BioOne COMPLETE

New species of the genus Taraxacum (Asteraceae, Cichorieae) from Croatia III

Author: Uhlemann, Ingo

Source: Willdenowia, 46(2) : 225-232

Published By: Botanic Garden and Botanical Museum Berlin (BGBM)

URL: https://doi.org/10.3372/wi.46.46203

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 18 Apr 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Willdenowia
Annals of the Botanic Garden and Botanical Museum Berlin-Dahlem

INGO UHLEMANN[1]

New species of the genus *Taraxacum* (*Asteraceae, Cichorieae*) from Croatia III

Version of record first published online on 28 July 2016 ahead of inclusion in August 2016 issue.

Abstract: *Taraxacum annetteae* and *Taraxacum croaticum*, found in the N coastal part of Croatia, are described as species new to science and illustrated, and their known distributions are given. Both species belong to *T.* sect. *Erythrosperma*.

Key words: *Asteraceae*, *Compositae*, *Cichorieae*, *Taraxacum*, *Taraxacum* sect. *Erythrosperma*, *Taraxacum annetteae*, *Taraxacum croaticum*, dandelions, taxonomy, new species, Mediterranean, Balkan peninsula, Croatia

Article history: Received 19 February 2016; peer-review completed 7 April 2016; received in revised form 18 April 2016; accepted for publication 21 April 2016.

Citation: Uhlemann I. 2016: New species of the genus *Taraxacum* (*Asteraceae*, *Cichorieae*) from Croatia III. – Willdenowia 46: 225–232. doi: http://dx.doi.org/10.3372/wi.46.46203

The exploration of the genus *Taraxacum* in Croatia by the present author was initiated by W. Rottensteiner (former W. Starmühler, Austria, Graz), who is studying the flora of the peninsula of Istria and the islands of the bay of Kvarner for the recently published *Exkursionsflora für Istrien* (Rottensteiner 2014). In the course of the preparation of this Flora, the present author discovered some hitherto unknown species belonging to *T.* sect. *Erythrosperma* (H. Lindb.) Dahlst. In two previous papers (Uhlemann 2007, 2010) the author described three new species of this section. Two further species are described as new to science in the present paper. Both species are classified in *T.* sect. *Erythrosperma* due to their delicate habit, outer involucral bracts with a small white border and tips with corniculations below the apex, and brown achenes with long cylindrical pyramides.

Taraxacum (sect. *Erythrosperma*) ***annetteae*** Uhlemann, **sp. nov.** – Fig. 1, 2, 5.
Holotype: Croatia, bay of Kvarner, isle of Krk, SE part of the island, pass at entrance to Baška valley, c. 50 m above monument, roadside, 10 Apr 2007, *I. Uhlemann* (B 10 0673409; isotypes: PRA, S, herb. Uhlemann).

Planta mediocriter (5–)10–15 cm alta, gracilis. *Folia* canoviridia, subglabra, immaculata. *Petioli* inalati, angusti, lucide rubropurpurei. *Nervus medianus* sordide viridis. *Lamina foliorum* distincte lobata; *lobi laterales* 4 vel 5 (vel 6) utrimque, lati vel anguste deltoidei, patentes, subobtusi vel lingulati, in marginibus distalibus uno dente magno et lato instructis, in marginibus proximalibus integri vel uno dente minuto instructis; *lobus terminalis* parvus, triangularis, lobulo apicali elongato usque linguiforme protracto; *interlobia* bene evoluta, piceata, saepe dentata. *Scapi* superne valde, ceterum parce araneosi, brunneo-virides. *Involucrum* olivaceo-viride, leviter pruinosum. *Squamae exteriores* numero 16–20, supra valde colore rubro-violaceo tinctae, subtus fusco-virides, unguiformis, recurvatae, lanceolatae, 8–9 mm longae, 2–2.5(–3) mm latae, anguste albido marginatae, sub apice minute corniculatae. *Calathium* 2–2.5(–3) cm diametro, luteum, radians. *Ligulae marginales* planae, subtus stria

