
ANNALES
UNIVERSITATIS MARIAE CURIE-SKŁODOWSKA
LUBLIN – POLONIA

VOL. LXV, 2

SECTIO C

2010

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Taraxacum genus in the area of south-eastern Poland

Rodzaj *Taraxacum* na obszarze południowo-wschodniej Polski

SUMMARY

In the paper the results of the research over the distribution of the species of the genus *Taraxacum* in the area of south-eastern Poland are presented. The following geographic mesoregions were examined: the Dubienka Depression, the Hillock of Chełm, the proglacial stream valley of the Wieprz River, the Urzędów Height, the Hrubieszów Valley, the Parczew Plain, Działy Grabowieckie (the highest part of the Lublin Upland). Moreover, a few sites that have not been published yet are also given in the article. They were found in the following mesoregions: the Siedlce Upland and the Węgrów Depression. 94 sites of 31 species of dandelions from the *Hamata* section (one species) and from the *Ruderalia* section (30 species) are presented altogether.

STRESZCZENIE

W pracy przedstawiono wyniki badań nad rozmieszczeniem gatunków rodzaju *Taraxacum* na obszarze południowo-wschodniej Polski. Badaniami objęto następujące mezoregiony geograficzne: Obniżenie Dubienki, Pagóry Chełmskie, Pradolina Wieprza, Wzniesienia Urzędowskie, Kotlina Hrubieszowska, Równina Parczewska, Działy Grabowieckie. Ponadto podano kilka niepublikowanych stanowisk z mezoregionów: Wysoczyzna Siedlecka i Obniżenie Węgrowskie. Ogólnie zamieszczono 94 stanowiska 31 gatunków mniszków z 2 sekcji: *Hamata* – 1 gatunek i *Ruderalia* – 30 gatunków.

Key words: *Taraxacum*, *Asteraceae*, chorology, south-eastern Poland

INTRODUCTION

Hitherto research over the flora of Polish dandelions has embraced approximately sixty per cent of the area of Poland, with a very uneven distribution of the investigation points. Alongside well examined areas like the South Podlasie Lowland, the eastern part of the Central Mazovian Lowland, the Cracow Gate, the central part of the Silesian Upland, the northern part of the Southern Wielkopolska Lowland and north-western part of the Szczecin Shoreland (Taciak 1980, Głowacki 2004, Głowacki et al. 2005, Trávníček et al. 2007), there are vast regions with no reports at all. One of these poorly examined regions is south-eastern Poland where only a few sites with dandelions are known in the following geographical mesoregions: the Łuków Plain, the Podlasie River Bug Gorge, the Łęczyńsko-Włodawska Plain, Włodawa's Hump, Western and Central Roztocze (a range of hills in east-central Poland), the Biłgoraj Plain and the Zamojska Valley (Małecka 1972, Białasz, Głowacki 1999, Głowacki, Øllgaard 1999, Øllgaard et al. 2000, 2002, Marciniuk, Marciniuk 2006, Marciniuk et al. 2007a, b).

This paper gives further information about the distribution of dandelions in the above-mentioned mesoregions; moreover, it provides the first reports about the occurrence of microspecies of the genus *Taraxacum* in the areas as follows: the Dubienka Depression, the Hillock of Chelm, the proglacial stream valley of the Wieprz River, the Urzędów Height, the Hrubieszów Valley, the Parczew Plain, Działy Grabowieckie (the highest part of the Lublin Upland). Furthermore, a few sites that have not been published yet are presented. These sites were found in the following mesoregions: the Siedlce Upland and the Węgrów Depression.

