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## Materials to the flora of dandelions (*Taraxacum* – Asteraceae) in Błażowa (SE Poland)

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### ABSTRACT

The paper includes a list of localities of 35 *Taraxacum* species found in Błażowa town. The species belongs to 3 sections: *Borea*, *Palustria*, and *Ruderalia*. The record of the new species to the Polish flora – *Taraxacum clarum* Kirschner, Štěpánek et Trávníček – is given. Data were collected from 2011 to 2014.

**Keywords:** *Taraxacum*, distribution, new species

### INTRODUCTION

The genus *Taraxacum* Wigg. is represented in Poland by approximately 400 species, belonging to 13 sections (Marciniuk et al. 2010a). The recent years researches in Poland supply by every year the new *Taraxacum* species chorology data (6–9, 11, 12, 17–19, 21, 23, 24), however this information is still insufficient for closing the species list and drawing complete species distribution maps. The least explored region in this regard is among others Podkarpackie Province.

## MATERIALS AND METHODS

The list contains 35 *Taraxacum* species, that were found in Błażowa town (near Rzeszów) in vegetation seasons 2011–2014 (Fig. 1). The species are classified into 3 sections: *Borea*, *Palustria* and *Ruderalia* (2) and alphabetically set in the list. The species names are consistent to Mirek et al. (13) and Trávníček et al. (22). Five names of an ineditus species are marked by “ined.” abbreviation. All species localities are documented by herbarium specimens and localized in ATPOL cartogram unit (base cartogram unit: square – 2×2 km) according to methodology proposed by Zajac (25). For each species details of: localization in town (street, hamlet or landmark name, and cartogram unit symbol), species occurrence habitat and specimen collect date is given. Except for ineditus species, information about species occurrence in Poland and Europe is also included. All material was determined by authors. Herbarium sheets are stored in M. Wolanin’s private herbarium.