1 Teichstraße 61, 01778 Liebenau, Germany; e-mail: greta_uhlemann@web.de

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 18 Apr 2024
Terms of Use: https://complete.bioone.org/terms-of-use

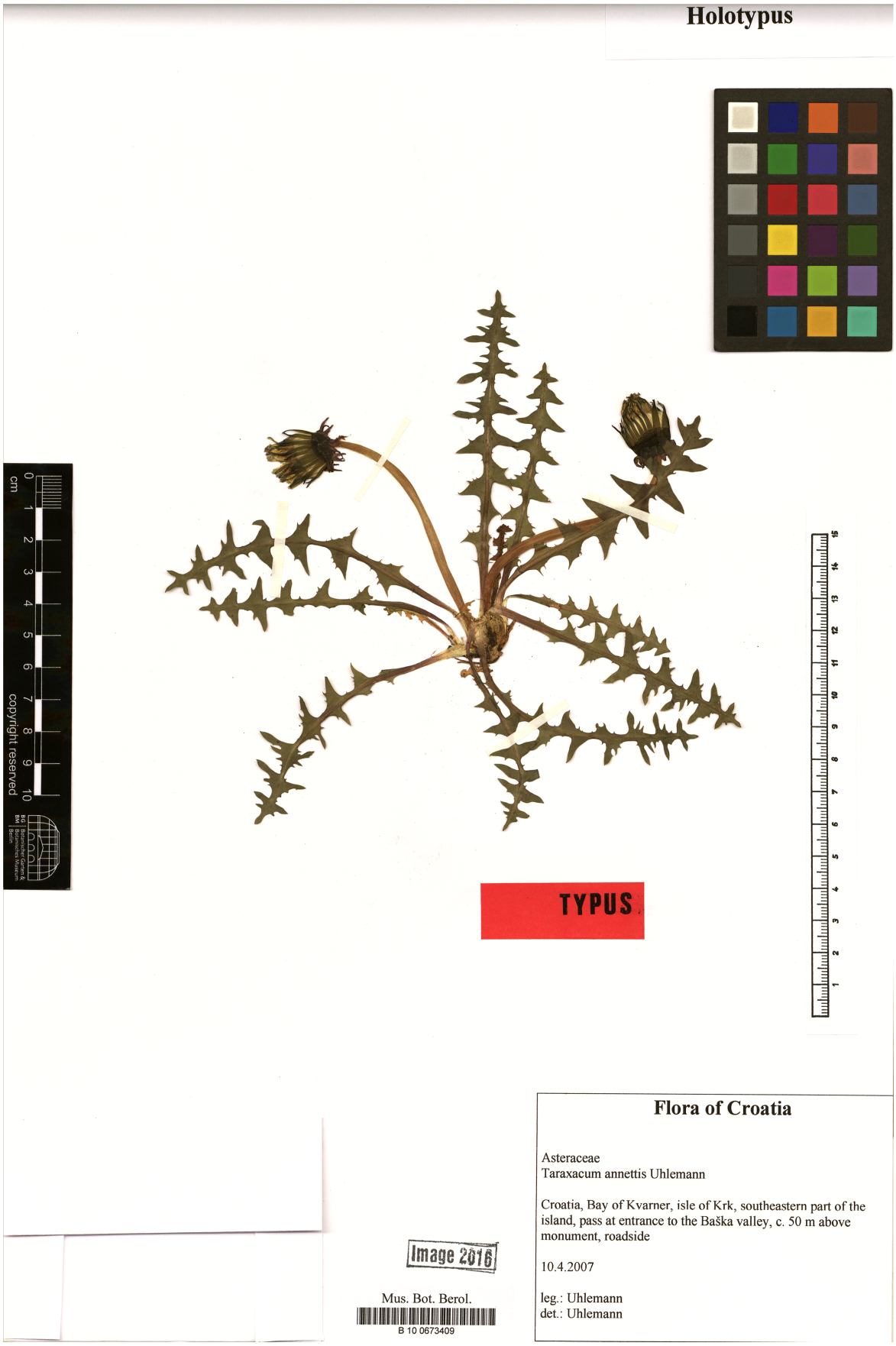

Fig. 1. *Taraxacum annetteae*, holotype specimen at B.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 18 Apr 2024
Terms of Use: https://complete.bioone.org/terms-of-use

