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Taxonomic and Nomenclatural Revision of *Centaurea subjacea (Asteraceae-Cardueae)* and Similar Taxa

By

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With 4 Figures

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Summary

KOUTECKÝ P. 2009. Taxonomic and nomenclatural revision of *Centaurea subjacea (Asteraceae-Cardueae)* and similar taxa. – Phyton (Horn, Austria) 49 (1): 63-76, with 4 figures.

Centaurea subjacea (BECK) HAYEK has been recognised in specific or subspecific rank [*C. jacea* subsp. *subjacea* (BECK) HYL.] in the majority of Central European floras since the beginning of 20th century. It is reported as similar to *C. jacea*, but differing from it especially in the regularly fimbriate margin of the appendages of the involucral bracts. However, the revision of *Centaurea* sect. *Jacea* (MILL.) DC. in Central Europe has shown that no such delimited taxon can be recognised. Material marked as *C. subjacea* by previous authors proved to include mainly various hybrids between *C. jacea* L. and other taxa of the section. The usual morphological delimitation of *C. subjacea* is in conflict with the protologue of the basionym. According to the protologue and the original material, *C. subjacea* is identical with *C.* ×*preissmannii* HAYEK (*C. jacea* L. × *C. macroptilon* BORBÁS) and therefore preference is given here to the latter as binary name for this hybrid. The same holds for the putative hybrid *C. jacea* × *C. subjacea* (*C.* ×*stiriaca* HAYEK). Another little known morphologically similar taxon is discussed, too: *C. stohlii* HAYEK. Although described as non-hybrid, according to the original material it is a hybrid between *C. jacea* and some other (not identifiable) taxon of *Centaurea* sect. *Jacea.*

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Zusammenfassung

KOUTECKÝ P. 2009. Taxonomic and nomenclatural revision of *Centaurea subjacea (Asteraceae-Cardueae)* and similar taxa. [Taxonomische und nomenklatorische Revision von *Centaurea subjacea (Asteraceae-Cardueae)* und ähnlicher Taxa]. – Phyton (Horn, Austria) 49 (1): 63–76, mit 4 Abbildungen.

Centaurea subjacea (BECK) HAYEK wurde im Rang der Art oder Unterart [*C. jacea* subsp. *subjacea* (BECK) HYL.] seit Beginn des 20. Jahrhunderts in der Mehrzahl der mitteleuropäischen Floren geführt. Sie wird als ähnlich zu *C. jacea* angesehen, soll von dieser aber vor allem durch den regelmäßig gefransten Rand der Hüllblattanhängsel verschieden sein. Dagegen hat die Revision von *Centaurea* sect. *Jacea* (MILL.) DC. in Mitteleuropa gezeigt, daß kein so umgrenztes Taxon faßbar ist. Es wurde nachgewiesen, daß als *C. subjacea* deklariertes Material früherer Autoren hauptsächlich verschiedene Hybriden zwischen *C. jacea* und anderen Taxa der Sektion umfaßt. Die übliche morphologische Umgrenzung von *C. subjacea* steht im Widerspruch zum Protolog des Basionyms. Aufgrund der Protologs und des Originalmaterials ist *C. subjacea* mit *C.* ×*preissmannii* HAYEK (*C. jacea* L. × *C. macroptilon* BORBÁS) identisch; daher wird hier letzterem Namen als binärer Name für diese Hybride der Vorzug gegeben. Die mutmaßliche Hybride *C. jacea* × *C. subjacea* (*C.* ×*stiriaca* HAYEK) gehört der selben Hybridkombination an. Ein ähnliches, morphologisch wenig bekanntes Taxon wird ebenfalls diskutiert: *C. stohlii* HAYEK. Wenn auch als nicht-hybrid beschrieben, handelt es sich nach dem Original-Material ebenfalls um eine Hybride von *C. jacea* und irgendeinem anderen (nicht identifizierbaren) Taxon von *Centaurea* sect. *Jacea*.

1. Introduction

Centaurea sect. *Jacea* (MILL.) DC. [sometimes treated as *C.* subgen. *Jacea* (MILL.) HAYEK or as genus *Jacea* MILL.], is one of the taxonomically difficult groups of Central European flora. The main problems are the large morphological variation of individual taxa together with their morphological similarity, polyploidy, and frequent hybridisation. In Central Europe there are about 20 taxa recognised at the level of species or subspecies (e.g. DOSTÁL 1976), and many taxa at lower ranks have also been described. Some taxa are little known and their morphological variation and geographical distribution are obscured. In addition, numerous hybrids both within the section and with other groups of the genus *Centaurea* have been published. The taxonomic complexity has led to a confusing nomenclatural situation.

