

Towards a monograph of *Taraxacum* sect. *Palustria* (Studies in *Taraxacum* 5.)

Na cestě k monografii sekce *Palustria* rodu *Taraxacum*
(Studie rodu *Taraxacum* 5.)

Jan Kirschner and Jan Štěpánek

KIRSCHNER J. et ŠTĚPÁNEK J. (1986): Towards a monograph of *Taraxacum* sect. *Palustria* (Studies in *Taraxacum* 5.). — Preslia, Praha, 58 : 97—116.

The study presents some results of the examination of *Taraxacum* sect. *Palustria* DAHLST. in central Europe. Five new species are described: *Taraxacum cognatum* (Au, Cz, Hu), *T. telmatophilum* (Cz, Hu), *T. domabile* (Cz, Hu), *T. bohemicum* (Cz), and *T. multilepis* (Ga, Ge, He). The taxonomy of *T. balticiforme* DAHLST. is also discussed.

Botanical Institute, Department of Biosystematics, Czechoslovak Academy of Sciences,
252 43 Průhonice 1, Czechoslovakia

The only monograph of *Taraxacum* sect. *Palustria* DAHLST. (VAN SOEST 1965) covers reasonably well northwestern and northern Europe (mainly Be, Br, Da, Fe, Ho, Su). This part of the study is based upon the author's thorough knowledge of the Dutch representatives of this section, and also on some Scandinavian works giving a detailed survey of the section in northern Europe (DAHLSTEDT 1907, 1928; HAGLUND 1946 etc.). As we proceed toward the east and south, the gaps in our knowledge of *Palustria* become wider and wider, and, in southeastern Europe, the section is known less than fragmentarily. There are some species described on a rather casual material from the southeastern regions but some works (e.g. HUDZIOK 1965, 1967, 1969; MAŁECKA 1972, 1981 etc.) as well as our experience suggested that further taxonomic work is required to understand the group in central and southeastern Europe, which is where our interest is chiefly focused.

One of the reasons why we study primarily this particular section is a rapid disappearance of its habitats (calcareous marshes, fens and floody meadows); most representatives of this group must be regarded as critically threatened taxa of the European flora.

Field population studies, rich gatherings of living plants and specimens for herbarium, and cultivation represent our main approaches to understanding the taxa of *Palustria* within the whole range of their morphological plasticity. The examination of the ecology and karyology of these plants also provides valuable information. This material compared with important herbarium specimens (authentic or type collections) forms a basis for our taxonomic conclusions, some of which are presented below.

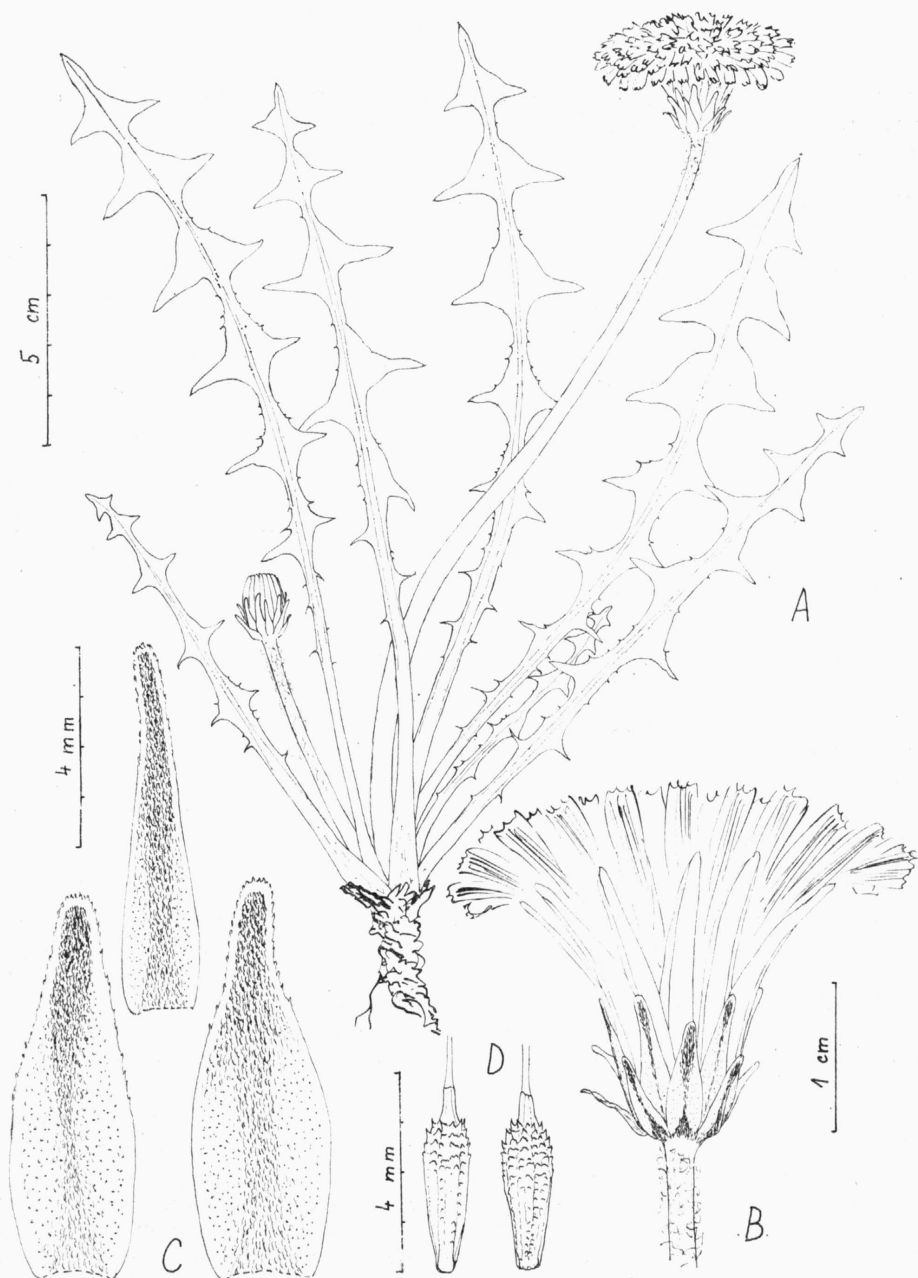


Fig. 1. — *Taraxacum bohemicum*. A: General habit. B: Capitulum. C: Outer bracts. D: Achenes. (Locality: Trusnov, Lodrant pond, Tar. Exs. no. 3; locus classicus).

Taraxacum bohemicum KIRSCHNER et ŠTĚPÁNEK, spec. nov.

(Fig. 1, 2, 4)

Description

Plantae mediocres usque altae. Folia laete viridia, sparse araneosa, plerumque (12—)13—15(—25) cm longa et 1.2—3.5 cm lata, plerumque profunde divisa, nonnisi raro integra vel non profunde lobata (lobis obtusis, latissime usque depresso triangularibus). Lobus terminalis triangularis usque tripartitus, $\pm$ lingulate elongatus, acutus, $\pm$ integerrimus, 1—3 cm longus et 0.7—2.0 cm latus, lobulis basalibus latissime (raro depresso) triangularibus, $\pm$ patentissimis, marginibus distalibus ad basin saepe convexis. Lobi laterales numero (3)4—7, remoti usque appropinquati, anguste usque latissime triangulares, ad basin marginibus distalibus saepe convexi, saepissime integerrimi, breves usque sat longi (0.7—1.5 cm). Interlobia raro brevina, plerumque (usque ad 2 cm) longa, saepissime angusta (2—3 mm), integerrima, rarissime denticulis remotis minutisque praedita. Petiolus et nervus medianus violacei (usque pallide rosei, secundum conditiones oecologicas), araneosi. Scapus plerumque $\pm$ viridis, araneosus. Involucrum basi (9—)10—11(—12) mm in diametro, squamis interioribus sub anthesi (13—)14—16(—17) mm longis, squamis exterioribus numero (12)13—14(16), laxe adpressis, interdum apice paulum retrorsum curvatis, lanceolatis usque anguste lanceolatis (eis extremis interdum $\pm$ lineari-lanceolatis), obtusis, 7—9 mm longis et 1—3 mm latis, viridibus vel $\pm$ dilute viridibus, stria media obscura (atro-viridi), angusta (ca 0.5 mm lata) ornatis, marginibus albo-membranaceis, 0.1—0.2 mm latis. Calathium 3—4 cm in diametro, ligulae

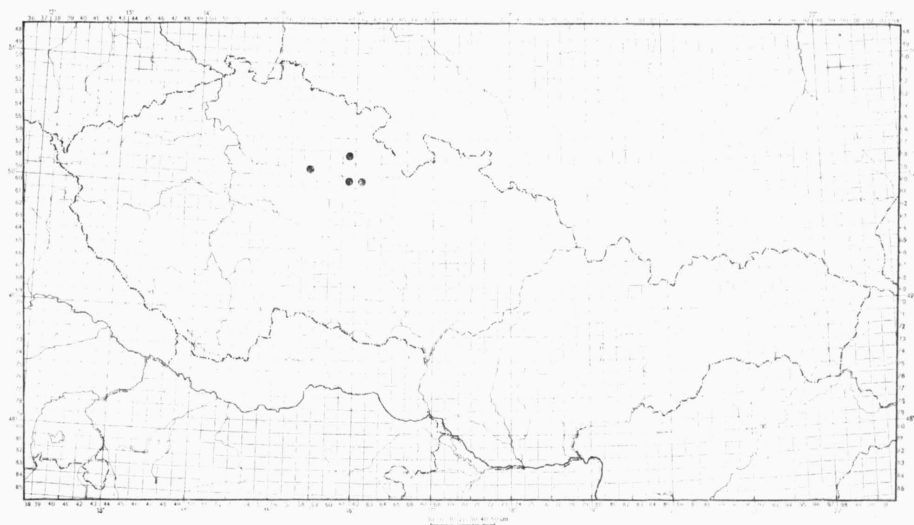


Fig. 2. — Geographical distribution of *Taraxacum bohemicum* in Czechoslovakia.

marginales¹ planae, extus stria cano-viridi notatae. Stigmata viridia, antherae polliniferae. Achenium $\pm$ dilute brunneum (OBERTHÜR et al. 1905: ($\pm$) 325/4—354/1), superne tuberculatum et $\pm$ grosse spinulosum spinulis $\pm$ erectis, ceterum $\pm$ laeve, 3.5—3.7 mm longum (pyramide inclusa), 0.8—0.9 mm latum, in pyramidem subconicam, 0.6—0.7 mm longam $\pm$ subabrupte abiens. Rostrum 8.0—8.5 mm et pappus 6.0—6.5 mm longi.

