



# Taxonomic updates in South American *Myrcia* (Myrtaceae: Myrteae): lectotypes, synonyms, new combinations and new names in *Myrcia* sect. *Eugeniopsis*

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**Summary.** *Myrcia* contains nearly 800 species and is divided into nine sections based on a combination of characters. *Myrcia* sect. *Eugeniopsis* encompasses 18 species nearly endemic to the Atlantic Forest. This study presents taxonomic updates in *Myrcia* sect. *Eugeniopsis*. Collections of 22 herbaria were analysed and at least one type collection of each name was checked. Lectotypes are provided for the 13 following basionyms: *Aulomyrcia oblongata*, *Calyptromyrcia eugenioides* var. *puberula*, *Eugenia laevigata*, *Eugenia sylvatica*, *Eugeniopsis clauseniana*, *Eugeniopsis clauseniana* var. *rufa*, *Eugeniopsis gaudichaudiana*, *Eugeniopsis luschnathiana*, *Eugeniopsis ovata*, *Eugeniopsis polygama*, *Marlierea subacuminata*, *Myrcia eugenioides* and *Myrcia tenuivenosa*. Nine synonymisations are proposed: *Aulomyrcia lineata* under *Myrcia eugenioides*; *Calyptromyrcia eugenioides* var. *puberula*, *Eugeniopsis clauseniana*, *Eugeniopsis clauseniana* var. *glabrata*, *Eugeniopsis clauseniana* var. *rufa*, *Eugeniopsis gardneriana* and *Eugeniopsis ovata* under *Myrcia multipunctata*; *Eugeniopsis acuminatissima* under *Myrcia tenuivenosa*; *Marlierea krapovickae* under *Myrcia subacuminata*. Five new combinations are presented: *Myrcia gaudichaudiana* (based on *Eugeniopsis gaudichaudiana*), *Myrcia polygama* (based on *Eugeniopsis polygama*), *Myrcia schottii* (based on *Marlierea schottii*), *Myrcia subacuminata* (based on *Marlierea subacuminata*) and *Myrcia teuscheriana* (based on *Eugeniopsis teuscheriana*). Two new names are proposed: *Myrcia maculata* (for *Eugeniopsis luschnathiana*) and *Myrcia ochraciflora* (for *Eugeniopsis grandifolia*). The holotypes of six names from the nineteenth century are clarified. A neotype is selected for *Aulomyrcia lineata* and *Calyptromyrcia eugenioides* var. *glabra*.

**Key Words.** Atlantic Forest, Brazil, *Calypttranthes*, *Marlierea*, Neotropics, taxonomy.

## Introduction

Tribe Myrteae (*sensu* Wilson *et al.* 2005) includes all of the Myrtaceae diversity in the Neotropics and occurs with lower species diversity in Europe, Africa, Asia and Oceania (McVaugh 1969; Lucas *et al.* 2007; WCSP 2018). Lucas *et al.* (2007) highlighted seven clades in the tribe, a scheme corroborated by Vasconcelos *et al.* (2017) who emphasised three additional clades. A formal subtribal scheme for Myrteae is in preparation (Lucas *et al.* in prep.).

The *Myrcia* group (usually named *Myrcia* s.l.) is one of the seven clades of Myrteae highlighted by Lucas *et al.* (2007) and contains nearly 800 species exclusively distributed in the Neotropical region (Lucas *et al.* 2011; WCSP 2018). *Myrcia* group currently consists of the sole genus *Myrcia* DC., which encompasses the until recently accepted genera: *Calypttranthes* Sw., *Gomidesia* O.Berg and *Marlierea* Cambess. (Lucas *et al.* 2018). While species of *Gomidesia* have already been transferred to *Myrcia* (WCSP 2018), the transfer of *Calypttranthes* and *Marlierea* names to *Myrcia* is still in

progress (Lucas & Sobral 2011; Mazine *et al.* 2014; Lucas *et al.* 2016; Wilson 2017; Lourenço *et al.* 2018).

