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New species of the genus *Taraxacum* (*Asteraceae*) from Germany III

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Abstract: Uhlemann, I. 2016: New species of the genus *Taraxacum* (*Asteraceae*) from Germany III. Schlechtendalia **30**: 45–53.

Two new species of the genus *Taraxacum* (*Asteraceae*) are described: *T. clavatilobum* and *T. hahnii*. Both species belong to the section *Taraxacum*. A list of localities, specimens examined and distribution maps are presented for each taxon.

Zusammenfassung: Uhlemann, I. 2016: Neue Arten der Gattung *Taraxacum* (*Asteraceae*) aus Deutschland III. Schlechtendalia **30**: 45–53.

Zwei neue Arten der Gattung *Taraxacum* (*Asteraceae*) werden beschrieben: *T. clavatilobum* und *T. hahnii*. Beide Arten gehören zur Sektion *Taraxacum*. Alle untersuchten Belege werden aufgelistet und die Fundpunkte in Verbreitungskarten dargestellt.

Key words: Composites, taxonomic novelties, Central Europe.

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Introduction

Since my previous publication dealing with descriptions of new *Taraxacum* species from Germany (Uhlemann 2012), further contributions to the genus *Taraxacum* in Germany have been published by Štěpánek & Kirschner (2012), Breitfeld & Horbach (2013), Uhlemann et al. (2013), Lippert & Meierott (2014), Øllgaard (2015), Uhlemann et al. (2015), Trávniček et al. (2015), Kirschner et al. (2016), and Wesenberg & Uhlemann (2016). Information and data from these papers have been summarised in Uhlemann et al. (2016) resulting in a number of 412 *Taraxacum* species currently known from Germany. The present paper contains the descriptions of two additional *Taraxacum* species new to science belonging to section *Taraxacum*:

Taraxacum* sect. *Taraxacum (*T. officinale* agg.)
Syn.: *Taraxacum* sect. *Ruderalia* Kirschner, H. Øllg. et Štěpánek.
Note: For more details to the new typification and the new sectional name for Common Dandelion see KIRSCHNER & ŠTĚPÁNEK (2011).

Taxonomy

Taraxacum clavatilobum Uhlemann, **sp. nov.** (Figs 1, 2)
[*T. clavatilobum*, nom. prov. inval. (Uhlemann 2003)]

Etymology: The epitheton points to the characteristic club-shaped apex of the lateral leaf lobes.

Holotype: Germany, Saxony, Osterzgebirge, 5 km northeast of Geising, Liebenau, pasture at Teich Street, 9 May 1999, I. Uhlemann (HAL 141630). **Isotypes:** (DR, herb. Uhlemann).

Descriptio:

Plantae mediocriter altae (20–30 cm), robustae, foliis canoviridibus, subglabris, immaculatis, petiolis alatis, pallidibus vel levissime roseis, nervo mediano viridi vel parce brunnescente, laminibus distincte lobatis, lobis lateralibus 4–5 utrimque, patentibus, deltoidibus, ad basin sublatis, margine distali convexo, ad apicem late liniaribus et clavatis, apice contractis et dilatatis, integerrimis vel raro incisis, marginibus proximalibus integerrimis vel dente minuto instructis; lobo terminali magno, sagittato-lingulato, marginibus lateralibus incisis vel contractis, interlobiis longis, crispatis, saepe piceo-coloratis dentatis. Scapi superne valde, ceterum sparse araneosi, brunneo-virides. Involucrum olivaceo-viride, ad basin leviter pruinosum ceterum non pruinosum, 17–20 squamis exterioribus, ± regularibus, raro involutis et tortilibus recurvis, lanceolatis, (3–)4–5(–6) mm latis, (16–)17–20 mm longis, immarginatis, supra laete cano-viridibus vel parce brunneo-purpureis. Calathium 50–60 mm in diametro, luteum radians, ligulis marginalibus planis, subtus stria canoviolacea notatis. Antherae polliniferae, pollinis granis diametro variabilibus, stylus superne virescens. Achenium fusco-

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stramineum, 3.0–3.2 mm longum (pyramide exclusa), superne spinulosum, spinulis rectis, pyramis 0.5 mm longa, conica, laevis, rostrum 12–13 mm longum, pappus albus.

Fig. 1: *Taraxacum clavatilobum* sp. nov. – Holotype (HAL 141630).

