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**A Revision of the European Varieties and Forms of the Species of Genus
Calliargon (Sull.) Kindb. Distinguished and Described
by J. Mikutowicz and E. Bauer in Herbaria Editions**

**Krytyczny przegląd europejskich odmian i form gatunków rodzaju
Calliargon (Sull.) Kindb. wyróżnionych i opisanych przez
J. Mikutowicza i E. Bauera w wydawnictwach zielnikowych**

**Критический обзор европейских разновидностей и форм видов рода
Calliargon (Sull.) Kindb. выделенных и описанных
Ю. Микutowичем и Э. Бауэром в гербарных изданиях**

INTRODUCTION

The complete collection of herbaria editions by J. Mikutowicz and E. Bauer constitutes one of the main principles for the identification of European species, varieties and forms of the genus *Calliargon* (Sull.) Kindb. as far as their systematics is concerned. In this respect only the exsiccati by E. Prager: Sammlung eur. *Harpidium* u. *Calliargon* Formen* (1910—11), equal them in value.

Thanks to the collections by J. Mikutowicz, described and edited in *Bryotheca Baltica* (1908—1913), there are available typical specimens of the varieties, although their descriptions are incomplete. J. Mikutowicz treated them superficially and uncritically. It is not always easy to identify the material even that coming from those regions where they were described. They are modifications or habitat ecomorphoses of widely varying species of the *Calliargon* genus. Only few of the taxa described by J. Mikutowicz may be left in the rank assigned to them by him. *Calliargon megalophyllum* Mikut.

* Complete collection in Copenhagen and Vienna.

retains its systematical stand unchanged. All specimens which were used by Mikutowicz to distinguish and describe the samples come from a small area of the Baltic shore of L. S. R. R., especially from the environs of Riga. They were collected chiefly from the lake area south of Riga. The complete collection of mosses by J. Mikutowicz is in Riga and duplicates are to be found in Leningrad, Tartu, Helsinki, and, partly, in Opava (Czechoslovakia).

The exsiccati edited by E. Bauer are grouped in three herbaria editions: Musci Europaei exsiccati (1903—1913), Bryotheca Bohemica (1898—1921) and Musci Europaei et Americani exsiccati (?1915—1928). E. Bauer worked in Prague, but his main herbarium is in Slezské Museum in Opava. Only a part of his duplicates is in the Botanical Museum of Prague, Vienna and Wrocław. The whole includes the collections from Karkonosze Mts, north-western Czechoslovakia and Norway (the specimens collected by N. Bryhn and H. J. Möller). At present not all the taxa can be recognized because they have not been published in conformity with world standard taxonomic nomenclature. Some of them were distinguished on the basis of specimens modified at random (modifications) and have no grounds even in extensive and differentiated material of herbaria. They lack specially Latin diagnoses. Descriptions of distinguished varieties and forms are very short and they are published in the German language (Bauer 2—8).

All the taxa distinguished and described by E. Bauer were revised by J. Podpěra (13) and partly by R. Van der Vijk in works, Index Muscorum, vols. I and III (1959, 1964). Podpěra reduced the systematic rank of many of them, usually from the variety to the form. Some of the taxa distinguished by E. Bauer, as for example, *Calliargon stramineum* (Dicks.) Kindb. for. *submersa* Bauer, Musci Eur. exs. 1274, *C. stramineum* for. *procumbens* Bauer, ibid. 1788 and *C. cuspidatum* (Hedw.) Kindb. for. *erecta* Bauer, ibid. 1662 have no descriptions, and original specimens which represent them have been either wrongly determined or do not differ from typical forms. Thus they have no systematic value. The second group consists of units not described by E. Bauer, which differ from those so far described; they were published in his exsiccati under the corresponding names.

The present paper for the first time described them in conformity with taxonomical rules; the author introduced emendations, if he knew the type and found the description inadequate. For many of them the systematic rank was reduced from variety to the form and *vice versa*, because they were found to possess a restricted number of reliable characters.

The names of the specimens on the original labels have been retained.

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My thanks are also due to Miss A. Zięba for the translation of the manuscript and to Dr. L. J. Gier from William Jewell College, Liberty, Missouri, for the revision of my paper.