Lucas *et al.* (2018) proposed nine sections in *Myrcia* based on the phylogenetic scheme of Lucas *et al.* (2011), corroborated by later studies (Staggemeier *et al.* 2015; Santos *et al.* 2016a). One of these groups is *Myrcia* sect. *Eugeniopsis* (O.Berg) M.F.Santos & E.Lucas, a section nearly endemic to the Atlantic Forest, which comprises 18 described species after taking the updates presented in this paper into account (Table 1). The group is characterised by reddish trichomes, numerous gland dots covering young branches, leaves and flowers, inflorescence usually with opposite branching, usually clavate floral buds, calyx lobes partially fused (rarely totally fused or free) and deciduous parallel to the hypanthium ring. *Myrcia* sect. *Eugeniopsis* is mostly composed of species classified by Berg (1855 – 1856, 1857 – 1859) in the genus *Eugeniopsis* O.Berg. After Berg's work, the genus was synonymised under *Marlierea* (Bentham & Hooker 1865; Niedenzu 1893; Kiaerskou 1893). *Myrcia* sect.

Accepted for publication 1 October 2019. Published online 22 November 2019

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*Eugeniopsis* was recognised as an infrageneric group of *Marlierea* by Niedenzu (1893) and Legrand (1962), as *Marlierea* sect. *Eugeniopsis* (O.Berg) Nied., and by Kiaerskou (1893), as *Marlierea* subg. *Eugeniopsis* (O.Berg) Kiaersk., but systematic studies have not been applied to the group.

This study aims to present taxonomic updates in *Myrcia* sect. *Eugeniopsis* in preparation for a taxonomic revision. After decades without study, long overdue lectotypifications, neotypification and synonymies are made, along with elucidation about holotypes; new names and combinations are provided for species transferred from *Marlierea* to *Myrcia*; clarifications about type localities are also provided.

## Materials and Methods

The decisions presented here are based on analysis of specimens from the following herbaria (visited in person): B, BM, BR, C, G, G-DC, HAL, HBR, IPA, K, LE, M, MBM, MBML, P, PEUFR, RB, S, SPF, UFP, VIES and W (acronyms according to Thiers 2018). All cited specimens have been seen by the authors unless otherwise noted; it is indicated if the specimen was seen only as images from online databases (e.g. CRIA 2018; JSTOR 2018). General procedure for lectotypification follows Santos *et al.* (2016b). When available, the barcode or accession number of the type collection is recorded in square brackets after the herbarium acronym. Type localities in the taxonomic heading are based on the type labels unless otherwise noted; states and municipalities are inferred when they are obvious based on the label information.

The names of species described by Otto K. Berg based on collections housed at B (usually cited as “v. in hb. Berol.” in the protologue) are not considered to

have holotypes. These specimens were destroyed during World War II and it is not possible to know how many duplicates each comprised (at least for the names treated here) and exactly what part of the collection Berg used before the duplicates were distributed. Concerning specifically Friedrich Sellow's collections housed in B that are types of Berg's species we follow the rationale of Santos *et al.* (2016b). Saint-Hilaire's collection numbers and type localities are cited according to Pignal *et al.* (2013).

## Taxonomic updates in *Myrcia* sect. *Eugeniopsis*

**1. *Myrcia eugenioides*** Cambess. (Cambessèdes in Saint-Hilaire 1832: 302). *Calyptromyrcia eugenioides* (Cambess.) O.Berg (1855: 34). *Marlierea eugenioides* (Cambess.) D.Legrand (1958: 265). Type: Brazil, Rio de Janeiro, 1816 – 1821 (fl.), *Saint-Hilaire* A1-389 (lectotype P [P00161444] selected here; isoelectotypes MPU [MPU011021] [image], P [P00161445], P [P00161446]).

*Calyptromyrcia eugenioides* var. *glabra* O.Berg (in Martius 1857: 56). Neotype: Brazil, Rio de Janeiro, Jurujuba bay, 1837 (fl.), *Gardner* 758 (K [K000330592] selected here; isoneotypes E [E00504684] [image], E [E00504685] [image], K [K000330593], K [K000342676], NY [NY00405395] [image], P [P00547506]).

*Aulomyrcia lineata* O.Berg (in Martius 1857: 68). *Myrcia lineata* (O.Berg) Niedenzu (in Engler & Prantl 1893: 76), **synon. nov.** Type: Brazil, Rio de Janeiro, mun. Rio de Janeiro, “Habitat in silvis montis prope Praya dos Flamingos, Sebastianopoli, prov. Rio de Janeiro” (in the protologue), Sept. 18?? (fl.), *Beyrich* s.n. (syntype B†). Neotype: Brazil, Rio de Janeiro, 1844 (fl.), *Widgren* 787 (BR selected here).

**NOTES.** *Calyptromyrcia eugenioides* var. *puberula* and *Eugeniopsis ovata* have been considered synonyms of *Myrcia eugenioides* (Govaerts *et al.* 2008) but are here considered synonyms of *Myrcia multipunctata* (see comments under this name). *Myrcia eugenioides* is characterised by thick and vinaceous (in dried specimens) young branches, oblong and glabrous leaves with non-elongated apices, numerous secondary veins, and glabrous and spherical flower buds, a combination of features not found in *M. multipunctata*.