Annotations: *Taraxacum clavatilobum* is characterised by unbordered, recurved exterior bracts, lateral leaf-lobes with a broad basal part abruptly contracted into a club-shaped apex, a long lingulate terminal lobe, crisped, tar coloured interlobes and winged, green or more seldom very faintly pinkish petioles. In its leaf shape it is related to *T. gesticulans* H. Øllg. (Øllgaard 1978), *T. proclinatum* Railonsala (1962), and *T. undulatum* H. Lindb. & Markl. (Marklund 1911), which are all distinguished by having clearly bordered exterior bracts, and furthermore *T. corynodes* G. E. Haglund (Haglund 1943), *T. olitorium* G E. Haglund (Haglund 1943) and *T. undulatiforme* Dahlst. (Dahlstedt 1925) which are keyed as follows.

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Fig. 2: *Taraxacum clavatilobum* (Liebenau): A – Flower head and position of the outer bracts; B – Leaf shape; C – habit.

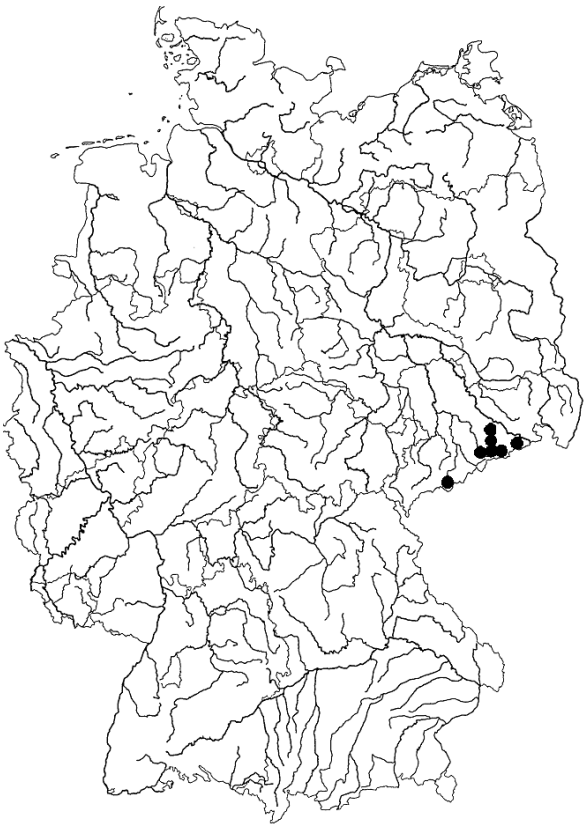

Fig. 3: Known distribution of *Taraxacum clavatilobum*.

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Key to the species related to *T. clavatilobum* found in Germany (corresponding to the key in Uhlemann et al. (2016: 160 f. pos. 60–61)

1 Petioles green or very slightly pinkish, winged; leaves ± glabrous, lateral lobes narrowing from a broad base abruptly into a small process with a club-shaped or obtuse apex; interlobes crisped; outer bracts spreading or recurved, unbordered [***Taraxacum corynodes* group] 2**

1* Characters not as above [**other groups of *Taraxacum* sect. *Taraxacum***]

2 Leaves dark green; lateral lobes patent, with a long linear process; only known from few localities in Mecklenburg-West Pomerania and North Rhine-Westphalia ..... ***T. olitorium* G. E. Haglund**

2* Leaves pale green to greyish green, not dark green **3**

3 Terminal leaf lobe longer than wide; exterior bracts recurved; scattered in southern Saxony ..... ***T. clavatilobum* Uhlemann**

3* Terminal leaf lobe ± as long as wide; exterior bracts spreading to slightly recurved **4**

4 Leaves decumbent; lateral leaf lobes distally with a big, blunt lobule or tooth; rare in Lower Saxony, Mecklenburg-West Pomerania, North Rhine-Westphalia, Saxony .....***T. corynodes* G. E. Haglund**

4* Leaves erect; lateral leaf lobes distally entire or with an acute little tooth; rare in northern Bavaria, Mecklenburg-West Pomerania, North Rhine-Westphalia, Saxony and Schleswig-Holstein ..... ***T. undulatiforme* Dahlst.**

Distribution (Fig. 3): *Taraxacum clavatilobum* is currently known from Saxony where it is to be found frequently in the central and eastern part of Erzgebirge Mountains and the adjacent part of Saxon Switzerland.

