Typification of several names of the Cerastium alpinum group (Caryophyllaceae)

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Typification of several names of the *Cerastium alpinum* group *(Caryophyllaceae)*

Abstract

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The names *Cerastium eriophorum*, *C. villosum*, *C. lanatum*, *C. alpinum* subsp. *babiogorense* and *C. transsylvanicum* are typified. *C. eriophorum (= C. villosum)* is the correct name for the diploid populations of the *C. alpinum* group from the Balkan mountains, Carpathians and Eastern Alps. *C. lanatum* is only applicable to densely hairy forms of the tetraploid *C. alpinum* s. str., and *C. alpinum* subsp. *babiogorense* is synonymous to this latter name. *C. transsylvanicum* is the correct name for the hexaploid taxon of the *C. alpinum* group, endemic to the Carpathians.

1. Introduction

A detailed study of the *Cerastium alpinum* group in the Eastern Alps, Carpathians and Balkan mountains, performed by the first author, revealed that the diploid (2n = 36), tetraploid (2n = 72) and hexaploid (2n = 108) populations occurring in this area should be classified as separate taxa (Boşcaiu 1996).

While plants shown to represent hexaploids are generally recognized as a separate taxon (*C. transsilvanicum* Schur), the decisive morphological differences between the diploids and tetraploids in the Eastern Alps and Carpathians remained practically unnoticed up to now. Recent Floras covering this area (e.g., Prodan 1953, Jalas & al. 1964, 1993) considered all lanate *Cerastia* either as *"C. lanatum"*, or *"C. alpinum* subsp. *lanatum"*, or *"C. alpinum* var. *lanatum"* making no distinction between the plants we know today as diploids or tetraploids. The diploids, however, differ from the tetraploids in the number of hair cells and the length of hairs on the fertile and sterile branches, as well as in the size of the stomata and pollen grains. In contrast, characters considered up to now as important for the distinction between *C. alpinum* L. and *C. lanatum* Lam. (e.g., the lanate indumentum) seem to have much lower taxonomic value. Such a change of concept obviously should have nomenclatural consequences. The aim of the present paper is to typify several names of taxa described within this group, in order to determine their accurate application and to select the correct names for the taxa currently recognized.

The oldest valid name in this group, *Cerastium alpinum* L., Sp. Pl.: 438. 1753, was lectotypified recently by Jonsell & Jarvis (1994) by the specimen No. 192 from Linnaeus's Lapland Herbarium in Paris. We had no possibility to study this specimen. However, as only tetraploid chromosome numbers (2n = 72) are known from Scandinavia (e.g., Löve & Löve 1944, Söllner

1954, Engelskjøn 1979, Borgen & Elven 1983) it can safely be assumed that this specimen, collected in Lapland, belongs to the tetraploids in the group.

The other names relevant in the present context, i.e. *Cerastium eriophorum* Kit., *C. villosum* Baumg., *C. lanatum* Lam., *C. alpinum* subsp. *babiogorense* Zapał. and *C. transsylvanicum* Schur, have not yet been typified.

2. Typifications

2.1. *Cerastium eriophorum* Kit. in Schultes, Österr. Fl. 1, ed. 2: 694. 1814. – Neotype (designated here): "In summis alpibus Scepusii", *Kitaibel*, Herb. Kitaibelianum, Fasc. XIII, No. 365 (BP!).

Protologue:

> "1672. Wollenhaariges H. [*C. eriophorum*, Kit.]
> *Elliptisch lanzettenförmige, stumpfe, an den nicht blühenden Stängeln verkehrt-eyförmige Blätter; die Stängel wollig; die Blätter verkehrt-herzförmig; die Kapseln 2mahl so lang als der Kelch. Prof. Kit.
> C. laineux Fl. fr. n. 4401?
> (Auf den Alpen der Tatra. A. Rochel scheint es auch auf den Karpathen gefunden zu haben)."