Abbreviations:

- BG — Bergen, Universitetet i Bergen, Botanisk Museum
 BRSL — Wrocław, Instytut Botaniki Uniw. Wrocławskiego im. B. Bieruta
 CP — København, Universitetets Botaniske Museum
 H — Helsinki, Botanical Museum Univ. of Helsinki
 LE — Leningrad, Botaniceskij Institut im. V. L. Komarowa Akademii Nauk SSSR
 LUBL — Lublin, Zielnik Katedry Systematyki i Geografii Roślin Uniw. M. Curie-Skłodowskiej
 M — München, Botanische Staatssammlung
 O — Oslo, Universitetets Botaniske Museum
 OP — Opava, Slezské Museum
 OT — Ottawa, National Museum of Canada, National Herbarium
 P — Paris, Muséum d'Histoire Naturelle, Laboratoire de Cryptogamie
 PR — Praha, Botanické Oddělení Národního Muzea
 RIG — Riga, Botaniceskij Institut
 T — Tartu, Institut Morfologij i Taksonomij Rastenij
 TRH — Trondheim, Det Kgl. Norske Videnskabers Selskab. Museet
 W — Wien, Naturhistorisches Museum, Botanische Abteilung
 Koppe Herb. — Herbarium of F. Koppe, Bielefeld, West Germany

TAXONOMIC REMARKS

Survey of taxa

I. Taxa distinguished and described by J. Mikutowicz:

Calliargon megalophyllum Mikut.

Calliargon giganteum (Schimp.) Kindb. var. *crassicostatum* Mikut.

Calliargon giganteum (Schimp.) Kindb. var. *decurrens* Mikut.

Calliargon giganteum (Schimp.) Kindb. var. *laxum* Mikut.

Calliargon Richardsonii (Mitt.) Kindb. var. *polycladum* Mikut.

Calliargon megalophyllum Mikut.

Bryoth. Balt. Bog 3—4: 34—36, 1908. — Podpéra, Consp. Musc. Eur.: 582—3, 1954. — Index Musc. 1: 399, 1959.

Exs.: Bryoth. Balt. 141, 141 a, b (1908) = izotypus (CP, H, LE, M, OP, RIG, T).
 Typus in Riga, Botaniceskij Institut (seen).

Loc. class.: Livland, Kreis Riga, verwachsenes Altwasser an der Mündung eines Kleinen Baches in den Bābiņš-See, am SW-Ufer, 1/4 km W von Gesinde Perkoni, 11 VI (= 24 VI) 1906, leg. et auxit Joh. Mikutowicz.

Icon.: Malta, Acta Horti Bot. Univ. Latv., 5, 1930, fig. 15 a-c; Tuomikoski, Ann. Bot. Soc. Zool.-Bot. Van., 15 (3), 1940, fig. 1; Lisowski, Fragm. Flor. et Geobot., 6 (3), 1960, fig. 1-4; Karczmarz, Revue Bryol. et Lichénol., 30 (3-4), 1961, fig. V.

Plantae maximae, ca. 50 cm longae, luteo vel obscuro-virides vel fuscae, nitidae, semper in aqua immersae; caules 35-45 vel 50 cm longae, parce et fere regulariter ramosae, causa propter densa et luteo-colorati (in herbario fusci vel rarius nigri); ramuli laterales ca. 3-6 cm longi; caules in sectione transversa 1,5-1,6 mm in diametro, alternis atim teretes vel triangulares cum cellulis membrana crassa cinctis sexangulis, hyalinis et medulla distincta centrali ex aliquot cellulis obscuro-fuscatis composita; majora fusca 5-6 vel 7 mm longa et 4-5 vel 5,7 mm lata, ovato-cordiformia, obtuse fere semitrotunda terminate et cuculliformiter inflexa; folia ramulorum minora, 4-5 mm longa, cordiformia; nervus $\pm$ tenuis, ad basim 30-35 μ latus, luteo-fuscus, ad apicem folii progradiens: cellulae in parte mediali 38-75 μ longae et 5-5,5 μ latae, cellulae iniciales rhizoidorum parte apiculi foliorum utriusque nervi lateribus sitae, oblongae et latiores quam eadem cellulis in folii medio sitae, pallide luteae; cellulae majores fuscae, rubiginoso-fuscata rhizoidis provisae; cellulae auriculares distinctissimae, a nervo aliquot ordinibus cellularum fusco-rubrarum separatae; gametangia et sporophytum adhuc non nota.

