# Validations of the *Rubus* taxa in Tournefort's *Institutiones* and their *Corollarium* in later literature

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**ABSTRACT**
Tournefort published several *Rubus* taxa in his *Institutiones* and its *Corollarium*. Most of these have been validated by authors in the second half of the eighteenth century. Tournefort's species have been investigated, and most of them identified and typified here, and the later validations have been investigated as well. Some of the publications will have impact on present day nomenclature. The most significant are the identifications of *R. aetnicus* Cupani ex Weston with *R. canescens* auct. non DC (= *R. tomentosus* Willd. non Borkh.) and of *R. creticus* Tourn. ex L. with *R. sanctus* Schreb., which has to be regarded as co-specific with *R. ulmifolius* Schott. Next to this, the identification of *R. polonicus* Barr. ex Weston as *R. nessensis* Hall, and the publications of *R. vulgaris* Tourn. ex J. de Vries and *R. laciniatus* (Tourn. ex Weston) Tollard are remarkable. Since the latter is a form of *R. ulmifolius* a new combination is published: *Rubus ulmifolius* f. *laciniatus* (Tourn. ex Weston) A.Beek., comb. nov., stat. nov. Because the series which is presently named *Canescentes* H.E. Weber turned out to have no correct name, it is published here again as the series *Argyrophylli* A.Beek, ser. nov.

**KEY WORDS**
Tournefort,
Argyrophylli,
Rosaceae,
*Rubus*,
validations.

**RÉSUMÉ**
*Validation des taxa de* Rubus *dans les* Institutiones *de Tournefort et leur* Corollarium *dans la littérature ultérieure.*
Tournefort a publié plusieurs taxons de *Rubus* dans ses *Institutiones* et leur *Corollarium*. Ceux-ci ont été en grande partie validés par des auteurs de la seconde moitié du XVIII$^{ème}$ siècle. Dans ce travail, toutes les espèces de Tournefort sont revues, pour la plupart identifiées et typifiées, tandis que les validations plus tardives ont été également recherchées. Certaines de ces publications modifient la nomenclature actuelle du genre, notamment par l'identification de *R. aetnicus* Cupani ex Weston comme *R. canescens* auct. non DC. (= *R. tomentosus* Willd. non Borkh.) et de *R. creticus* Tourn. ex L. comme *R. sanctus* Schreb., lequel doit être considéré comme conspécifique de *R. ulmifolius* Schott. De même, il faut signaler l'identification de *R. polonicus* Barr. ex Weston à *R. nessensis* Hall, et les publications *de R. vulgaris* Tourn. ex J. de Vries et *R. laciniatus* (Tourn. ex Weston) Tollard. Ce dernier étant une forme de *R. ulmifolius*, une nouvelle combinaison est proposée : *Rubus ulmifolius* f. *laciniatus* (Tourn. ex Weston) A.Beek., comb. nov., stat. nov. Enfin, la série nommée actuellement *Canescentes* H.E. Weber apparaît incorrecte et est republiée ici comme la série *Argyrophylli* A.Beek, ser. nov.

**MOTS CLÉS**
Tournefort,
Argyrophylli
Rosaceae,
*Rubus*,
validations.

## INTRODUCTION

Many authors described *Rubus* taxa previous to 1753, often in short descriptions and usually with phrase names. They often repeated earlier descriptions without examining any material upon which these were based. Many of these publications are listed in Caspar Bauhin's *Pinax* (Bauhin 1623). In his *Institutiones Rei Herbarii* (1700), Tournefort gave a taxonomic overview of the taxa that had been published prior to that time, and he added later some new species that he had found during his visit to the Levant (Tournefort 1717). The overview comprises sixteen species described in the main text of the *Institutiones*, while the three new species appear in its *Corollarium* (Tournefort 1703).

Of course, these descriptions are not valid in present day botany, because they had been published before 1753. However, many of these were validated in the eighteenth century by later authors who used the work of Tournefort as a source, since he was considered an authority at that time. Since Linnaeus (1753) published only a few species of European *Rubus*, it was to be expected that other authors would unearth the older descriptions in the work of Tournefort. Prior to his *Species Plantarum*, Linnaeus also published some more names which he did not include in his main work, but which later authors validated. These will be discussed in a separate article.

Remarkably, until now, batologists have ignored these early validations. This article aims to contribute to correcting that omission. Now that the research in the genus *Rubus* in Europe is well established with solid overviews, such as in Weber 1995 and in the *Atlas Florae Europaeae* (Kurtto *et al.* 2010), more precise defining of nomenclature, taxonomy and geography can and must be done. This article will deal with the taxa of Tournefort's *Institutiones* and its *Corollarium*.

## MATERIAL AND METHOD

Tournefort's own publications form the basis of this article. Furthermore, all authors to whom he refers were corroborated; so too, the specimens in his herbarium and, where necessary, also the collections of other authors to whom he refers. For the validation of his taxa only those authors were used who refer to his work in valid publications.

The species that Tournefort describes in the main text of his *Institutiones* all refer to earlier authors. Due to his authority, however, validation of descriptions by these authors usually does not occur unless Tournefort quoted them. Therefore we can use the *Institutiones* as a guide in preparing the earlier publications for validation. Types must preferably be selected from the material of these older publications, because Tournefort only systematized these in his overview and did not make them himself. The three species in the *Corollarium* are new and any later reference is, of course, based on Tournefort's own description.

When Tournefort just follows earlier authors, the descriptions of those authors are basic and should be regarded as the validating descriptions and their names should be mentioned in the authorship of the taxon. When Tournefort quotes more than one author for the same species, the first one is in standard text and the others in italics. This first one should be considered as his main reference and thus basic for his description, and the others as synonyms. For validation we thus have to focus on these first references, though of course the descriptions of the synonyms are included. If Tournefort gives two or more references, he himself must be considered as the author because he linked the earlier descriptions.

## WESTON'S VALIDATIONS

The main author who validates Tournefort's descriptions is Weston (1770). He describes twenty eight *Rubus* taxa in the Linnaean way by printing the name of the taxon in the margin. They are numbered consecutively in the main text, but some of them have separate numbers in the margin and are printed in italics. These must be considered as variations of *R. fruticosus* L. and *R. idaeus* L. with which the two series of separate numbers respectively start. Using the same epitheton twice posed no problem, since *albus*, for example, can be used both as an infraspecific taxon of *R. fruticosus* and of *R. idaeus*.