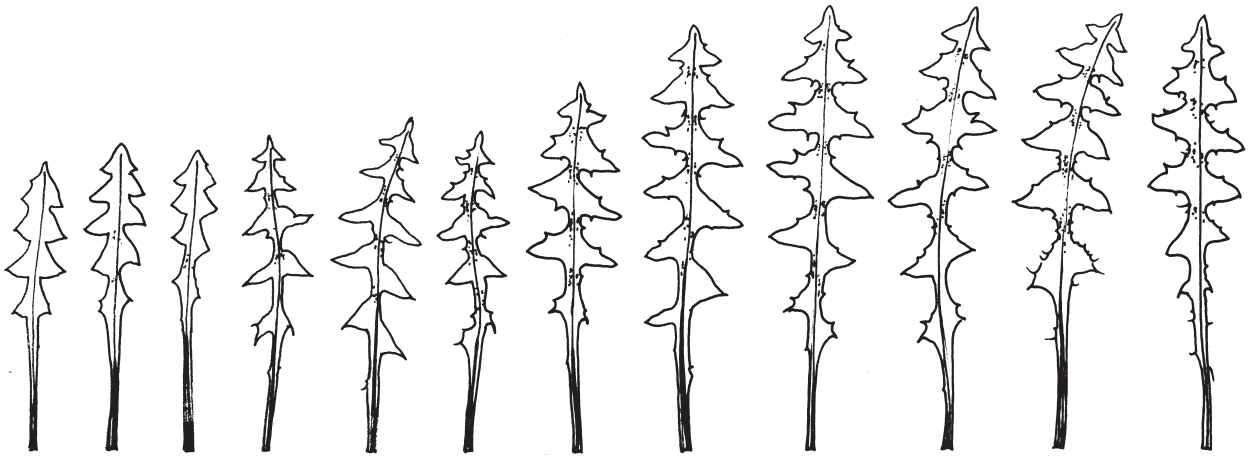

Fig. 2. Variability of leaf shape in *Taraxacum annetteae* (material: Croatia, isle of Krk, 10 Apr 2007, *I. Uhlemann*).

canoviolacea instructae. *Antherae* polliniferae, granis pollinum diametro variabili. *Stylus* superne obscure canoviridis. *Achenium* laete brunneum, 2.5–2.6 mm longum (pyramide exclusa), superne spinulosum, spinulis validis, ceterum squamulosum vel rugosum, in pyramidem cylindricam, 0.8–0.9 mm longam abrupte abiens, rostrum 8–9 mm longum. *Pappus* albus.

Description — *Herbs* delicate, (5–)10–15 cm tall. *Leaves* greyish green; *petiole* light purple, thin, unwinged; *leaf blade* distinctly lobed, with 4 or 5(or 6) pairs of triangular lateral lobes; *midrib* brownish green (dirty green); *lateral lobes* patent, usually with a distinct tooth on proximal and distal margin, apex ± blunt or lingulate; *interlobes* tar-coloured, well differentiated, dentate; *terminal lobe* triangular, apex shortly lingulate. *Scape* hairy below involucre; *involucre* olive-green, somewhat pruinose at base; *outer bracts* intensely purple-coloured, lanceolate, arcuate-reflexed with apex pointing back to scape (claw-like), 8–9 mm long, 2–2.5(–3) mm wide, with small white border and corniculations below apex; *calathium* 2–2.5(–3) cm in diam.; *corolla* pure yellow but outermost ligules striped greyish violet abaxially; *pollen* present, variable in diameter; *styles* dark greyish green. *Achenes* pale brown (without red colour); *achene body* (without cone) 2.5–2.6 mm long, with large spines in distal part; *cone* cylindric, 0.8–0.9 mm long; *rostrum* 8–9 mm long; *pappus* white.

Distribution — *Taraxacum annetteae* is an extremely rare species. Up to now it is known only from two remote localities in Croatia, where it forms populations with more than 100 individuals (Fig. 7).

