

# A review of *Taraxacum* (Asteraceae) in eastern Finland (Ladoga Karelia and North Karelia)

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Little is known about changes in the abundance and species composition of dandelions (*Taraxacum*) in Finland. However, Eastern Finland, the biogeographical provinces of Karelia ladogensis and Karelia borealis, has been explored again since 1985. Carl-Erik Sonck collected dandelions there mainly in the 1940s and published his results later (Sonck 1964a). The comparison revealed that changes were considerable over this 60-year period. Species of the section *Taraxacum* had become more frequent, while those of the sections *Borea* and *Erythrosperma* had declined. After Sonck, 88 species were found to be new to North Karelia and 24 to Ladoga Karelia. Respectively, 16 and 33 species were not re-discovered in these provinces. The figures are approximate, particularly concerning Karelia ladogensis, because a larger part of this province has not been studied since 1945 when most of its territory was ceded to the former Soviet Union.

## Introduction

Earlier information on the dandelions of eastern Finland is from a few areas only. The vicinity of Lieksa (Karelia borealis) is the best studied, thanks to Carl Erik Sonck (1905–2004); otherwise only scarce data are available, mainly from the collections of Sonck and Gunnar Marklund. The most extensive material from Karelia ladogensis is from Sortavala, in present-day Russia. Some specimens were collected from the Finnish part of that biogeographical province (Fig. 1, later in the text just province), mainly by B. Pettersson and C.-F. Lundevall after the Second World War. Savonia borealis is represented by herbarium specimens from some districts only. Heikkinen collected many samples from Kainuu (Kn), Kajaani and Hyrynsalmi; otherwise collections are scarce.

This paper deals with the species composition and distribution of *Taraxacum* in the Finn-

ish provinces of Karelia borealis, (Kb) and Karelia ladogensis (Kl/Fin). In addition to historical records, I present my own observations on the less frequent species. Data from neighbouring provinces Sa, Sb and Ok (Fig. 1) is given also. Concerning Ladoga Karelia, only the Finnish part of its historical territory is dealt with, because most of this territory was ceded to the former Soviet Union in 1945 (Kl/Rus). Old observations from the present-day Russian territory (Kl/Rus) are mentioned as exceptions.

## Materials and methods

The most important sources for this research are the published study by Carl Erik Sonck, Gefäßpflanzenflora von Pielisjärvi und Lieksa, Nordkarelien (Sonck 1964a), as well as the collections of the Botanical Museum of the University of Helsinki (H) and the Riksmuseet in Stockholm

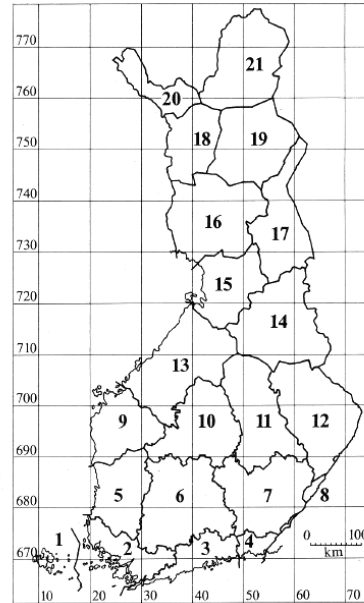
(S). The specimens from Helsinki were studied repeatedly over a ten-year period, and those of Stockholm were examined as digital images via the Internet ([www.nrm.se/forskningochsamlingar/samlingar/databaser/kryptos.8598.html](http://www.nrm.se/forskningochsamlingar/samlingar/databaser/kryptos.8598.html)). The species distribution in Finland was derived from Sältin (1965). Some additional information is based on collections at the Botanical Museum, University of Oulu (OULU). My collections are deposited at H, or will be there later.

Sonck collected dandelion specimens from 1944 to 1948, as is evident from the museum's accessions. Even though I checked only some of Sonck's collections, it is likely that all of them on which his work (Sonck 1964a) was based have come from this very period. As well as the earlier collections, Sonck also had later observations from Lieksa. In these cases, the observation year is mentioned in the present paper. Only duplicates of Sonck's specimens are currently incorporated into the collections (H). Sonck's personal herbarium (donated to H after his death) is still waiting to be examined, so it is possible that some information from that herbarium is overlooked in this paper.

The research area of Sonck, Lieksa and Pielisjärvi (Kb), has been the combined municipality of Lieksa since the beginning of 1973; for this reason I use the name Lieksa for Sonck's complete research area. Sonck mentioned 77 species of dandelions from Lieksa. In addition, several species based on his material were identified later.

Finland's most eminent *Taraxacum* expert, curator of the phanerogam collections at H, Gunnar Marklund, examined Sonck's collections and taught him how to identify the *Taraxacum* species from Lieksa. Marklund participated in the field work in 1947.

I have studied dandelions in the area since 1985. First I focused on learning how to identify the species, and thus the number of my observations is few in the early years of 1990–1996. In 1998 I made the first observation lists of dandelions according to habitats and by parish. Most of the distribution data is from my hometown, Joensuu, and in North Karelia the parish of Nurmes is the most incompletely studied. Public parks are trimmed too early, and secondary flowering later in the season is common for this reason. Immature, too luxurious because of fertilizers, and late



Suomen eliömaakunnat.  
The biogeographical provinces of Finland.

1	A	Ahvenanmaa	Al	Alandia	[Åland]
2	V	Varsinais-Suomi	Ab	Regio aboënsis	
3	U	Uusimaa	N	Nylandia	
4	EK	Etelä-Karjala	Ka	Karelia australis	[South Karelia]
5	St	Satakunta	St	Satakunta	
6	EH	Etelä-Häme	Ta	Tavastia australis	[South Häme]
7	ES	Etelä-Savo	Sa	Savonia australis	[South Savo]
8	LK	Laatokan Karjala	Kl	Karelia ladogensis	[Ladoga Karelia]
9	EP	Etelä-Pohjanmaa	Oa	Ostrobothnia australis	[South Ostrobothnia]
10	PH	Pohjois-Häme	Tb	Tavastia borealis	[North Häme]
11	PS	Pohjois-Savo	Sb	Savonia borealis	[North Savo]
12	PK	Pohjois-Karjala	Kb	Karelia borealis	[North Karelia]
13	KP	Keski-Pohjanmaa	Om	Ostrobothnia media	[Central Ostrobothnia]
14	Kn	Kainuu	Ok	Ostrobothnia kajanensis	
15	OP	Oulun Pohjanmaa	Obo	Ostrobothnia ouluensis	[Oulu Ostrobothnia]
16	PeP	Perä-Pohjanmaa	Obu	Ostrobothnia ultima	[Outer Ostrobothnia]
17	Ks	Koillismaa	Ks	Regio kuusamoënsis	
18	KiL	Kittilän Lappi	Lkk	Laponia kittilensis	[Kittilä Lapland]
19	SoL	Sompion Lappi	Lks	Laponia sompiensis	[Sompio Lapland]
20	EnL	Enontekiön Lappi	Le	Laponia enontekiensis	[Enontekiö Lapland]
21	InL	Inarin Lappi	Li	Laponia inarensis	[Inari Lapland]

Fig. 1. Biogeographical provinces of Finland (Hämet-Ahti et al. 1998). In the text is used Kl/Fin and Kl/Rus to indicate respectively the country today, Finland or Russia, following the current border. Lieksa and Joensuu are located at Kb.

season individuals are often unidentifiable. Consequently, rare species may be overlooked. The best localities for dandelions nowadays are roadsides and garden lawns which are often cut after the dandelions have matured. The renowned Danish *Taraxacum* expert Hans Øllgaard worked with me in 1999, and the species lists from that year are nearly perfect in the present review. Specimens examined refers to my own collections in the study area since 1985, and to those I have done jointly with others. Finnish words *katu* means a street and *tie* a road in English.

Hans Øllgaard examined many difficult specimens. However, for several reasons some identifications may still be erroneous, particularly if a species later turns out to be new to science. These errors will be corrected by future taraxacologists.

I have also cultivated numerous dandelions that were not possible to identify in field, at the Botania botanic garden in Joensuu. This cultivation allowed for identification in many cases, and in the future eight new species will be described on the basis of the cultivated plants.

Many changes in the number of municipalities in Karelia borealis were made during the inventory. Joensuu, Kiihtelysvaara and Tuupovaara were combined at the beginning of 2005 to form present-day Joensuu, and in the beginning of 2009 Eno and Pyhäselkä were merged with Joensuu, too. Tohmajärvi and Värtsilä were united in 2005 to form the municipality of Tohmajärvi. In Karelia ladogensis the municipalities of Parikkala, Saari and Uukuniemi were in 2005 combined to form the municipality of Parikkala. In this paper the old names are used in order to compare historical records. As well, the old names Säyneinen (today Juankoski) in Karelia borealis, and Simpele (today Rautjärvi) in Karelia ladogensis, are used, although these entities already merged with other municipalities in the early 1970s.

The abbreviations used for different provinces are shown in Fig. 1, and the abbreviations concerning persons responsible for identifications are given in Table 1.

## Results

The information on the localities is summarised in Fig. 2. and Table 2. Species distribution by biogeographical provinces (Fig. 1) is provided in Table 3. The last column of Table 3 shows Sonck's data from Lieksa collected during 1944–1948. Chronologically, in the period 1985–1991 some data collected by others may slightly overlap my own information.

With a few exceptions, the nomenclature follows the *Taraxacum* checklist of Scandinavia and the Baltic States (Lundevall & Øllgaard 1999). The updated version of this checklist (December 2011) has not yet been published.

## *Taraxacum* species in the study area, listed according to sections

### Section *Erythrosperma*

#### *Taraxacum falcatum* Brenner

This species was observed by Sonck to be scattered in Lieksa (Kb), with 8 localities. Sältin (1965) recorded it in Kl/Fin, but I have not found the relevant material from the Finnish part of this province. These observations may solely refer to the present-day Russian territory (see the list of specimens in Sennikov 2007). In Finland this species is known currently from neighbouring provinces Sa, Sb and Ok.

#### *Taraxacum fulvum* Raunk.

This species was observed by Sonck to be common in Lieksa (Kb), with more than 50 localities. It was sparse but more common than today. In addition, it has been earlier found in Joensuu, Säyneinen, Rautavaara (Kb) and in Simpele (Kl/Fin). I have collected it in four localities in Kb. Fairly sparse.

Specimens examined. Kb: Kontiolahti, field on the W-side of the former hospital (69633:36434) 1999 [HØ JR ER]; Lieksa, Ruunaa, Mattila, NW-side of the house, near a pile of sand, old lawn (70346:36683) 1985 [JR]; Outokumpu, Kuusijärvi, sandy sports field (69567:35983) 2005 [JR, PO]; Tohmajärvi, Onkamo, lawn nearby the cross of highway 6 and road 70 (69155:36622) 2007 [JR].

#### *Taraxacum isthmicola* H.Lindb.

In comparison to the other species of section *Erythrosperma*, *T. isthmicola* has not declined as much as the other ones. Sonck found it 190 in localities in Lieksa. Old observations are available from Nurmes, Joensuu, Säyneinen and Rautavaara (Kb), and from Simpele (Kl/Fin). I have observed it in nine municipalities.

Specimens examined. Kl/Fin: Saari, Akonpohja, Akonpohjantie, roadside lawn (68461:35421) 1999 [HØ JR ER]. Kb: Eno, village, Enontie, lawn near the church (69689:36613) 2000 [JR]; Ilomantsi, Möhkö, iron mining area (69558:37199) 1999 [HØ JR]; Joensuu, Käpykangas, by ring road between Kajaanintie and railway, N-side of the cycleway, under the 110 kV power line (69486:36428) 1989 [JR]; Joensuu, Käpykangas, Kaltimontie 6, roadside lawn (69492:36422) 2010 [JR]; Joensuu, center, Papinkatu 10, lawn, S-side of the house (69464:36415) 1997 [JR]; Joensuu, center, Kalastajankatu 8, lawn, S-side of the house (69465:36417) 1997 [JR]; Joensuu, center, Kalasta-

Fig. 2. Studied localities in Karelia borealis and Karelia Ladogensis, see. Fig. 1.

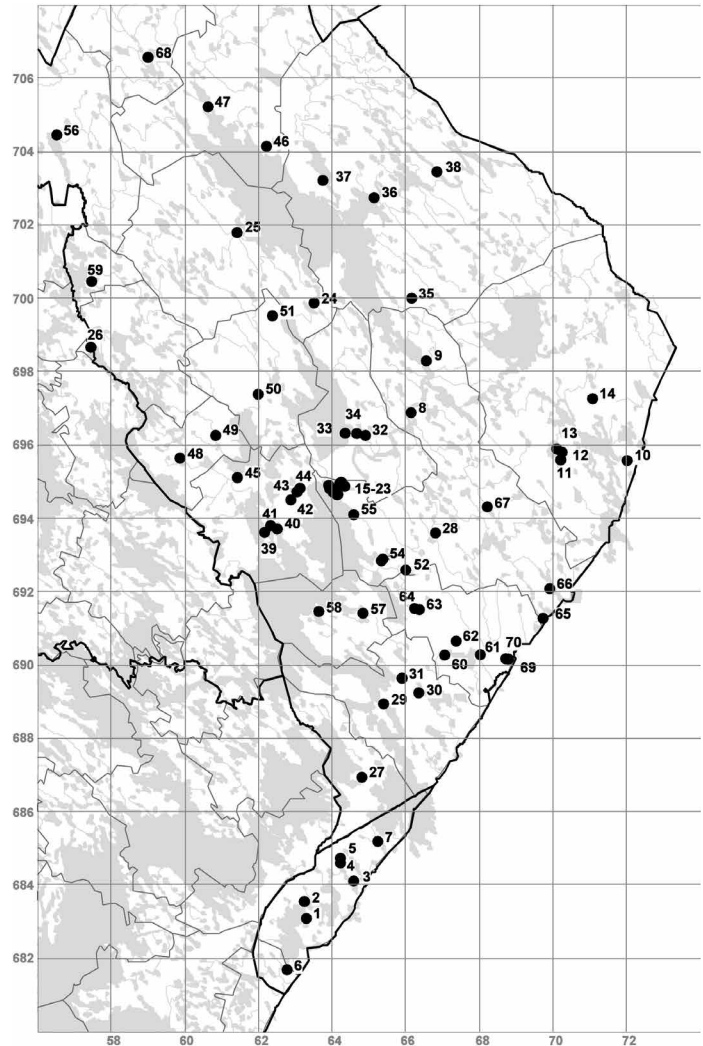


Table 1. Taraxacologists responsible for identifications of the specimens studied, and abbreviations of their names used in the text.

Name	Abbreviation
Carl Eric Sonck	CEC
Erkki Reinikka	ER
Hans Øllgaard	HØ
Juhani Räsänen	JR
Maire Räsänen	MR
Piet Oosterveld	PO
Veikko Lilja	VL

Table 2. Localities studied, observation times and persons (Table 1) responsible for field work. Coordinates are given in terms of the Uniform Coordinate System (UCS).

Number	Date	Site	UCS	Persons
1	6.6.2000	Kl, Parikkala, Liuharanta	68310:36328	jr
2	9.6.1999	Kl, Parikkala, Särkisalmi, Rantatie	68356:36323	hø jr er
3	10.6.1998	Kl, Saari, church	68412:36457	jr
4	9.6.1999	Kl, Saari, Akonpohja, Akapohjantie	68461:36421	hø jr er
5	10.6.1998	Kl, Saari, Akanvaara	68474:36421	jr
6	6.6.2000	Kl, Simpele, Simpeleentie	68170:36276	jr
7	10.6.1998	Kl, Uukuniemi, Niukkala	68520:36522	jr
8	5.6.2000	Kb, Eno, church village, Enontie	69689:36613	jr
9	14.6.2005	Kb, Eno, Uimaharju, center	69830:36654	jr
10	13.6.1999	Kb, Ilomantsi, Möhkö, iron mill	69558:37199	hø jr
11	15.6.1998	Kb, Ilomantsi, Parppeinvaara	69560:37019	jr
12	15.6.1998	Kb, Ilomantsi, church village	69581:37023	jr
13	13.6.1999	Kb, Ilomantsi, church village, Orthodoxian church	69590:37008	hø jr
14	15.6.1998	Kb, Ilomantsi, Lehtovaara, Tiehaara	69727:37106	jr
15	9.5.2002	Kb, Joensuu, center, Papinkatu	69465:36412	jr

Number	Date	Site	UCS	persons
16	9.5.2002	Kb, Joensuu, center, Kalastajankatu	69466:364141	jr
17	8.6.1999	Kb, Joensuu, Linnunlahti, Pajutie ja Kuusitie	69472:36401-2	hø jr er
18	2.6.2007	Kb, Joensuu, Aavaranta, lakeside park	69482:36391	jr
19	8.6.1999	Kb, Joensuu, Mutala, Nurmeksentie	69488:36433	hø jr er
20	16.6.1998	Kb, Joensuu, Mutala, Nurmeksentie	69489:36433	jr
21	10.6.2001	Kb, Joensuu, Noljaakka, Noljaakantie	69491:36389	jr
22	26.5.2002	Kb, Joensuu, Käpykangas, Pamilonkatu	69493:36418	jr
23	11.6.2009	Kb, Joensuu, Raatekangas, Wahlforssinkatu	69496:36419	jr
24	5.6.2000	Kb, Joensuu, Raatekangas, Lukkotie	69500:36423	jr
25	17.6.1998	Kb, Juuka, Ahmovaara, Sorjola	69988:36349	jr
26	12.6.2000	Kb, Juuka, church village, Juuantie	70180:36140	jr
27	11.6.2000	Kb, Kaavi, church village, Kellolahdentie	69867:35743	jr
28	6.6.2000	Kb, Kesälahti, Kylänkangas	68695:36479	jr
29	4.6.2000	Kb, Kiihtelysaara, church village, Tohmajärventie	69361:36679	jr
30	3.6.2008	Kb, Kitee, Puhos	68895:36538	jr
31	9.6.1999	Kb, Kitee, center (Anttola), Kiteentie	68925:36633	hø jr er
32	3.6.2008	Kb, Kitee, Tolosenmäki	68965:36588	jr
33	3.6.2007	Kb, Kontiolahti, Pyytivaara, Uilontie	69627:36489	jr vl
34	3.6.2007	Kb, Kontiolahti, Asemankylä	69632:36465	jr vl
35	12.6.1999	Kb, Kontiolahti, Kontioniemi, ent. sairaala	69633:36434	hø jr er
36	14.6.1999	Kb, Lieksa, Salonkylä, Ala-Laukanvaara	70001:36614	hø jr
37	14.6.1999	Kb, Lieksa, center, Asemakatu	70275:36512	hø jr
38	14.6.1999	Kb, Lieksa, Kylänlahti, former school	70322:36373	hø jr
39	14.6.1999	Kb, Lieksa, Ruunaa, Mattila	70346:36683	hø jr
40	18.6.2000	Kb, Liperi, Siikasaari, sewage treatment plant	69363:36215	jr ces
41	11.6.1999	Kb, Liperi, Lamminniemi	69372:36249	hø jr er
42	18.6.2000	Kb, Liperi, church village, church	69381:36231	jr ces
43	8.6.2009	Kb, Liperi, Susiaho	69451:36286	jr
44	9.6.2000	Kb, Liperi, Ylämylly, Honkalampi, Liperintie	69473:36303	jr
45	11.6.1999	Kb, Liperi, Ylämylly, Ylämyllyntie	69483:36311	hø jr er
46	6.6.2005	Kb, Liperi, Viinijärvi, Orthodoxian church	69512:36141	jr po
47	9.6.2000	Kb, Liperi, Viinijärvi, Orthodoxian church	69512:36142	jr
48	14.6.2000	Kb, Nurmes, Höljakkä, railway station	70415:36220	jr
49	14.6.2000	Kb, Nurmes, Akkosalmi	70523:36061	jr
50	6.6.2005	Kb, Outokumpu, Kuusjärvi, church	69565:35985	jr po
51	7.6.2000	Kb, Outokumpu, Kuusjärvi, church	69566:35986	jr
52	7.6.2000	Kb, Outokumpu, Porola, Jokiranta	69627:36082	jr
53	7.6.2000	Kb, Polvijärvi, church village, Haavikonmäki	69739:36197	jr
54	17.6.1998	Kb, Polvijärvi, Martonvaara	69953:36236	jr
55	12.6.1999	Kb, Polvijärvi, Martonvaara	69953:36236	hø jr er
56	13.6.1998	Kb, Pyhäselkä, Rauansalo	69260:36598	jr
57	6.6.2011	Kb, Pyhäselkä, Hammaslahti, Liitoskuja	69285:36532	jr
58	10.6.1999	Kb, Pyhäselkä, Hammaslahti, Kiihtelysv.tie	69290:36536	hø jr er
59	12.6.1998	Kb, Pyhäselkä, Hammaslahti, Kiihtelysv.tie	69290:36539	jr
60	6.6.2004	Kb, Pyhäselkä, Reijola, Reijolantie	69411:36457	jr mr
61	12.6.2000	Kb, Rautavaara, church village, Savontie	70446:35650	jr
62	11.6.1999	Kb, Rääkkylä, Kompakka, Juhmakka, Astola	69142:36482	hø jr er
63	11.6.1999	Kb, Rääkkylä, church village, Kylätie	69147:36362	hø jr er
64	11.6.2000	Kb, Säyneinen, Viitaniemi	70047:35745	jr
65	3.6.2008	Kb, Tohmajärvi, Akkala, Akkalantie	69028:36704	jr
66	13.6.1998	Kb, Tohmajärvi, Uusi-Värtsilä	69029:36801	jr
67	10.6.1999	Kb, Tohmajärvi, Kemie, Sininentie	69066:36735	hø jr er
68	3.6.2008	Kb, Tohmajärvi, Onkamo, school	69152:36635	jr
69	5.6.2007	Kb, Tohmajärvi, Onkamo, Säkieniemi	69155:36622	jr
70	4.6.2005	Kb, Tuupovaara, Saarivaara, Orthodox village chapel	69128:36971	jr po
71	4.6.2005	Kb, Tuupovaara, Hoilola, church	69209:36989	jr po
72	13.6.1999	Kb, Tuupovaara, Kovero, Koverontie	69432:36820	hø jr
73	14.6.2000	Kb, Valtimo, church village	70658:35898	jr
74	10.6.1999	Kb, Värtsilä, Niirala, railway station	69017:36877	hø jr er
75	13.6.1998	Kb, Värtsilä, Niirala, Värtsilän th	69018:36870	jr
76	4.6.2005	Kb, Värtsilä, Niirala, Rajantie	69018:36871	jr po

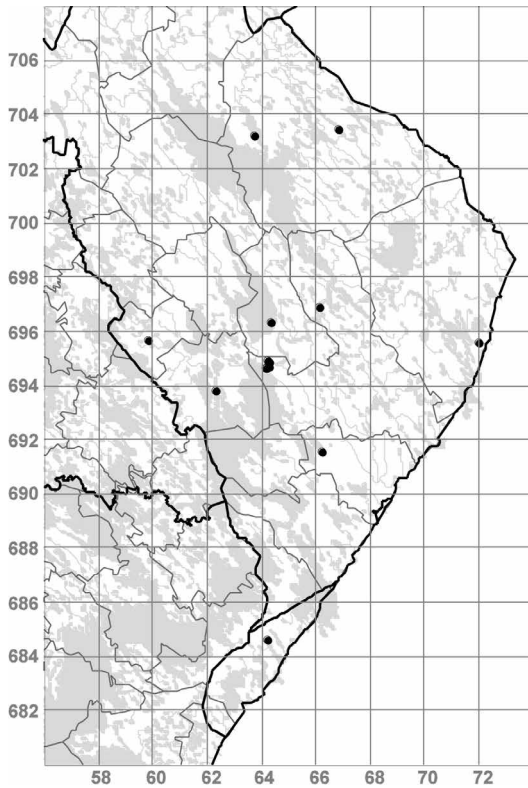


Fig. 3. Distribution of *Taraxacum isthmicola* in the study area.

jankatu 4, lawn, S-side of the house (694651:364187) 2002 [JR]; Joensuu, Sirkkala, railway station, lawn by the parking place (69469:36427) 2002 [JR]; Kontiolahti, Kontioniemi, old lawn in front of the former hospital (69633:36434) 1999 [HØ JR ER]; Lieksa, Kylänlahti, high grass, SW-side of the former school (70322:36373) 1999 [HØ JR]; Lieksa, Ruunaa, Mattila, garden lawn NW-side of the house (70346:36683) 1999 [JØ JR]; Liperi, church village, Tutjuntie, lawn E-side of the church (69381:36231) 2000 [JR CES]; Outokumpu, Kuusjärvi, sandy sport ground (69567:35983) 2005 [JR PO]; Tohmajärvi, Onkamo, lawn nearby the cross of highway 6 and road 70 (69155:36622) 2007 [JR].