Specimens examined: As listed in UHLEMANN (2003: 121) and in addition **Germany, Saxony**, Sächsische Schweiz, Rosental, Abzweig nach Biehlatal an der Pirnaer Str., Straßenrand, 10 May 2013, *I. Uhlemann* & *B. Trávniček* (herb. Trávniček); Osterzgebirge, Tal der Roten Weißeritz, Dippoldiswalde s, Ulberndorf, Frauendorfer Straße, 3 May 1999, *I. Uhlemann* (herb. Uhlemann); Osterzgebirge, Schlottwitz, Straßenabzweig nach Neudörfel, Straßenrand, 300 m NN, 11 May 2015, *I. Uhlemann* (GLM); Osterzgebirge, Glashütte, Ruderalstelle am Abzweig nach Dittersdorf, 6 May 2005, *I. Uhlemann* (herb. Uhlemann); Osterzgebirge, Geising ca. 5 km ne, Liebenau, ca. 2 km n, ruderalisierte Rasen an der Autobahnbrücke, 10 May 2016, *I. Uhlemann* (GLM); Osterzgebirge, Geising, Bahnhof, ruderal, 23 May 2016, *I. Uhlemann* (GLM); Osterzgebirge, Johnsbach s, Weideland, 13.5.1998, *I. Uhlemann* (herb. Uhlemann); Osterzgebirge, Altenberg, Rasen am Fußballplatz nahe des Galgenteichs, 788 m NN, 24 May 2015, *I. Uhlemann* (GLM); Osterzgebirge, sw Altenberg, Hermsdorf, Weide am südöstlichen Ortseingang, 18 May 2012, *I. Uhlemann* (GLM); Osterzgebirge, w Altenberg, Seyde, Straßenrand am Ortsausgang in Richtung Hermsdorf, 4 May 2007, *I. Uhlemann* (herb. Uhlemann); Mittleres Erzgebirge, Bärenstein, Kirche, 19 May 2012, *B. Trávniček* (herb. Trávniček).

***Taraxacum hahnii* Uhlemann, sp. nov.**

Epitheton: The epitheton (eponym) is dedicated to Mr. Steffen Hahn, a very active botanist from Upper Lusatia in eastern Saxony who was intensively collecting dandelions from about 1990–2000. His contribution to the *Taraxacum* flora of Saxony is remarkable. Now he is director of the Botanical Garden in Talca (Chile).

Holotype: Germany, Saxony, Osterzgebirge, 5 km northeast of Geising, 2 km north of Liebenau, ruderal lawn next to the highway bridge, 10 May 2016, *I. Uhlemann* (HAL 141631). Isotypes: (HAL 141633, GLM, DR, M, herb. Uhlemann).

Descriptio: (Figs 4, 5, 6)

Plantae mediocriter altae (20—30 cm), robustae, foliis canoviridibus, araneosis, immaculatis, crispatis, petiolis alatis, lucide purpureis, nervo mediano viridi vel parce brunnescente, laminibus distincte lobatis, lobis lateralibus 4–5 utrimque, patentibus vel recurvis, anguste deltoidibus, ad basin sublatis, margine distali convexo, ad apicem late liniaribus et clavatis, apicibus saepe porrigentibus, contractis, dilatatis, integerrimis vel dentatis ad incisis, marginibus proximalibus dentatis; lobo terminali mediocri, triangulari, lobulo apicali saepe distincte elongato ad lingulato, marginibus lateralibus incisis vel contractis, interlobiis crispatis, dentatis,

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viridibus, solus marginibus lateralibus interdum piceo-coloratis. Scapi superne valde, ceterum sparse araneosi, brunneo-virides. Involucrum olivaceo-viride, leviter pruinosum, 18–22 squamis exterioribus, regularibus, recurvis vel reflexis, lanceolatis, (2–)3–4 mm latis, (14–)15–17 mm longis, immarginatis, supra laete cano-viridibus. Calathium 45–50 mm in diametro, luteum radians, ligulis marginalibus planis, subtus stria canoviolacea notatis. Antherae polliniferae, pollinis granis diametro variabilibus, stylus superne laete virescens. Achenium fusco-stramineum, 3.1–3.5 mm longum (pyramide exclusa), superne spinulosum, spinulis rectis, pyramis 0.5 mm longa, conica, laevis, rostrum 9–11 mm longum, pappus albus.

Fig. 4: *Taraxacum hahnii* sp. nov. – holotype (HAL 141631).