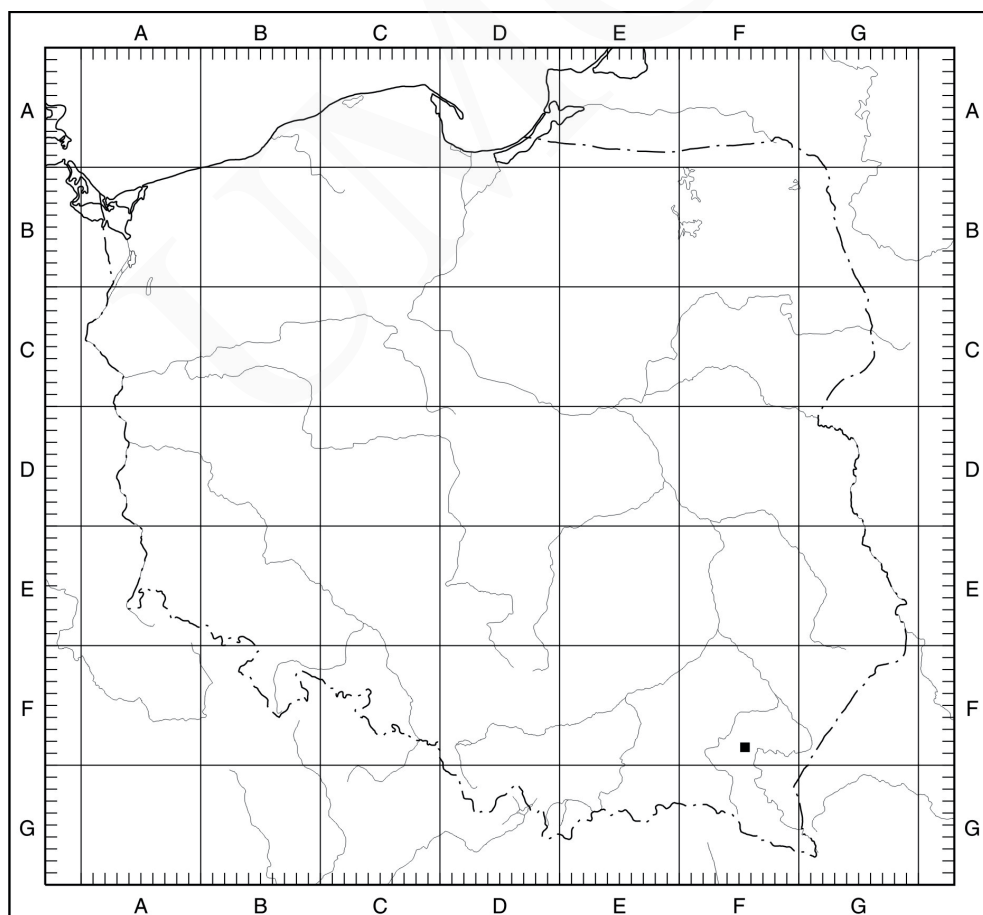


Fig. 1. Localization of the studied area in relation to the ATPOL grid square system

## RESULTS AND COMMENTS

*TARAXACUM* SECT. *BOREA* SAHLIN EX A. J. RICHARDS***TARAXACUM OSTENFELDII* RAUNK.**

FF 8501 – eastern slope of Wał Dziurkowski, meadow (leg. M. Wolanin 27.04.2011).

The species is scattered probably in the whole territory of Poland. The general species range is wide and covers whole Eastern Europe and Scandinavia area likewise Germany, Switzerland, Netherlands, and France (3).

*TARAXACUM* SECT. *PALUSTRIA* (H. LINDBERG) DAHLSTEDT***Taraxacum polonicum* Małecka & Soest**

FF 8511 – wet meadow near Piątkówka stream (leg. M. Wolanin 04.05.2013).

The species is rare in Poland, vulnerable to extinction (VU), occurring mainly in south-eastern Poland. General species range is poorly understood. Until now, it has been found in Poland and adjacent Slovakia and Ukraine regions (6).

***TARAXACUM PORTENTOSUM* KIRSCHNER & ŠTĚPÁNEK**

FF 8511 – wet meadow near Piątkówka stream (leg. M. Wolanin 04.05.2013).

In Poland, the species reaches probably the general range western limit. In the eastern part of Poland, the species occurs quite often yet (conservation status in Poland LR – lower risk species). General species range is poorly understood; outside of Poland, the species is known from historical states in the Czech Republic and Slovakia.

*TARAXACUM* SECT. *RUDERALIA* KIRSCHNER H. ØLLG. & ŠTĚPÁNEK***TARAXACUM ALBOCARPATICUM* TRÁVNÍČEK (INED.)**

FF 8501 – Trakt Łańcucki, meadow lying close to the orchard and cemetery (leg. M. Wolanin 04.05.2012); debris near old brickworks (leg. M. Wolanin 01.05.2012); Spółdzielcza Street, desolate place on the Spółdzielnia Rolniczo-Produkcyjna area (leg. M. Wolanin 05.05.2011); FF 8511 – wet meadow near Piątkówka stream (leg. M. Wolanin 04.05.2013).

***TARAXACUM AMPLUM* MARKL.**

FF 8501 – Spółdzielcza Street, neglected place on the Spółdzielnia Rolniczo-Produkcyjna area (leg. M. Wolanin 05.05.2011).

The species is common in the entire area of Poland. Outside of Poland, it occurs in Russia, Latvia, Finland, Slovakia, Czech Republic, Austria, Germany, Denmark, Netherlands, and Great Britain.

**TARAXACUM ATROX** KIRSCHNER & ŠTĚPÁNEK

FF 8501 – Myśliwska Street, side of the asphalt road (leg. M. Wolanin 21.04.2011); Myśliwska Street, roadside (leg. M. Wolanin 16.04.2011); Myśliwska Street, lawn (leg. M. Wolanin 27.04.2013); eastern slope of Wał Dziurkowski, meadow (leg. M. Wolanin 27.04.2011).