#### *Taraxacum microlobum* Markl.

Teuvo Ahti collected this species in Ilomantsi, Putkela (Kb) on the northern shore of Suokonjärvi at a lakeside campsite in 1959. I have not visited the locality. In neighbouring provinces it has been found in Punkaharju (Sa), Joroinen, Kuopio and Maaninka (Sb).



Fig. 4. *Taraxacum proximum*, a new species to Karelia borealis.

#### *Taraxacum proximum* (Dahlst.) Raunk.

There are no previous observations from the study area. Hans Buch collected it in 1908 in Lappeenranta (Sa), Harald Lindberg in Joroinen (Sb) in 1911, and Gunnar Marklund in Leppävirta (Sb) in 1955. Today it is fairly sparse in Kontiolahti, Kontioniemi (Kb). It has almost certainly been growing in the same place for a long time.

Specimens examined. **Kb**: Kontiolahti, Kontioniemi, in front of the former hospital on the roadside (69633:36434) 1999 [HØ JR ER].

#### *Taraxacum unguatum* (Brenner) Brenner (syn. *T. pseudofulvum* H.Lindb.)

This species was observed by Sonck to be scattered in Lieksa (Kb), with 25 localities. He collected it also in Säyneinen (Kb) in 1947 and by Petterson in Parikkala (KI/Fin) in 1932. The species is also known from Sa and Sb. It is currently rare or may have even disappeared in the area.

## Section *Boreigena*

### *Taraxacum crassipes* H.Lindb.

This species is very rare in Finland. Found to be scattered and sparse by Sonck in Lieksa, with 32 localities. It has completely disappeared or is very rare in the study area today. Obviously it was declining already in the 1930's. In addition to Lieksa there are old observations by Oesch in Tohmajärvi in 1914, Linkola in Kitee in 1915, Suutarinen in Nurmes in 1937 and Koistinen in 1969, Marklund in Joensuu in 1944, Sonck in Kaavi and Säyneinen in 1947. All Kb. It has been collected by Pettersson in Parikkala (Kl/Fin) in 1932. I have observed it in neighbouring province Sb, in Vieremä.

### *Taraxacum galeatum* Dahlst.

Kyyhkynen collected this species in Rautavaara (Kb) in 1919. No other records. I have observed it in Ok, from which there are many old collections. This species is more frequent in northern Finland.

## Section *Hamata*

### *Taraxacum fusciflorum* H.Øllg.

This species was described in 1983 (Øllgaard 1983). I have found it in Joensuu, with 20 individuals on a few square meters. The species is here a recently established alien and still expanding. Elsewhere in Finland it is known only in the city of Tampere (H). The oldest specimen was collected in 1910 by Florström.

Specimens examined. Kb: Joensuu, Linnunlahti, Heinäpurontie, roadside lawn, opposite to Pajutie (69472:36400) 2002 [JR].

### *Taraxacum hamatifforme* Dahlst.

In the 1940s Sonck found only one plant in Lieksa, Tiensuu, and in 1979 he collected this species in Lieksa, Vuonislahti. Elsewhere in eastern Finland it has been found earlier only in Savitaipale (Sa) and Hyrynsalmi (Ok). Today it is slightly more frequent. I have found it from both Kb and Kl/Fin, in six municipalities. It is usually sparse, but in Rautavaara (Kb) it belongs to the most common dandelions. In neighbouring provinces I have found it in Mikkeli (Sa) and Vehmersalmi (Sb).

Specimens examined. Kl/Fin: Rautjärvi, Simpele, Simpeleentie, roadside by the church (68170:36276) 2000



Fig. 5. *Taraxacum fusciflorum* was first found in Joensuu from eastern Finland.

[JR]. Kb: Ilomantsi, Lehtovaara, Tienhaara, fallow field at NE-side of the house (69727:37106) 1998 [JR]; Joensuu, Linnunlahti, Pajutie 1 B, lawn at N-side of house (69472:36401) 1999 [HØ JR ER]; Lieksa, center, Asematie, park lawn (70275:36512) 1999 [HØ JR]; Rautavaara, village, Savontie, roadside, NE-side of the church (70446:35650) 2000 [JR]; Värtsilä, Niirala, roadside lawn near the railway station (69017:36877) 1999 [HØ JR ER].

### *Taraxacum hamatum* Raunk.

In eastern Finland this species has been known only from Hyrynsalmi (Ok). I have observed it only in three localities, Ilomantsi, Joensuu and Värtsilä (Kb). It was the most common species in Ilomantsi. In Ilomantsi it may be a polemochores; elsewhere it is a recently established alien.

Specimens examined. Kb: Ilomantsi, Lehtovaara, Tienhaara, uncultivated field at E-side of the house (69727:37106) 1997 [JR]; Joensuu, Raatekangas, Aspitie 1, garden lawn (69501:36429) 2000 [JR]; Värtsilä, Niirala, roadside (69018:36871) 2005 [JR PO].

## Section *Borea*

*Taraxacum apicatum* Brenner (syn. *T. jaervikylense* H.Lindb.)

This species is a loser in competition between dandelions. Sonck found it in Lieksa in about 90 localities. It has been known from Parikkala and Simpele (Kl/Fin), and from Joensuu, Kitee, Kaavi, Nurmes and Säyneinen (Kb). I have found it in only three localities. In Kb (Kontiolahti, Kontioniemi) it is still frequent, elsewhere sparse.

Specimens examined. Kb: Joensuu, Linnunlahti, Botania, shaded lawn at the back side of the botanical garden (694705:364001) 2008 [JR]; Joensuu, Käpykangas, Kaltimontie 1, roadside (69491:36423) 2009 [JR]; Kontiolahti, Kontioniemi, in front of the former hospital, old lawn (69632:36434) 1997 [JR].

*Taraxacum atricapillum* Sonck

This species was described by Sonck (1983) based on at specimens collected in Inari (Li). During the



Fig. 6. *Taraxacum apicatum*, section *Borea*, has declined a lot.

past few years it has been found in various parts of Finland, and it is known from three localities in Kb. In Outokumpu it is rather frequent, and individuals were observed both with and without pollen. No earlier observations from Kb.

Specimens examined. Kb: Joensuu, center, Papinkatu 4, lawn at S-side of the house (69463:36417) 2002 [JR]; Joensuu, center, Rantakatu 27, lawn at E-side of the house (69472:36422) 2002 [JR]; Outokumpu, Kuusjärvi, sandy sport ground (69567:35983) 2005 [JR PO].

*Taraxacum atrimarginatum* H.Lindb.

This species seems to have disappeared almost completely from the study area. Sonck discovered about 110 localities, and it was both frequent and common. Collected by Sonck also in Rautavaara (Kb) in 1947, by Pettersson in Simpele (Kl/Fin) in 1933. Elsewhere in eastern Finland it has been collected earlier in more than ten municipalities. I have found it once in Joensuu (Kb).

Specimens examined. Kb: Joensuu, Sirkkala, Kettuvaarantie, S roadside, beside the chipboard mill of Schaudman (69472:36427) 1998 [JR].

*Taraxacum biformatum* H.Lindb. (syn. *T. albicollum* Dahlst.)

This species was found to be fairly sparse by Sonck in Lieksa, with six localities. There are old collections from the neighbouring provinces Sa, Sb and Ok. Not seen by me. It occurs still in southern Finland, unlike most other species of this section, which are distributed mainly in the north today.

*Taraxacum boreum* Dahlst.

Sparse in Kontiolahti (Kb) in 2001. A recent invader. I estimate that this population is about 20 years old, as the growing site has been stable. The nearest locality is in Ok.

Specimens examined. Kb: Kontiolahti, Kontioniemi, lawn in W-side of the former hospital (69633:36434) 2001 [JR].

*Taraxacum caespitans* Dahlst.

Sonck found this species to be sparse to fairly sparse in Lieksa, with four localities. There are some old observations from Kitelä (Kl/Rus), Sa and Ok. Not seen by me. It is possible that species of section *Taraxacum* have out competed it. Extant populations are known from northern and southern Finland.



***Taraxacum canaliculatum* H.Lindb.**

Like most species of this section, *T. canaliculatum* has declined strongly. Sonck found it in over 100 localities in Lieksa. In addition, it has been known from Kaavi, Säyneinen and Nurmes (Kb), and from Simpele (Kl/Fin). There are many collections from neighbouring provinces. I have collected it in five municipalities in northern Kb. It seems to have declined especially in southern Kb, because in Ok I have observed it in many places. I have made recent observations also in Suonenjoki and Nilsjä (Sb) and Kannonkoski (Tb).

Specimens examined. **Kb:** Ilomantsi, Möhkö, iron mining area (69558:37199) 1999 [HØ JR]; Kaavi church village, beside road 573 W of the village (69867:35743) 2000 [JR]; Kontiolahti, Kontioniemi, in front of the former hospital, old lawn (69632:36434) 1997 [JR]; Lieksa, Ruunaa, Mattila, between road stripes, near a big birch (70346:36682) 1988 [JR]; Valtimo, church village, Nurmesentie, side of highway 6 (70658:35898) 2000 [JR].



Fig. 7. *Taraxacum boreum* in Kontiolahti (Kb), apparently in the southernmost locality in Finland.

***Taraxacum constrictifrons* Markl.**

Collected in the study area only in Simpele (Kl/Fin), by Pettersson in 1933. From neighbouring provinces there is one collection by H. Lindberg in Joroinen (Sb) in 1911.

***Taraxacum cuspidatum* Markl.**

This species was described based on specimens collected by Marklund in Sortavala (Kl/Fin) in 1910, today Kl/Rus. Known earlier also from Ruskeala (Kl/Rus) and neighbouring province Sb, in Joroinen. I have found it to be frequent in Joensuu in one locality, in a small uncut lawn. It might have been growing there for decades, although the environment has changed much.

Specimens examined. **Kb:** Joensuu center, Rantakatu 4, lawn between the backyard and a cycle way (694707:364228) 2008 [JR].

***Taraxacum distantilobum* H.Lindb.**

Collected by Pettersson in Simpele (Kl/Fin) in 1933. In neighbouring provinces collected by H. Buch in Savitaipale (Sa) in 1909, by H. Lindberg in Joroinen (Sb) in 1911, and by A. Railonsala in Kajaani (Ok) in 1955. No recent observations in the study area.

***Taraxacum explicatum* Hagl.**

Collected by Pettersson in Simpele (Kl/Fin) in 1933, and by Arvonen in Sortavala (Kl/Rus) in 1910. There are no other observations in the study area or neighbouring provinces.

***Taraxacum guttulatum* H.Lindb. ex Puolanne**

This species was found to be quite common by Sonck in Lieksa, with nearly 100 localities. Elsewhere in the area it has been collected in Joensuu, Nurmes and Säyneinen (Kb) and in Simpele (Kl/Fin). Nowadays this species is rather rare. Collected by me in six localities, mainly in 1980's. Formerly *T. guttulatum* was confused with *T. septentrionale*.

Specimens examined. **Kb:** Joensuu, Raatekangas, cross of Kajaanintie and Raatekankaantie, roadside lawn (69501:36427) 1988 [JR]; Joensuu, Käpykangas, by the ring road between Kajaanintie and railway, N-side of the cycle way, under the 110 kV power line (69486:36428) 1989 [JR]; Kontiolahti, Kontioniemi, behind the former hospital, old lawn (69633:36434) 1999 [HØ JR ER]; Lieksa, Ruunaa, Homppa, among tall grasses by garden road (70406:36691) 1988 [JR CES]; Lieksa, Ruunaa, Mattila,

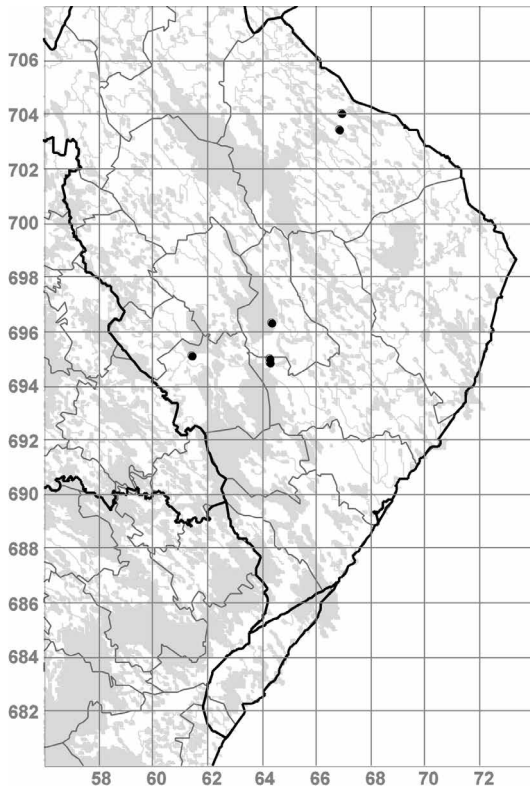


Fig. 8. Distribution of *Taraxacum guttulatum* in the study area. It has become rare in its southern localities, a typical feature for species in section Borea.

garden lawn (70346:36683) 1988 [JR CES]; Liperi, Viinjärvi, orthodox church, garden lawn (69512:36141) 2005 [JR PO].

#### *Taraxacum hamosiforme* Railons.

Sparse in Joensuu in 2007, but already next year it was clearly more frequent. Found in Pori (St) in 2005, and in Tampere (Ta) there are many localities.

Specimens examined. Kb: Joensuu, center, Siltakatu, by the western bridge at the underpass of cycleway (69470:36422) 2007 [JR].

#### *Taraxacum humile* Brenner (syn. *T. remotijugum* H.Lindb.)

This species has declined very much. Sonck found it in Lieksa in nearly 70 localities. Elsewhere in eastern Finland only in Säyneinen (Kb) and Simpele (Kl/Fin). I have recorded *T. humile* in seven localities (Kb). Usually sparse, but com-

mon in Tohmajärvi, Onkamo. In Ok it is still frequent.

Specimens examined. Kb: Ilomantsi, village, Pogostantie, S-side of the cross to Möhkö, roadside (69556:37018) 1998 [JR]; Joensuu, Linnunlahti, Kuusitie, roadside lawn (69472:36402) 1999 [HØ JR ER]; Joensuu, Raatekangas, Lukkotie, roadside lawn (69500:36423) 2000 [JR]; Kontiolahti, Paihola, Kaisakanlahti, Leveävaara, on tractor way in logging area (69550:36503) 1989 [JR]; Kontiolahti, Kontioniemi, in front of the former hospital, old lawn (69632:36434) 1997 [JR]; Outokumpu, Kuusjärvi, church, side of the parking place (69565:35985) 2005 [JR]; Tohmajärvi, Onkamo, church, lawn by the cross of highway 6 and road 70 (69155:36622) 2007 [JR].

#### *Taraxacum karelicum* H.Lindb. & Markl.

The species was described based on at specimens collected by Marklund in Sortavala (Kl/Rus today) in 1910. In Sortavala it was collected earlier often. Sonck found it to be sparse in Lieksa (Kb), with only two sites. Marklund and Sonck collected it in Joensuu in 1944. Also known from Sb and Ok. Nowadays rare. I have found it in four localities, of which three in Joensuu. Scattered and sparse.

Specimens examined. Kb: Joensuu, Mutala, Nurmeksentie, roadside lawn by K-market (69489:36433) 1998 [JR]; Joensuu, Käpykangas, Kaltimontie 1, roadside (69491:36423) 2009 [JR]; Joensuu, Raatekangas, Wahlforsinkatu, N-side of railway (69496:36419) 2009 [JR]; Kontiolahti, Kontioniemi, in front of the former hospital, old lawn (69632:36434) 1999 [HØ JR ER].

#### *Taraxacum laceratum* (Brenner) Brenner (syn. *T. parvuliceps* H.Lindb.)

This species was found to be rare and sparse by Sonck in Lieksa, with only two localities. In Kl/Rus it has been collected earlier in Sortavala and Käkisalmi [Priozersk]. Also known from Sa, Sb and Ok. In the study area it is currently known only from Kontiolahti, Kontioniemi (Kb), where it is frequent on a lawn that was established probably during the 1930s to former hospital.

Specimens examined. Kb: Kontiolahti, Kontioniemi, in front of the former hospital, old lawn (69632:36434) 1997 [JR].

#### *Taraxacum lojoëense* H.Lindb.

No previous data. I found this species to be frequent in Joensuu in 1997 (this site was built over in 2001). In 2002 it was sparse.

Specimens examined. **Kb**: Joensuu, Linnunlahti, Louhela, Linnunlahdentie 2, lawn by the S side of Louhela school (69466:36410) 1997 [JR]; Joensuu, Linnunlahti, Pajutie 1 B, lawn at the S-end of house (69472:36401) 2002 [JR].

***Taraxacum melanostigma*** H.Lindb.

I found this species as new to Kb in Joensuu in 2002. Collected elsewhere in eastern Finland by Heikkinen in Kajaani and Paltamo, Ok, in 1957.

Specimens examined. **Kb**: Joensuu, center, Kalastajankatu 18, lawn at the S-side of the house, sparse (69466:36414) 2002 [JR].

***Taraxacum mucronatum*** H.Lindb.

This species was found to be abundant and frequent by Sonck, with 120 localities in Lieksa. Today almost disappeared. Collected earlier by Europaeus and Hällström in Liperi in 1872, by Marklund in Joensuu in 1944, by Sonck in Kaavi and Säyneinen (Kb) in 1947, and by Petterson in Simpele (Kl/Fin) in 1933. I have found two localities in Joensuu in the 1980s, but plants have disappeared later. Recorded by me in Vehmersalmi (Sb) in 2007.

Specimens examined. **Kb**: Joensuu, center, Rantakatu 31, lawn at S-side of conservatory (69473:36422) 1986 [JR]; Joensuu, Käpykangas, by the ring road, between Kajaanintie and railway at N-side of cycle way under the 110 kV power line (69486:36428) 1989 [JR].

***Taraxacum ostenfeldii*** Raunk. (syn. *T. duplidens* H.Lindb.)

Exceptionally to species in this section, *T. ostenfeldii* has not declined. Sonck observed it in 18 localities, with numerous individuals in Lieksa. Recorded also in Joensuu, Pyhäselkä and Rautavaara (Kb) and Simpele (Kl/Fin). I have found it in 11 municipalities in Kb (Kesälahti, Värtsilä, Pyhäselkä, Rääkkylä, Liperi, Outokumpu, Joensuu, Kontiolahti, Ilomantsi, Lieksa and Valtimo) and in Saari and Simpele (Kl/Fin). It is locally frequent, especially in Joensuu.

***Taraxacum pastiniferum*** Railons.

Poorly known species usually placed in section *Taraxacum*. Railonsala (1976, 1977) described it based on at specimens collected in Kristiina (Oa). He collected it also in Obu. No other old records. I have collected it in Joensuu in 1986 and after years of cultivation succeed to identify it. Since



Fig. 9. *Taraxacum pastiniferum* is known at only a few sites in world.

that it has been collected here and there in Finland. Probably the distribution area of *T. pastiniferum* has earlier been continuous and wider in Finland, like those of most other species of section *Borea*.

Specimens examined. **Kb**: Joensuu, Linnunlahti, Pajutie 1 B 4, lawn, W-side of the house (69471:36401) 1986 [JR].

***Taraxacum penicilliforme*** H.Lindb.

This species was found to be most common and frequent dandelion by Sonck in Lieksa, with 200 localities. Collected earlier also in Pyhäselkä, Joensuu, Kaavi, Säyneinen and Nurmes (Kb), in Simpele and Parikkala (Kl/Fin). Since then it has rapidly declined in its southern distribution range, not seen by me in Kl/Fin or southern Kb. Collected recently in Kb in Kesälahti, Pyhäselkä, Joen-

suu, Liperi, Outokumpu, Polvijärvi, Kontiolahti, Eno, Ilomantsi, Lieksa, Juuka, Säyneinen, Rautavaara, Nurmes, and Valtimo. It is usually sparse but still frequent in some remote localities.

***Taraxacum pullum*** Markl. ex Puolanne

No earlier observations in the study area. Collected by me once in Joensuu. This species has been confused with *T. lojoëense*, which differ by its leaf shape. *T. pullum* occurs both with and without pollen, whereas *T. lojoëense* is always without.

Specimens examined. Kb: Joensuu, Linnunlahti, Botania, park lawn on the back side of the botanical garden (69471:36400) 2008 [JR].

***Taraxacum scalare*** H. Øllg. & J. Räsänen

This species has been collected in many municipalities since 1910, but it has been identified as *T. triangulare*. It was recently described by Øllgaard and Räsänen (2008). Marklund collected it in Joensuu in 1910, in Kitee, Matkaselkä (Kb/Rus) in 1910, in Sortavala by Marklund and Arvonen (Kl/Rus) in 1910, and by Heikkinen in Hyrynsalmi (Ok) in 1958. Since 1998 it has been found regularly in Kontiolahti (Kb). Always sparse. In neighbouring province Sb I have collected it in Nilsjä in 2005.

Specimens examined. Kb: Kontiolahti, Kontioniemi, lawn in front of the former hospital (69632:36434) 1998 [JR].

***Taraxacum subpenicilliforme*** H.Lindb. ex Dahlst.

Found by Sonck in two localities in Lieksa and in one by Marklund in Joensuu (Kb) in the 1940s, and by Pettersson in Parikkala and Simpele (Kl/Fin) in 1933. It is known from all neighbouring provinces. Not found by me.

***Taraxacum triangulare*** H.Lindb.

This species was found to be sparse or fairly sparse by Sonck in Lieksa, with 23 localities. Collected by Pettersson in Parikkala (Kl/Fin) in 1933. Øllgaard and I have found it in Ilomantsi and Lieksa in 1999, and I have collected it in Kesälahti and Joensuu (Kb). Except in Joensuu, the populations consisted of only a few individuals. Also in Joroinen (Sb) and in many municipalities in Sa.

Specimens examined. Kb: Ilomantsi, Möhkö, iron works manor, dry garden field, N-side of the manor (69558:37199) 1999 [HØ JR]; Joensuu, Käpykangas, Voimatie 10, roadside grassland (69491:36428) 2010 [JR]; Kesälahti, church village, Kylänkangas, lawn by highway 6, near service station Esso (68695:36479) 2000 [JR]; Lieksa, center, Karjalantie, lawn on the side of a pavement, N-side of the railway station (70276:36513) 1999 [HØ JR].

**Section *Macrodongta***

***Taraxacum tenebricans*** (Dahlst.) Raunk.

This species was found to be common by Sonck in Lieksa, with 80 localities. Collected earlier also in Pyhäselkä, Joensuu, Kaavi and Säyneinen (Kb). Today scattered in Kb: Tohmajärvi, Pyhäselkä, Kiihtelysvaara, Joensuu, Liperi, Polvijärvi, Outokumpu, Ilomantsi, Eno, Lieksa, Juuka and Säyneinen. Rare in Saari (Kl/Fin).

**Section *Taraxacum***

***Taraxacum aclidiforme*** Railons. (syn. *T. pilosella* Lundev. & H. Øllg.)

Described based on at specimens collected in Kaskinen (Oa) in 1957 (Railonsala 1960). Collected by Lundevall in Parikkala (Kl/Fin) in 1991. Elsewhere in Finland observed in Oulu (Obo) and Pello (Obu), where it is common like in the adjacent province of Norrbotten in Sweden (Räsänen 2005). In Sweden it was earlier named *T. pilosella* until Øllgaard noticed in 2010 that this name is a synonym of *T. aclidiforme*.

***Taraxacum acroglossum*** Dahlst.

This species was collected by Sonck in Lieksa and Joensuu in 1974. These specimens were identified in the 1990s. Collected by Heikkinen & Sältin in Hyrynsalmi (Ok) in 1965. Sältin (1965) identified these specimens as *T. praeradians*. Today it is fairly common in Kb, where it has been found in 17 municipalities (frequent e.g. in Eno, Juuka and Uimaharju). It occurs both in countryside and in urbanized areas.

***Taraxacum acrolobum*** Dahlst. (syn. *T. paradoxum* Palmgr.)

Sältin (1965) knew this species only from Al. Sparse in Tohmajärvi, Onkamo (Kb), and in Kot-

ka, Kymi railway station (Ka). The distribution area perhaps continues eastwards, as during the Second World War it was collected in Karelia olo-netsensis in Russia on the east side of Lake Ladoga (Sennikov 2007).

Specimens examined. Kb: Tohmajärvi, Onkamo, lawn by the cross of highway 6 and road 70 (69155:36622) 2007 [JR].

### *Taraxacum acutangulum* Markl.

Collected by Pettersson in Simpele (Kl/Fin) in 1933. There are old observations from neighbouring provinces, by Sonck in Kuopio (Sb) in 1943 and by Heikkinen in Hyrynsalmi (Ok) in 1958. Recently observed by me in three localities in Kb, and in Juankoski (Sb) in 1997 and Hyrynsalmi (Ok) in 1999.