MATERIAL AND METHODS

The research was conducted mainly in the area of the Lublin province from 2005 to 2008. The dandelions were collected from half-natural dampy meadows of the order *Molinietalia* and from low peatland of the order *Caricetalia nigrae* in their full blooming, i.e. in the first half of May. In the area, 40 investigation points were visited altogether (Fig. 1). These points were localized

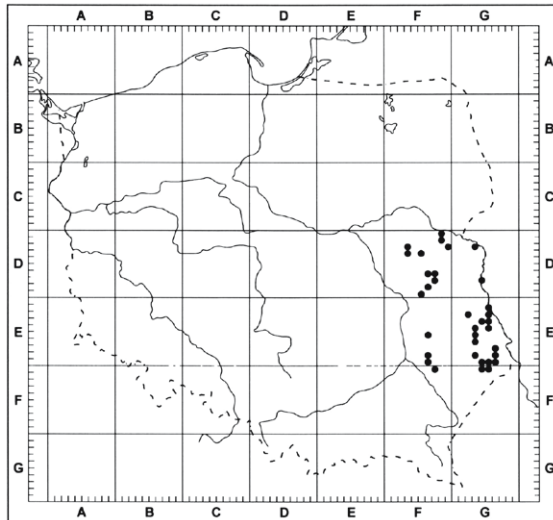


Fig. 1. Distribution of investigated localities in the area studied in relation to the ATPOL grid square system

according to the nearest settlement, the ATPOL square with a side of 2.5 km (Zajac, Zajac 2001), and a geographical mesoregion (Kondracki 2002). The above information supplemented with the collection date was presented in the description of the sites. The whole herbarium collection was gathered and identified by the authors, with the exception of *T. hamatum* identified by Piet Oosterveld, which was mentioned in the specification of the sites. To determine the specimens, the computer programme 'Tardet 2000' was used for the species (Hagendijk et al. 2007), as well as the classification keys and the species descriptions included in monographic works (Tacic 1980, Adema et al. 1982, Dudman, Richards 1997, Uhlemann 2003). The correctness of all the data was checked by Piet Oosterveld from Holland and Jan Štěpánek from the Czech Republic. The names of the species were quoted after Lundevall, Øllgaard (1999).

LIST OF SPECIES

Taraxacum sect. *Hamata* H. Øllgaard

Taraxacum hamatum Raunk.

Central Roztocze: **GE9400**, Krynice, meadow, 4.05.2007, det. Piet Oosterveld.

Taraxacum sect. *Ruderalia* Kirschner, H. Øllgaard et Štěpánek

Taraxacum aequilobum Dahlst.

Dubienka Depression: **GE3520**, Kamień, meadow in the Udal river valley, 10.05.2008.

Taraxacum alatum H. Lindb.

Central Roztocze: **GE9400**, Krynice, meadow, 4.05.2007; Hillock of Chełm: **GE4323**, Deputycze Królewskie, chernozem in the Uherka river valley, 10.05.2008.

Taraxacum amplum Markl.

Hillock of Chełm: **GE1521**, Wola Uhruska, meadow, 3.05.2007.

Taraxacum ancistrolobum Dahlst.

Proglacial stream valley of the Wieprz river: **FD8623**, Kock, meadow in the Tyśmienica river valley, 16.05.2007; Urzędów Height: **FE8611**, Modliborzyce near Kraśnik, meadow near the sewage-treatment plant, 7.05.2008.

Taraxacum angustisquameum Dahlst. ex H. Lindb.

Parczew Plain: **GD7400**, Hanna, meadow in the Hanna river valley, 3.05.2007; Siedlce Upland: **FD0733**, Zaborów, meadow, 4.05.2008.

Taraxacum copidophyllum Dahlst.

Węgrów Depression: **FD2330**, Łączka, vast meadows in the Kostrzyń river valley, 21.04.2007; Siedlce Upland: **FD1802**, Czuchów, meadow on peat in the Toczna river valley, 1.05.2007; **FD1813**, Puczyce, meadow on peat in the Toczna river valley, 1.05.2007; Hrubieszów Valley: **GE9533**, Czartowiec, meadow, 4.05.2007.

Taraxacum corynodes Hagl.

Zamojska Valley: **GE8333**, Łabunie, meadow in the Łabuńka river valley, 4.05.2007.

Taraxacum cyanolepis Dahlst.

