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SHORT COMMUNICATION

Rubus serpens Weihe ex Lej. & Courtois (Rosaceae L.), with related taxa and names

A. van de Beek[1]

Key words

Rubus serpens
Rubus picearum
Rubus edentulus
Rubus flexuosus
Rubus muridens
Rubus saltuum

Abstract – The lectotype (Weber 1985: 370) of *Rubus serpens* Weihe ex Lej. & Courtois (1831: 172) appeared to not match with the characteristics of the protologue. Therefore a new type specimen was selected which corresponds with the requirements. This type is morphologically very similar to *R. picearum* (A. Beek) A. Beek (1984: 58), as which it was identified initially. In order to attain certainty, plants of different localities were transferred to the garden. From this experiment it became clear that both are clearly distinct species. It also turned out that the material attributed to *R. picearum* was not homogeneous. Another species was included in it. This new species is described here as *R. edentulus* A. Beek & K. Meijer.

Rubus serpens was also published as *R. flexuosus* Lej. ex K.Koch (1853: 119). Because this is an earlier homonym of *R. flexuosus* P.J.Müll. & Lefèvre (1859: 240) the latter must have the correct name *R. saltuum* Focke ex Gremli (1870: 30).

Samenvatting – Het lectotype (Weber 1985: 370) van *Rubus serpens* Weihe ex Lej. & Courtois (1831: 172) bleek niet in overeenstemming met de protoloog te zijn. Daarom is een ander type-exemplaar gekozen dat wel aan de vereisten voldoet. Dit exemplaar doet denken aan *R. picearum* (A. Beek) A. Beek (1984: 58), waarmee het aanvankelijk zelfs werd geïdentificeerd. Om zekerheid te krijgen werden planten van verschillende locaties overgebracht naar de tuin. Het resultaat van deze kweekproeven was dat beide duidelijk onderscheiden soorten zijn en dat zich onder het materiaal van *R. picearum* nog een derde taxon bevond. Deze nieuwe soort wordt hier beschreven als *R. edentulus* A. Beek & K. Meijer.

In de gebieden van de typelocaties van *R. serpens* en *R. picearum*, respectievelijk Malmédy (België) en Epen (Nederland) komen daarnaast nog andere planten voor die op het eerste gezicht veel op deze lijken, maar bij preciezer waarneming toch duidelijk verschillen. Deze zijn vooralsnog slechts in een klein verspreidingsgebied gevonden en worden daarom niet beschreven.

Een sleutel wordt gegeven waarin genoemde taxa, en ook *R. muridens* A. Beek (1997: 46), waarvan zwakke planten voor verwarring kunnen zorgen, zijn opgenomen.

Rubus serpens werd ook gepubliceerd als *R. flexuosus* Lej. ex K. Koch (Koch 1853: 119). Aangezien dit een vroeger homoniem van *R. flexuosus* P.J. Müll. & Lefèvre (1859: 240) is, moet die laatste als correcte naam *R. saltuum* Focke ex Gremli (1870: 30) hebben.

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INTRODUCTION

Rubus serpens Weihe ex Lej. & Courtois (1831: 172) is one of those names that has been given to many different taxa. This confusion was initiated by Focke (1877: 365) who identified *R. serpens* with exsiccata in Wirtgen's Herbarium Ruborum Rhenanorum (Wirtgen 1854–1861), distributed under the name *R. geromensis* P.J. Müll., and with *R. lividus* G. Braun (1877–1881, nr. 18 [1876]). It was stimulated by Sudre (1908–13) who made *R. serpens* one of his main species with numerous infraspecific taxa. Following his track many authors inserted the abundant *Rubus* taxa of the series *Glandulosi* (P.J. Müll.) Focke (1877: 355)

[1] Petenbos 8, 3904 BN Veenendaal, the Netherlands;
e-mail: beekavd@xs4all.nl

with pale stipitate glands and fine prickles into this group. The true identity of Lejeune & Courtois' plant was drawn under this flood of various brambles from all over Europe.

This situation lasted until Weber (1985) examined the original specimens in Lejeune's herbarium in BR and discovered that none of those corresponds with what has been called *Rubus serpens* since the days of Focke (1877: 365; 1902: 621) and Sudre (1908–13: 212). He selected a specimen as lectotype which does not at all belong to the series *Glandulosi* and gave a new name, *R. ignoratus* H.E.Weber (1985: 368), to the taxon which was considered as *R. serpens* in its most characteristic form until then: plants with acicular pricklets and long stipitate pale glands.

A visit to the herbarium of the Botanical Garden in Meise (BR), Belgium, where the collection of Lejeune is conserved, evoked a re-examination of Weber's conclusion. It seemed that his selection of the type was at least ambiguous. Therefore, a precise comparison of the protologue and the available specimens of Lejeune was made, related to field work in the eastern part of Belgium and the south of the Netherlands. Next to the author, Karst Meijer (Havelte, the Netherlands) made many observations in this region during many years.

MATERIAL AND METHODS

The specimens in Lejeune's collection were critically examined and intensive observations were made in the region of Malmédy and Verviers (Belgium), as well as in the very south of the Netherlands, where the *Rubus* flora is very similar to that region. Wider investigations were made by Karst Meijer throughout the Ardennes unto the French border. Numerous photos were made and samples collected. Some plants were taken into cultivation for more precise research.

THE ORIGINAL SPECIMENS

There are four specimens in Lejeune's herbarium (BR) that he identified as *Rubus serpens*:

Specimen 1: BR 1 100 525

Specimen 2: BR 557 723

Specimen 3: BR 1 189 085

Specimen 4: BR 1 189 084

Lejeune & Courtois (1831: 172) give the following protologue for Rubus serpens:

> "935. *R. serpens* Weihe – Caule angulato debili aculeato, aculeis tenuibus, brevibus, aculaeolis crebris, foliis 3-5.nato-pedatis, foliolis subcordato-ovatis acuminatis argute serratis, utrinque parce villosis concoloribus, ramis floriferis valde flexuosis, paniculae oblongae compositae ramis pedunculis calycibusque aculeolatis setoso-glandulosis. *N. Weihe. Mon. Ms. N° 27.*
>
> R. flexuosus *Lej. Rev.!* R. aciculatus *Weihe olim*. R. Bellardi *Libert!*
>
> In agro Verviano et Malmundariensi. Flor. Jul. Cor. alba. Petioli ipsi aciculis setisque horridi (v.v.)."