$2n = 32$ (no. det. 3607, 3605)¹

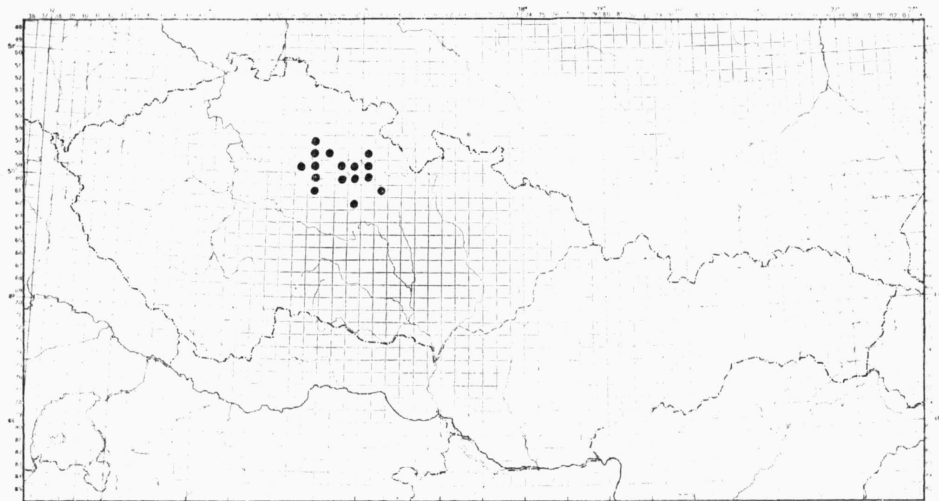


Fig. 3. — Geographical distribution of *Taraxacum hollandicum* in Czechoslovakia.

Holotypus: "ČSSR, Bohemia orient., opp. Holice: in prato ad ripam merid. piscinae Lodrant prope pagum Trusnov" leg. ŠTĚPÁNEK 1984 (no. det. 4572), in herb. PR asservabitur.

Isotypi: PR (no. det. 2988) et plantae in Tarax. Exs. no. 4 distributae, e.g. in herb. PR (no. det. 3607) et herb. BRNU, KRAM, L, LE, LG, M, S, WU.

Specimina cetera examinata, in eadem regione lecta: "Holicе; in prato prope ripam orient. piscinae Šmatlán situ merid. a pago Chvojenec" ŠTĚPÁNEK 1983 PR (no. det. 2987 et plantae ut Tarax. Exs. no. 5 distrib. paratypi sunt, in herb. BRNU, KRAM, L, LE, LG, M, S, WU etc. conservabuntur); herb. auct. (no. det. 3605) — "Holicе; in prato ad ripam bor.-occ. piscinae Ředický rybník, prope pagum Horní Ředice" ŠTĚPÁNEK 1984 herb. auct. (no. det. 3606). — "Pardubice: in pratis ad ripam piscinae Mordýř haud procul a pago Horní Ředice" ŠTĚPÁNEK 1983 herb. auct. (no. det. 3608). — "... in vallo piscinae Mordýř, ca 1.5 km situ boreali a pago Horní Ředice" ŠTĚPÁNEK 1983 herb. auct. (no. det. 2985). — "... oppidum Hradec Králové: in pratulis ad piscinam, haud procul a via publica, ca 1.5 km situ occ.-austr.-occ. a pago Králova Lhota" KIRSCHNER 1984 herb. auct. (no. det. 3604). — "districtus Nový Bydžov, ad piscinam Proudnický rybník prope vicum Hradištko" DEYL 1943 PR (no. det. 2990).

This remarkable species can hardly be compared with any closer relative, as it occupies a rather isolated position in the section. It is readily recognizable by its narrow (narrowly lanceolate) but obtuse exterior bracts, typically deeply lobed leaves, and achenes with a short cone (0.6—0.7 mm); the tetraploid chromosome number ($2n = 32$) also should be noted in this connection.

¹) To each specimen examined the determination label with a number (no. det.) is attached.

Up to now, *Taraxacum bohemicum* has not been found outside the territory of eastern Bohemia although *Palustria* of some adjacent regions were also investigated in detail by us. It might be interesting to add that this geo-

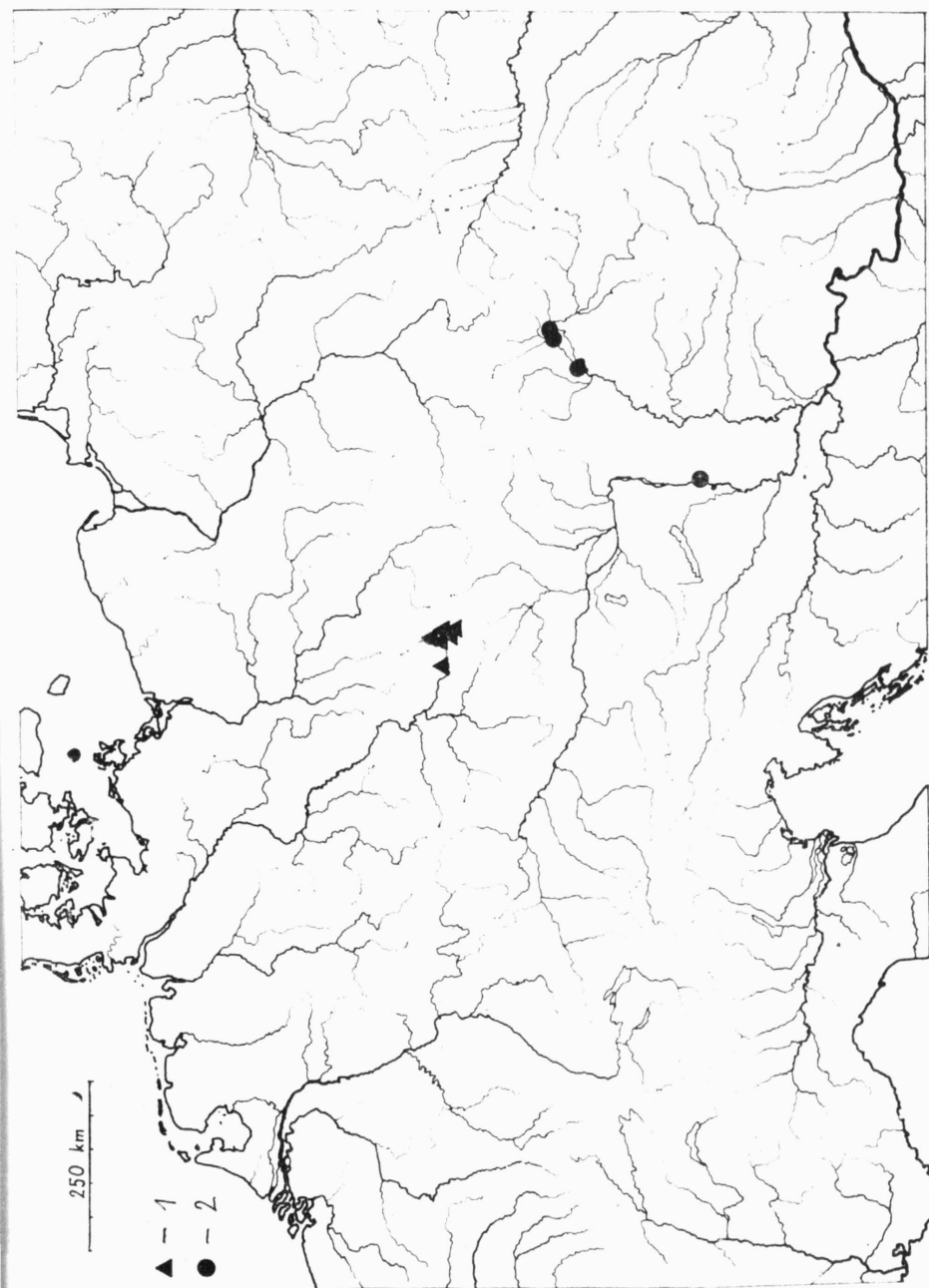


Fig. 4. — General distribution of *Taraxacum bohemicum* (1) and *T. domabile* (2)

graphical range of *T. bohemicum* corresponds very well to a relic "island" distribution of *Taraxacum hollandicum* VAN SOEST in Czechoslovakia (Fig. 2, 3).

Ecologically, *T. bohemicum* is confined to wet meadows with temporarily very high level of ground water (most often the meadows surrounding fish-ponds). Our species belongs to an ecological group of *Palustris* species that, to a certain extent, do not suffer much from competition with higher vegetation later in spring (*Taraxacum subalpinum* HUDZIOK and *T. hollandicum* VAN SOEST also can be regarded as members of this group in eastern Bohemia).

II

Taraxacum domabile KIRSCHNER et ŠTĚPÁNEK, spec. nov.