Siedlce Upland: **FD1802**, Zaborze, meadow on peat in the Toczna river valley, 1.05.2007; Podlasie River Bug Gorge: **GD2310**, Zaczopki, boggy meadow, 4.05.2007.

Taraxacum diastematicum Markl.

Siedlce Upland: **FD2923**, Stara Kornica, meadow, 19.05.2005; Hrubieszów Valley: **GE7632**, Werbkowice, meadow, 4.05.2007; Biłgoraj Plain: **FE9621**, Łązek Ordynacki near Janów Lubelski, meadow, 7.05.2008.

Taraxacum edmondsonianum H. Øllg.

Siedlce Upland: **FD0733**, Zaborów, meadow, 4.05.2008.

Taraxacum ekmanii Dahlst.

Dubienka Depression: **GE3402**, Gotówka near Chełm, meadow in the vicinity of the carbonate peatbog, 10.05.2008; **GE3520**, Kamień, meadow in the Udal river valley, 10.05.2008; Biłgoraj Plain: **FF0732**, Nowa Huta near Biłgoraj, *Junco-Molinietum*, 10.05.2008; Hillock of Chełm: **GE4323**, Deputycze Królewskie, chernozem in the Uherka river valley, 10.05.2008; Zamojska Valley: **GE8321**, Zamość, meadow, 4.05.2007.

Taraxacum fulgidum Hagl.

Parczew Plain: **GD7400**, Hanna, meadow in the Hanna river valley, 3.05.2007; Hrubieszów Valley: **GE9610**, Tyszowce, meadow in the Huczwa river valley, 4.05.2007; Dubienka Depression: **GE3402**, Gotówka near Chełm, meadow in the vicinity of the carbonate peatbog, 10.05.2008; **GE3520**, Kamień, meadow in the Udal river valley, 10.05.2008; Siedlce Upland: **FD1802**, Zaborze, meadow on peat in the Toczna river valley, 1.05.2007; **FD0831**, Rusków, meadow on peat in the Toczna river valley, 1.05.2007.

Taraxacum hemicyclum Hagl.

Podlasie River Bug Gorge: **GD2311**, Bohukały, meadow in the Bug river valley, 12.05.2005; **GD2310**, Zaczopki, boggy meadow, 4.05.2007; Działy Grabowieckie (the highest part of the Lublin Upland): **GE5332**, Wólka Kraśniczyńska, meadow, 4.05.2007; Hrubieszów Valley: **GE8621**, Wronowice, the sedge community with *Carex nigra* in the Kmiczynka river valley, 4.05.2007; Hillock of Chełm: **GE1521**, Wola Uhruska, meadow, 3.05.2007; Urzędów Height: **FE8611**, Modliborzyce near Kraśnik, meadow near the sewage-treatment plant, 7.05.2008; Łuków Plain: **FD6720**, Ulan-Majorat, meadow on peat in the Bystrzyca river valley, 1.05.2008; **FD6623**, Zarzecz Ulański, peatbog – reed with *Carex nigra* in the Bystrzyca river valley, 1.05.2008.

Taraxacum hepaticum Railons.

Działy Grabowieckie (the highest part of the Lublin Upland): **GE6332**, Skierbieszów, meadow in the Wolica river valley, 4.05.2007; Hrubieszów Valley: **GE8621**, Wronowice, meadow from the *Calthion* alliance, 4.05.2007; Łęczyńsko-Włodawska Plain: **GE2211**, Stawek near Cyców, meadow, 4.05.2007; Dubienka Depression: **GE3402**, Gotówka near Chełm, meadow in the vicinity of the carbonate peatbog, 10.05.2008; Biłgoraj Plain: **FE9621**, Łązek Ordynacki near Janów Lubelski, meadow, 7.05.2008; Łuków Plain: **FD6730**, Borowe near Ulan, meadow in the Bystrzyca river valley, 1.05.2008; **FD6623**, Zarzecz Ulański, peatbog – reed with *Carex nigra* in the Bystrzyca river valley, 1.05.2008.

Taraxacum horridifrons Railons.