> [935. *R. serpens* Weihe – With weak prickly angular stem with short weak prickles and numerous little prickles, 3–5-foliolate pedate leaves, with subcordate-ovate acuminate leaflets, which are sharply serrate, on both sides somewhat hairy, green, with a very flexuous flowering branch and an oblong composed inflorescence with the peduncles and calyxes provided with prickles and glandular bristles. *N. Weihe. Mon. Ms. N° 27.*
>
> R. flexuosus *Lej. Rev.!* R. aciculatus *Weihe olim*. R. Bellardi *Libert!*
>
> In the region of Verviers and Malmédy. Flowers Jul. Corolla with. Petioles horrid by acicles and bristles (v.v.).]

When we compare the four specimens with the protologue, we conclude:

Specimen 1 [BR 1 100 525] — "R. serpens Weihe seu R. flexuosus" and "Rubus michelianus R. flexuosus olim"

The following characters do not fit to the protologue: "Caule angulato … foliolis subcordato ovatis…., utrinque parce villosis [upside glabrous] , … paniculae ... compositae ramis pedunculis calycibusque aculeolatis setoso-glandulosis."

Also "Petioli ipsi aciculis setisque horridi" does not correspond with the specimen. It might be that many acicles (fine acicular pricklets) have been broken off in time, but even then it does not seem that the characterization is suitable.

The phrase "ramis floriferis valde flexuosis" is characteristic for this specimen.

The plant is very similar to, and probably identical with, *R. flexuosus* P.J. Müll. & Lefèvre (1859: 240) (= *R. saltuum* Focke ex Gremli 1870: 30, see below) which is rather common east of Malmédy, which belongs to the series *Pallidi* Watson (1946: 344).

Specimen 2 [BR 557 723] — "R. serpens Weihe" "Rubus bellardi ex Libert Malmed" 'et prope Verviam' [written with a different pen].

It is only an inflorescence.

"… ramis floriferis valde flexuosis" does not fit very well to the sample. The axis is more flexuous than it seems at first sight because the main curve is covered by a leaf, but 'valde flexuosis' is too much.

Specimen 3 [BR 1 189 085] — "R. serpens circa Verviam prope Crotte" and "Rubus michelianus R. aciculatus olim". This plant has been selected as the lectotype by Weber (1985: 370).

The following characters do not fit to the protologue:

Caule angulato aculeis tenuibus [the stem is roundish with rather strong prickles]…, foliolis subcordato [one is rounded, the other one slightly emarginated but not so much that the characterictic 'subcordato' would be fitting] ... utrinque parce villosis [the upper surface is glabrous, the underside rather densely soft hairy] … ramis floriferis valde flexuosis [the axis is on the contrary rigid and straight]. The petiole is not horrid.

Similar plants were not found during field work. The plant belongs to the series *Pallidi.*

Specimen 4 [BR 1 189 084] — was collected in Luxemburg and is not mentioned in the protologue. It is the same taxon as specimen 2.

Specimen 4 (BR 1 189 084) cannot be selected as lectotype, because the locality is not mentioned in the protologue.

None of the three other samples is fully in correspondence with the protologue, but not to the same degree.

The most divergent is specimen 3 (BR 1 189 085). It cannot be considered as the lectotype as Weber (1985: 370) selected it. The divergence from the protologue inhibits such a selection. Especially the leaves which are glabrous above and soft hairy below, and even more the rigid axis of the inflorescence are in serious conflict with the protologue and thus it must be superseded (ICN, art. 9.19b), since another element is available that is not in conflict with the protologue.

Specimen 1 (BR 1 100 525) is conspicuous by its flexuous axis. This could evoke selection as a lectotype, but the deviations from the protologue on other characteristics are strong – too strong for selection as a lectotype.

Against specimen 2 (BR 557 723) is only one objection: the axis is not very, but only slightly flexuous. That difficulty is easier to overcome than the problems with the other specimens which are multiple and not just one, and this only in degree. So there is no solid objection against selecting it as the lectotype.

Therefore we come, in line with ICN art. 9.19b, to a new typification of *Rubus serpens* to replace the lectotype that Weber (1985: 370) selected but does not correspond with the protologue:

Rubus serpens Weihe ex Lej. & Courtois, Compendium Florae Belgicae 2: 172 (1831).

Lectotypus (hic designatus): BR, “R. serpens Weihe” “Rubus bellardi ex Libert Malmed” “et prope Verviam” [written with a different pen] (BR 557 723).

THE LABELS

On the labels with the name, or on additional labels on the sheets, other names have been given next to *Rubus serpens*.

- Specimen 1 has “R. serpens Weihe seu R. flexuosus” and on another label: “Rubus michelianus. R. flexuosus olim.”
- Specimen 2 has a label with “Rubus bellardi ex Libert”.
- Specimen 3 is provided with a label which runs: “Rubus michelianus R. aciculatus olim”.

The name “R. michelianus” is also found on labels of two of the three original specimens of *Rubus axillaris* Lej. & Courtois. In the description of that species the authors also refer to that name and they add that it is very similar to *R. flexuosus*, a name which they did not publish validly, but first (Lejeune 1824: 238) as a numen nudum and later (Lejeune & Courtois 1831: 172) as a synomym of *R. serpens*. This name is only found on specimen 1 of *R. serpens*.

It is clear that Lejeune and Courtois struggled with the taxonomy of all these specimens, as also becomes clear from the discussions on the labels of the specimens of *Rubus axillaris*. If we try to reconstruct the history it turns out that it begins with a collection of Mrs. Libert which she called *R. bellardii* Weihe and which Lejeune correctly splitted off from this species. This is specimen 2. He created a new provisional taxon with the name *R. flexuosus*, which name is on specimen 1 but probably includes also specimen 2 though it is not written on the label. Next to this he found another specimen which he called *R. aciculatus* (specimen 3). The respective names refer to the most typical characteristics: the flexuous axis and the conspicuous acicles. In a subsequent move he created his *R. michelianus*, consisting of elements of his former *R. flexuosus*, his *R. aciculatus* and elements of his former *R. axillaris* (see the label on the specimen of *R. axillaris*, which he first had identified as *R. sprengelii* Weihe, [BR802678]). There is no description of *R. michelianus,* but what the samples have in common is that they are rather weak brambles with 3–5-nate leaves with stipitate glands in the inflorescence, but not to the extent of the long and numerous glands of the later series *Glandulosi*. So they are in between the less glandular *R. axillaris* Weihe ex Lej. & Courtois (1831: 166) and the more glandular *R. serpens*, a new name that Lejeune created for a part of his *R. flexuosus*, probably because he considered precisely his most characteristic *R. flexuosus* as part of the *R. michelianus* complex (specimen 1).

