

Gundelia glabra MILLER (Compositae) – an ignored taxon

E. Vitek*, E. Yüce**, U. Çakılcıoğlu**

Abstract

The status of *Gundelia glabra* MILLER is clarified, a neotype is chosen, the characters and the distribution of the species are discussed.

Key Words: Compositae, *Gundelia*, *G. glabra*; neotype; Flora of Turkey.

Kurzfassung

Der Status von *Gundelia glabra* wird geklärt, ein Neotypus ausgewählt. Die Merkmale und das Verbreitungsgebiet dieser Art werden diskutiert.

Introduction

Gundelia tournefortii was described by LINNÉ (1753). For long time *Gundelia* was thought to be monospecific, earlier described taxa being put in synonymy (e.g. RECHINGER 1989, KUPICHA 1975). Recently detected new species (VITEK et al. 2010, 2014, NERSESYAN 2014, ARMAĞAN 2016) have turned new attention to the genus. All earlier published names have to be checked for their content and for the quality of the relevant taxon. One of these is *Gundelia glabra* MILLER.

Gundelia glabra was described by MILLER (1768), probably based on cultivated plants. The origin of the seeds is not clear: "This plant was discovered by Dr. Gundelscheimer [sic! correct Gundelsheimer], in company with Tournefort, near Baibout in Armenia [sic!], but has since been foundgrowing [sic!] naturally in several places in the Levant, ...".

MILLER (1768) probably was aware, that there are more than one species in the genus *Gundelia*, as he named the "eastern" species *Gundelia glabra* ("*Gundelia* (glabro) orientalis ... Eastern *Gundelia* ..."). The engravings in MILLER (1771: tab. 287 and 1782: tab. 299, obviously based on the same original drawing) show a different species with "... capite areneosa lanugine obsita". These drawings are based on material cultivated from seeds collected by Russel near Aleppo. In MARTYN (1807) these two entities get mixed as *G. glabra* is referred to MILLER, tab. 287. "*G. orientalis*" (= *G. glabra*) is correctly referred to the drawing in TOURNEFORT (1718).

* Ernst Vitek, Department of Botany, Naturhistorisches Museum Wien, Burgring 7 1010 Wien, Austria – ernst.vitek@nhm-wien.ac.at

** Ebru Yüce, Uğur Çakılcıoğlu, Munzur University, Pertek Sakine Genç Vocational School, Food Proceeding Department, 62500, Tunceli, Turkey. – ebruyuce@munzur.edu.tr, ugurcakilcioğlu@munzur.edu.tr



Fig. 1: *Gundelia*, drawing of TOURNEFORT (1718).



Fig. 2: *Gundelia glabra* at the type locality near Bayburt (Vitek et al. 13-0173).

The description of *Gundelia glabra* (MILLER 1768) is not very informative with "acanthi aculeati folio, capite glabro". There is additional information in the english text, which helps to differ this species from other *Gundelia* taxa: "... generally found in dry strong land. Seldom rise more than a foot and a half high; ...". The probable original locality is given as "Baibout in Armenia". This is the only hint to be followed. This place was identified with Bayburt (Turkey, 40°15'19"N 40°13'29"E). No type material could be found.



Fig. 3: *Gundelia glabra*, imbricate bracts (same place as Vitek et al. 13-0237, photo 2015-05-31).

Material and methods

In 2012 the area around Bayburt was thoroughly searched by the second author. Only one population of *Gundelia* was found. In 2013 this locality was revisited by the authors and the characters were analysed. Finally, material was collected for being chosen as neotype.

Results

In TOURNEFORT (1718) a figure shows *Gundelia glabra* from the original location in Bayburt (Fig. 1). This figure is also the first document for the new genus named in honour of Gundelsheimer. As there is no reference in MILLER (1768) to this figure it cannot be taken as type material and a neotype has to be selected.

Gundelia glabra MILL., Gard. Dict., ed. 8, n. 2 (1768)

≡ *G. tournefortii* L. var. *glabra* (MILL) DC., Prodr. Syst. Nat., 5: 88 (1836).

