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Taxonomic and nomenclatural revision of the *Taraxacum subdolum* group of *T.* sect. *Palustria*[*])

Jan Štěpánek & Jan Kirschner

The taxonomic revision of the group of *Taraxacum subdolum*, *T.* sect. *Palustria*, resulted in the description of two new species, *T. spetanum* (NE Italy) and *T. validum* (Montenegro). Both new species are agamospermous polyploids (*T. spetanum* proved to be triploid with 2n=24, and *T. validum* tetraploid, 2n = 32). The previously known members of the group were re-examined, i.e., *T. memorabile* and *T. subdolum*. A nomenclatural analysis of an overlooked name of *T. spurium* (Beck) Murr showed that the majority of its original material belongs to what used to be called *T. subdolum* Kirschner & Štěpánek, *T. spurium* being the correct name for this taxon. New localities are given for *T. spurium*. All four taxa of the group are given descriptions and/or diagnostic characters, and an identification key to the members of the group is provided.

Štěpánek J. & Kirschner J., 2012: Taxonomische und nomenklatorische Revision der Gruppe *Taraxacum subdolum*, *T.* sect. *Palustria*.
Die taxonomische Revision der Gruppe *Taraxacum subdolum*, *T.* sect. *Palustria*, führte zur Beschreibung zweier neuer Arten, *T. spetanum* (NO-Italien) und *T. validum* (Montenegro). Beide neuen Arten sind agamospermische Polyploide (*T. spetanum* erwies sich als triploid mit 2n=24, *T. validum* als tetraploid mit 2n = 32). Die früher beschriebenen Arten dieser Gruppe wurden wieder überprüft, z. B. *T. memorabile* und *T. subdolum*. Eine nomenklatorische Analyse des bisher nicht beachteten Namens *T. spurium* (Beck) Murr zeigte, dass für den Großteil des Originalmaterials, das üblicherweise *T. subdolum* Kirschner & Štěpánek genannt wurde, *T. spurium* der korrekte Name ist. Neue Fundorte für *T. spurium* werden angegeben. Alle vier Arten der Gruppe wurden mit Beschreibungen und/oder diagnostischen Merkmalen versehen, ein Schlüssel zu ihrer Bestimmung wird beigegeben.

Keywords: Taxonomy, Agamospermy, *Taraxacum* sect. *Palustria*, Central Europe, *Taraxacum spurium* (Beck) Murr.

Introduction

The completion of our monograph of *Taraxacum* sect. *Palustria* (H. Lindb.) Dahlst. in 1998 triggered further research and collection activity (e.g., Tikhomirov 2003, Marciniuk et al. 2010, Schmid 2003, Aquaro 2008). We also continued our study of the sectional representatives (Štěpánek & Kirschner 2001) and obtained a number of valuable samples for identification or further cultivation. The group of *Taraxacum subdolum*, as circumscribed in the Monograph (Kirschner & Štěpánek 1998), i.e., is comprised of two species, *Taraxacum subdolum* Kirschner & Štěpánek and *Taraxacum memorabile* Kirschner & Štěpánek, belongs to the aggregates where a number of taxonomic and nomenclatural novelties were discovered. The following treatise summarizes results of the new analysis of this complicated group.

Material

Most of the new plant material used in the present study comes from the cultivation of plants at Experimental Gardens of the Institute of Botany, Průhonice, Czech Republic. Methods of mass cultivation follow those described in Kirschner & Štěpánek (1993).

[*]) Dedicated to the 70th birthday anniversary of our friend and collaborator, Franz Speta, and to his wife Elise.

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All the voucher specimens from our collections and cultivations are deposited in the herbarium PRA (see http://sciweb.nybg.org/science2/ IndexHerbariorum.asp). The other specimens forming a background of this study were cited in Kirschner & Štěpánek (1998).

Methods

The taxonomic concept of species in the sect. *Palustria* is based on the principles summarized in the introductory part of the Monograph (Kirschner & Štěpánek 1998) and documented by a standard exsiccate series edited and distributed by the present authors (Kirschner & Štěpánek 1992, 1997). In the series, over 900 numbers were distributed (which represents more than 20,000 specimens) and copies are deposited in major herbaria with important dandelion collections (e.g., S, H, L, M, PRA, PRC) and in the collections of leading specialists (H. Øllgaard, I. Uhlemann, P. Oosterveld, A. J. Richards etc.).

A knowledge of the mode of reproduction (agamospermy versus sexuality) is crucial for this taxonomic study, and there are numerous ways of identifying it, particularly in live, cultivated plants (emasculation or observation of the variation of leaf rosettes of siblings in cultivation). In herbarium material, pollen presence/absence and variation in the size of pollen were studied (Nijs et al. 1990); a conspicuously variable pollen size is, with certain exceptions, a reliable indicator of dandelion agamospermy. This basic screening of the modes of reproduction was completed with a more detailed observation of the material in cultivation, using the above methods and chromosome counting (triploidy observed in two members of the group is invariably a sign of agamospermy in *Taraxacum*).

Achene length in the descriptions includes the cone.