Specimens examined. Kb: Joensuu, Linnunlahti, Kuusitie, roadside lawn (69472:36402) 1999 [HØ JR ER]; Lieksa, Lamminkylä, roadside lawn by the cross of road 73 and Lamminkyläntie (70249:36541) 1988 [JR]; Outokumpu, Kuusjärvi, roadside by the road 17, beside the church (69566:35985) 2005 [JR PO].

### *Taraxacum aequilobum* Dahlst.

This species was found to be fairly rare by Sonck in Lieksa, with 14 localities. Today it is one of the most common and frequent species in the study area. Other old collections are from Joensuu by Sonck and Marklund in 1944 and by Petterson in Simpele (Kl/Fin) in 1933.

### *Taraxacum aethiops* Hagl.

Sonck found this species in Lieksa (Kb) in 1947, and Marklund and Sonck in Joensuu (Kb) in 1944. Elsewhere in eastern Finland it has been collected in by Kyyhkynen Maaninka (Sb) in 1946 and by Railonsala Kuhmo (Ok) in 1957. One recent collection.

Specimens examined. Kb: Kontiolahti, Asemankylä, roadside lawn by the cross of road 5051 and Asematie (69616:36457) 1997 [JR].

### *Taraxacum alatum* H.Lindb.

Only two observations by Sonck in Lieksa. Marklund and Sonck found it in Joensuu in 1944, and Lundevall in Parikkala (Kl/Fin) in 1991. I have collected it in Kb and Kl/Fin in 21 municipalities.

### *Taraxacum altissimum* H.Lindb.

Sonck found this species in five localities in Lieksa. Observed by me in ten municipalities in Kb. Its abundance seems to have been stable. As a large plant, this species is competitive with other tall grasses.

Specimens examined. Kb: Eno, Uimaharju, center, roadside (69830:36654) 2005 [JR]; Ilomantsi, Möhkö, iron works manor, high grass, SW-side of the house (69558:37200) 1999 [HØ JR]; Joensuu, center, Papinkatu, garden lawn (6946:3641) 2002 [JR]; Joensuu, Aavaranta, shore park, park lawn (69482:36391) 2007 [JR VL]; Kesälahti church village, Kylänkangas, lawn by highway 6 near Esso service station (68695:36479) 2000 [JR]; Kiihtelysvaara church village, roadside (69361:36679) 2000 [JR]; Kitee (Anttola), center, road side lawn, N-side of the cross of Kiteentie and Puhoksentie (68925:36633) 1999 [HØ JR ER]; Lieksa, Märajälähti, Revonniemi, lawn by the side of road 5071 (70211:36539) 1989 [JR]; Lieksa, Kylänlahti, high grass by the roadside, cross of road 5261 and former school (70322:36373) 1999 [HØ JR]; Nurmes, Höljakkä, railway station, garden lawn (70415:36220) 2000 [JR]; Outokumpu, Porola, Jokiranta, by the hay field, by the road 504, the NW-side of the house (69627:36082) 2000 [JR]; Tohmajärvi, Onkamo, road 70, roadside lawn, by the school (69152:36635) 2008 [JR]; Tohmajärvi, Akkala, Akkalantie, roadside, by the house of the youth association (69028:36704) 2008 [JR].

### *Taraxacum amaurolepis* Markl.

This species was collected by Sonck in Lieksa (Kb) in 1981. Elsewhere in Finland it has been observed mainly in the south-west, west of Helsinki, in Tampere area, and south of Pietarsaari (Om). Once collected at Li. Collected by me once in Joensuu.

Specimens examined. Kb: Joensuu, Sirkkala, railway station, lawn by the S-side of buildings (69470:36427) 2002 [JR].

### *Taraxacum amplum* Markl.

Common and frequent in the area, especially among tall grasses, but not on park lawns. It is sometimes the dominant dandelion on fallow fields. In Sonck's time it was rarer in Lieksa, with 13 localities. Found by Lundevall in Simpele (Kl/Fin) in 1991.

### *Taraxacum ancistrolobum* Dahlst.

No old observations. Nowadays this species is frequent in Lieksa and rather frequent in Joensuu, elsewhere usually fairly rare. I have collected it in Kb in six municipalities.

Specimens examined. Kb: Ilomantsi, Möhkö, iron works field (69557:37199) 1999 [HØ JR]; Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn on W-side of the house (69472:36401) 1988 [JR]; Joensuu, Sirkkala, railway station, lawn, by the S-side of the buildings (69470:36427) 2002 [JR]; Kesälahti, church village, Kylänkangas, lawn by the highway 6 near the Esso service station, (68695:36479) 2000 [JR]; Kontiolahti, Kontioniemi, lawn, in front of the former hospital (69633:36434) 1999 [HØ JR ER]; Lieksa, center, Asematie, park lawn (70275:36512) 1999 [HØ JR]; Lieksa, center, park lawn, E-side of Torikatu, along the district heating pipe (70278:36516) 2002 [JR]; Värtsilä, Niirala, center, side of road 70, near the crossroad of Värtsilä (69018:36870) 1998 [JR]; Värtsilä, Niirala, roadside lawn near the railway station (69017:36877) 1999 [HØ JR ER].

***Taraxacum angustisquameum*** Dahlst. ex H.Lindb.

This species was found to be sparse by Sonck in Lieksa, with only three localities. Collected in neighbouring provinces Sb (Jäppilä, Suonenjoki and Joroinen) and Ok (Kajaani, Hyrynsalmi and Paltamo). I have found it in 13 municipalities in Kb, and in 3 in KI/Fin. Usually sparse.

***Taraxacum arrhenii*** Palmgr.

This species was collected only once in Lieksa by Sonck. It seems to have gradually become more common. Found by me in seven municipalities in Kb. Sparse to frequent. Area of its abundance in Finland is south of Kb.

Specimens examined. Kb: Joensuu, Mutala, Nurmeksentie, roadside lawn near K-market (69488:36433) 1999 [HØ JR ER]; Joensuu, Käpykangas, Pamilonkatu, near Hiiskoskentie (69493:36418) 2002 [JR]; Joensuu, Käpykangas, Kaltimontie 6, roadside (69472:36422) 2009 [JR]; Joensuu, Käpykangas, Voimatie 6, roadside lawn (694900:364280) 2010 [JR]; Joensuu, Noljaakka, Kuuse-la, Marjalantie, park lawn (69502:36379) 2010 [JR]; Joensuu, Raatekangas, Pankakoskentie, roadside to the south of Raatekankaantie (69500:36405) 2011 [JR]; Kitee, center (Anttola), roadside lawn of bypass-road, N-side of the cross Kiteentie and Puhoksentie (68925:36633) 1999 [HØ JR ER]; Kitee, Tolosenmäki, dry meadow by highway 6, near service station (68965:36588) 2008 [JR]; Kontiolahti, Kontioniemi, lawn, in front of the former hospital (69633:36434) 1999 [HØ JR ER]; Pyhäselkä, Hammassalahti, Liitoskuja, roadside lawn (69285:36532) 2011 [JR]; Rääkkylä, Kompakka, Juhmakka, Astola, field SE-side of road 484 (69142:36482) 1999 HØ JR ER]; Tohmajärvi, Uusi-Värtsilä, roadside of road 70, E-side of the village (69029:36801) 1998 [JR]; Tohmajärvi, Kemie, lawn by SW-side of the road to Niirala near service station (69066:36735) 1999 [HØ JR ER]; Tohmajärvi, Onkamo, kanta-

tie 70, roadside lawn beside the school (69152:36635) 2008 [JR]; Tohmajärvi, Akkala, Akkalanatie, roadside by the house of youth association (69028:36704) 2008 [JR]; Värtsilä, Niirala, roadside lawn by the railway station (69017:36877) 1999 [HØ JR ER]; Värtsilä, Niirala, Rantatie, roadside (69018:36871) 2005 [JR PO].

***Taraxacum assurgens*** Markl.

This species was found by Sonck in seven localities in Lieksa. Lieksa and Säyneinen are the northernmost municipalities where *T. assurgens* has been observed in Finland. It has been collected by Lundevall in Parikkala (KI/Fin) in 1991, and earlier by Marklund in Sortavala (KI/Rus) in 1910. It seems to favour traditional countryside grasslands, and to avoid modern park lawns. Its frequency increases towards south in the study area. In Kb I have collected it in 12 municipalities. Rather frequent in KI/Fin.

Specimens examined. KI/Fin: Parikkala, Särkisalmi, Rantatie, lawn, near lake shore (68356:36323) 1999 [HØ JR ER]; Parikkala, church village, Liuharanta, village, roadside (68310:36328) 2000 [JR]; Rautjärvi, Simpele, side of road 4051 beside the church (68170:36276) 2000 [JR]; Saari, Akanvaara, side of highway 6, 1 km to the S from the crossroad of Uukuniemi (68474:36421) 1998 [JR]; Saari, Akonpohja, Akapohjantie, roadside lawn (68461:36421) 1999 [HØ JR ER]; Uukuniemi, Niukkala, side of road 402, SW side of the crossroad to Mikkolanniemi (68520:36522) 1998 [JR]. Kb: Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn, W side of the house (69472:36401) 2001 [JR]; Joensuu, Mutala, Nurmeksentie, roadside lawn beside K-market (69489:36433) 1998 [JR]; Juankoski, Säyneinen, Viitaniemi, side of road 570 by the school (70047:35745) 2000 [JR]; Kaavi, church village, village, side of road 573, W side of the village (69867:35743) 2000 [JR]; Kesälahti, church village, Kylänkangas, lawn by highway 6, near the Esso service station (68695:36479) 2000 [JR]; Kitee, center (Anttola), roadside lawn of a by-road, N side of the cross of Kiteentie and Puhoksentie (68925:36633) 1999 [HØ JR ER]; Kontiolahti, Paihola, Kaisakanlahti, Leveävaara, NE part of hills center terrace, some years old logging area, tractor road (69550:36503) 1989 [JR]; Lieksa, center, Asematie, park lawn (70275:36512) 1999 [HØ JR]; Liperi, Ylämylly, Lahdensuo, fallow field between Ylämyllyntie 69 and 71 (69483:36311) 1999 [HØ JR ER]; Pyhäselkä, Hammassalahti, Kiihtelysvaarantie, roadside E of the village (69290:36536) 1999 [HØ JR ER]; Tohmajärvi, Kemie, lawn, SW side of road to Niirala, beside the service station (69066:36735) 1999 [HØ JR ER]; Tohmajärvi, Onkamo, road 70, roadside lawn beside the school (69152:36635) 2008 [JR]; Tuupovaara, Hoilola, church, garden lawn (69209:36989) 2005 [JR PO]; Värtsilä, Nii-

rala, roadside lawn, by the railway station (69017:36877) 1999 [HØ JR ER].

### *Taraxacum biforme* Dahlst.

This species has always been rare and sparse in the study area. Sonck found it in two localities in Lieksa. Two old observations are known from both Sa and Sb. I have three observations from Kb, and few from neighbouring province, Juankoski in 1997 and Vieremä in 2004 (Sb).

Specimens examined. KI/Fin: Rautjärvi, Simpele, roadside lawn of road 4051 beside the church (68170:36276) 2000 [JR]. Kb: Värtsilä, Niirala, roadside lawn near the railway station (69017:36877) 1999 [HØ JR ER]; Värtsilä, Niirala, Rajantie, roadside (69018:36871) 2005 [JR PO].

### *Taraxacum bisectum* Malmio

Found by me once, in Joensuu on a lawn. It disappeared later, due to the habitat change. It was previously known only from Naantali (Ab), collected in 1940.

Specimens examined. Kb: Joensuu, center, Kalastajankatu 8, S side of the house, on a lawn (69465:36417) 1997 [JR].

### *Taraxacum boreophilum* H.Lindb.

This species was described based on at cultivated material grown from seeds collected in Ok, Suomussalmi, (Lindberg 1944). Elsewhere in Finland only a few collections are known, from Rautalampi (Tb), Suonenjoki (Sb) and Tornio (Obu). I have found it in Joensuu (Kb) and in Uukuniemi (KI/Fin). Sparse. I have collected it also elsewhere in eastern Finland Sb, Leppävirta in 1998 and Nilsjä in 2005. This species is often difficult to identify in field and may be more common than observed.

Specimens examined. Kb: Joensuu, Raatekangas, Wahlforsinkatu, N side of railway (69496:36419) 2009 [JR]. KI/Fin: Uukuniemi, Niukkala, side of road 402, SW side of the crossroad Mikkolanniemi (68520:36522) 1998 [JR].

### *Taraxacum borgvallii* Dahlst. ex Hagl.

This species was found to be very rare by Sonck in Lieksa, with only one locality. There is also one collection from each neighbouring province. This species has been discovered by me in several localities in Joensuu and once in Outokumpu.

Specimens examined. Kb: Joensuu, center, Kalastajankatu 8, lawn, S side of the house (69465:36417) 1989 [JR]; Joensuu, center, Torikatu 38, S side of the house, by sandy field (69476:36423) 1997 [JR]; Joensuu, Louhe-la, Hallitie, roadside, by the parking place of ice arena (69467:36409) 2001 [JR]; Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn, W side of the house (69472:36401) 2001 [JR]; Joensuu, Käpykangas, Voimatie 10, roadside lawn (69490:36428) 2010 [JR]; Outokumpu, Kuusjärvi, church (69565:35985) 2005 [JR PO].

### *Taraxacum breviflorum* Dahlst.

I found this species in 1988 in Joensuu. It still occurs on the same place, as a dominant dandelion. It is known also in the nearby localities in the city, and further away in Joensuu from Raatekangas. In neighbouring provinces it is recorded only in Ok, by Heikkinen in 1957, 1958 and 1965 (OULU).

Specimens examined. Kb: Joensuu, keskusta, Papinkatu 10, center, lawn, S side of the house (69464:36415) 1988 [JR]; Joensuu, center, Papinkatu 20, lawn, S side of the house (69465:36413) 1998 [JR]; Joensuu, center, Kalastajankatu 16, lawn, S side of the house (69466:36415) 1997 [JR]; Joensuu, center, Eteläkatu 10, lawn, S side of the house (69462:36411) 1998 [JR]; Joensuu, Raatekangas, Lukkotie, streetside lawn, on the district heating pipe (69500:36423) 2002 [JR].

### *Taraxacum caloschistum* Dahlst.

This species was found to be frequent by Sonck in Lieksa, Kylänlahti in 1946 and 1947, where it was still growing in 1988. It was collected by Arvonen in Kajaani (Ok) in 1912. In Kb I have found it only in Joensuu and Kontiolahti. It is usually sparse, but common in Joensuu along Papinkatu in 2002. It has always been rare in eastern Finland.

Specimens examined. Kb: Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn, W-side of the house (69472:36401) 1986 [JR]; Joensuu, center, Papinkatu 10, center, lawn, S-side of the house (69464:36415) 1997 [JR]; Joensuu, center, Papinkatu 16, center, lawn, S-side of the house (69465:364140) 2002 [JR]; Joensuu, Sirkkala, railway station, lawn by the parking place (69469:36427) 2002 [JR]; Joensuu, Noljaakka, Kuusela, Marjalantie, park lawn (69502:36379) 2010 [JR]; Kontiolahti, Kontioniemi, old lawn, in front of the former hospital (69632:36434) 1999 [HØ JR ER]; Lieksa, Kylänlahti, railway station, lawn by the station building (70317:36378) 1988 [JR].

***Taraxacum canentifolium*** Markl.

I collected it in Kb in 1990, but the population is probably older. As it seems to be unable to disperse to new lawns, it may have no future.

Specimens examined. Kb: Kontiolahti, Kontioniemi, old lawn, in front of the former hospital (69632:36434) 1999 [HØ JR ER].

***Taraxacum canoviride*** H.Lindb. ex Puolanne

Collected by Sonck in Karttula (Sb) in 1943 and Tuusniemi (Sb) in 1947 and by Lundevall in Imatra (Sa) in 1991. I have collected it four times in Kb. Very rare.

Specimens examined. Kb: Ilomantsi, Möhkö, dry field, by the channel, W-side of the main road (69558:37198) 1997 [JR]; Joensuu, Raatekangas, roadside lawn at the cross of Kajaanintie and Raatekankaantie (69501:36427) 1988 [JR]; Rääkkylä, church village, on high grassland by PKS power line (69141:36365) 1999 [HØ JR ER]; Outokumpu, Kuusjärvi, roadside by the road 17, beside the church (69566:35986) 2000 [JR].

***Taraxacum capillosum*** H. Øllg. & Uhlemann

Recently described by Øllgaard & Uhlemann (2007). I have collected it three times in Kb. Frequent in Kitee. Elsewhere in Finland it has been found in Juankoski, Valkeinen (Sb) in 1997, in Föglö, Degerby (Al) in 2001, and in Ristiina (Sa) in 2009.

Specimens examined. Kb: Kitee, center (Anttola), center, roadside lawn of by-road, N-side of the cross of Kiteentie and Puhoksentie (68925:36633) 1999 [HØ JR ER]; Kontiolahti, Lehmo, Nurmeksentie 24 B, roadside lawn, by the crossroad to the house (69524:36444) 1997 [JR]; Tohmajärvi, Kemie, lawn, SW-side of the road to Nirala, near the service station (69066:36735) 1999 [HØ JR ER].

***Taraxacum carptum*** H. Øllg. & J. Räsänen

Recently described based on at specimen collected in Joensuu (Øllgaard & Räsänen 2008). First collected in Finland from Helsinki in 1925, identified as *T. retroflexum*, to which it is closely related. I have found *T. carptum* in six municipalities in Kb and in Parikkala (Kl/Fin). In Joensuu it is common, but usually rather sparse, as elsewhere in the area. On Rantakatu (Joensuu) by the former library it was frequent, but it disappeared in the 1990s due to renovation of the building. It is distributed also in Sweden and Denmark.

Specimens examined. Kl/Fin: Parikkala, church village, Liuharanta, roadside (68310:36328) 2000 [JR]. Kb:

Eno, church village, Enontie, roadside, near the church (69689:36613) 2000 [JR]; Ilomantsi, church village, Parpeinvaara, Pogostantie, roadside, by crossroad of Möhköntie (69560:37019) 1998 [JR]; Ilomantsi, church village, Pogostantie, roadside, by crossroad of Kauppantie (69581:37023) 1998 [JR]; Joensuu, center, Rantakatu 30, lawn, S-side of the building (69473:36423) 1989 [JR]; Joensuu, center, Kalastajankatu 14, lawn, S-side of the building (69465:6416) 1989 [JR]; Joensuu, center, Papinkatu 10, center, lawn, S-side of the building (69464:36415) 2002 [JR]; Joensuu, Käpykangas, by the ringroad, between Kajaanintie and railway, N-side of the road (6948:3642) 1989 [JR]; Joensuu, Käpykangas, Kuurnankatu, roadside lawn by Hiiskoskentie (69490:36419) 2002 [JR]; Joensuu, Käpykangas, Pamilonkatu, roadside lawn (69493:36418) 2002 [JR]; Joensuu, Linnunlahti, Pajutie 1, roadside lawn (69472:36401) 1998 [JR]; Joensuu, Linnunlahti, Heinäpurontie, roadside lawn, beside the botanical garden (69470:36400) 1998 [JR]; Joensuu, Mehtimäki, Yliopistokatu, garden lawn near the parking place of the university (694727:364126) 2002 [JR]; Joensuu, Aavaranta, shore park, lawn (69482:36391) 2007 [JR]; Liperi, Lamminniemi, Kyläsärkkä, Tuomela, high grass, SW-side of road 482 (69372:36249) 1999 [HØ JR ER]; Liperi, Ylämylly, Honkalampi, Liperintie, roadside (69473:36303) 2000 [JR]; Liperi, Viinijärvi, orthodox church, roadside, near stone wall (69512:36141) 2005 [JR PO]; Pyhäselkä, Reijola, Reijolantie, roadside (69411:36457) 2004 [JR MR]; Rääkkylä, Kompakka, Juhmakka, Astola, hayfield, SE-side of road 484 (69142:6482) 1999 [HØ JR ER].

***Taraxacum caudatulum*** Dahlst.

This species has always been rare in the study area, found once by Sonck in Lieksa. Marklund collected it in Joensuu in 1944. Few observations are from Kouvola and Imatra (Sa), Suonenjoki, Maaninka and Nilsiä (Sb), and Kajaani (Ok). I have found it once in Joensuu.

Specimens examined. Kb: Joensuu, Linnunlahti, S-side of pedestrian way, on lawn (6947:3640) 1988 [JR].

***Taraxacum coartatifforme*** J. Räsänen

This species is described in this volume (Räsänen 2013). Many specimens has been collected since 1986 (e.g. in Ta), but there is only one collection from the study area.

Specimens examined. Kb: Joensuu, Linnunlahti, Pajutie, roadside lawn (69472:36401-2) 1986 [JR].

***Taraxacum coartatum*** Hagl.

Not known to Sonck, although he collected it in Lieksa (1945). That specimen was identified by Øllgaard in 1997. Later Øllgaard re-identified Sonck's all collections of *T. subalatum* as this



species. Sonck collected it also in Hyrynsalmi (Ok) in 1981. I have found it from 11 municipalities in Kb and Kl/Fin. Although widely distributed, *T. coartatum* is scattered. It gives an impression of being a rather recent alien, which is currently spreading in the area. Frequent in some localities.

Specimens examined. Kl/Fin: Parikkala, church village, Liuharanta, roadside (68310:36328) 2000 [JR]. Kb: Eno, Kyyrönvaara, lawn by road 73, between the restplace beside small pond and the road (69948:36600) 1988 [JR]; Ilomantsi, Möhkö, iron works area (69558:37199) 1999 [HØ JR]; Joensuu, Sihtala, lawn, S-slope, by Utrantie, S-end of Telkantie, near the parking place of Rautaässä (69478:36427) 1986 [JR]; Joensuu, Otsola, overgrown outdoor area of the old botanical garden (69475:36412) 1986 [JR]; Joensuu, Linnunlahti, Pajutie 1, garden lawn (69472:36401-2) 1988 [JR]; Joensuu, Linnunlahti, Botania, lawn, botanical garden (694702:364003) 2002 [JR]; Joensuu, Linnunlahti, lawn at NW-side of pedestrian way (69468:36403) 2008 [JR]; Joensuu, center, Kalevankatu 19, garden lawn of a private house (69469:36415) 1988 [JR]; Joensuu, Sirkkala, Kettuvaarantie, roadside (S) beside the Schauman chipboard plant (69472:36428) 1998 [JR]; Joensuu, Mutala, Nurmeksentie, roadside lawn beside K-market (69488:36433) 1999 [HØ JR ER]; Joensuu, Käpykangas, Kaltimontie 6, roadside lawn (69492:36422) 2010 [JR]; Kaavi, W-side of the church village, roadside of road 573 (69867:35743) 2000 [JR]; Kontiolahti, Kontioniemi, old lawn in front of the former hospital (69632:36434) 1997 [JR]; Liperi, Lamminniemi, Kyläsärkkä, Tuomela, high grass, SW-side of road 482 (69372:36249) 1999 [HØ JR ER]; Liperi, Ylämylly, Honkalampi, Liperintie, roadside (69473:36303) 2000 [JR]; Liperi, Viinijärvi, Viinijärventie, lawn, beside orthodox church (69512:36142) 2000 [JR]; Polvijärvi, Martonvaara, high grass, in the beginning of Laivarannantie (69953:36236) 1999 [HØ JR ER]; Polvijärvi, church village, Haavikonmäki, roadside beside orthodox church (69739:36197) 2000 [JR]; Pyhäselkä, Hammaslahti, Kiihtelysvaarantie, roadside in E-side of the village (69290:36539) 1998 [JR]; Rääkkylä, Kompakka, Juhmakka, Astola, hayfield, SE-side of road 484 (69142:36482) 1999 [HØ JR ER]; Rääkkylä, church village, Paksuniementie, roadside lawn (69147:36362) 1999 [HØ JR ER]; Tohmajärvi, Onkamo, lawn near the crossroad of highway 6 and road 70 (69155:36622) 2007 [JR]; Tuupovaara, Kovero, Koverontie, roadside, hayfield, N-side of the village (69432:36820) 1999 [HØ JR].

#### *Taraxacum contractum* Markl.

There is one collection by Sonck in Lieksa in the 1940s, and one (Lieksa, Koli) in 1981. No other previous observations from the study area and only a few from neighbouring provinces. Nowadays it is common but yet not ubiquitous. I have

found it in more than 30 localities. Usually frequent. It is probably still spreading.

#### *Taraxacum copidophyllum* Dahlst.

There is only one collection, by Sonck in Parikkala (Kl/Fin) in 1974. Kyyhkynen collected it in Maaninka (Sb) in 1946, and Heikkinen made many collections in Hyrynsalmi (Ok) in 1954.

#### *Taraxacum cordatum* Palmgr.

Collected previously from eastern Finland by Heikkinen in Kajaani in 1956, Paltamo and Hyrynsalmi in 1962 (all Ok). Nowadays this species is a rare established alien on park lawns and roadsides in Kb.