(Fig. 4, 5)

Description

Plantae mediocres, sed saepe potius luxuriantes. Folia saturate viridia, sparsissime araneosa vel subglabra, plerumque 10–15(–20) cm longa et ad 1.8 cm lata, plerumque divisa (saepe alternilobata, interdum oppositilobata), raro integra et tum remote denticulata. Lobus terminalis sat longus (usque $\pm$ linguulate elongatus), 1–3 cm longus et (0.5–)1.0–1.5 cm latus, integerrimus, anguste triangularis, obtuse acutus, basi saepe asymmetricus, lobulis basalibus marginibus proximalibus profunde sinuatis. Lobi laterales numero (2)3–4(5), latissime triangulares, asymmetrici, sat lati (ad 2.0 cm lati et ad 0.8 cm longi), marginibus distalibus $\pm$ rectis, proximalibus profunde sinuatis, acuti, integerrimi vel dente unico ad apicem lobi approximato praediti, interlobiis plerumque (2–)3–4(–5) mm latis et 10–15 mm longis. Petiolus et saepe etiam nervus medianus $\pm$ violacei, sparse araneosi, scapus pallide violaceus usque $\pm$ viridis, araneosus. Involucrum basi 9–10(–11) mm in diametro, squamis interioribus sub anthesi pro more 12–14 mm longis, squamis exterioribus adpressis, numero 10–11, late ovatis usque ovato-lanceolatis in apicem brevem, obtusum abeuntibus, superne breviter ciliatis, 6.0–7.5(–9.0) mm longis et 3–4 mm latis, zona mediana obscura (atro-viridi), marginibus subdistinctis pallide viridibus latitudine variabili [(0.5–)0.8–1.2(–1.5) mm], limbis indistinctis membranaceis angustis, 0.1–0.3(–0.4) mm latis. Calathium ca 2.5–3.0 cm in diametro, ligulae marginales extus stria cano-viridi notatae. Stigmata viridia, antherae polli-niferae. Achenium $\pm$ dilute brunneum (OBERTHÜR et al. 1905: ($\pm$) 354/1–325/4), superne spinulosum, spinulis angustis acutis, ceterum $\pm$ laeve, (4.3–)4.5–4.8 mm longum (pyramide inclusa), ca 0.9 mm latum, in pyra-midem cylindricam angustam, 0.9–1.0(–1.1) mm longam $\pm$ subabrupte abiens. Rostrum 6.5–8.0 mm et pappus 6–7 mm longi.

2n = 40 (no. det. 4571, 4573, 4569, et plantae cultae JŠ 228, 238, 246, 251, 256)

Holotypus: "ČSSR. Slovakia orientalis, distr. Trebišov: copiose in pratis inundatis (alluvium fluminis Latorica, inter vallos) haud procul a ponte trans fluvium, ca 4 km situ septentr. a pago Leles" leg. L. KIRSCHNEROVÁ et J. KIRSCHNER 1982 (no. det. 4571). In herbario PR asservabitur.



Fig. 5. — *Taraxacum domabile*. A: General habit (T 337). B: Capitulum (JŠ 221). C: Outer bracts (T 337). D: Achenes (JŠ 221, 234). (Locality of the plants depicted: locus classicus.)

Isotypi: No. det. 4569 et cet. plantae ex eodem radice no. T 337 separ., in herb. auct. — No. det. 4570 (plantae ex eodem radice in hort. bot. in Průhonice cultae sub no. JŠ 221, a. 1984 lectae).

Specimina cetera examinata

ČSSR: Ibidem, leg. KIRSCHNER 1984 PR (no. det. 2986 et plantae ut Tarax. Exs. no. 7 distrib. paratypi sunt, in herb. BRNU, KRAM, L, LE, LG, M, PR, S, WU etc. conservabuntur). — "Slovakia orientalis, distr. phytogeogr. 8. Potisi: prope pagum Leles ad flum. Latorica" KIRSCHNER 1984 herb. auct. (no. det. 4568). — "Slovakia orientalis, distr. Trebišov; pagus Somotor: in pratis subsalsis inter viam et ferroviā ca 2 km situ orientali a pago" KIRSCHNEROVÁ et KIRSCHNER 1982 herb. auct. (no. det. 4573).

Hungaria: "secus inundationes Danubii juxta opp. Kalocsa" SIMONKAI 1882 BP (no. det. 2013). — "oppidum Szerencs, pagus Mezőzombor: in pratis udis ca 0.5 km situ bor.-occid. a statione ferroviaria ad pagum" KIRSCHNER 1985 herb. auct. (no. det. 4429).

Note: Another plant of *T. domabile* from Hungary was safely identified in herb. BP. It was found stucked on a herbarium sheet together with some other (unidentifiable) palustroid plants. The specimen ["in inundatis et lacustribus praedii Rákos ad Paskálmalom" SIMONKAI 1871 BP 186629 (no. det. 2009) bears the number following after that of the Kalocsa herbarium sheet [compare no. det. 2013 (BP 186628)]. According to the herbarium labels, the Kalocsa plants were collected by SIMONKAI more than ten years later than the plant from Budapest (Rákos) but both were apparently labelled at the same time. Furthermore, the general appearance of the Budapest plant is conspicuously similar to that of the Kalocsa gathering (in the method of drying, colour of leaves, the morphotype etc.), and different from the other plants on the same sheet (no. det. 2009). We suppose that all these specimens of *T. domabile* were collected in the Kalocsa locality, and only later confused.

Taraxacum domabile is very likely restricted to the basin of the Tisa (Tisza) river, and is found in floody meadows along rivers. The leaf shape and the shape of exterior bracts (ovate, later ovate-lanceolate, with wide pale margin) can be considered as diagnostic for this taxon.

III

When studying some older herbarium collections, we came across interesting Pannonian plants (Au, Cz, Hu) with very dark, long, narrowly bordered exterior bracts. We treated these plants provisionally as a separate taxon.

In 1984 and 1985, the authors undertook several expeditions to this territory, found some plants of the above appearance, and collected them amply in both flower and fruit conditions, not only in southern Moravia and Slovakia but also in Hungary.

A detailed examination of this extensive material however has substantially modified our previous presumption: we ascertained that two closely related agamospecies sharing the above features (but differing from each other in many others) could be found in Pannonian region.

Taraxacum telmatophilum KIRSCHNER et ŠTĚPÁNEK, spec. nov.

(Fig. 6, 7)

Descriptio

Plantae subgraciles usque mediocres. Folia griseo-chlorina, sparse araneosa, plerumque 8—12 cm longa et 0.6—1.7 cm lata, plerumque profunde divisa, interdum $\pm$ indivisa et sat dense dentata, dentibus patentissimis. Lobus

terminalis raro inconspicuus, plerumque $\pm$ angustus, interdum trilobatus, interdum minute dentatus, lobulis basalibus ad 2 cm longis, anguste triangularibus usque sublinearibus, $\pm$ patentibus (subdivaricatis usque subantror-

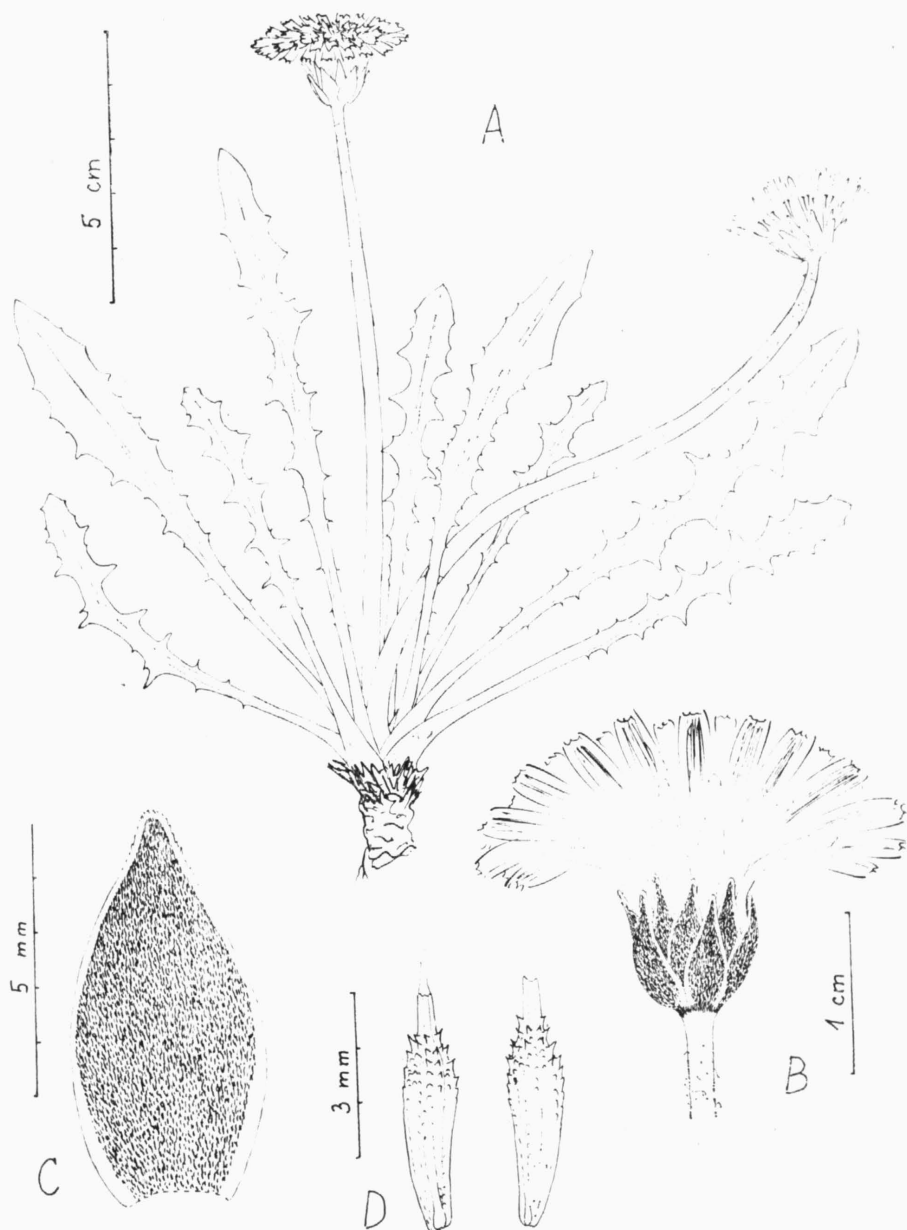


Fig. 6. — *Taraxacum telmatophilum*. A: General habit. B: Capitulum (JŠ 888, living plant). C: Outer bracts. D: Achenes. (Locality: Obid, Tarax. Exs. no. 28; locus classicus).