In the final version of the manuscript he made a division which is fully based on the frequency of stipitate glands: The samples with absent or few glands and leafy panicles are *R. axillaris* now. This is a well characterized taxon. The remnant with frequent stipitate glands is lumped together as *R. serpens* and consists of very different elements. It is not clear why Lejeune & Courtois (1831) did not return to the old name *R. flexuosus*. Probably this name was too ambiguous, because elements of it were part of the previous *R. michelianus*. Nevertheless they had it so much in their mind that they, in the protologue of *R. axillaris*, compared that species not with *R. serpens* but with *R. flexuosus*!

In sum, the original plant of Mrs. Libert is the most stable element in the *Rubus serpens* story and if the plants that are finally inserted under this name are compared it is clear that the description is based on this element, and not on the specimens that are lumped together with it during the history through 1831.

THE INTERPRETATIONS BY FOCKE AND SUDRE

As said, Focke held different plants for *Rubus serpens*. He did not see original specimens (1877: 366) and this may explain his confusion. The specimens that he quotes from Wirtgen’s Herbarium Ruborum Rhenanorum (I,104; II,105) are identified as *R. geromensis* P.J. Müll., but these do not correspond with the description of the plants from Gérardmer, which Müller published previously (1858: 185); no original specimens of Muller's plant could be traced so far. Anyway, Focke considered Wirtgen’s specimens as *R. serpens* and these are different, not only from the type, but from all Lejeune's specimens. Even the two numbers in Wirtgen’s herbarium are different from each other. *Rubus lividus* G. Braun, which has been also quoted by Focke, is somewhat similar to Wirtgen, Herbarium Ruborum Rhenanorum II,105, but not identical, and both are very different from Herbarium Ruborum Rhenanorum I,104 (at least the specimens in L).

Sudre, in his monograph on *Rubus* (1908–13: 212), identified another species with *R. serpens*: *R. approximatus* P.J. Müll. (1859: 242). He inserts this taxon under var. α. *puripulvis*, so the most basic form of the species. In Sudre’s herbarium in BORD are several specimens under this name, some from the Pyrenées, but also two plants of Müller with the label *R. approximatus*. These plants are totally different from the collections in Lejeune’s herbarium.

The situation with Sudre is, however, more complicated. Sudre visited BR, which resulted in his article about the *Rubus* collection

of this institution (Sudre 1910). During this visit he made notes on the sheets of Lejeune's original specimens. None of these was identified as *R. serpens.* Sudre gave the following names:

— Specimen 1: “R. tereticaulis Müll. (R. argutipilus Sudre) v. pseudo-Bellardii”.

— Specimen 2 and 4: “R. rivularis M.W. ssp. R. spinosulus Sud. var. aglabratus”.

— Specimen 3: “R. rivularis M. et W. ssp. spinulosus voisin du type”.

These names are also in his publication (Sudre 1910).

Rubus tereticaulis subsp. *argutipilus* var. *pseudo-bellardii* Sudre (1904: 20) and *R. rivularis* subsp. *spinulosus* Sudre (1898–1903: 6) had been published previously, but *Rubus rivularis* subsp. *spinosulus* var. *aglabratus* is new. Sudre does not give a diagnosis. He refers to *R. aglabratus* P.J. Müll. (1861: 308), but this is also a nomen nudum. Nevertheless the publication by Sudre can be considered as valid because he makes the following remark (Sudre 1910: 222f): “Se rattachent à cette variété un specimen de Malmédy (*R. Bellardii* Libert!) et un du G^{d}.-duché de Luxembourg (Lejeune) portant tous deux le nom de *R. serpens* Wh. [...] Tous ces exemplaires correspondent exactement au *R. Bellardii* Libert, c’est à dire au *R. serpens* Wh. (salt. ex pte).” From this it is clear that Sudre held Libert's specimen (BR 557 723) for the true *R. serpens* Weihe ex Lej. & Courtois. So his var. *aglabratus* is a nomen novum status novus for this species and typified by the same type.

Actually, Sudre should have accepted this name, but he does not so because he kept to current use of nomenclature. Therefore he used the name *R. serpens* Weihe for the species in the sense of Focke and other authors ‘bien que quelques-unes et peut-être même la plupart des forms vues par cet auteur [Weihe] soient étrangères à ce groupe’, as he declared in his description of *R. serpens* (Sudre 1910: 223f). By doing so he confirmed confusion and even increased it.

If we overview the interpretation history of *Rubus serpens*, which started with the plant that Mrs. Libert collected as *R. bellardii* in the beginning of the nineteenth century, Weber was fully right when he revisited the interpretation of this taxon. He described a new species, *R. ignoratus* H.E. Weber (1985: 368), in order to replace the false *R. serpens*. If he would have done so, indeed, a new name would not have been necessary. He just could have taken one of the species to which Focke refers or one that Sudre mentions. His *R. ignoratus* is, however, a new publication and even more: a different species, divergent from any of these. So we have the situation that *R. serpens* sensu Focke = *R. geromensis* P.J. Müll. sensu Wirtgen, and = *R. lividus* G. Braun (which however are neither identical nor homogeneous); *R. serpens* sensu Sudre = *R. approximatus* P.J. Müll.; *R. serpens* auct. according to Weber = *R. ignoratus* H.E. Weber, and *R. serpens* sensu Weber is the unknown taxon of the series *Pallidi* Watson in BR (specimen 3).

DESCRIPTION OF *RUBUS SERPENS* WEIHE EX LEJ. & COURTOIS

Viewing the many misidentifications of *Rubus serpens* it is due to provide a full description of the taxon.