It is evident from the protologue that Schultes published a name and diagnosis supplied by Kitaibel. Following the Code (Greuter & al. 1994) the name must be attributed to Kitaibel and its type be selected from Kitaibel's material.

According to Stafleu & Cowan (1979: 555) Kitaibel's herbarium is deposited in BP, and according to Chaudhri & al. (1972: 364) specimens collected by Kitaibel can be found also in B, BM, BR, C, G-DC, H, M, PR and PRC. There are two relevant specimens in BP (Jávorka 1926–45) labelled as follows:

(1) Herb. Kitaibel. Fasc. XIII. No. 365: "*C. eriophorum* ß. Pro tomentosi varietate a Mauksch, pro latifolio a Willdenow habitum, sed ab hoc (secundum Smithii descriptionem) diversum foliis obovatis, obtusis, pilosissimis, pilis longis. Pedunculo bracteis linearibus instructo hirsuto. In summis alpibus Scepusii Augusto; *C. lanatum* Lam., revid. Borza";
(2) Herb. Kitaibel. Fasc. XIII. No. 366: "*C. eriophorum* mihi. In pascuis alpestribus Scepusii copiosum Junio, Julio; *C. lanatum*, revid. Borza".

Both localities "In summis alpibus Scepusii" and "In pascuis alpestribus Scepusii" refer to the subalpine and alpine belt of the Vysoké Tatry and Belianske Tatry Mts in Slovakia, thus the location "Auf den Alpen der Tatra" mentioned in the protologue perfectly agrees with these specimens. Both labels are written in Kitaibel's hand, but both lack a collecting date, and thus it can not be safely proven that they represent original material. It should be noted, however, that only few specimens (Jávorka 1926–45) in the Herbarium Kitaibelianum in BP bear collecting dates.

Only diploid plants (2n = 36) of the *C. alpinum* group were found in the Vysoké Tatry and Belianske Tatry Mts during the present study (Boşcaiu 1996, Boşcaiu & al. 1997). The only tetraploid number published from this area (2n = 72, "*C. lanatum* Lam., Slovakia, Vysoké Tatry, scree below Vyšné Kôprovské sedlo", Uhríková & Paclová 1986: 69) should be considered as erroneous, because repeated analyses of plants from the same locality confirmed only diploids. Both specimens collected by Kitaibel, in fact, belong to the morphological type of the diploids. Specimen (1) is also covered by glandular hairs as the diploids from the SE Carpathians.

As no further material gathered by Kitaibel was found in the herbaria listed above, only the aforementioned two specimens can be considered for typification. Both might belong to the original material, but in order to be on the safe side, we designate the better preserved specimen (1) as neotype.

It might be added that according to Art. 52.2. Note 1 (Greuter & al. 1994), the inclusion of "C. laineux Fl. fr. n. 4401?" [= *Cerastium lanatum* Lam.] in the protologue does not make this name illegitimate.

2.2. *Cerastium villosum* Baumg., Enum. Stirp. Transsilv. 1: 424. 1816. – Neotype (designated here): "In alpibus rupestribus Burzenßibus, vel Schuler Gebirge, 8–1827", *Baumgarten*, Herb. Baumgartenianum, No. 6128 (CL!).

Protologue:

> "[*Cerastium*] **villosum.* 878. C. caulibus digitalibus subpalmaribusve diffusis, procumbenti-erectis, villosissimis, junioribus villoso-tomentosis; florb. terminalibus umbellato-dichotomis, dichotomia biflora, pedunculata, pedunc. 1-floris, solitariis, filiformibus, villosis, bracteis lanceolato-acutis villosissimis, foliol. calycin. ovato-obtusis, membranaceo-albidis, villosis; pet. emarginatis, calyce majoribus, caps. oblonga 5, vel 10 dentibus apice dehiscente.
> Villous Mouseear Chickweed. A. La Ceraiste velue. G. Zottiges Hornkraut. G. Gyapjas tyúkhúr. H.
> In summis alpium jugis Butschetsch et Dscheammeanie. Jul. Aug. P."