The group of *T. subdolum*

The group or aggregate, a category not formally recognized, is an assemblage of morphologically closely similar taxa; that of *Taraxacum subdolum* is characterized by the following attributes: Leaves usually deeply lobed, lobes patent. Outer involucral bracts appressed, loosely appressed or arcuate-patent, usually not tightly appressed, usually abaxially ± dark and shiny, with ± distinct always narrow whitish border. Achenes medium sized, medium densely spinulose, usually 4.2–5.0 mm long, cone is relatively long (compared with the overall achene length), 0.8–1.4 mm, cylindric or slightly subcylindric at base, with a gradual transition into achene body, rostrum quite long (to 10 mm).

The group consists of four agamospermous species, *T. spurium* (= *T. subdolum*), *T. memorabile*, *T. spetanum* and *T. validum*. The most widespread species, *T. spurium*, occupies a relatively large geographical range in Central Europe (from Germany and Poland in the north to Austria and Hungary in the south) while the other members are known from restricted areas in the southernmost Germany (*T. memorabile*), N. Italy (*T. spetanum*) and in Montenegro (*T. validum*). The distributions are displayed on Figure 1.

An identification key to the members of the group

1a Outer involucral bracts 8.5–12 mm long, loosely appressed or erecto-patent . . . 2
b Outer involucral bracts 6–8.5 mm long, tightly appressed 3

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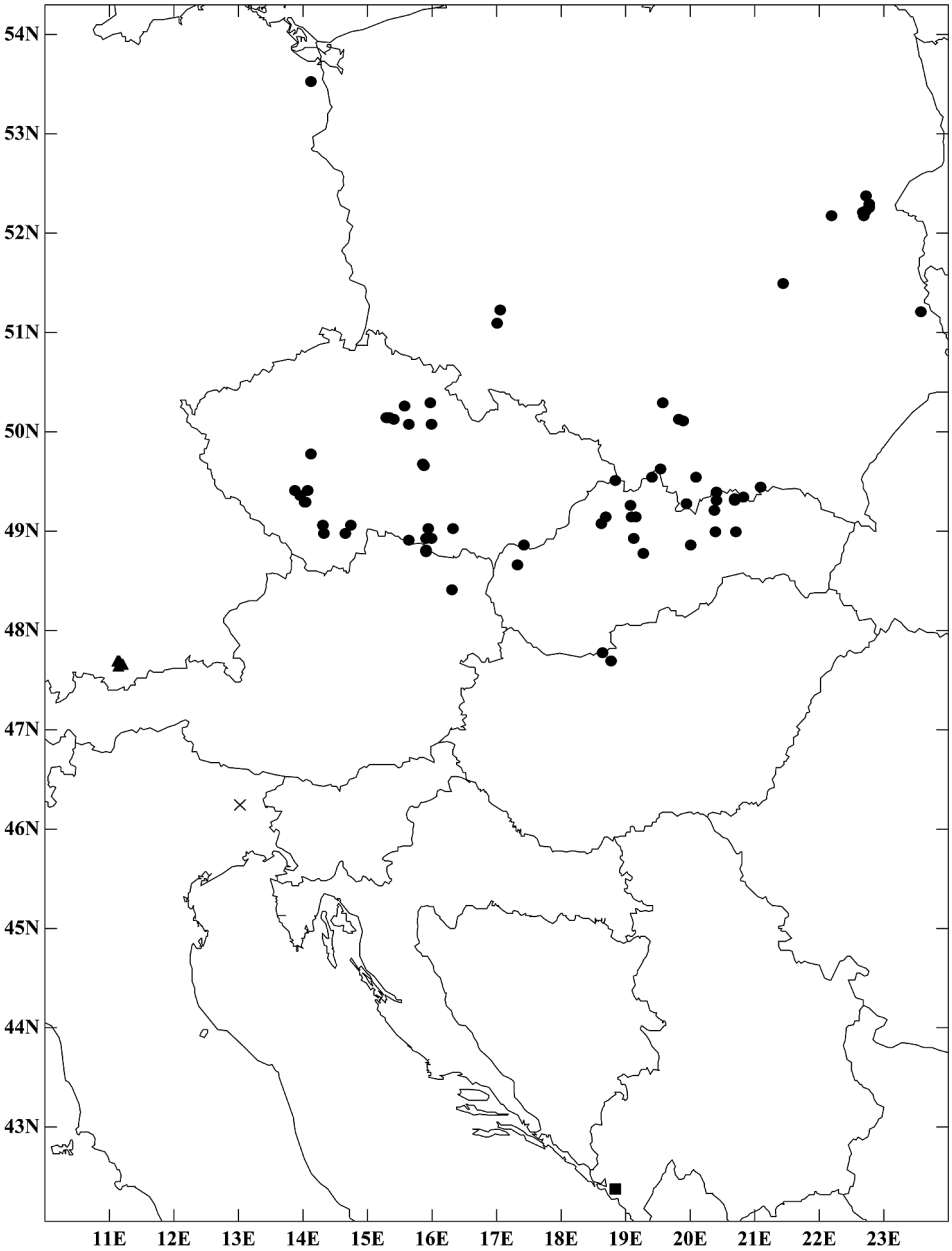

Fig. 1: Distribution of the members of the *Taraxacum subdolum* group. Dots: *T. spurium*; triangles: *T. memorabile*; cross: *T. spetanum*; square: *T. validum*. – Abb. 1: Verbreitung der Arten der *Taraxacum subdolum* –Gruppe. Punkte: *T. spurium;* Dreiecke: *T. memorabile*; Kreuz: *T. spetanum*; Quadrat: *T. validum*.