Only one specimen of *Myrcia eugenioides* (barcode P00161444) housed at P bears the author's handwriting identifying the species on the label. For this reason, this material is here selected as the lectotype. A poor specimen at F (herbarium number 935806) is indicated as being from a Saint-Hilaire collection of *Myrcia eugenioides* at P and appears to be a mixed gathering containing collections of *Calyptromyrcia eugenioides* var. *glabra* (= *Myrcia eugenioides*) and

**Table 1.** The 18 accepted species of *Myrcia* sect. *Eugeniopsis* (Myrteae, Myrtaceae).

Species of <i>Myrcia</i> sect. <i>Eugeniopsis</i>
<i>Myrcia crassa</i> Sobral
<i>Myrcia eugenioides</i> Cambess.
<i>Myrcia eugeniopsoides</i> (D.Legrand & Kausel) Mazine
<i>Myrcia ferruginosa</i> Mazine
<i>Myrcia gaudichaudiana</i> (O.Berg) M.F.Santos
<i>Myrcia hatschbachii</i> D.Legrand
<i>Myrcia maculata</i> M.F.Santos
<i>Myrcia multipunctata</i> Mazine
<i>Myrcia oblongata</i> DC.
<i>Myrcia polygama</i> (O.Berg) M.F.Santos
<i>Myrcia pseudomarlierea</i> Sobral
<i>Myrcia reitzii</i> (D.Legrand) Mazine
<i>Myrcia schottii</i> (D.Legrand) M.F.Santos
<i>Myrcia subacuminata</i> (Kiaersk.) M.F.Santos
<i>Myrcia tenuivenosa</i> Kiaersk.
<i>Myrcia teuscheriana</i> (O.Berg) M.F.Santos
<i>Myrcia ubatubana</i> Mazine & Sobral
<i>Myrcia vellozoi</i> Mazine

*C. eugenoides* var. *puberula* (= *Myrcia multipunctata*). Due to the uncertainty about the association of the specimen with the type collection and the weak morphological evidence, we exclude it from the type collection of *M. eugenoides*, *C. eugenoides* var. *glabra* and *C. eugenoides* var. *puberula*. A label on the type collection indicates Rio de Janeiro state as the place of collection, confirmed by Saint Hilaire's numeration (Pignal *et al.* 2013). The field notebook has the information "Montagnes qui dominant l'aqueduc", but it was not possible to locate this place within Rio de Janeiro state.

When describing *Calyptromyrcia eugenoides* var. *glabra*, Berg did not cite any specimen. It is possible that he considered this variety equivalent to the typical form of the species and to associate it with the type of *C. eugenoides* (= *Myrcia eugenoides*). However, the autonym *C. eugenoides* var. *eugenoides* is automatically associated with the type of *C. eugenoides* and it is necessary to designate another type for *C. eugenoides* var. *glabra*. A neotype is proposed because there is not an original collection available. Some isoneotypes are named as *Myrcia calophylla*, a name never published. One of the isoneotypes at E (E00504684) has a branch from another species on the same sheet (lower left side).

The type material of *Aulomyrcia lineata* at B was destroyed and Beyrich's collections were not located in any visited herbaria. Three specimens are identified in Berg's handwriting as *A. lineata*. One of these is Riedel 515 (found at K, LE, P, S and W) that belongs to *Myrcia* sect. *Sympodiomyrcia* M.F.Santos & E.Lucas and is identified by Santos *et al.* (2018) as *Myrcia tenuifolia* (O.Berg) Sobral. Other specimens identified by Berg are: Sellow s.n. (K and LE) and Widgren 787 (BR). The two latter specimens are co-specific with *Myrcia eugenoides*, of *Myrcia* sect. *Eugeniopsis*. Therefore, there is a problem regarding the taxonomic identity of *Aulomyrcia lineata*, because the type collection is missing and the author identified more than one taxon under this name. The Protologue describes characteristics more related to *Myrcia* sect. *Eugeniopsis* (twig and leaf blade with many pellucid dots, numerous veins and reflexed calyx lobes) than *Myrcia* sect. *Sympodiomyrcia*. Therefore the most complete specimen (Widgren 787 at BR) belonging to *M.* sect. *Eugeniopsis* identified by Berg as *Aulomyrcia lineata* was selected as the neotype, resolving the uncertainty regarding the name.