Habitat: Margins of eutrophic lakes, deep ditches, shores of overgrown lakes, low bogs rich in CaCO_3 and strongly submerged. The optimal development at pH 7.2-7.8 of water (Apinis and Lacis 1). Basiphilous.

Species very easy to identify, of wide geographical distribution, subboreal type (Mikutowicz 12, Malta 11, Tuomikoski 14, 15, Karczmarz 10). It was distinguished earlier by O. S. Lindberg in Scandinavian collections as *Amblystegium Richardsonii* var. *robustum* Lindb. and *Hypnum giganteum* var. *grandifolium* Lindb., and by N. Bryhn as *Hypnum Richardsonii* Mitt. var. *natans* and var. *pungens*.

Calliergon giganteum (Schimp.) Kindb. for. *crassicostatum* (Mikut.) Kar. n. comb.

C. giganteum (Schimp.) Kindb. var. *crassicostatum* Mikut. in Malta, Acta Horti Bot. Univ. Latv. 5: 159, 1930.

Exs.: Bryoth. Balt. 671, 671 a (CP, LE, OP, RIG, T).

Typus in Riga, Botaniczeskij Institut (seen).

Loc. class.: Livland, Eesti Pärnumaa, Nirusaare, leg. P. Wasmuth et Joh. Mikutowicz.

Plantae humiles, ca. 8—10 cm longae, strictae, dense foliatae, parcissime et irregulariter ramosae, in herbario luteo-fuscae, nitidae; folia caulina parte superiore late cordiformia, 2,6 mm longa et 1,5—2 mm lata; folia ramulorum angustiora, cordiformia vel oblongae cordiformia; cellulae auriculares magnae, hyalinae; nervus crassus, ad basin ca. 90 μ latus, luteo-fuscus, usque ad apicem progradiens.

Distribution. France: Louette-Saint-Pierre, 24 V 1884, F. Gravet (P). — Poland: Kreis Flatow (Westpreussen), Sumpfwiesen an der Glumia bei ?, 6 VIII 1923, F. Koppe (Koppe Herb.); Tatra Polonica, in pratis spongiosis ad „Brama Kantaka”, in valle Dolina Kościeliska, 950 m. s. m., 28 VI 1959, A. Boroś (OP). — Denmark: Sjaelland, Hjorte Soe pr. Hvalsoe, Distr. 44, 28 VII 1882, C. Jensen (CP). — Norway: Nordlants amt, Salten, Bejeren, Arstad, 67° lat. bor., 2 VIII 1894, J. Hagen (TRN). — Sweden: Uppland, Vaksala, sn, Vittullsberg, 1862, F. Behm (OT). — Finland: Sb, Kaavi, Losomaki, in palude, 28 VI 1917, A. Teräsvuori (OT).

The form found in ditches filled up with water. It is closely related to *C. giganteum* var. *brevifolium* (Limpr.) Warnst., and to North American variety of *C. giganteum* var. *cyclophyllotum* (Holz.) Grout. It is known also from Pennsylvania.

Calliargon giganteum (Schimp.) Kindb. for. *decurrens* (Mikut.) Kar. n. comb.

C. giganteum (Schimp.) Kindb. var. *decurrens* Mikut. in Malta, Acta Horti Bot. Univ. Latv. 5: 159, 1930. — Index Musc. 1: 398, 1959.

Exs.: Bryoth. Balt. 672, 672 a-d (CP, OP, RIG, T).

Typus in Riga, Botaniczeskij Institut (seen).

Loc. class.: Livland, Olaine b. Riga, leg. Joh. Mikutowicz.

Plantae in aqua immersa; caules ca. 12 cm longae, densissime foliatae, $\pm$ regulariter ramosae; folia caulina cordiformia, interdum oblongae plicata, 2,5—3 vel 3,5 mm longa; cellulae auriculares ad nervum non progradientes; nervus brevis seepius trifidum vel rudimentarium.

The form known also from south Germany (Oberbayern, Ellebacher Weiher bei Tölz, auf Kalktuff („Alen”), 2300 p., in Menge c. fr., 3 V 1862, Molendo (W) and from Ontario, Kenora District, Blacky Bay. Calciophilous plant.

Calliargon giganteum (Schimp.) Kindb. var. *laxum* Mikut. emend. Kar.

In Malta, Acta Horti Bot. Univ. Latv. 5: 159—60, 1930. — Index Musc. 1: 399, 1959.

Exs.: Bryoth. Balt. 140, 673 (CP, OP, PR 2 specimens, RIG).