Weston does not provide full references to his sources, unless he borrows these references from earlier authors. Nevertheless it is clear that he just copies the descriptions of earlier authors. All his taxa, except those of two varieties, are repetitions of Tournefort and Linnaeus, whom he mentions in his introduction. According to the ICN (International Code of Nomenclature for algae, fungi, and plants; McNeill *et al.* 2012: art. 38.14-15) a full reference is not required before 1953; thus the descriptions by Weston can be considered as validations of the earlier descriptions, so that specimens of these authors must serve as a lectotype, and not collections of Weston himself (of whom none are known, as is to be expected in the case of a compiler of earlier works). Only two taxa – both garden variations of *R. fruticosus* and *R. idaeus* – are not taken from Tournefort or Linnaeus.

## THE TAXA OF THE *INSTITUTIONES*

We will follow Tournefort's sequence (Tournefort 1700: 614) which he introduces with: '*Rubi species sunt*'. Therefore, it is correct to also consider the later validations as species, unless the author explicitly indicates a different rank.

1. Rubus vulgaris, sive Rubus fructu nigro C.B. Pin. 479. *Rubus major fructu nigro* J.B. 2.57. *Dod. Pempt.* 742.

*R. vulgaris* Tourn. ex J. de Vries, *Natuurkundige en opheldernde aanmerkingen* 3: 196 (1779). — Lectotype (hic designatus): the illustration in Matthioli, *Commentarii secundo aucti*: 507 (1559).


Fig. 1. — Lectotype of *R. fruticosus* var. *albus* Tourn. ex Weston.

Remarks

This species is obviously regarded as the 'normal' bramble and so it seems to be identical to *Rubus fruticosus* L. Linnaeus also quotes the phrase name of Tournefort's prime reference, C. Bauhin, in his description of *Rubus fruticosus*. However, because Linnaeus only adds this phrase to his own description, the type should not necessarily be selected from the specimens of Bauhin or other authors that he quoted. The (conserved) type specimen is from Linnaeus' own herbarium. Therefore it cannot be considered as a validation of Bauhin and neither indirectly of Tournefort.

A separate validation has been given by J. de Vries (1779: 196). De Vries gives characteristics of his *R. vulgaris* by which it is distinguished from *R. idaeus* L. So his publication is valid as such. In his wider discourse, however, he refers to older authors such as Tournefort, Bauhin and Duhamel. He positions himself clearly in this tradition. Therefore his *R. vulgaris* can be understood as a validation of earlier, pre-linnaean publications of this name (cf. McNeill *et al.* 2012: art. 41.4). Just like Tournefort he seems to combine the publications of C. and J. Bauhin, while the name is taken from C. Bauhin's *Pinax* (1623) and some elements of the description also from J. Bauhin's *Historia* (Bauhin & Cherler 1651). Therefore it is better to choose a lectotype from the context of the Bauhins than choosing a specimen from the region of De Vries as a neotype (no herbarium of De Vries is known). The lectotype should, however, not contradict the protologue ('long branches […] of which some twine through adjacent shrubs, and others creep over the soil; they root where they directly touch the soil; they are green, reddish […] and provided with sharp curved thorns'), so that it cannot be a taxon from the subsection *Rubus* or with straight prickles.

There is no specimen of *Rubus vulgaris sive Rubus fructu nigro* in the Bauhin herbarium in BAS as Mr. Schneider kindly informed me. Though it was probably still present in the beginning of the nineteenth century (see De Candolle 1904), it must have been lost later in that century, like many other Bauhin specimens. The only specimen that still exists and which C. Bauhin might have seen, is in Burser's *Hortus Siccus* (in UPS). That specimen is a *Rubus radula* Weihe. Because there is no reference that Bauhin had really seen the specimen (cf. Juel 1923; 1936), and because it is also not in agreement with De Vries' protologue ('curved prickles'), it cannot be selected as a lectotype. Also, no specimen could be found of any of the earlier authors to whom Bauhin refers. Therefore the illustration in Matthioli, *Commentarii secundo aucti*, which has the best pictures from these works, was selected as the type of *R. vulgaris* Tourn. ex J.de Vries.

It is not possible to identify this picture with one of the presently known *Rubus* species, thus this matter must be left open. Nevertheless, *R. vulgaris* Tourn. ex De Vries is an older homonym of *R. vulgaris* Weihe & Nees and that name should be replaced. The correct name of that species is *R. commutatus* Braun, which is a weak form of *R. vulgaris* Weihe & Nees but belongs to the same species (Weber 1985).

2. Rubus flore albo H.R.Monsp.

*Rubus fruticosus* var. *albus* Tourn. ex Weston, *Botanicus universalis*: 258 (1770). — Lectotype (hic designatus): Rubus flore albo H.R.Monsp., herb. Vaillant (P) (Fig. 1).

Remark

The name is validated by Weston on the level of a variety. There is no specimen of this taxon in the herbarium of Tournefort, but it is in the collection of Vaillant, with whom Tournefort cooperated. I selected this as lectotype. It is an inflorescence of a taxon of the group around *R. grabowskii* Weihe, but not this species itself.

3. Rubus flore albo, pleno. H.R.Monsp.
*Ronce à fleur double*

*Rubus fruticosus* var. *plenus* Tourn. ex Weston, *Botanicus universalis*: 258 (1770). — Lectotype (hic designatus): *Tournefort 6076* (P-TRF[P00680422]) (Fig. 2).

Remarks

This is the same taxon which is later called *R. thuillieri* Poir. ex Steud. (= *R. rhamnifolius* Weihe & Nees) and *R. linkianus* Ser. No form with normal flowers is known of this species so that on the species level *R. thuillieri* is the correct name and a new combination for a infraspecific level is not necessary. In any case, according to present batology, it is not a form of *R. fruticosus* L. It should not be confused with the form with double flowers of *R. ulmifolius* Schott which has been published as *R. bellidiflorus* Koch; that taxon has pink flowers.

4. Rubus non spinosus, fructu nigro, majore, Polonicus. Barr. Icon.

*Rubus polonicus* Barr. ex Weston, *Botanicus universalis* (1770) 258. — Lectotype (hic designatus): the illustration of *R. polonicus* in Jacobus Barrelier, *Plantae per Galliam, Hispaniam et Italiam Observatæ, Iconibus Æneis Exhibitæ* nr. 1250 (1714).