**2. *Myrcia ferruginosa*** Mazine (in Mazine *et al.* 2014: 98). *Eugenia sylvatica* Gardner (1843: 352), **nom. illeg.**, non *Eugenia sylvatica* Cambess. (Cambessèdes 1832). *Eugeniopsis silvatica* O.Berg (1855: 81). *Marlierea silvatica* (O.Berg) Kiaersk. (Kiaerskou

1893: 51). Type: Brazil, Rio de Janeiro, "Organ mts., 3000 ft., virgin forests", March 1837 (fl.), Gardner 414 (lectotype BM [BM000953745] [image] selected here; isolectotypes E [E00135419] [image], E [E00135420] [image], F [680660] [image], G [G00301894], GH [00069398] [image], K [K000330563], K [K000330564], MICH [1109626] [image], NY [00405273] [image], NY [00405274] [image], P [P00217960], P [P00217961], S [S052565], US [00118185] [image], W [W0047990]).

**NOTES.** Mazine *et al.* (2014) proposed a new name for *Eugenia sylvatica* transferring it to *Myrcia* and assigning a collection cited by Gardner at Kew as holotype. However, there are two specimens of this collection at K, and others elsewhere, making lectotypification necessary. We select the specimen at BM as lectotype because Gardner (the first person to recognise the species) deposited his original collections from Brazil there (Stafleu & Cowan 1976). The protologue and original labels indicate the Serra dos Órgãos mountains (Rio de Janeiro state) as the locality of the collection; this was indeed on Gardner's route through Brazil (Urban 1906) and is confirmed here as the type locality.

**3. *Myrcia gaudichaudiana*** (O.Berg) M.F.Santos, **comb. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:60479377-2>

*Eugeniopsis gaudichaudiana* O.Berg (in Martius, *Fl. Bras.* 14 (1): 147 (1857)). *Marlierea gaudichaudiana* (O.Berg) Loefgr. & Everett (Loefgren & Everett 1919: 219). Type: Brazil, Rio de Janeiro, no date (fl.), Shuech 1035 (number 5878 is also presented in original labels) (lectotype W [W0047995] selected here; isolectotypes F [876125], K [K000330596], W [W0047994]). Syntype: Brazil, Rio de Janeiro, 1830 (fl.), *Gaudichaud-Beaupré* s.n. (G [G00301890]).

**NOTES.** The protologue of *Eugeniopsis gaudichaudiana* indicates that type material was seen in both the Kunth herbarium and W ("v. in hb. Kunth. et Vindob"). The Kunth herbarium was mainly included in B (Stafleu & Cowan 1979) and the material seen by Berg was probably at B when it was destroyed. The collection at W, bearing Berg's handwriting and matching the protologue, was chosen as the lectotype. The specimen *Gaudichaud-Beaupré* s.n., from which the specific epithet originates, is poor and is not suitable as a lectotype. The labels of the type collections indicate Rio de Janeiro as the place of collection. This Brazilian state is indeed part of the species distribution, but is too large to be considered the type locality.



#### 4. *Myrcia maculata* M.F.Santos, **nom. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77202037-1>

*Eugeniopsis luschnathiana* O.Berg (in Martius, *Fl. Bras.* 14 (1): 147 (1857)), non *Myrcia luschnathiana* O.Berg. *Marlierea luschnathiana* (O.Berg) D.Legrand (1962: 33). Type: Brazil, Bahia, mun. Ilhéus, 1839 (fl.), *Luschnath* s.n. (but cited as *Luschnath* 7 in the protologue) (lectotype BR [845562] selected here; isolectotypes B†, BR [845491], BR [845593], BR [845494], BR [845524], BR [845527], BR [845529], BR [845560], BR [845595], LE [LE00004007]).

**NOTES.** The B is cited in the protologue of *Eugeniopsis luschnathiana*, but this specimen was destroyed. The main repositories of Luschnath's collections are BR and LE (JSTOR 2018). Some of the specimens at BR bear Berg's handwriting and the most complete of these was chosen as the lectotype. Material at LE also bears Berg's handwriting but because Berg visited LE only while preparing the *Flora Brasiliensis* supplement (Berg 1859), the material in question was seen after the publication of *E. luschnathiana* (Berg 1857). Berg (1857 – 1859) cites *Luschnath* 7 in the protologue but no original label bears Luschnath's collection number. A new name in *Myrcia* was necessary because *Myrcia luschnathiana* O.Berg already exists.