One of the poorly understood groups is a very polymorphic complex of taxa with fimbriate appendages of involucral bracts, generally similar to *C. jacea* L. sensu stricto. This group includes (a) hybrids between *C. jacea* and other taxa of the section (henceforth referred to as *C. jacea* hybrids), and (b) several taxa considered as non-hybrids, to which belong in Central Europe namely *C. subjacea* (BECK) HAYEK, the almost unknown *C. stohlii* HAYEK, and a pair of the somewhat more distant taxa *C. macroptilon* BORBÁS and *C. oxylepis* (WIMM. & GRAB.) HAYEK (the latter two taxa sometimes

treated as subspecies of *C. macroptilon*). All these taxa resemble *C. jacea* in their overall habitus (stem branched above the middle, capitula solitary), the size of capitula (involucre ca 1–1.5 cm in diameter), leaves (linear to lanceolate, often with a few pairs of distinct teeth or lateral lobes), and the absence of a pappus. However, they differ from *C. jacea* in the shape of appendages of involucral bracts, which is the most often used determination character in the genus. *C. jacea* has rounded and entire or only slightly denticulate appendages, while in the other taxa the appendages are ovate to triangular and regularly or irregularly fimbriate on margin. For *C. jacea* hybrids, irregular fimbriation is typical with individual fimbriae differing in length and fused into small groups. In *C. macroptilon* and *C. oxylepis* the appendages are even more different, i. e. narrowly triangular, with long terminal fimbriae, and recurved outwards from the involucre (similarly as in *C. phrygia* agg.) (e.g. DOSTÁL 1976, ŠTĚPÁNEK & KOUTECKÝ 2004, FISCHER & al. 2008). Populations of *C. jacea* hybrids are often fertile and capable of back-crossing, which leads to introgressive hybridisation and formation of extensive hybrid swarms (ŠTĚPÁNEK & KOUTECKÝ 2004).

Taxonomic treatments of the whole complex are somewhat controversial. Some authors (more recent e.g. WAGENITZ 1987, SCHUBERT & VENT 1994, KUBÁT & al. 2002, FISCHER & al. 2008) treat *Centaurea subjacea, C. macroptilon* or *C. oxylepis* as subspecies within a broadly defined *C. jacea* [*C. jacea* subsp. *subjacea* (BECK) HYL., *C. jacea* subsp. *macroptilon* (BORBÁS) HAYEK, *C. jacea* subsp. *oxylepis* (WIMM. & GRAB.) HAYEK, respectively] and they do not formally recognise hybrids between them. However, such a broadly defined *C. jacea* is morphologically quite heterogeneous and, moreover, this broad delimitation is not consistent with that of other groups within the section *Jacea* (e.g. *C. phrygia* agg.), in which taxa of similar level of morphological divergence are treated as species by the same authors. If hybrids between subspecies of a broadly defined *C. jacea* were considered, they should be treated as nothosubspecies, while hybrids with other taxa of the section retain recognition as interspecific hybrids. For the impractical use of (notho)subspecific rank and clear morphological and geographical distinctness of some taxa (especially *C. macroptilon* and *C. oxylepis*), a different approach is adopted in this paper. Hence, following e.g. DOSTÁL 1976, DOSTÁL 1989, DOSTÁL & ČERVENKA 1992, ŠTĚPÁNEK & KOUTECKÝ 2004, all non-hybrid taxa are recognised as separate species different from *C. jacea* and all hybrids are considered as interspecific hybrids. Moreover, the non-hybrid status of *C. subjacea* is questioned by some authors (e.g. WAGENITZ 1987, ŠTĚPÁNEK & KOUTECKÝ 2004) and thorough revision of this taxon is needed.