Specimens examined. Kb: Joensuu, center, Papinkatu 10, lawn at S-side of the house (69464:36414) 1999 [JR]; Joensuu, Linnunlahti, Pajutie, roadside lawn (69472:36401) 1999 [HØ JR ER]; Joensuu, Linnunlahti, Kuusitie 2 A 6, lawn at S-side of the house (694729:364009) 2008 [JR]; Joensuu, Linnunlahti, Heinäpurontie, roadside under planted roses beside Kuusitie 2A (69473:36400) 2008 [JR]; Lieksa, center, Asemakatu, SW-side of the center lawn of the street (70276:36514) 1999 [HØ JR]; Värsilä, Niirala, Rajantie, roadside (69018:36871) 2005 [JR PO].

#### *Taraxacum crebridens* H.Lindb.

Rare in eastern Finland. Collected by Sonck in Parikkala (Kl/Fin) in 1982, and by H. Lindberg in Joroinen (Sb) in 1911. I have found it once, in Lieksa, where it seems to be a recent alien.

Specimens examined. Kb: Lieksa, center, park lawn, E-side of Torikatu, on the district heating pipe (70278:36516) 2002 [JR].

#### *Taraxacum crispatum* Dahlst.

In eastern Finland this species was earlier known only from Ok collected by Heikkinen in 1960, 1962, 1968 (OULU). When I moved to my present home in Joensuu, the garden lawn was sown, and many rare dandelions were introduced. *T. crispatum* was one of them.

Specimens examined. Kb: Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn, W-side of the house (69472:36401) 1988 [JR].

#### *Taraxacum crispifolium* H.Lindb.

In eastern Finland this species has been collected by Lindberg in Joroinen (Sb) in 1911. Like the previous one, I have observed it only in my home garden, and only once.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Pajutie 1, lawn, S-side of the house (69472:36401) 1986 [JR].

***Taraxacum croceiflorum*** Dahlst.

This species was collected by Sonck in Lieksa (Kb) in 1946 and Tuusniemi (Sb) in 1947, by Petersson in Simpele (Kl/Fin) in 1933, and by Lindberg in Imatra (Sa) in 1911. I have found it in five municipalities in Kb. Sparse to fairly sparse.

Specimens examined. **Kb:** Ilomantsi, Möhkö, iron works area (69558:37199) 1999 [HØ JR]; Joensuu, Linnunlahti, Pajutie, roadside lawn (69472:36401) 1999 [HØ JR ER]; Joensuu, Raatekangas, Lukkotie, roadside lawn (69500:36423) 2002 [JR]; Tohmajärvi, Kemie, lawn, SW-side of the road to Niirala, near the service station (69066:36735) 1999 [HØ JR ER]; Pyhäselkä, Hammaslahti, Kiihtelysvaarantie, roadside, E-side of the village (69290:36536) 1999 [HØ JR ER]; Värtsilä, Niirala, roadside lawn, near the railway station (69017:36877) 1999 [HØ JR ER].

***Taraxacum cuspidifrons*** Markl.

According to Sältin (1965) this species have been recorded in Kl/Fin, but the respective specimen has not been found in H. It might have been collected from Kl/Rus but such material was not traced (Sennikov 2007). I have found it twice in the study area.

Specimens examined. **Kb:** Kontiolahti, Kontioniemi, old lawn, in front of the former hospital (69632:36434) 1999 [HØ JR ER]; Tuupovaara, Saarivaara, garden lawn (69128:36971) 2005 [JR PO].

***Taraxacum cyanolepis*** Dahlst.

Collected in eastern Finland by Heikkinen in Kaajaani (Kn) in 1952. I have found tens of individuals in Lieksa. Probably a recent casual alien.

Specimens examined. **Kb:** Lieksa, center, Asemakatu, Asemakatu, SW-end of central lawn of the street (70276:36514) 1999 [HØ JR].

***Taraxacum diastematicum*** Markl.

Described based on at specimens collected in Oulu (Marklund 1940). Collected in eastern Finland by Fagerström in Vehkalahti (Ka) in 1969 and by Heikkinen in Hyrynsalmi (Ok) in 1962. It seems to have spread from the south to the study area, yet not observed in the northernmost municipalities. However, it is spreading also in Kn. I have found it in ten municipalities in Kb and in two in Kl/Fin.

Specimens examined. **Kl/Fin:** Saari, Akanvaara, roadside of highway 6, 1 km to S from the roadcross of Uukuniemi (68474:36421) 1998 [JR]; Saari, Saarenkylä, near the parking place of the church (68412:36457) 1998 [JR]; Saari, Akonpohja, Akonpohjantie, roadside lawn (68461:36421) 1999 [HØ JR ER]; Uukuniemi, Niukkala, roadside of road 402 to SW from the crossroad of Mikkolanniemi (68520:36522) 1998 [JR]. **Kb:** Eno, Uimaharju, center, roadside (69830:36654) 2005 [JR]; Joensuu, Käpykangas, Kaltimontie 6, roadside (69472:36422) 2009 [JR]; Joensuu, Raatekangas, Wahlforsinkatu, roadside, N-side of railway (69496:36419) 2009 [JR]; Kiihtelysvaara, church village, Tohmajärventie, roadside (69361:36679) 2000 [JR]; Kitee, center, (Anttola), roadside lawn of byway, N-side of the cross of Kiteentie and Puhoksentie (68925:36633) 1999 [HØ JR ER]; Kontiolahti, Asemankylä, lawn, near Esso service station, by highway 6 (69632:36465) 2007 [JR VL]; Liperi, Ylämylly, Honkalampi, Liperintie, roadside (69473:36303) 2000 [JR]; Pyhäselkä, Hammaslahti, Liitoskuja, roadside lawn (69285:36532) 2011 [JR]; Tohmajärvi, Kemie, lawn, SW-side of way to Niirala, near service station (69066:36735) 1999 [HØ JR ER]; Tuupovaara, Kovero, Koverontie, by the road, hayfield, N-side of the village (69432:36820) 1999 [HØ JR]; Tuupovaara, Saarivaara, garden lawn (69128:36971) 2005 [JR PO]; Värtsilä, Niirala, Rajantie, roadside (69018:36871) 2005 [JR PO].

***Taraxacum dilaceratum*** M.P. Chr.

The species belongs to the specialities of my garden. It is rare in Finland. Sältin (1965) mention it only from Ab. Collected by Sonck in Li in 1984.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn, W-side of the house (69472:36401) 1988 [JR].

***Taraxacum dilatatum*** H.Lindb.

This species has been collected both by Heikkinen and Sältin in Hyrynsalmi in 1965. I have collected it once.

Specimens examined. **Kb:** Ilomantsi, Möhkö, Leminho, Aajevaara, lawn (69667:37242) 1997 [JR].

***Taraxacum distinctilobum*** H. Øllg.

Discovered in Finland for the first time in Merikarvia (Oa) in 2005 (Räsänen 2007). Later I have found it also in Kb. It is spreading very aggressively in Denmark (Øllgaard, pers. comm.) and perhaps the same will happen in Finland.

Specimens examined. **Kb:** Joensuu, Raatekangas, Lukkotie, roadside (69500:36423) 2005 [JR PO]; Joensuu, Käpykangas, Kuurmankatu, roadside lawn, by Kaltimontie 1 (69491:36422) 2009 [JR].

***Taraxacum ekmanii*** Dahlst.

This species was found to be rare and sparse by Sonck in Lieksa, with seven localities. Marklund collected it in Joensuu in 1944. In neighbouring provinces there are many old collections from both Sb and Ok. Nowadays *T. ekmanii* is common. I have observed it in more than 30 localities all over the study area. Sparse to rather frequent, but it is not dominating anywhere.

***Taraxacum erici*** H. Øllg. & J. Räsänen

Recently described based on specimens collected in Kb, Ilomantsi (Øllgaard & Räsänen 2008). In Möhkö museum area it is one of the most abundant dandelions. It has been discovered also in many localities in Joensuu. Usually sparse to scattered. It was very frequent by the former library in Joensuu, but it disappeared due to renovation of the building. Favours old lawns.

Specimens examined. **Kb:** Ilomantsi, Möhkö, iron works field (69557:37198) 1999 [HØ JR]; Ilomantsi, Möhkö, iron works manor, roadside grass, by the cross-road of manor (69558:37199) 1999 [HØ JR]; Joensuu, center, Rantakatu 30, lawn, S-side of the house (69473:36423) 1989 [JR]; Joensuu, Käpykangas, by the ringroad, between Kajaanintie and railway, N-side of the road (6948:3642) 1989 [JR]; Joensuu, Sirkkala, Kettuvaarantie, roadside beside the dairy (69472:36429) 1999 [JR]; Joensuu, Mutala, Nurmeksentie, roadside lawn, beside K-market (69488:36433) 1999 [HØ JR ER]; Joensuu, Aavaranta, shorepark, park lawn (69482:36391) 2007 [JR]; Joensuu, Raatekangas, Wahlforsinkatu, roadside, N-side of the railway (69496:36419) 2009 [JR].

***Taraxacum exacutum*** Markl.

Known earlier only in N. I have collected it in three localities in Joensuu. Rather sparse recently established alien.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn, W-side of the house (69465:36416) 1986 [JR]; Joensuu, center, Kalastajankatu 14, lawn, S-side of the house (69465:36416) 1997 [JR]; Joensuu, center, Papinkatu 24, center, lawn, S-side of the house (69465:36412) 2004 [JR].

***Taraxacum fasciatum*** Dahlst.

This species was found to be sparse to fairly frequent by Sonck in Lieksa, with over 50 localities. Nowadays it is one of the most common dandelions in the study area. It has been found in nearly 60 localities.

***Taraxacum flavostylum*** Bäck

This species was collected in the study area for the first time in 2001. Elsewhere in Finland collected by Bäck in Oa in 1968, and I found it in Anjalankoski (N) in 2007.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Pajutie 1 B, lawn between the house and the road, sparse (69472:36401) 2001 [JR].

***Taraxacum florstroemii*** Markl.

This species was found to be fairly rare by Sonck in Lieksa, with seven localities. I have found it in two localities in Lieksa. In Ruunaa it was frequent, although the population was small. In neighbouring provinces it has been collected in Juankoski, Valkeinen (Sb) in 1997, and in Hyrynsalmi, Kangasjärvi (Ok) in 1999. This species seems to have stable populations in the area.

Specimens examined. **Kb:** Lieksa, Ruunaa, Mattila, garden lawn, ten meters from house to the cowshed (70346:36683) 1986 [JR]; Lieksa, Kylänlahti, high grass, SW-side of the former school (70322:36373) 1999 [HØ JR].

***Taraxacum geminatum*** Hagl.

This species was collected by Pettersson in Simpele (Kl/Fin) in 1933. Collected by Heikkinen in Hyrynsalmi, Kangasjärvi (Ok,) several times in 1957–1966 (OULU). I have found it in two localities in Joensuu.

Specimens examined. **Kb:** Joensuu, centrum, Torikatu 41, E-side of the house, sparse (69477:36422) 2007 [JR]; Joensuu, Käpykangas, Voimatie 6, roadside lawn (69490:36428) 2010 [JR].

***Taraxacum gibbiferum*** (Brenner) Brenner (syn.

*T. reflexilobum* H.Lindb.)

This species was found to be sparse or fairly sparse by Sonck in Lieksa, with six localities, and he collected it also in Kaavi in 1947. Collected by Lundevall in Parikkala (Kl/Fin) in 1991. I have found it in four municipalities in Kb. It has always been rare in the area.

Specimens examined. **Kb:** Joensuu, Niinivaara, Tikkamäentie 7, by the street, under the hedge (69462:36429) 2002 [JR]; Joensuu, Sirkkala, railway station, by platform 1, in front of the station building (69469:36427) 2002 [JR]; Joensuu, Käpykangas, Voimatie 6, roadside lawn (69490:36428) 2010 [JR]; Kontiolahti, Pyytivaara, Uilonatie 26, former school of Pyytivaara, high grass beside the house (69469:36427) 2007 [JR VL]; Liperi, Siikasaari, sewage plant, by the building (69363:36215) 2000 [JR]

CES]; Rääkkylä, Kompakka, Juhmakka, Astola, hayfield, SE-side of road 484 (69363:36215) 1999 [HØ JR ER].

### *Taraxacum glossocentrum* Dahlst.

Sonck collected this species in three localities in Lieksa, and Lundevall in Parikkala (Kl/Fin) in 1991, by Sonck in Suonenjoki (Sb) in 1943, and by Heikkinen in Kajaani (Ok) in 1962. I have found it only twice in Joensuu. Sparse.

Specimens examined. Kb: Joensuu, center, Papinkatu 10, Papinkatu 10, lawn, S-side of the house (69464:36415) 1988 [JR]; Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn, SE-side of the building (69472:36401) 1999 [HØ JR].

### *Taraxacum glossodon* Sonck & H. Øllg.

I have found this recently described species (Sonck & Øllgaard 1999) in Joensuu and Kitee (Kb) and in Suomussalmi it was sparse in church village and in Ala-Vuokki scattered (Ok) in 2001, and south of the study area in Jaala (Ta) in 2010 and Anjalankoski (N) in 2007. It is locally common in southern Finland.

Specimens examined. Kb: Joensuu, Linnunlahti, Louhela, Linnunlahdentie 2, lawn between road and Louhela school (69466:36410) 1997 [JR]; Kitee, center (Anttola), roadside lawn, byroad, N-side of the crossroad of Kiteentie and Puhoksantie (68925:36633) 1999 [HØ JR ER].

### *Taraxacum gracilisquameum* Markl.

No previous observations. I have found this species in 15 municipalities in Kb and in Saari (Kl/Fin). It seems to be absent in N, NW and S parts in the study area. Sparse to scattered.

Specimens examined. Kl/Fin: Saari, Akanvaara, roadside, highway 6, 1 km S of the crossroad to Uukuniemi (68474:36421) 1998 [JR]. Kb: Eno, church village, Enontie, roadside lawn, beside the church (69689:36613) 2000 [JR]; Eno, Uimaharju, center, roadside (69830:36654) 2005 [JR]; Ilomantsi, church village, Pogostantie, roadside, S of the crossroad to Möhkö (69556:37018) 1998 [JR]; Ilomantsi, church village, lawn beside the orthodox church (69590:37008) 1999 [HØ JR]; Joensuu, Siilainen, Noljaakantie, roadside lawn, N side of the road, by the Sillastenpuro bridge (69489:36398) 1997 [JR]; Joensuu, Linnunlahti, Pajutie, roadside lawn (69472:36401) 1999 [HØ JR ER]; Joensuu, Linnunlahti, Heinäpurontie, roadside lawn (69473:36400) 2008 [JR]; Joensuu, Raatekangas, Lukkotie, roadside lawn (69500:36423) 2000 [JR]; Joensuu, Raatekangas, Wahlsforsinkatu, roadside lawn, N side of the railway (69496:36419) 2009 [JR]; Joensuu, Noljaakka, Noljaakantie, parklawn, beside the Lykynurmentie (69491:36389) 2001 [JR]; Joensuu, Käpykangas, Pamilon-

katu, roadside lawn, beside Hiiskoskentie (69493:36418) 2002 [JR]; Juuka, Ahmovaara, Sorjola, roadside of Ahmovaarantie, beside the house (69988:36349) 1998 [JR]; Kiihtelysvaara, church village, Tohmajärventie, roadside (69361:36679) 2000 [JR]; Kontiolahti, Kontioniemi, lawn, in front of the former hospital (69633:36434) 1999 [HØ JR ER]; Kontiolahti, Asemankylä, lawn, near Esso service station by highway 6 (69632:36465) 2007 [JR VL]; Lieksa, center, lawn, SW end of street (70276:36514) 1999 [HØ JR]; Liperi, church village, Tutjuntie, lawn, E-side of the church (69381:36231) 2000 [JR CES]; Liperi, Siikasaari, sewage plant, by the building (69363:36215) 2000 [JR CES]; Polvijärvi, Martonvaara, field in the beginning of Laivarannantie (69953:36236) 1998 [JR]; Polvijärvi, church village, Haavikonmäki, roadside beside the orthodox church (69739:36197) 2000 [JR]; Pyhäselkä, Hammaslahti, Kiihtelysvaarantie, roadside, E side of the village (69290:36539) 1998 [JR]; Pyhäselkä, Reijola, Reijolantie, roadside (69411:36457) 2004 [JR MR]; Rääkkylä, Kompakka, Juhmakka, Astola, hayfield, SE side of the road 484 (69142:36482) 1999 [HØ JR ER]; Tohmajärvi, Onkamo, lawn beside the cross of highway 6 and road 70 (69155:36622) 2007 [JR]; Tohmajärvi, Onkamo, roadside lawn, road 70, beside the school (69152:36635) 2008 [JR]; Tuupovaara, Hoilola, church, garden lawn (69209:36989) 2005 [JR PO]; Värtsilä, Niirala, roadside of road 70 near the crossroads to Värtsilä (69018:36870) 1998 [JR]; Värtsilä, Niirala, roadside lawn near the railway station (69017:36877) 1999 [HØ JR ER].

### *Taraxacum gustavianum* Sonck

Sonck (1988) described this species based on at material collected in Lieksa, Tynnyrivaara in 1946, and recollected it in Lieksa, Ala-Laukanvaara in 1981. Later *T. gustavianum* have been collected by Lundevall in Parikkala and Simpele (Kl/Fin) in 1991, and by Heikkinen in Hyrynsalmi (Ok) in 1963. It has proved to be common and locally frequent in most of the study area, with over 70 localities. It occurs in all four municipalities in Kl/Fin, and seems to be lacking only in the NW Kb. The NW limit of its distribution follows the line connecting Lieksa, Kontiolahti, Polvijärvi and Liperi. Recently found in many localities also elsewhere in Finland and in Sweden.

### *Taraxacum haematopus* H.Lindb.

This species was collected by Sonck in Lieksa, Salonkylä, Ala-Laukanvaara in 1981. In neighbouring provinces from Lappeenranta (Sa) by Buch in 1908 and from Kajaani (Ok) by Railonsala in 1955. No recent observations in the study area.

***Taraxacum haptolepium* Malmio**

Malmio (1953) described this species based on at specimens in Joensuu by Marklund in 1944. Collected by Sonck in Lieksa in one locality, and by Pettersson in Simpele (Kl/Fin) in 1932. Sonck named his specimen provisionally as *T. obscurifolium*, but he never described it. It is scattered in Kb and Kl/Fin, being usually sparse to fairly sparse, but in Parikkala (Kl/Fin) it is one of the dominant dandelions, first collected by Lundevall in 1991. In neighbouring provinces collected by Sonck in Jäppilä (Sb) in 1948, and I have found it in Hyrynsalmi (Ok) in 1999 and in Nilsjä (Sb) in 2005, and Lundevall collected it in Lappeenranta (Sa) in 1991. Changes in abundances cannot be estimated, because there are only a few older observations from its main distribution area.

Specimens examined. **Kl/Fin:** Saari, Akanvaara, roadside of highway 6, about 1 km S from the cossroads of Uukuniemi (68474:36421) 1998 [JR]; Parikkala, Särkisalmi, Rantatie, lawn, near the lake shore (68356:36323) 1999 [HØ JR ER]. **Kb:** Ilomantsi, Möhkö, iron works field (69558:37199) 1999 [HØ JR]; Joensuu, Sirkkala, Ket-

tuvaarantie, roadside by the Schauman factory (69472:36427) 1999 [JR]; Joensuu, Käpykangas, Pamilonkatu, roadside lawn, by Hiiskoskentie (69493:36418) 2002 [JR]; Juuka, NE side of the church village, Juuantie, roadside (70180:36140) 2000 [JR]; Kiihtelysvaara, church village, Tohmajärventie, roadside (69361:36679) 2000 [JR]; Kitee, center (Anttola), roadside lawn by the by-road, N side of the cross of Kiteentie and Puhoksentie (68925:36633) 1999 [HØ JR ER]; Liperi, Lamminniemi, Kyläsärkkä, Tuomela, high grass, SW side of road 482 (69372:36249) 1999 [HØ JR ER]; Liperi, Ylämylly, Honkalampi, Liperintie, roadside (69473:36303) 2000 [JR]; Liperi, Viinijärvi, orthodox church, by the road near the stone wall (69512:36142) 2000 [JR]; Liperi, Siikasaari, sewage plant, by the building (69363:36215) 2000 [JR CES]; Outokumpu, Kuusjärvi, sandy sportsfield (69567:35983) 2005 [JR PO]; Polvijärvi, Martonvaara, Laivarannantie, field in the beginning of the road (69953:36236) 1998 [JR]; Pyhäselkä, Hammasmahti, Kiihtelysvaarantie, roadside, E side of the village (69290:36539) 1998 [JR]; Pyhäselkä, Hammasmahti, Liitoskuja, roadside lawn (69285:36532) 2011 [JR]; Rääkkylä, Kompakka, Juhmakka, Astola, hayfield, SE side of road 484 (69142:36482) 1999 [HØ JR ER]; Tohmajärvi, Kemie, lawn, SW side of road to Niirala by the service station (69066:36735) 1999 [HØ JR ER].

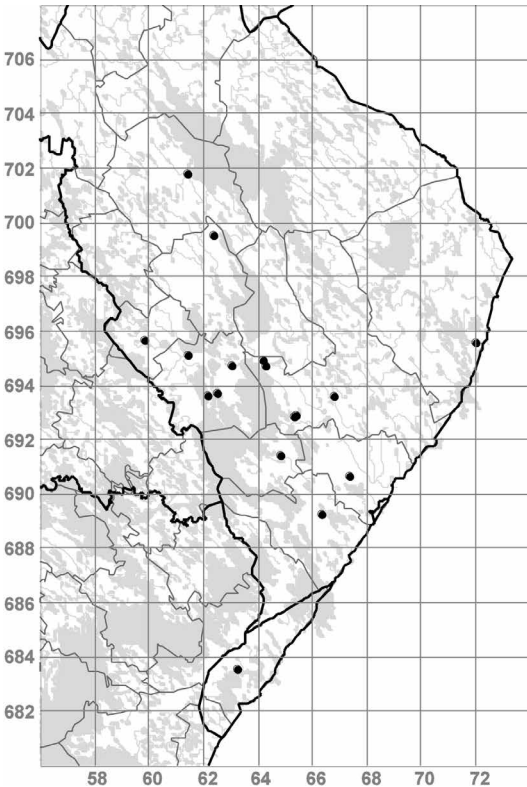


Fig. 10 A. Distribution of *Taraxacum haptolepium* (10 B) in the study area. It is more common in the southern part.

***Taraxacum haraldii*** Markl.

In 1971 Bäck identified a specimen collected by Pettersson in Simpele in 1933 as *T. haraldii*. Collected by Lundevall in Parikkala (Kl/Fin) in 1991(S), although the identification is uncertain, and by Sonck in Lieksa, Kylälahti in 1977. It is known also from Joroinen (Sb), where Lindberg collected it in 1911. I have found it in two localities in the study area. Scattered. Perhaps it has spread to Kb along railways, perhaps from southern Finland.

Specimens examined. **Kb:** Joensuu, Sirkkala, railway station, lawn by the parking place (694699:364270) 2002 [JR]; Nurmes, Höljäkkä, railway station, garden lawn (70415:36220) 2000 [JR].

***Taraxacum hemicyclum*** Hagl.

During a 50 years period this species has increased on its abundance from rather sparse to one of the dominant dandelions in the study area. It was found by Sonck in Lieksa only in six localities, but nowadays it grows nearly everywhere, and it is frequent almost in all sites. Marklund collected it in Joensuu in 1944. It is a very persistent. If there is any space between a building and pavement asphalt, an emerging dandelion is often *T. hemicyclum*. It has recently been found to be common also in Helsinki (N), but as the observations are supported only by a few specimens, it is likely that it have become more abundant in the recent decades.

***Taraxacum hepaticum*** Railons.

Øllgaard discovered one individual in my garden in 1999, but it was disappeared already in 2002. Later it has been found elsewhere in Joensuu. Collected by Heikkinen in Hyrynsalmi, Kangasjärvi (Ok) several times in 1957–1971 (OULU), and I have found it once in Kuusamo (Ks), in 2009.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn, E-side of the house (69472:36402) 1999 [HØ JR]; Joensuu, Käpykangas, Kaltimontie 1, roadside (69491:36423) 2009 [JR].

***Taraxacum homoschistum*** H. Øllg. (syn. *T. hastatum* Markl. non Brenner)

When *T. hastatum* Markl. was described, he was unaware of older name, *T. hastatum* Brenner. Thus to Marklunds *T. hastatum* was given a new name, and it was compared with the closely relat-

ed *T. undulatiflorum* (Øllgaard 2006). No earlier observations have been made in the study area. I have found it twice in Joensuu.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Pajutie 1 B, lawn, S-side of the house (69472:36401) 1988 [JR]; Joensuu, Raatekangas, Wahlforsinkatu, roadside, N-side of railway (69496:36419) 2009 [JR].