The new name refers to the light grey branches densely spotted with dark pellucid dots (colours based on the herbarium specimens). The original label indicates “Ilheos” (municipality of Ilhéus, Bahia state, Brazil) as the collection locality. This region is part of the species distribution and was visited by Luschnath during his expedition in Brazil (Urban 1906); it is here confirmed as the type locality.

#### 5. *Myrcia multipunctata* Mazine (in Mazine *et al.* 2014: 99).

*Eugenia laevigata* DC. (de Candolle 1828: 283). *Eugeniopsis laevigata* (DC.) O.Berg (1855: 81). *Marlierea laevigata* (DC.) Kiaersk. (Kiaerskou 1893: 51). Type: Brazil, “prov. R. S. Francisco, In desertis”, no date (fl.), Martius s.n. (lectotype M [M0171100] selected here; isolectotype G-DC [G00658503] [image]).

*Calyptromyrcia eugenioides* var. *puberula* O.Berg (in Martius 1857: 56) (cited as β in Cambessèdes 1832), **synon. nov.** Type: Brazil, Minas Gerais, “Itambe”, no date (fl.), Larrotte s.n. (lectotype P [P00161441] selected here; isolectotypes MPU [MPU011022] [image], P [P00161442], P [P00161443]).

*Eugeniopsis clauseniana* O.Berg (in Martius 1857: 145). *Marlierea clauseniana* (O.Berg) Kiaersk. (Kiaerskou 1893: 51), **synon. nov.** Type: Brazil, Minas Gerais, Aug. – April 1840 (fl.), Clausen 1534 (also cited as v. 534) (lectotype W [W0047998] selected here; isolectotypes

BM [BM000953739] [image], BR [528879], BR [845581], F [679090] [image], G [G00223339], G [G00418717], K [K000330813], K [K000330816], K [K000330819], P [P01902223], P [P01902224]). Syntype: Brazil, Rio de Janeiro(?), no date (fl.), *without collector* (MEL [MEL1007460] [image]).

*Eugeniopsis clauseniana* var. *rufa* O.Berg (in Martius 1857: 146), **synon. nov.** Type: Brazil, no date (fr.), Sellow s.n. (lectotype P [P01902225] selected here; B†, K [K000330827], P [P01902226]).

*Eugeniopsis clauseniana* var. *glabrata* O.Berg (in Martius 1857: 146), **synon. nov.** Type: Brazil, Minas Gerais, “Lapinha, Canga”, Aug. 1840 (fl.), Gardner 4661 (holotype W [W0047999]; isotypes BM [BM000884402] [image], F [678771] [image], G [G00418709], K [K000330814], K [K000330815], NY [00405271] [image], P [00217949], R [R000166159] [image]).

*Eugeniopsis gardneriana* O.Berg (in Martius 1857: 145). *Marlierea gardneriana* (O.Berg) Nied. (Niedenzu in Engler & Prantl 1893: 76), **synon. nov.** Type: Brazil, Minas Gerais, “Diamond dist.”, Aug. 1840 (fl.), Gardner 4649 (holotype W [W0047996]; isotypes BM [BM000953740] [image], E [E00135418] [image], G [G00301889], GH [00069916] [image], K [K000330589], K [K000330590], NY [00405272] [image], P [P00217944], R [R000150878] [image]).

*Eugeniopsis ovata* O.Berg (in Martius 1857: 146). *Marlierea ovata* (O.Berg) Nied. (Niedenzu in Engler & Prantl 1893: 76). *Marlierea eugenioides* var. *ovata* (O.Berg) D.Legrand (1962: 33), **synon. nov.** Type: Brazil, no date (fl., fr.), Sellow s.n. (lectotype BR [845530] selected here; isolectotypes K [K000330594], LE [LE00004008], P [P00217976], P [P05208982]).

*Marlierea laevigata* var. *glazioviana* Kiaersk. (Kiaerskou 1893: 51). Type: Brazil, Rio de Janeiro, “Alto Macahé”, 18 Oct. 1891 (fl.), Glaziov 19368 (lectotype C [C10015781] selected by Mazine *et al.* (2014); isolectotypes BR [845587], F [539097] [image], F [936378] [image], G [G00418710], K [K000343603], MO [not seen], NY [00405297] [image], P [P05209008], P [P05209011], US [00169625] [image]). Syntypes: Brazil, Rio de Janeiro, mun. Nova Friburgo, 4 Nov. 1881 (fl.), Glaziov 13450 (BR [845557], C [C10015779], C [C10015780], F [538730] [image], G [G00418711], K [K000343602], LE, P [P05209006], P [P05209007], R [R000008878] [image], US [00169624] [image]).