Centaurea subjacea (BECK) HAYEK is recognised as species or subspecies for more than 100 years in many floras, determination keys or distribution atlases (more recent e.g. DOSTÁL 1976, DOSTÁL 1989, DOSTÁL &

Červenka 1992, Meusel & Jäger 1992, Schubert & Vent 1994, Martinčič & al. 1999, Kubát & al. 2002, Fischer & al. 2008). Subsequently, it is accepted in composite works such as Flora Alpina (Aeschimann & al. 2004) and in numerous local floristic or phytosociological works. It was described from Austria and its occurrence is reported from Germany, the Czech Republic, Slovakia, Poland, Austria, Hungary, Italy, Slovenia, Bosnia and Herzegovina, and Romania (floras cited above, and Euro+Med PlantBase <http://www.emplantbase.org/>). As an adventive plant, it is also known from Scandinavia (e.g. Hylander 1945). On the other hand, *C. subjacea* is not recognised in recent German literature or the name is assigned to hybrids between *C. jacea* and other taxa (e.g. Wagenitz 1987, Ochsmann 1998, Jäger & Werner 2005). Similarly, during the revision of *Centaurea* sect. *Jacea* in the Czech Republic and Slovakia (Štěpánek & Koutecký 2004, Koutecký 2007) no non-hybrid taxon that could correspond to *C. subjacea* was identified. Herbarium vouchers determined as *C. subjacea* by their collectors usually proved to be various *C. jacea* hybrids. As a hybrid between *C. jacea* s. lat. and *C. nigrescens* s. lat. it is mentioned from Italy (Pignatti 1982) and partly from Austria (Fischer & al. 2008).

The morphological delimitation of *Centaurea subjacea* reported by individual floras and determination keys remains virtually unchanged since Hayek's monograph of *Centaurea* of the Austro-Hungarian Monarchy (Hayek 1901) where the first detailed description of the taxon and its first illustration appeared. However, this is not the original description by Beck 1893, which is rather brief and vague. *C. subjacea* is usually described as morphologically close to *C. jacea*, but with fimbriate appendages of the involucral bracts. The appendages are reported as relatively large, those of the middle involucral bracts about 5–7 mm long, (broadly) triangular to ovate, straight (not recurved), blackish or brown, with the margin regularly fimbriate. There should be ca. 10–15 fimbriae on each side of the appendage, the lateral fimbriae ca. 2 mm long, the single terminal fimbria as long as or longer than the lateral ones (Fig. 1). Nevertheless, this morphological delimitation is in certain discrepancy with the protologue of the basionym.

The taxon was described by G. Beck in his Flora von Niederösterreich (Beck 1893) under the name *C. decipiens* f. *subjacea* Beck. The original description reads (p. 1263, translation from German): "Leaves undivided, the lower elliptic, petiolate, the upper oblong to oblong-lanceolate, often more than 1 cm wide. Appendages of involucral bracts brown, rarely black, the lower lighter or of the same colour. *Centaurea jacea* β [*genuina*] with fimbriate appendages of involucral bracts". Similarly, the other form of *C. decipiens* recognized by Beck 1893, *C. decipiens* f. *typica*, is characterised as "*Centaurea jacea* α [*angustifolia*] with fimbriate appendages of involucral bracts". It therefore seems that *C. decipiens* in Beck's concept

included plants similar to *C. jacea* (in recent nomenclature either *C. jacea* subsp. *angustifolia* GREMLI or *C. jacea* L. subsp. *jacea*), but differing in fimbriate appendages of involucral bracts. Nevertheless, it should not be understood as "regularly fimbriate". BECK's Flora von Niederösterreich is ordered as a dichotomous determination key. The crucial information on the shape of appendages of involucral bracts that has generally been overlooked is hidden in point 8a. of the key (BECK 1893: 1260; translation from German): "Appendages of outermost involucral bracts fimbriate, each of following less fimbriate, on middle bracts large, rounded, here and there radially dissected, only on a tip finely fimbriate, on the inner and innermost bracts undivided, only denticulate on margin.". Such a shape fits on *C. jacea* hybrids well. In addition, there is no taxon in BECK 1893 that could correspond to a "modern" delimitation of *C. subjacea*. It all suggests that the name *C. subjacea* belongs to some hybrid of *C. jacea*. However, to confirm this working hypothesis, original herbarium material must be revised.

A hybrid between *C. jacea* and *C. subjacea* was described by HAYEK 1901 under the name *Centaurea* × *stiriaca* HAYEK. The localities given are the same as those given for *C. subjacea* or near to them. Hence, if *C. subjacea* itself is some hybrid, it is the most probable that the taxon *Centaurea* × *stiriaca* includes the same hybrids, only with individuals closer to *C. jacea* than to the other parent (probably back-crosses).

Beside *C. subjacea*, one more similar putatively non-hybrid taxon had been described in the past: *Centaurea stohlii* HAYEK. It should be similar to *C. subjacea*, differing in narrower leaves, smaller capitula and only the outermost bracts fimbriate (HAYEK 1901). Only one locality was known: Altmünster, Austria. The taxon was later merged with *C. subjacea* (HAYEK 1918) and faded into oblivion. It seems that also *C. stohlii* could in fact be some *C. jacea* hybrid, but revision of the original material is necessary.