***Rubus serpens* Weihe ex Lej. & Courtois** — Fig. 1, 2, 3, 4, 5 & 6

Stem (Fig. 1) initially slightly erect but soon prostrate, diameter (3–)5–6 mm, green or later at sunny places somewhat brownish, usually angular, (almost) glabrous or rarely slightly hairy. Young stems green (Fig. 2). Prickles very unequal, the bigger ones 12–17 per internode, a little compressed at the base, strongly recurved, straight or sometimes a little curved, often very soon attenuated, subulate or acicular, or rarely more gradually attenuated and compressed, up to (3–)4–5(–6) mm; stipitate glands and glandular acicles up to more than 200 per internode, with a yellow stalk and a dark head. Stipules linear, 7–9 mm long. Petiole 4–7 cm long, with 14–18 curved prickles, and many glands and glandular acicles, loosely hairy. Young leaves not or hardly coloured by anthocyan. Leaves (Fig. 3) 3(–4)–foliolate, sometimes with deeply lobate lateral leaflets, upside with very scattered hairs (0–8 per cm^2), downside with some hairs on the veins, the margin often a little undulate. Serrature slightly periodical with irregular, usually moderately deep, but sometimes fine, with straight or somewhat reflexed teeth. Terminal leaflet 80–120 mm long, rather broadly elliptic to obovate, with a deeply emarginated base, rather abruptly attenuated; latitude (60–)63–75% of the length. Length of the petiolule 20–29% of the length of the leaflet.

Flowering branch (Fig. 4) (bluntly) angular, thinly appressed pilose, with numerous pale or in the sun light brown glands, glandular bristles and acicular sharply reflexed often curved up to 4–3 mm long prickles. Leaves upside slightly hairy (30–50 per cm^2), downside with some hairs only on the veins. Young leaves green. Axis often zigzag, green when young. Inflorescence (Fig. 5) large with rounded tip, rarely bifurcate, leafy, with often a broad simple leaf near the tip. Peduncles divided under or in the middle, with numerous yellow curved prickles, the longest ones with 2–15 flowers. Pedicels thin, 10–25 mm long, short greyish hairy, with numerous pale or in the sun brown glands, the longest 1.5x as long as the diameter of the pedicel and with 5–17 curved yellow prickles. Sepals (greyish–)green, initially loosely reflexed, later up to erect, attenuated into a long narrow tip, with (almost) sessile dark glands on the margin and 5–50 stipitate glands and 5–8 pricklets. Petals white, 12,0–13,5 × 5,5–7,0 mm, curved upward (Fig. 6). Stamens somewhat shorter than the styles. Anthers and ovaria glabrous. Styles yellow. Receptacle with some long hairs.

Distribution — *Rubus serpens* has a wide distribution. It is common in the Ardennes in Belgium and Luxemburg, reaching north to the south of the Netherlands, and in Germany in the region of Aachen and Monschau, eastward to Düren. To the west its area extends to the region of Brussels and further southward in the Forêt de Retz and unto the region south of Paris.

Exemplary specimens

Belgium

BR — BR 1 100 496, *Wathelet, nr. 93*, Kinkempois-Angleur, 9.7.1911, sub nomine *R. rivularis*; BR 1 100 533, *Wathelet*, Modave, 14.7.1910, sub nomine *R. rivularis* subsp. *spinosulus* var. *rivulariformis*; BR 1 100 503, *Du Pré*, Woluwe St. Pierre, 12 Août 1894, sub nomine *R. spinosulus* var. *rivulariformis*.

L — *A. van de Beek B830*, Eupen, bei der Talsperre, 21.7.1972, [L.1918931/32], sub nomine *R. picearum*; *Gravet*, Louette-St.-Pierre, 8.3.1892, [L.1914229].

Luxemburg

BR — BR 1 189 084, *Lejeune*, Luxembourg.

France

P — *Lefèvre, no. 96*, *R. glaucicomans* Lef., Taillis d’Ivors, Canton de Betz (Oise), 6 and 7.1852.

L — *Didier 156*, Seine-et-Oise, Forêt de Sénart, environs de l’Hermitage, 20.7.1924, [WAG.1200188/89], sub nomine *R. tereticaulis* subsp. *argutipilus* var. *anamphiestus.*

Netherlands

Herb. A. van de Beek — *A. van de Beek 2012.10*, Vaals, op gratis parkeerplaats bij Drielandenpunt, 13.07.2012, sub nomine *R. picearum.*

L — *W. Beijerinck*, Ravensbos, 2.7.1951, [WAG0066039/041], [WAG.1200183–85], sub nomine *R. koehleri*; *W. Beijerinck*, Krekelberg, 3.7.1951, [WAG.1200182], sub nomine *R. rivularis*; *W. Beijerinck*, Krekelberg bij

Fig. 1. Stem of *Rubus serpens* Weihe ex Lej. & Courtois. Photo: A. van de Beek.

Fig. 2. Young sprout of *Rubus serpens* Weihe ex Lej. & Courtois. Photo: A. van de Beek.

Fig. 3. Leaves of *Rubus serpens* Weihe ex Lej. & Courtois. Photo: A. van de Beek.

Fig. 4. Flowering branch of *Rubus serpens* Weihe ex Lej. & Courtois. Photo: A. van de Beek.

Fig. 5. Inflorescence of *Rubus serpens* Weihe ex Lej. & Courtois. Photo: A. van de Beek.

Fig. 6. Flowers of *Rubus serpens* Weihe ex Lej. & Courtois. Photo: A. van de Beek.

Schinnen (Z.L.), 12.9.1950, [WAG.1200178/79], sub nomine *R. rosaceus*; *W. Punt*, wegrand in Grote Bos, onder sparren, 8.7.1954, [U.1554510]; *Jansen & Wachter 16565*, Houthem, achter hotel Bellevue, tegen de helling, [L.3288059/60], sub nomine *R. picearum*; *A. van de Beek A847*, Vaalserbos, 18.7.1972, [L.3288064/65], sub nomine *R. picearum*.

Germany

L — *A. van de Beek B3*, Lammersdorf bei Aachen, 11.8.1967, [L.1918930], sub nomine *R. picearum*; L, *A. van de Beek B21*, Monschau, bei der Talsperre, 10.8.1967, [L.1918927/28], sub nomine *R. picearum*; L, *A. van de Beek B620*, Aachen, Friedhof, 28.6.1972, [L.1918934], sub nomine *R. picearum*.