Remarks

For this species, Tournefort only repeats the description of Barrelier (ed. A. du Jussieu 1714). Thus the type should be selected from the latter's material. Because there are no herbarium specimens, the illustration in the *Icones* was selected. The description does give the impression that it could be *R. nessensis* Hall, because the combination 'non spinosus' (which means in the inflorescence at that time) and 'fructu nigro' cannot refer to any other species (except garden cultivars). This is confirmed by the plate. *R. polonicus* Barr. ex Weston is thus an earlier synonym of *R. nessensis*.

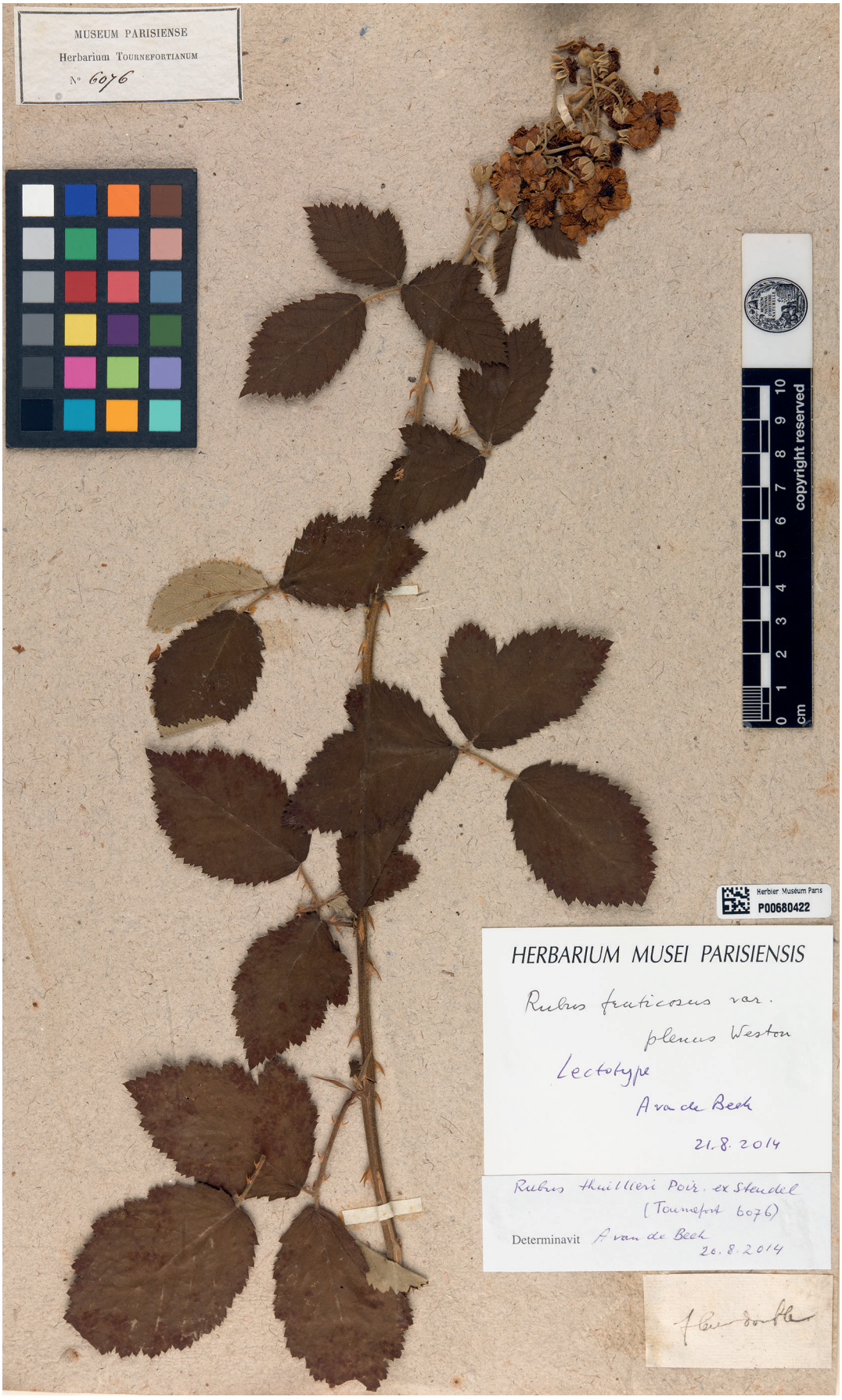


Fig. 2. — Lectotype of *R. fruticosus* var. *plenus* Tourn. ex Weston (P00680422).

5. Rubus vulgaris, spinis carens. H.R. Par. & *Joncq. Hort.*
*Rubus non spinosus, major, fructu nigro Barr. Icon.*
*Ronce de St. François.*

*Rubus fruticosus* var. *inermis* Tourn. ex Weston, *Botanicus universalis*: 258 (1770). — Lectotype (hic designatus): *Tournefort 6078* (P-TRF).

Remark
This is a form of *R. ulmifolius* Schott without prickles which has been described by many authors with epithets like '*inermis*', '*non spinosus*' or '*spinis carens*'. It is published on species level by Pourret 1788, but based on another specimen as lectotype (see below).

6. Rubus spinosus, foliis et flore eleganter laciniatis,
*Rubus foliis eleganter dissectis D. Fagon,*
*Pluk. Phytog. tab.* 108, *fig.* 4.

*Rubus fruticosus* var. *laciniatus* Tourn. ex Weston, *Botanicus universalis* (1770) 258. — Lectotype (hic designatus): *Tournefort 6070* (P-TRF[P00680426]) (Fig. 3).

*Rubus ulmifolius* f. *laciniatus* (Tourn. ex Weston) A.Beek, comb. nov., stat. nov., pro *Rubus fruticosus* var. *laciniatus* Tourn. ex Weston, *Botanicus universalis*: 258 (1770).

Remarks
The plant in Tournefort's herbarium is a laciniate form of *R. ulmifolius* Schott like the other specimens in P from the Hortus in Paris. Its status should be no higher than a form and consequently it had to be renamed on that level.

