždiar (1986 MARHOLD SAV); Zadné Med'odoly Valley, 5.5 km SE of the village of Javorina (between elevation points 1397.7 and 1528.0), ca. 1500 m (1986 MARHOLD SAV); Mt. Zadné Jatky, S slopes above the Predné Med'odoly Valley, 5 km SSW of the village of Ždiar, 1880 m (1994 CHRTEK jun. PR).

4.7. *Hieracium crassipedipilum* (PAWL. & ZAHN) CHRTEK jun., comb. nov. et stat. nov. Figs. 8, 9

≡ *Hieracium alpinum* subsp. *crassipedipilum* PAWL. & ZAHN in ZAHN Bull. Int. Acad. Polon. Sci., Cl. Sci. Math. Nat., Sér. B: Sci. Nat. (Bot.), 1928: 208, 1929.

Ind. loc.: "Tatra Magna: Ubocz Opalone, 1590–1650, solo granitico; Calamagrostidetum; supra lacum Czarny Staw pr. lacum Morskie Oko; Calamgr.; 1600–1650 m".

Lectotypus (hoc loco designatus): [Poland], Tatry Wysokie, Ubocz Opalone, 12–VIII-1926, PAWŁOWSKI, det. ZAHN, KRAM (no.145481).

– *H. alpinum* 2. *debile* REHMANN Oesterr. Bot. Z. 23: 184, 1873 (nom. invalid., Art. 23.6).

Description: Phyllopodous. Stem 15–30 cm high, slender, often ± flexuous, slightly striate, with numerous, patent, (1.5–)2.5–5.0 mm long, pale, towards the top of the stem dark-based simple eglandular hairs throughout, rare, upwards scattered gladular hairs and with scattered, upwards numerous stellate hairs. Leaves with scattered, on the margins and below on the midrib numerous long simple eglandular hairs, sometimes glabrescent above, and with few, on the margins scattered to numerous glandular hairs. Basal leaves 2–4; primordial elliptical, rounded or subacute at apex, cuneate-based, long petiolate, denticulate to subentire; later narrowly oblanceolate, 7.5–11.5 × 0.9–1.3 cm, long attenuate towards the acute top, long attenuate towards the winged petioles, denticulate to subentire. Leaf-like ("proper") cauline leaves 3–4, bract-like ones 0–2; lowermost cauline leaf narrowly oblanceolate to oblong, 6.5–8.5 × 0.8–1.2 cm, acute at apex, sessile or long attenuate to broadly winged petioles, denticulate to subentire; medium cauline leaves oblong, narrow, acute at apex, sessile to subamplexicaul, subentire, upper linear. Heads generally solitary, peduncles light to greyish green, with numerous 2.0–3.0(–3.5) mm