**NOTES.** Analysis of multiple specimens showed that *Calyptromyrcia eugenioides* var. *puberula*, *Eugeniopsis clauseniana* (including all varieties), *E. gardneriana* and *E. ovata* are synonyms of *Myrcia multipunctata* (each case is discussed below). All taxa share the typical features of *M. multipunctata*: pubescent to glabrous elliptic leaves with caudate apices, axillary

inflorescences with short basal internode with an abortive central bud and a pair of symmetrical lateral branches, clavate flower buds and calyx lobes fused at the base but opening regularly at anthesis. *Calyptromyrcia eugenioides* var. *puberula* and *E. ovata* are distinguished from typical *M. multipunctata* only by the leaf shape (ovate with rounded base) and shorter petiole, but we consider this a local variation only (from the region of Itambé do Mato Dentro, see below). *Eugeniopsis clauseniana* was differentiated from *M. multipunctata* by its indument and leaves that are denser and thicker in *E. clauseniana*. *Eugeniopsis clauseniana* however, appears to represent only a morphological variation of *M. multipunctata* in its southern distribution (the Southern Espinhaço range). Concerning *E. gardneriana*, it is difficult to find any relevant difference between collections of *M. multipunctata* and the type of *E. gardneriana*.

As the epithet *laevigata* was preoccupied in *Myrcia* (*M. laevigata* O. Berg), Mazine (in Mazine *et al.* [2014]) proposed a new name for *Eugenia laevigata* and regarded the specimen at M as the holotype. However, a specimen of *E. laevigata* collected by Martius, in G-DC, is part of the type collection (de Candolle 1828; Stafleu & Cowan 1976). This material bears de Candolle's annotation and constitutes a syntype along with the specimen at M (see Santos *et al.* 2016b). The sheet at M is more complete (the sheet at G-DC may be a fragment of it) and also bears de Candolle's annotation; it is therefore selected as the lectotype. The original label and protologue indicate a desert environment in the São Francisco river region. The semi-arid region of the São Francisco basin is part of the distribution of *M. multipunctata* and was part of Martius' itinerary in Brazil (Urban 1906), but the precise location of the type locality remains unknown.

*Calyptromyrcia eugenioides* var. *puberula* was formally described by Berg, but Cambessèdes (1832) first recognised it in the protologue of *Myrcia eugenioides* by the letter “B” followed by diagnostic features and place of collection (“Itambe in provincia Minas Geraës”). Among the syntypes, the specimens housed at MPU and P (barcode P00161441) bear the author's handwriting. The material at P is more complete and is here selected as the lectotype. The protologue and one of the original labels indicate Itambé, in Minas Gerais state (Brazil), as the type locality. This probably refers to the region of the current municipality of Itambé do Mato Dentro (not the “Pico do Itambé”, a northern place in the same state), where specimens with the same leaf morphology have recently been collected (e.g. *M. F. Santos* 130, 354, 718 [SPF]). See comments in *M. eugenioides* about a likely type specimen of *C. eugenioides* var. *puberula* at F.

The protologue does not indicate a type collection for the typical variety of *Eugeniopsis clauseniana*, as the author (Berg 1857 – 1859) only mentioned specimens for the two varieties (*E. clauseniana* var. *rufa* and

*E. clauseniana* var. *glabrata*). *Eugeniopsis clauseniana* var. *rufa* is treated first and in more detail than the other variety and it seems that Berg considered it the typical variety. We then selected the species lectotype among the type specimens of *E. clauseniana* var. *rufa*. The protologue of *E. clauseniana* var. *rufa* mentions “v. florif. in hb. Vindob. et Sonder; fructif. in hb. Berol.”. These collections refers to the current B, MEL (which houses most of Sonder's collection) and W. Clausen's specimen at W is more complete and probably provided most data for the species description; it is here selected as the lectotype of *E. clauseniana*. One of the Sellow specimens at P was selected as the lectotype of *E. clauseniana* var. *rufa*. The original label of Clausen's collection indicates Minas Gerais state as the place of collection; Sellow's labels just indicate “Brasilia” (=Brazil). Both localities are too wide to define as a type locality. Concerning Sonder's specimen, Rio de Janeiro (with a question mark added) is cited as the place of collection on the original label and protologue (“et in Rio de Janeiro?: hb. Sonder.”). The locality is probably a mistake, as the morphological variation of *Myrcia multipunctata* represented by *E. clauseniana* var. *rufa* does not occur in this region; there is no collector's information on the label and protologue.