Typus in Riga, Botaniczeskij Institut (seen).

Loc. class.: Letland: Bulli am Rigaschen Strande, leg. Joh. Mikutowicz.

Plantae tenues, virides vel viride-luteae eiusdem in *C. cordifolio* similes, ca. 15 cm longae; caules parte superiore simplices, inferiore paene regulariter ramosi; ramuli laterales breves, ca. 1,5 vel 2 cm longi; folia ramulorum lateralium oblonge lanceolata; cellulae auriculares distinctae.

Distribution. Island: SO Isl. Hrapsey, 29 VI 1897, H. Jonsson 44 (CP). — Poland: Lyck, Bruche nördlich vom Lycker Seechen im Torflöcher, 22 V 1885, C. Sanio (BRSL). — Czechoslovakia: Mährens, Sumpfwiesen bei Zwikau-Sadelichen, VII 1912, J. Hruby (PR). — Austria: Staiernmark, sumpfige Wiesen bei Göss nächst Loeben, 2 V 1870, J. Breidler (W); Sumpfige Stellen am Rohrmoos bei Schladming, 27 V 1869, J. Breidler (W) — Hungary: Comit. Zala, in pratis turfosis ad „Szentkutt ér” prope Tapolca, alt. ca. 120 m s.m., 1 V 1955, A. Boroš (LUBL).

The variety similar to *C. cordifolium* (Hedw.) Kindb. It is known from Alaska and West Greenland.

Calliergon Richardsonii (Mitt.) Kindb. var. *polycladum* Mikut. In Malta, Acta Horti Bot. Univ. Latv. 5: 169, 1930. — Index Musc. 1: 400, 1959.

Exs.: Bryoth. Balt. 676 (CP, LE, M, OP, RIG, T).

Typus in Riga, Botaniczeskij Institut (seen).

Loc. class.: Livland, Kr. Riga, Schwingmoor am W-Ufer des kleinen Sees SO vom Wege von Kemmern zum Meere, 18 (= 31). V 1909, J. Mikutowicz.

According to a short description by N. Malta (in Bryoth. Balt. n. 676) this variety has numerous short lateral branches and its type belongs to *C. giganteum*. The examined specimens, in fact, belong to a slightly modified typical variety of *C. giganteum* (Schimp.) Kindb. var. *giganteum*. The name given by J. Mikutowicz cannot be accepted for the specimens for which a similar type of variability is characteristic. For the specimens of *Calliergon Richardsonii* showing this type of variability I suggest the name — *C. Richardsonii* var. *ramosa* Kar. var. nova (the type from Sweden is in LUBL).

II. Taxa distinguished and described by E. Bauer:

Calliergon cordifolium (Hedw.) Kindb. var. *intermedium* Mnkm.

Calliergon cordifolium (Hedw.) Kindb. for. *natans* Bauer.

Calliergon (Hypnum) giganteum (Schimp.) Kindb. for. *elongata* (lecte *elongatum*) Bauer = *C. giganteum* var. *laxifolium* Warnst.

Calliergon stramineum (Dicks.) Kindb. for. *gigantea* (lecte *giganteum*) Bauer.

Calliergon stramineum (Dicks.) Kindb. for. *submersa* Bauer.

Calliergon stramineum (Dicks.) Kindb. for. *procumbens* Bauer.

Calliergon cuspidatum (Hedw.) Kindb. for. *erecta* Bauer.

Calliergon cordifolium (Hedw.) Kindb. var. *intermedium* Mnk m.
var. nova.

C. cordifolium (Hedw.) Kindb. var. *intermedium* Mnk m. in sched.
C. cordifolium (Hedw.) Kindb. for. *intermedium* Grout, Moss-Flora N. Am. 3:
97, 1931 pr. p. — Podpěra, Consp. Musc. Eur. 581, 1954. — Index Musc. 1:
397, 1959.

Exs.: Bauer, Musci Eur. exs. 635 (OP, PR, W).

Typus in Opava, Slezské Museum (seen).

Loc. class.: Böhmen, Erzgebirge, in kalten Wassertümpeln am Spitzberge
bei Gottesgab, VII 1904, leg. W. Mönkemeyer.