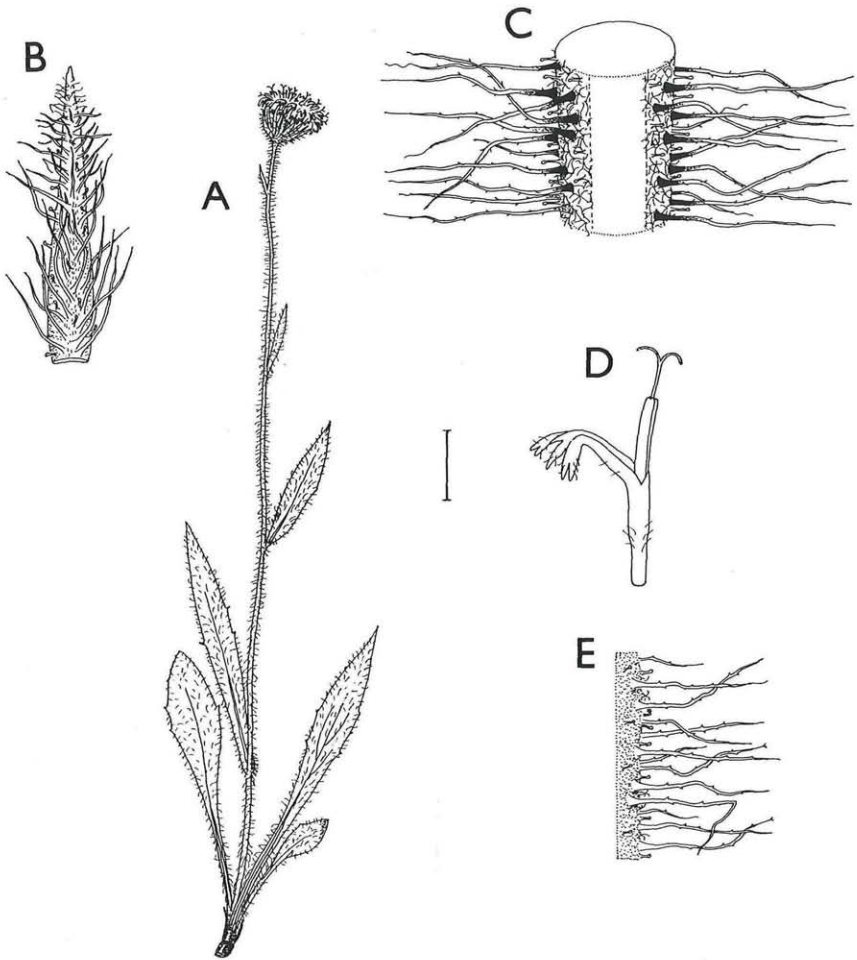


Fig. 8. *Hieracium crassipedipilum*. – A whole plant, B middle involucral bract, C peduncle, D floret, E leaf margin. – Scale bar = A: 2 cm, B: 2 mm, C: 1 mm, D: 3 mm, E: 1 mm.

long, shortly (1/6–1/4 of their length) dark-based simple eglandular hairs, scattered 0.2–0.5 mm long dark glandular hairs and numerous stellate hairs. Involucres barrel-shaped, 10–13 mm long; phyllaries linear lanceolate, acute at apex, blackish-green, with numerous to dense simple eglandular hairs throughout, and few glandular hairs. Ligules shortened and curved (stylose florets), deeply dentate at apex, with rare, very short hairs at apex and on outer surface. Styles exserted, purely yellow to ± dark. Achenes 3.4–4.3 mm long. –  $2n=36$ .

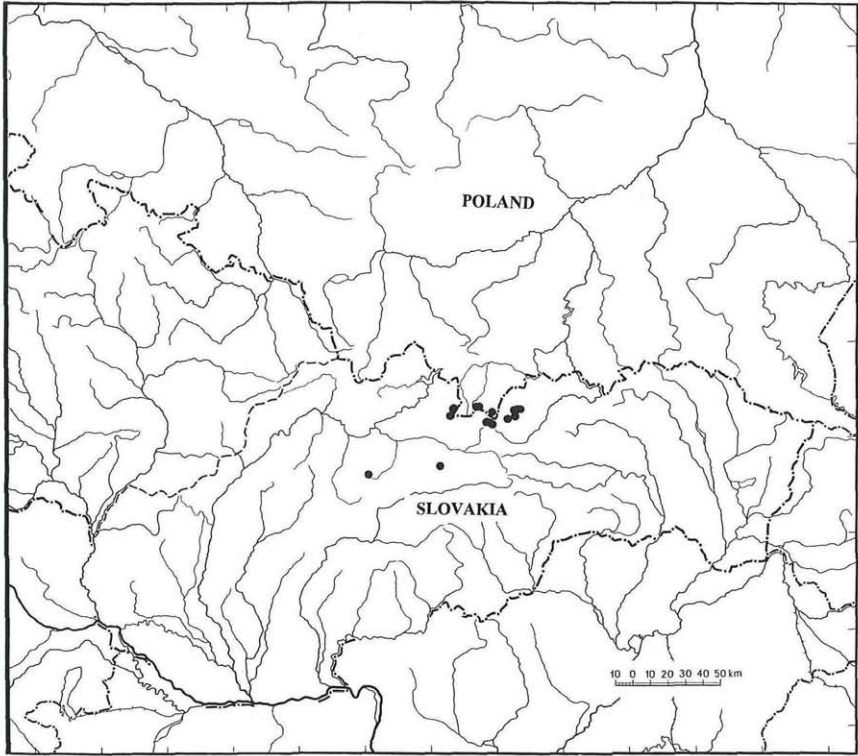


Fig. 9. Map of the distribution of *Hieracium crassipedipilum*.

Locality of the chromosome count: Slovakia, Belianske Tatry Mts, Zadné Meďodoly Valley, SW slopes of Mt. Hlúpy, 6 km SE of the village of Javorina, 1620 m, 9. VIII. 1994, leg. CHRTEK jun. (PR); (this is the first chromosome number record for this species).

Taxonomic note:

*H. crassipedipilum*, originally regarded as infraspecific taxon of *H. alpinum* is from that separable by its leafy stems (3–4 stem leaves instead of 0–1 in *H. alpinum* s. str.). All leaves are acuminate and  $\pm$  flat (instead of subacute or obtuse, and undulate in *H. alpinum*); basal leaves are less numerous; cauline leaves are semiamplexicaul or at least sessile. These characters undoubtedly support the view that this species should be placed into the *H. fritzei* group.