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2a Outer involucral bracts glabrous (not ciliate); achene 4.2–4.4 mm long; leaf lateral lobes usually in 2–3 pairs . . . . . 1. *T. spurium*
b Outer involucral bracts ciliate; achene 4.3–4.8 mm long; leaf lateral lobes usually in 4–5 pairs . . . . . 4. *T. validum*
3a Outer involucral bracts 10–13, not imbricate, ovate to ovate-lanceolate, 2.4–4.1 mm wide . . . . . 2. *T. memorabile*
b Outer involucral bracts 13–19, imbricate, ovate, the broadest ones broadly ovate, 4–5 mm wide . . . . . 3. *T. spetanum*

Taxonomic treatment

1. *Taraxacum spurium*

The binomial, missing from IPNI (see http://www.ipni.org/ipni/plantnamesearchpage.do), was overlooked by us during the preparation of the Monograph. Murr (1903) gives the following text validating the combination: „Mit *T. spurium Beck* l.l., von dem der Autor sagt, dass es im Ganzen mit *T. palustre* übereinstimme, ist meine Pflanze wegen der keinesfalls (auch nicht annähernd) schrotsägeförmigen Blätter kaum zu vereinigen.“ Authentic material (PRC, W), undoubtedly belongs to what we called *T. subdolum*, and the latter name therefore is to be substituted by the older epithet. Because of the recent publication of *T. subdolum* and a rather limited geographical range and importance, the name *T. subdolum* is not suitable for conservation.

The name *T. spurium* (Beck) Murr is an earlier homonym of the name *T. spurium* Saarsoo 1962; the latter therefore being an illegitimate name (Art. 53). We have consulted the outstanding expert in the Nordic dandelions, H. Øllgaard, and he proposed a *nomen novum* for the later homonym:

Taraxacum spuriosulum H. Øllgaard, **nom. nov.**
Nomen substitutum: *Taraxacum spurium* Saarsoo, Bot. Notis. 115: 68 (1962), non *T. spurium* (Beck) Murr (1903). – Type: Finland, Ostrobottnia kajanensis, Hyrynsalmi, Kangasjärvi, 15. vi. 1961, L. Heikkinen (holotype: S; isotypi: OULU, fide Lundevall & H. Øllgaard 1999).

Taraxacum spurium (Beck) Murr, Allg. Bot. Zeitschr. 9 (4): 65 (April 1903).
Basionym:
≡ *Taraxacum palustre* DC. f. [4.] *spurium* Beck, Fl. Nieder-Österreich 2/2: 1314 (1893). – Diagnostic text: „Auch fand ich eine f. 4. *T. spurium*, welche stärker behaarte Stengel mit den breiteren, fast schrotsägeförmigen Blättern des *T. officinale* verband, sonst aber mit *T. palustre* übereinstimmte. Vielleicht *T. palustre* × *officinale?*“ – Type indication: „...; die f. 4 in nassen Wiesen bei Kreuzenstein. ...“. – Type: [Lower Austria] NÖ. Auf nassen Wiesen südl. d. Ruin. Kreutzenstein 26/IV [18]85. B. [= G. Beck], (**lectotype, designated here**: PRC 452644, no. det. 10831; isotype: [ibidem, plantae „A“ signatae], PRC 452645, no. det. 10831a; further authentic material: W, no. det. 1654).

Syn.:
= *Taraxacum subdolum* Kirschner & Štěpánek, Preslia 64: 28 (1992)
Type: Slovakia centr., Spišská kotlina, opp. Spiš. Podhradie: in prato udo ad marg. bor.-occ. vici Baldovce, 15. v. 1984, J. Štěpánek (holotype: PRA, no. det. 6725).

Exsiccates: Taraxaca Exsiccata, no. 79 (IT of *T. subdolum*), 80–81, 873–875.

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This taxon, under the name of *T. subdolum*, was dealt with in detail in Kirschner & Štěpánek (1998). We repeat the most important characters:

Leaves ± oblong, dark or olivaceous green, deeply lobed, lateral lobes usually remote, 2–3 (5), most often ± patent, distal margin of distal lobes usually with a single distinct tooth. Scapes sparsely aranose. Outer involucral bracts 15–21, loosely appressed to erecto-patent, ± not imbricate, not ciliate, blackish green, usually shiny, lanceolate to ovate, 8.5–10 mm long, 4–5.5 mm wide, borders limited to a narrow, sharply delimited whitish-membranous margin 0.1–0.3 (–0.5) mm wide. Inner ligule teeth usually blackish. Stigmas greenish to green; pollen present. Achenes 4.2–4.4 mm long, achene body sparsely spinulose above, ± gradually narrowing into subcylindrical cone 1.0–1.4 mm long; rostrum 8–9 mm; pappus 6.5–7 mm long. 2n=24 (Kirschner & Štěpánek 1992; Marciniuk et al. 2010) (Fig. 2).