According to Lanjouw & Stafleu (1954: 61), Stafleu & Cowan (1976: 150), and Stafleu & Mennega (1992: 388) Baumgarten's main herbarium is deposited in CL, and further material in B, BP, BR, H, L, P, SIB and W. Two relevant specimens, labelled in Baumgarten's hand, were found in CL:

(1) Herb. Baumgartenianum No. 6126: "*Cerastium villosum* Baumg. In alpibus ad Zernesti Piatra Craiului."
(2) Herb. Baumgartenianum No. 6128: "878 *Cerastium villosum* Baumg En I. p 424. In alpibus rupestribus Burzenßibus vel Schuler Gebirge. aug 827".

Two further specimens were found in BP and P.

(3) The specimen in BP (No. 96496) bears the following label written in Baumgarten's hand: "*Cerastium villosum*. In Alpb. Rodnensibus 824".
(4) The specimen in P is labelled "Herbarium Steudel. *Cerastium villosum* Baumg. *lanatum* Lam. Transylvania. Baumgarten" and "878 *Cerasti*[*um*] *villosum* B. En. I p. 424." (the latter label in Baumgarten's hand).

None of these four specimens can be proven to belong to the original material and it seems that no original material is extant in any other herbarium.

There are two localities mentioned in the protologue. From the first one, the Mtii. Bucegi, both diploid and tetraploid populations were confirmed during the present study (Boşcaiu 1996). The second locality, "Dscheammeanie" remains unclear. The only mountain with a rather similar name (i.e. Geamăna) is the Mţii. Maramuresului, in the Eastern Carpathians (N Romania). However, this locality is most probably not the one quoted in the protologue, as it is not known that Baumgarten worked in this area. In any case, all four specimens correspond morphologically well to the diploid type and they undoubtedly belong to the same taxon to which the older name *C. eriophorum* Kit. refers.

In order to fix the application of this name, we designate according to Art. 9.6 (Greuter & al. 1994) the specimen (2) as neotype.

2.3. *Cerastium lanatum* Lam., Encycl.: 680. 1785 ≡ *C. alpinum* subsp. *lanatum* (Lam.) Graebn. & Correns ≡ *C. alpinum* var. *lanatum* (Lam.) Hegetschw. – Lectotype (designated here): "*Cerastium lanatum* enc. Caryophyllus holostius tomentosus latifolius. bau. pin. 210. prodr. 104. no 9", *Lamarck* (P-LA!).

Protologue:

> "Ceraiste laineux, *Cerastium lanatum*, Cerastium foliis ovato-subrotundis, densè lanatis canescentibus; cauliculis brevissimis subbifloris. N. Caryophyllus holostius tomentosus latifolius. Bauh. Pin. 210. Prodr. 104. No. 9. *Myosotis* Hall. Helv. No. 887. ... [description] ... Cette plante croît dans les Alpes, & est cultivée au Jardin du Roi. (*v.v.* [vue vivante, the description is based on living plants])."

There is only one relevant specimen in P. This bears, apart from the printed label "Herb. Mus. Paris., Herbier de Lamarck, Acquis en Novembre 1886" three handwritten labels. Two of them are written most probably in Lamarck's hand (Burdet 1976: 151–152): (1) "*Cerastium lanatum* enc.", (2) "Caryophyllus holostius tomentosus latifolius. bauh. pin. 210. prodr. 104. no. 9". In spite of the fact that the specimen does not bear any date, it undoubtedly belongs to the original material, and is therefore designated here as the lectotype of the name *C. lanatum* Lam.