*R. laciniatus* Willd. (*Hortus Berolinensis* 2, t. 82 [1806]; = *R. nemoralis* f. *laciniatus* (Willd.) A.Beek, *Gorteria* 36: 180 [2014]) was described independently. Willdenow does not refer to any earlier publication and thus the lectotype must be taken from his own specimens (Beek 1974). This is a laciniate form of *R. nemoralis* P.J.Müller and thus not homotypic with *Rubus fruticosus* var. *laciniatus* Tourn. ex Weston. The latter has been published on species level by Tollard (1805: 246). Though Tollard does not explicitly refer to the description of Tournefort or others, it can be considered as validated by indirect reference as was allowed before 1st January 1953 (McNeill *et al.* 2012: art. 38.13). On the title page of his publication, Tollard writes that his descriptions are specifically of plants that are not well known. From the list it is quite clear that even these are not publications of new taxa, but indeed only of not well known species. This implies that in the case of *R. laciniatus* he assumes that the plant is well known and not in need of an additional description. Which description he has in mind becomes clear from his indirect references. In his introduction he states that the material of his publication was prepared for the *Nouveau Dictionnaire d'Histoire naturelle,* but he publishes it beforehand since he did not wish to delay any longer. Consequently, his text must be interpreted according to the *Nouveau Dictionnaire* which he mentions and which makes explicit use of the work of Tournefort and Linnaeus: '[L'histoire de Nature] reçut ensuite les loix de plusiers grands hommes dans chacune de ses branches. La botanique eux son Tournefort et son Linnaeus' (Virey 1803: xlvii; see also p. lxi; 58, 65; cf. McNeill *et al.* 2012: art. 41.3, ex. 5). Tollard also wanted to use his material for the *Cours complet d'agriculture*, which also makes use of the work of Tournefort and Linnaeus, even to such an extent that the editor was accused of plagiarism (Dugour 1800: xv-xvi). Because in the case of *R. laciniatus* there is no publication by Linnaeus, that of Tournefort must be considered as the validating description. Therefore the correct name is *R. laciniatus* (Tourn. ex Weston) Tollard, because the publications of Weston and Tollard are based on the same type. Consequently *R. laciniatus* Willd. is a later homonym.

For the correct name of *R. ulmifolius* see below under *R. creticus* Tourn. ex L.

7. Rubus Idaeus, spinosus C.B. Pin. 479.
*Rubus idaeus, spinosus, fructu rubro J.B.* 2. 59.
*Rubus Idaeus Pempt.* 743.
*Framboisier.*

*Rubus idaeus* L., *Species plantarum* 1: 492 (1753).

Remark
There is no separate validation of Tournefort's description.

8. Rubus Idaeus, laevis C.B. Pin. 479.
*Rubus Idaeus, non spinosus J.B.* 2. 60.
*Rubus Hircinus Tabern. Icon.* 897.

*Rubus idaeus* var. *laevis* Tourn. ex Weston, *Botanicus universalis:* 258 (1770). — Lectotype (hic designatus): the picture of *Rubus hircinus* in Tabernaemontanus, *Icon.* 897 (1590).

*R. idaeus* var. *laevigatus* Aiton, *Hortus Kewensis*: 209 (1789). — Lectotype (hic designatus): the picture of *Rubus hircinus* in Tabernaemontanus, *Icon*. 897 (1590).

*R. glaber* Mill., *Gard. Dict*., ed. 8, n. 4. (1768). — Lectotype (hic designatus): the picture of *Rubus hircinus* in Tabernaemontanus, *Icon*. 897 (1590).

*R. hircinus* Tabern. ex J. de Vries, *Natuurkundige en opheldernde aanmerkingen* 3: 197 (1779). — Lectotype (hic designatus): the picture of *Rubus hircinus* in Tabernaemontanus, *Icon*. 897 (1590).

Remarks
Tournefort quotes three authors. The Bauhins, in their turn, refer to several older publications, so that all these are part of the protologue. It is clear that all these authors do not have the same plant in mind, as their descriptions reveal. J. Bauhin (Bauhin & Cherler 1651) describes a plant, which probably does not differ from *R. saxatilis* L. At the end of his description he already indicates that other authors have quite different definitions. C. Bauhin (1623)


FIG. 3. — Lectotype of *R. ulmifolius* f. *laciniatus* (Tourn. ex Weston) A.Beek (P00680426).

gives only a phrase name and refers to earlier authors. No specimen of any of these authors could be found. Therefore it is preferable to choose a reference which includes a picture and to keep to the interpretation of the taxon so far in use: as the thornless variety of *R. idaeus* L. The best picture is the illustration of *R. hircinus*, Tabernaemontanus Icon. 897, which is not only quoted by C. Bauhin, but also explicitly by Weston. Therefore this illustration was selected as a lectotype.

*Rubus hircinus* has been validly published on species level by J. de Vries (1779). He gives his own description, but it is clear from his discourse that he refers to earlier authors whom he mentions in his text, such as Tournefort, Bauhin and Duhamel. The distinguishing characteristics which he describes, have been borrowed from earlier authors, e.g., Lemery 1727 ('the stems are not longer than two or three feet'). Therefore the lectotype should not be selected from specimens of De Vries, but from these earlier authors. It is the same as that of *R. idaeus* var. *laevis*.

The description of Bauhin is once again validated by Aiton as *R. idaeus* var. *laevigatus* Aiton, *Hort. Kew.*: 209 (1789). Of course, we select the same lectotype: the illustration of *R. hircinus* in *Tabern. Icon.* 897.

Two decades earlier, Miller (1768) described the same taxon as *R. glaber* (err. typ. 'glabro' ; see corrections on the last page), with reference to C. Bauhin. Thus, the same lectotype could again be selected.

9. Rubus odoratus Corn. 150.

*Rubus odoratus* L., *Species plantarum* 1: 494 (1753).

Remark

The species has been validly published by Linnaeus (1753).

10. Rubus Idaeus, fructu albo C.B. Pin. 479.
*Rubus Idaeus, spinosus, fructu albo J.B.* 2. 59.
*Rubus Idaeus albo fructu Clus. Hist.* 117.

*Rubus idaeus* var. *albus* Tourn. ex Weston, *Botanicus universalis*: 258 (1770).