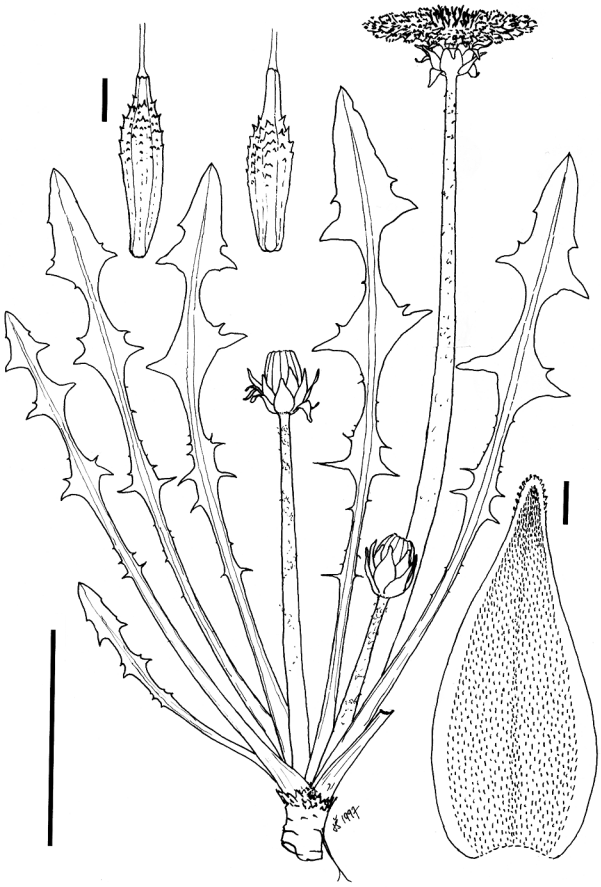

Fig. 2: *Taraxacum spurium*. General habit (scale bar = 5 cm), achenes and outer bract (scale bars = 1 mm). – Abb. 2: *Taraxacum spurium*. Habitus (Messstrich = 5 cm), Achänen und Außenhüllblatt (Messstrich = 1 mm).

The strange leaf shape (remote, few lateral lobes with a distal tooth), unique outer bracts (erect, dark but shiny, with a very narrow almost membranous border), and sparsely spinulose achenes with a conspicuous relative length of the cone are diagnostic.

A species with a large geographical range (see Fig. 1), quite common in C. Slovakia and SE. Poland, otherwise scattered. It requires calcium rich substrate but otherwise it has a relatively wide ecological amplitude (and an extraordinary altitude span, from about 100 m to 1465 m). It is not seriously threatened in Slovakia and Poland.

Selected new specimens examined:

Austria: Hollabrunn: Niederfladnitz, Edelsee, 15. v. 1993, V. Grulich (BRNU, no. det. 18109). – Hollabrunn: Niederfladnitz, 7. v. 1992, V. Grulich (BRNU, no. det. 18107). – **Hungary:** Esztergom, along Topolka River near Kesztölc, towards Leányvár, 28. iv. 1946, A. Boros (BP, no. det. 25263). – **Slovakia:** Velká Fatra Mts.,

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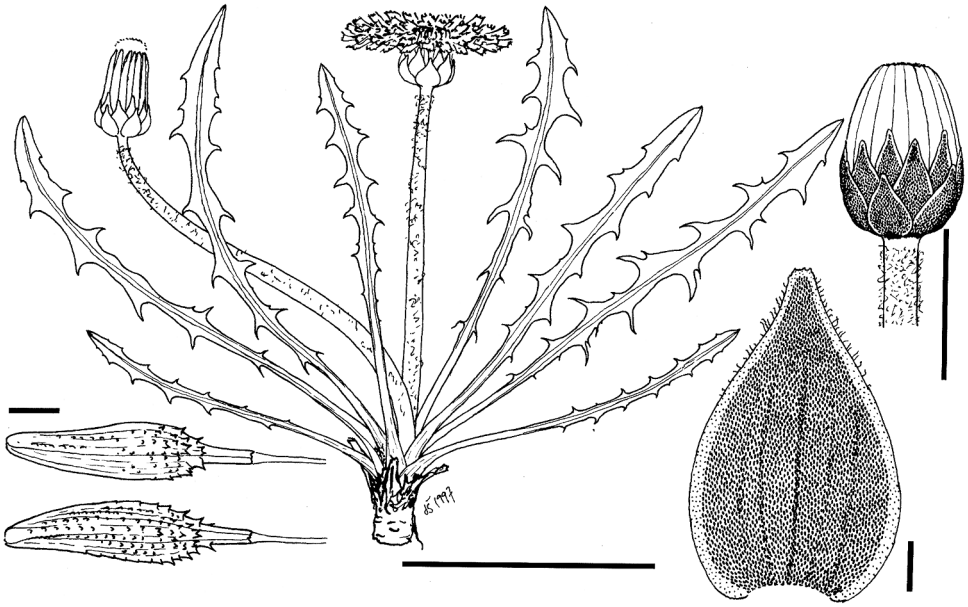

Fig. 3: *Taraxacum memorabile*. General habit (scale bar = 5 cm), achenes and outer bract (scale bars = 1 mm), young flower head (scale bar = 2 cm). – Abb. 3: *Taraxacum memorabile*. Habitus (Messstrich = 5 cm), Achänen und Außenhüllblatt (Messstrich = 1 mm), junger Blütenstand (Messstrich = 2 cm).

SE. slopes below the summit of Mt. Ploská, 1465 m a. s. l., 19. vi. 2008, D. BERNÁTOVÁ, cultivated at Průhonice under no. JŠ 8776, JŠ 8778 and JŠ 8779 in 2010 (PRA, no. det. 23763, 23764, 23765).

2. ***Taraxacum memorabile*** KIRSCHNER & ŠTĚPÁNEK, Monogr. Tarax. Sect. Palustria 267 (1998)

Type: Germany, Bavaria, Murnau, Staffelsee, Tannenbachfilz, 15. v. 1988, G. EIDENSCHINK, cultivated at Průhonice under no. JŠ 3658 in 1990 (holotype: PRA, no. det. 12550).