Plantae magnae, obscure-virides, caules ca. 20 cm longae et 0,8—1 mm
crassae, parce parte media ramosae; folia caulina ligulato-lanceolata,
6—7 mm longa et 1,3—1,5 mm lata, in marginibus leviter transverse
sinuata; folia ramulorum lateralium minora et angustiora, 4—5 mm longa;
nervus luteus, interdum parte media leviter flexuosus cum parvulis
processibus lateralibus ex cellulis inter coloratis compositum; cellulae
auriculares angulis recti, paulum latiores quem in folio medio sitis.

Distribution. Norway: Vestfold, Sandar: Åroey, soendre del, 28 VI 1962,
P. Stoermer (O). — Sweden: Uppland, Gustavsberg sn, Farstalandet, An-
dersdal, S. W. of Grissling; wet place in cutover woodland, 4 VII 1958, We-
ber & Krusenstjerna OB-579 (OT). — Germany: Leipzig, untergetaucht
in Thautümpeln bei Gautzsch, III 1907, Mönkemeyer (Koppe Herb.). — Cze-
choslovakia: Erzgebirge, in tiefen, kalten Wasserlöchern am Spitzberge bei
Gottesgab, VII 1904, W. Mönkemeyer (PR).

The variety resembles in morphology well developed specimens of
C. cordifolium var. *natans* (Bauer) Kar. Usually larger than *C. cor-
difolium* var. *natans*. It differs from this variety by a stronger branch-
ing and narrower leaves of lateral branches. Bauer considered
it an intermediate variety between *Calliergon cordifolium* and *C. Ri-
chardsonii*; the shape of auricle cells is a distinguishing character in this
respect. However, the anatomic structure of leaves and especially costa
make it a different variety which cannot be regarded as an inter-
mediate form between *C. cordifolium* var. *cordifolium* and *C. Rich-
ardsonii*. Among *C. cordifolium* there was distinguished for. *intermedia*
Grout but without diagnosis. The type of this form (Grout 9)
resembles the specimens which belong to var. *intermedium* Mnk m.
Wynne (19) considers it a typical form of *C. cordifolium*.

Calliergon cordifolium (Hedw.) Kindb. var. *natans* (Bauer)
Kar. n. comb.

C. cordifolium (Hedw.) Kindb. for. *natans* Bauer, Deutsch. Bot.
Monatschr. 18 (3): 40, 1900 and Bot. Centralbl. 83 (2): 54, 1900. — *C. cordifolium*
var. *Schmidlii* Bauer in sched. — Podpěra, Consp. Musc. Eur. 581, 1954.

Exs.: Bauer, Bryoth. Boh. 160 (BG, CP, OP 2 specimes, PR, W).

Typus in Opava, Slezské Museum (seen).

Loc. class.: Quelltümpel bei Gottesgab im Erzgebirge, ueber 1000 m ü. d. adr. M., 27 VIII 1898, leg. E. Bauer.

Plantae magnae, obscure virides, ca. 10 cm longae, crebre fruticulose ramosae et dense foliatae; folia caulina oblonga, cordiformia, ca. 6 vel 7 mm longa, cum nervo crasso et rhizoidis cellulis inicialibus distinctis, fusi in folii parte apiculi: folia ramulorum a foliis caulinis minime diversa.

Distribution. Scotland: Sutherland, Melvich Bay, Flush near Haladale River, 23 III 1956, A. C. Crundwell (OT). — Norway: Fortundalen i Lyster, Sogn, i dannen ved Eidevandet, 29 VII 1900, Kaalaas (BG); Ranen, Hammerndt ved Langwand i Mo, i sumpe undar en kalkur, 28 VII 1894, Kaalaas (BG). — Czechoslovakia: Erzgebirge, schwimmend in Quelltümpeln bei Gottesgab, 27 VIII 1898, Bauer (OP 2 specimens); Gottesgab, $\pm$ 1000 m, Wiesen-tümpel, nördlich, 8 VIII 1899, Bauer (OP); Erlwiesenbach im Thiergarten Heinrichsgrün, 18 VIII 1888, Bauer (OP).

Fine specimens of this variety may be considered to be a similar form to var. *intermedium* M n k m., with which it bears strong resemblance. The chief difference lies in the structure of stem and branch leaves.

Calliergon giganteum (Schimp.) Kindb. var. *laxifolium* Warnst.

Hedwigia 54: 133, 1914. — *Hypnum giganteum* Schimp. for. *elongata* Bauer in herb.