Remarks

No *specimen authenticum* is left, but the identity of the form is clear. The form only differs from the normal raspberry by its yellowish white fruit. Therefore, a status as a form is sufficient and its correct name is *R. idaeus* f. *chlorocarpus* E.L.H.Krause (1890: 48). On the level of a forma, this epitheton is earlier than *R. idaeus* f. *albus* (Weston) Rehder (1949: 288) and *R. idaeus* var. *vulgatus* f. *luteifructifer*, Schneider (1904-1906 [1905]: 510), and must thus be accepted as the correct name (McNeill *et al.* 2012: art. 11.2). It should not be confused with *R. idaeus* var. *aculeatissimus* f. *albus* Fernald (1908: 50) of which the correct epitheton on the level of a forma is *succineus* (Rehder 1942).

11. Rubus repens, fructu caesio C.B. Pin. 479.
*Rubus minor, fructu caeruleo J.B.* 2. 59.
*Rubus minor Dod. Pempt.* 742.

*Rubus caesius* L., *Species plantarum* 1: 493 (1753).

Remark

The species has been validly published by Linnaeus in 1753. No formal validation of the Tournefort reference is known.

12. Rubus Alpinus, humilis J.B. 2. 61.
*Chamaerubus saxatilis C.B. Pin.* 479.
*Rubus saxatilis, Alpinus Clus. Hist.* 118.

*Rubus saxatilis* L., *Species plantarum* 1: 494 (1753).

Remarks

The species has been validly published by Linnaeus in 1753. There is a specimen in P-TRF (no. 6077) without a name on the label. No formal validations of the Tournefort reference are known. Saussure (1796: 450) mentions *Rubus alpinus*, but because there is not even an indirect reference, this must be considered as a *nomen nudum*, though he probably meant the same taxon.

13. Rubus palustris, humilis. *Chamaerubus foliis Ribes, Anglica C.B. Pin.* 480. *Chamaerubus Clus. Hist.* 118.

*Rubus chamaemorus* L., *Species plantarum* 1: 494 (1753).

Remark

The species has been validly published by Linnaeus in 1753. No formal validation of the Tournefort reference is known.

14. Rubus trifolius, repens, molliculo folio piloso, fructu caesio, majori H.Cathol.

*Rubus repens* Cupani ex Weston, *Botanicus universalis*: 258 (1770).

Remark

This is the only species of Tournefort of which the identity could not be established. There is no image in Cupani's *Panphyton* (Cupani 1713) and no specimens are left. The very brief description leaves the matter open to many possibilities.

15. Rubus minor, Alpinus, Æetnicus, rectus, canescens, candido flore. H.Cathol.

*Rubus aetnicus* Cupani ex Weston, *Botanicus universalis*: 258 (1770). — Neotype (hic designatus): the plate in Cupani, *Panphyton* (Fig. 4).

*Rubus tomentosus* Willd., *Species plantarum*, ed. 4, 2.2: 1083 (1799) non Borkh. — Lectotype (hic designatus): B[BW09888010], "R. tomentosus/Moench. W."

*R. argenteus* C.C. Gmel., *Flora Badensis* 2: 434 (1806).


Fig. 4. — Neotype of *R. aetnicus* Cupani ex Weston.

Remarks

Weston, quoting Tournefort, refers to the *Hortus Catholicus* of Cupani (1696). The latter's phrase is thus the validating description. There is no herbarium specimen of this taxon available. However, Cupani published a good image of it in his *Panphyton* that can be used as a type. Because the *Panphyton* was published later than the *Hortus Catholicus*, it must be a neotype and not a lectotype.

The quality of the plate is such that it is clear that it is the species, which is presently commonly labelled as *R. canescens* DC. It is one of the few diploid species of the subgenus *Rubus* in Europe and has a wide distribution. Gussone (1827: 579) already settled the identity of both names.

For a reasonable decision about the nomenclature of this taxon, it is necessary to discuss its whole history. The name *Rubus aetnicus* Cupani ex Weston has never been in common use. For a long time the species was labelled as *Rubus tomentosus* Borkh., until Schwarz (1949) critically read the protologue of this name and noticed that *Rubus occidentalis* L. was included in the synonymy. Borkhausen (1794a) thought that the plant which he found in Germany, was identical to *R. occidentalis*. In his protologue he does not mention why he changed the name, but in a later publication he explains that he considered the epitheton *occidentalis* no longer suitable for the species because it was also found in the eastern hemisphere (Borkhausen 1794b; the publication in the Annalen [Borkhausen 1794a] is early 1794; the next issue is before 24 April, Annalen [10: 128], while the publication of Römers Neues Magazin [p. 331] refers to a letter sent from Stockholm on 8 April). Borkhausen's reasoning is not correct (McNeill *et al.* 2012: art. 51.1). Consequently, *R. tomentosus* Borkh. is a *nomen superfluum* for *R. occidentalis* L. and thus illegitimate.

Willdenow was of the opinion that the plants that Borkhausen found in Germany were totally different from *R. occidentalis* and therefore he accepted two names, *R. occidentalis* for the American species and *R. tomentosus* for the European. Because he explicitly excludes *R. occidentalis*, his *R. tomentosus* is not based on the type of *R. occidentalis,* but on a type that must be selected from his own protologue. It is a later homonym, but validly published (McNeill *et al.* 2012: art. 48.1). Because no type has been selected until now, this must still be done. There are three specimens in folder of *Rubus tomentosus* in the Willdenow herbarium: BW09888010, collected by Moench; BW09888020, collected by Bellardi as *Rubus triphyllus* Bell. non L.; BW09888030, collected by Wibel. Because Willdenow writes in the protologue that *R. tomentosus* occurs in Germany and Switzerland, the specimen of Bellardi cannot be selected as type, for it comes from Italy. Of the others, the specimen of Moench is the most characteristic and therefore it has been selected as the type of *Rubus tomentosus* Willd. non Borkh.: B, BW09888010, "R. tomentosus / Moench. W."