*H. crassipedipilum* shares a number of morphological features (and also the geographical area) with another Carpathian species of the *H. fritzei* group, namely with *H. pinetophilum*. Nevertheless, typical forms are distinguishable by the character of indumentum (more frequent and longer glandular hairs and less frequent and shorter simple eglandular hairs on stems and involucre of *H. pinetophilum*), style colour (always dark in *H. pinetophilum*, pure to honey-yellow in typical



*H. crassipedipilum*), ligule shape (well developed ligules in *H. pinetophilum*, prevailing stylose florets with reduced ligules and exerted styles in *H. crassipedipilum*), and by the top of involucre bracts ( $\pm$  obtuse in *H. pinetophilum*, acute in *H. crassipedipilum*). However numerous intermediates between this and *H. pinetophilum* occur, e.g. in the Západné Tatry Mts.

**Distribution:** The species is known only from the West Carpathians (Slovakia, Poland). The main centre of its distribution lies in the Západné Tatry Mts and in the adjacent parts of the Vysoké Tatry Mts, it is less frequent in the remaining parts of the Tatry Mts. It is rare in the Nízke Tatry Mts; the western limit of its distribution is in the Vel'ká Fatra Mts (with only one known locality).

**Representative specimens**

**Slovakia:** Carpaticum occidentale. 21c. Vel'ká Fatra: Mt. Ostredok, slopes above the saddle between Mt. Ostredok and Mt. Suchý (BERNÁTOVÁ BZB, ut *H. alpinum* agg.). – 22. Nízke Tatry: Mt. Ďumbier (1886 KUPČOK BRNM). – 23a. Západné Tatry: Roháčske plesá mountain lakes (1911 JÁVORKA BP, ut *H. fritzei* subsp. *spathulifolium*); Roháčska dolina Valley, below the Baníkovské sedlo saddle (1995 CHRTEK jun. PR). – 23b. Vysoké Tatry: Between Mt. Furkotský štít and Mt. Vel'ké Solisko, 2000 m (1938 J. DOSTÁL PRC); Mengusovská dolina Valley (1909 FILARSZKY & KÜMMERLE BP); Vel'ká Studená dolina Valley, 1750 m (1910 F. PAX BP). – 23c. Belianske Tatry: Mt. Bujačí vrch, 1650 m (1925 KRAJINA PRC); Mt. Pasienska, 1430 m (1933 DOMIN PRC).

**Poland:** Tatry: Mt. Mł. Giewont (1896 WOŁOSZCZAK W, ut *H. fritzei*); Morskie Oko mountain lake [Grosser Fischsee] (1928 DEGEN BP, ut *H. fritzei* subsp. *fritzei*)

4.8. *Hieracium pinetophilum* (DEGEN & ZAHN) CHRTEK jun., comb. nov. et stat. nov. Figs. 10, 11

$\equiv$  *H. fritzei* subsp. *pinetophilum* DEGEN & ZAHN *Magy. Bot. Lap.* 25: 376–377, 1927.

**Ind. loc.:** “Hohe Tatra: In Latschengestrüpp am Csorba-, Popper- und Froschsee, auf Granit (DREGEN [recte: DEGEN], HRUBY)”.

**Lectotypus** (hoc loco designatus): [Slovakia] Hohe Tatra [Vysoké Tatry Mts]: Poppersee [Popradské pleso lake], VIII. 1921, HRUBY (BRNM, no. 46106).

$=$  *H. nigrescens* subsp. *decipiens* var. *kralicskae* LENGYEL & ZAHN *Magy. Bot. Lap.* 28 (1929): 26, 1930 [ut “*Králícskae*”].

**Ind. loc.:** “Zólyom: Berg Králícska in der Gyömbér Gruppe (L [= LENGYEL])”.

**Lectotypus** (hoc loco designatus): Comit. Zólyom: in m. Králícska ad Jarabo, 1. VIII. 1927, LENGYEL, BP (Dr. G. LENGYEL: *Plantae Exsiccatae Regni Hungariae*).