***Taraxacum horridifrons*** Railons.

This species is rare in the area. There are two previous collections from Parikkala (Kl/Fin) by Lundevall in 1991. I have found one individual in Säyneinen, and collected it once in Joensuu. Elsewhere in eastern Finland this species has been collected only in Imatra and Taipalsaari (Sa) by Lundevall in 1991, and in Luumäki in 2004 and Joutseno (Sa) in 2007 by me.

Specimens examined. **Kb:** Joensuu, Aavaranta, shore park by Kaislarannantie (69482:36391) 2007 [JR]; Juankoski, Säyneinen, Viitaniemi, side of road 570, near the school (70047:35745) 2000 [JR].

***Taraxacum huelpersianum*** Dahlst. ex Hagl.

Found by Sonck in two localities in Lieksa, and by Sonck and Marklund in Joensuu in 1944, and by Sonck in Parikkala (Kl/Fin) in 1974. Nowadays it is known from nearly all municipalities both in Kb and Kl/Fin. In many localities it is one of the dominant dandelions.

***Taraxacum idiomorphum*** Markl.

In eastern Finland there are older observations only from southern Ka, where this species is still locally frequent. I have found it once in Kb. It seems to be a recently established alien.

Specimens examined. **Kb:** Joensuu, center, Siltakatu, Siltakatu, lawn at SW-side of the western bridge, sparse (694700:364228) 2008 [JR].

***Taraxacum imitans*** H.Lindb. ex Sältin

Collected by Sonck in Lieksa, Vuonislahti in 1977 and by me in Värtsilä (Kb). Elsewhere in eastern Finland this species is known from Ok only, collected by Railonsala in 1955 and by Heikkinen in 1960 in Kajaani, and by Heikkinen in Paltamo in 1957 and by me in Suomussalmi in 2001.

Specimens examined. **Kb:** Värtsilä, Niirala, Rajantie, roadside (69018:36871) 2005 [JR PO].

***Taraxacum inarmatum* M.P. Chr.**

This species was found in the study area in the 1990s. Nowadays three localities are known in Kb. In neighbouring province Ok it was collected by Räsänen & Øllgaard in Hyrnsalmi in 1999. On the old lawn in Kontioniemi (Kb) it may be a recent casual alien introduced amongst ornamental perennials.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Kuusitie, roadside lawn (69472:36402) 1999 [HØ JR ER]; Kesälahti, church village, Kylänkangas, lawn, by highway 6, beside the Esso service station (68695:36479) 2000 [JR]; Kontiolahti, Kontioniemi, old lawn in front of the former hospital (69632:36434) 1999 [HØ JR ER].

***Taraxacum index* Sonck**

Sonck (1964b) described this species based on at specimens he collected in Lieksa, Kylänlahti in 1947. I have collected it in Joensuu, Siihtala in 1986. Today it is known in six municipalities in Kb. Sparse or scattered. The main distribution area of this rather rare species seems to be between Kitee and Joensuu. Outside Kb there is

only one observation, I collected it in Vehmersalmi (Sb) in 2007.

Specimens examined. **Kb:** Joensuu, Sihtala, lawn at S-side of the parking place of Rautaässä, by Utrantie, at the S-end of Telkantie (69478:36427) 1986 [JR]; Joensuu, Raatekangas, Lukkotie, roadside lawn (69500:36423) 2000 [JR]; Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn, W-side of the house (69472:36401) 2001 [JR]; Kitee, center, Antola, roadside lawn, N-side of crossroad of Kiteentie and Puhoksentie (68925:36633) 1999 [HØ JR ER]; Lieksa, Kylänlahti, railwaystation, lawn beside the station building (70317:36378) 1988 [JR]; Lieksa, Kylänlahti, high grass, SW-side of the former school (70322:36373) 1999 [HØ JR ER]; Pyhäselkä, Hammaslahti, Kiihtelysvaarrantie, roadside, E-side of the village (69290:36536) 1999 [HØ JR ER]; Tohmajärvi, Uusi-Värtsilä, roadside of road 70, E-side of the village (69029:36801) 1998 [JR]; Tohmajärvi, Kemie, lawn, SW-side of the road to Niirala, beside the service station (69066:36735) 1999 [HØ JR ER]; Tohmajärvi, Onkamo, lawn by the crossroad of highway 6 and road 70 (69155:36622) 2007 [JR]; Värtsilä, Niirala, side of road 70, near the crossroad to Värtsilä (69018:36870) 1998 [JR]; Värtsilä, Niirala, roadside lawn beside the railway station (69017:36877) 1999 [HØ JR ER].

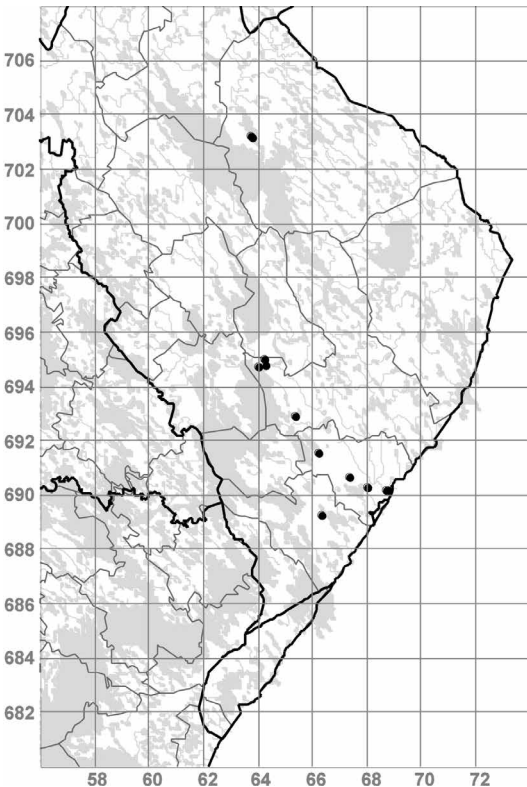


Fig. 11 A. Distribution of *Taraxacum index* (11 B) in the study area. All but one localities are in Karelia borealis.

***Taraxacum ingens*** Palmgr.

Sonck found many individuals of this species by Lieksa railway station in 1946, and Heikkinen collected it in Kajaani (Ok) in 1958. Not refound.

***Taraxacum insuetum*** M.P. Chr.

This species was found in Joensuu in 1999 (Räsänen 2009).

Specimens examined. Kb: Joensuu, Linnunlahti, Kuu-sitie, roadside lawn, sparse (69472:36402) 1999 [HØ JR ER].

***Taraxacum intermedium*** Raunk.

Found for the first time in Finland in Kontiolahti (Kb) in 1999, with tens of individuals (Räsänen 2009). Probably this species have occurred there for a longer period.

Specimens examined. Kb: Kontiolahti, Kontioniemi, old lawn, in front of the former hospital (69631:36434) 1999 [HØ JR ER].

***Taraxacum interruptum*** Dahlst.

This species was found to be sparse by Sonck in Lieksa, Vuonisahti in 1945, with only one specimen. Lundevall collected it in Simpele in 1991. In neighbouring provinces it has been known from Sa and Ok. I have found it in seven municipalities from Kb. Usually scattered and rather rare. It seems to be in the study area one of the older species of section *Taraxacum*. It does not spread to new habitats.

Specimens examined. Kb: Ilomantsi, Möhkö, iron works field (69557:37198) 1999 [HØ JR]; Joensuu, Käpykangas, Pamilonkatu, roadside lawn (69493:36418) 2002 [JR]; Liperi, Viinijärvi, orthodox church, beside the stone wall, by the road (69512:36141) 2005 [JR PO]; Outo-kumpu, Kuusjärvi, side by the road 17, beside the church (69566:35986) 2000 [JR]; Polvijärvi, Martonvaara, high grass, in the beginning of Laivarannantie (69953:36236) 1999 [HØ JR ER]; Polvijärvi, church village, Haavikonmäki, roadside, beside the orthodox church (69739:36197) 2000 [JR]; Rääkkylä, Kompakka, Juhmakka, Astola, hay field, SE-side of the road 484 (69142:36482) 1999 [HØ JR ER]; Tohmajärvi, Onkamo, lawn by the crossroad of highway 6 and road 70 (69155:36622) 2007 [JR].

***Taraxacum interveniens*** Hagl.

I have found this species twice in Kb, and with Øllgaard in Hyrynsalmi, Kangaskylä (Ok) in 1999.

Specimens examined. Kb: Joensuu, Noljaikka, Noljaantie, roadside lawn, N-side of the road, between

Purolanraitti and Siilaistentie (69490:36396) 1997 [JR]; Värtsilä, Niirala, Rajantie, roadside (69018:36871) 2005 [JR PO].

***Taraxacum kjellmanii*** Dahlst.

This species was found to be fairly sparse by Sonck in Lieksa, with only three localities. Collected by Marklund and Sonck in Joensuu (Kb) in 1944, and by Pettersson in Simpele (Kl/Fin) in 1933. In the neighbouring province Sb there are collections from three municipalities. I have not found this species in eastern Finland.

***Taraxacum kupfferi*** Hagl.

According to herbarium specimens this is a very rare species, but it is perhaps more common. It is easily overlooked amongst other dandelions which have green base in the rosette leaves. Collected by Railonsala in Oa in 1948 (H), first determined as *T. kupfferi* in the beginning of 1970s. Described from Latvia (Haglund 1937), also known from Estonia, Sweden and Norway. I have found it once in Joensuu.

Specimens examined. Kb: Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn (69472:36402) 2005 [JR].

***Taraxacum lacinosifrons*** Wiinst.

This species was found to be rare and sparse by Sonck, with only one locality in Lieksa. Collected by Sonck and Marklund in Joensuu in 1944. I have found it in ten municipalities in Kb. It is common in Joensuu, but elsewhere usually sparse or fairly sparse.

Specimens examined. Kb: Eno, church village, Enontie, roadside (69689:36613) 2000 [JR]; Ilomantsi, Möhkö, dry field, by the channel, W-side of the main road (69558:37198) 1997 [JR]; Ilomantsi, church village, Pogostantie, roadside beside the crossroad of Möhkö (69560:37019) 1998 [JR]; Joensuu, Otsola, overgrown outside part of the old botanic garden of the university (69475:36412) 1986 [JR]; Joensuu, center, Malminkatu 24, lawn at the S-side of the house (69468:36414) 1988 [JR]; Joensuu, center, Kalevankatu 19, garden lawn of downtown house (69469:36415) 1988 [JR]; Joensuu, center, Suvantokatu 30, lawn at the S-side of the house (69470:36413) 1989 [JR]; Joensuu, center, Sepänkatu 27, lawn at the E-side of the house (69470:36413) 1997 [JR]; Joensuu, center, Papinkatu 10, lawn at the S-side of the house (69464:36415) 1997 [JR]; Joensuu, center, Sairaalakatu 24, S-side of the house (69478:36416) 1998 [JR]; Joensuu, Linnunlahti, Pajutie, lawn, beside 1A (69472:36401) 1998 [JR]; Joensuu, Mutala, Nurmeksentie, roadside lawn near the K-market (69489:36433)



1998 [JR]; Juuka, church village, Juuantie, roadside lawn (70180:36140) 2000 [JR]; Kontiolahti, Kontioniemi, old lawn, in front of the former hospital (69633:36434) 1999 [HØ JR ER]; Lieksa, center, Asemakatu, lawn, SW-end of the street (70276:36514) 1999 [HØ JR]; Liperi, Ylämylly, Honkalampi, Liperintie, roadside lawn (69473:36303) 2000 [JR]; Liperi, church village, Tuštuntie, roadside beside the church (69381:36231) 2000 [JR CES]; Outokumpu, Porola, Jokiranta, by the hayfield, by road 504, NW-side of the house (69627:36082) 2000 [JR]; Pyhäselkä, Hammaslahti, Kiihtelysvaarantie, roadside, E-side of the village (69290:36539) 1999 [HØ JR ER]; Rautavaara, church village, Savontie, roadside, NE-side of the church (70446:36560) 2000 [JR].

### *Taraxacum laeticolor* Dahlst.

Sonck discovered some individuals of this species in Lieksa, Kelvä in 1947. In neighbouring province Sa it has been collected by Klingstedt in Valkeala in 1955. I have found it twice in Joensuu. Sparse.

Specimens examined. **Kb**: Joensuu, center, Kalastajankatu 8, lawn, S-side of the house (69465:36417) 1994 [JR]; Joensuu, Linnunlahti, Louhela, Linnunlahdentie 2, lawn, S-side of Louhela school (69466:36410) 1997 [JR].

### *Taraxacum laticordatum* Markl.

Øllgaard and I found this species in Kb in 1999, with two localities. Sparse.

Specimens examined. **Kb**: Ilomantsi, Möhkö, iron works field (69557:37199) 1999 [HØ JR]; Joensuu, Linnunlahti, Kuusitie, roadside lawn (69472:36401) 1999 [HØ JR ER].

### *Taraxacum latisectum* H.Lindb.

This species was found to be rare and sparse by Sonck in Lieksa, with only one locality. It was collected by Marklund in Joensuu in 1944. In neighbouring provinces it is known from Sa and Ok. Today it is very frequent in Joensuu, and along Papinkatu in a lawn it is the dominant dandelion. Elsewhere in Kb I have found it in four municipalities.

Specimens examined. **Kb**: Ilomantsi, Möhkö, iron work area (69558:37199) 1999 [HØ JR]; Joensuu, Sirkkala, railway station, lawn at the SE-side of the station building (69469:36427) 1988 [JR]; Joensuu, center, Yläsatamankatu 10, lawn at the E-side of the house (69474:36420) 1989 [JR]; Joensuu, center, Papinkatu, lawns by S-sides of houses (69464–5:36413–5) 1997 [JR]; Joensuu, center, Torikatu 41, E-side of the house (69477:36422) 2007 [JR]; Joensuu, Linnunlahti, Pajutie 1 B, lawn, (69472:36401) 1998 [JR]; Joensuu, Linnunlahti, Heinäpurontie 65, by the pavement near planted ros-

es (69473:36400) 2002 [JR]; Joensuu, Mutala, Nurmeksentie, roadside lawn, beside the K-market (69488:36433) 1999 [HØ JR ER]; Kontiolahti, Kontioniemi, lawn in front of the former hospital (69632:36434) 1997 [JR]; Lieksa, center, Asemakatu, lawn at the SW-end of the street (70276:36514) 1999 [HØ JR]; Polvijärvi, Martonvaara, high grass in the beginning of Laivarannantie (69953:36236) 1999 [HØ JR ER].

### *Taraxacum latissimum* Palmgr.

This species was found to be rather rare by Sonck in Lieksa, with only five localities. From neighbouring provinces there are observations only from Ok. I have observed it in 15 municipalities, Kesälahti, Kitee, Värtsilä, Tohmajärvi, Rääkkylä, Pyhäselkä, Tuupovaara, Ilomantsi, Joensuu, Liperi, Polvijärvi, Kaavi, Juuka and Lieksa (Kb) and Saari (Kl/Fin). Today it is common but seldom frequent.

### *Taraxacum leptodon* Markl.

Collected by Sonck in Jäppilä (Sb) in 1948. I have found it once in Joensuu.

Specimens examined. **Kb**: Joensuu, Käpykangas, Voimatie 6, roadside lawn (69490:36428) 2010 [JR].

### *Taraxacum leptophyllum* H.Lindb. ex Sältin

Sonck collected this species in three localities in Lieksa. It has been collected by Petterson in Simpele (Kl/Fin) in 1933, by Lindberg in Imatra (Sa) in 1911 and in Sortavala (Kl/Rus) in 1938, by Petterson in Ruokolahti (Sa) in 1933 and by A. Ulvinen in Valkeala (Sa) in 1949. Nowadays it is very frequent in the southern range of the study area, with five localities in Kl/Fin. Locally frequent, e.g. in Saari, Akonpohja. Besides, I have collected it twice in southernmost municipalities in Kb, in Kesälahti and Eno, and once in neighbouring province, in Ristiina (Sa) in 2009. Sparse.

Specimens examined. **Kl/Fin**: Parikkala, Särkisalmi, Rantatie, lawn near the lake shore (68356:36323) 1999 [HØ JR ER]; Parikkala, church village, Liiharanta, roadside (68310:36328) 2000 [JR]; Rautjärvi, Simpele, roadside of the road 4051, beside the church (68310:36328) 2000 [JR]; Saari, Akanvaara, roadside of highway 6, about 1 km to S from the crossroad of Uukuniemi (68474:36421) 1998 [JR]; Saari, Akonpohja, Akonpohjantie, roadside lawn (68461:6421) 1999 [HØ JR ER]. **Kb**: Eno, Uimaharju, center, roadside (69830:36654) 2005 [JR]; Kesälahti, church village, Kylänkangas, lawn, by the highway 6, beside the Esso service station (68695:36479) 2000 [JR].

***Taraxacum leucopodum* Hagl.**

There is only one previous Finnish specimen of this species in H, collected in Ta, Tampere (Kääntönen 1977). I have found it twice in Joensuu, Linnunlahti.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Kuusitie, roadside lawn, by Pajutie 1B (69472:36402) 1997 [JR]; Joensuu, Linnunlahti, Pajutie, roadside lawn (69472:36401) 1999 [HØ JR ER].

***Taraxacum lingulatum* Markl.**

This species has been collected by Marklund and Sonck in Joensuu in 1944, by Sonck in Lieksa in 1947, and by Kyyhkynen in Maaninka (Sb) in 1946. Nowadays it belongs to the dominant dandelions in the study area, even though I have not seen it all municipalities. Especially in Joensuu it is locally frequent.

***Taraxacum longicuspis* Markl.**

This species has been described based on specimens collected in Ab, Naantali (Marklund 1926). I collected specimens from Kb, which Øllgaard

identified as *T. longicuspis* in 2001. Among unidentified specimens at H, I found later specimens collected by Marklund in Joensuu in 1944, and by Väinö Hosiaisuoma in Kontiolahti, Varparanta (Kb) in 1970, which proved to be *T. longicuspis*. In summer 2011 Øllgaard and I studied specimens from Kb and Ab, Naantali, and we became convinced of our identifications. Collected also by Lundevall, in Parikkala (Kl/Fin) in 1991 (S, det. Øllgaard 2009).

Collected in six municipalities in Kb. In Kitee, Tohmajärvi and Värtsilä it may be considered as common. Additionally, I have found it once in Joutseno (Sa) in 2007, in Iitti (Ta) in 1988, and even in Pello (Obu) in the north, in 2008.

Specimens examined. **Kb:** Eno, church village, Enontie, roadside, by the church (69689:36613) 2000 [JR]; Joensuu, Sirkkala, Kettuvaarantie, roadside (S), beside the chipboard mill of Schauman and the dairy (69472:36427–9) 1998 [JR]; Joensuu, Käpykangas, Kuurnankatu, roadside lawn, near Hiiskoskentie (69490:36419) 2002 [JR];

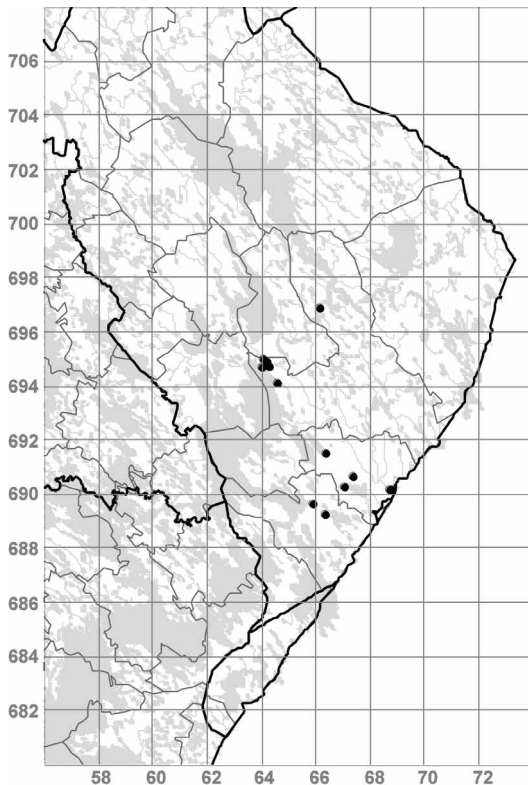


Fig. 12. Distribution of *Taraxacum longicuspis* (12 B) in the study area.

Joensuu, Linnunlahti, Botania, lawn, botanical garden (69470:36400) 2002 [JR]; Joensuu, Raatekangas, Pankakoskentie, roadside, a little to S of Raatekankaantie (69500:46405) 2011 [JR]; Kitee, center, Anttola, roadside lawn of by-road, N-side of the crossroads of Kiteentie and Puhoksentie (68925:36633) 1999 [HØ JR ER]; Kitee, Tolosenmäki, dry field by highway 6, near the service station (68965:36588) 2008 [JR]; Pyhäselkä, Reijola, Reijolantie, roadside (69411:36457) 2004 [JR MR]; Tohmajärvi, Kemie, lawn, SW-side of road to Niirala, beside the service station (69066:36735) 1999 [HØ JR ER]; Tohmajärvi, Onkamo, road 70, roadside lawn, beside the school (69152:36635) 2008 [JR]; Tohmajärvi, Akkala, Akkalanatie, roadside, near the house of youth society (69028:36704) 2008 [JR]; Värtsilä, Niirala, side of road 70, near the crossroad of Värtsilä (69018:36870-1) 1998 [JR]; Värtsilä, Niirala, roadside lawn near the railway station (69017:36877) 1999 [HØ JR ER].

### *Taraxacum longisquameum* H.Lindb.

This species was found to be sparse by Sonck in Lieksa, with eight localities. It was collected by Marklund in Pyhäselkä (Kb) in 1944. Nowadays it is one of the common dandelions, observed by me in 18 municipalities. It is one of the dominant ones e.g. in Polvijärvi, Haavikonmäki and Outokumpu, Kuusjärvi (Kb).

### *Taraxacum lucescens* Dahlst.

This species was found to be fairly frequent by Sonck in Lieksa, with 28 localities. It was collected by Marklund in Joensuu in 1944 and by Suutarinen in Nurmes (Kb) in 1936, and in by Petersson in Simpele (Kl/Fin) in 1933. I have found this species in 20 municipalities. Its frequency have remained unchanged, but the species is not dominant anywhere. It seems to avoid modern habitats like park lawns.

### *Taraxacum macranthoides* Hagl.

Collected by Marklund in two localities in Joensuu in 1944. Concerning Kb, it is today most common in Joensuu. I have found it in more than ten localities. Elsewhere in Kb I have observed it in six municipalities. Sparse to fairly sparse.

Specimens examined. **Kb**: Joensuu, Raatekangas, roadside lawn, crossroad of Kajaanintie and Raatekankaantie (69501:36427) 1988 [JR]; Joensuu, Raatekangas, Aspitie 1, garden lawn (69501:36429) 2000 [JR]; Joensuu, Linnunlahti, Linnunlahdentie, roadside lawn beside Palloilukeidas (69468:36406) 1997 [JR]; Joensuu, Linnunlahti, Heinäpurontie, roadside lawn, beside the botanical garden (69470:36400) 1998 [JR]; Joensuu, Linnunlahti, Pa-

jutie, lawn, beside 1B (69472:36401) 1998 [JR]; Joensuu, center, Eteläkatu 14, S-side of the house (69463:36410) 1998 [JR]; Joensuu, center, Kalastajankatu 12, lawn, S-side of the house (69465:36417) 1999 [JR]; Joensuu, center, Papinkatu, streetside lawn (6946:3641) 2002 [JR]; Joensuu, Mutala, Nurmeksentie, roadside lawn, beside K-market (69488:36433) 1999 [HØ JR ER]; Joensuu, Sirkkala, Kettuvaarantie, roadside, beside the chipboard mill of Schauman (69472:36427) 2000 [JR]; Joensuu, Louhela, Hallitie, roadside, by the parking place of ice arena (69467:36409) 2001 [JR]; Joensuu, Noljakka, Noljakantie, park lawn, beside Lykynnurmentie (69491:36389) 2001 [JR]; Joensuu, Aavaranta, shore park beside Kaislarannantie (69482:36391) 2007 [JR]; Joensuu, Käpykangas, Kaltimontie 6, roadside (69492:36422) 2009 [JR]; Joensuu, Käpykangas, Voimatie 6, roadside lawn (69490:36428) 2010 [JR]; Kontiolahti, Kontioniemi, old lawn in front of the former hospital (69633:36434) 1999 [HØ JR ER]; Kontiolahti, Asemankylä, lawn near Esso service station, by highway 6 (69632:36465) 2007 [JR VL]; Liperi, Ylämylly, Honkalampi, Liperintie, roadside lawn (69473:36303) 2000 [JR]; Liperi, Susiaho, roadside of road 476, SW-side of Pahakorvenniitty (69451:36286) 2009 [JR]; Outokumpu, Porola, Jokiranta, side of the hayfield by road 504, NW-side of the house (69627:36082) 2000 [JR]; Rautavaara, church village, Savontie, roadside at NE-side of the church (70446:35650) 2000 [JR]; Rääkkylä, church village, Paksuniementie, roadside lawn (69147:36362) 1999 [HØ JR ER]; Tohmajärvi, Onkamo, road 70, roadside lawn, beside the school (69152:36635) 2008 [JR].