This taxon was dealt with in detail in KIRSCHNER & ŠTĚPÁNEK (1998). We repeat the most important characters:

Leaves mid-green to slightly greyish green, linear-oblanceolate in outline, lateral lobes or lobules numerous, not long, usually 3–4, rarely with teeth, patent to recurved. Scapes aranose to sparsely aranose. Outer involucral bracts 10–13, tightly appressed, ciliate, ± not imbricate, blackish green and suffused dark red, shiny, 6–8.5 mm long, 2.4–4.1 mm wide, ovate to ovate-lanceolate, with an indistinct, very narrow (0.2–0.4 mm) reddish membranous border. Ligule teeth dirty reddish. Stigmas pale yellowish green, pollen present. Achenes (4.1–) 4.3–4.7 (–4.9) mm long, achene body medium densely spinulose (sometimes throughout), ± gradually narrowing into subcylindrical cone 0.8–1.2 mm long, rostrum 9–10 mm, pappus 6.5–7.5 mm long (Fig. 3).

The very dark and tightly appressed outer bracts, relatively short and numerous lateral lobes and the achene spinulosity are diagnostic.

Note: The locality „Bavaria, Rottenbach, Schweigsee“ (no. det. 1542, 1787) published in KIRSCHNER & ŠTĚPÁNEK (1998) is to be correctly spelled „Rottenbuch“.

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Although the exploration activity of German taraxacologists covered most of the promising localities of the section *Palustria* in Bavaria, *T. memorabile* seems to be confined to the formerly large swampy area SW. and S. of Munich. It is known from eight microlocalities in that area. *T. memorabile* represents a critically endangered taxon. The most recent gathering also comes from the same area:

Germany: Bayern, Staffelsee, NSG Obernacher Wiesen, Orchideenreiche Feuchtwiesen mit Kleinseggenried, 652 m, 2. v. 2009, P. Kirchmeier & L. Meierott (herb. P. Kirchmeier, no. det. 24011).

3. ***Taraxacum spetanum*** Štěpánek & Kirschner, sp. nov.
Type: Italia boreo-orient., regio Friuli-Venezia Giulia, urbs Udine, opp. Gemona d. Friuli, pagus Forgaria n. Friuli, vicus Cornino: in alluvionibus humidis ad ripam dextram fluminis Tagliamento, ca 1.5 km situ orient. a vico Cornino. Ca. 46° 14‘ N, ca. 13° 01‘ 30“ E. 18 Apr 1996, J. Štěpánek, J. Štěpánková & Z. Kaplan (holotype: PRA, no. det. 23726).

Exsiccates: Taraxaca Exsiccata, no. 916 (isotypes), 917.

Plantae (e sect. *Palustriorum*) parvae – mediocres, plerumque 7–12 cm altae, rosulis foliorum subopimis, saepissime 3–5 scapis praeditis, inter bases foliorumque scaporum non dense subfuscate arachnoideo-jubatae, interdum ad basin tunica indistincta e petiolorum reliquis. Folia diverse arrecta – patentia, 5–11 cm longa, 1–2 cm lata, subcinereo-olivacea, postea fere adumbratione rubro-violacei vel aenei, immaculata, subcarnosa, subglabra, lamina ambitu oblanceolata – anguste oblanceolata – anguste usque lineari-elliptica, decore regulariter pinnatisecta, lobo terminali subparvo, 1–1.5 (–2.2) cm longo, 0.8–1.4 cm lato, anguste triangulari usque triangulari, saepe in partem terminalem lingulatam elongato, ± acuto, margine distali subconcavo – sigmoideo, integerrimo, ex parte involuto, lobulis basalibus patentissimis – subdivaricatis (sed lobus terminalis sagittatus non est), acutis – subacutis, margine proximali recto usque subconcavo, integerrimo, praecipue in flexu involuto, lobis lateralibus numero 4–5 utrimque (eorum 1–2 infimi similes ac dentibus angustisque magnis), oppositis, subinde alternis, triangularibus – anguste triangularibus, nonnumquam forma avium pennae, 5–10 mm longis, ad basin 3–7 mm latis, patentissimis usque subdivaricatis (raro passim aliquis e contrario pronus), acutis – acutissimis, margine distali subconvexo, leniter sigmoideo usque subconcavo, integerrimo, raro dente mediocriter magno latoque praedito, margine proximali subconvexo – recto vel subundulato, plerumque saltem ex parte involuto, interlobia saepissime 3–9 mm longa et 1–2 mm lata, integerrima, minime saepe dente prominenti sed non magno praedita, in parte centrali primo sine adumbratione abhorenti, postea paulum fusco-violacea, margine involuto et atroviolacee praetexto, nervo mediano pallido vel pallide roseo-violaceo. Petiolus 1.5–2.5 cm longus, mediocriter late alatus (folia exteriora) usque angustus (folia intermediaque interiora), roseo-violaceus vel pallidus. Scapi saepissime 5–9 cm longi, foliis subaequilongi, ± longe et sat dense arachnoidei – floccosi, glabrescenti (villus sub involucro persistens), pallide virides. Calanthodia mediocriter magna, ca. 3 cm in diametro, plana, aurea. Involucrum ad basin rotundum, ca. 7 mm in diametro, squamis exterioribus numero 13–19, ovatis usque late ovatis, imbricatis, 6.5–7.5 mm longis, 4–5 mm latis, subadpressis, tantum post anthesin sub apice deflexis, ± aequabiliter olivacee griseo-viridibus et saepius in dimidia parte superiore adumbratione violascenti, nitidis, ad marginem in limbum distinctum albidum 0.15–0.3 mm latum ± subite vergentibus, in parte superiore ciliolatis, sub apice planis, squamis interioribus 12–14 mm longis, pallide prasinis, mutuo subaequilatis. Ligulae marginales planae, extus stria obscura subvirido-grisea (interdum paulum purpurata) ornata, denticulis apicalibus atropurpureis, ligulae centrales canaliculatae dentibus apicalibus aurantiacis vel sordide luteis. Stigmata subobscura, pallide virido-lutea, extus