**Description:** Phyllopodous. Stem (20–)22–28(–35) cm high,  $\pm$  slender, slightly striate, with scattered to numerous pale, dark-based simple eglandular hairs; scattered, towards the top numerous dark glandular hairs; and numerous stellate hairs. Leaves with scattered to numerous pale



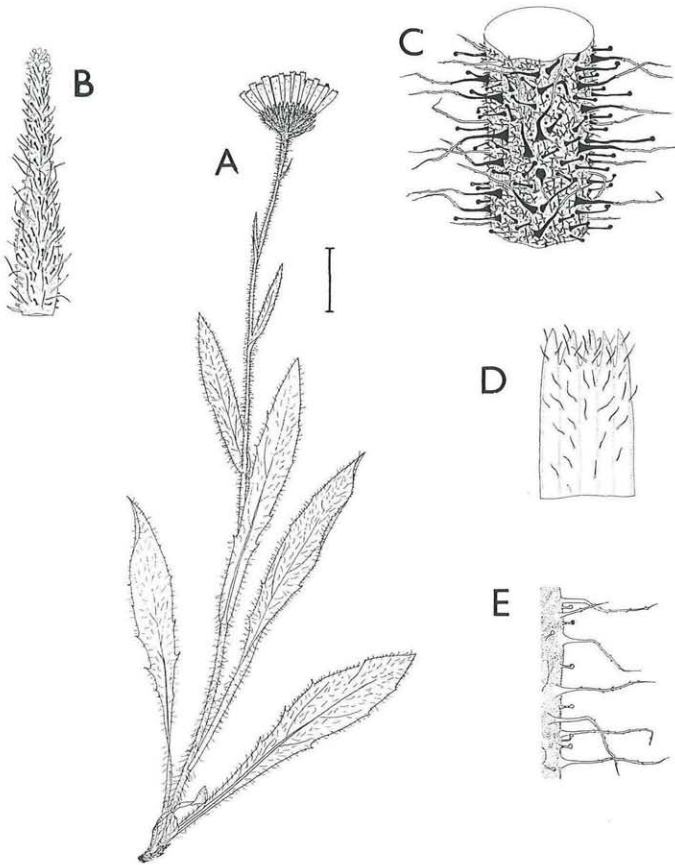


Fig. 10. *Hieracium pinetophilum*. – A whole plant, B middle involucre bract, C peduncle, D top part of ligule, E leaf margin. – Scale bar = A: 2 cm, B: 2 mm, C–E: 1 mm.

simple eglandular hairs on both surfaces and the margins; and with scattered, very short, yellowish glandular hairs, without stellate hairs. Basal leaves usually numerous; primordial obovate; later (narrowly) oblanceolate or narrowly elliptical, outer obtuse or obtuse-mucronate at apex, inner more or less acute, both denticulate to dentate, the teeth nipple-shaped, triangular or sometimes falcate, long tapering to winged petioles. Leaf-like ("proper") cauline leaves (2–)3–5(–6), together with upper bract-like ones up to 7, the lowest cauline leaf similar to inner basal (rosette) leaves, narrowly oblanceolate, more or less acute at apex, denticulate to minute dentate; intermediate ones oblong, acute at apex, denticulate vel entire, rarely minute dentate, semiamplexicaul; upper leaves linear-lanceolate, entire, sessile, uppermost bract-like. Heads solitary (occasionally 2), peduncles