sis). Lobi laterales numero 3–4(5), irregulares, anguste triangulares (usque sublineares, "balticiformes" in plantis junioribus locis oecologice extremis crescentibus), 2–8 mm longi et (2–)3–8 mm lati, irregulariter, minute usque grosse dentati, saepe lobulati, marginibus distalibus saepe concavis, interlobiis plerumque 0.5–1.5 cm longis, interdum angustis (1.5–2.0 mm latis), saepe grosse dentatis lobulatisque. Petiolus angustus, dilute violaceus. Scapus violaceus, araneosus. Involucrum basi (8–)9–11 mm in diametro, squamis interioribus 11–14 mm, post anthesin ad 18 mm longis, squamis exterioribus laxe adpressis, numero (10)13–15, anguste lanceolatis usque lanceolatis, subacutis, (6.5–)7.0–8.0(–8.5) mm longis (illis eorum interioribus ad 9.5 mm longis) et (2.7–)2.9–3.3 mm latis, saturate atro-viridibus (usque $\pm$ nigris), interdum etiam nigro-rubellis, marginibus suis interdum laxe adpressis, distinctissime albis (vel interdum rubellis), angustis (0.2–0.3 mm latis). Calathium 2.0–2.5 cm in diametro, ligulae marginales extus stria obscura notatae. Stigmata saturate viridia, antherae polliniferae. Achenium $\pm$ dilute brunneum (OBERTHÜR et al. 1905: 343/1–354/4), superne dense grosse spinulosum, ceterum $\pm$ laeve, 4.2–4.5 mm longum (pyramide inclusa) et 0.9–1.0 mm latum, in pyramidem $\pm$ cylindricam, 0.9–1.0(–1.1) mm longam subabrupte abiens. Rostrum 7–8 mm et pappus 5.5–6.0 mm longi.

$2n = 24$ (no. det. 4582, 4580, 4579)

Holotypus: "ČSSR, Slovakia merid., opp. Štúrovo: graminosis inter vallum et rivum Mužlianský potok, ca 500 situ mer.-occ. a pago Obid" leg. ŠTĚPÁNEK 1984 (no. det. 4582). In herb. PR asservabitur.

Isotypi: Ibidem, herb. auct. (no. det. 4579, 4580, 2980, 2981) et plantae in Tarax. Exs. no. 28 distrib., e.g. in herb. BRNU, KRAM, L, LE, LG, M, PR, S, WU conservabuntur.

Specimina cetera examinata

ČSSR: "Lakšárska N. Ves – Červený rybník – piesky a lúky" MICHALKO 1952 SLO (no. det. 4594). – "...urbs Bratislava: locis subsalsis in nemore lucido Panónsky háj, ca 1 km situ boreali a pago Vajnory" ŠTĚPÁNEK 1985 herb. auct. (no. det. 4427) et plantae in Tarax. Exs. no. 29 distrib., e.g. herb. BRNU, KRAM, L, LE, LG, M, PR, S, WU. – "Šúr pri Bratislave" FERÁKOVÁ 1971 SLO (no. det. 4593). – "Svätojurský Šúr, vlhká lúka na južnom okraji" FUTÁK 1957 SAV (no. det. 4589). – "mokrú lúka na sev. od Vajnory" FUTÁK 1961 SAV (no. det. 4390). – "opp. Štúrovo: graminosis inter vallum et rivum Mužlianský potok, ca 500 m situ mer.-occ. a pago Obid" ŠTĚPÁNEK 1984 herb. auct. (no. det. 2982). – "in pascuis (solo salso 'sziky') situ merid.-occidentali ab oppido Mužla" JIRÁSEK 1938 PRC (no. det. 3600). – "Velké Kosihy: slanisko neďaleko cesty pri hlavnej hradskej do Komárna" MÁJOVSKÝ 1965 SLO (no. det. 4596). – "opp. Štúrovo: in prato secus rivum haud procul a compito ferroviariae et viae publicae Kamenný Most nad Hr. – Kamendín, ca 2 km situ bor.-occ. ab ecclesia in pago Kamenný Most" ŠTĚPÁNEK 1984 herb. auct. (no. det. 2983, 2984). – "...ca 1.8 km situ bor.-occ. ab ecclesia in pago Kamenný Most nad Hronom" ŠTĚPÁNEK 1984 herb. auct. (no. det. 3593).

Hungaria: "Eisenburger Comitatus. Nasse Wiese bei Lukacschaza" [coll. ?] 1889 WU (no. det. 3001). – "Comit. Fejér. In dumetis montis Kotlôhegy prope Csákvár" BOROS 1933 BP (no. det. 2978). – "Fejér m., Csákvár felett, erdő szélen Vértes hegység" VAJDA 1953 BP (no. det. 2976). – "In dolomitibus dumetosis 'Ökörös' supra Csákvár" BOROS 1953 BP (no. det. 4583). – "Vértes, Gant felett" VAJDA 1953 BP (no. det. 4584). – "In uliginosis prope opp. Tapolca, comit. Zala" ÚRHÉLYI 1936 BP (no. det. 2977). – "comit. Somogy, lacus Balaton, pagus Balatonszentgyörgy: locis humidis ad marg. pascuorum, ca 500 m situ occid. a statione ferroviariae" ŠTĚPÁNEK 1984 herb. auct. (no. det. 2979). – "Hungaria orient., opp. Szerencs: in prato udo ca 0.5 km situ bor.-occid. a statione ferroviariae in pago Mezözombor" KIRSCHNER 1985 herb. auct. (no. det. 4423).

Taraxacum cognatum KIRSCHNER et ŠTĚPÁNEK, spec. nov.

(Fig. 8, 9)

Descriptio

Plantae subgraciles usque subrobustae. Folia chlorina, sparse araneosa, plerumque 8–15 cm longa et 0.8–2.2 cm lata, plerumque profunde divisa, interdum $\pm$ indivisa et denticulata, dentibus patentibus. Lobus terminalis

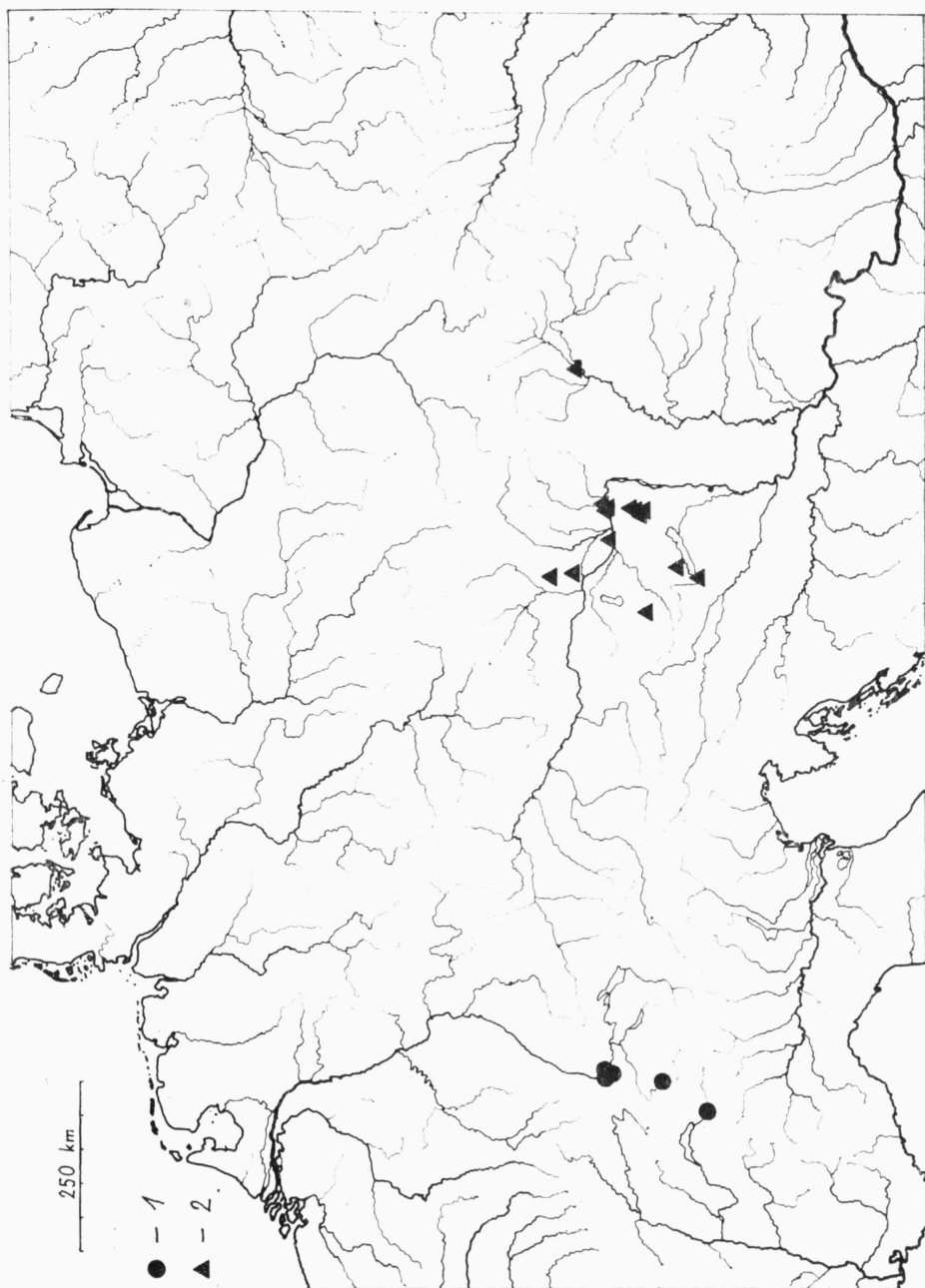


Fig. 7. — General distribution of *Taraxacum balticiforme* (1) and *T. telmatophilum* (2).