Gmelin published the same taxon once again in 1806 under the name *Rubus argenteus* (Gmelin 1806). At first sight one could argue that this, too, is a *nomen superfluum* for *R. occidentalis* L., because Gmelin includes *R. tomentosus* Borkh. in the synonymy. However, he also quotes *R. tomentosus* Willd. who explicitly excludes *R. occidentalis*. Consequently, the protologue of *R. argenteus* Gmelin as a whole does the same. In the combined texts of the protologue *R. occidentalis* L. and thus also the type of *R. tomentosus* Borkh. is excluded. *R. argenteus* must then be considered as a *nomen novum* of *R. tomentosus* Willd.. Therefore, the correct synonymy is: *R. argenteus* Gmelin = *R. tomentosus* Willd. = *R. tomentosus* Borkh. (pro part. typ. excl.). Therefore *R. argenteus* Gmelin is not a superfluous name and must be added to the list of legitimate synonyms of the name of the species.

Authors who wrote about *Rubus tomentosus* Borkh. from the nineteenth until after the middle of the twentieth century actually meant *R. tomentosus* Willd. (= *R. tomentosus* Borkh. pro parte typo excl.). It can be found under this name in many publications and in most herbaria.

Weber considered *R. argenteus* Gmelin as a mere nomenclatorical synonym of *R. tomentosus* Borkh. and because this name is defined by *R. occidentalis,* it cannot be applied to the European species. Therefore he forwarded *R. canescens* DC. as the correct name of the taxon.

It was only after Weber (1989) once again checked the protologue, that the species was commonly called *Rubus canescens* DC. Unfortunately, the holotype of *R. canescens* DC (G, Vinadio, 22 Juillet 1809, "Rubus velutinus DC") is not identical with *R. tomentosus* Willd. non Borkh. De Candolle (1813) himself already distinguished both. It was the very reason why he published *R. canescens*. He accepted *R. tomentosus* as a correct name, but in his opinion the plants he had obtained differed too much from this species: 'a R. *tomentoso autem differt et habitu majori et foliis saepius quinatis*' – in the description: '*foliis quinatis rarius ternatis*'. We have to take into account that De Candolle, as usually happened in the time before Weihe & Nees, only described a floricane. The leaves of the floricane of *R. tomentosus* Willd. are usually 3-nate. The other characteristics that De Candolle mentions, are also partly different from *R. tomentosus*: the very short hairs on the underside of the leaves ('*brevissimo adpresso velutinis*'), and the stalked lateral leaflets. There are also differences that De Candolle does not mention: the floricane is longer and the leaves of the floricane are also longer and narrower than that of *R. tomentosus* Willd.; the teeth of the leaves of the latter are deeper and more irregular; the concave sepals are characteristic for hybrids of *R. tomentosus* Willd. and *R. ulmifolius*; there is also no indication of fructification, but this might be due to the early state of the inflorescence.

The situation is thus that there is a legitimate name, *Rubus aetnicus*, that has not been in use in batology since its publication in 1770, and that later names are either equally unknown, or later homonyms, or illegitimate, or are based on a type that does not belong to the taxon that is meant. Formally, one could argue that there is no problem: one should keep to the oldest legitimate name, i.e. *R. aetnicus* Cupani ex Weston. However, the name *R. tomentosus* has


Fig. 5. — Neotype of *R. elegantissimus* Cupani ex Weston.

been in common use for a long time and presently the name *R. canescens* is in use. The taxon is diploid and consequently more variable than most other *Rubus* species, with the result that many infraspecific taxa have been published, sometimes also on species level. In addition, many hybrids have been described. Because these publications were mainly done at the time when the name *R. tomentosus* Borkh. was in use, they have been related to this name. The easiest solution therefore, which will provide the most stability for both authors and herbaria, is to keep to this name. *R. canescens* has only recently come in use. Therefore, I will prepare a proposal for the conservation of *R. tomentosus* Borkh. in the sense of Willdenow.

If this proposal is accepted, the full synonymy will be: *R. tomentosus* Borkh. (emend.) = *R. tomentosus* Willd. = *R. argenteus* Gmelin. Taxonomic synonyms are: *R. aetnicus* Cupani ex Weston; *R. canescens* Auct. non DC. There are many other later synonyms that are presently either considered as infraspecific taxa or as fully identical to the typical species. These, however, are not relevant with regard to the present topic.

Because *R. canescens* DC is not identical with *R. aetnicus* Cupani ex Weston (= *R. tomentosus* Willd. non Borkh.) the name series *Canescentes* H.E. Weber cannot be used for the series which refers to the latter. The names *Poiretiani* Tratt. and *Tomentosi* Focke are also typified by *R. tomentosus* Borkh. So they cannot be used either. Thus a new name must be given to the series that consists of *R. tomentosus* Willd. We chose the name *Argyrophylli* ('with silver leaves'):

Genus *Rubus* series *Argyrophylli* A.Beek, ser. nov.
(= series *Tomentosi* Focke typo excluso
= series *Canescentes* H.E. Weber typo excluso)

Holotype (hic designatus). — *Rubus tomentosus* Willd. non Borkh.

Diagnosis
*Turiones tenuiores aculeis subaequalibus; folia 3-5-nata grosse serrata dentibus latis, praesertim superioria supra plerumque pilis stellulatis, subtus albo- vel cano-tomentosa et breviter velutina; ramus florifer plerumque foliis ternatis; inflorescentia angusta; petala alba vel aliquantus flavescentia.*

16. Rubus elegantissimus, rectus, humilis, trifolius, Rosae spinulis, fructu colore & sapore Fragariae H.Cathol.

*Rubus elegantissimus* Cupani ex Weston, *Botanicus universalis*: 258 (1770). — Non Hayek, *Verhandlungen der Kaiserlich-Königlichen Zoologisch-Botanischen Gesellschaft in Wien* 66: 459 (1916). — Neotype (hic designatus): the plate in Cupani, *Panphyton* (Fig. 5).

Remark
The illustration clearly represents *R. idaeus* L.: pinnate leaves, many slender prickles and fruits with many densely connected carpels. So *R. elegantissimus* is only a mountain dwarf form of *R. idaeus*.

## THE *RUBUS* SPECIES OF THE *COROLLARIUM*

Tournefort adds three more *Rubus* species in his *Corollarium* (Tournefort 1703). These were collected during his journey to the east in 1700.

### Rubus creticus, triphyllus, flore parvo

a. ***Rubus creticus*** Tourn. ex L.

*In* Strand, *Flora Palestina*: 15 (1756). — *Amoenitates Academicae*: 457 (1788). — Lectotype (hic designatus): Greece, Crete, *Tournefort 6073* (P-TRF[P00680425]) (Fig. 6).