### *Taraxacum maculatum* Jordan

This is one of the two dandelions which have escaped from my cultivations. I collected the single escaper. The plant was originally from Hyrynsalmi (Kn), where I collected seeds in 1999.

Specimens examined. **Kb**: Joensuu, Linnunlahti, Botania, as cultivation relic, at the background of the botanic garden (69470:36400) 2008 [JR].

### *Taraxacum mucronatiforme* Markl. ex Puolanne

Collected previously in Finland only from N. Sältin (1965) treated this species as a synonym of *T. capnocarpum* Dahlst., although Haglund had pointed out much earlier their difference, based on Swedish specimens. In 2006 Øllgaard noticed Haglund's determinations in S. I have collected it once.

Specimens examined. **Kb**: Kesälahti, church village, Kylänkangas, lawn, by highway 6, beside the Esso service station (68695:36479) 2000 [JR].

***Taraxacum multilobum*** Dahlst. ex Puolanne

In the 1940s this species was found to be rare in Lieksa, with 13 localities. Elsewhere in Kb it has previously been collected by Marklund in Joensuu in 1944 and by Sonck in Säyneinen and Raatavaara in 1947. I have found it in many sites in Joensuu and in eight other municipalities in Kb. Local, but in some places it is rather frequent.

Specimens examined. **Kb:** Ilomantsi, Lehtovaara, Tienhaara, uncultivated field, NE-side of the house (69727:37106) 1998 [JR]; Ilomantsi, church village, Pogostantie, roadside beside the crossroad of Kauppatie (69581:37023) 1998 [JR]; Joensuu, Raatekangas, roadside lawn, on the crossroad of Kajaanintie and Raatekankaantie (69501:36427) 1988 [JR]; Joensuu, Niinivaara, Tikkarinne, roadside lawn, crossroad of service traffic road of the central hospital (69459:36430) 1997 [JR]; Joensuu, Mutala, Nurmeksentie, roadside lawn, beside K-market (69489:36433) 1998 [JR]; Joensuu, center, Papinkatu 10, lawn, S-side of the house (69464:36415) 1997 [JR]; Joensuu, center, Kalastajankatu 4, lawn, S-side of the house (69465:36418) 2002 [JR]; Joensuu, center, Sairaalakatu 10, S-side (69476:36419) 2007 [JR]; Joensuu, Käpykangas, Kuurnankatu, roadside lawn, near Hiiskoskentie (69490:36419) 2002 [JR]; Joensuu, Käpykangas, Pamilonkatu, roadside lawn, near Hiiskoskentie (69493:36418) 2002 [JR]; Kontiolahti, Kontioniemi, old lawn, in front of the former hospital (69632:36434) 1997 [JR]; Kesälähti, church village, Kylänkangas, lawn by highway 6, near Esso service station (68695:36479) 2000 [JR]; Lieksa, center, Mönninkatu, roadside lawn, NW-side of Asemakatu (70276:36514) 1999 [HØ JR]; Lieksa, Ruunaa, Mattila, garden lawn (70346:36682-3) 1999 [HØ JR]; Nurmes, Höljälkä, railway station, garden lawn (70415:36220) 2000 [JR]; Pyhäselkä, Rauansalo, roadside by highway 6, near K-market (69260:36598) 1998 [JR]; Tohmajärvi, Akkala, Akkalantie, roadside by the house of youth society (69028:36704) 2008 [JR]; Värtsilä, Niirala, roadside of road 70, near the crossroads of Värtsilä (69018:36870) 1998 [JR].

***Taraxacum mundulum*** Railons. (syn. *T. spissum* H. Øllg. & J. Räsänen, syn. nov.)

There are no previous collections from eastern Finland, the nearest being from Kuusankoski (Ta). That specimen collected by Klingstedt in 1950s was first identified as *T. praeradians*. I have found this species in Pyhäselkä, Joensuu and Tohmajärvi (Kb), and in Luumäki (Sa). We described this taxon as a new species, *T. spissum* (Øllgaard & Räsänen 2008), but later we realised that Railonsala (1962) had described it earlier.

Specimens examined. **Kb:** Joensuu, Raatekangas, Lukkotie, roadside lawn (69500:36423) 2000 [JR]; Py-

häselkä, Hammaslahti, Kiihtelysvaarantie, roadside, E-side of the village (69290:36539) 1998 [JR]; Tohmajärvi, Akkala, Akkalantie, roadside beside the house of youth association (69028:36704) 2008 [JR].

***Taraxacum obliquilobum*** Dahlst. (syn. *T. unguiculosum* H.Lindb. & Palmgr.)

This species was found to be frequent by Sonck in Lieksa, with more than 80 localities. It favours “old fashioned” habitats. Collected by Pettersson in Simpele in 1932 and by Lundevall in Parikkala (both Kl/Fin) in 1991. The species is common and frequent in many localities.

***Taraxacum obnubilum*** Dahlst. ex Puolanne

I have found this species in eight sites in four municipalities in Kb, and in neighbouring provinces in Vehmersalmi (Sb) in 2007, in Ristiina in 2009 and in Mikkelin in 2010 (Sb). Sparse to scattered. Its local distribution in Kb include Joensuu and the neighbouring municipalities.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Heinäpurontie, roadside lawn (69470-2:36400) 1998 [JR]; Joensuu, center, Torikatu 11, lawn, E-side of the house (69466:36419) 2008 [JR]; Joensuu, Käpykangas, Voimatie 10, roadside lawn (69490:36428) 2010 [JR]; Joensuu, Raatekangas, Raatekankaantie, roadside lawn slightly westwards of Hallbergintie (69501:36406) 2011 [JR]; Kontiolahti, Pyytivaara, Uilontie 26, the former school of Pyytivaara, high grass by the house (69627:36489) 2007 [JR VL]; Liperi, Viinijärvi, orthodox church, garden lawn and roadside by the stone wall (69512:36141) 2005 [JR PO]; Outokumpu, Kuusjärvi, church, side of parking place (69565:35985) 2005 [JR PO]; Pyhäselkä, Hammaslahti, Kiihtelysvaarantie, roadside at E-side of the village (69290:36539) 1998 [JR].

***Taraxacum obtusifrons*** Markl.

The species was known for a long only from N. I have found it once in Joensuu, in an industrial area. These plants were young and their identification became possible first after cultivation. Probably a recent alien.

Specimens examined. **Kb:** Joensuu, Käpykangas, Kuurnankatu, roadside lawn near Hiiskoskentie (69490:36419) 2002 [JR].

***Taraxacum obtusulum*** H.Lindb.

This species was found to be sparse by Sonck in Lieksa, with only three localities. Collected by him also in Liperi (Kb) in 1974 (H). There are several collections from neighbouring provinces.



Fig. 13. *Taraxacum obnubilum* is widely distributed in Finland but still scattered and rare.

I have found it in 18 municipalities in Kb and Kl/Fin. Locally frequent, e.g. in Nurmes, Höljakkä (Kb).

#### *Taraxacum oistophorum* Markl.

I found this species in Joensuu in 1989, and recollected it in 2002, when I took also seeds. Based on cultivated specimens it was identified in 2007 (Räsänen 2009). Then I realised that Sonck had collected it in Joensuu already in 1977, at about one kilometer from my locality. It was unidentified in his collections. Sparse. Not previously observed in Finland.

Specimens examined. Kb: Joensuu, center, Kalastajankatu 12, lawn, S-side of the house (69465:36416) 1989 [JR]; Joensuu, center, Papinkatu 10, lawn, S-side of the house (69464:36415) 2002 [JR].

#### *Taraxacum ossiclivosum* J. Räsänen

This species is described in this volume (Räsänen 2013). Sparse in Outokumpu (Kb) and Luumäki (Sa) in 2001 and in Savitaipale (Sa) in 2013.

Specimens examined. Kb: Outokumpu, Kuusjärvi, roadside of road 17, beside the church (69566:35985) 2005 [JR PO].

#### *Taraxacum oxycentrum* Markl.

There are no previous observations of this species in the study area. Closest locality was in Elimäki in 2000 (N), where I found it for the first time. There after I have collected it in Joensuu and Tuupovaara (Kb) in 2005, Vehmersalmi (Sb) in 2007 and Suomussalmi (Ok) in 2001.

Specimens examined. Kb: Joensuu, Noljaakka, Aavaranta, N-side of Nuottaniementie, former building site, beside of the crossroad of the beach (69484:36385) 1989 [JR]; Tuupovaara, Saarivaara, garden lawn (69128:36971) 2005 [JR PO].

#### *Taraxacum pallescens* Dahlst.

There are no previous observations of this species in the study area. It was collected by A. Ulvinen from the neighbouring province Sa, in Kouvola in 1940. I have found it in Joensuu, Linnunlahti and Käpykangas, and also in Rääkkylä, Juhmakka (Kb). Scattered.

Specimens examined. Kb: Joensuu, Linnunlahti, Pajutie 1, garden lawn (69472:36401) 1986 [JR]; Joensuu, Käpykangas, Kaltimontie 1, roadside (69491:36423) 2009 [JR]; Rääkkylä, Kompakka, Juhmakka, Astola, field, SE-side of the road 484 (69142:36482) 1999 [HØ JR ER].

#### *Taraxacum pallidipes* Markl.

Collected by Marklund in Joensuu in 1944, by Sonck in Lieksa in 1948 and Riistavesi (Kb) in 1947, and by Railonsala in Kajaani (Ok) in 1956. I have found it in 12 municipalities in Kb; Kitee, Värtsilä, Rääkkylä, Pyhäselkä, Joensuu, Liperi, Kontiolahti, Ilomantsi, Lieksa, Polvijärvi, Outokumpu and Juuka, and in Parikkala and Simpele (Kl/Fin). In Joensuu it is common and locally frequent, e.g. in the neighbourhood of Pajutie.

#### *Taraxacum pectinatifforme* H.Lindb.

This species was found to be fairly sparse by Sonck in Lieksa, with 15 localities. Collected by Marklund and Sonck in Joensuu (Kb) in 1944, by Pettersson in Simpele (Kl/Fin) in 1933 and by Sonck in Parikkala (Kl/Fin) in 1974. Nowadays

this is the most common and frequent dandelion in the study area, occurring in all municipalities in Kb.

***Taraxacum petterssonii* Markl.**

I have found this species in Joensuu and two neighbouring municipalities in Kb. Sparse to fairly sparse. Most probably a recent alien.

Specimens examined. Kb: Joensuu, Linnunlahti, Pajutie 1 B, lawn, N-side of the house (69472:36401) 2007 [JR]; Liperi, Ylämylly, Honkalampi, Liperintie, roadside (69473:36303) 2000 [JR]; Pyhäselkä, Hammaslahti, Kiihtelysvaarantie, roadside, E-side of the village (69290:36539) 1999 [HØ JR ER].

***Taraxacum piceatifrons* Sahlén**

Described by Sahlén (1976) on based on at specimens collected by Sonck in Lieksa, Salonkylä, Ala-Laukanvaara in 1946. He recollected it there in 1975 and from the neighbouring Ala-Mustavaara in 1981. I have collected it with Øllgaard in the type locality. Sonck found it in the center of Joensuu in 1979, and I recollected later. This species is perhaps more common than observed, as some individuals are difficult to separate from *T. agroglossum* even when cultivated side by side. However, when well developed these are quite easy to distinguish.

Specimens examined. Kb: Joensuu, Linnunlahti, Pajutie 1 C 14, lawn, at the hedge (69472:36401) 2004 [JR]; Joensuu, Linnunlahti, Kuusitie 2 A 6, lawn, S-side of the house (69427: 36400) 2008 [JR]; Joensuu, center, Torikatu 11, lawn, E-side of the house (69466:36419) 2008 [JR]; Joensuu, Käpykangas, Voimatie 10, roadside lawn (69491:36428) 2010 [JR]; Lieksa, Salonkylä, Ala-Laukanvaara, garden lawn (70001:36614) 1999 [HØ JR].

***Taraxacum piceatum* Dahlst.**

In eastern Finland there are older collections of this species only from Lappeenranta (Sa) by Buch in 1907 and from Ok by Heikkinen in 1959, 1960, 1965 and 1971. Identification of 1965 specimen is uncertain. I have found it in Joensuu and Rääkkylä (Kb) and in Saari (Kl/Fin). Usually sparse, but scattered in Joensuu, Aavaranta. From neighbouring province Sb I have collected it in Leppävirta in 2007.

Specimens examined. Kl/Fin: Saari, Akonpohja, Akonpohjantie, roadside lawn (68461:36421) 1999 [HØ JR ER]. Kb: Joensuu, Niinivaara, Tikkamäentie 7, by the street, under the hedge (69462:36429) 2002 [JR]; Joensuu, Aavaranta, shore park, beside Kaislarannantie (69482:

6391) 2007 [JR VL]; Rääkkylä, Kompakka, Juhmakka, Astola field, SE-side of road 484 (69142:36482) 1999 [HØ JR ER]; Rääkkylä, church village, Paksuniementie, roadside lawn (69147:36362) 1999 [HØ JR ER].

***Taraxacum planum* Raunk. emend. H. Øllg. (syn. *T. chloroleucum* Dahlst.)**

This species was found by Marklund in Lieksa in 1944, and by Sonck in Kaavi in 1947. It is rare also in neighbouring provinces, recorded by Kyyhkynen in Maaninka (Sb), and by Heikkinen in Kajaani (Ok). It was known earlier by its younger name *T. chloroleucum*, which Øllgaard (1972) synonymized with *T. planum*. In Sältin (1965) *T. chloroleucum* is a synonym of *T. trilobatum*. Consequently many specimens of *T. planum* may be placed in collections as *T. trilobatum*. Nowadays this species seems to become more common than in Sonck's time. I have found it in 19 municipalities in Kb, but not in NW region. Observations are lacking also from some southern municipalities. In Joensuu it is common and locally fairly frequent.

***Taraxacum polyodon* Dahlst.**

This species was found to be very rare by Sonck in Lieksa, with only one locality, Collected by Buch in Lappeenranta (Sa) in 1908, by Heikkinen in Kajaani (Ok) in 1957, and by Saarsoo in Hyrynsalmi (Ok) in 1961. I have found two localities in Joensuu and three in Kontiolahti. Sparse, except in Kontioniemi, where it is frequent and repeatedly collected during years.

Specimens examined. Kb: Joensuu, Linnunlahti, Pajutie 1, roadside and garden lawn (69472:36401) 1998 [JR]; Joensuu, Käpykangas, Voimatie 10, roadside lawn (69491:36428) 2010 [JR]; Kontiolahti, Paihola, lawn, E-side of the residential building, SW-side of the hospital (69565:36502) 1989 [JR]; Kontiolahti, Kontioniemi, old lawn in front of the former hospital (69633:36433-4) 1999 [HØ JR ER]; Kontiolahti, Asemankylä, lawn near Esso service station, by the highway 6 (69632:36456) 2007 [JR VL].

***Taraxacum porcellisus* Sonck & H. Øllg.**

The species is rare in Finland. It was described based on at specimens collected in Li (Sonck & Øllgaard 1999). I have found it in two localities in Kuusamo (Ks) in 2009, and once in Joensuu.

Specimens examined. Kb: Joensuu, Käpykangas, Kallimontie 1, roadside (69491:36423) 2009 [JR].

*Taraxacum porrigens* Markl. ex Puolanne  
Lundevall collected this species in Simpele (Kl/  
Fin) in 1991. No other observations.

*Taraxacum praeradians* Dahlst. (syn. *T.*  
*macranthum* Dahlst.)

This species was found to be frequent by Sonck  
in Lieksa, with two adjacent localities, he found  
it also in Joensuu in 1944. I have found it in  
four municipalities in Kb, and to be frequent in  
Heinävesi (Sb) in 2007. In the study area it has  
always been sparse.

Specimens examined. Kb: Ilomantsi, Mähkő, iron  
works area (69558:37199) 1999 [HØ JR]; Joensuu, Sirk-  
kala, Kettuvaarantie, roadside beside the dairy (69472:  
36429) 1999 [JR]; Joensuu, Linnunlahti, Botania, lawn,  
back side of the botanical garden (69470:36400) 2005  
[JR]; Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn,  
W-side of the house (69472:36401) 2008 [JR]; Outo-  
kumpu, Kuusjärvi, roadside of road 17, beside the church  
(69566:35985) 2005 [JR PO]; Polvijärvi, Martonvaara,  
tall grassland, by the sportsfield (69953:36236) 1999 [HØ  
JR ER].



Fig. 14. *Taraxacum porcellisinus* has three known localities, of which the southernmost in Joensuu.

*Taraxacum praestabile* Railons.

This is the other species which have escaped  
from my garden. The other one was *T. macula-  
tum*. Raised of seeds collected in Tornio, Kaaka-  
mo (PeP), the type locality of this species. A fa-  
vourite dandelion of brown hares in my garden.

Specimens examined. Kb: Joensuu, Linnunlahti, Pa-  
jutie 1 B 4, garden lawn, W-side of the house (69472:  
36401) 2005 [JR].

*Taraxacum privum* Dahlst.

Rare in eastern Finland, collected twice by Sonck  
in Lieksa (Kb). It has been observed in neigh-  
bouring provinces in Valkeala (Sa) by Klingstedt  
in 1955, in Kuopio (Sb) by Sonck in 1943, and in  
Kajaani (Ok) by Arvonen in 1912, by Railonsa-  
la in 1955 and by Heikkinen in 1956. Not found  
by me.

*Taraxacum procerisquameum* H. Øllg.

This species was focollected five times in Fin-  
land in Ab in the 1960s, first determined as *T. pro-  
cerum*. I have collected it in Joensuu in 1989, and  
since that in nine districts in the city, and else-  
where in Kb in nine municipalities. Usually scat-  
tered. Joensuu is the center of its distribution in  
Finland, and in the Noljaakka district it is frequent.  
Elsewhere in Finland I have collected it only in  
Anjalankoski (Ka) and in Jaala (Ta) both in 2007.

Specimens examined. Kb: Eno, church village, Enon-  
tie, roadside by the church (69689:36613) 2000 [JR];  
Joensuu, Linnunlahti, Pajutie 1, roadside and garden lawn  
(69472:36401–2) 1989 [JR]; Joensuu, Niinivaara, Tik-  
karinne, roadside lawn, in crossroad of central hospital  
service traffic (69459:36430) 1997 [JR]; Joensuu, Mu-  
tala, Nurmeksentie, roadside lawn, beside the K-market  
(69488:36433) 1999 [HØ JR ER]; Joensuu, Sirkkala, Ket-  
tuvaarantie, roadside beside the Schauman chipboard mill  
(69472:36427) 2000 [JR]; Joensuu, Raatekangas, Luk-  
kotie, roadside lawn (69500:36423) 2000 [JR]; Joensuu,  
Raatekangas, Wahlforsinkatu, roadside, N-side of the rail-  
way (69496:36419) 2009 [JR]; Joensuu, Noljaakka, Nolja-  
kantie, park lawn beside Lykynnurmentie (69491:36389)  
2001 [JR]; Joensuu, center, Kalastajankatu 4, lawn at  
S-side of the house (69465:36418) 2002 [JR]; Joen-  
suo, center, Rantakatu 35, E-side of the fire station, near  
Maaherrankuja (69476:36424) 2007 [JR]; Joensuu, Kä-  
pykangas, Pamilonkatu, roadside lawn near Hiiskosken-  
tie (69493:36418) 2002 [JR]; Joensuu, Aavaranta, shore  
park, beside Kaislarannantie (69482:36391) 2007 [JR];  
Kiihtelysvaara, church village, Tohmajärventie, roadside  
(69361:36679) 2000 [JR]; Kitee, Anttola, center, roadside  
lawn of by-road, N-side of the crossroad of Puhoksentie

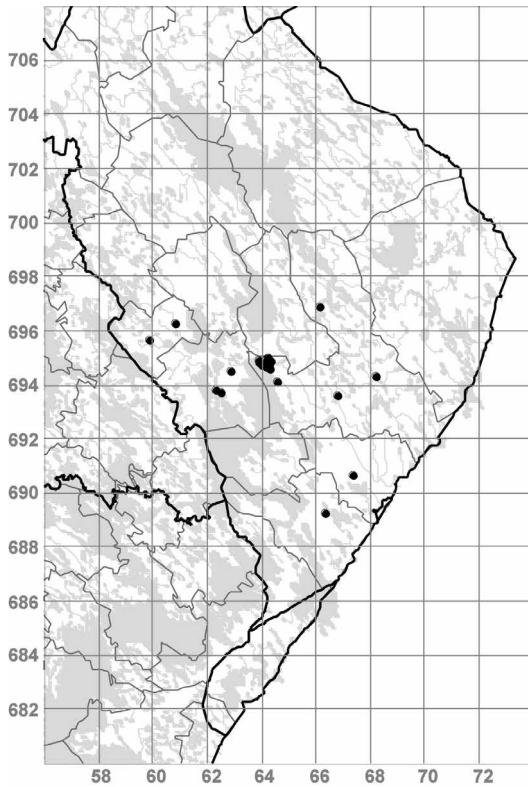


Fig. 15. Distribution of *Taraxacum procerisquameum* (15 B) in the study area. It has most likely arrived first to Joensuu.

and Kiteentie (68925:36633) 1999 [HØ JR ER]; Liperi, Laminniemi, Kyläsärkkä, Tuomela, high grass, SW-side of road 482 (69372:36249) 1999 [HØ JR ER]; Liperi, church village, lawn, E-side of the church (69381:36231) 2000 [JR CES]; Liperi, Susiaho, roadside of road 476, SW-side of Pahankorvenniitty (69451:36286) 2009 [JR]; Outokumpu, Kuusjärvi, road side, by road 17, beside the church (69566:35986) 2000 [JR]; Outokumpu, Porola, Jokiranta, side of the hayfield, by road 504, NW-side of the house (69627:36082) 2000 [JR]; Pyhäselkä, Reijola, Reijolantie, roadside (69411:36457) 2004 [JR MR]; Tohmajärvi, Kemie, lawn, SW-side of the road to Niirala, beside the service station (69066:36735) 1999 [HØ JR ER]; Tuupovaara, Kovero, Koverontie, hayfield by the road, N-side of the village (69432:36820) 1999 [HØ JR].

#### *Taraxacum procerum* Hagl.

Collected by Marklund in Joensuu (Kb) in 1944, by Heikkinen and Sältin in Hyrynsalmi (Ok) in 1965. I have found it once in Kb.

Specimens examined. Kb: Liperi, Ylämylly, Honkalampi, Liperintie, roadside (69473:36303) 2000 [JR].



Herbarium J. Räsänen  
*Taraxacum procerisquameum* H. Øllg.  
 PK, Joensuu, Käpykangas, Pamlonkatu,  
 tienvarsinurmikolla Hiiskoskenttien luona.  
 26.5.2002 Juhani Räsänen 2/102  
 Grid 27 69493:6418 P545

#### *Taraxacum pulcherrimum* H.Lindb.

Collected earlier in eastern Finland only in Ok, with several localities in Kajaani, the oldest one collected by Arvonen in 1912. Heikkinen collected it in Paltamo (Ok) in 1956. I have collected it in two municipalities in Kb. Sparse.

Specimens examined. Kb: Joensuu, center, Papinkatu 8, by the street under the hedge (69464:36416) 2002 [JR]; Tohmajärvi, Kemie, lawn, SW-side of the road to Niirala, near the service station (69066:6735) 1999 [HØ JR ER].

#### *Taraxacum pulverulentum* H. Øllg.

I reported this species as new to Finland on the basis of specimens collected in Oulu, Obo in 2002 (Räsänen 2005). However, a specimen collected by Heikkinen in Kajaani (Ok) in 1964 was identified by Øllgaard as *T. pulverulentum* (S) already in 1992. I found it in Värttilä (Kb) in 2005.

Specimens examined. Kb: Värttilä, Niirala, roadside (69018:36871) 2005 [JR PO].



***Taraxacum puolannei*** Markl. ex Puolanne (syn. *T. aculeatum* Hagl.)

This species was found to be rare by Sonck in Lieksa, with only three localities. Collected by Pettersson in Simpele in 1933, and by Lundevall in Parikkala (Kl/Fin) in 1991. It is also known from Sb and Ok. I have found it in nearly all municipalities in Kb. In some sites it is the dominant dandelion.

***Taraxacum pycnolobum*** Dahlst.

Collected in the study area only by Sonck, in Lieksa in 1945 and in Joensuu in 1944. Collected previously from Lappeenranta and Lauritsala (Sa), Kuopio (Sb), Kajaani and Paltamo (Ok).