Affinities — The most striking diagnostic feature of *Taraxacum annetteae* is the intense purple coloration (even in shady places) of the arcuate-reflexed outer bracts with their tips pointing back to the scape. Each of these outer bract character states (colour and position) is rare in *T.* sect. *Erythrosperma*, but the combination is unique. Furthermore, the species is characterized by light purple petioles, shortly triangular, blunt or sometimes lingulate lateral leaf lobes with a distinct large tooth on the distal margin and a less distinct tooth on the proximal margin, tar-coloured interlobes, pollen-producing anthers, dark greyish green styles and small, pale brown achenes with large spines in the distal part.

With regard to the arcuate-reflexed outer bract position, *Taraxacum annetteae* resembles *T. lacistophylloides* Dahlst. (1933), but the latter species has light green outer bracts, a more robust habit, grey achenes and a completely deviating shape of lateral leaf lobes.

In *T. purpureocornutum* Soest (1957), a rare and probably endemic species from Corsica (Štěpánek & Kirschner 2012), only the outermost outer bracts are arcuate-reflexed, whereas the inner ones are arcuate or patent. Moreover, this species has a completely deviating leaf shape, pinkish grey-green outer bracts, produces no pollen and has larger achenes with a longer pyramid than *T. annetteae*.

Only a few other species of *Taraxacum* sect. *Erythrosperma* have intensely purple-coloured outer bracts, such as *T. pupureomarginatum* Soest (1964), but this species differs from *T. annetteae* in having irregularly arcuate outer bracts, yellow-green styles and larger, grey achenes. Also the C and N European *T. bellicum* Sonck (1983) has an intense purple outer bract coloration, but in contrast red-brown achenes c. 3 mm long with a cone 1.3–1.5 mm long, triangular, acuminate lateral leaf lobes and a long sagittate, incised terminal leaf lobe.

With regard to leaf shape, *Taraxacum lingulilobum* Sonck (1984), described from Greece and also found in Bulgaria (Štěpánek & Kirschner 2014), is similar, but this species has green or very faintly dirty violet petioles, dark green outer bracts and red-brown achenes more than 3 mm long with a cone c. 1 mm long.

The pale brown achenes of *Taraxacum annetteae* resemble those of *T. plumbeum* Dahlst (1911) with respect to their coloration, but the latter species has a completely deviating leaf shape and green, erect outer bracts with recurved tips.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 18 Apr 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Eponymy — The epithet is dedicated to my wife, Annette, who has patiently supported and suffered my taxonomic studies in *Taraxacum* over a period of more than two decades.

Additional specimens seen — Croatia: Dalmatia, Starigrad, Velika Paklenica, c. 2 km oberhalb des Parkeingangs, Wegrand, zahlreich, 15 Apr 2009, *I. Uhlemann* (B, herb. Uhlemann).

Taraxacum (sect. *Erythrosperma*) ***croaticum*** Uhlemann, **sp. nov.** – Fig. 3, 4, 6.
Holotype: Croatia, bay of Kvarner, isle of Cres, Valun, crossroads of a footpath close to the beach at W outskirts of village, semi-shady below trees, 25 Mar 2008, *I. Uhlemann* (B 10 0673408; isotypes: PRA, S, herb. Uhlemann).