raro inconspicuus, plerumque $\pm$ angustus, anguste triangularis, 1.5–2.0 cm longus et 0.8–1.2 cm latus, interdum uno vel duobus dentibus minutis praeditus, lobulis basalibus patentibus usque paulum divaricatis. Lobi laterales numero 2–3(4), oppositi vel irregulares, triangulares usque anguste triangulares, 0.5–1.0 cm longi et 0.5–1.2 cm lati, integerrimi vel denticulati (raro lobulati), marginibus distalibus concavi vel rarius paulum convexi, interlobiis plerumque 0.5–1.5 cm longis, saltem 3 mm latis, denticulatis

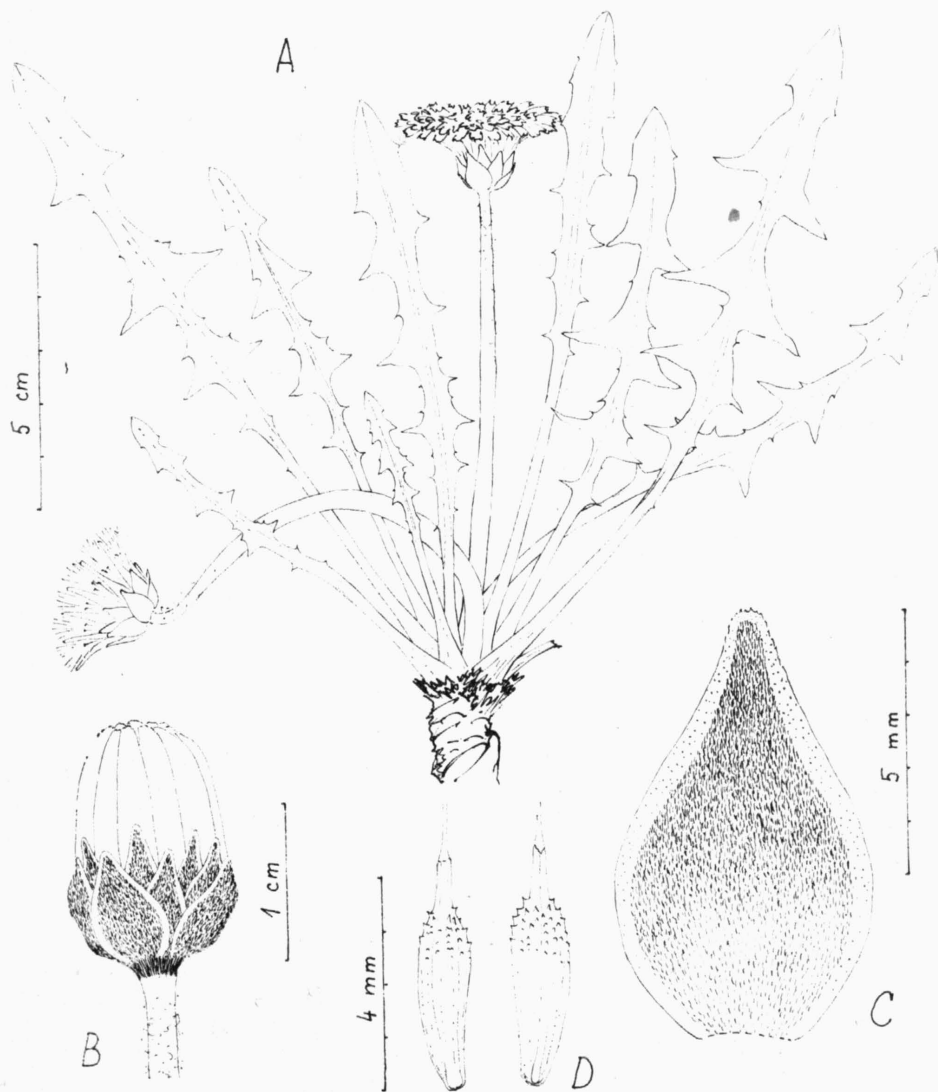


Fig. 8. — *Taraxacum cognatum*. A: General habit (isotype). B: Capitulum (loc.: Hodonín, Očovské louky, depicted in field). C: Outer bracts (no. det. 3594). D: Achenes (no. det. 3596).

Tab. 1. — Main differences between *Taraxacum cognatum* and *T. telmatophilum*

	<i>T. cognatum</i>	<i>T. telmatophilum</i>
exterior bracts		
number	(10)12—13	(10)13—15
width of the widest bract (mm)	(3.0—)3.5—4.5	(2.7—)2.9—3.3
margins	distinct but not loud, usually suffused greyish pink, (0.3—)0.4—0.5 mm wide	distinct, very conspicuous, white or suffused purple, 0.2—0.3 mm wide
position	tightly adpressed, slightly convex	± loosely adpressed to adpressed, flat
achenes		
shape	upper 1/3—1/4 only with short acute spinules or only tuberculate, gradually narrowing to a cone	upper 1/3—1/4 with strong spinules, achenes ± abruptly narrowing to a cone
cone (mm)	1.0—1.1	0.9—1.0(—1.1)
rostrum (mm)	8.0—8.5	7.0—8.0
colour of leaves	± medium green (at most slightly greyish)	grey-green
shape of leaves	lobes and interlobes usually only with minute teeth, only rarely with lobules	lobes and interlobes densely dentate, teeth large, lobules often present

(dentibus minutis plerumque numero 1—4). Petiolus angustus, dilute violaceus, scapus violaceus, araneosus. Involucrum basi 10—11 mm in diametro, squamis interioribus 13—15 mm, post anthesin ad 20 mm longis, squamis exterioribus adpressis, ± cavo-ventrosis, numero (10)12—13, lanceolatis usque ovatis, subacutis, 7.0—7.5 mm (illis eorum interioribus ad 9.0 mm) longis et (3.0—)3.5—4.5 mm latis, atro-viridibus vel saepius sordide atrobullis, marginibus distinctis roseis vel albidis, (0.3—)0.4—0.5 mm latis. Calathium 2.0—3.0 cm in diametro. Ligulae marginales extus stria obscura notatae. Stigmata saturate viridia, antherae polliniferae. Achenium ± dilute brunneum (OBERTHÜR et al. 1905: 343/1—354/4), superne sparse spinulosum, spinulis (vel tuberculis) gracilibus acutis, ceterum ± laeve, 4.3—4.4 mm longum (pyramide inclusa) et 0.9—1.0 mm latum, in pyramidem ± cylindricam, 1.0—1.1 mm longam subsensim abiens. Rostrum 8.0—8.5 mm et pappus 5.5—6.5 mm longi.

2n = 24 (no. det. 3596, 3595); 2n = 28 (no. det. 3597).

Holotypus: "ČSSR. Slovakia merid., opp. Štúrovo: graminosis inter vallum et rivum Mužlianský potok, ca 500 m situ mer.-occ. a pago Obid" leg. ŠTĚPÁNEK 1984 (no. det. 3596). In herb. PR asservabitur.

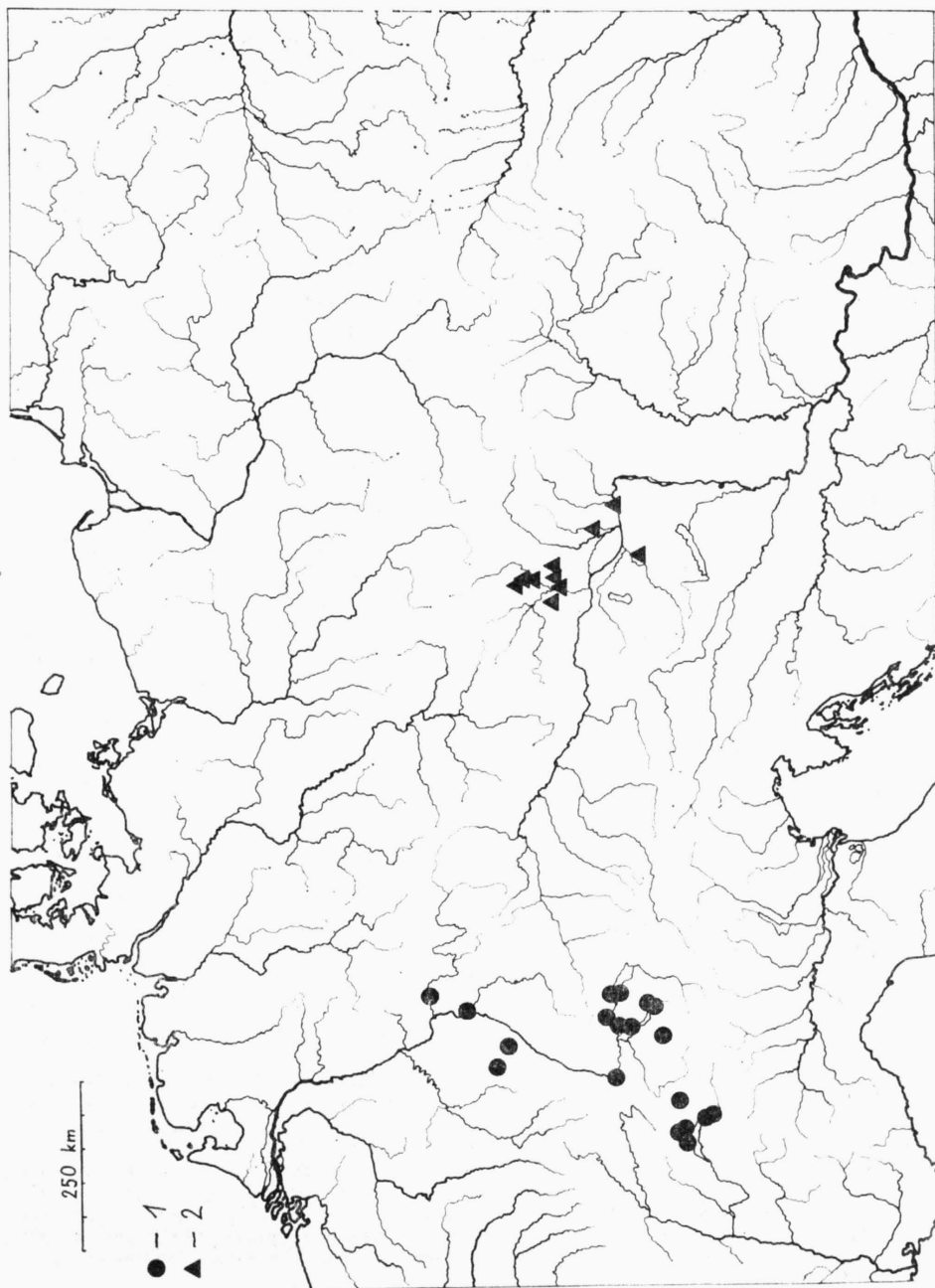
Isotypi: Herb. auct., no. det. 3595, 3597.