Neotypus (hic designatus): Turkey, province Bayburt, c. 4.4 km SSE Bayburt, road to Gümüşsu, c. 100 m from main road, 1595 m s.m., 40°13'37"N 40°15'43"E, 2013-06-14 Vitek,E., Yüce,E., Ergin,C. & Makal,H.H. 13-0173 [W 2013-0006162, iso-neotypes Tunceli University, B, E, G, HUB, INU, ISTE, NY, US].

Annotation: In DE CANDOLLE no formal combination as variety is made as common use at this time, but with "Variat capitulis glabris (*G. glabra* Mill. Dict. Nr. 2.);" the intention is obvious.



Fig. 4: *Gundelia glabra*, habitats. a) type locality, dry grazed meadow (Vitek et al. 13-0173); b) dry grazed meadow (Vitek et al. 14-068); c) dry roadside slope (Vitek et al. 14-089); d) mountain meadow (Vitek et al. 13-0216), e) gravel slope (Vitek et al. 13-0198).

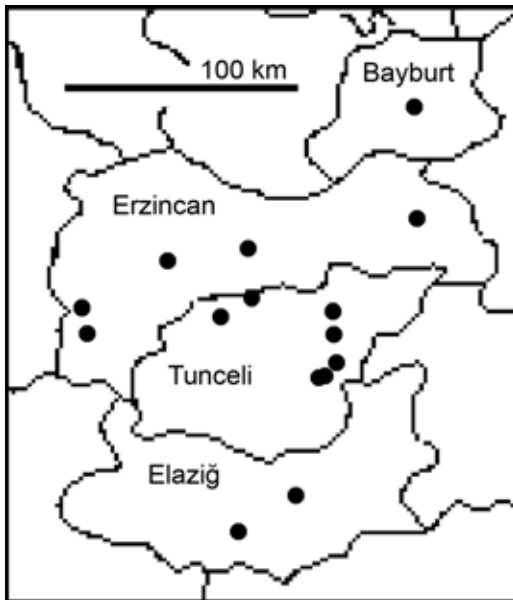


Fig. 5: *Gundelia glabra*, distribution map.

Description (terminology follows CLASSEN-BOCKHOFF et al. 1989): Plants up to 60 cm high, with few, 1–4 (–6) branches, each one ending in a terminal synflorescence. Plants more or less glabrous, rarely in the synflorescences with few arachnoid hairs. Bracts broad triangular with 1–3 (–4) spines on each side. Partial synflorescences with outside pale brownish flowers, inside brownish to red-brown. In the central part of the synflorescence each partial synflorescence is a compound of 3–5 (–6) flowers. Fruits flat triangular to cone-shaped (depending on the number of flowers in that complex), c. 10–12 mm long (excluding spines), spines of the central flower c. 3–5 mm long (Fig. 2, 3).

Ecology: The type locality is a very dry grazed meadow (Fig. 4a), other localities are dry gravel slopes (Fig. 4b), roadsides (Fig. 4c), higher up in the mountains stony and dry meadows (Fig. 4d).

Known distribution: Turkey, provinces of Bayburt, Erzincan, Tunceli, Elazığ (Fig. 5).