Regarding *Eugeniopsis clauseniana* var. *glabrata*, the protologue cites “v. in hb. Vindob.” and Gardner's specimen at W is the only one with Berg's handwriting. Therefore, it was considered the holotype. Type specimens at BM and K indicate “Lapinha, Canga” in Minas Gerais state. “Lapinha” is a common name for rocky areas in many places. Comparing with Gardner's route in Brazil (Urban 1906) and based on the reference to the “canga” formation, the type locality could be in the region of the “Quadrilátero Ferrífero”.

The protologue indicates that the type specimen of *Eugeniopsis gardneriana* was seen at W (“v. in hb. Vindob.”). It is the only type specimen that has Berg's handwriting and is considered here as the holotype. Specimen labels at BM and K indicate the Diamantina region (Minas Gerais state) as the collection locality. The region is part of the distribution of the species, part of the route of Gardner in Brazil (Urban 1906) and is indeed the type locality.

The protologue of *Eugeniopsis ovata* does not cite a herbarium, but Berg probably saw the type collection at B, as usual for species described in *Flora Brasiliensis* based on Sellow's collections (Berg 1857 – 1859). The specimen at BR was selected as lectotype as it bears Berg's handwriting and matches the protologue. The original labels do not bear type locality information but the protologue cites “Itambe prov. Minarum”, probably the same type locality as *Calyptromyrcia eugenioides* var. *puberula*. The region was part of Sellow's route (Urban 1906) and is likely to be the type locality.

We follow previous works (e.g. Mazine *et al.* 2014) that accept *Marlierea laevigata* var. *glazioviana* as a synonym of *Myrcia multipunctata*. The type locality is indicated as the municipality of Nova Friburgo (*Glaziou* 13450) and Alto Macaé (“Alto Macahé”; *Glaziou* 19368), which is part of the same municipality. The region is part of Glaziou’s route in Brazil (Urban 1906) and is confirmed as the type locality of the species.

- 6. *Myrcia oblongata* DC.** (de Candolle 1828: 215). *Aulomyrcia oblongata* (DC.) O.Berg (1855: 37). Type: Brazil, São Paulo, “Provinciae S. Pauli, habitat in sylvis”, no date (fr.), *Martius* s.n. (lectotype M [M0136927] selected here; isolectotype G-DC). *Aulomyrcia bombycina* O.Berg (in *Martius* 1857: 66). *Myrcia bombycina* (O.Berg) Nied. (Niedenzu in Engler & Prantl 1893: 75). Type: Brazil, no date (fr.), *Sellow* s.n. (lectotype K [K000342637] selected by Sobral *et al.* (2010); isolectotypes B†, BR [523899] [image], LE [LE00007027] [image], P [P00161316], P [P00161317], W [W0033244] [image]).

**NOTES.** Sobral *et al.* (2010) discussed the nomenclature of this taxon but did not designate a lectotype for *Myrcia oblongata*. Material at M was selected as it bears de Candolle’s handwriting and matches well the protologue. De Candolle (1828) provides no information regarding the type locality other than São Paulo state. We follow Sobral *et al.* (2010) who proposed *Aulomyrcia bombycina* as a synonym of *M. oblongata*.

**7. *Myrcia polygama* (O.Berg) M.F.Santos, comb. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:60479378-2>

*Eugeniopsis polygama* O.Berg (in *Martius*, *Fl. Bras.* 14 (1): 147 (1857)). *Marlierea polygama* (O.Berg) D.Legrand (1962: 30). Type: Brazil, no date (fl.), *Sellow* s.n. (staminate specimen) (lectotype K [K000330558] selected here; isolectotypes BR [845152], K [K000330560], LE [LE00004009], P [P00217969], P [P00217971], W [2004-08262]). Syntypes: Brazil, no date (fl.), *Sellow* s.n. (hermaphrodite specimen) (BR [845119], F [936892] [image], K [000330559], LE [LE00004010], P [P00217968], P [P00217970]).