Annotations: Within *Taraxacum* sect. *Taraxacum*, *T. hahnii* belongs to subsection *Dahlstedtia* Sahlin (1979: 187), nom. inval., and series *Dahlstedtia*, nom. prov. inval., respectively, which comprises morphologically similar species with purple petioles, hairy leaves with lateral lobes having relatively blunt tips and recurved outer bracts.

Light purple, moderately winged petioles, hairy leaves with lateral lobes merging from a broad inner part more or less abruptly into a linear blunt apex are the most striking characters of *T. hahnii*. The terminal leaf-lobe is provided with a lingulate tip and laterally incised or contracted.

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The unbordered outer bracts are recurved to reflexed. The anthers produce pollen and the styles are light greyish green. *T. laciniosifrons* Wiinst. ex M. P. Christ. & Wiinst. (Christiansen & Wiinstedt 1934) is the morphologically nearest relative of *T. hahnii* (an early working name was "*T. paralaciniosifrons*"), which is distinguished by having broadly winged petioles, tar coloured interlobes, yellowish green leaves and triangular, blunt to somewhat lingulate, strongly dentate, lateral leaf-lobes (fig. 5 A). *T. deltoidifrons* H. Øllg. (Øllgaard 2003) has in contrast to *T. hahnii* triangular lateral leaf-lobes with a blunt apex, tar coloured, flat interlobes and dirty purplish outer bracts. *T. stenoglossum* Brenner (1907) (syn.; *T. dahlstedtii* H. Lindb. (Lindberg 1908) is separated by dark bluish green leaves, unwinged, strongly purple petioles and a triangular terminal lobe. *T. vanum* H. Øllg. (Øllgaard 1978) is distinguished by broader outer bracts, yellowish green leaves and deltoid, blunt lateral leaf-lobes. According to its leaf-shape *T. hahnii* is related to *T. zelotes* Sahlin (1979) [fig. 5 B] but the latter species differs in having small, unwinged, intensively purple petioles and some midribs, and smaller outer bracts. *T. corneolum* Rail. (Railonsala 1957) is another species with similar leaf morphology, but distinguished by its dark green leaves, green petioles and yellow styles.

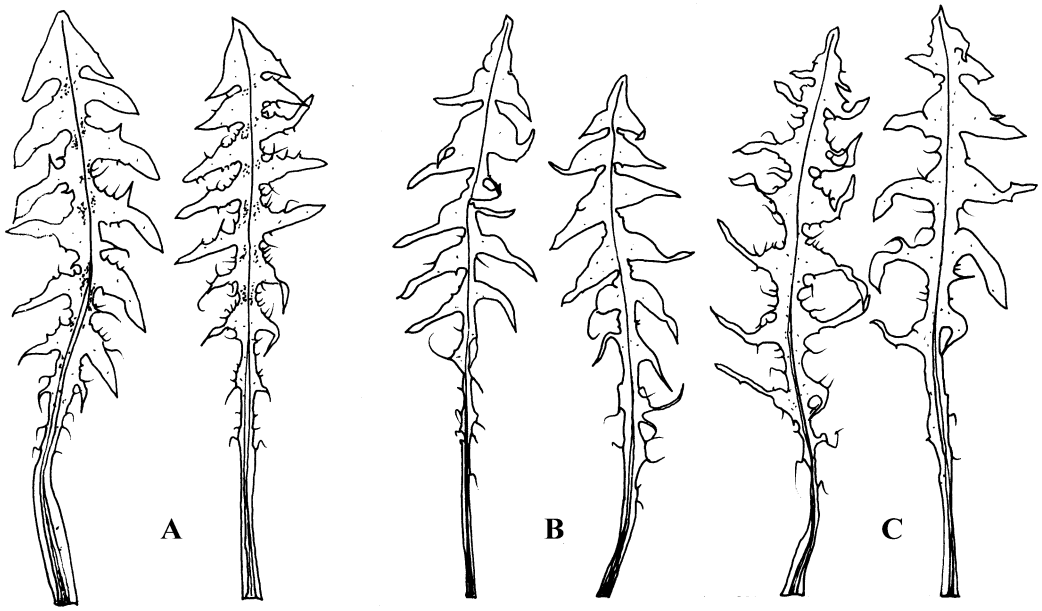

Fig. 5: Leaf morphology of A – *T. laciniosifrons* (Binz, 17.4.1999, herb. Uhlemann), B – *T. zelotes* (München, 27.4.2004, herb. Uhlemann), C – *T. hahnii* (Liebenau, 10.5.2016, herb. Uhlemann).