Seen specimens: Turkey, province Bayburt, c. 4.4 km SSE Bayburt, road to Gümüşsu, c. 100 m from main road, 40°13'37"N, 40°15'43"E, 2011, Yüce,E. s.n. [W 2013-0004301]; – province Bayburt, c. 4.8 km SE Bayburt, road to Gümüşsu; c. 4 km W Gümüşsu, 1615 m s.m., 40°13'47"N, 40°16'19"E, 2013-06-14, Vitek,E., Yüce,E., Ergin,C. & Makal,H.H. 13-0175 [W 2013-0006163, Tunceli University, E, ISTE]; – province Erzincan, Iliç, road Iliç to Kemaliye c. 3.2 km S of Bağıtaş, 1295 m s.m., 39°24'20"N, 38°27'31"E, 2014-05-31, Vitek,E., Yüce,E. & Cakilcioglu,U. 14-070 [W 2014-0014861, Tunceli University]; – province Erzincan, Kemalye, c. 4.3 km NNW of Kemalye, 1.6 km NNE of village Sandik, 1375 m s.m., 39°17'49"N, 38°28'22"E, 2014-05-31, Vitek,E., Yüce,E. & Cakilcioglu,U. 14-073 [W 2014-0014874, 2014-0014875, Tunceli University, B, E]; – province Erzincan, Kemah, c. 10.3 km W Kemah, road Kemah to Iliç c. 4.2 km W of junction to Gökaynak, 1230 m s.m., 39°35'56"N, 38°54'54"E, 2014-05-31, Vitek,E., Yüce,E. & Cakilcioglu,U. 14-068 [W 2014-0014862, 2014-0014863, 2014-0014864, Tunceli University]; – province Erzincan, Kemah, road Erzincan - Kemah c. 17.3 km SW Erzincan, c. 1.8 km NE of junction to Sürük, 1145 m s.m., 39°39'02"N, 39°20'55"E, 2014-05-31, Vitek,E., Yüce,E. & Cakilcioglu,U. 14-064 [W 2014-0014865, 2014-0014866, Herb. Tunceli]; – province Erzincan, Mercan, 39°45'N 40°15'E, 2014-07-02, Yüce,E. & Cakilcioglu,U. 2994 [W 2014-0015405, 2014-0015406]; – province Tunceli (Dersim), Ovacık, c. 2 km WWSW Ovacık, 1275, 39°21'19"N, 39°11'29"E, 2011, Yüce,E. 2439 [W 2013-0004299]; – province Tunceli (Dersim), Ovacık (Pulur), c. 15.6 km NE of Ovacık, besides road to locality called Şahverdi, c. 0.5 km E of Yarımkaya köyü, 1450 m s.m., 39°25'59"N, 39°22'07"E, 2014-06-03, Vitek,E. & Yüce,E. 14-158 [W 2014-0017016, Tunceli University]; – province Tunceli (Dersim), Pülümür, 35.6 km NNE Tunceli, main road Tunceli - Erzincan, 3.5 km SW Mezraa, 1200 m s.m., 39°21'48"N, 39°47'10"E, 2013-06-17, Vitek,E., Yüce,E., Ergin,C. & Makal,H.H. 13-0336 [W 2013-0006154, Tunceli University]; – province Tunceli (Dersim), Nazımye, c. 32 km NE of Tunceli, Büyükyurt Köyü, 2014-07-02, Yüce,E. & Cakilcioglu,U. 2990 [W 2014-0015410]; – province Tunceli (Dersim), Nazımye, c. 32 km NE of Tunceli, Büyükyurt Köyü, 2014-07-02, Yüce,E. & Cakilcioglu,U. 2991 [W 2014-0015409]; – province Tunceli (Dersim), Nazımye, c. 32 km NE of Tunceli, Büyükyurt Köyü, 2014-07-02, Yüce,E. & Cakilcioglu,U. 2992 [W 2014-0015408]; – province Tunceli (Dersim), Nazımye, c. 32 km NE of Tunceli, Büyükyurt Köyü, 2014-07-02, Yüce,E. & Cakilcioglu,U. 2993 [W 2014-0015407]; – province Tunceli (Dersim), Nazımye, c. 27 km NE of Tunceli,