***Taraxacum railonsalae*** Hagl. & Saarsoo

This dandelion is distributed mainly in western Finland (Ab, St, Oa and Obu). Sparse in Joensuu in 2002 on a garden lawn established a few years before. In 2009 I found it also in Posio (Ks) in 2009.

Specimens examined. Kb: Joensuu, Linnunlahti, Pajutie 1 C 14, lawn, by the hedge (69472:36401) 2002 [JR].

***Taraxacum recurvum*** Dahlst.

This species was found to be rare and sparse by Sonck in Lieksa, with only four localities. Collected by Marklund and Sonck in Joensuu in the 1944. There are many old collections from Kajaani (Ok), and collected by Heikkinen in Hyrynsalmi (Ok) in 1971 and by me in 1999.

***Taraxacum retroflexum*** H.Lindb.

This species was found to be common by Sonck in Lieksa, with more than 50 localities. Collected also in Nurmes (Kb) by Suutarinen in 1937 and in Joensuu by Marklund in 1944, and by Sonck in Parikkala (Kl/Fin) in 1974. Common in the study area.

***Taraxacum sahlinii*** Railons.

Described by Railonsala (1967) based on specimens collected in Tornio (Obu). It seems that it is currently spreading in the study area. Recently found in Lieksa, Kylänlahti (scattered), in the area which was examined by Sonck. As this species is easy to recognise, it is not obvious, that it would have remained unnoticed by him. On the

other hand, this species is almost absent in many recently examined localities. I have found it in 11 municipalities in Kb and also in Simpele (Kl/Fin). In Kaavi it was frequent, elsewhere scattered to sparse.

Specimens examined. Kl/Fin: Rautjärvi, Simpele, roadside of road 4051, beside the church (68170:36276) 2000 [JR]. Kb: Ilomantsi, Möhkö, iron field manor, high grass SW-side of the house (69558:37200) 1999 [HØ JR]; Juankoski, Säyneinen, Viitaniemi, roadside of road 570, beside the school (70047:35745) 2000 [JR]; Juuka, NE-side of the church village, Juuantie, roadside, (70180:36140) 2000 [JR]; Kaavi, W-side of the church village, roadside of road 573, (69867:35743) 2000 [JR]; Kiihtelysvaara, church village, Tohmajärventie, roadside (69361:36679) 2000 [JR]; Kitee, Tolosenmäki, dry field by the highway 6, beside the service station (68965:36588) 2008 [JR]; Kontiolahti, Kontioniemi, in front of the former hospital, by the road (69632:36433) 1999 [HØ JR ER]; Lieksa, Kylänlahti, railway station, lawn near the station building (70317:36378) 1988 [JR]; Lieksa, Kylänlahti, high grass, SW-side of the former school (70322:36373) 1999 [HØ JR]; Polvijärvi, Martonvaara, field in the beginning of Laivarannantie (69953:36236) 1998 [JR]; Rautavaara, NE-side of the church village, Savontie, roadside (70446:35650) 2000 [JR]; Tohmajärvi, Akkala, Akkalantie, roadside beside the house of youth society (69028:36704) 2008 [JR]; Värtsilä, Niirala, roadside of road 70, near the crossroads to Värtsilä (69018:36870) 1998 [JR].

***Taraxacum sellandii*** Dahlst.

This species is rare in eastern Finland. Collected by Pettersson in Simpele (Kl/Fin) in 1933 and by Heikkinen in Kajaani (Ok) in 1956. Scattered in Joensuu (Kb).

Specimens examined. Kb: Joensuu, Linnunlahti, Pajutie 1, roadside and garden lawn (69472:36401-2) 1988 [JR].

***Taraxacum serratifrons*** Florstr.

This species grows mainly in SW Finland, with scattered occurrences to Oa to Ka. In eastern Finland it was collected by Heikkinen in Hyrynsalmi (Ok) in 1960. I have found it once in Joensuu.

Specimens examined. Kb: Joensuu, Käpykangas, Voimatie 10, roadside lawn (69491:36428) 2010 [JR].

***Taraxacum sertatum*** Kirschner, H. Øllg. & Štěpánek

This species was found as new to Finland in Kontiolahti (Kb) in 1999, two years after its descrip-

tion (Kirschner & Štěpánek 1997). Later found in Joensuu. Sparse. Obviously a recent alien.

Specimens examined. **Kb**: Kontiolahti, Kontioniemi, old lawn in front of the former hospital (69632:36434) 1999 [JR HØ ER]; Joensuu, Raatekangas, Avainkuja, roadside (69498:36423) 2005 [JR].

***Taraxacum severum*** M.P. Chr.

Collected by Øllgaard in the center of Lieksa as new to Finland (Räsänen 2007). Sparse. Frequent in Pori, Reposaaari (St) in 2005.

Specimens examined. **Kb**: Lieksa, center, Asemakatu, center lawn of the street, SW-end (70276:36514) 1999 [HØ JR]; Lieksa, center, Möninkatu, roadside grass, NW-side of Asemakatu (70276:36514) 1999 [HØ JR].

***Taraxacum sinus-avis*** J. Räsänen

This species is described in this volume (Räsänen 2013). Common in Joensuu, Linnunlahti. Elsewhere in Kb it has been found to be sparse in Säyneinen and Outokumpu. I have collected it also in Lohja (Ab) and Espoo (N) in 2007.

Specimens examined. **Kb**: Joensuu, Linnunlahti, Pajutie, roadside and garden lawns (69472:36401) 1997 [JR]; Joensuu, Linnunlahti, Louhela, Linnunlahdentie 2, lawn between a road and Louhela school (69466:36410) 1997 [JR]; Joensuu, Linnunlahti, Heinäpurontie, roadside lawn, area between Paju- and Kuusitie (69472-3:46400) 2002 [JR]; Joensuu, center, Papinkatu 10, lawn at S-side of the house (69464:36415) 1997 [JR]; Joensuu, center, Rantakatu 19, lawn under lime trees (69471:6421) 2007 [JR]; Juankoski, Säyneinen, Viitaniemi, side of road 570, near the school (70047:35745) 2000 [JR]; Outokumpu, Kuusjärvi, side of the road 17, beside the church (69566:35986) 2000 [JR].

***Taraxacum sonckii*** Hagl. ex Sahlin

This species was found to be very frequent by Sonck in Lieksa, Kylänlahti in 1946. Haglund identified it as a new species but did not describe it. Sahlin (1976) provided a formal description. Collected by Lundevall in Parikkala (Kl/Fin) in 1991. Together with Øllgaard we searched the type locality of *T. sonckii* without success.

***Taraxacum speciosiflorum*** M.P. Chr.

This species was collected in Finland by Sonck (1991) in Li in 1979, and later by Øllgaard and Reinikka in Mikkeli (Sa) in 1999. I have found it in Joensuu in 2010. Sparse. Outside Finland this species is known only from Denmark and Germany.

Specimens examined. **Kb**: Joensuu, Käpykangas, Voimatie 10, roadside grass, sparse (69491:36428) 2010 [JR].

***Taraxacum stenoglossum*** Brenner (syn. *T. dahlstedtii* H.Lindb.)

This species was found to be quite common by Sonck in Lieksa, with 39 localities. He observed it also in Nurmes, Joensuu, Kaavi and Säyneinen (all Kb). Collected by Lundevall in Simpele (Kl/Fin) in 1991. I have observed it in Kb in 15 municipalities and in Kl/Fin in three ones.

***Taraxacum stenoschistum*** Dahlst.

Collected by Sonck in Joensuu in 1944, and in Lieksa, Kevätmiemi in 1945, with many specimens, and in Parikkala (Kl/Fin) in 1982. I have found it in three localities in Kb, and in Heinävesi (Sb) in 2007. Sparse.

Specimens examined. **Kb**: Joensuu, center, Kalastajankatu 8, S-side of the house (69465:36418) 1999 [JR]; Liperi, Viinjärvi, orthodox church, by the road near the stone wall (69512:36141) 2005 [JR PO]; Rääkkylä, church village, Meteli, grass, near the power station PKS (69141:36365) 1999 [HØ JR ER].

***Taraxacum stereodes*** Ekm. ex Hagl.

Sonck observed this species in Suonenjoki and Kuopio (Sb) in 1943 and Lundevall in Lappeenranta (Sa) in 1991. Collected by me in the center of Joensuu in 1997, and in neighbouring province Ok in Kajaani in 2000.

Specimens examined. **Kb**: Joensuu, center, Kalastajankatu 8, lawn at S-side of the house (69465:36417) 1997 [JR].

***Taraxacum subalatum*** H.Lindb.

Sonck (1964a) mentioned that he found two populations of *T. subalatum* in Lieksa, but these specimens represent *T. coartatum*. Elsewhere in eastern Finland known only from Ok. Not found by me.

***Taraxacum subcanescens*** Markl. ex Puolanne

This species is previously known from neighbouring provinces, collected by Kyyhkynen in Nilsä in 1915 and in Pielavesi in 1933 (Sb), by Sonck in Suonenjoki (Sb) in 1947 and by Heikkinen and Sältin in Hyrynsalmi (Ok) in 1965. I have found it in nine municipalities in Kb, and in Simpele (Kl/Fin). Sparse to scattered.

Specimens examined. **Kl/Fin:** Rautjärvi, Simpele, side of road 4051 beside the church (68170:36276) 2000 [JR]. **Kb:** Ilomantsi, Möhkö, Kalliovaara, Kalliola, garden lawn (69628:37235) 1997 [JR]; Ilomantsi, church village, Pogostantie, roadside, S-side of the crossroads to Möhkö (69556:37018) 1998 [JR]; Joensuu, Käpykangas, by the ringroad, between Kajaanintie and railway, N-side of the road (6948:3642) 1989 [JR]; Joensuu, Käpykangas, Pami-lonkatu, roadside lawn, near Hiiskoskentie (69493:36418) 2002 [JR]; Joensuu, Käpykangas, Voimatie 6, roadside lawn (69490:36428) 2010 [JR]; Joensuu, Otsola, Kuo-piontie, roadside beside the university (69474:36411) 1997 [JR]; Joensuu, Linnunlahti, Heinäpurontie, roadside lawn, beside the botanical garden (69470:36400) 1998 [JR]; Joensuu, Raatekangas, Lukkotie, roadside lawn (69500:36423) 2000 [JR]; Joensuu, center, Kalastajanka-tu 4, lawn, S-side of the house (69465:36418) 2002 [JR]; Joensuu, Aavaranta, shore park, beside Kaislarannantie (69482:36391) 2007 [JR]; Juuka, NE-side of the church village, Juuantie, roadside, (70180:36140) 2000 [JR]; Kesälahti, church village, Kylänkangas, lawn by the high-way 6, near Esso service station (68695:36479) 2000 [JR]; Kitee, center (Anttola), roadside lawn of by-road, N-side of crossroads of Kiteentie and Puhoksentie (68925:36633) 1999 [HØ JR ER]; Kitee, Tolosenmäki, dry field, by the highway 6, near the service station (68965:36588) 2008 [JR]; Kontiolahti, Kontioniemi, old lawn, in front of the former hospital (69632:36434) 1997 [JR]; Pyhäselkä, Hammaslahti, Liitoskuja, roadside lawn (69285:36532) 2011 [JR]; Tohmajärvi, Kemie, lawn, SW-side of the way to Niirala, near the service station (69066:36735) 1999 [HØ JR ER]; Värtsilä, Niirala, roadside of the road 70, near the crossroads to Värtsilä (69018:36870) 1998 [JR]; Värtsilä, Niirala, roadside lawn near the railway station (69017:36877) 1999 [HØ JR ER].

#### *Taraxacum subdahlstedtii* M.P. Chr.

First found in Kb in Joensuu and Kontiolahti in 1990s (Räsänen 2009). A recent alien, which have become more abundant during the past 15 years.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Lin-nunlahdentie, rather new roadside lawn beside the curl-ing hall (69468:36405) 1997 [JR]; Joensuu, Linnunlahti, Louhela, Linnunlahdentie 2, lawn between the road and Louhela school (69466:36410) 1997 [JR]; Joensuu, Lin-nunlahti, Pajutie 1, roadside lawn (69472:36401) 1999 [HØ JR ER]; Kontiolahti, Kontioniemi, old lawn, in front of the former hospital (69631:6434) 1997 [JR].

#### *Taraxacum subglaucescens* Markl.

Collected by V. Hosiaisuoma in Kontiolahti, Var-paranta (Kb) in 1970, and in neighbouring prov-ince Sb by Kyyhkynen in Maaninka in 1946. Rare in Kb.

Specimens examined. **Kb:** Joensuu, Raatekangas, Lukkotie, roadside lawn (69500:36423) 2000 [JR]; Joen-suu, Raatekangas, Wahlforsinkatu, N-side of the railway (69496:36419) 2009 [JR]; Joensuu, center, Kalastajanka-tu 4, lawn at S-side of the house (69465:36418) 2002 [JR].

#### *Taraxacum subhuelphersianum* M.P. Chr.

This species was described by Christiansen (1971) based on at specimens collected in Den-mark in 1953. It was found to be frequent by Son-ck in Lieksa in 1944, with only four localities. He named is tentatively as *T. laetiflorum* ined. It was collected by Marklund in Joensuu, also in 1944. In the neighbouring province Ok it was first col-lected by Heikkinen in Hyrynsalmi in 1960. I have found *T. subhuelphersianum* quite regular-ly in Kb, in 12 municipalities, and once in Saari (Kl/Fin). Most likely it is more common than observed, because the majority of observations



Fig. 16. *Taraxacum subhuelphersianum* is one of the few species of section *Taraxacum* not producing pollen.

were made in 1999, when Øllgaard was in the field with me and confirmed the identifications. Sparse to fairly sparse. The species is probably fairly common all over Finland, as I have collected it also in seven other provinces (Ab, N, Oa, Sb, Om, Ok and Obu).

Specimens examined. KI/Fin: Saari, Akonpohja, Akonpohjantie, roadside lawn (68461:36421) 1999 [HØ JR ER]. Kb: Ilomantsi, church village, Pogostantie, roadside near the crossroads of Möhkö (69560:37019) 1998 [JR]; Ilomantsi, Möhkö, iron work (69558:37199) 1999 [HØ JR]; Joensuu, Käpykangas, by the ringroad, between Kajaanintie and railway, N-side of the road (69486:36428) 1989 [JR]; Joensuu, center, Papinkatu 10, lawn, S-side of the house (69464:36414) 1999 [JR]; Joensuu, Linnunlahti, Pajutie, roadside lawn (69472:36401) 1999 [HØ JR ER]; Joensuu, Mutala, Nurmeksentie, roadside lawn, beside the K-market (69488:36433) 1999 [HØ JR ER]; Kesälähti, church village, Kylänkangas, lawn by highway 6, beside Esso service station (68695:36479) 2000 [JR]; Kontiolahti, Kontioniemi, old lawn in front of the former hospital (69633:36434) 1999 [HØ JR ER]; Kontiolahti, Pyytivaara, Uilontie 26, high grass by the former school of Pyytivaara (69627:36489) 2007 [JR VL]; Lieksa, Ruunaa, Mattila, garden lawn (70346:36683) 1988 [JR]; Lieksa, center, Asemakatu, SW-side of the center lawn of the street (70276:36514) 1999 [HØ JR]; Liperi, Lamminniemi, Kyläsärkkä, Tuomela, high grass, SW-side of road 482 (69372:36249) 1999 [HØ JR ER]; Liperi, Ylämylly, Lahdensuo, fallow field between Ylämyllyntie 69 and 71 (69483:36311) 1999 [HØ JR ER]; Nurmes, Höljällä, railway station, garden lawn (70415:36220) 2000 [JR]; Pyhäselkä, Hammaslahti, Kiihtelysvaarantie, roadside, E-side of the village (69290:36536) 1999 [HØ JR ER]; Pyhäselkä, Reijola, Reijolantie, roadside (69411:36457) 2004 [JR MR]; Rautavaara, church village, Savontie, roadside, NE-side of the church (70446:36560) 2000 [JR]; Rääkkylä, church village, Paksuniementie, roadside lawn (69147:6362) 1999 [HØ JR ER]; Tohmajärvi, Kemie, lawn, SW-side of the way to Niirala, beside the service station (69066:36735) 1999 [HØ JR ER]; Värtsilä, Niirala, roadside lawn, near the railway station (69017:36877) 1999 [HØ JR ER].

### *Taraxacum subinvestiens* J. Räsänen

This species is described in this volume (Räsänen 2013). I have found it four times in northern Joensuu, within a few squarekilometre area. Sparse.

Specimens examined. Kb: Joensuu, Raatekangas, Aspitie, garden lawn (69501:36429) 2000 [JR]; Joensuu, Käpykangas, Kuurnankatu, roadside beside Kaltimontie 1, on lawn (69491:36422) 2009 [JR]; Joensuu, Käpykangas, roadside lawn (69490:36428) 2010 [JR]; Joensuu, Siihtala, roadside lawn near Utrantie (69478:36429) 2011 [JR].

### *Taraxacum sublaeticolor* Dahlst.

According to Sonck this species was fairly rare in Lieksa, with 19 localities. Elsewhere in Kb it have been collected by Marklund in Joensuu in 1944, and by Sonck in Kaavi, Säyneinen and Rautavaara in 1947. Collected early also by Marklund and Arvonen in Sortavala (KI/Rus) in 1910. Today scattered in Kb, known from nine municipalities. Also in Saari, Akonpohja (KI/Fin). In Joensuu it is common and sometimes quite frequent.

Specimens examined. KI/Fin: Saari, Akonpohja, Akonpohjantie, roadside lawn (68461:36421) 1999 [HØ JR ER]. Kb: Ilomantsi, Möhkö, iron work (69558:37199) 1999 [HØ JR]; Ilomantsi, church village, lawn near the orthodox church (69590:37008) 1999 [HØ JR]; Joensuu, Sirkkala, railway station, along the rails, SE-side of the station building (69469:36427) 1988 [JR]; Joensuu, center, Rantakatu 30, lawn at S-side (69473:36423) 1989 [JR]; Joensuu, center, Papinkatu 10, lawn, S-side of the house (69464:6415) 1997 [JR]; Joensuu, center, Kalastajankatu 4, lawn, S-side of the house (69465:36418) 2002 [JR]; Joensuu, Linnunlahti, Pajutie, roadside lawn, by 1B (69472:36401) 1997 [JR]; Joensuu, Mutala, Nurmeksentie, roadside lawn, beside K-market (69489:36433) 1998 [JR]; Joensuu, Noljaikka, Noljaikantie, roadside lawn, N-side of the road, E-side of Siilaistentie (69490:36395) 1997 [JR]; Joensuu, Noljaikka, Noljaikantie, park lawn beside Lykynnurmentie (69491:36389) 2001 [JR]; Joensuu, Käpykangas, Pamilonkatu, roadside lawn near Hiiskoskentie (69493:36418) 2002 [JR]; Juuka, NE-side of the church village, Juuantie, roadside, (70180:36140) 2000 [JR]; Kontiolahti, Pyytivaara, Uilontie 26, high grass near the former school of Pyytivaara (69627:36489) 2007 [JR VL]; Lieksa, Kylänlahti, railway station, lawn by station building (70317:36378) 1988 [JR]; Lieksa, center, Asemakatu, SW-side of central lawn of the street (70275:36512) 1999 [HØ JR]; Polvijärvi, Martonvaara, dry field in the beginning of Laivarannantie (69953:36236) 1998 [JR]; Pyhäselkä, Hammaslahti, Kiihtelysvaarantie, roadside, E-side of the village (69290:36536) 1999 [HØ JR ER]; Rääkkylä, church village, Paksuniementie, roadside lawn (69147:36362) 1999 [HØ JR ER]; Tohmajärvi, Kemie, lawn, SW-side of the road to Niirala, near the service station (69066:36735) 1999 [HØ JR ER].

### *Taraxacum submaculosum* Markl.

Amongst section *Taraxacum* this is an exceptional species, as it has remarkably declined. It was found to be common and frequent by Sonck in Lieksa, with almost 160 localities. In the study area it has been observed earlier also in Nurmes, Joensuu, Kaavi and Säyneinen (Kb), and in Parikkala and Simpele (KI/Fin). I have found it in sev-

en localities in Kb. Only a few individuals in all localities.

Specimens examined. **Kb:** Joensuu, Raatekangas, Lukkotie, roadside lawn (69500:36423) 2002 [JR]; Joensuu, Käpykangas, Voimatie 6, roadside lawn (69490:36428) 2010 [JR]; Kontiolahti, Kontioniemi, dry roadside field, E-corner of the former hospital (69632:36434) 1999 [HØ JR ER]; Kontiolahti, Asemankylä, lawn, near Esso service station, by highway 6 (69632:36465) 2007 [JR VL]; Liperi, Ylämylly, Honkalampi, Liperintie, roadside (69473:36303) 2000 [JR]; Outokumpu, Kuusjärvi, sandy sportsfield (69567:35983) 2005 [JR PO]; Polvijärvi, Martonvaara, dry field in the beginning of Laivarannantie (69953:36236) 1998 [JR].

### *Taraxacum subrubescens* Dahlst. ex Hagl.

There is a specimen named *T. subrubescens* in S, collected by Sonck in Lieksa in 1945, determined by Haglund as *T. isthmicola*. Collected by Kyyhkynen from neighbouring province Sb in Pielavesi in 1939 and identified as *T. subrubescens*, but

Øllgaard disagreed with this identification in 2006. Consequently, there is no confirmed observations from eastern Finland.

### *Taraxacum subserratifrons* Saarsoo

Saarsoo (1962) described the species in 1962 based on at specimens collected by Heikkinen in Hyrynsalmi, Kangasjärvi (Ok). This was for a long the only observation from eastern Finland. I have collected it in three localities in Joensuu and in one in Valtimo. In the latter there were many individuals.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Kuusitie, roadside lawn (69472:36402) 1999 [HØ JR ER]; Joensuu, Linnunlahti, lawn, NW-side of pedestrian way (69468:36403) 2008 [JR]; Joensuu, Raatekangas, Aspitie 1, garden lawn (69501:36429) 2000 [JR]; Valtimo, church village, Nurmeksentie, roadside of highway 6 (70658:35898) 2000 [JR].

### *Taraxacum subtile* Markl.

Marklund (1911) described this species based on at specimens collected by himself in Sortavala (Kl/Rus) in 1911. Lindberg recollected it in the same place in 1938. I have found it once in Joensuu.

Specimens examined. **Kb:** Joensuu, city center, Paipinkatu 10, lawn, S-side of the house, fairly sparse (69464:36415) 1997 [JR].

### *Taraxacum subulatum* Markl.

New to eastern Finland. I have found this species once in Ilomantsi (Kb). Sparse. Older collections from Finland have been done only in N and Li.

Specimens examined. **Kb:** Ilomantsi, church village, Pogostantie, roadside, S-side of the crossroads to Möhkö (69556:37018) 1998 [JR].

### *Taraxacum tanyphyllum* Dahlst.

This species was collected by Sonck and Marklund in Joensuu in 1944. In neighbouring provinces it has been found only in Sb (Sältin 1965). Nowadays it is common in Joensuu, and it grows around Joensuu within a radius of 50 km. As a strong and competitive species, it thrives well in vigorous grasslands and it is occasionally frequent. I have observed it to be the dominant dandelion on a fallow field in Tohmajärvi, Onkamo, Kirtsinniemi.

Specimens examined. **Kb:** Eno, church village, Enontie, roadside near the church (69689:36613) 2000 [JR];

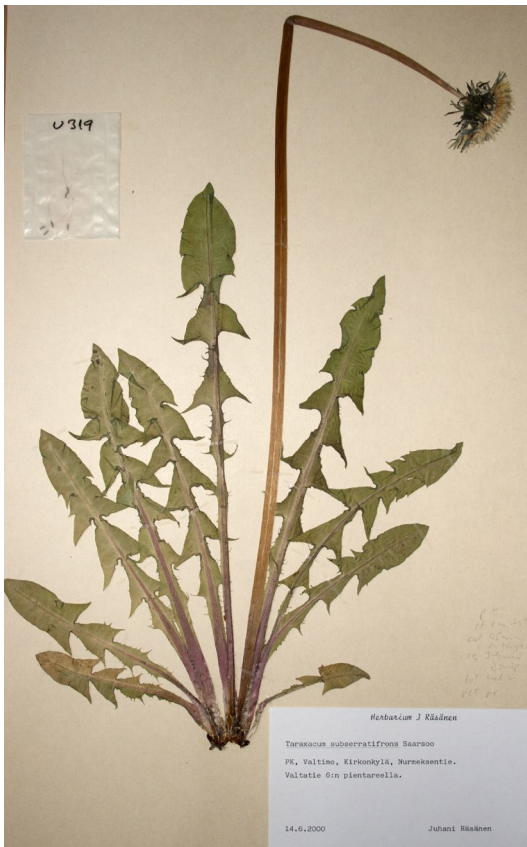


Fig. 17. *Taraxacum subserratifrons* is still fairly rare in Finland.