Planta mediocriter 10–15(–20) cm alta, gracilis. *Folia* laete canoviridia, subglabra, immaculata. *Petioli* inalati, angusti, rubropurpurei. *Nervus medianus* sordide viridis. *Lamina foliorum* distincte lobata; *lobi laterales* 3 vel 4(–6) utrimque, lati vel anguste deltoidei, subhamati vel recurvi, acuti, in marginibus distalibus et marginibus proximalibus integri vel dente minuto instructi; *lobus terminalis* sagittatus, lobulo apicali saepe elongato usque linguiforme protracto; *interlobia* bene evoluta, viridia, saepe dentata. *Scapi* glabrus vel sparse araneosi, brunneo-virides. *Involucrum* glauco-viride, pruinosum. *Squamae exteriores* numero (11 vel) 12 vel 13(–15), erectae, late lanceolatae, 7–9 mm longae, (2–)3–4 mm latae, anguste albido vel roseo-marginatae, sub apice minute corniculatae. *Calathium* 2–2.5 cm diametro, luteum, radians. *Ligulae marginales* planae, subtus stria canoviolacea instructae. *Antherae* polline carentes. *Stylus* superne (obscure) canoviridis vel siccis nigris. *Achenium* laete brunneum, 3–3.1 mm longum (pyramide exclusa), superne dense spinulosum, ceterum squamulosum vel rugosum, in pyramidem cylindricam, 1–1.2 mm longam abrupte abiens, rostrum 6–8 mm longum. *Pappus* albus.

Description — *Herbs* delicate, 10–15(–20) cm tall. *Leaves* greyish green; *petiole* purple-red, thin, unwinged; *leaf blade* distinctly lobed with 3 or 4(–6) pairs of broadly or narrowly triangular lateral lobes; *midrib* brownish green (dirty green); *lateral lobes* recurved to nearly hamate, usually entire on proximal and distal margin; *interlobes* green, well differentiated, dentate; *terminal lobe* triangular or sagittate, apex lingulate. *Scape* glabrous or very sparsely aranose; *involucre* glaucous, pruinose; *outer bracts* (11 or)12 or 13(–15), broadly lanceolate, erect, 7–9 mm long, (2–)3–4 mm wide, with a pink or white border, corniculate below apex; *calathium* c. 20–25 mm in diam.; *corolla* pure yellow but outermost ligules striped greyish violet abaxially; *pollen* absent; *styles* (dark) grey-green or in dried condition blackish. *Achenes* pale brown (without red colour); *achene body* (without cone) 3–3.1 mm long; *cone* cylindric, 1–1.2 mm long; *rostrum* 6–8 mm long; *pappus* white.

Distribution — *Taraxacum croaticum* is so far known from Istria and the islands of Cres, Losinj, Pag and Rab in the bay of Kvarner in Croatia, and from a single, remote locality in Starigrad, Dalmatia (Fig. 7).

Affinities — *Taraxacum croaticum* is mainly recognized by its flowers lacking pollen, greyish to blackish styles, pale brown achenes, few erect outer bracts, thin, unwinged and purple-red petioles, a characteristic leaf-lobation with more or less entire and hamate lateral lobes and long interlobes.

With regard to leaf shape this species is related to other species in *Taraxacum* sect. *Erythrosperma* with more or less hamate lateral lobes, such as *T. lambinonii* Soest (1961), which is distinguished by strongly hamate leaf lobes, shorter interlobes, presence of pollen and (greyish)brown achenes; and furthermore *T. aquitanum* Hofstra (1988), with strongly hamate leaf lobes, shorter interlobes, presence of pollen, erect to patent outer bracts and red-brown achenes with a shorter, 0.7–0.8 mm long cone.

Taraxacum croaticum should be also compared with the well-known species *T. parnassicum* Dahlst. (1926) [= *T. silesiacum* Dahlst. ex G. E. Haglund (1938) = *T. praegracilens* Sonck (1989), nom. nov. for *T. pseudogracilens* Sonck (1988)], common in C Europe, ranging to the Mediterranean and scattered in N Croatia, which resembles the first in its flowers lacking pollen, dark styles and more or less hamate to recurved lateral lobes on the outer leaves. Some modifications of *T. parnassicum*, for instance those pictured under the name *T. pseudogracilens* (Sonck 1988: 77, fig. 3A, C), tend with regard to leaf shape to *T. croaticum*; but, in contrast, *T. parnassicum* has more numerous outer bracts, which are patent or erect with recurved tips and a deviating leaf lobation (shorter and patent lateral lobes on the inner leaves, which tend to stand closer in the distal part of the leaf, and short interlobes).

Taraxacum croaticum also resembles to *T. plumbeum* Dahlst (1911) with regard to the pale brown achenes and leaf lobation, but the latter species has aranose leaves, short, hamate to recurved lateral leaf lobes, which sometimes (mainly on the inner leaves) become long and tapering, shorter interlobes and pollen-producing anthers.