2. Material and Methods

The descriptions of *Centaurea subjacea, C. stohlii* and several hybrids described from Austria are based on herbarium material stored in herbaria W and WU or private herbaria of several Austrian botanists of that time that later became also incorporated into these two large collections. In addition, part of the original material of G. BECK stored in PRC (STAFLEU & COWAN 1976) was also revised. Since BECK 1893 also cites *C. jacea* β *pectinata* NEILR. as a synonym of *C. decipiens* f. *subjacea* and some localities are identical in BECK 1893 and NEILREICH 1859, NEILREICH's herbarium (W; kept separately) was also studied.

Revision of herbarium material covering a major part of the reported distribution of *Centaurea subjacea* is based on rich material from several major Central European herbaria (esp. BP, BRA, BRNU, BRNM, CL, PR, PRC, W, and WU; altogether several thousands specimens of *Centaurea* sect. *Jacea*) and on own field experience. Within a previous study in the Czech republic and Slovakia c. 20 smaller

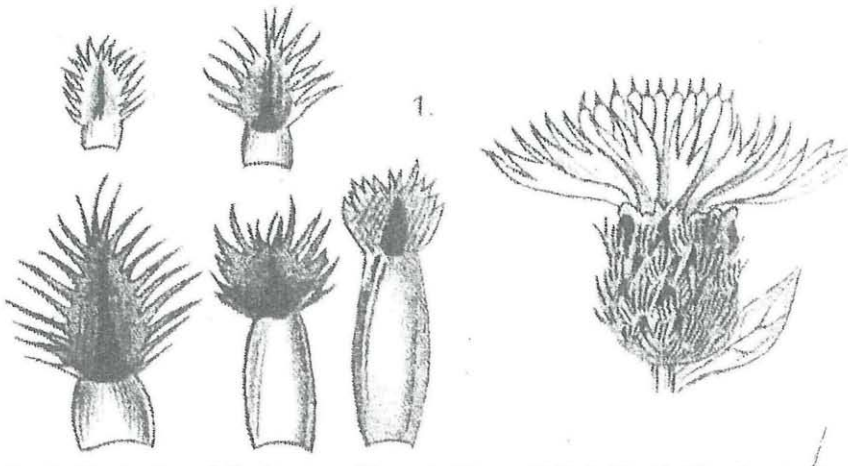

Fig. 1. Illustration of *Centaurea subjacea* in HAYEK 1901 (table 10, Fig. 1) – the first illustration of this taxon ever. A similar shape of appendages of involucral bracts is described / depicted in the majority of floras later on.

public herbaria were also visited (CB, GM, HOMP, HR, CHOM, LIM, LIT, MJ, MP, OL, OLM, OSM, PL, ROZ, SAV, SLO, SOB, SOKO, ZMT).

A distribution map of *C. jacea, C. subjacea* and *C. macroptilon* in Austria was prepared on a basis of data from the mapping project "Floristische Kartierung Österreichichs" <http://data.gbif.org/datasets/resource/1497> supplemented with herbarium material revised by the author (esp. W, WU). The distribution data of *C. jacea* and *C. macroptilon* from the mapping project are generally in accordance with revised herbarium vouchers and are probably little distorted by misidentifications. In opposite, various taxa are determined as *C. subjacea* (esp. various hybrids, but also *C. macroptilon* or *C. nigrescens*). Hence, the data of *C. subjacea* from the mapping project could not be considered. The map was prepared using DMap 7.1 software <http://www.dmap.co.uk/>.

3. Results and Discussion

3.1. Original Material of *Centaurea subjacea*

Nine localities are given in the protologue of *C. subjacea* (BECK 1893): „um Gloggnitz, am Semmering, bei Annaberg, Wienerbrückl [nowadays Wienerbruck], Josefsberg, Mariazell, Oberndorf nächst Scheibbs [Oberndorf an der Melk], um Seitenstetten, bei Goyß [Jois]". Voucher specimens were likely seen by BECK from all localities. However, the search in herbaria PRC and W yielded only three sheets that unambiguously are part of the original material. All are duplicates of a single collection from 25.7.1886 by L. KELLER near the town of Semmering (Austria, coordinates 47°38'N, 15°49'E). All are kept in W under nos. 1912–10665, 1927–22502, and 1994-4712. The first one (Fig. 2, 3) is the most suitable as a lectotype