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pilis extergientibus in dimidia parte superiore atris. Antherae abundante polliniferae granis pollinum magnitudine imparibus. Achenia olivaceo-straminea (olivacee pallide cinereo-fusca), 4.6–5.2 mm longa (pyramide incl.), 1.1–1.2 mm lata, corpore in tertia – quarta parte superiore expresse sed neque dense neque longe spinuloso, deorsum ± laevi, in pyramiden 1.0–1.2 mm longam cylindricam – subcylindricam sat latam sensim sensimque abeunti, rostro 8–9 mm longo, pappo ca. 6 mm longo subfusce vel sublutee albido. Planta agamosperma, triploidea, 2n = 24, cl. V. Jarolímová determinavit.

Important diagnostic characters:
Plant base pale brownish aranose. Leaves initially olivaceous-green, later suffused purple, leaf blade regularly pinnatisect, interlobes ± long, lateral lobes short, triangular, 4–5 on each side, opposite, patent to slightly recurved, distal margin entire, rarely with a single tooth, petioles winged (outer leaves) to unwinged (inner leaves). Outer involucral bracts 13–19, ovate to broadly ovate, imbricate, appressed, 6.5–7.5 mm long, 4–5 mm wide, evenly dark olivaceous green, with an abrupt transition into distinct whitish border 0.15–0.3 mm wide, sparsely ciliate. Outer ligules flat striped dark purplish gray-green outside, with blak-purple apical teeth, inner ligules with orange to deep yellow apical teeth. Stigmas yellow-green, covered with minute apically blackish hairs outside; pollen developed. Achenes large, 4.6–5.2 mm long, achene body very gradually narrowing into ± subcylindric cone 1.1–1.2 mm long, rostrum 8–9 mm long, pappus ca. 6 mm long. 2n = 24 (Fig. 4).

Other specimens seen:
NE Italy: regio Friuli-Venezia Giulia, urbs Udine, opp. Gemona d. Friuli, pagus Forgaria n. Friuli, vicus Cornino: in alluvionibus humidis ad ripam dextram fluminis Tagliamento, ca 1.5 km situ orient. a vico Cornino. Ca. 46° 14‘ N, ca. 13° 01‘ 30“ E. 18 Apr 1996, J. ŠTĚPÁNEK, J. ŠTĚPÁNKOVÁ & Z. KAPLAN (isotypi, PRA, no. det. 23723, etiam ut Taraxaca Exs., no. 916 distributae). – *Ibidem*, plantae e radicibus no. 91 in horto bot. in Průhonice sub no. JŠ 5750 cultae et a. 1997 lectae (PRA, no. det. 23724). – *Ibidem*, plantae e seminibus no. JŠ 5750 in horto bot. in Průhonice sub no. JŠ 6688 cultae et a. 1999 lectae (PRA, no. det. 23725, etiam ut Taraxaca Exs., no. 917 distributae, 2n = 24 det. V. Jarolímová a. 2000). – *Ibidem*, 17 Apr 1996, J. ŠTĚPÁNEK, J. ŠTĚPÁNKOVÁ & Z. KAPLAN (PRA, no. det. 23722).

The part of the river Tagliamento valley visited by the 1996 expedition is dominated by *T. spetanum*. It is common in a number of little alluvial fen patches in that region. Its overall distribution remains to be studied.

4. ***Taraxacum validum*** ŠTĚPÁNEK & KIRSCHNER, sp. nov.
Type: Crna Gora (Montenegro) occid., montes Lovčen, urbs Cetinje, vicus Ivanova Korita, in margine pineti et in locis graminosis ad viam publicam, alt. ca. 1350 m s. m., lat. 42° 22.7‘ N, long. 18° 50.4‘ E (GPS – WGS-84). 9 Jun 2007, J. ŠTĚPÁNEK et al. Planta e seminibus plantae no. JŠ 8120/2 in horto bot. in Průhonice sub no. JŠ 8358 culta et a. 2009 lecta (holotype: PRA, no. det. 23721).

Exsiccates: Taraxaca Exsiccata, no. 912 (isotypes), 913–915.