Herb. A.S. Troelstra — *A.S. Troelstra 97-R58*, loofbos rond Gürzenicher Bruch, 1 km ZW van Birgel bij Düren, Rur-Eifel, D, 15.7.1997, sub nomine *R. picearum*; *97-R68*, rand naaldbos, t.o. voetbalveld, "Am Bachofen", Schevenhütte (gem. Stolberg), N.-Eifel, 16.7.1997, sub nomine *R. picearum*; *99-R007*, rand loofbos, ten O. van Rott (N. van Roetgen), NW-Eifel, D, 3.7.1999, sub nomine *R. picearum*.

RUBUS FLEXUOSUS LEJ. EX K. KOCH AND *R. FLEXUOSUS* P.J. MÜLL. & LEFÈVRE

The name *Rubus flexuosus* was not validly published by Lejeune. It occurs as a nomen nudum in Lejeune (1824: 238) and as a synonym in Lejeune & Courtois (1831: 172), though the remark to *R. axillaris* in the latter publication makes it at the brink of validity. The final step to validation was made by Koch (1853: 119). In his list of plant names, Koch inserts a *Rubus flexuosus* Lej. Because he gives as a synonym *R. serpens*, the description of the latter is the validating description of *R. flexuosus* Lej. ex K. Koch. By doing so, Koch created a nomen superfluum. Probably he thought that the name *R. flexuosus* was older (1824) and thus had priority, not taking into account that it, as a nomen nudum, was an invalid publication.

Koch made the name valid by his action, but not legitimate. Nevertheless it is an earlier homonym of *Rubus flexuosus* P.J. Müll. & Lefèvre (1859: 240), which name by consequence is illegitimate. The earliest legitimate synonym of that species is *R. saltuum* Focke ex Gremli (1870: 30) and so this name must be restored as the correct name for this taxon.

RUBUS PICEARUM (A. BEEK) A. BEEK

The type specimen of *Rubus serpens* resembles well developed plants of *R. picearum* (A. Beek) A. Beek (1984: 58). Weak specimens of *R. serpens* can be even more confusing. This resulted in the idea that both were identical. It was Karst Meijer who after intensive investigations both in the south of the Province of Limburg in the Netherlands and in the Ardennes in Belgium insisted that the material which was collected as *R. picearum* or was called so was not homogeneous. Some plants which were labelled as *R. picearum* were more hairy, softer and had a hirsute, less flexuous panicle with weaker prickles. There were, however, transitions and because similar plants were also found on other localities of *R. picearum* it seemed these plants were only weak plants on poorer soil but nonetheless *R. picearum*.

In order to attain to more clarity it was decided to transfer ten plants from different localities to the author's garden in Veenendaal, so that they grew in the same circumstances. The results were unambiguous. Two of the plants were identical with the type of *Rubus serpens*. One of these was a weak plant from Krekelberg, Province of Limburg, which looked very much like *R. picearum* when it was found in a dense wood. In the open of the garden, however, it did not differ in any characteristic from normal *R. serpens*. On the other hand a plant from the type locality of *R. picearum* turned out to be very well distinct and different in many aspects. The garden experiment clearly shows that both species are not identical. Next to this, the more hairy poor plants which also grow at the locus classicus of *R. picearum* appeared to be a different species indeed, as Meijer (pers. comm.) already claimed. He proposed the name *R. edentulus* because of the very tiny serrature of the leaves and it is under this name that we jointly publish this species here.

Before doing so a full description of *Rubus picearum* is given:

***Rubus picearum* (A. Beek) A. Beek** — Fig. 7, 8, 9, 10, 11 & 12

Holotype: U, *A. van de Beek A 74*, Epen, Onderste Bos, 8.8.1967, not found.

Isotype: L [L.3288058].

The holotype cannot be found back. It was already missing when the collection was still in Utrecht (Matzke-Hajek 1992: 166). Fortunately there is an isotype in L.

The following specimens in L: *A. van de Beek A 49*, Epen Onderste Bos, 9.8.1967 [L.3288066], and *A. van de Beek A 75*, Epen Bovenste Bos, 9.8.1967 [L.3288077] were also used for the protologue.

Primocane (Fig. 7) arcuate, diameter 4–6(–8) mm, roundish to angular, (almost) glabrous, with more than 200 unequal dark stipitate glands and gland tipped acicles per internode gradually linking to fine acicles. Larger prickles 5–10(–15) per internode, acicular or sometimes somewhat compressed, strongly reflexed, sometimes slightly curved, up to 3–5 mm long. Young sprouts look dark red by numerous stipitate glands (Fig. 8). Stipules linear. Petiole 6-9 cm, thinly appressed hairy, with 5–15 weak curved prickles. Young leaves hardly coloured by anthocyan. Leaves (Fig. 9) 3- or partly 4–5-foliolate, pedate, upside very slightly hairy (3–20 hairs per cm^2), downside a little hairy only on the veins, glabrous on touch, leaves flat. Teeth very shallow, sometimes rather fine, but usually wide; because of the wide shallow teeth the margin seems often very superficially or hardly dentate. Terminal leaflet 84–122 mm long, from an emarginated base narrow elliptic, sometimes tending to ovate, sometimes to obovate, usually very gradually attenuated into a long tip; width 51–63(–1)% of the length. Length of the petiolule 28–39% of the length of the leaflet.

Flowering branch (Fig. 10) red when young, bluntly angular, moderately provided with stellate hairs, with more than 200 usually brown-red unequal stipitate glands and 3–5 strongly reflexed, sometimes slightly curved, up to 2–3(–4) mm long pricklets per internode. Leaves with scattered hairs upside (10–60 hairs per cm^2), downside hardly hairy. Young leaves with a red margin. Inflorescence (Fig. 11) rounded, rather often bifurcate, with a zigzag axis, leafy at the base or up to the middle, and sometimes also higher one or more large simple leaves. Peduncles a little ascending, divided under or above the middle, sometimes fasciculate, the longest ones with 1–14 flowers, with reflexed straight or hardly curved pricklets. Pedicels thin, 8–32 mm long, thinly appressed hairy, with 3–13 straight pricklets and more than 200 dark red-brown stipitate glands most of which are about as long as or a little longer than the diameter of the pedicel, sometime a few more than 4-times as long. Sepals greyish green, with a long tip, initially loosely reflexed, after flowering erect, with numerous dark stipitate glands and 3–15 prickles. Petals white, stellate patent, 11,5–14,5 x 4,5–5,5 mm (Fig. 12). Stamens about as long as or a bit longer than the styles. Styles ivory with a red base or wholly pink. Anthers and ovaria glabrous. Receptacle densely short hairy.