As mentioned before, this name was applied to both diploids and tetraploids in the Eastern Alps and Carpathians. Lamarck's diagnosis is based on plants cultivated in the "Jardin du Roi" in Paris and said to have come from the Alps. The protologue does not give an exact locality and equally matches either of the taxa. However, the careful study of the specimen from P revealed that according to the length of stomata and leaf trichomes on the vegetative branches it corresponds to the tetraploids. The stomata length varies between 35.66 and 40.94 µm (tetraploids: c. 34 to 42.50 µm, diploids: c. 29.47 to 33.11 µm (Boşcaiu 1996)) and the hairs from 0.80 to 3.25 mm (tetraploids: usually 1 to 4 mm, diploids: 2.5 to 5.8 mm (Boşcaiu 1996)). Consequently, the name *C. lanatum* can be applied only to the densely hairy forms of the tetraploid *C. alpinum* L. s. str. and not to the diploid *C. eriophorum* Kit.

2.4. *Cerastium alpinum* subsp. ***babiogorense*** Zapał. in Rozpr. Wydz. Mat.-Przyr. Akad. Umiejętn., Dział B, Nauki Biol., ser. 3, 10: 400 [Consp. Fl. Galic. Crit. 3: 90]. 1911. – Lectotype (designated here): "*Cerastium alpinum* L. var. *glanduliferum* Koch, z Babiej Góry, w Lipcu [August] 1858, *Berdau"*; "subsp. *babiagorense* [sic!], [revid.] 18.5.1910, *Zapałowicz*" (KRAM, no. 105341; 87.2563!).

Protologue:

> "Exempla solum e Babia Góra ... [description] ... Babia Góra in alt. 1490–1725 m sat frequenter. Exempla a Berdau, Zapałowicz etc lecta."

Several specimens revised by Zapałowicz as *C. alpinum* subsp. *babiogorense* (and *"babiagorense"* (sic), respectively) have been found in KRAM, which holds the herbarium of the former Kraków Physiogeographical Comission (Komisyja fizyjograficzna akademicka w Krakowie). This latter herbarium was used by Zapałowicz during his work on the "Conspectus florae Galiciae criticus" (Zapałowicz 1906–11) and includes his own herbarium as well (Vegter 1988: 1204). Two specimens were, according to Zapałowicz's annotations, revised by him on 18 May 1910 as "subsp. *babiagorense*" and undoubtedly represent original material:

(1) "*Cerastium alpinum* L. var. *glanduliferum* Koch, z Babiej Góry, w Lipcu 1858, *Berdau*" (KRAM, No. 105341; 87.2563);
2) "*Cerastium alpinum* L. β) *glanduliferum* Koch, Babia góra, pod Djablakiem (kraina kosodrz.), 17.7.1876, *H. Zapałowicz*" (KRAM, No. 105343; 50.569).

Two other specimens identified by Zapałowicz as *Cerastium alpinum* subsp. *babiogorense,* were collected by him on 12 September 1911 (KRAM No. 105339, 105340). These specimens are mentioned in the "Addenda ad volumen III" (p. [245]: "Exempla matura hoc anno (1911) de 12.IX in culmine montis Babia Góra a me lecta"). Evidently, they were collected after the account of the genus for the "Conspectus" was printed and do not, consequently, belong to the original material.

All the above mentioned material corresponds morphologically well to the tetraploid populations of the *Cerastium alpinum* group. Moreover, from almost the same locality, where they

were collected, two tetraploid chromosome numbers (2n = 72) were reported by Kuta (in Pogan & al. 1986: 68, as *C. alpinum* L.) and Murín & Májovsky (1979: 127, as *C. alpinum* subsp. *babiogorense* Zapał.).

As there are no other relevant specimens, we designate here specimen (1) as lectotype of *C. alpinum* subsp. *babiogorense*, because it is better preserved and more complete.

2.5. *Cerastium transsylvanicum* Schur ex Griseb. & Schenk in Arch. Naturgesch. 18(1): 305. 1852. – Lectotype (designated here): "In herbidis alpium Transsilvaniae an Valle Sirna Alpium Fagarasiensianum, 6500′, 8.1851", *F. Schur* (CL!).