*Taraxacum atrox* belongs to the poorly studied dandelion group partly resembling the *Borea* section taxa (pollen lack, comparatively small capitulum with a narrow outer bracts). In Poland, the species occurring in the southern part only, where probably reaches the general range northern limit. Outside of Poland, it occurs in the Czech Republic, Slovakia, and Germany.

**TARAXACUM AUROSULUM** LINDB. FIL.

FF 8501 – Armii Krajowej Street, near pavement situated next to parish house (leg. M. Wolanin 21.04.2011).

*Taraxacum aurosulum* is rare species in Poland; till now, it is observed in Kraków and Cieszyn vicinity (21). The species general range covers the whole territory of Skandinavia, Estonia, British Islands, Germany, Czech Republic, Switzerland, Belgium, and France.

**TARAXACUM CANOVIRIDE** LINDB. FIL.

FF 8501 – ks. H. Markiewicza Street, lawn next to the cemetery (leg. M. Wolanin 23.04.2011); Myśliwska Street, side of the asphalt road (leg. M. Wolanin 21.04.2011); Armii Krajowej Street, near pavement situated next to parish house (leg. M. Wolanin 21.04.2011).

Distribution of the species in Poland is poorly researched; it is observed earlier in the Kraków vicinity (20) and Mazowsze region.

Outside of Poland, the species occurs in Germany, Belgium, Netherlands, Great Britain, Nordic countries, Latvia, and Estonia.

**TARAXACUM CLARUM** KIRSCHNER, ŠTĚPÁNEK ET TRÁVNÍČEK

FF 8501 – Trakt Łańcucki, roadside (leg. M. Wolanin 04.05.2012); meadow lying close to the orchard and cemetery (leg. M. Wolanin 04.05.2012).

The species is new to the Polish flora. It was described relatively recently (22) from the Czech Republic and from few localities in Slovakia and Germany. Diagnostic features of this species are very distinct. It differs from other species belonging to *Ruderalia* section mainly by unique morphology of the outer bracts, which are: reflexed, narrowly but distinctly marginate and grey-greenish colored with contrasting wine-reddish tips. Leaves usually have 3–4 pairs of undissected lobes, terminal lobe is tongue-elongated, generally with 1 or 2 incisions. Leaf petioles are pink, narrowly winged (Fig. 2).