Distribution — Rather common from the very south of the Netherlands southward through Belgium up to the region of Malmédy.

Fig. 7. Stem of *Rubus picearum* (A. Beek) A. Beek. Photo: A. van de Beek.

Fig. 8. Young sprout of *Rubus picearum* (A. Beek) A. Beek. Photo: A. van de Beek.

Fig. 9. Leaf of *Rubus picearum* (A. Beek) A. Beek. Photo: A. van de Beek.

Fig. 10. Flowering branch of *Rubus picearum* (A. Beek) A. Beek. Photo: A. van de Beek.

Fig. 11. Inflorescence of *Rubus picearum* (A. Beek) A. Beek. Photo: A. van de Beek.

Fig. 12. Flower of *Rubus picearum* (A. Beek) A. Beek. Photo: A. van de Beek.

Note — The picture of *Rubus picearum* in Matzke-Hajek (1992: 168) is a picture of a specimen of *R. serpens*.

Exemplary specimens

Belgium

Herb. A. van de Beek — *A. van de Beek 2012.08*, Verviers, weg bij Crotte, noord van de Vesdre, 12.07.2012.

Netherlands

L — A. *van de Beek A49*, Epen, Onderste Bos, 9.8.1967, [L.3288066]; *A. van de Beek A75*, Epen, Bovenste Bos, 9.8.1967, [L.3288077]; *A. van de Beek A7980*, Rott, Holseterbos, 2.7.1992, [L.3288073].

HFN — *K. Meijer*, Slenaken, 62.41.24, 29.6.1989.

Herb. A. van de Beek — *A. van de Beek 2016.04*, Epen, bos aan eind van pad t.o. Schweibergerweg, linksaf, locus classicus, 190,280/309,203, 05.07.2016; *A. van de Beek 2016.15*, Veenendaal, gecultiveerd in tuin. Plant van Epen, Onderste Bos, bos eind van pas t.o. Schweibergerweg, linksaf, 190,280/309,203, 10.07.2016.

RUBUS EDENTULUS A. BEEK & MEIJER

***Rubus edentulus* A. Beek & Meijer**, nov. spec. — Fig. 13, 14, 15, 16 & 17

Holotypus: L, *A. van de Beek 2016.01*, Veenendaal, tuin Petenbos 8, overgeplant van Epen, Onderste Bos, bosrand bij eind van pad tegenover Schweibergerweg, 19.06.2016.

The same plant in a later stadium: L, *A. van de Beek 2016.16.*

Original plant: L, *A. van de Beek 2013.38*, Epen, Onderste Bos, bosrand bij eind van pad tegenover Schweibergerweg, 07.2013.

Primocane (Fig. 13) prostrate from the very beginning, roundish or bluntly angular, diameter 2–7 mm, (almost) glabrous, with numerous (more than 200 per internode) very unequal pale or in the sun brownish stipitate glands and glandular acicles with connections to the larger prickles; these 4–15 per internode, acicular or subulate, strongly reflexed, sometimes slightly curved, up to 3–5 mm long. Young sprouts green (Fig. 14). Stipules small, 4–7 mm long, filiform or linear. Petiole 3,5–8 cm long, with rather dense appressed and patent hairs, numerous unequal glands and glandular acicles and 3–9 reflexed or curved prickles. Leaves (Fig. 15) usually dull green, slighty coloured by anthocyan when young, almost always 3–foliolate, sometimes a few 4- or 5-foliolate, with scattered (0–12 per cm^2) stiff hairs or glabrous above, the underside by scattered stiff hairs sensibly but not very densely hairy, the upper surface with deep veins. Serrature very fine, shallow, somewhat irregular. Terminal leaflet 66–120 mm long, narrow ovate, elliptical or obovate, with an emarginated or narrow cordate base, gradually or rather abruptly attenuated; width 52–73% of its length. Length of the petiolule 19–40% of the length of the leaflet.

Flowering branch angular, green when young, densely tangled hairy with numerous unequal pale stipitate glands, glandular acicles and a few hardly distinguishable up to 2 mm long acicles. Inflorescence (Fig. 16) without or with only at the base some leaves, short pyramidal, truncate, (composed) racemose, the longest peduncles with 2–14 flowers. Pedicles patent or the lowest ones somewhat erect, divided far below the mid or fasciculate. Pedicels thin, 6–22 mm long, densely tomentose and hirsute, with numerous unequal stalked and acicular glands (the longest ones up op twice the diameter of the pedicel) and 2–7 fine acicles. Sepals concave, greyish or green-greyish tomentose and hirsute with numerous unequal pale or in the sun brownish stipitate glands and acicular glands, clasping to the fruit, attenuated or rather short pointed, not with a leafy apex. Petals white, small, elliptic or obovate, 9,5–11,5 mm long, 4,0–5.5 mm wide, erect (Fig. 17). Stamens somewhat shorter than the greenish styles or as long as these. Anthers glabrous. Ovaries hairy, especially at the top. Receptacle densely hairy.

Recognition — *Rubus serpens* differs by its usually stronger primocane, with numerous somewhat enlarged prickles, leaves which are hardly sensible hairy below; the leaves of *R. serpens* feel glabrous, those of *R. edentulus* stiff hairy. The serrature of *R. edentulus* is much finer than with *R. serpens* and the terminal leaflets are gradually attenuated while those of *R. serpens* are rather abruptly acuminated. The inflorescences of *R. edentulus* are densely hairy, while those of *R. serpens* are only slightly hairy. The latter's prickles are far more numerous and also stronger, up to 6 mm long. The sepals of *R. serpens* are green and have a long often leafy apex, while those of *R. edentulus* are grey and attenuated or somewhat elongated. *R. serpens* has glabrous ovaries and its receptacle is only slightly hairy.

Rubus picearum has almost glabrous leaves. The serrature is shallow, but much wider than with *R. edentulus*. The terminal leaflets are more abruptly acuminated. The pedicels are long with dark red glandular hairs and green, not densely hairy. The stamens are clearly longer than the styles. The styles are ivory with often a reddish base or pinkish.