Protologue:

> "76. *C. transsylvanicum* Schur! (in Verh. d. siebenb. Vereins 1851. p.177: solum nomen), Orthodon caule adscendente pilis flexuosis rectisque brevioribus subeglandulosis hirsuto, foliis virentibus elliptico-lanceolatis acutis sparsim pilosis, bracteis late scariosis, pedicellis demum stricte patentibus, sepalis ovali-lanceolatis acutis, petalis glabris calycem duplo superantibus recurvatis, capsula oblonga calycem vix superante, testa laxa a perispermio soluta. – Proximum formis alpinis *C. arvensis*, at testa specifice distinctum, a *C. ovato* Hp. pube et bracteis latius scariosis habituque *C. arvensis* differt. An reducendum sit ad *C. hirsutum* Ten. (ut suadent specimina culta), authentica Apennini planta carentes, diiudicare non possumus.
> Siebenbürgen: in der alpinen Region der südlichen Karpaten von Fogarasch (Schur)."

Grisebach & Schenk (1852) give no indication that Schur provided the description of this species. They refer to a nomen nudum, published by Schur in his article describing the tour in the Mţıı. Făgăraşului in mid August 1851 (Schur 1851), and to the specimen collected by him. Thus the name is to be attributed to Grisebach and Schenk (Greuter & al. 1994). We were able to trace the following three herbarium specimens identified by Schur as *C. transsilvanicum* and collected in the Mţii. Făgăraşului in August 1851, which might be considered as part of the original material:

(1) "*C. transsilvanicum* [sic!] Schur. In herbidis alpium Transsilvan. an Valle Sirna Alpium Fogarasiensiam, 6500′, med. 8.1851, *Schur*" (CL).
(2) "*C. transsilvanicum* [sic.] Schur, Fogarascher Alpen, Piscu Sirnei, 17.8.1851, *Schur*" (SIB).
(3) "*C. transsilvanicum* [sic.] Schur, Fogarascher Alpen, am Zirnathal, seu Piscu Lauti, 8.1851, *Schur*" (SIB).

Hexaploids of the *Cerastium alpinum* group from the Romanian Carpathians differ from both, diploids and tetraploids, by their general habit, the leaf shape, and the number of flowers per cyme. All three specimens morphologically correspond well to the hexaploids and to what is considered as *C. transsylvanicum* Schur in the recent literature (e.g., Jalas & al. 1964, 1993, Jalas & Suominen 1983, Prodan 1953).

No relevant specimen was found, however, in the herbarium LW, where most of Schur's specimens collected until 1861 are deposited (M. Zagulskij, pers. comm.), and from where Borza (1933: 60) cited several specimens. The material mentioned by Borza was probably lost during World War II. No relevant specimen is deposited in the Grisebach herbarium (GOET) either (G. Wagenitz, pers. comm.).

Therefore one of the three specimens quoted above has to be selected, and we designate here specimen (1) as lectotype of *C. transsylvanicum* Schur.

3. Conclusions

(1) The correct name for the diploid populations of the *Cerastium alpinum* group in the Balkan mountains, Carpathians and Eastern Alps is *C. eriophorum* Kit.; *C. villosum* Baumg. is taxonomically synonymous to, and predated by this name.

(2) The name *Cerastium lanatum* Lam. can be applied only to strongly hairy forms of the tetraploid *C. alpinum* L. s. str. and not to the diploid *C. eriophorum* Kit. The tetraploid *C. alpinum* subsp. *babiogorense* Zapaş. fully corresponds to typical *C. alpinum* L. s. str.
(3) The typification of the name *Cerastium transsylvanicum* Schur confirms its generally accepted application (by, e.g., Borza 1933, Jalas & al. 1964, 1993, Prodan 1953) for the Carpathian endemic that has shown to be hexaploid.

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