Key to the species of the *Taraxacum dahlstedtii* group found in Germany

1 Petioles purple; leaves hairy, lateral lobes with a relatively blunt apex; outer bracts recurved. ***Taraxacum dahlstedtii*-group** **2**

1* Characters not as above [**other groups of *Taraxacum* sect. *Taraxacum***]

2 Pollen absent, styles discoloured. Leaves with deltoid, patent to somewhat recurved lateral lobes; petioles and lower parts of midribs intensively purple. Scattered throughout the northern lowlands [*T. densiflorum* M. P. CHRIST.] ..... ***T. subdahlstedtii* M. P. Christ.**

2* Pollen present **3**

3 Exterior bracts clearly bordered, their margins with teeth; leaves with broad triangular patent lateral lobes, distal margin usually entire; petiole broadly winged; known only from Schleswig-Holstein. [*T. marginellum* M. P. Christ. ex M. P. Christ. et Wiinst.] ..... ***T. christiansenii* G. E. Haglund**

3* Exterior bracts unbordered **4**

4 Exterior bracts 4–6 mm broad. Leaves with deltoid, patent lateral lobes, distal margin usually entire; petioles unwinged, faintly purple coloured; rare to scattered throughout the northern lowlands ..... ***T. vanum* H. ØLLG.**

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4* Exterior bracts 3–4 mm broad **5**

5 Exterior bracts patent. Leaves with short, broad triangular, recurved to subpatent lateral lobes; interlobes poorly developed, green; petioles unwinged, faintly pink coloured. Known only from Schleswig-Holstein ..... ***T. latisectum* H. LINDB.**

5* Exterior bracts recurved to reflexed **6**

6 Petioles unwinged, strongly purple **7**

6* Petioles winged, pink to purple **8**

7 Lateral leaf lobes triangular; scattered throughout the northern lowlands, rare in northern Bavaria and Saxony [*T. dahlstedtii* H. Lindb., *T. radians* Brenner] ..... ***T. stenoglossum* Brenner**

7* Tips of lateral leaf-lobes linear; only known from Bavaria (Munich) ..... ***T. zelotes* Sahlin**

8 Interlobes flat, tar coloured; leaves dull grey-green, lateral lobes patent, triangular to slightly lingulate; widespread throughout Central Germany and locally common, scattered in other regions ..... ***T. deltoidifrons* H. Øllg.**

8* Interlobes crispate **9**

9 Leaves yellowish green; petioles broadly winged; lateral lobes patent, deltoid to ± lingulate, strongly dentate on the upper and lower margin; interlobes tar coloured; scattered throughout the northern lowlands, rare in northern Bavaria ..... ***T. laciniosifrons* Wiinst. ex M. P. Christ. et Wiinst.**

9* Leaves greyish green; petioles moderately winged; lateral lobes patent to recurved, merging from a broad inner part more or less abruptly into a linear blunt apex; entire to moderately dentate or incised on the upper and dentate on the lower margin; interlobes green, only margins tar coloured; scattered throughout southern Saxony ..... ***T. hahnii* Uhlemann**

Fig. 6: *T. hahnii* (Liebenau): A – Flower head and position of the outer bracts; B – Leaf shape; C – habit.