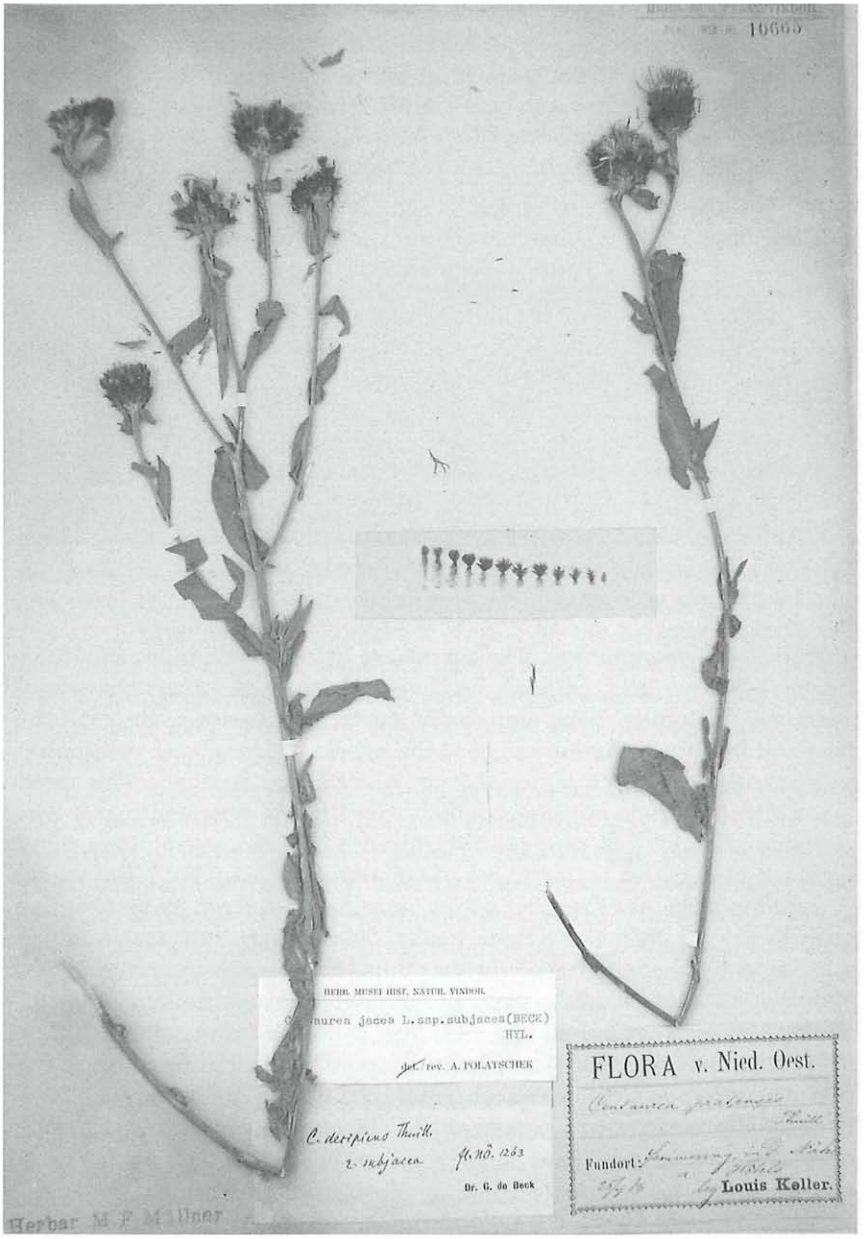

Fig. 2. The lectotype of *C. decipiens* f. *subjacea* BECK (W 1912–10665).

(see below) of the name *Centaurea decipiens* f. *subjacea* BECK. It is perfectly consistent with the morphological data in the protologue, it was part of M. F. MÜLLNER's private herbarium, which was one of the main sources for BECK 1893, and it bears BECK's handwritten revision label identifying it as *C. decipiens* f. *subjacea*.