Taraxacum taraxacoides (Hoppe & Hornschuch) Willkomm (Hoppe & Hornschuch 1818; Willkomm & Lange 1865), the most frequent species of *T.* sect. *Erythrosperma* in N Croatia, is distinguished from *T. croaticum* by smaller and more numerous horizontal lateral leaf lobes, outer bracts 2–3 mm wide (but erect as in *T. croaticum*) and red-brown achenes.

Superficially considered, *Taraxacum croaticum* is similar to some modifications of *T. erythrospermum*

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 18 Apr 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Fig. 3. *Taraxacum croaticum*, holotype specimen at B.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 18 Apr 2024
Terms of Use: https://complete.bioone.org/terms-of-use

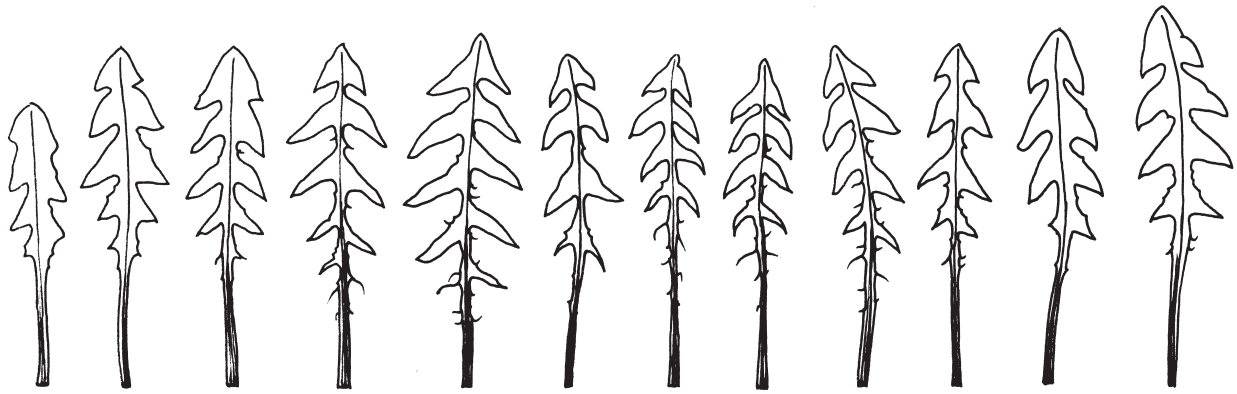

Fig. 4. Variability of leaf shape in *Taraxacum croaticum* (material: Croatia, isle of Rab, 11 Apr 2010, *I. Uhlemann*).

Andrz. (in Besser 1822), but this species has a sexual mode of reproduction, regular pollen grains of nearly the same size, yellow or greenish yellow styles, red-brown achenes and an extraordinary variability in leaf shape.

Etymology — The specific epithet alludes to the country where this species occurs.