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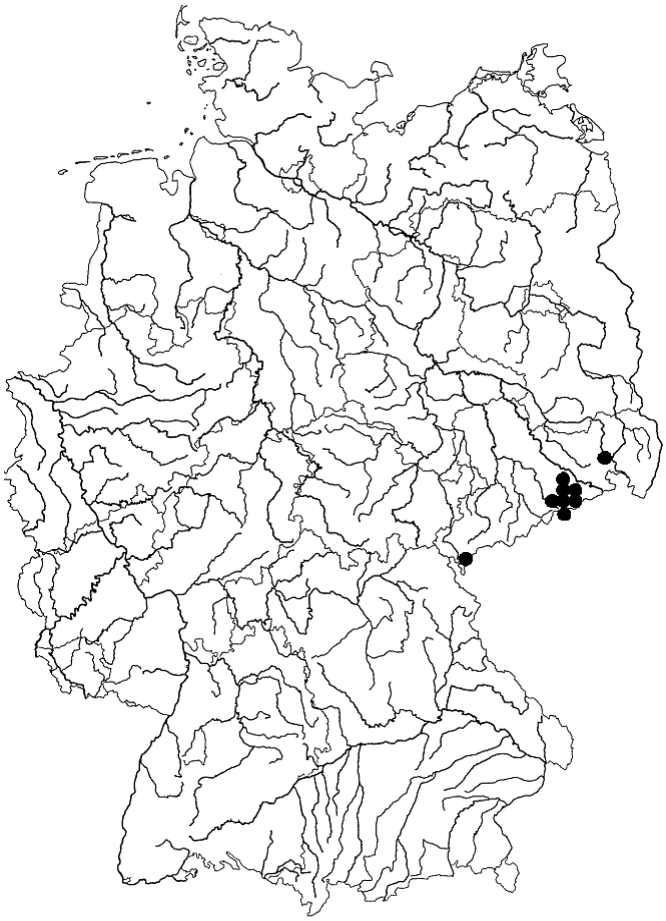

Fig. 7: Known distribution of *Taraxacum hahnii*.

Distribution (Fig. 7): *Taraxacum hahnii* is currently known from many localities in the southern part of Saxony covering a large area from Vogtland, Erzgebirge Mountains, Elbhügelland to Oberlausitz. A single locality in the Czech Republic close to the German border is also known.

Specimens examined: **Saxony,** Oberlausitz, Bischofswerda, Putzkauer Str. 5, ruderalisiertes Grünland, 4.5.2004, *I. Uhlemann* (herb. Uhlemann); Elbhügelland, Dresden s, Straßenabzweig an der B170 nach Coschütz, südexponierte Böschung an der Straße, 12 Apr. 2005, *I. Uhlemann* (herb. Uhlemann); Osterzgebirgsflanke, Bad Gottleuba, Parkplatz am Fußballplatz, Ruderalfläche, 10 May 2013, *I. Uhlemann* (HAL 141642, herb. Uhlemann); Osterzgebirge, Tal der Weißeritz, Karsdorf w, Weide an der B170, 5 May 1999, *I. Uhlemann* (herb. Uhlemann); Osterzgebirge, Altenberg sw, Hermsdorf, Weide am se Ortseingang, 18 May 2012, *I. Uhlemann* (HAL 141641); Osterzgebirge, Geising, Bahnhof, ruderal, 23 May 2016, *I. Uhlemann* (GLM); Osterzgebirge, Geising s, Straßenrand an der Straße nach Zinnwald, 18 May 2012, *I. Uhlemann* & *B. Trávniček* (herb. Trávniček); Osterzgebirge, Müglitztal, Bärenstein, Umgebung des Sportplatzes, 6 May 2008, *I. Uhlemann* (HAL 14143, herb. Uhlemann); Osterzgebirge, Geising ne, Liebenau ca. 2 km ne, Straße nach Breitenau (Autobahnzubringer), Weide am Rand eines Birkenwaldes, 4 May 2012, *I. Uhlemann* (HAL 14140, herb. Uhlemann); Osterzgebirge, Liebenau, Intensivweide an der Teichstraße, 5 May 1998, *I. Uhlemann* (herb. Uhlemann); Osterzgebirge, Geising ca. 5 km ne, Liebenau, ca. 2 km n, ruderalisierte Rasen an der Autobahnbrücke, 10 May 2016, *I. Uhlemann* (herb. Uhlemann); Vogtland, Klingenthal, Großer Parkplatz im Ort, 19 May 2012, *B. Trávniček* (herb. Trávniček).

Furthermore: **Czech Republic**, North-Western Bohemia, Cinovec, Rasen an der Shell-Tankstelle, 29 May 2010, *I. Uhlemann* (herb. Uhlemann).

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Literature

Breitfeld, M. & Horbach, H.-D. 2013: Interessante Funde aus Nordostbayern. Berichte der Bayerischen Botanischen Gesellschaft **83**: 169–174.

Brenner, M. 1907: Taraxaca nova vel districtius definita. Feddes Repertorium **4**: 354–357.

Christiansen, M. P. & Wiinstedt, K. 1934: *Taraxacum*: 302–318. In Raunkiaer, C.: Dansk Ekskursionsflora (Copenhagen), ed. 5.

Dahlstedt, H. 1925: Om Ölands *Taraxacum*-Flora. Arkiv för Botanik (Stockholm) 19 (18): 1-19.