All three cited sheets bear similar plants that are hybrids with certainty, for they have the typical irregular shape of appendages of involucral bracts (Fig. 3). One parent is *C. jacea*, the other is with highest

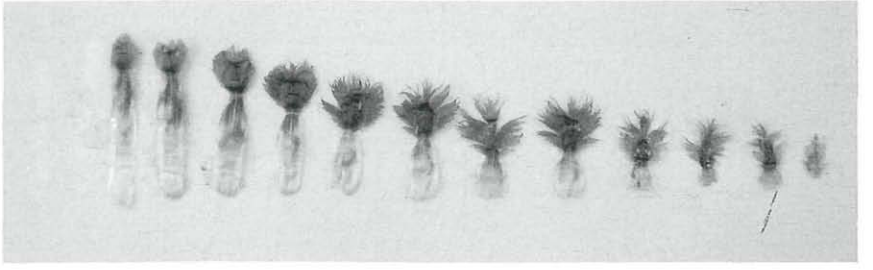

Fig. 3. Detail of the plate with involucral bracts from the lectotype of *C. decipiens* f. *subjacea* BECK (W 1912–10665).

probability *C. macroptilon*. The plants are more or less intermediate between these two taxa, they do not diverge from them in any remarkable character (including shape and size of leaves, indumentum, etc.) and they fully fall into the variation range of the hybrid *C. jacea* × *C. macroptilon* as documented by rich material from Austria and Hungary. The second taxon with fimbriate appendages that occurs in the surroundings of Semmering and which can produce hybrids with *C. jacea* resembling original plants of *C. subjacea* is *Centaurea pseudophrygia* C. A. MEY. Nevertheless, *C. pseudophrygia* is characterized by very long and strongly recurved appendages, hairy stems and wide leaves. These characters are usually to some extent preserved in its hybrids, while they are absent on the original plants of *C. subjacea*. Moreover, *C. pseudophrygia* is diploid (2n = 22), while *C. jacea* is tetraploid (2n = 44) (e.g. DOBEŠ & VITEK 2000, KOUTECKÝ 2007, MARHOLD & al. 2007) and hybridisation between different ploidy levels is very rare in *Centaurea* sect. *Jacea* (GARDOU 1972, HARDY & al. 2001). Hence, determination of *C. subjacea* as *C. jacea* × *C. pseudophrygia* can be rejected.

The determination of *C. subjacea* as *C. jacea* × *C. macroptilon* is consistent with the distribution of both parental taxa. *C. jacea* is widespread in Austria except for the highest parts of the Alps, while *C. macroptilon* is restricted to its southeastern part (Carinthia, Styria, Burgenland). The majority of original localities of *C. subjacea* from BECK 1893 lies at the northern border of the *C. macroptilon* distribution, where a zone of in-

trogressive hybridisation could be expected (Fig. 4). Analogous situations are known in other taxa of *Centaurea* sect. *Jacea*, e.g. "intermediate populations" between *C. pseudophrygia* and *C. stenolepis* and *C. phrygia* and *C. oxylepis*, respectively (KOUTECKÝ 2007).

In conclusion, the name *C. subjacea* belongs to the hybrid of *C. jacea* × *C. macroptilon* (= *C.* ×*preissmannii* HAYEK) and should therefore be omitted in the sense of an autonomous non-hybrid taxon from the Central European flora.

3.2. Revised Herbarium Material of *C. subjacea*

A survey of herbarium material has confirmed that also in all parts of the alleged distribution area of *C. subjacea* there is no clear non-hybrid taxon that could be marked by this name. Plants determined as *"C. subjacea"* or *"C. jacea* subsp. *subjacea"* by their collectors (c. 500 sheets altogether) can be assigned mainly to various *C. jacea* hybrids. In the Czech Republic and Slovakia, i.e. in the northern part of the alleged distribution of *C. subjacea*, the vast majority of specimens are *Centaurea jacea* × *C. oxylepis*. Hybrids with other taxa occurring in that area (e.g. with *C. phrygia* L., *C. nigrescens* WILLD.) are also present in the studied material. Sometimes the name *C. subjacea* is erroneously applied to non-hybrid taxa such as *C. oxylepis* or *C. nigrescens*. Similarly, the hybrids *C. jacea* × *C. macroptilon* prevail in the material from the southern part of the area, i. e. Austria, Hungary, Slovenia, and Romania and sometimes the name *C. subjacea* is used for *C. jacea* × *C. phrygia, C. jacea* × *C. nigrescens, C. nigrescens* or *C. macroptilon.*

In fact, specimens corresponding exactly to the morphology of *C. subjacea* as usually described in literature were found very rarely in the studied material. Populations of *C. jacea* hybrids are very polymorphic and plants with almost regularly fimbriate appendages occasionally occur (compare MARSDEN-JONES & TURRILL 1954, where variation of various progeny from experimental hybridisation of *C. jacea* × *C. nigra* is documented in detail). However, under detailed study and taking other characters (leaves, pappus, etc.) into consideration they usually prove to be also *C. jacea* hybrids.