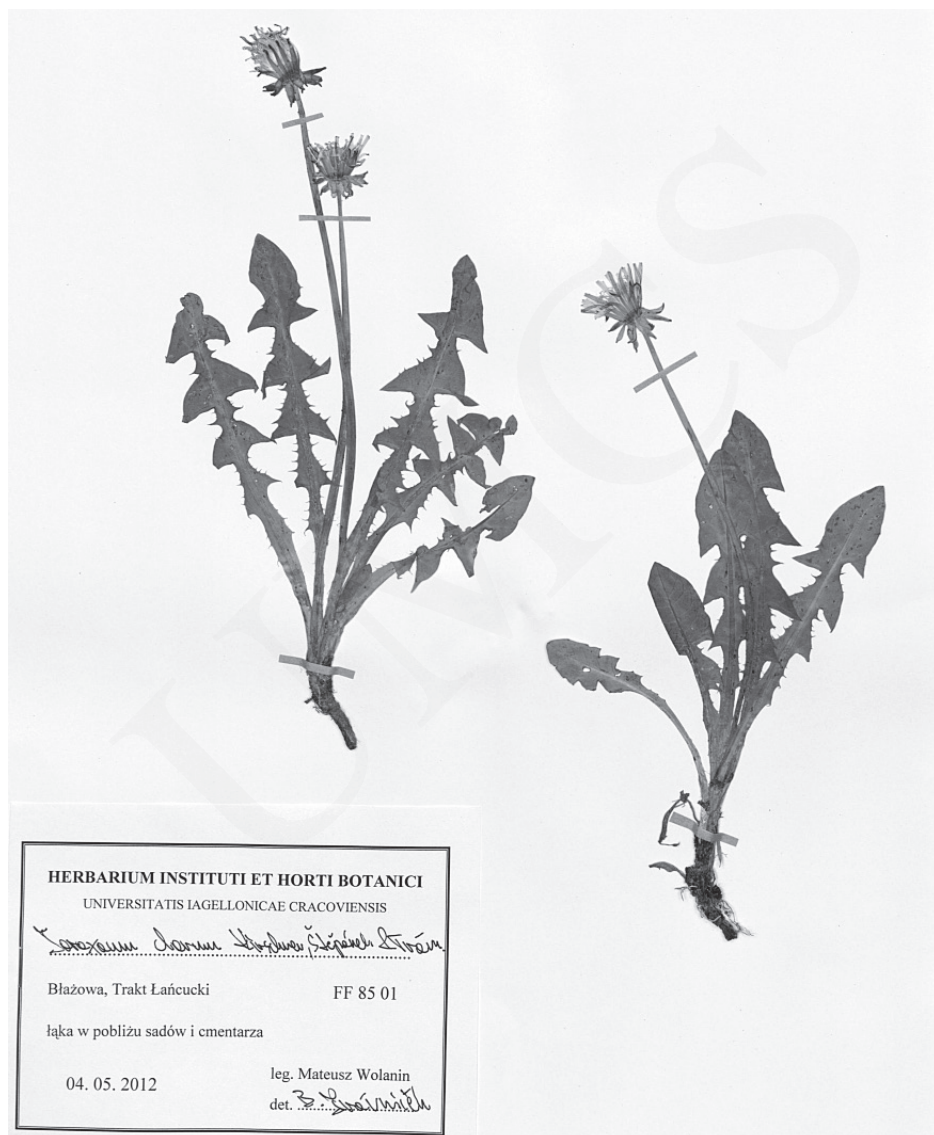


Fig. 2. Herbarium specimen of *Taraxacum clarum* Kirschner, Štěpánek et Trávníček from a new locality at Błazowa

#### **TARAXACUM CRASSUM H. ØLLG. & TRÁVNÍČEK**

FF 8501 – Trakt Łańcucki, meadow lying close to the orchard and cemetery (leg. M. Wolanin 04.05.2012); Błazowa, debris near old brickworks (leg. M. Wolanin 01.05.2012); eastern slope of Wał Dziurkowski (leg. M. Wolanin 27.04.2011); Księżę Budy (leg. M. Wolanin 28.04.2014).

The species is common in the southern part of Poland, slightly rarer on the lowlands. It occurs probably in the whole territory of Poland.

General species range is poorly understood; outside of Poland, the species occurs in Bulgaria, Slovakia, Czech Republic, Germany, Denmark, and Sweden.

**TARAXACUM CROCEIFLORUM DAHLST.**

FF 8501 – ks. H. Markiewiczza Street, lawn next to cemetery (leg. M. Wolanin 23.04.2011); Spółdzielcza Street, neglected place on the Spółdzielnia Rolniczo-Produkcyjna area (leg. M. Wolanin 5.05.2011); Błazowa, eastern slope of Wał Dziurkowski, meadow (leg. M. Wolanin 27.04.2011).

Until now, the species has been found in the eastern part of Poland only, but general species range, covering the Western and Northern European countries, indicates that *Taraxacum croceiflorum* occurs in the whole territory of Poland.

Outside of Poland, it occurs in Germany, Switzerland, Netherlands, Belgium, France, Great Britain, Nordic countries, Latvia, Estonia, and the central part of European Russia.

**TARAXACUM FRETICOLA H. ØLLG.**

FF 8501 – Wielka Góra, meadow (leg. M. Wolanin 30.04.2012); ruderal place near cemetery (leg. M. Wolanin 04.05.2012); debris near old brickworks (leg. M. Wolanin 01.05.2012).

The species was described relatively recently (16). Until now, it has been found in the south part of Poland mainly: Beskid Żywiecki Mts. (1), Bieszczady Mts. (14) and the Doły Jasielsko-Sanockie Depression (15).

General species range is poorly understood; besides Poland, the species is known in Denmark.