above village Büyükyurt, 1775 m s.m., 39°15'16"N, 39°47'46"E, 2013-06-16, Vitek,E., Yüce,E. & Ergin,C. 13-0237 [W 2013-0006184, Tunceli University]; – province Tunceli (Dersim), Nazımye, c. 27 km NE of Tunceli, above village Büyükyurt, 1775 m s.m., 39°15'16"N, 39°47'46"E, 2013-06-16, Vitek,E., Yüce,E. & Ergin,C. 13-0237a [W 2013-0006178, Tunceli University]; – province Tunceli (Dersim), Tunceli, c. 21 km E Tunceli, c. 2.2 km E Kilköy, Düzgün Baba Dağı, saddle, 1930 m s.m., 39°07'21"N, 39°47'03"E, 2013-06-15, Vitek,E., Yüce,E., Ergin,C. & Makal,H.H. 13-0216 [W 2013-0006169, Tunceli University]; – province Tunceli (Dersim), Mazgirt, c. 15 km E Tunceli, road Çukur - Gürbüzler, 1.3 km SW of Gürbüzler, 39°07'02"N, 39°42'57"E, 2011, Yüce,E. 2438 [W 2013-0004300]; - province Tunceli (Dersim), Mazgirt, c. 15 km E Tunceli, road Çukur - Gürbüzler, 1.3 km SW of Gürbüzler, 1370 m s.m., 39°07'02"N, 39°42'57"E, 2013-06-14, Vitek,E., Yüce,E., Ergin,C. & Makal,H.H. 13-0191 [W 2013-0006175, Tunceli University, US]; – province Tunceli (Dersim), Mazgirt, c. 16.5 km E Tunceli, road Gürbüzler - Düzgün Baba Dağı, c. 0.8 km ESE Gürbüzler, 1610 m s.m., 39°07'05"N, 39°44'11"E, 2013-06-15, Vitek,E., Yüce,E., Ergin,C. & Makal,H.H. 13-0198 [W 2013-0006174, Tunceli University, L]; – province Tunceli (Dersim), Mazgirt, c. 21 km E Tunceli, c. 3 km SE Çevrecik, Düzgün Baba Dağı, around top, 2060 m s.m., 39°07'27"N, 39°47'28"E, 2013-06-15, Vitek,E., Yüce,E., Ergin,C. & Makal,H.H. 13-0206 [W 2013-0006176, 2013-0006177, Tunceli University, G, INU]; – province Elazığ, Sivrice, 4.1 km NW of Sivrice, locality called Hazarlık, 1275 m s.m., 38°28'20"N, 39°16'17"E, 2014-06-04, Vitek,E., Yüce,E. & Cakilcioglu,U. 14-189 [W 2014-0014879, Tunceli University]; – province Elazığ, road Elazığ -Tunceli, south of lake Keban Barajı, c. 3 km NE of İçme, 880 m s.m., 38°38'00"N, 39°34'45"E, 2014-06-04, Vitek,E., Yüce,E. & Cakilcioglu,U. 14-185 [W 2014-0017027, Tunceli University]; – province Elazığ, road Elazığ -Tunceli, south of lake Keban Barajı, c. 3 km NE of İçme, 880 m s.m., 38°38'00"N, 39°34'45"E, 2014-06-04, Vitek,E., Yüce,E. & Cakilcioglu,U. 14-185a [W 2014-0014883, Tunceli University].

Observation: Turkey, province Tunceli (Dersim), Nazımye, c. 27 km NE of Tunceli, E of village Büyükyurt, 1550 m s.m., 39°15'10"N 39°48'28"E, 2015-05-31, Vitek,E., Armağan,M. & Özel,M.

Discussion

There is morphological variability as the species is interpreted here in the wider sense, including populations higher up in the mountains. At the moment these cannot be distinguished morphologically. On the type locality the partial synflorescences consist of 3–5 flowers, but in other localities rarely up to 6 flowers have been observed.

Gundelia glabra is an easily recognizable species. From *G. tournefortii* it can be distinguished by the brownish flowers (versus yellowish to yellow flowers) and being nearly glabrous (versus dense indumentum – VITEK & JARVIS 2007, VITEK et al. 2017). In comparison with *G. dersim* *G. glabra* can easily be identified being a small plant with few branches, being completely (or nearly) glabrous, growing in dryish habitats (meadows or gravel). Young synflorescences are protected by densely imbricate bracts (Fig. 3).

The species could be wider distributed than known today, as the distribution area (Fig. 5) somehow mirrors the investigated area.