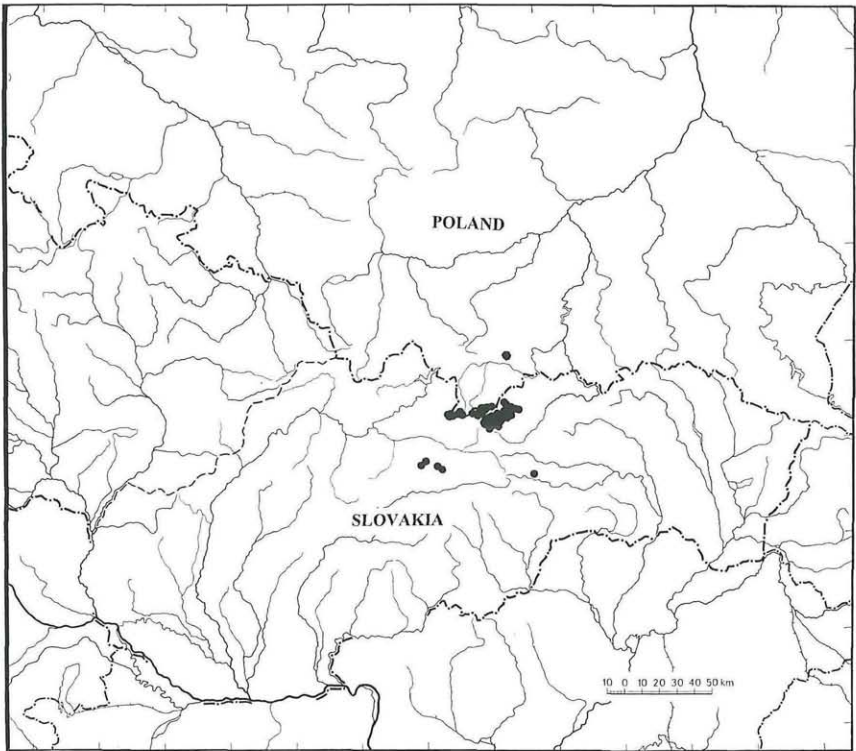


Fig. 11. Map of the distribution of *Hieracium pinetophilum*

straight, with scattered to numerous 1–3 mm long,  $\pm$  curled, pale, dark based (1/3 to 1/2 of the length) simple eglandular hairs, numerous to dense short (0.3–0.7 mm) and scattered long (0.7–1.1 mm) dark glandular hairs, and numerous or dense stellate hairs. Involucres barrel-shaped to globular, (10–)11–13(–15) mm long; involucral bracts narrowly linear-lanceolate or linear, obtuse to subacute at apex, with numerous to dense simple eglandular hairs and scattered to numerous dark glandular hairs. Ligules flat and long (ligulose florets) or occasionally shortened and twisted (stylose florets), with numerous 0.2–0.5(–0.8) mm long pale simple eglandular hairs at apex and on outer surface. Styles brown with black scales. Achenes 4.0–4.5 mm long. –  $2n=27$  (first record for this species).

Localities of the chromosome number records:

1. Slovakia, Vysoké Tatry Mts, Dolina Bielych plies Valley, nearby the path between the former chalet Kežmarská chata and Brnčalova chata chalet, 300 m S of the Biele pleso lake, 7 km NNE of the settlement of Tatranská Lomnica, 1620 m, 9. VIII. 1994, leg. CHRTEK jun. (PR).

2. Slovakia, Vysoké Tatry Mts, Malá Studená dolina Valley, 1 km NW of the chalet Chata kpt. Nálepku, 4.5 km N of the settlement of Starý Smokovec, 1600 m, 8. VIII. 1994, leg. CHRTEK jun. (PR).

Distribution: The species is only known from the Western Carpathians. It is quite common in the Vysoké Tatry/Tatry Wysokie Mts (mostly in the upper parts of glacial valleys) and scattered in the Západné Tatry/Tatry Zachodnie Mts, Belianske Tatry Mts and in the Nízke Tatry Mts. Due to the similar ecological demands it is often found in similar stations as *Hieracium halleri* VILL. (the *H. alpinum* group).

Representative specimens:

Slovakia: Carpathicum occidentale. 22. Nízke Tatry: Mt. Chabenec (1928 WEBER PR); Mt. Ďumbier (1928 WEBER PR, ut *H. alpinum*); Mt. Králička, NW of Jarabá (1938 ZLATNÍK SAV). – 23a. Západné Tatry: Mt. Plačlivô (1973 BERNÁTOVÁ BRA); Mt. Ostrý Roháč (1905 PAX BP, ut *H. polymorphum* subsp. *spathulifrons*); Smutná dolina Valley (1952 ŠOUREK PR). – 23b. Vysoké Tatry: Mengusovská dolina Valley (1928 LENGYEL BP, ut *H. fritzei* subsp. *fritzei*); Furkotská dolina Valley, near the Horné Wahlenbergovo pleso mountain lake (1925 WEBER PR, ut *H. alpinum*); Kačia dolina Valley (1964 MÁJOVSKÝ SLO, ut *H. alpinum* subsp. *apiculatum*); Päť Spišských plies mountain lakes (1883 LAKOWITZ BP); Slopes over the Skalnaté pleso mountain lake (1948 ZLATNÍK SAV). – 23c. Belianske Tatry: Mt. Nový (1959 KLÁŠTERSKÝ PR); Slopes of Mt. Hlúpy and Mt. Ždiarska Vidla (1925 ZLATNÍK SAV).

Poland: Tatry: Ornak, 1800 m (1977 PAWLUS KRAM, ut *H. alpinum*); Hala Pyszna, 1690 m (1977 JASIEWICZ KRAM, ut *H. alpinum*); Dolina Sucheju Wody Valley, 1580 m (1961 PIĘKOŚ KRAM, ut *H. alpinum*); Wołoszyn, Mt. Turnia nad Dziadem, N slopes (1968 JASIEWICZ KRAM, ut *H. alpinum*); Mt. Krzyżne, SE slopes, above the Dolina Rastoki Valley, 1660 m (1938 PAWŁOWSKI KRAM). – Górcze: Mt. Kudłoń (1952 A. & J. KORNAŚ KRAM, ut *H. nigrescens*).