**TARAXACUM GENTILE HAGL. ET RAILONS.**

FF 8501 – eastern slope of Wał Dziurkowski, meadow (leg. M. Wolanin 27.04.2011).

The species is rare in Poland, till now, *Taraxacum gentile* has been observed in the eastern part of Poland (6); it occurs probably in the western part of Poland too. General species range covers Poland, Czech Republic, Austria, Germany, and Switzerland.

**TARAXACUM GLOSSODON SONCK & H. ØLLG.**

FF 8501 – Armii Krajowej Street, crevice of a wall at the church (leg. M. Wolanin 21.04.2011).

The species is probably rare in Poland, reported from a few localities in the eastern and southern parts of Poland.



General species range is not very wide; it is known from Poland, Slovakia and Nordic countries – Denmark, Sweden, and Norway.

***TARAXACUM HEBES* H. ØLLGAARD (INED.)**

FF 8501 – Armii Krajowej Street, lawn near bakery (leg. M. Wolanin 16.04.2011).

***TARAXACUM HEPATICUM* RAILONS.**

FF 8501 – Armii Krajowej Street, ruderal place near school (leg. M. Wolanin 29.04.2011); ks. H. Markiewicza Street, chink of a curbstones near playground (leg. M. Wolanin 21.04.2011); Trakt Łańcucki, roadside (leg. M. Wolanin 25.04.2012); Wielka Góra, meadow (leg. M. Wolanin 30.04.2012).

*Taraxacum hepaticum* is common species occurring in the ruderal places and fresh meadows.

General species range is poorly known especially in the Eastern Europe. At present, the species is reported from Finland, Poland, Latvia, Slovakia, Czech Republic, Germany, and Denmark.

***TARAXACUM HOMOSCHISTUM* H. ØLLGAARD**

FF 8501 – ks. H. Markiewicza Street, lawn near cemetery (leg. M. Wolanin 23.04.2011).

*Taraxacum homoschistum* is species distinguished recently from widely understood taxon – *Taraxacum undulatiflorum* (16), hence there is a necessity to carry out a taxonomic revision of *Taraxacum undulatiflorum* s.l. in its overall geographical range. Current data indicates that *Taraxacum homoschistum* occurs seldom in Poland, probably in the southern part mainly. European species range is wide, outside of Poland it covers Scandinavia, northeastern part of European Russia, Czech Republic, Germany, Switzerland, Netherlands, France, and Great Britain.

***TARAXACUM JARAE-CIMRMANII* TRÁVNÍČEK (INED.)**

FF 8501 – Błażowa, debris near old brickworks (leg. M. Wolanin 01.05.2012).

***TARAXACUM JUGIFERUM* H. ØLLGAARD**

FF 8501 – Spółdzielcza Street, neglected place on the Spółdzielnia Rolniczo-Produkcyjna area (leg. M. Wolanin 5.05.2011); eastern slope of Wał Dziurkowski, meadow (leg. M. Wolanin 27.04.2011); FF 8511 – wet meadow near Piątkówka stream (leg. M. Wolanin 04.05.2013).

The species was described recently as new to the science and with undecided general geographical range yet. It is rather rare in Poland and limited to the southern part only. Outside of Poland, it occurs in the Czech Republic, Austria, Germany, and Denmark.

**TARAXACUM LACERIFOLIUM HAGL.**

FF 8501 – ruderal place near cemetery (leg. M. Wolanin 04.05.2012).

The species is rare in Poland, occurring in the southern part. General species range covers Sweden, Denmark, Germany, Netherlands, Belgium, Switzerland, Austria, Czech Republic, Slovakia, Poland, and Great Britain.

**TARAXACUM MACRANTHOIDES G. E. HAGLUND**

FF 8501 – Trakt Łańcucki, meadow lying close to the orchard and cemetery (leg. M. Wolanin 04.05.2012); Wielka Góra, meadow (leg. M. Wolanin 30.04.2012); Armii Krajowej Street, near kerbstone next to the old boarding house (leg. M. Wolanin 22. 04. 2011); eastern slope of Wał Dziurkowski, meadow (leg. M. Wolanin 27.04.2011); FF 8511 – wet meadow near Piątkówka stream (leg. M. Wolanin 04.05.2013).