Specimina cetera examinata

Austria: "Altlichtenwarth, Sumpfwiese bei der Schafhütte" FORSTNER 1970 W (no. det. 1575).

ČSSR: "Moravia merid., distr. Vyškov: in valle Svata, situ or.-merid.-or. a pago Kloboučky" GRULICH et KIRSCHNER 1985 herb. auct. (no. det. 4425) et plantae in Tarax. Exs. no. 30 distributae, e. g. in herb. BRNU, KRAM, L, LE, LG, M, PR, S, WU conservabuntur. — "... distr. Hodonín: in pratis circum piscinam Písečný rybník prope pagum Milotice" GRULICH et KIRSCHNER 1985 herb. auct. (no. det. 4424). — "opp. Hodonín: pratis humidis Očovské louky dictis prope loc. Mrkotálky, in peripheria bor.-orient. oppidi" ŠTĚPÁNEK 1985 herb. auct. (no. det. 4428) et plantae ut Tarax. Exs. no. 31 distributae, e. g. in herb. BRNU, KRAM, L, LE, LG, M, PR, S, WU conservabuntur. — "distr. Hodonín: in parte austr. pratorum Očovské louky" KIRSCHNER 1985 herb. auct. (no. det. 4426). — [locus classicus] ŠTĚPÁNEK 1984 herb. auct.

(no. det. 3594). — "Abrod" ŠMARDOVÁ 1951 BRNU (no. det. 4587). — "Abrod mezi Morav. Sv. Jánem a Velkými Leváry" ŠMARD 1951 BRNM (no. det. 4586). — "Lakšárska Nová Ves — Červený rybník — piesky a lúky" MICHÁLKO 1952 SLO (no. det. 4595). — "Záhorie — Plav. Sv. Mikuláš, mokrá dolina" MÁJOVSKÝ et MICHÁLKO 1951 SLO (no. det. 4590). — "Slovakia australis:



in pratis salsis ad vicum Číky prope oppidum Nové Zámky" DEYL 1962 PR (no. det. 2989).
Hungaria: "Felpéc, mocsaras rét a Bakonyi..." POLGÁR 1935 BP (no. det. 2209).

At first sight, these two taxa are not readily distinguishable in herbarium, having superficially similar exterior bracts, and showing some resemblance in their leaves. On the other hand, there are several features that distinguish clearly *Taraxacum cognatum* from *T. telmatophilum* in flower as well as in fruit: some achene characters, colour of exterior bracts, and width of their margins, colour of leaves etc. (see Tab. 1).

Although the general distributions of *Taraxacum cognatum* and *T. telmatophilum* are similar and overlapping (Fig. 7, 9), they are only rarely met with growing together in one locality. This fact is due to their different ecological demands: While *T. cognatum* often can be found in wet meadows (closer to calcareous fens in their development), *T. telmatophilum* can be regarded as a halophilous species preferring heavy salt clayey soils with a short wet period in spring.

IV

J. L. VAN SOEST (1965) reported *Taraxacum balticiforme* DAHLST. to occur in a wide territory extending from Thuringia to northern Italy; obviously under the influence of his authority, MALECKA (1970, 1978) and TACIK (1980) published this species also from other regions. In the Monograph, *T. balticiforme* is presented as an intricate complex of taxa that are treated as formae but published invalidly (see also VAN SOEST 1969).

In order to understand this complexity, we have thoroughly revised the greater part of the material studied by VAN SOEST (op. c.). Already after some preliminary examination, the material appeared to be so heterogeneous that we could not consider it as advisable to retain this monospecific conception (for example, about a half of this material is represented by non-polliniferous plants). Superficial similarity in general appearance of the members of this group might account for the monospecific conception, nevertheless, there are also some subjective reasons having led prof. VAN SOEST to it: he probably underestimated the species diversity of *Palustria* in Switzerland and other eastern regions, and, furthermore, there is a tendency in his works to prefer the name *T. balticiforme* (s. l.) in identification of some (often rather problematic) plants deposited in Swiss herbaria.

Disregarding some incomplete, unidentifiable herbarium specimens, the detailed examination of this material makes it possible to demonstrate that this group consists of discrete units (agamospermous species), some of them described earlier (e. g. *T. bavaricum* VAN SOEST and *T. vollmannii* VAN SOEST), some others very likely being worthy to be accorded specific status.

At this stage of the study, a problem should be dealt with that forms the cornerstone of this chapter: What plants ought to represent the name *Taraxacum balticiforme* DAHLST.? The type material clearly shows that the true *T. balticiforme* is a conspicuous species occurring however only very rarely in the extensive material that VAN SOEST had at his disposal. *Taraxacum balticiforme* is characterized by its long ($\pm$ equal, not imbricate), $\pm$ lanceolate exterior bracts with very distinct broad margins, by the presence of pollen (!), very dark stigmas, and achenes with a long cone.

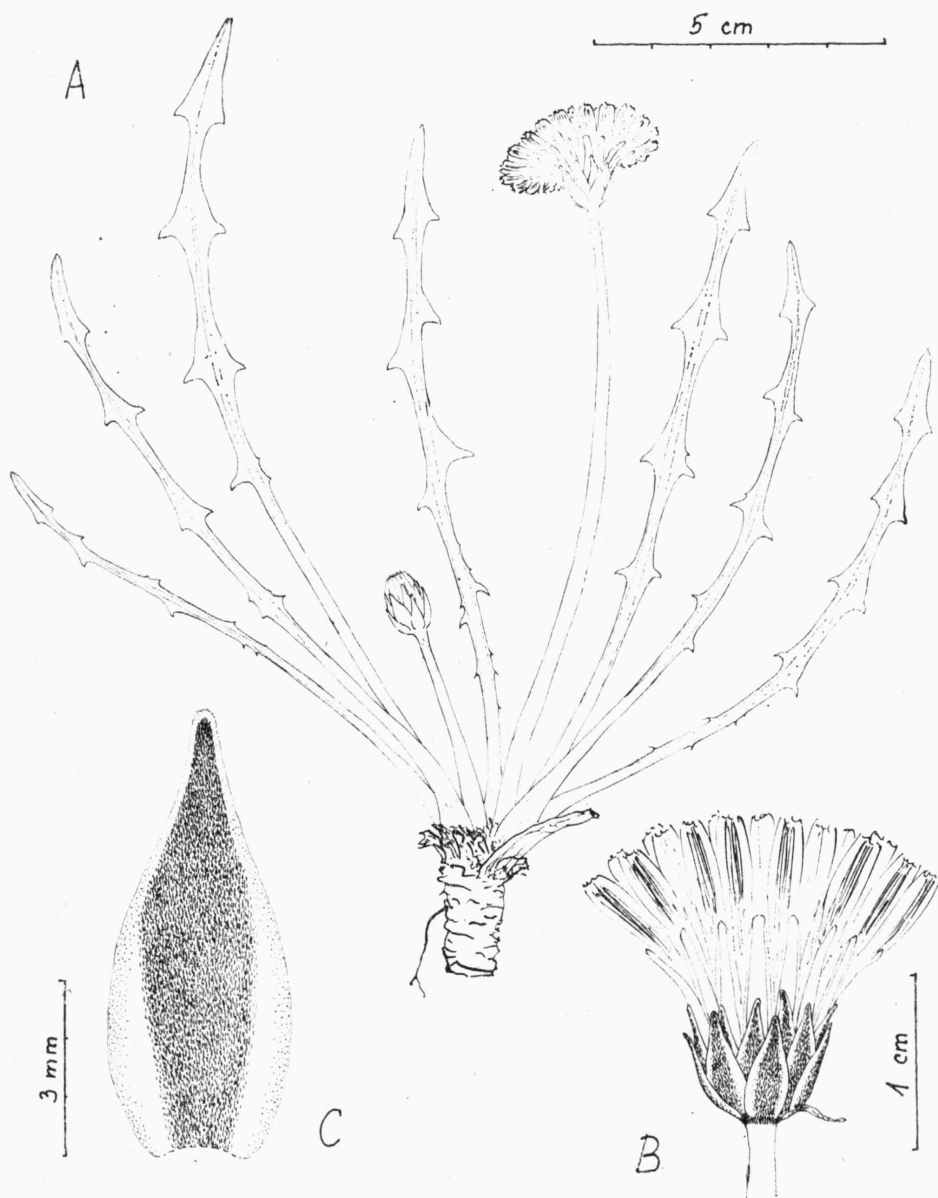


Fig. 10. — *Taraxacum balticiforme* DAHLST. A: General habit. B: Capitulum. C: Outer bracts. (All no. det. 2740).