Additional specimens seen — Croatia: Istria, Ostküste, Opatija, Vebrinaciin johtavan polun varressa kaupungin yläpuolella, 7 May 1988, *J. Räsänen* (herb. Räsänen, herb. Uhlemann); Westküste, nördlich Peroj, Trift, Garrigue, 52 m, 14 Apr 2012, *K. G. Bernhardt* (KL). Cres, nordwestlicher Teil des Insel, Dragozetici, Straßenrand im Dorf, 4 Apr 2002, *I. Uhlemann* (herb. Uhlemann); Valun, Serpentinstraße oberhalb des Ortes, 25 Mar 2008, *I. Uhlemann* (B, herb. Uhlemann); Südwestküste, Ustrine, Ortslage, Straßenrand, 25 Mar 2008, *I. Uhlemann* (herb. Uhlemann). Losinj, Umgebung von Mali Losinj, im Aleppo-Föhren-Bestand zwischen Hotel Bellevue und dem Strand, 14 May 2012, *H. Teppner* (herb. Teppner); Veli Losinj, Kapelle Sveti Ivan, Asphaltstraße auf dem Höhenrücken, Straßenrand, 24 Mar 2008, *I. Uhlemann* (herb. Uhlemann); Straße zwischen Veli Losinj und Mali Losinj, Straßenrand, 12 Apr 2007, *I. Uhlemann* (B, herb. Uhlemann). Pag, Nordspitze der Insel, Tovarnele, Ortslage, zwischen alten Olivenbäumen, 14 Apr 2009, *I. Uhlemann* (herb. Uhlemann). Rab, südwestlich der Stadt, Straße nach Suha Punta, Straßenrand c. 2 km nördlich des Ortes, 14 Apr 2010, *I. Uhlemann* (B, herb. Uhlemann); Rab, westlich der Stadt, Kampor, Naturlehrpfad südlich des Ortes, Wegrand, 11 Apr 2010, *I. Uhlemann* (B, herb. Uhlemann). Dalmatia, Norddalmatien, Starigrad, Velika Paklenica, c. 2 km oberhalb des Parkeingangs, Wegrand, 15 Apr 2009, *I. Uhlemann* (herb. Uhlemann).

Fig. 5. Position of outer involucral bracts of *Taraxacum annetteae* (Velika Paklenica, 2009, *I. Uhlemann*).

Acknowledgements

I would like to thank Dr W. Rottensteiner (Austria, Graz) for providing specimens of his collections and Dr Jan Kirschner, Dr Jan Štěpánek, an anonymous reviewer and Nicholas Turland for their comments on an earlier version of this paper.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 18 Apr 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Fig. 6. Position of outer involucral bracts of *Taraxacum croaticum* (Valun, 2008, *I. Uhlemann*).

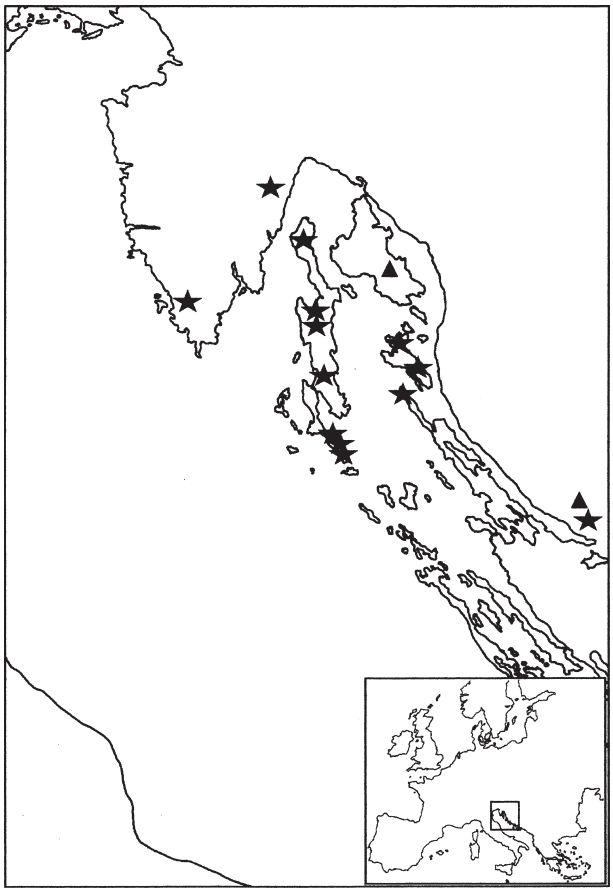

Fig. 7. Known distribution of *Taraxacum annetteae* (▲) and *T. croaticum* (★).

References

Besser V. S. 1822: Enumeratio plantarum hucusque in Volhynia, Podolia, Gub. Kiioviensi, Bessarbia Cis-Tyraica et circa Odessam collectarum, simul cum observationibus in primitias florae Galiciae Austriacae. – Vilnae: Josephi Zawadzki universitatis typographi.

Dahlstedt H. 1911: Nya östsvenska Taraxaca. – Ark. Bot. **10(6):** 1–36.