The species is frequent in the southern part of Poland, rarer in the other areas, growing mainly in the ruderal habitats. Outside of Poland, it occurs in Great Britain, Denmark, Germany, Czech Republic, Finland, and Sweden.

**TARAXACUM OBLONGATUM DAHLST.**

FF 8501 – Armii Krajowej Street, ruderal place near school (leg. M. Wolanin 29.04.2011); Myśliwska Street, side of the asphalt road (leg. M. Wolanin 21.04.2011); Armii Krajowej Street, near pavement situated next to parish house (leg. M. Wolanin 21.04.2011); Armii Krajowej Street, near curbstone next to the old boarding house (leg. M. Wolanin 22.04.2011); Trakt Łańcucki, stone roadside (leg. M. Wolanin 24.04.2012); Trakt Łańcucki, meadow lying close to the orchard and cemetery (leg. M. Wolanin 04.05.2012); ks. H. Markiewicza Street, lawn near cemetery (leg. M. Wolanin 23.04.2011); Armii Krajowej Street, lawn near block of flats (leg. M. Wolanin 21.04.2011); Myśliwska Street 14, near kerbstone (leg. M. Wolanin 15.04.2011); eastern slope of Wał Dziurkowski, meadow (leg. M. Wolanin 27.04.2011); Spółdzielcza Street, roadside near park (leg. M. Wolanin 03.04.2014); FF 8511 – wet meadow near Piątkówka stream (leg. M. Wolanin 04.05.2013).

The species is frequent in Poland. General range of *Taraxacum oblongatum* is widely spread and covers the territory of Spain, France, Great Britain, Ireland, Belgium, Netherlands, Denmark, Germany, Czech Republic, Austria, Poland, Finland, and Sweden.

**TARAXACUM OCHROCHLORUM HAGL.**

FF 8501 – Spółdzielcza Street, neglected place on the Spółdzielnia Rolniczo-Produkcyjna area (leg. M. Wolanin 05.05.2011); Armii Krajowej Street, ruderal place (leg. M. Wolanin 20.04.2011).



The species is probably frequent in the whole territory of Poland. In Europe, it is reported from Great Britain, Luxembourg, Switzerland, Denmark, Germany, Czech Republic, Slovakia, Poland, Latvia, Estonia, Finland, and Sweden.

***TARAXACUM PALLIDIPES* MARKL.**

FF 8501 – Trakt Łańcucki, meadow lying close to the orchard and cemetery (leg. M. Wolanin 04.05.2012).

Distribution of *Taraxacum pallidipes* is poorly known in Poland. Until now, the species have been reported from a few sites localized in the northern and southern parts of Poland (Trávníček et al. 2007). European species range covers Poland, Slovakia, Czech Republic, Germany, Denmark, Great Britain, Sweden, Finland, and Estonia.

***TARAXACUM PORRIGENS* MARKL. EX PUOLANNE**

FF 8501 – eastern slope of Wał Dziurkowski, meadow (leg. M. Wolanin 27.04.2011).

The species is rare in Poland, occurring probably in the southern part only. General species range covers Denmark, Germany, Czech Republic, Poland, Finland, and Great Britain.

***TARAXACUM PSEUDORETROFLEXUM* M.P.CHR.**

FF 8501 – Armii Krajowej Street, ruderal place (leg. M. Wolanin 20.04.2011).

The species is quite frequent in the lowland of Poland, more rarely in the southern part of the country. European species range covers Denmark, Germany, Czech Republic, Slovakia, Poland, Latvia, Finland, and Sweden.

***TARAXACUM PULCHRIFOLIUM* MARKL.**

FF 8501 – Trakt Łańcucki, meadow lying close to the orchard and cemetery (leg. M. Wolanin 04.05.2012).