Remarks
Together with *R. aetnicus*, this is one of the most interesting species in the list. Tournefort found it on Crete and the specimen in his collection is identical to that which is presently called *R. sanctus* Schreb. It is the only *Rubus* species which occurs on Crete. It was validated in the dissertation of B.J. Strand, *Flora Palestina* (1756), under the auspices of Linnaeus who must be considered as its author. The name occurs in a list of names as '*Rubus creticus* T.' and it is thus valid due to Tournefort's description.

Tournefort journeyed to the East together with other botanists (Desfontaine 1808; Lack 1996). Four of them collected the Crete bramble. Next to Tournefort's sample, one specimen is found in the herbarium of Jussieu (Herbier d'Antoine Laurent de Jussieu 14.327, P-JU), one in the collection of Vaillant ("*Rubus Creticus, triphyllus, parvo flore*, Tournef. *Creta 1700*"; P) and one was brought to Berlin by Gundelsheimer. Gundelheimer's collection of plants from his travels to the East was elaborated by Gleditsch. Since he did not have sufficient time to finish this work, he sent a number of specimens to Schreber in Munich who described these in his *Icones* (1766). Among them was the sample of the Cretan *Rubus*.

Aubriet was also one of the participants in the journey and he made drawings of the collected plants under the direct supervision of Tournefort (Desfontaine 1808). The picture of '*Rubus creticus, triphyllus, flore parvo*' is published in Desfontaine (1808). In addition, Desfontaine gives full descriptions based on the notes of Tournefort, the drawings of Aubriet and the plants in the collections of Tournefort, Jussieu and Vaillant. Because they travelled together, Tournefort would have seen all three samples. However, his own plant is, of course, the most dependable, and it is a good specimen, so that it is the obvious choice for the lectotype.

b. ***Rubus sanctus*** Schreb.

In *Icones et descriptions plantarum minus cognitarum*: 15, t. 8 (1766). — Holotypus: Monasterio-Huelin & Weber 1996: 320, M, "Crete*, Schreber 43*"; "*Rubus cret. triphyllus fl. parvo. T. cor. 43*".

Remark
Schreber (1766) fulfilled the task set him regarding the Gundelsheimer collection. Thus he, too, described the Cretan *Rubus*


Fig. 6. — Lectotype of *R. creticus* Tourn. ex L. (P00680425).

and named it *Rubus sanctus*. The plant from Crete therefore received a second name: *Rubus sanctus* Schreb. Like Linnaeus, Schreber also mentions that the plant grows in Palestine, with reference to Pococke (1745). The same species grows in the St. Catherine monastery on Mount Sinai; that plant ('Moses' bramble bush') is characteristic of *R. sanctus*.

Schreber would not have seen the plants of Jussieu, Vaillant and Tournefort, because he had not taken part in the journey mentioned above. He only received the plant from the collection of Gundelsheimer. Therefore the latter can be considered as the holotype of *R. sanctus*. Consequently, it is a later independent synonym of *R. creticus*.

### c. ***Rubus parviflorus*** Tourn. ex Weston

In *Botanicus universalis* 1: 258 (1770). — Lectotype (hic designatus): Greece, Crete, *Tournefort 6073* (P-TRF).

Remark

Four years later, the species was once again described. This time by Weston. He used the description of Tournefort, but he did not use the same name as Linnaeus in 1756. He focused on another characteristic in the description: the small flowers. Therefore he gave the name *R. parviflorus*. The lectotype is the same as that of *R. creticus*, because it is related to the same description by Tournefort.

*R. parviflorus* Weston is a *nomen superfluum* (McNeill *et al.* 2012: art. 52.1). Nevertheless, it is an older homonym of *R. parviflorus* Nutt. (*Genera of North American Plants* 1: 308 [1818]), the thimbleberry. Therefore the latter requires another correct name. The oldest legitimate synonym is *Rubus nutkanus* Moc. ex Seringe. This is thus the correct name of the species, as it has been used for a long time. Fortunately we can thus eliminate the strange name *Rubus parviflorus* for a species with almost the largest flowers of the genus.

The thimbleberry is common in parts of the USA and Canada. I will not elaborate on the nomenclature of all infraspecific taxa here. I think this should preferably be done by an American specialist who is well acquainted with the taxonomy of the species.

### d. ***Rubus sacer*** Schreb. ex Pallas

Remarks

Pallas (1797: 311) mentions a *Rubus sacer* Schreb. There is no species known which Schreber described under this name. Probably Pallas had the meaning of 'sanctus' in mind and erroneously wrote 'sacer'. In any case, either as a *nomen nudum* or as an error or as a *nomen superfluum*, the name is not relevant for priority.

Discussion

Hartmann (1767: 89) and Poiret (1804: 245) already identified *R. creticus* Tourn. and *R. sanctus* Schreb., but took the latter as the correct name. This is, however, against the rules. The name *R. creticus* is later used by Prince (1831) and by Kitto (1844: 247), who deliberates whether it is not the same as *R. sanctus*.

The taxon is extensively discussed by Monasterio-Huelin & Weber (1996) under the name of *Rubus sanctus* Schreb. It would seem that we should simply replace that name with the older synonym *R. creticus* Tourn. ex L. The matter is, however, more complicated. Monasterio-Huelin & Weber state that the sample upon which Schreber based his name is atypical. The taxon which is presently commonly called *Rubus sanctus* usually has hairy anthers, distant hairs on the primocane and the axis, hairs on the upper side of the leaves, rather deep serrature and strong but not numerous hooked prickles on the flowering branch. These characteristics distinguish it from *R. ulmifolius* Schott.

When we check the four specimens collected on the journey to Crete for these characteristics, it becomes clear that Schreber's plant does not have many hairs on the anthers. Actually, though one may find a few hairs on the anthers, they seem glabrous. The specimen of Tournefort also has glabrous anthers, while the one of Jussieu has some hairs. The upper side of the leaves is hairy, somewhat more so in Tournefort's specimen than in the one of Schreber, but not as hairy as with plants from the Near East. The prickles on the floricane are rather slender in the Schreber specimen and thicker in that of Tournefort's; the latter is similar to eastern specimens. None of the four collections has a primocane.