#### 4.9. *Hieracium krivanense* (WOŁ. & ZAHN) ŠLJAKOV in CVELEV Fl. Evrop. Časti SSSR 8: 298, 1989 Figs. 12, 13

≡ *Hieracium lampromegas* ZAHN subsp. *krivanense* WOŁ. & ZAHN Magy. Bot. Lap. 10: 160, 1911. (nom. spec. illegit., Art. 52).

Ind. loc.: “[Slovakia] Tátra: in m. Kriván (WOŁ.); [Ukraine] in m. Parenki ad fl. Lomnica Galiciae (id.), in m. Gorgan ilemski inter fl. Lomnica et Swica (id.)”.

Neotypus (hoc loco designatus): Hohe Tatra, Krivan, 1900 m, granit, 13. VIII. 1893 PAX, BP (no. 195882; 440); det. ZAHN 1929: “*Hieracium scitulum* WOŁ. ssp. *krivanense* WOŁ. & ZAHN”.

≡ *Hieracium scitulum* subsp. *krivanense* (WOŁ. & ZAHN) ZAHN in ENGLER Pflanzenr. 4 (280): 720, 1921.

Nomenclatural note

While publishing the name *H. lampromegas* ZAHN 1911 did not provide any description of this species. He, however, included “var. *scitulum* WOŁ.” in one of the subordinate taxa, the subsp. *lampromegas*. That means he provided “a reference to a previously and effectively published description or diagnosis of a species or infra-

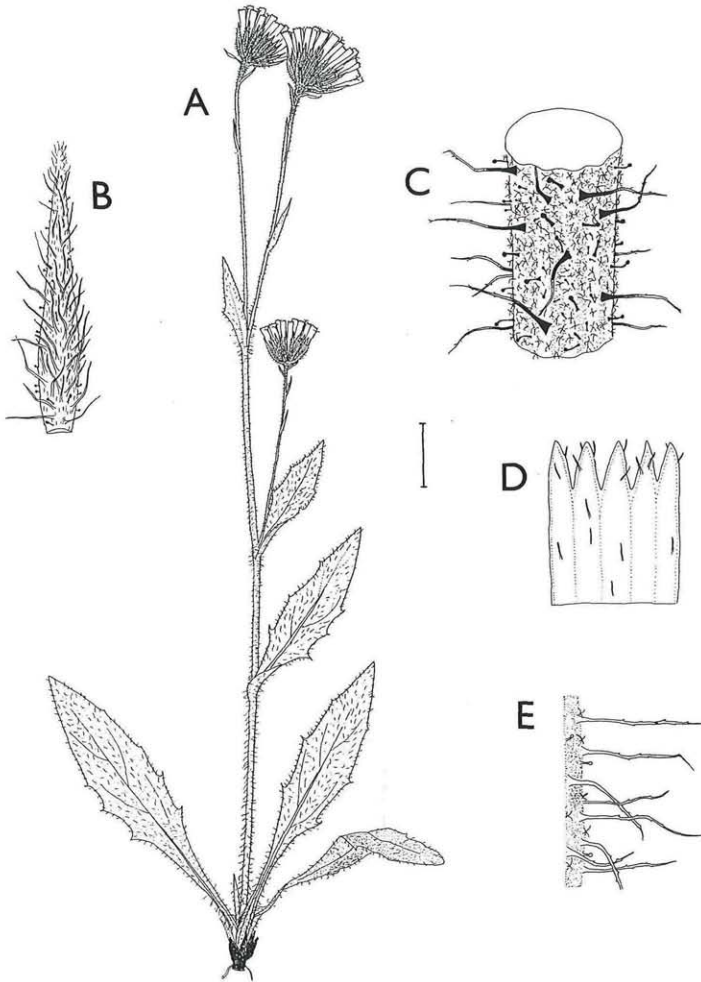


Fig. 12. *Hieracium krivanense*. – A whole plant, B middle involucre bract, C peduncle, D top part of ligule, E leaf margin. – Scale bar = A: 2 cm, B: 2 mm, C–E: 1 mm.

specific taxon” (Art. 41.3b (GREUTER & al. 1994)), namely *H. scitulum* WOŁOSZCZAK 1887. Thus, the name *H. lampromegas* ZAHN should be considered as validly published, but at the same time illegitimate (later homonym) and all four included subspecies (subsp. *lampromegas* ZAHN, subsp. *orthobracchion* WOŁ. & ZAHN, subsp. *wysokae* WOŁ. & ZAHN, and subsp. *krivanense* WOŁ. & ZAHN) are available for use in legitimate names. ZAHN’s herbarium at B was destroyed in 1943 (cf. STAFLEU & COWAN 1988: 511) and extensive search in herbaria where specimens of WOŁOSZCZAK are deposited now (B, BP, KRAM, LW and W, cf. STAFLEU & COWAN 1988: 429) did not