Łuków Plain: **FD6730**, Borowe near Ulan, meadow in the Bystrzyca river valley, 1.05.2008.

Taraxacum ingens Palmgr.

Siedlce Upland: **FD3311**, Łęki, meadow, 21.04.2007.

Taraxacum lacinosifrons Wiinst.

Łęczyńsko-Włodawska Plain: **GE1100**, Rozplucie Pierwsze, meadow by lake Bikcze, 6.05.2007.

Taraxacum laticordatum Markl.

Central Roztocze: **GE9400**, Krynice, meadow, 4.05.2007; Urzędów Height: **FE8611**, Modliborzyce near Kraśnik, meadow near the sewage-treatment plant, 7.05.2008; Łuków Plain: **FD6623**, Zarzecz Ulański, peatbog – reed with *Carex nigra* in the Bystrzyca river valley, 1.05.2008.

Taraxacum lucidum Dahlst.

Dubienka Depression: **GE2523**, Dobryłów near Chełm, sedge community, 10.05.2008; Łęczyńsko-Włodawska Plain: **GE2211**, Stawek near Cyców, meadow, 4.05.2007; Central Roztocze: **GE9400**, Krynice, meadow, 4.05.2007; **GF0510**, Rachanie, meadow, 4.05.2007; Parczew Plain: **GD7400**, Hanna, meadow in the Hanna river valley, 3.05.2007; Siedlce Upland: **FD1802**, Zaborze, meadow on peat in the Toczna river valley, 1.05.2007; **FD1802**, Czuchów, meadow on peat in the Toczna river valley, 1.05.2007; **FD1813**, Puczyce, meadow on peat in the Toczna river valley, 1.05.2007; **FD0831**, Rusków, meadow on peat in the Toczna river valley, 1.05.2007.

Taraxacum oblongatum Dahlst.

Urzędów Height: **FE5611**, Kolonia Rudnik near Kraśnik, fallow land near the sedge community, 7.05.2008; Działy Grabowieckie (the highest part of the Lublin Upland): **GE4520**, Haliczany, peatbog in the Krzywólka river valley, 10.05.2008; Central Roztocze: **GF0413**, Werechanie, meadow, 4.05.2007; Łuków Plain: **FD7720**, Wola Osowińska, meadow in the Bystrzyca river valley, 1.05.2008.

Taraxacum olitorium Hagl.

Siedlce Upland: **FD1802**, Czuchów, meadow on peat in the Toczna river valley, 1.05.2007.

Taraxacum piceatum Dahlst.

Łuków Plain: **FD6730**, Borowe near Ulan, meadow in the Bystrzyca river valley, 1.05.2008.

Taraxacum porrigens Markl. ex Puolanne

Łuków Plain: **FD6720**, Ulan-Majorat, meadow on peat in the Bystrzyca river valley, 1.05.2008.

Taraxacum pseudoretroflexum M. P. Christ.

Hillock of Chełm: **GE4323**, Deputytce Królewskie, chernozem in the Uherka river valley, 10.05.2008.

Taraxacum pulchrifolium Markl.

Zamojska Valley: **GE8321**, Zamość, urban lawn, 4.05.2007; Hrubieszów Valley: **GE8621**, Wronowice, meadow from the *Calthion* alliance, 4.05.2007; Hillock of Chełm: **GE1521**, Wola Uhruska, meadow, 3.05.2007; Urzędów Height: **FE8611**, Modliborzyce near Kraśnik, meadow near the sewage-treatment plant, 7.05.2008; Dubienka Depression: **GE3520**, Kamień, meadow in the Udal river valley, 10.05.2008; Działy Grabowieckie (the highest part of the Lublin Upland): **GE4520**, Haliczany, peatbog in the Krzywólka river valley, 10.05.2008; Łuków Plain: **FD6720**, Ulan-Majorat, meadow on peat in the Bystrzyca river valley, 1.05.2008; **FD7720**, Wola Osowińska,

meadow on peat in the Bystrzyca river valley, 1.05.2008; Siedlce Upland: **FD1802**, Zaborze, meadow on peat in the Toczna river valley, 1.05.2007.