The conclusion must be that, as regards characteristics, they are all intermediate between 'normal' *R. sanctus* and *R. ulmifolius*. Another complication is that Schreber writes in his protologue that *R. sanctus* has white flowers. I have never seen *R. sanctus* with white flowers and Monolis Avramakis (Heraklion) assured me that he, too, had never seen a bramble with white flowers on Crete. Desfontaine (1808) writes in his description, based on his information in Paris, that *R. sanctus* has pink flowers and reddish anthers which fits the normal form. Perhaps Schreber just made a mistake. *R. ulmifolius*, sometimes (but rarely), has white flowers, but that taxon does not occur on Crete. Avramakis also ascertained that all the brambles which he saw on Crete did not have real hairs on their anthers, but rather some kind of fibers in various numbers. Of course, these fibers can be considered to be hairs.

I have seen many living specimens of both taxa in Western and Southern Europe, in Israel, Egypt, and South Africa, and in herbaria from the whole distribution area from the Scottish border to India, and I cannot find a single characteristic which consistently separates the two taxa in relation to geographical distribution. However, it is clear that they have common characteristics of which some are always present and others differ. The latter are the characteristics mentioned by Weber, to which one can add the color of the petals. In France, plants with hairy anthers can be found which are in all other aspects 'normal' *R. ulmifolius,* or in Greece with glabrous anthers, which look like the normal *R. sanctus* in Egypt. The same is applicable to all other characteristics. On the other hand, it is clear that the typical


Fig. 7. — Lectotype of *R. amplifolius* Tourn. ex Weston (P00680424).

*R. sanctus* aspects normally occur in the East and those of *R. ulmifolius* usually in the West, and that the combination of these aspects in the same plant displays the same distribution. Generally, it can be said that the more 'typical' *R. sanctus* occurs more to the East, and the more 'typical' *R. ulmifolius* more to the North West. The plants in the collections of Tournefort, Jussieu, Vaillant and Schreber are intermediate. That of Tournefort with its hooked prickles and rather deep serrature of the leaves, appears at first sight to be typical *R. sanctus*, but lacks the hairs on the anthers. Jussieu's plant is more the reverse and that of Schreber is even more like *R. ulmifolius*.

All these observations bring me to the conclusion that we must consider both taxa as one species with a Western and an Eastern subspecies with transitions which, especially on the Balkan and on the Greek islands, must be identified according to the whole population in which they occur. In that case the plants of Crete must be considered to be the Eastern subspecies, because according to my own observation and the confirmation by Avramakis the normal type on Crete is Eastern. Thus the specimens of the seventeenth century collectors must be interpreted in this context.

### Correct names and synonymy

Finally we come to the correct nomenclature. The oldest legitimate name of the species is *R. creticus* Tourn. ex L. That should be the correct name for the species according to the rules. In that case the Western subspecies should be named *R. creticus* ssp. *rusticanus* (Mercier) X, because 'rusticanus' is the oldest epithet on subspecies level. There are some early synonyms on species level as well. *Rubus inermis* Pourret is just a thornless form (Beek 1979). Though Monasterio-Huelin & Weber (1996) did not accept the identity of *R. inermis* arguing that it might be a hybrid, there is no reason to think so. One could also argue that the lectotype of *R. ulmifolius* is a possible hybrid. Moreover, though the type in MAF has only rather young flowers, the syntype in P clearly has young fruits which are not defective. Thus there is no reason to consider it a hybrid.

### Synonymy

The formal synonymy thus would be:

*Rubus creticus* Tourn. ex L. = *R. parviflorus* Weston
*R. sanctus* Schreb.
*R. ulmifolius* ssp. *anatolicus* Focke
ssp. *rusticanus* (Mercier) X
*R. inermis* Pourret
*R. laciniatus* (Tourn. ex Weston) Tollard
*R. ulmifolius* Schott
Further synonyms in Monasterio-Huelin & Weber 1996.

If one chose to separate both taxa as two species, the correct name of the ssp. *rusticanus* should be *R. inermis* Poiret, because this is the oldest certain legitimate name.

Application of the rules would have great impact on the nomenclature of one of the most well-known *Rubus* species. *R. ulmifolius* has been split into many infraspecific taxa and a change of its name would cause enormous confusion both in literature and in collections. Therefore I will submit a proposal for the conservation of the name *R. ulmifolius*. In that case the correct name of the eastern type must be *R. ulmifolius* ssp. *anatolicus* Focke.

### Rubus orientalis, amplissimo folio nunc terno, nunc quino, quasi digitato

***Rubus amplifolius*** Tourn. ex Weston

*In Botanicus universalis* 1: 258 (1770), non P.J.Müll., *Bonplandia* 9: 294 (1861). — Lectotype (hic designatus): Turkey, Cappadocia, *Tournefort 6074* (P-TRF[P00680424]) (Fig. 7).

### Remarks

Tournefort writes on his label: 'Rubus Cappadocicus, amplissimo folio, nunc terno nunc quino singulis pediculis insidente et quasi digitato'. On the sheet there is only a leaf without a stem. The leaves are very large, almost circular, and rather abruptly acuminated; underneath almost glabrous, green; the petiole has slender prickles, gland tipped acicles and glands. It should probably be classified under the series *Hystrix* Focke.

### Rubus orientalis, foliis Cannabinis

***Rubus cannabifolius*** Tourn. ex Weston

In *Botanicus universalis* 1: 258 (1770). — Lectotype (hic designatus): Turkey, Cappadocia, *Tournefort 6075* (P-TRF[P00680423]) (Fig. 8).

### Remark

The plant in Tournefort's collection is just a raspberry with narrow leaves. Thus *R. cannabifolius* is a later taxonomic synonym of *R. idaeus* L.

## CONCLUSIONS

All *Rubus* taxa of Tournefort's *Institutiones* have been validated in the eighteenth century. It is a pity that later batologists did not pay attention to these and actually dealt with the genus as if the starting date would be 1822, when Weihe & Nees published the first issue of their monograph (Weihe & Nees 1822-27). Consequently, rather a number of names in common use have an older synonym. In the case of *R. aetnicus* and *R. creticus*, application of the rules would have such an impact that it is better to submit a proposal for conservation.

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Fig. 8. — Lectotype of *R. cannabifolius* Tourn. ex Weston (P00680423).

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