Eno, Uimaharju, center, roadside (69830:36654) 2005 [JR]; Joensuu, Otsola, overgrown outdoor area of the old botanical garden (69475:36412) 1986 [JR]; Joensuu, Otsola, roadside, NE-side of the crossroads of Kuopiontie and Länsikatu (69473:36413) 1997 [JR]; Joensuu, Linnunlahti, lawn, S-side of pedestrian way (6947:3640) 1988 [JR]; Joensuu, Linnunlahti, Pajutie 1 B 4, garden lawn (69472:36401) 1997 [JR]; Joensuu, Linnunlahti, Botania, lawn of the botanical garden (694702:364003) 2002 [JR]; Joensuu, center, Kalevankatu 19, garden lawn of a dismantled private house (69469:36415) 1988 [JR]; Joensuu, center, Merimiehenkatu 19, roadside lawn, E-side of the house (69468:36414) 1988 [JR]; Joensuu, center, Papinkatu 24, S-side of the house (69465:36412) 2001 [JR]; Joensuu, center, Kalastajankatu 4, lawn, S-side of the house (69465:36418) 2002 [JR]; Joensuu, Käpykangas, by the ringroad, N-side of the road, between Kajaanintie and Railway (6948:3642) 1989 [JR]; Joensuu, Käpykangas, Pamilonkatu, roadside lawn, near Hiiskoskentie (69493:36418) 2002 [JR]; Joensuu, Mutala, Nurmeksentie, roadside lawn, beside the K-market (69489:36433) 1998 [JR]; Joensuu, Louhela, Hallitie, roadside, by the parking place of the ice arena (69467:36409) 2001 [JR]; Joensuu, Noljaakka, Noljaakantie, park lawn beside Lykynnurmentie (69491:36389) 2001 [JR]; Joensuu, Sirkkala, railway station, by track 1, in front of the station building (69469:36427) 2002 [JR]; Joensuu, Aavaranta, shore park, beside Kaislarannantie (69482:36391) 2007 [JR]; Joensuu, Raatekangas, Wahlforsinkatu, roadside, N-side of the railway (69496:36419) 2009 [JR]; Kontiolahti, Lehmo, Nurmeksentie 24, roadside of the underpass of cycleway (69523:36444) 1997 [JR]; Kontiolahti, Pyytivaara, Uilontie 26, high grass near the former school of Pyytivaara (69627:36489) 2007 [JR VL]; Kontiolahti, Asemankylä, lawn by highway 6 near Esso service station (69632:36465) 2007 [JR VL]; Liperi, Ylämylly, Honkalampi, Liperintie, roadside (69473:36303) 2000 [JR]; Liperi, Susiaho, roadside of road 476, SW-side of Pahankorvenniitty (69451:36286) 2009 [JR]; Polvijärvi, Martonvaara, dry field in the beginning of Laivarannantie (69953:36236) 1999 [HØ JR ER]; Pyhäselkä, Hammaslahti, Kiihtelysvaarantie, roadside, E-side of the village (69290:36539) 1998 [JR]; Pyhäselkä, Hammaslahti, Liitoskuja, roadside lawn (69285:36532) 2011 [JR]; Pyhäselkä, Reijola, Reijolantie, roadside (69411:36457) 2004 [JR MR]; Rääkkylä, church village, Paksuniementie, roadside lawn (69147:36362) 1999 [HØ JR ER]; Tohmajärvi, Onkamo, Kirtsinniemi, as the dominant species on an uncultivated field, near holiday center, by running-in road (69137:36584) 2001 [JR]; Tohmajärvi, Onkamo, roadside lawn, by road 70, beside the school (69152:36635) 2008 [JR].

#### *Taraxacum tenuiforme* Hagl.

I have found this species in four localities in Joensuu (Räsänen 2009). Along Papinkatu it has been regularly observed to be frequent, but sparse in other localities.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Kuusitie, roadside lawn (69472:36402) 1999 [HØ JR ER]; Joensuu, center, Papinkatu 10, lawn, S-side of the house (694642:364149) 2002 [JR]; Joensuu, center, Papinkatu 16, lawn, S-side of the house (694650:364140) 2002 [JR]; Joensuu, Raatekangas, Avainkuja, roadside (69498:36423) 2005 [JR PO].

#### *Taraxacum theodori* Lundev. & H. Øllg.

This species was tentatively named by Haglund, but only recently described by Lundevall & Øllgaard (2006). In Sweden and Denmark it is widespread. New to eastern Finland.

Specimens examined. **Kb:** Joensuu, Linnunlahti, Pajutie, roadside lawn, 1 individual (69472:36401) 1999 [HØ JR ER].

#### *Taraxacum trilobatum* Palmgr.

Sonck (1964a) mentioned that he found two populations of *T. subulicuspis* Hagl. in ed. in Lieksa, Märajälähti (Kb) in 1944. Later Sonck described it in Haglund (1983) as a new to species, and he assigned it to section *Crocea*. Lieksa is not mentioned. There was also a note, that *T. subulicuspis* resembles *T. trilobatum*. *T. subulicuspis* was described as a mountain species from Sweden, and most likely it does not grow in Lieksa. Lieksa specimens may represent a species that was previously called *T. trilobatum*. Unfortunately, specimens have not been found to verify this assumption. At that time *T. planum* Raunk. (syn. *T. chloroleucum*) and *T. trilobatum* were treated as a same species (see. *T. planum*) (Øllgaard 1972), and consequently, *T. planum* were commonly misidentified as *T. trilobatum*. All the relevant specimens from the study area have proved to be *T. planum*.

#### *Taraxacum tumentilobum* Markl. ex Puolanne

This species was found to be sparse to fairly sparse by Sonck in Lieksa, with only four localities, and Marklund collected it in Joensuu in 1944. It is currently known from all three neighbouring municipalities and from Kl/Rus in Kurkijoki. Nowadays it is scattered but occasionally frequent. I have collected it in 16 municipalities: Kesälahti,

Värtsilä, Rääkkylä, Pyhäselkä, Joensuu, Liperi, Outokumpu, Kontiolahti, Tuupovaara, Ilomantsi, Lieksa and Juuka in Kb, and in all municipalities in Kl/Fin. It seems to be absent in the NW and N Kb. The species flowers amongst the first ones of dandelions.

***Taraxacum undulatum*** H.Lindb. & Markl.

There are many specimens at H, collected before 1945 in Sortavala (Kl/Rus). For a short period it was almost only dandelion along Malmikatu in the city center of Joensuu. It was probably introduced amongst ornamental plants. It disappeared due to the lawn management. I have collected in neighbouring province Sb, in Leppävirta in 2007.

Specimens examined. Kb: Joensuu, center, Malmikatu 8, near the parking place of Citymarket, under roses (69466:36418) 1988 [JR].

***Taraxacum valens*** Markl.

Previously known from neighbouring provinces Sb and Ok. I have found it in two localities in Joensuu. It has earlier been confused with the closely related *T. sagittipotens* Dahlst. & Ohlsén. In 2003 Hans Øllgaard and I examined collections of both species kept in H, but no Finnish specimens of *T. sagittipotens* were found.

Specimens examined. Kb: Joensuu, Noljakka, Noljakantie, park lawn beside Lykynnurmentie (69491:36389) 2001 [JR]; Joensuu, Linnunlahti, Botania, park lawn, SW-side of greenhouse of the botanical garden (69471:36400) 2008 [JR].

***Taraxacum vanum*** H. Øllg.

This species was described by Øllgaard (1978) based on material collected in Denmark, Jylland. In Finland collected previously only in Ta. I have found it in three localities in Kb. This species may have arrived amongst ornamental plants. During the past few years it has become more frequent in Kontiolahti. In other localities it is sparse.

Specimens examined. Kb: Joensuu, Linnunlahti, Patutie, roadside lawn (69472:36401) 1999 [HØ JR ER]; Kontiolahti, Kontioniemi, flower bed (neglected for years), S-side of the former hospital (69632:36434) 1997 [JR]; Lieksa, center, Asemakatu, SW-end of center lawn of the street (70276:36514) 1999 [HØ JR].

***Taraxacum vastisectum*** Markl. ex Puolanne

This is a rare species in the study area. Sonck collected it in Lieksa, Kevätniemi in 1945, and Marklund and Sonck in Joensuu in the 1944. It was collected by Sonck also in Tuusniemi in 1947, and in Suonenjoki (Sb) in 1948. I have found it in Joensuu and Kontiolahti (Kb). Sparse.

Specimens examined. Kb: Joensuu, center, Papinkatu 10, lawn, S-side of the house (69464:36414) 1999 [JR]; Kontiolahti, Kontioniemi, garden lawn of the former hospital (69631:36434) 2005 [JR].

***Taraxacum volitans*** J. Räsänen

This species is described in this volume (Räsänen 2013). I have found it only in three localities in Joensuu. Sparse. The locality on Hallitie was destroyed because of building the area. The other two localities are within one kilometer to each others.

Specimens examined. Kb: Joensuu, center, Rantakatu 30, side of S-wall, on lawn (69473:36423) 2001 [JR]; Joensuu, center, Torikatu 11, lawn, E-side of the house (69466:36419) 2008 [JR]; Joensuu, Louhela, Hallitie, roadside, near the parking place of ice arena (69467:36409) 2001 [JR].

***Taraxacum xanthostigma*** H.Lindb.

This species was found to be rare by Sonck, with only four localities in Lieksa. Collected by Marklund in Joensuu in 1944, by Sonck in Kuopio (Sb) in 1947, and by Heikkinen in Kajaani and Vuolijoki (Ok) in 1957. Nowadays it is common in the study area, observed by me in 20 municipalities in Kb but only in one in Kl/Fin, Uukuniemi, Niukkala.

## Section *Ceratoidea*

***Taraxacum bicorne*** Dahlst.

In 1986 I collected a specimen in the Joensuu botanical garden, which belongs to this Central Asian section with 6 to 8 species. According to the garden records, dandelions have not been cultivated in the botanical garden. Apparently it has arrived amongst seeds of some other species. The species disappeared after the following winter.

Specimens examined. Kb: Joensuu, Otsola, overgrown outdoor area of the old botanical garden of the University of Joensuu (69475:36412) 1986 [JR].

Table 3. *Taraxacum* species found in Karelia borealis (Kb) and Karelia ladogensis (Kl). Last column lists species found by Sonck in Lieksa 1944–1948.

	Kb		Kl		Lieksa Sonck		Kb		Kl		Lieksa Sonck
	old data	>1985	old data	>1985			old data	>1985	old data	>1985	
<b>Sect. <i>Erythrosperma</i></b>						<i>T. aequilobum</i>	x	x	x	x	x
<i>T. falcatum</i>	x		?		x	<i>T. aethiops</i>	x	x			x
<i>T. fulvum</i>	x	x	x		x	<i>T. alatum</i>	x	x	x	x	x
<i>T. isthmicola</i>	x	x	x	x	x	<i>T. altissimum</i>	x	x			x
<i>T. microlobum</i>	x					<i>T. amaurolepis</i>	x	x			
<i>T. proximum</i>		x				<i>T. amplum</i>	x	x	x	x	x
<i>T. unguatum</i>	x		x		x	<i>T. ancistrolobum</i>		x			
<b>Sect. <i>Boreigena</i></b>						<i>T. angustisquameum</i>	x	x		x	x
<i>T. crassipes</i>	x		x		x	<i>T. arrhenii</i>	x	x			x
<i>T. galeatum</i>	x					<i>T. assurgens</i>	x	x	x	x	x
<b>Sect. <i>Hamata</i></b>						<i>T. bifforme</i>	x	x		x	x
<i>T. fusciflorum</i>		x				<i>T. bisectum</i>		x			
<i>T. hamatiforme</i>	x	x		x	x	<i>T. boreophilum</i>		x		x	
<i>T. hamatum</i>		x				<i>T. borgvallii</i>	x	x			x
<b>Sect. <i>Borea</i></b>						<i>T. breviflorum</i>		x			
<i>T. apicatum</i>	x	x	x		x	<i>T. caloschistum</i>	x	x			x
<i>T. atricapillum</i>		x				<i>T. canentifolium</i>		x			
<i>T. atrimarginatum</i>	x	x	x		x	<i>T. canoviride</i>		x			
<i>T. biformatum</i>	x				x	<i>T. capillosum</i>		x			
<i>T. boreum</i>		x				<i>T. carptum</i>		x			
<i>T. caespitans</i>	x				x	<i>T. caudatulum</i>	x	x			x
<i>T. canaliculatum</i>	x	x	x		x	<i>T. coartatiforme</i>		x			
<i>T. constrictifrons</i>			x			<i>T. coartatum</i>	x	x		x	x
<i>T. cuspidatum</i>		x				<i>T. contractum</i>	x	x		x	x
<i>T. distantilobum</i>			x			<i>T. copidophyllum</i>			x		
<i>T. explicatum</i>			x			<i>T. cordatum</i>		x			
<i>T. guttulatulum</i>	x	x	x		x	<i>T. crebridens</i>		x	x		
<i>T. hamosiforme</i>		x				<i>T. crispatum</i>		x			
<i>T. humile</i>	x	x	x		x	<i>T. crispifolium</i>		x			
<i>T. karelicum</i>	x	x			x	<i>T. croceiflorum</i>	x	x	x		x
<i>T. laceratum</i>	x	x			x	<i>T. cuspidifrons</i>		x	?		
<i>T. lojoëense</i>		x				<i>T. cyanolepis</i>		x			
<i>T. melanostigma</i>		x				<i>T. diastematicum</i>		x		x	
<i>T. mucronatum</i>	x	x	x		x	<i>T. dilaceratum</i>		x			
<i>T. ostenfeldii</i>	x	x	x	x	x	<i>T. dilatatum</i>		x			
<i>T. pastiniferum</i>		x				<i>T. distinctilobum</i>		x			
<i>T. penicilliforme</i>	x	x	x		x	<i>T. ekmanii</i>	x	x		x	x
<i>T. pullum</i>		x				<i>T. erici</i>		x			
<i>T. scalare</i>	x	x	x	x		<i>T. exacutum</i>		x			
<i>T. subpenicilliforme</i>	x		x		x	<i>T. fasciatum</i>	x	x	x	x	x
<i>T. triangulare</i>	x	x	x		x	<i>T. flavostylum</i>		x			
<b>Sect. <i>Macrodonga</i></b>						<i>T. florstroemii</i>	x	x			x
<i>T. tenebricans</i>	x	x		x	x	<i>T. geminatum</i>		x	x		
<b>Sect. <i>Taraxacum</i></b>						<i>T. gibbiferum</i>	x	x	x		x
<i>T. acclidiforme</i>			x			<i>T. glossocentrum</i>	x	x	x		x
<i>T. acroglossum</i>	x	x				<i>T. glossodon</i>		x			
<i>T. acrolobum</i>		x				<i>T. gracilisquameum</i>		x		x	
<i>T. acutangulum</i>		x	x			<i>T. gustavianum</i>	x	x	x	x	x



	Kb		Kl		Lieksa Sonck
	old data	>1985	old data	>1985	
<i>T. haematopus</i>	x				
<i>T. haptolepium</i>	x	x	x	x	x
<i>T. haraldii</i>	x	x	x		
<i>T. hemicyclum</i>	x	x		x	x
<i>T. hepaticum</i>		x			
<i>T. homoschistum</i>		x			
<i>T. horridifrons</i>		x	x		
<i>T. huelphersianum</i>	x	x	x	x	x
<i>T. idiomorphum</i>		x			
<i>T. imitans</i>	x	x			
<i>T. inarmatum</i>		x			
<i>T. index</i>	x	x			x
<i>T. ingens</i>	x				x
<i>T. insuetum</i>		x			
<i>T. intermedium</i>		x			
<i>T. interruptum</i>	x	x	x		x
<i>T. interveniens</i>		x			
<i>T. kjellmanii</i>	x		x		x
<i>T. kupfferi</i>		x			
<i>T. lacinosifrons</i>	x	x			x
<i>T. laeticolor</i>	x	x			x
<i>T. laticordatum</i>		x			
<i>T. latisectum</i>	x	x			x
<i>T. latissimum</i>	x	x		x	x
<i>T. leptodon</i>		x			
<i>T. leptophyllum</i>	x	x	x	x	x
<i>T. leucopodium</i>		x			
<i>T. lingulatum</i>	x	x		x	x
<i>T. longiscuspis</i>		x	x		
<i>T. longisquameum</i>	x	x		x	x
<i>T. lucescens</i>	x	x	x	x	x
<i>T. macranthoides</i>	x	x			
<i>T. maculatum</i>		x			
<i>T. mucronatiforme</i>		x			
<i>T. multilobum</i>	x	x			x
<i>T. mundulum</i>		x			
<i>T. obiquilobum</i>	x	x	x	x	x
<i>T. obnubilum</i>		x			
<i>T. obtusifrons</i>		x			
<i>T. obtusulum</i>	x	x		x	x
<i>T. oistophorum</i>	x	x			
<i>T. ossiclivosum</i>		x			
<i>T. oxycentrum</i>		x			
<i>T. pallescens</i>		x			
<i>T. pallidipes</i>	x	x		x	x
<i>T. pectinatiforme</i>	x	x	x	x	x
<i>T. petterssonii</i>		x			
<i>T. piceatifrons</i>	x	x			x
<i>T. piceatum</i>		x		x	
<i>T. planum</i>	x	x		x	?
<i>T. polyodon</i>	x	x			x

	Kb		Kl		Lieksa Sonck
	old data	>1985	old data	>1985	
<i>T. porcellisinus</i>		x			
<i>T. porrigens</i>			x		
<i>T. praeradians</i>	x	x			x
<i>T. praestabile</i>		x			
<i>T. privum</i>	x				x
<i>T. procerisquameum</i>		x			
<i>T. procerum</i>	x	x			
<i>T. pulcherrinum</i>		x			
<i>T. pulverulentum</i>		x			
<i>T. puolannei</i>	x	x	x	x	x
<i>T. pycnolobum</i>	x				x
<i>T. railonsalae</i>		x			
<i>T. recurvum</i>	x				x
<i>T. retroflexum</i>	x	x	x	x	x
<i>T. sahalinii</i>		x		x	
<i>T. sellandii</i>		x	x		
<i>T. serratifrons</i>		x			
<i>T. sertatum</i>		x			
<i>T. severum</i>		x			
<i>T. sinus-avis</i>		x			
<i>T. sonckii</i>	x		x		x
<i>T. speciosiflorum</i>		x			
<i>T. stenoglossum</i>	x	x	x	x	x
<i>T. stenoschistum</i>	x	x	x		x
<i>T. stereodes</i>		x			
<i>T. subcanescens</i>		x		x	
<i>T. subdahlstedtii</i>		x			
<i>T. subglaucescens</i>	x	x			
<i>T. subhuelphersianum</i>	x	x		x	x
<i>T. subinvestiens</i>		x			
<i>T. sublaeticolor</i>	x	x		x	x
<i>T. submaculosum</i>	x	x	x		x
<i>T. subrubescens</i>	x				x
<i>T. subserratifrons</i>		x			
<i>T. subtile</i>		x			
<i>T. subulatum</i>		x			
<i>T. tanyphyllum</i>	x	x			
<i>T. tenuiforme</i>		x			
<i>T. theodori</i>		x			
<i>T. trilobatum</i>	?				?
<i>T. tumentilobum</i>	x	x		x	x
<i>T. undulatum</i>		x			
<i>T. valens</i>		x			
<i>T. vanum</i>		x			
<i>T. vastisectum</i>	x	x			x
<i>T. volitans</i>		x			
<i>T. xanthostigma</i>	x	x		x	x
<b>Sect. Ceratoidea</b>					
<i>T. bicorne</i>		x			
<b>Total</b>	<b>94</b>	<b>166</b>	<b>51</b>	<b>42</b>	<b>80</b>

## Summary

Comparison of the dandelion flora of Karelia borealis published by Sonck (1949, 1964a) with records made since the 1980s provides fairly accurate data for evaluating changes in the flora. Sonck began to collect material in the 1930s, although it must be kept in mind that his observations were restricted to Lieksa, while my data cover the whole area. In the 1930s the general landscape did not differ much between the North Karelian municipalities, which enabled broader interpretations.

The changes in species composition during the past 50 years have been remarkable. The general trend is that species in the sections *Borea* and *Erythrosperma* have greatly declined, while species in section *Taraxacum* have become more frequent. The main reasons are changes in land use. Traditional farming has mostly ceased, and modern management covers a much smaller area compared to the situation that prevailed 50 years ago. Meadows are rare nowadays, whereas the area of managed lawns is extensive. New species are introduced by the sowing of foreign seeds for lawns and by traffic.

Species associated with traditional farming methods (sections *Borea* and *Erythrosperma*) have not been able to compete with recent aliens (section *Taraxacum*) in modern habitats. Asexual, apomictic breeding prevents adaptation to changing environments. Most dandelions seem to have a fairly narrow ecological niche. When that niche is lost, decline begins, and newly introduced species adapted to modern habitats outcompete previously established species. Humans facilitate this process. Naturally, the rate of change varies between species; some species of the generally declining section *Borea* remain vigorous, while others in section *Taraxacum* are declining.

The former hospital at Kontioniemi became an excellent test field when it closed in the 1990s, having been operational since the end of the 1920s. The territory has now been unmanaged for about ten years. Many species of section *Borea* still grow there, although invasive species from section *Taraxacum* are also gradually becoming more abundant in this refugium.

One reason for the competitiveness of certain species may be minor differences in times of

flowering. When collecting a specimen, I always take the most developed inflorescence, which I keep in a glass of water to obtain ripe seeds. Sometimes seed-eating insects accompany these inflorescences, although I try to select healthy looking heads. The number of insects increases towards the end of the growing season, and this may affect the proportion of seeds that are able to survive. Early flowering species may produce better seeds.

Species of section *Borea* flower somewhat later than those of section *Taraxacum*, which may decrease seed production due to the greater impact of seed-eating insects. Furthermore, achenes are smaller in section *Borea* and have lower rates of germination, while their initial growth rates are also lower than in section *Taraxacum*. This may be a competitive advantage for the latter section, but this observation needs to be experimentally tested.

Species of the section *Erythrosperma* favour drier habitats than other dandelions, which may be another reason for their decline. Many such habitats have become overgrown during the last few decades. Dandelions do not have a seed bank, so they require continuous seed set to survive. Nowadays their favourite open dry habitats are too fragmented to ensure successful spreading between suitable habitats.

The vicinity of the former hospital at Kontioniemi clearly has the greatest diversity of dandelions. Its old lawn hosts many species that have disappeared from other areas, such as those of section *Borea*: *T. laceratum*, *T. apicatum*, *T. boreum*, *T. scalare*, *T. karelicum*, *T. canaliculatum*, *T. guttulatum* and *T. humile*, and also *T. penicilliforme* and *T. ostensfeldii*, which may still be encountered elsewhere. The diversity of section *Erythrosperma* is also greatest here, as represented by *T. proximum*, *T. fulvum* and *T. isthmicola*.

The section *Taraxacum* is also very diverse at Kontioniemi. *Taraxacum submaculosum* and *T. canentifolium* represent older elements, and the number of aliens has increased in recent decades. The most recent introductions, *T. vanum*, *T. subdahlstedtii*, *T. inarmatum* and *T. sertatum*, have clearly arrived amongst ornamental perennials. Altogether, 51 species of dandelions have been found at Kontioniemi.

The vicinity of my home at Linnunlahti, Joensuu, is also rich in dandelions. Recent aliens from section *Taraxacum* dominate. In 1999 I counted 52 species, making a total of 74 since 1986. During this period many changes have occurred, including continuous renovation of lawns and streets, and cultivation of new ornamentals. As a result, the dandelion flora is less diverse today than it was in the 1990s. Two new species have been described from this area (Räsänen 2013): *T. coartatifforme* and *T. sinus-avis*. Concerning Joensuu and eastern Karelia as a whole, the following species have been found in my home region only: *T. homoschistum*, *T. sellandii*, *T. crispatum*, *T. dilaceratum*, *T. leucopodium*, *T. insuetum*, *T. flavostylum*, *T. kupfferii*, *T. fusciflorum* (section *Hamata*), and *T. pastiniferum* (section *Borea*). *Taraxacum acutangulum*, *T. laticordatum*, *T. hepaticum*, and *T. lojoëense* (section *Borea*) all have a single additional locality outside this area. The third most species rich area is Möhkö in Ilomantsi parish, with 44 species of *Taraxacum*.

Until now 182 species of *Taraxacum* have been found in Kb and 75 in Kl/Fin, with 188 species in total. These belong to the following sections: *Erythrosperma* (6), *Boreigena* (2), *Hamata* (3), *Borea* (26), *Macrodonta* (1), *Taraxacum* (149), and *Ceratoidea* (1). In addition there are some unnamed specimens, mostly belonging to section *Taraxacum*, but some also to section *Borea*. Under the present conditions, the species of section *Borea* may be lost before they are discovered, because the rate of decline is so rapid.

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