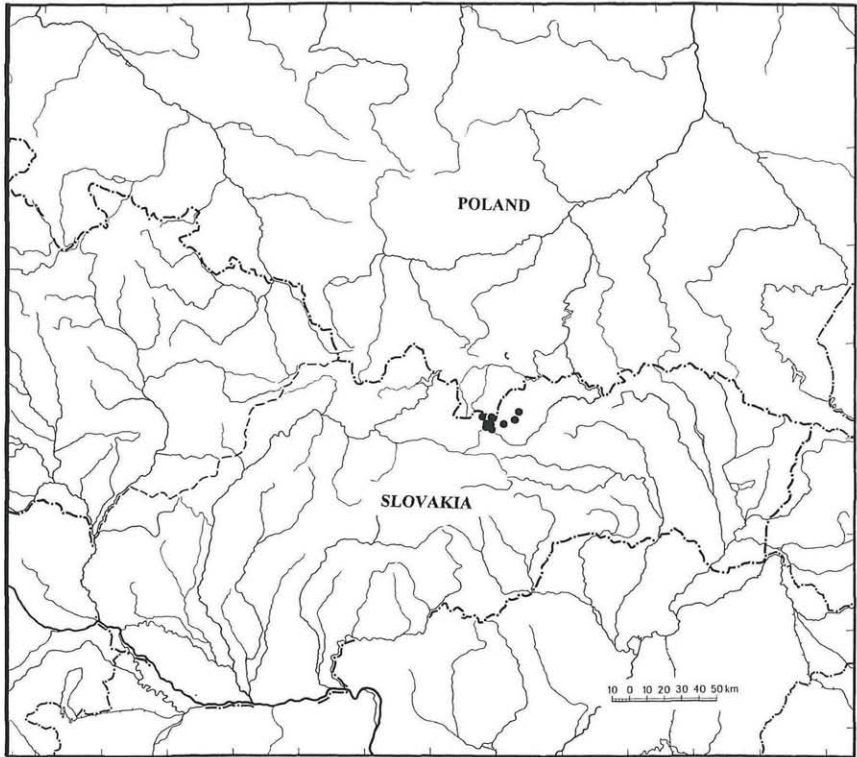


Fig. 13. Map of the distribution of *Hieracium krivanense*

reveal any original material of this name. Thus a neotype is selected here from the material collected by PAX and identified by ZAHN (deposited in BP).

It is worth to mention here that the name *H. scitulum* was published first in the preprint of the WOŁOSZCZAK's work in 1887 (WOŁOSZCZAK 1887: 20); this preprint has different pagination in comparison with the paper published in 1888 (WOŁOSZCZAK 1888) in the journal *Sprawozdanie komisji fizyjoğraficznej*.

Description: Phyllopodous. Stem 30–40 cm high, slender to  $\pm$  robust, sometimes purplish below, slightly striate, unbranched or with 1–3 erect branches from the axils of cauline leaves, with scattered pale, dark-based simple eglandular hairs; scattered dark glandular hairs; and numerous stellate hairs. Leaves with few to scattered pale simple eglandular hairs on both surfaces and the margins, rare, very short, yellowish glandular hairs, and few to scattered stellate hairs throughout. Basal leaves usually numerous; primordial ones broadly elliptical, cuneate at base, with petioles; remaining ones oblanceolate or elliptical, the outer ones obtuse or obtuse-mucronate at apex, the inner ones more or less acute, both dentate, the teeth mammiform and triangular, sometimes (rare) only denticulate,



tapered vel cuneate at base, petioles winged. Leaf-like ("proper") cauline leaves 3–4 (together with bract-like ones up to 7), the lowest one similar to inner basal leaves, elliptical, more or less acute at apex, dentate and denticulate; intermediate ones lanceolate, acute at apex, scattered dentate and denticulate or entire, sessile or with short petioles, semiamplexicaul; upper leaves lanceolate or linear, denticulate to entire, sessile to semiamplexicaul, uppermost bract-like. Heads 2–4, less often 1, peduncles straight or slightly curved, with scattered or numerous 0.8–1.5(–1.9) mm long, pale, dark-based (1/3–1/2 of their length) simple eglandular hairs, scattered 0.3–0.7 mm long dark glandular hairs, numerous stellate hairs and scattered microglands. Involucres 12–14 mm long, phyllaries narrowly linear-lanceolate, long tapering to a narrow subacute to acute apex, with numerous 0.8–1.5 mm long simple eglandular hairs and scattered 0.2–0.3 mm long dark glandular hairs. Ligules  $\pm$  flat or shortened, yellow, with rare or scattered, very short (0.2–0.5 mm), pale simple hairs at apex and on outer surface. Styles olivaceous with dark scales. Achenes 3.5–4.5 mm long. –  $2n=?$