The constitution of the leaves of *Rubus serpens* and *R. picearum* is similar to that of *R. rosaceus* Weihe (in Bluff & Fingerhut 1825: 685) and *R. muridens* A. Beek (1997: 46): Rigid, not tangibly hairy, shiny. Especially the latter species can be similar to *R. serpens*, but the flowers are slightly pink and pointed, the prickles are stronger and dark red at sunny places, the serrature is undulating. The constitution if the leaves of *R. edentulus* is weak, soft, tangibly hairy.

Exemplary specimens

Belgium

L — *A. van de Beek 2015.22*, Malmédy, achterzijde bos t.o. Ferme Libert, Dutch grid, 200,639/273,245, 2.7.2015; 2012.07, België, Limbourg, landweg tegenover de kapel van Halloux richting Verviers, zuidrand, waar de weg slecht wordt, 12.07.2012.

HFN — *K. Meijer 2506* Sint-Martens-Voeren, Broekbos, 10 juli 1999; *1451*, Beusdaal, Teuven, 2 juli 1992 191/306; *2165,* Remersdaal, in bos, 2 juli 1998.

Netherlands

L — *A. van de Beek 2015.39*, tuin, exemplaar van Onderste Bos bij Epen, locus classicus van *R. picearum,* 27.06.2015; *nr. 2015.40*, Onderste Bos bij Epen, locus classicus van *R. picearum,* 03.07.2015.

HFN — *K. Meijer 1167* Rott-Vijlen, bosrand, km.blok: 62.33.55, 3 juli 1990; *1005*. Slenaken, in bosrand, km.blok: 62.42.24, 29 juni 1989; *1174*, Camerig, Vijlenerbosch, bosrand, km.blok: 62.43.25, 3 juli 1990; *1834*, Slenaken, Groote Bosch, km. blok: 62.42.14, 10 juli 1995; *2682,* Vijlenerbosch, bosrand, km.blok: 62.44.21, 5 juli 2001; *2346*, Kerperbos bij Vijlen, gemengd bos, 195.308, 12 juli 1994; *leg. A.S.Troelstra 1319*, Limburg, Ravensbos, in bosrand, km.blok: 62.12.41, 11 juli 1991.

Herb. A.S. Troelstra — *A.S. Troelstra 12-R42,* Ravensbos bij Valkenburg, km. tussen 185.344-321.448 en 185.236-321.099. 14.07.2012.

OTHER TAXA

The status of *Rubus serpens* according to the type is clear now. One of the other original specimens is *R. saltuum* and the one which was selected by Weber (1985: 370) as lectotype belongs to an unknown taxon and no wider distribution of it is known. So it does not make sense to describe this.

Several other taxa could come in mind when dealing with the description of *Rubus serpens*. In line with the traditional interpretation

Fig. 13. Stem of *Rubus edentulus* A. Beek & Meijer. Photo: A. van de Beek.

Fig. 14. Vegetation with a young sprout of *Rubus edentulus* A. Beek & Meijer. Photo: A. van de Beek.

Fig. 15. Leaf of *Rubus edentulus* A. Beek & Meijer. Photo: A. van de Beek.

Fig. 16. Inflorescence of *Rubus edentulus* A. Beek & Meijer. Photo: A. van de Beek.

Fig. 17. Flower of *Rubus edentulus* A. Beek & Meijer. Photo: A. van de Beek.

of *R. serpens* are findings of *R. ignoratus* along the road to the Ferme Libert in Malmédy, Belgium. With regard to the present interpretation of the species it is interesting that also *R. edentulus* grows in the woods near the Ferme Libert. Other plants in the mountains around Malmédy could not be identified with a known species. In view of this variation it is no wonder that Focke could not diagnose the right identity of *R. serpens* without examination of original specimens.

RUBUS MURIDENS A. BEEK

One of the plants that were transferred to the garden appeared to be a specimen of *Rubus muridens* A. Beek. Especially weak plants of this species can be confused with *R. serpens*, especially when they are not flowering. Therefore we provide also a full description of this species.

Rubus muridens A. Beek — Fig. 18, 19, 20 & 21

Primocane (Fig. 18) low arching, diameter 3–7 mm, angular, red brown in the sun, glabrous or slightly hairy, with 100 to more than 200 unequal dark stipitate glands and gland tipped acicles and 13–30 larger prickles per internode; prickles from a 2–6 mm large base rapidly attenuated, subulate or somewhat compressed, up to 4–7 mm long. Young sprouts green wioth reddish prickles. Stipules lineate, ±15 mm long. Petiole 6–9 cm long, thinly appressed hairy, with unequal dark stipitate glands and 12–20 curved prickles. Leaves (Fig. 19) slighty red by anthocyan. Leaflets from the dividing point of the petiole somewhat erect (like a receiving hand), pedate 4–5-foliolate, upside moderately hairy (40–50 hairs per cm^2), downside slightly appressed hardly sensibly hairy. Margin fine, usually irregularly periodically serrate with straight or a little recurved teeth, often more undulate than periodically and also vertically undulate (folded after drying). Terminal leaflet 74–128 mm long, from a usually cordate or sometimes only slightly emarginated base ovate or elliptical–obovate, rather gradually attenuated into a short or long tip; width 62–81% of the length. Length of the petiolule 17–33% of the length of the leaflet. Lower leaflets short petiolulate.

Flowering branch angular, loosely hairy, with numerous red stipitate glands, glad tipped acicles and unequal pricklets. Larger prickles 8–10 per internode, subulate or somewhat compressed, up to 3–6 mm long. Hairs of the leaflets as with the primocane leaves. Inflorescence (Fig. 20) large, rounded. Lower peduncles ascending, with 8–17 flowers. Middle peduncles patent, divided under or a little above the middle. Pedicels 10–30 mm long, grey tomentose, with 80–150 unequal dark red stipitate glands and 3–20 reflexed or a bit curved pricklets. Sepals with a long, often leafy tip, loosely reflexed, tomentose and loosely hairy with unequal dark stipitate glands, gland tipped acicles and 2–5 pricklets. Petals narrow ovate, 15,0–17,0 x 6,0–8,0 mm, pale pink of almost white (Fig. 21). Stamens longer than the yellowish styles. Anthers glabrous. Ovaria short hairy at the tip. Receptacle with long hairs.