3.3. *Centaurea* ×*stiriaca*

Centaurea ×*stiriaca* HAYEK was described as the hybrid between *C. subjacea* and *C. jacea*. From the original material (see below), it is clear that HAYEK used this name for some *C. jacea* hybrid. Although the type specimens are quite close to *C. jacea* (probably back-crosses) and the certain determination of the second parent is difficult from morphology alone, it is most probable that *C.* ×*stiriaca* includes the same hybrid *C. jacea* × *C. macroptilon* as *C. subjacea*. There are no morphological characters contradictory to such a determination and the localities given in the pro-

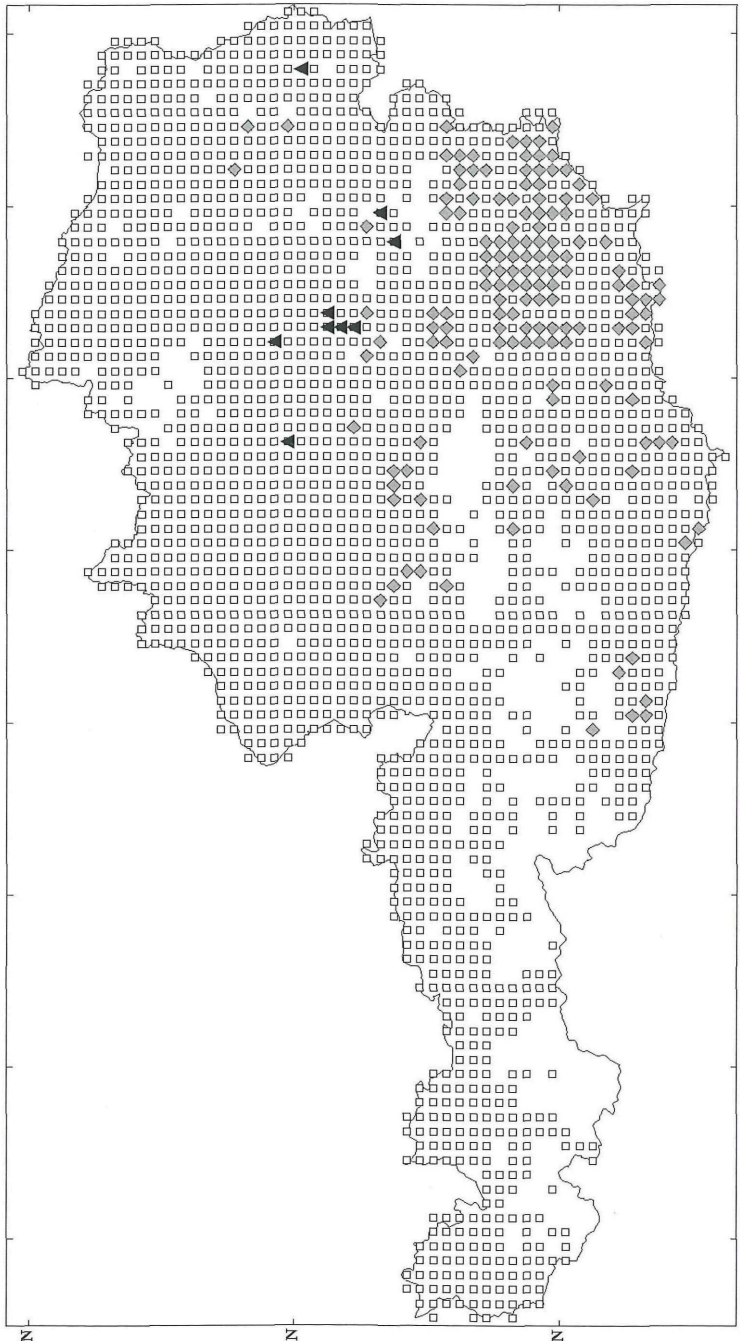

Fig. 4. Distribution of *C. jacea* (white squares) and *C. macroptilon* (grey diamonds) in Austria and the localities from the protologue of *C. subjacea* (black triangles) in 5' × 3' grid net. Note that *C. jacea* was also recorded in all grid cells with *C. subajcea* localities and in all but one grid cells where *C. macroptilon* occurs.

tologue (HAYEK 1901) are the same as those given for *C. subjacea* or near to them. Several are from the surroundings of Semmering, which is the lectotype locality of *C. subjacea*.