Taxonomic note:

*H. krivanense* has been often confused with members of the *H. nigratum* and *H. chlorocephalum* groups. In its appearance it represents the transient type between the *H. fritzei* group and the two above mentioned groups. It is rather difficult to separate these taxa; some important characters are summarized in Tab. 1.

Smaller plants of this species resemble *H. vapenicanum* (LENGYEL & ZAHN) CHRTEK jun. (the *H. nigrescens* group). They have similar nature of indumentum and also have distinct bract-like leaves in upper parts of stems. Nevertheless, *H. vapenicanum* has stem leaves petiolate or long tapering to base, yellow styles, and in natural populations always one-headed stems. Generally, *H. krivanense* differs from this taxon by its taller stems.

Table 1

The main differences between *Hieracium krivanense* and *H. nigratum*

<i>H. krivanense</i>	<i>H. nigratum</i>
stems $\pm$ straight	stems $\pm$ flexuous
medium cauline leaves dentate mostly in the middle or subentire	medium cauline leaves $\pm$ deeply dentate at base
upper cauline leaves linear, entire	upper cauline leaves lanceolate, usually denticulate at base
upper cauline leaves without abortive buds in the axils	upper cauline leaves often with abortive buds in the axils
peduncles with scattered to numerous glandular hairs	peduncles with numerous to dense glandular hairs
leaf margins with scattered glandular hairs	leaf margins with rare glandular hairs

*H. krivanense* also resembles in its habit taxa placed into the *H. rohacsense* group (*H. alpinum* – *bifidum*). However, the later can be quite easily separated because of scattered stellate hairs on their involucre bracts.

Distribution: *H. krivanense* occurs in the Tatry Mts (West Carpathians), mostly on the territory of Slovakia (extremely rare in Poland). It is locally common in the western part of the Vysoké Tatry Mts (e.g. Mt. Kriváň, Mlynická dolina Valley) and less abundant in its eastern part. Only one locality is known from the Západné Tatry Mts.

#### Representative specimens

Slovakia: Carpathicum occidentale. 23a. Západné Tatry: Tichá dolina (1971 UNAR, BRNU). – 23b. Vysoké Tatry: Mt. Kriváň (1868 REHMAN LW; 1891 PIASECKI LW, ut *H. stygium*; 1915 FILARSZKY BP, ut *H. fritzei*); Below Mt. Sedielko in the Suchovodská dolina Valley, ca. 1850–1900 m (DOSTÁL & NOVÁK PRC); Furkotská dolina Valley, 1500–1700 m (1912 FILARSZKY & al. BP, ut *H. nigrescens* subsp. *decipiens* var. *eurotatrense*; 1927 LENGYEL BP; 1930 LENGYEL BP, ut *H. alpinum* subsp. *pseudofritzei*; 1952 ŠOUREK PR, ut *H. fritzei* subsp. *pinetophilum*); Mlynická dolina Valley, ca. 1600 m (1928 LENGYEL BP, ut *H. vagneri* subsp. *vagneri* var. *perrigidum*; 1994 CHRTEK jun. PR); Nearby the Štrbské pleso mountain lake [lacum Csorbaensem] (1892 BORBÁS BP; 1928 DEGEN BP, ut *H. fritzei* subsp. *pinetophilum*; 1928 DEGEN BP, ut *H. fritzei* subsp. *pinetophilum*); Velická dolina Valley [Felka] (1927 KOVÁTS BP, ut *H. fritzei* subsp. *spathulifrons*); Between the villages of Smokovec [Tátra-fűred] and Tatranská Lomnica [Tátra Lomnitz], (1928 DEGEN BP, ut *H. fritzei* subsp. *pinetophilum*); Dolina Zlomísk Valley (1893 SCHERFEL LW). – 23c. Belanské Tatry: Dolina Siedmych prameňov Valley [Drechslerhäuschen], 1580 m (1927 LENGYEL BP, ut *H. fritzei* subsp. *fritzei*).

Poland: Tatry: Slopes above the Morskie Oko mountain lake, 1390 m (1974 JASIEWICZ KRAM, ut *H. alpinum*).

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