KEY TO THE SPECIES

The taxa where article deals with belong to the large series *Glandulosi* and *Scabri* W.C.R.Watson (1946: 344). It would be

Fig. 18. Stem of *Rubus muridens* A. Beek. Photo: A. van de Beek.

Fig. 19. Leaf of *Rubus muridens* A. Beek. Photo: A. van de Beek.

Fig. 20. Inflorescence of *Rubus muridens* A. Beek. Photo: A. van de Beek.

Fig. 21. Flower of *Rubus muridens* A. Beek. Photo: A. van de Beek.

far beyond the scope of this article to provide a key to all species of these. However, because the here treated species can be very confusing when growing under poor conditions (deep shade, poor soil), especially with herbarium samples from such places, it may be helpful to provide a simple key to identify them.

1. Ovaria with long hairs; underside of the leaves sensibly hairy; petals 9,5–11,5 mm long . . . . . *Rubus edentulus*
1. Ovaria glabrous of with very short hairs at the tip; underside of the leaves almost glabrous or slightly, not sensibly, hairy; petals longer than 11,5 mm 2
2. Petals (very) pale pinkish, often longer than 15 mm; ovaria with short hairs at the tip . . . . . *Rubus muridens*
2. Petals clear white, shorter than 15 mm; ovaria glabrous 3
3. Young stem with dark red stipitate glands; young leaves of the inflorescence with a red margin; young axis reddish; serrature of the leaves shallow; terminal leaflet gradually attenuated; width of the terminal leaflet 51–60(–71)% of its length; length of the petiolule 28–37% of the length of the leaflet; inflorescence with dark red glands; prickles of the peduncles (almost) straight; petals stellulate, patent; styles usually pink or red based . . . . . *Rubus picearum*
3. Young stem with pale stipitate glands; young leaves of the inflorescence and young axis green; serrature of the leaves moderate deep; terminal leaflet rather abruptly attenuated; width of the terminal leaflet 63–75% of its length; length of the petiolule 21–29% of the length of the leaflet; inflorescence with pale or in the sun brownish glands; prickles on the peduncles curved; petals curved upward; styles yellow . . . . . *Rubus serpens*

CONCLUSION

It must be concluded that *Rubus serpens* Weihe ex Lej. & Courtois is a well-defined species which is not identical with *R. picearum* (A. Beek) A. Beek or *R. ignoratus* H.E. Weber. A superfluous synonym is *R. flexuosus* Lej. ex Koch, so that the correct name of *R. flexuosus* P.J. Müll. & Lefèvre is *R. saltuum* Focke ex Gremli. Different from the type of *R. picearum* are plants which often grow at the same localities but based on the result of examination by cultivation are clearly distinct and as such were described as *R. edentulus* A. Beek & Meijer.

Other plants from the region of Malmédy, Belgium, which belong to the group that has been conceived as *R. serpens* belong to different taxa, as was already the case in Lejeune's own collection. Apart from a few exceptions, these plants cannot be linked to existing names and no further distribution is known.

REFERENCES

Beek A van de. 1984. Batologische notities 3. Nieuwe gegevens over Rubus L. Gorteria 12: 56–61.

Beek A van de. 1997. Brombeeren aus den östlichen Niederlanden und angrenzenden Gebieten. Osnabrück. Naturwiss. Mitt. 23: 37–55.

Bluff MJ & Fingerhut CA. 1825. Compendium Florae Germaniae 1. Schrag, Norimbergae.

Braun G. 1877–1881. Herbarium Ruborum Germaniae. Braunschweig.

Focke WO. 1877. Synopsis ruborum Germaniae. Die deutschen Brombeerarten ausführlich beschrieben und erläutert. Müller, Bremen.

Focke WO. 1902–3. Rubus L. In: Ascherson P & Graebner P, Synopsis der mittel-europäischen Flora 6.1: 440–648. Engelmann, Leipzig.

Gremli A. 1870. Beiträge zur Flora der Schweiz. Ein Nachtrag zur Flora desselben Verfassers. Christen, Aarau.

ICN = International Code for algae, fungi and plants (Melbourne Code). Regnum Vegetabile 154. Koeltz Scientific Books, Königstein.

Koch K. 1853. Hortus dendrologicus. F. Schneider & Comp, Berlin.

Lejeune ALS. 1824. Revue de la Flore des environs de Spa. Duvivier, Liège.

Lejeune ALS & Courtois R. 1831. Compendium Florae Belgicae 2. Collardin, Leodii.

Matzke-Hajek G. 1992. Die Brombeeren (Rubus fruticosus-Agg.) der Eifel und der Niederrheinischen Bucht. Taxonomie, Verbreitung und standörtliche Bindung. Decheniana Beih. 32: 1–212.

Müller PJ. 1858. Beschreibung der in der Umgegend von Weissenburg wildwachsenden Arten der Gattung Rubus. Flora 41: 129–140, 149–157, 163–174, 177–185.

Müller PJ. 1859. Versuch einer monographischen Darstellung der gallo-germanischen Arten der Gattung Rubus. Jahresber. Pollichia 16/17: 74–298.

Müller PJ. 1861. Rubologische Ergebnisse einer dreitägigen Excursion in die granitischen Hoch-Vogesen in der Umgegend von Gérardmer (Vogesen-Depart. – Frankreich). Bonplandia 9: 276–308.

Sudre H. 1904. Un bouquet des ronces Bretonnes. Bull. Soc. Études Sci. Angers 33: 1–20.

Sudre H. 1898–1903. Excursions batologiques dans les Pyrénées ou description et analyse des Rubus des Pyrénées françaises. Institut de Bibliographie, Le Mans.

Sudre H. 1908–13. Rubi Europae. Lhomme, Paris.

Sudre H. 1910. Les Rubus de Belgique. Inventaire et analyse. Bull. Soc. Roy. Bot. Belgique 47: 185–250

Watson WCR. 1946. Check list of British vascular plants. J. Ecol. 33: 308–347.

Weber HE. 1985. Rubi Westfalici. Die Brombeerarten Westfalens und des Raumes Osnabrück (Rubus L., Subgenus Rubus). Abh. Westfälischen Mus. Naturk. 47(3). Westfälisches Museum für Naturkunde, Münster.

Wirtgen P. 1854–1861. Herbarium Ruborum Rhenanorum. Coblenz.