Exs.: Bauer, Bryoth. Boh. 364 (BG, CP, OP, W sub *C. giganteum* for. *elongata*); Wirtgen: Florae Rhenanae 643 (Koppe Herb., W sub *C. giganteum* var. *typica*).

Typus in Opava, Slezské Museum (seen).

Loc. class.: Moskau, Bykowo, Sumpf bei Wdreja, 2 VIII 1898, E. Zicken-drath.

Plantae magnae, ca. 15—20 cm longae, virides vel viridefuscae, parce foliatae; caules parcissime ramosae tantumque parte inferiore; folia caulina cordiformia, ca. 4—5 mm longa; cellulae auriculares distinctae.

Distribution. The Soviet Union: Mosqua, 6 VIII 1897, Heyden (OP). — Germany: Schleswig-Holstein, Hamburg, Farmsen, Lehm Boden, 26 IV 1931, leg.? (Koppe Herb.); Württemberg, Millerbacher-Moor bei Mariazell, 22 VIII 1872, E. Baroyer (W). — Czechoslovakia: Böhmen, Sumpfräben am Schiessniger Teiche, Leipa, 250 m, 14 X 1897, Bauer (OP); Böhmen, in einem tiefen Sumpfwiesengraben bei Všetat, über 150 m ü. d. adr. M., 6 VI 1903, E. Bauer 364 (sub *C. giganteum* for. *elongata*); Moravia, in turfosis pr. Svitavy (Zwit-tau $\pm$ 450 m, VIII 1905, J. Podpěra (PR).

Var. *elongata* was cited by C. Warnstorf (17). Fine specimens of this variety are identical with those of *C. giganteum* var. *laxifolium* Warnst.; sometimes it also resembles less developed or modified specimens of *C. megalophyllum* Mikut. However, the difference in

anatomic structure differentiates it from them. The author considers the correct name for it as that given by Warnstorf (18), described on the basis of the specimens collected by bryologist E. Zickendrath, near Moscow.

According to Warnstorf specimens of *C. giganteum* var. *laxifolium* are identical with those of *C. megalophyllum* described by Mikutowicz in Bryotheca Baltica, n. 141, and 141 a-b. Describing a new variety Warnstorf failed to pay attention to some pronounced differences existing in the structure of the gametophyte of these plants. It is worth while mentioning that the collections by E. Zickendrath, coming from the environs of Moscow, contain the specimens of *C. giganteum* var. *laxifolium* as well as those of *C. megalophyllum*. The differences between them are very distinct and they ought to be taken into consideration in taxonomic examinations.

Calliergon stramineum (Dicks.) Kindb. var. *giganteum* Bauer var. nova.

C. stramineum for. *gigantea* Bauer in herb. — *C. stramineum* for. *gigantea* Möller in herb. — Podpěra, Consp. Musc. Eur. 580, 1954.

Exs.: Bauer, Musci Eur. et Amer. exs. 1883 (OP, W).

Typus in Wien, Naturhistorisches Museum, Botanische Abteilung (seen).

Loc. class.: Sweden, Jemtlandia, Frösön, Mjelle, in fossis turfosis, 24 VII 1925, leg. H. J. Möller.

Plantae magnae, ca. 45 cm longae, totae in aqua immersae, pallide luteae vel obscure fuscae; caules fusco-nigri, robusti, ramis lateralibus destituti; folia caulina laxe disposita, cordiformia eiusque in *C. stramineo* var. *stramineo* similia.

The variety shows different morphological and developmental characters distinguishing it from other varieties of this species. It is known from Norway: S. T.-hjems amt, Strinden, Uglen, 26 VIII 1888, J. Hagen (CP).

Calliergon stramineum (Dicks.) Kindb. for. *submersa* Bauer in sched.

Exs.: Bauer, Musci Eur. exs. 1274 (W = *C. stramineum* var. *subsquarrosum* (Jaap) Warnst.).

Typus in Opava, Slezské Museum (seen).

Loc. class.: Riesengebirge, Tümpel bei der Wiesenbaude, 1400 m s. m., VI 1903, Bauer.

In the exsiccati edited by Bauer there is a specimen of *C. stramineum* var. *subsquarrosum* (Jaap) Warnst. n. 1274, which served as a basis for distinguishing this form. Besides, for. *submersa* was never published and cannot be recognized as an important unit.

Calliergon stramineum (Dicks.) Kindb. for. *procumbens* Bauer in sched.

Podpěra, Consp. Musc. Eur. 579, 1954.