References

- ARMAĞAN M., 2016: *Gundelia vitekii* (Compositae), a new species from Turkey. – Ann. Naturhist. Mus. Wien, B, 118: 129–134.
- CLASSEN-BOCKHOFF R., FROEBE H.A. & LANGERBEINS D., 1989 Die Infloreszenzstruktur von *Gundelia tournefortii* L. (Asteraceae). – Flora 182 / 5–6: 463–479.
- DE CANDOLLE A.P., 1836: Prodrômus systematis naturalis regni vegetabilis, 5.
- KUPICHA F.K., 1975: *Gundelia*. – In: DAVIS P.H., MATTHEWS V.A., KUPICHA F.K. & PARRIS B.S. (eds.): Flora of Turkey and the East Aegean Islands 5: 325–326.

- LINNÉ C., 1753: Species plantarum exhibentes plantas rite cognitatas ad genera relatas cum differentiis specificis, nominibus trivialibus, synonymis selectis, locis natalibus, secundum systema sexuale digestas; Tom. 1–2. – Holmiae: Salvius.
- MARTYN T., 1807: The gardener's and botanist's dictionary by the late Philip Miller [9th edition]. Vol. 1 part 2 Cla-I. – London: Law and Gilbert.
- MILLER PH. 1768: The gardeners dictionary: containing the best and newest methods of cultivating and improving the kitchen, fruit, flower garden, and nursery, as also for performing the practical parts of agriculture, including the management of vineyards, with the methods of making and preserving wine, according to the present practice of the most skilful vignerons in the several wine countries in Europe, together with directions for propagating and improving, from real practice and experience, all sorts of timber trees, ed. 8.
- MILLER PH. 1771: Figures of the most beautiful, useful, and uncommon plants described in the Gardeners dictionary exhibited on three hundred copper plates, accurately engraven after drawings taken from nature; 2 Vol. – London: author.
- MILLER PH., 1782: Abbildungen der nützlichsten, schönsten und seltensten Pflanzen welche in einem Gärtner-Lexikon vorkommen auf das genaueste, nach den von der Natur genommenen Zeichnungen, in Kupfer gestochen und illuminirt, auch mit einer ausführlichen Beschreibung und Anzeige der Classen, worunter sie nach Raii, Tourneforts und Linnai Classification gehören, erläutert; aus dem Englischen übersetzt; Vol. 2. – Nürnberg: Winterschmidt.
- NERSESYAN A., 2014a: *Gundelia armeniaca* NERSESYAN (Compositae) – a new species from Armenia. – Ann. Naturhist. Mus. Wien, B, 116: 191–196.
- RECHINGER K.H., 1989: *Gundelia*. – In: RECHINGER K.H. (ed.) Flora Iranica, 164: 107–109.
- TOURNEFORT J.P DE, 1718: Relation d'un voyage du Levant fait par ordre du roi, contenant l'histoire ancienne & moderne de plusieurs isles de l'Archipel, de Constantinople, des Côtes de la Mer Noir, de l'Armenie, de la Georgie, des frontières de Perse & de l'Asie Mineure, avec les plans de villes et des lieux considerables, le genie, les moeurs, le commerce et la religion des differens peuples qui les habitent; et l'explication des médailles et des monumens antiques, enrichie de descriptions & de figures d'un grand nombre de plantes rares, de divers animaux; et de plusieurs observations touchant l'histoire naturelle Tome I, II. – Paris: L'Imprimerie Royal.
- VITEK E., FAYVUSH G., TAMANYAN K. & GEMEINHOLZER B., 2010: New taxa of *Gundelia* (Compositae) in Armenia. – Ann. Naturhist. Mus. Wien, B, 111: 85–99.
- VITEK E. & JARVIS C.E., 2007: The typification of *Gundelia tournefortii* L. (Compositae). – Ann. Naturhist. Mus. Wien, B, 108: 267–272.
- VITEK E., YÜCE E. & ERGIN C., 2014: *Gundelia dersim* and *Gundelia munzuriensis* (Compositae), two new species from Turkey. – Phytotaxa 161: 130–138.
- VITEK E., LESCHNER H. & ARMAĞAN M., 2017: Vitek *Gundelia tournefortii* L. (Compositae) – an approach. – Ann. Naturhist. Mus. Wien, B, 119: 227–233.