3.4. *Centaurea stohlii*

The description of *Centaurea stohlii* HAYEK is based on a few specimens from Altmünster at the northern foothills of the Alps (HAYEK 1901). They all are *C. jacea* hybrids for sure, but they are so close to *C. jacea* that it is not possible to identify the second parent.

3.5. Nomenclature

The present study has shown that there are three names corresponding to the hybrid *C. jacea* × *C. macroptilon*, irrespective that some of them include back-crosses rather than first filial generation hybrids (Art. H4 of the International Code of Botanical Nomenclature; MCNEILL & al. 2006). They are: *Centaurea* ×*preissmannii* HAYEK, *C.* ×*subjacea* (BECK) HAYEK pro sp., and *C.* ×*stiriaca* HAYEK. They were all published simultaneously by HAYEK 1901 and they have equal priority. Nevertheless, only the name *Centaurea* ×*preissmannii* was used to denote this hybrid in the past, while the other two names were considered as belonging to other taxa. To avoid further confusion, the use of the name *Centaurea* ×*preissmannii* HAYEK is to be kept and the other two names are to be treated as its synonyms.

3.6. Typification

In order to stabilise nomenclature of the whole complex, typification of all names discussed above is provided here. For each name, a list of respective type specimens is given. Comments (e.g. recent geographical names) are given in brackets.

Centaurea ×*subjacea* (BECK) HAYEK Denkschr. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 70: 712, 1901 (pro sp.)

Basionym: *Centaurea decipiens* f. *subjacea* BECK, Flora von Niederösterreich, 2: 1263, 1893

Lectotype (designated here): W 1912–10665 "Centaurea pratensis Thuill. Semmering, in d. Nähe d. Hôtels", 25.7.1886 legit L. KELLER [specimen from M. F. MÜLLNER's herbarium, the only from the three duplicates that was studied by BECK for sure]

Isolectotypes: W 1927-22502, W 1994-4712.

Centaurea ×*stiriaca* HAYEK, Denkschr. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 70: 711, 1901

Lectotype (designated here): WU 43232 "Centaurea Jacea L. δ. commutata Koch. Centaurea nigrescens Db. Wiese in der Voralpenregion des

Sonnwendsteins", 07.1869 legit SONKLAR [Collector's name not on the label; the sheet including the collector is cited by HAYEK 1901.]

Syntypes: W 1919–17203 "Centaurea pratensis Th. Austr. Inf. Semmering", 26.7.1886 legit K. RICHTER; WU 43231 "Centaurea decipiens Thuill. In regione Eichberg prope Gloggnitz", 21.7.1888 legit K. RICHTER.

Centaurea × *stohlii* HAYEK, Denkschr. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 70: 710, 1901 (pro sp.)

Lectotype (designated here): WU 43235 "Centaurea jacea L. Ebenzweier – Altmünster", 07.1888 legit STOHL.

Syntypes: WU 43233 "Altmünster b. Gmunden", (sine dat.) legit STOHL; WU 43234 "Altmünster b. Ebenzweier, Ob. Oesterreich", (sine dat.) legit STOHL.

Centaurea × *preissmannii* HAYEK, Denkschr. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 70: 714, 1901 ("Preissmanni")

Lectotype (designated here): W 1919–17197 "Centaurea. Untermischt zwischen typischer C. jacea L. und der Form C. macroptilon Borbás an Waldrändern bei Fürstenfeld", 22.8.1890 legit E. PREISSMANN.

Syntypes: W 1919–17198 "Centaurea jacea var. ζ pratensis Koch. Buschige Raine bei Fürstenfeld", 13.8.1885 legit E. PREISSMANN; W 1919–17199 "Centaurea jacea L. Waldränder bei Fürstenfeld, 280 m", 22.8.1890 legit E. PREISSMANN [this sheet originally bore three plants, but two of them were recently separated and are now kept under no. W 17123]; W 1919–17201 "Centaurea jacea L. var. γ decipiens Koch. Auf buschigen, sonnigen Berglehnen bei Marburg [Maribor, Slovenia], 300 m", 24.7.1883 legit E. PREISSMANN; W 1919–17202 "Centaurea jacea L. var. γ lacera Koch. In lichten Bergwäldern bei den 3 Taichen nächst Marburg in Steiermark [Maribor, Slovenia], 390 m", 20.8.1882 legit E. PREISSMANN; W 17123 [see W 1919–17199 for details]; WU 43227 "Centaurea Preissmanni Hay. (jacea × macroptilon). Steiermark: Waldrand bei Wöllan [Velenje, Slovenia]", 4.8.1898 legit A. HAYEK.

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