(Fig. 7, 10)

Plants (at most) medium sized. Leaves usually 12–15 cm long, narrow (ca 1 cm wide), $\pm$ medium green, glabrous to sparsely araneous, usually symmetrically divided, more rarely with irregular lobes or undivided. Terminal lobe narrowly triangular, subacute, up to 2 cm long and 0.6–0.8 cm wide, with $\pm$ patent, widely triangular, distally and proximally concave basal lobules (the inner leaves often undivided, denticulate). Lateral lobes (rarely teeth) 3–4, widely triangular, acuminate, 3–6 mm long, patent to slightly recurved, entire, distally concave. Interlobes narrow and relatively long (2–3 mm wide and 1.0–1.5 cm long), entire. Petioles narrow, suffused purple (as well as the median nerve). Scapes at most 10–13 cm long (at the time of flowering), sparsely araneous (more densely below the capitulum) when young, later $\pm$ glabrous, (?) purplish. Involucre (8)9–10 mm wide at the base, interior bracts dark green, (12–)14–16 mm long, later up to 22 mm long. Exterior bracts usually 12–14, adpressed, of $\pm$ equal length (not imbricate!), lanceolate to narrowly lanceolate (not ovate), gradually narrowing to an obtuse apex, (6.0–)7.0–8.0(–8.7) mm long and (2.0–)2.5–3.0(–3.5) mm wide, with conspicuous margins that are pale at the base, pinkish above, (0.5–)0.6–0.8(–0.9) mm wide, sharply distinct from blackish, 1–2 mm wide median part. Capitulum ca 2.0–2.5 cm in diameter, outer ligules striped greenish grey. Stigmas very dark green (blackish when dry), blackish hairy; pollen present. Achenes (no. det. 2743 – isolectotype) light greyish brown, sparsely spinulose above (spinules long, sometimes also at the base of the cone), 5.3–5.9 mm long (incl. the cone) and 0.8–1.0 mm wide, $\pm$ gradually narrowing into a cylindrical cone 1.1–1.3 mm long. Rostrum 8–9 mm long, pappus 5.5–6.0 mm long.

2n = ? (The chromosome counts given in the literature – MALECKA 1970, 1978 – do not refer to *Taraxacum balticiforme*.)

Typus (lectotypus, a G. HAGLUND anno 1939 electus):

Gallia: "Sumpfwiesen bei Neudorf" P. AELEN, sine dato, S (no. det. 2768).

Isolectotypus: G–PAE (no. det. 2743).

Note: The only paratype exists: "Güterbahnhof Wolf" P. AELEN 1930 G–PAE (no. det. 2742). The specimen is not well preserved, and some features seem to indicate that it has little in common with the lectotype plant; we had to omit this plant from our considerations.)

Specimina cetera examinata

Gallia: "Ht.-Rhin: Sumpf bei La Chaussée" AELEN 1936 G–PAE (no. det. 2740). – „Sumpfwiese nördl. St. Louis“ AELEN 1964 G–PAE (no. det. 2752).

Helvetia: "An Aare W. Allmendingen" MICHALSKI 1920 Z (no. det. 2723). – "Entre Fully et Saillon" BOURGEOIS 1914 LAU (no. det. 4421).

As indicated above, in revising the ample material of "*Taraxacum balticiforme* s. l." we recognized several remarkable taxa in it. However, in our opinion, a description of a new species should be preceded by a responsible taxonomic evaluation, which requires more than simple observation of a few incomplete herbarium specimens telling almost nothing about the species plasticity; that is the reason why we refrain from proposing definitive taxonomic conclusions.

There is one taxon of this assemblage that seems to make an exception: it is represented by numerous plants (with flowers and ripe achenes) in the

material examined, and its conspicuous morphology also attracted our attention.

This taxon is characterized by achenes with unusually short cone (0.5 to 0.7 mm), conspicuously imbricate exterior bracts (the outermost of them being widely ovate, with a very distinct broad margin), almost blackish stigmas, and by the presence of pollen. These plants also seem to have a narrow geographical distribution, and we treat them as specifically distinct.

Taraxacum multilepis KIRSCHNER et ŠTĚPÁNEK, spec. nov.

(Fig. 9, 11)

Syn.: *Taraxacum balticiforme* f. *multilepis* VAN SOEST, Acta Bot. Neerl. 14: 19, 1965, nom. inval., p. p.

Description

Plantae humiles usque mediocres, non altae sed habitu validiore. Folia chlorina (?), sparse araneosa usque subglabra, anguste oblanceolata, ple-

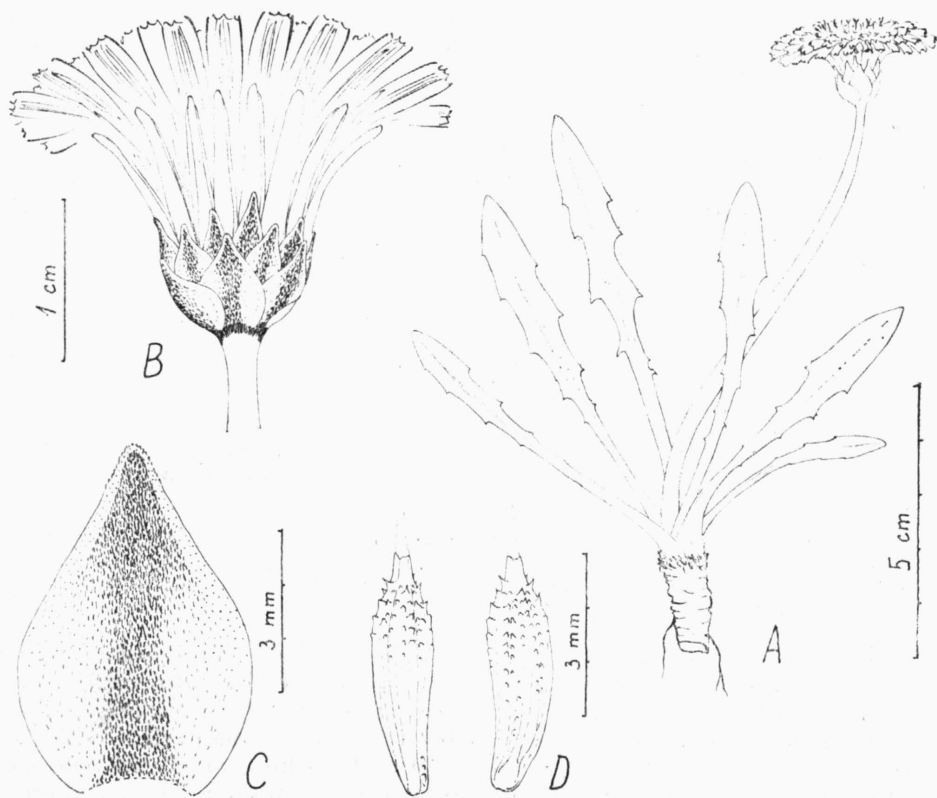


Fig. 11. — *Taraxacum multilepis*. A: General habit (no. det. 2613). B: Capitulum (no. det. 1949). C: Outer bract (no. det. 1949). D: Achenes (no. det. 2906).

rumque 10—12 cm longa et (1.0—)1.1—1.2 cm lata, indivisa, remote sinuato-dentata usque non profunde sublobata. Lobus terminalis $\pm$ latus (usque ad 12 mm), 1.5—2.5 cm longus, acutus vel obtuse acutus, integerrimus vel raro remote minute denticulatus, dentibus numero 1—2 (basis lobi plerumque partem latissimam folii repraesentat). Lobuli (vel dentes) laterales parvi, numero 2—3, usque ad 3—4 mm longi, inconspicui, interdum acuti, paulum divaricati, marginibus distalibus $\pm$ rectis, proximalibus profundioribus et concavis, integerrimi (margines foliorum interiorum interdum minute dentati), interlobiis 0.5—1.5 cm longis et sat latis (ad 6—8 mm) usque inconspicuis, integerrimis, raro remote denticulatis. Petiolus angustus, pallide violaceo-roseus, scapus $\pm$ crassus, plerumque 10—15 cm longus, araneosus, subviolaceus vel $\pm$ ruber. Involucrum sub anthesi robustum, basi 9—11 (—12) mm in diametro; squamis interioribus obscure viridibus, 14—16 mm longis (post anthesin usque ad 21 mm longis); squamis exterioribus adpressis, numero (15)16—17(18), conspicue imbricatis (!), illis eorum extremis ovatis usque late ovatis, in apicem longum sat abrupte abeuntibus, superne ciliatis vel sparsissime araneosis, (5.5—)6.0—6.5 mm longis et (3.5—) 4.0—4.5 mm latis, illis eorum interioribus usque ad 8.5 mm longis et ad 3.5—4.0 mm latis, stria mediana obscura, 1.0(—2.0) mm lata, margine conspicuissimo, lato, basi pallide lutee viridi, superne $\pm$ rubro (usque ad 1.5 mm lato), limbo membranaceo angusto (0.2 mm). Calathium plerumque 2—3 cm in diametro, ligulae marginales extus stria obscura notatae. Stigmata obscura (in sicco atro-viridia); antherae polliniferae. Achenium $\pm$ dilute brunneum (OBERTHÜR et al. 1905: 325/3), superne grosse brevis spinulosum, ceterum $\pm$ laeve vel rarius $\pm$ rugosum, 4.4—4.7 mm longum (pyramide inclusa), ca 1 mm latum, in pyramidem brevem, 0.5—0.7 mm longam $\pm$ abrupte abiens. Rostrum 6—7 mm, pappus 5.5—6.5 mm longi.

Holotypus: "Prairies marécageuses, bords des chemins. Environs de Villars sous Yenset Morges (Vaud)" H. JACCARD 1884 ZT (no. det. 2552).

Specimina cetera examinata

Gallia: "Prairies humides à Bitché" SCHULTZ, sine dato, W (no. det. 1454). — "Prairies humides et lieux marécageux près de Wissembourg en Alsace" SCHULTZ 1863 WU (no. det. 3000); BP (no. det. 2085); PRC (no. det. 2906); LD (no. det. 4407); JE (no. det. 3370); MPU (no. det. 4541). — "Sumpfwiese nördl. St. Louis" AELLEN 1964 G—PAE (no. det. 2681).

Germania occid.: "Sumpfwiesen bei Rheinau unweit Mannheim in Baden" KNEUCKER 1897 BP (no. det. 2607); JE (no. det. 3899). — "Hessen ..., bei Offenbach a./M." VIERER 1888 JE (no. det. 3898).