The species is growing mostly in the humid meadows and ruderal habitats, it is frequent in the Polish lowland, in the southern part occurs more rarely. General species range is probably not known sufficiently. Current species distribution range is disjunctive. The species have been reported from Poland, Germany, Czech Republic, Slovakia, Denmark, Spain, Finland, Estonia, and northeastern part of European Russia.

***TARAXACUM SAGITTIPOTENS* DAHLST. ET OHLSEN**

FF 8501 – Spółdzielcza Street, neglected place on the Spółdzielnia Rolniczo-Produkcyjna area (leg. M. Wolanin 5.05.2011).

The species is probably rare in Poland, with poorly known distribution range, until now have been reported from Kraków vicinity only (20).

In Europe, it is reported from Poland, Germany, Netherlands, Denmark, Nordic countries, Estonia, and Latvia.

**TARAXACUM SELLANDII DAHLST.**

FF 8501 – Spółdzielcza Street, neglected place on the Spółdzielnia Rolniczo-Produkcyjna area (leg. M. Wolanin 05.05.2011).

The species occurs in the whole territory of Poland probably. European species distribution range covers France, Great Britain, Ireland, Belgium, Luxembourg, Netherlands, Germany, Czech Republic, Poland, northeastern part of European Russia, Finland, Norway, and Sweden.

**TARAXACUM SERTATUM KIRSCHNER, H. ØLLG. & ŠTĚPÁNEK**

FF 8501 – Błazowa, debris near old brickworks (leg. M. Wolanin 01.05.2012).

The species is quite frequent in the southern part of Poland, in the other area occurs in dispersion.

Outside of Poland, *Taraxacum sertatum* is reported from the Czech Republic, Germany, Denmark, and Sweden.

**TARAXACUM STRIDULUM TRÁVNÍČEK (INED.)**

FF 8501 – Armii Krajowej Street, lawn (leg. M. Wolanin 03.04.2014).

**TARAXACUM SUCHOVENSE TRÁVNÍČEK (INED.)**

FF 8501 – Trakt Łańcucki, meadow lying close to the orchard and cemetery (leg. M. Wolanin 04.05.2012).

**TARAXACUM TANYPHYLLUM DAHLST.**

FF 8501 – Spółdzielcza Street, neglected place on the Spółdzielnia Rolniczo-Produkcyjna area (leg. M. Wolanin 05.05.2011).

The species is rare in Poland; until now, it has been reported from three states localized in the eastern part of the country: Kotlina Biebrzańska Basin (5), Rostocze Highlands (8), and Płaskowyż Kolbuszowski Plateau (24).

Species distribution in Europe is rather poorly known; outside of Poland, the species is reported from Denmark, Sweden, Norway, and Finland.

**TARAXACUM UNDULATIFLORUM M.P.CHR.**

FF 8501 – eastern slope of Wał Dziurkowski, meadow, 27.04.2011; Armii Krajowej Street, lawn near block of flats (leg. M. Wolanin 21.04.2011).

Until recently, the species has not been distinguished from *Taraxacum homochistum*. It is probably rare in Poland, reported from a few localities in southern and northeastern parts of the country. Species distribution range in Europe covers Poland, Czech Republic, Germany, Netherlands, Denmark, Sweden, and Finland.

***TARAXACUM WINSTEDTII* H. ØLLGAARD**

FF 8501 – ks. H. Markiewicza Street, lawn near cemetery (leg. M. Wolanin 23.04.2011).

Species with unknown distribution range in Poland; until now reported from one state localized in Bug River valley (17).

The general species distribution range is disjunctive, which indicates insufficient state of its examination; uninterrupted species range covers Poland, Germany, and Denmark. The species also occurs in Finland.

## CONCLUSIONS

During the research in Błażowa town, 35 dandelion species were found. Most of them are related to the ruderal and semi-natural habitats. Only 2 species, occurring in the more specific and rare habitats – *Taraxacum polonicum* and *Taraxacum portentosum*, are threatened with extinction. The locality of the new species to the Polish flora – *Taraxacum clarum*, distinctly expanding the general species range towards the east.

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