Taraxacum sinuatum Dahlst.

Podlasie River Bug Gorge, **GD2311**, Bohukały, meadow in the Bug river valley, 12.05.2005; Siedlce Upland: **FD1802**, Zaborze, meadow on peat in the Toczna river valley, 1.05.2007; Łuków Plain: **FD6730**, Borowe near Ulan, meadow in the Bystrzyca river valley, 1.05.2008.

Taraxacum sertatum Kirschner, H. Øllg. et Štěpánek

Hillock of Chełm: **GE1521**, Wola Uhruska, meadow, 3.05.2007.

Taraxacum tenebricans (Dahlst.) Raunk.

Proglacial stream valley of the Wieprz river: **FD9502**, Drewnik, meadow in the fork of the Wieprz and Minina rivers, 16.05.2007; Łuków Plain: **FD6720**, Ulan-Majorat, meadow on peat in the Bystrzyca river valley, 1.05.2008; **FD7720**, Wola Osowińska, meadow in the Bystrzyca river valley, 1.05.2008; **FD6730**, Borowe, peatbog in the Bystrzyca river valley, 1.05.2008; Siedlce Upland: **FD2923**, Stara Kornica, meadow, 19.05.2005; **FD3532**, Wiśniew-Tworki, meadow, 15.05.2006; **FD1802**, Czuchów, meadow on peat in the Toczna river valley, 1.05.2007; Węgrów Depression: **FD2311**, Jagodne, wet meadow in the Kostrzyń river valley, 24.04.2007.

Taraxacum undulatum H. Lindb. et Markl.

Hrubieszów Valley: **GE9533**, Czartowiec, meadow, 4.05.2007; Siedlce Upland: **FD0831**, Rusków, meadow on peat in the Toczna river valley, 1.05.2007.

CONCLUSIONS

During the investigation of damp meadows of south-eastern Poland (the region including the geographic mesoregions of the Lublin province and the adjacent Mazovian mesoregions in the south) the occurrence of 31 apomictic species of the genus *Taraxacum* was observed, of which 30 were from the *Ruderalia* section and one from the *Hamata* section. *T. hamatum*, which had only been known in Pomerania in Poland (6 sites), was especially worth paying attention to. The general distribution of this species includes the British Isles, France, Belgium, Holland, Germany, the Czech Republic, Denmark, Sweden, Norway, and finally the European north-western part of Russia (Kirschner et al. 2007–2009). The site of *T. hamatum* on the Central Roztocze considerably moved the south-eastern border of this species' range. From the geographical point of view the occurrence of *T. horridifrons*, *T. fulgidum*, and *T. oltorium* in south-eastern Poland was interesting. *T. horridifrons* is known in Spain, Denmark, Finland, Germany, and the Czech Republic (Kirschner et al. 2007–2009) and Poland, where it has been found in the area of Cieszyn recently (Trávníček et al. 2007). The site of *T. horridifrons*, found by us in the Łuków Plain, indicated a possibility of a more frequent occurrence of this species, at least in southern Poland. The remaining two species: *T. fulgidum* and *T. oltorium* are rare species found in damp and extensively cultivated meadows. In Poland both species probably occur on

the south-eastern border of the range, which is indicated by their general ranges: *T. fulgidum* is known from Spain, Great Britain, France, Belgium, Holland, Germany, Denmark, and Sweden, while *T. oltorium* has a narrower range and occurs in Holland, Germany, Sweden, and north-western Russia (Kirschner et al. 2007–2009).

The occurrence of the remaining species in the south-eastern Poland, i.e. the areas which have not been investigated yet confirms the assumption that they are widespread in whole Poland.

ACKNOWLEDGEMENT

We cordially thank Mr Jan Štěpánek (the Czech Republic) for confirming the identification of *T. copidophyllum* and Mr Piet Oosterveld (Holland) for identifying *T. hamatum* and for confirming the identification of the remaining species.

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