Plantae e sect. *Palustriorum*, amplae, saepissime 25–35 cm altae, rosulis opimis multifoliosis et 4–8 scapis praeditis, inter bases foliorumque scaporum fuscate paulum arachnoideo-crinitae, sine tunica distincta e petiolorum reliquis constituenti. Folia suberecta, 2–4 (–5) cm lata, exteriora 10–15 cm longa, intermediaque interna 20–30 cm longa, subcarnosa, subglauco-olivaceo-chlorina, immaculata, interna sparse arachnoidea, externa et intermedia subglabra vel glabrescentia, lamina ambitu anguste usque lineari-lanceolata – oblanceolata – anguste elliptica, lobo terminali mediocriter magno, 2–4 cm longo, 1–3 cm lato, (eo foliorum interiorum sat magno, ad 6 cm longo), anguste triangulari, ad basin saepe subhastato vel sagittato, acutissimo, margine distali subrecto vel concavo,

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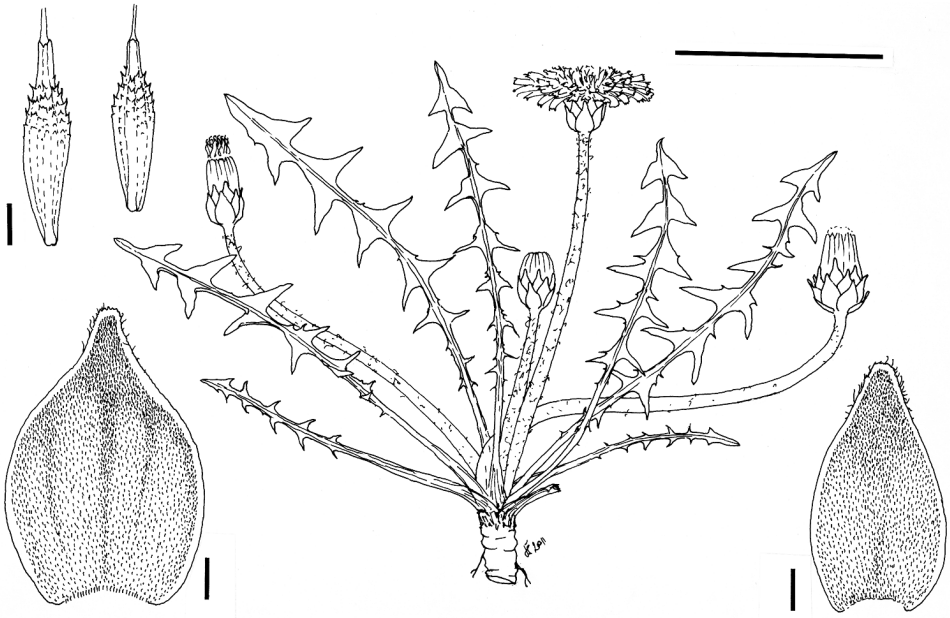

Fig. 4: *Taraxacum spetanum*. General habit (scale bar = 5 cm), achenes and outer bracts (scale bars = 1 mm). – Abb. 4: *Taraxacum spetanum*. Habitus (Messstrich = 5 cm), Achänen und Außenhüllblätter (Messstrich = 1 mm).

undulato usque argute sigmoideo, integerrimo, sed non raro lobulo conspicuo acuto incisuraque rotunda asymmetrice (in una latere) praedito, lobulis basalibus acutissimis, patentissimis – divaricatis, saepe in partem angustamque longam protrahentibus, margine proximali ± recto integerrimo, lobis lateralibus numero 4–5 utrimque (iis infimis perparvis atque dentis magni similibus), saepius oppositis, raro alternis, patentissimis usque subdivaricatis, triangularibus – anguste triangularibus, acutissimis, sat parvis, 0.7–2 (–3) cm longis, ad basin 1–1.5 cm latis, margine distali subconcavo usque sigmoideo (hoc casu lobus in partem terminalem anguste lingulatam coartatus), integerrimo, margine proximali subrecto – subconcavo – exigue convexo, integerrimo, interlobiis sat longis et angustis, saepissime 1–2 cm longis, 3–5 mm latis, integerrimis vel parum conspicue sparseque breviter dentatis, lamina sine adumbratione abhorenti, margine interdum pallide fusco-violacee praetexto, nervo mediano in dimidia – tertia parte inferiora violaceo usque fusco-violaceo, sursum pallido. Petiolus 4–9 cm longus, anguste alatus – inalatus, subfusce cinereo-violaceus. Scapi foliis plerumque paulo breviores, satis dense arachnoidei – floccosi, pallide virides et fere longitudinaliter grosse pallide violaceo-striati, sub involucro aenei (post anthesin obscuriore). Calanthodia mediocriter magna, 3.5–4.5 cm diametro, plana – subconvexa, aurea. Involucrum ad basin rotundum, ca. 8 mm in diametro, bracteis exterioribus numero 14–17, laxe adpressis, aliquibus sub apice arcuate extrorsum curvatis, post anthesin subregulariter stellato patentibus, subimbricatis, ovatis – ovato lanceolatis, 10–11 (–12) mm longis, 4.5–5.5 mm latis, sub apice planis, in (e tribus) duas partes bractearum interiorum attollientibus, ± aequabiliter olivacee griseo-viridibus usque subatro-viridibus, nitidis, ad marginem in limbum griseo-album 0.2–0.5 mm latum ± subite vergentibus, diverse denseque breviter ciliolatis, bracteis interioribus 15–16 mm longis, mutuo subaequilatis, palidiore olivaceis. Ligulae marginales planae, extus stria subviolacee fusco-grisea ornatae, denticulis apicalibus atropurpureis et inter eos incisuris profundis laceratae. Ligulae centrales subplanae usque subcanaliculatae den-