Haglund, G. E. 1943: Några nya Taraxaca från Skåne och Danmark. Botaniska Notiser 1943: 232–242.

Kirschner, J. & Štěpánek, J. 2011: Typification of *Leontodon taraxacum* L. (≡ *Taraxacum officinale* F. H. Wigg.) and the generic name *Taraxacum*: A review and a new typification proposal. Taxon **60**: 216–220.

Kirschner J., Oplaat C., Verhoeven K. J. F., Zeisek V., Uhlemann I., Trávníček B., Räsänen J., Wilschut R. A. & Štěpánek J. 2016: Identification of oligoclonal agamospermous microspecies: taxonomic specialists versus microsatellites. Preslia **88**: 1–17.

Lindberg, H. 1908: *Taraxacum*-former från södra och mellersta Finland. Acta Societatis pro Fauna et Flora Fennica **29**(9): 1–48.

Lippert, W. & Meierott, L. 2014: Kommentierte Artenliste der Farn- und Blütenpflanzen Bayerns. München, Selbstverlag der Bayerischen Botanischen Gesellschaft.

Marklund, G. 1911: Bidrag till kännedomen om *Taraxacum*-floran i Karelia Ladogensis. Acta Societatis pro Fauna et Flora Fennica **34**(7): 1–22.

Øllgaard, H. 1978: New species of *Taraxacum* from Denmark. Botaniska Notiser **131**:497–521.

Øllgaard, H. 2003: New species of *Taraxacum*, sect. *Ruderalia*, found in Central and Northern Europe. Preslia **75**: 137–164.

Øllgaard, H. 2015: Twelve new native *Taraxacum* species from the nordic countries. Nordic Journal of Botany **33**: 1–33.

Railonsala, A. 1957: Taraxaca nova I. Archivum Societatis Zoologicae Botanicae Fennenjicae Vanamo **11**: 148–171.

Railonsala, A. 1962: Taraxaca nova III. Archivum Societatis Zoologicae Botanicae Fennenjicae Vanamo **17**: 150–171.

Sahlin, C. I. 1979: Einige neue *Taraxacum*-Arten aus Bayern. Berichte der Bayerischen Botanischen Gesellschaft **50**: 173–187.

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

Trávníček B., Meierott, L. & Zila, V. 2015: Beiträge zur Gattung *Taraxacum* in Bayern. Forum Geobotanicum (2012/2015) **6**: 20–49.

Uhlemann, I. 2003: Die Gattung *Taraxacum* (*Asteraceae*) im östlichen Deutschland. Mitteilungen zur florististischen Kartierung in Sachsen-Anhalt. Sonderheft: 1–136.

Uhlemann, I. 2012: New species of the genus *Taraxacum* (*Asteraceae*) from Germany II. Schlechtendalia **24**: 13–20.

Uhlemann, I., Jung, K., Kirchmeier, P., Meierott, L. & Rätzel, S. 2013: *Taraxacum*: 764–778 (Bearb.). In NetPhyD & BfN: Bettinger, A, Buttler, K. P., Caspari, S., Klotz, J., May, R. & Metzing, D.: Verbreitungsatlas der Farn- und Blütenpflanzen Deutschlands. Bonn–Bad Godesberg.

Uhlemann, I., Meierott, L., Trávníček, B. & Zila, V. 2015: Fortschritte in der Erforschung der Gattung *Taraxacum* in Deutschland. Kochia **9**: 1–35.

Uhlemann, I., Kirschner, J. & Štěpánek, J. 2016. *Taraxacum* F. H. Wigg.: 133–184. In: Müller, F., Ritz, C. M., Welk, E. & Wesche, K. (Hrsg.): Rothmaler Exkursionsflora von Deutschland. Gefäßpflanzen: Kritischer Ergänzungsband. 11. Aufl. Springer Spektrum, Heidelberg.

Wesenberg, J. & Uhlemann, I. 2016. *Taraxacum* F. H. Wigg. sect. *Palustria* (H. Lindb.) Dahlst.. In: Dressler, S., Gregor, T., Hellwig, F., Korsch, H., Wesche, K., Wesenberg, J. & Ritz, C. M. Bestimmungskritische Taxa der deutschen Flora. Herbarium Senckenbergianum Frankfurt/Main, Görlitz & Herbarium Haussknecht Jena. [online] http://webapp.senckenberg.de/bestikri

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