Dahlstedt H. 1926: Über einige orientalische *Taraxacum*-Arten. – Acta Hort. Berg., Stockholm **9(1):** 1–36.

Dahlstedt H. 1933: Einige neue *Taraxacum*-Arten aus der Schweiz. – Ber. Schweiz. Bot. Ges. **42:** 718–723.

Haglund G. E. 1938: Bidrag till kännedomen om Skandinaviens *Taraxacum*-flora II. – Bot. Notiser **1938:** 499–508.

Hofstra J. 1988: Sur quelques especes de *Taraxacum* sect. *Erythrosperma* Dahlst. emend. Lind. f. en Agenais (France). – Bull. Soc. Bot. France, Lett. Bot. **135 (4/5):** 377–380.

Hoppe D. H. & Hornschuch F. 1818: Tagebuch einer Reise nach den Küsten des adriatischen Meers und den Gebirgen von Krain, Kärnthen, Tyrol, Salzburg, Baiern und Böhmen; vorzüglich in botanischer und entomologischer Hinsicht. – Regensburg: Rotermundt.

Rottensteiner W. 2014: Exkursionsflora für Istrien. – Klagenfurt: Naturwissenschaftlicher Verein für Kärnten.

Soest J. L. van 1957: Contribution a l'etude des *Taraxacum* de Corse. – Acta Bot. Neerl. **6:** 407–419.

Soest J. L. van 1961: Quelques novelles especes de *Taraxacum*, natives d'Europe. – Acta Bot. Neerl. **10:** 280–306.

Soest J. L. van 1964: Notes sur quelques *Taraxacum* distribués. – Bull. Soc. Franç. Échange Pl. Vasc. **5:** 20–23.

Sonck C. E. 1983: Zwei neue *Taraxacum*-Arten aus dem nördlichen Lappland. – Memoranda Soc. Fauna Fl. Fennica **59:** 1–7.

Sonck C. E. 1984: New *Taraxacum* species from Greece. – Ann. Bot. Fenn. **21:** 157–170.

Sonck C. E. 1988: New *Taraxacum* species from Albania. II. – Ann. Bot. Fenn. **25:** 73–83.

Sonck C. E. 1989: *Taraxacum panhellenicum,* new species of sect. *Erythrocarpa* from Greece, and a new name, *T. praegracilens*. – Ann. Bot. Fenn. **26:** 51–52.

Štěpánek J. & Kirschner J. 2012: A taxonomic revision of *Taraxacum* sect. *Erythrosperma* (*Compositae-Lactuceae*) in Corsica. – Feddes Repert. **123:** 139–176.

Štěpánek J. & Kirschner J. 2014: A revision of *Taraxacum* sect. *Erythrosperma* and sect. *Erythrocarpa* names published by C. E. Sonck from Greece, with nomenclatural comments. – Willdenowia **44:** 137–144.

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 18 Apr 2024
Terms of Use: https://complete.bioone.org/terms-of-use

Uhlemann I. 2007: New species of the genus *Taraxacum* (*Asteraceae, Cichorieae*) from Croatia [Notulae ad floram euro-mediterraneam pertinentes 23]. – Willdenowia **37:** 115–121.

Uhlemann I. 2010: New species of the genus *Taraxacum* (*Asteraceae, Cichorieae*) from Croatia II. – Willdenowia **40:** 179–182.

Willkomm M. & Lange J. 1865: Pp. 230–231 in: Prodromus florae hispanicae seu synopsis methodica omnium plantarum in Hispania sponte nascentium vel frequentius cultarum quae innotuerunt **2.** – Stuttgartiae: E. Schweizerbart (E. Koch).

Willdenowia

Open-access online edition www.bioone.org/loi/will BioOne

Online ISSN 1868-6397 · Print ISSN 0511-9618 · Impact factor 0.500

Published by the Botanic Garden and Botanical Museum Berlin, Freie Universität Berlin

© 2016 The Author · This open-access article is distributed under the CC BY 4.0 licence

Downloaded From: https://complete.bioone.org/journals/Willdenowia on 18 Apr 2024
Terms of Use: https://complete.bioone.org/terms-of-use