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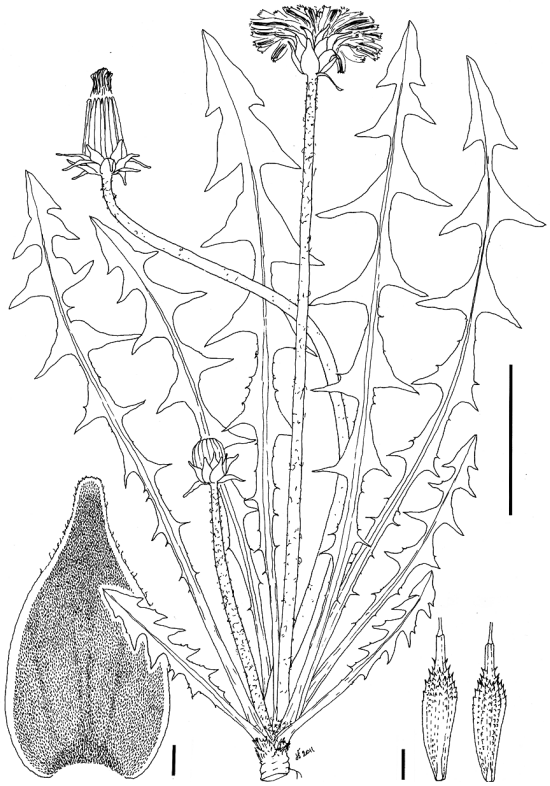

Fig. 5: *Taraxacum validum*. General habit (scale bar = 5 cm), achenes and outer bract (scale bars = 1 mm). – Abb. 5: *Taraxacum validum*. Habitus (Messstrich = 5 cm), Achänen und Außenhüllblatt (Messstrich = 1 mm).

ticulis apicalibus luteis. Stigmata subobscura, cineree pallide luteo-viridia, extus atro-pilosa. Antherae abundante polliniferae, granis pollinum diametro imparibus. Achenia pallide fusco-cinerea, 4.3–4.8 mm longa (pyr. incl.), ca. 1.0 mm lata, corpore in quarta – quinta parte superiore mediocriter dense – subsparse et generatim breviter spinuloso, deorsum tuberculato – laevi, in pyramiden 0.8–1.2 mm longam subcylindricam – cylindricam, mediocriter latam gradatim abeunti. Rostrum 9–10 mm longum. Pappus 6–6.5 mm longus, sordide subluteo-albidus. Species agamosperma, tetraploidea, 2n = 32, cl. V. Jarolímová determinavit.

Important diagnostic characters:

Plants robust, base sparsely brownish aranose. Leaves slightly glaucous olivaceous-green, lateral lobes 4–5 on each side, patent to subrecurved, triangular to narrowly so, distal margin concave to sigmoid, entire, interlobes ± narrow and long, petiole ± unwinged. Outer involucral bracts 14–17, loosely appressed, some of them ± arcuate, star-like patent after flowering, incospicuously imbricate, ovate to ovate-lanceolate, 10–11 (–12) mm long, 4.5–5.5 mm wide, evenly dark olivaceous green or almost black-green, shiny, with an abrupt transition into whitish to membranous border 0.2–0.5 mm wide, ciliate. Outer ligules flat, striped purplish-grey outside, with blackish purple apical teeth (incisions between teeth unequal, lateral ones often very deep), inner ligules with ± yellow apical teeth. Stigmas pale yellow-green, with dark pubescence outside; pollen developed. Achenes 4.3–4.8 mm long, achene body gradually narrowing into subcylindric to cylindric cone 0.8–1.2 mm long, rostrum 9–10 mm long, pappus 6–6.5 mm long (Fig. 5).

Other specimens studied:

Crna Gora (Montenegro): montes Lovčen, urbs Cetinje, vicus Ivanova Korita, in margine pineti et in locis graminosis ad viam publicam, alt. ca. 1350 m s. m., lat. 42° 22.7‘ N, long. 18° 50.4‘ E (GPS – WGS-84). 9 Jun 2007, J. ŠTĚPÁNEK et al. Plantae e seminibus plantae no. JŠ 8120/2 in horto bot. in Průhonice sub no. JŠ 8358 cultae et a. 2009 lectae (isotypi, PRA, no. det. 23718, etiam ut Taraxaca Exs., no. 912 distributae), chromos. no. 2n = 32 cl. V. Jarolímová a. 2011 determinavit. – *Ibidem*, plantae e seminibus plantae no. JŠ 8120/4 in horto bot. in Průhonice sub no. JŠ 8360 cultae et a. 2009 lectae (PRA, no. det. 23720, etiam ut Taraxaca Exs., no. 915 distributae). – *Ibidem*, plantae e seminibus plantae no. JŠ 8120/3 in horto bot. in Průhonice sub no. JŠ 8359 cultae et a. 2009 lectae (PRA, no. det. 23719, etiam ut Taraxaca Exs., no. 914 distributae). – *Ibidem*, Plantae e seminibus plantae no. JŠ 8120/1 in horto bot. in Průhonice sub no. JŠ 8357 cultae et a. 2009 lectae (PRA, no. det. 23717, etiam ut Taraxaca Exs., no. 913 distributae).

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Addresses:

RNDr. Jan Štěpánek CSc., Doz. RNDr. Jan Kirschner, Institute of Botany, Academy of Sciences, CZ-25243 Průhonice 1, Czech Republic.

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