Helvetia: "...Herblingen" KELHOFER 1879 Z (no. det. 2721). — „Kt. St. Gallen: Kaltbrunner-Riet“ W. KOCH 1920 ZT (no. det. 2103). — "Kt. St. Gallen: Linth" W. KOCH 1928 ZT (no. det. 2591). — "Untersee: Seerieder im Espi Gottlieben" BAUMANN 1907 ZT (no. det. 2794). — "Untersee: Wollmatingerried..." BAUMANN 1907 ZT (no. det. 2780); Z (no. det. 2667). — "Wollmatingerried, oberer Teil" BAUMANN 1907 ZT (no. det. 2613). — „Eisfeld bei Oerlikon“ TAVEL 1895 ZT (no. det. 1949). — "...bei Buchenloo" FREYMAN 1920 Z (no. det. 2707). — "Lavaperson, Fribourg, 570 m, marais" JACQUET 1916 Z (no. det. 2866, 2720). — "Près Echallens, Vaud" FAVRAT 1883 FI (no. det. 1995); BRNM (no. det. 1372); LAU (no. det. 4415); WU (no. det. 3004); ZT (no. det. 2599, 2605). — "Vaud. — S.-W. Echallens" FAVRAT 1883 LAU (no. det. 4414). — "Marais de Massongex" DÉFAGO 1939 ZT (no. det. 1931). — "Bei Lützelau zw. Weggü u. Vitznau" LEHMANN 1897 ZT (no. det. 2600). — "marais de [?] Vorgiaz à Lully" JACCARD 1883 LAU (no. det. 4420). — "Aigle" BURDET 1877 LAU (no. det. 4418). — „Près marécageux de Noville“ CHARPENTIER 1832 LAU (no. det. 4417). — "Jorat" JACCARD 1889 LAU (no. det. 4416). — [illegible] A. KOCH 1889 LAU (no. det. 4419). — "Ch. dela Ville" sine collect. 1889 ZT (no. det. 2602) [not mapped].

Note: Some of the above gatherings having the character of "exsiccatae" contain not only *T. multilepis* but also some other species: e. g. "Echallens", leg. FAVRAT 1883, and SCHULTZ. Herb. Norm., ser. nov., no. 87 ("Wissembourg").

Acknowledgements

We are indebted to the authorities of the following herbaria for the facilities they made available for loan important material: BP, BRNM, BRNU, FI, G, GOET, JE, KRAM, LAU, LD, MPU, PR, PRC, S, SAV, SLO, W, WU, Z, ZT.

We are grateful to Mr. A. Roubal, who kindly revised the Latin descriptions.

SOUHRN

V práci, která představuje vybrané výsledky revize sekce *Palustria* rodu *Taraxacum*, je popsáno pět nových druhů: *Taraxacum bohemicum* ($2n = 32$), pravděpodobně endemit slatin východních Čech, *T. domabile* ($2n = 40$), charakteristický druh zaplavovaných luk z povodí Latorice, Bodrogu a Tisy, *T. cognatum* a *T. telmatophilum*, dva blízké triploidní panonské druhy a *T. multilepis* (Francie, Švýcarsko, NSR), druh původně zařazovaný do blízkosti *T. balticiforme* DAHLST. Je podán i rozbor *T. balticiforme*, s podstatným taxonomickým i geografickým omezením pojetí přijatého v monografii sekce (VAN SOEST 1965).

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Received 25 August, 1985

See also Plates I–IV in the Appendix

Příspěvek k taxonomii *Plantago major* L. s.l.

Contribution to the taxonomy of *Plantago major* L. s.l.

Ivana Pěnková

PĚNKOVÁ I. (1986): Příspěvek k taxonomii *Plantago major* L. s.l. [Contribution to the taxonomy of *Plantago major* L. s.l.] — Preslia, Praha, 58 : 117—139.

Contribution to the taxonomy of *Plantago major* L. s.l. was based on the study of plants from 15 populations from the territory of Czechoslovakia. The study of fragmentary material from the Herbarium of Charles University (PRC) served for orientation only. Traditional taxonomic methods were used for studying of these plants and the obtained data was also evaluated by the methods of numerical taxonomy.

Výzkumný ústav pro farmacii a biochemii, odd. farmaceutické botaniky, U Elektry 8, 194 04 Praha 9

ÚVOD

Je známo, že rostliny souborného druhu *Plantago major* L. se vyznačují velkou variabilitou. Tato skutečnost je jistě v souvislosti i se značným zeměpisným rozšířením; druhotně, přičiněním člověka, dosáhl areál druhu kosmopolitního měřítka. Na celém území naší republiky roste studovaný druh hojně s výjimkou nejvyšších horských poloh. Značná plasticita fenotypu rostlin ze skupiny *Plantago major* byla často příčinou různého taxonomického hodnocení a pojetí druhu. Při studiu literatury vyplynuly základní skutečnosti, které zapříčinily nejednotnost klasifikačních schemat, vytvořených pro skupinu *Plantago major* L. s. l.:

1. nevhodný výběr znaků, přeceňování variability vegetativních orgánů, kterou často vyvolává prostředí
2. taxonomické závěry vyvozované ze studia malého počtu individuí
3. značně subjektivní měřítko úrovně taxonomických kategorií
4. velká nomenklatorická nejednotnost

V historii botanického zkoumání daného druhu bylo v tomto století několik mezníků, které znamenaly podstatný přínos k řešení taxonomické problematiky okruhu *Plantago major*.

Monografem čeledi *Plantaginaceae* byl PILGER (1937). Evropské taxony druhu *P. major* L. s. l. zpracoval PILGER v r. 1922 (PILGER 1922). Tato práce je významná snahou po zavedení jistého řádu do existujícího chaosu klasifikačního a nomenklatorického, který v okruhu *P. major* existoval. V rámci druhu rozlišil autor celkem 9 variet. Při popisování jednotek pod úrovní variety použil PILGER již znaku počet semen v tobolce.

Na přílišné množství vnitrodruhových jednotek *P. major* reagovala svou studií ruská botanička PAVLOVA (1923). Ve snaze zpřehlednit a zkrátit dlouhou řadu taxonů pod úrovní druhu studovala a hodnotila rostliny herbářové i živé, přírodní i pěstované; vyhodnocovala znaky kvalitativní i kvantita-



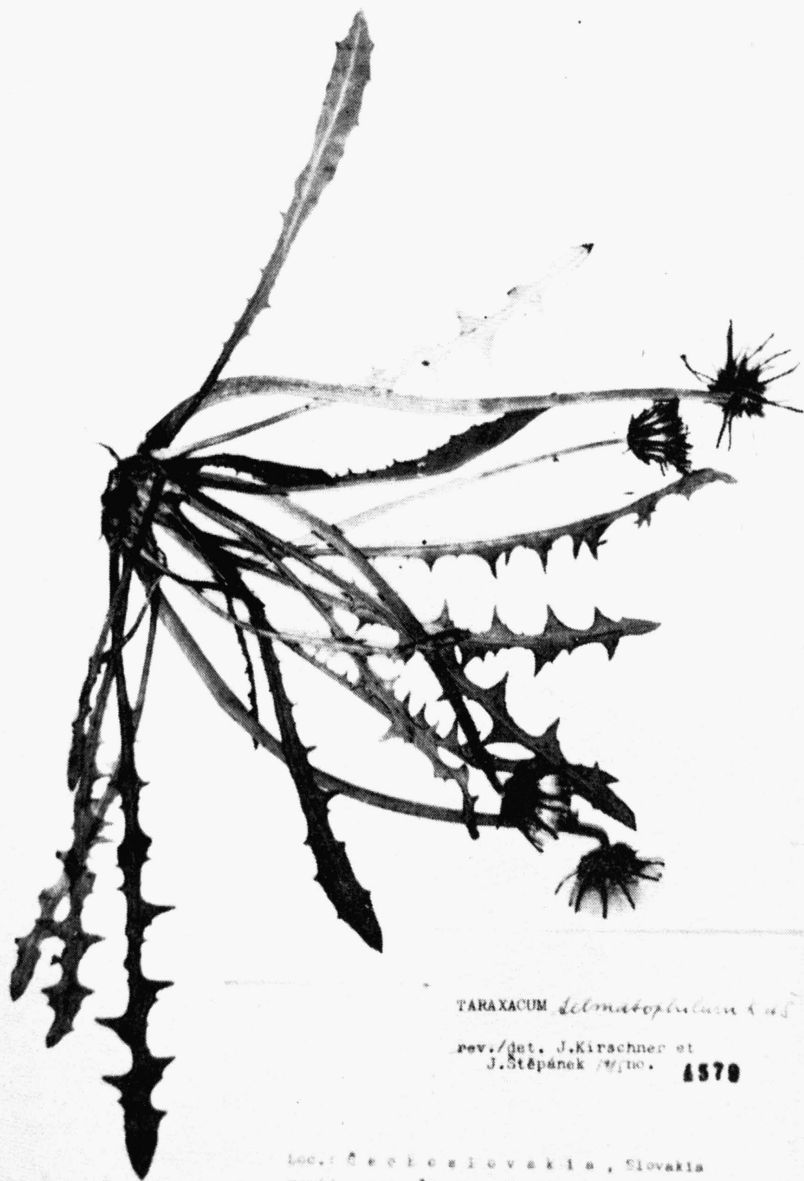
Plate I. — *Taraxacum domabile* (locality: locus classicus).

Kirschner et J. Štěpánek: Towards a monograph of *Taraxacum* sect. *Palustria*



Plate II. — *Taraxacum domabile* (locality: locus classicus).

J. Kirschner et J. Štěpánek: Towards a monograph of *Taraxacum* sect. *Palustria*



TARAXACUM *telmatophilum* K. & S.

rev./det. J. Kirschner et
J. Štěpánek /#/, no.

4579

Loc.: Československo, Slovensko
serid., opp. Šidovo (Parkán): grandiosita

Plate III. — *Taraxacum telmatophilum* (no. det. 4579).

J. Kirschner et J. Štěpánek: Towards a monograph of *Taraxacum* sect. *Palustria*



TARAXACUM *cognatum* L. det.

rev./det. J. Kirschner et
J. Štěpánek 1977 no. 3594

3594

Loc.: Šačba, Slovakia, Slovakia
verid., opp. Štárove /Parkán/: gracilioris
inter vallum et rivum Štárovský potok, ad
rivum Štárovský potok /Kbed/

Plate IV. — *Taraxacum cognatum* (no. det. 3594).

J. Kirschner et J. Štěpánek: Towards a monograph of *Taraxacum* sect. *Palustre*