Exs.: Bauer, Musci Eur. exs. 1788 (OP, W = *C. stramineum* for. *stramineum*).

Typus in Opava, Slezské Museum (seen).

Loc. class.: Böhmen, Riesengebirge, am oberen Weisswasser, dicht am Wasserspiegel auf verwesenden Pflanzenteilen angedrückt liegend, 1400 m s. m., 11 VIII 1923, leg. E. Bauer.

For. *procumbens* is a slightly modified typical form of the species without any systematic value. The specimens reported in the exsiccati are only smaller in size.

Calliergon cuspidatum (Hedw.) Kindb. for. *erecta* Bauer in sched.

Podpěra, Consp. Musc. Eur. 499, 1954.

Exs.: Bauer, Musci Eur. exs. 1662 (OP, W = *C. cuspidatum* for. *cuspidatum*).

Typus in Opava, Slezské Museum (seen).

Loc. class.: Böhmen, Prokopithal bei Prag, an einer Quelle im Silurkalkgestein, 12 VIII 1902, leg. E. Bauer.

For. *erecta* does not differ from *C. cuspidatum* for. *cuspidatum* and cannot be identified in the herbaria. Its diagnosis has not been reported and therefore its systematic and taxonomic value is none.

In the series of the exsiccati edited by Bauer there is a number of wrongly determined specimens of species of the genus *Calliergon*. Their correct determination and revision will be reported in the monograph of the genus *Calliergon* (Sull.) Kindb.

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STRESZCZENIE

W pracy podano krytyczny przegląd odmian i form gatunków rodzaju *Calliergon* (Sull.) Kindb., wyróżnionych i wydanych w wydawnictwach zielnikowych przez E. Bauera i J. Mikutowicza. Dla wszystkich uwzględnionych taksonów podano łacińskie diagnozy, gdyż dotychczas nie były one znane (z wyjątkiem *Calliergon megalophyllum* Mikut.). Przebadano wszystkie okazy oryginalne i izotypy. Przy badaniu omawianych jednostek systematycznych brano pod uwagę wszystkie znane ich cechy budowy morfologicznej i anatomicznej. Okazało się, że dla niektórych należy przyjąć ich dawną rangę systematyczną. Dla wielu z nich podano opisy bądź zastosowano nową kombinację lub emendację. Takie taksony, jak: *Calliergon stramineum* (Dicks.) Kindb. for. *submersa* Bauer i for. *procumbens* Bauer oraz *C. cuspidatum* (Hedw.) Kindb. for. *erecta* Bauer uznano za ekomorfozy i modyfikacje, nie znajdujące potwierdzenia na dużym materiale zielnikowym z całej Europy. Nie posiadają one wartości taksonomicznej i nie mogą być przyjęte w systematyce briologicznej za obowiązujące. Dla odmian i form ważnych i dających się wyróżniać w zbiorach, a jednocześnie reprezentujących prawidłowy szereg zmienności gatunków rodzaju *Calliergon* podano współcześnie znane ich rozmieszczenie w Europie, a w niektórych przypadkach w świecie.

РЕЗЮМЕ

Автором представлен критический обзор разновидностей и форм видов рода *Calliergon* (Sull.) Kindb. выделенных и изданных в гербарных изданиях Ю. Микутовичем и Э. Бауэром. Для всех принятых таксономических единиц представлены латинские описания, так как до сих пор они были еще не совсем известны (за исключением *Calliergon megalophyllum* Mikut.). Автором были изучены все оригинальные экземпляры и изотипы. При исследовании обсужденных таксономических единиц принимались во внимание все известные признаки их морфологического и анатомического строения. Оказалось, что для некоторых следует принять их прежнее таксономическое название. Для многих из них представлены новые описания, либо применена новая комбинация или эмендация. Такие таксономические единицы как: *Calliergon stramineum* (Dicks.) Kindb. for *submersa* Bauer и for *procumbens* Bauer а также *C. cuspidatum* (Hedw.) Kindb. for *erecta* Bauer признано за экоморфозы и модификации, не находящие подтверждения на крупнейшем гербарном материале из всей Европы. Они не имеют таксономической ценности и не могут быть признаны обязательными в бриологической систематике. Для важнейших разновидностей и форм представляющих собой правильный ряд изменчивости видов рода *Calliergon* представлено их современное размещение в Европе, а в некоторых случаях и во всем мире.