**NOTES.** The original description of *Eugeniopsis polygama* was based on two quite different specimens. The specimen *Sellow* s.n. (K000330558 and duplicates, a staminate specimen) is distinguished by elliptic leaves with long caudate apices, thin secondary veins, long petioles, a highly branched inflorescence with a short basal internode and small and glabrous male flower buds. The other specimen (*Sellow* s.n.; K000330559 and duplicates, a hermaphrodite specimen) has ellip-

tic leaves with acute to acuminate apices, thicker secondary veins, a poorly branched inflorescence lacking a basal internode, and large and pilose bisexual flower buds. Specimens with bisexual flowers of the same morphology as the male morphotype were observed (e.g. *K. Matsumoto* 807 [SPF]) and it could suggest that the two types are different species. However, specimens with transitional morphology have been found (e.g. *J. M. L. Gomes* 3325 [SPF], *O. J. Pereira* 2441 [SPF]) indicating that the types probably represent a single species. We choose a specimen with male flowers as the type because it has the most common morphology and certainly represents an androdioecious plant, a key characteristic of *E. polygama*.

The protologue indicates that type material was seen at B, but these specimens were probably destroyed. Material at K was lectotypified as it agrees with the typical morphology of the species (represented by a staminate specimen as discussed) and bears Berg’s handwriting, confirming that Berg used this material to describe the species. The original labels only indicate Brazil as the place of collection (“Brasilia”), typical information from Sellow’s gatherings. The protologue cites Minas Gerais, which is part of the distribution of the species but too large to be considered as a type locality.

**8. *Myrcia schottii* (D.Legrand) M.F.Santos, comb. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77202038-1>

*Marlierea schottii* D.Legrand, *Bot. Mus. Hist. Nat. Montevideo* 3 (40): 33 (1962). *Eugeniopsis schottiana* O.Berg (in *Martius* 1857: 148). Type: Brazil, Rio de Janeiro, 1837(?) (fl.), *Schott* 1083 (number 5866 is also cited in the original label) (lectotype W [W0037061] selected here; isolectotypes B†, K [K000330595]).

**NOTES.** The specimen at W was chosen as the lectotype because it was cited in the protologue (“v. in hb. Vindob. et Berol.”) and bears Berg’s handwriting. There is a specimen at K (K000330502) supposedly collected by Johann E. Pohl with the same number as Schott’s specimen (*Pohl* 1083) and a very similar morphology to the type of *Eugeniopsis schottiana*. The specimen is mounted on the same sheet as a specimen collected by William J. Burchell (*Burchell* 3662, K000330502). It is possible that this specimen is instead *Schott* 1083 and also part of the type collection, but we cannot be certain of this.

As *Myrcia schottiana* O.Berg already exists, the next available epithet is *schottii*, from *Marlierea schottii*, which Legrand published as a replacement name when he transferred *Eugeniopsis schottiana* to *Marlierea*. As in the case of *Myrcia gaudichaudiana*, labels of the type collections indicate Rio de Janeiro state as the place



of collection but this region is too large to be considered the type locality.

**9. *Myrcia subacuminata* (Kiaersk.) M.F.Santos, comb. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:77202101-1>

*Marlierea subacuminata* Kiaersk., *Enum. Myrt. Bras.*: 50 (Kiaerskou 1893). Type: Brazil, Rio de Janeiro, “Alto Macahé”, 8 Jan. 1889 (fl.), *Glaziou* 17672 (holotype C [C10015784]; isotypes K [K000330580], P [P00217962]).

*Marlierea krapovickae* D.Legrand (1971: 484), **synon. nov.** Type: Brazil, Santa Catarina, mun. Florianópolis, “Ilha de Santa Catarina, Morro Costa da Lagoa, 300 m”, 15 Feb. 1967 (fl.), *Klein* 7241 (holotype MVM [not seen]; isotypes FLOR [FLOR0016224] [image], HBR, MO [2476113] [not seen]).

**NOTES.** *Marlierea krapovickae* shares the distinctive features with *Myrcia subacuminata*: elliptic leaves with acuminate apices, pilose on the abaxial surface and with reticulate venation, the inflorescence with only one branch per axillary bud, and large and pilose flower buds. No relevant morphological differences were found between the two species and *Marlierea krapovickae* is here synonymised within *Myrcia subacuminata*. *Myrcia subacuminata* was previously recorded from the Atlantic Rain Forest of Espírito Santo and Rio de Janeiro states in Brazil (Flora do Brasil 2020). The synonymisation of *Marlierea krapovickae* expands the distribution of *Myrcia subacuminata* to the Atlantic Rain Forests of Santa Catarina state.

Specimens analysed by Kiaerskou (1893) in the description of new species in the *Enumeratio Myrtacearum Brasiliensium* were only deposited at C (Santos *et al.* 2016b). There is a unicate of *Myrcia subacuminata* at C and for this reason it is considered the holotype. The type locality is indicated as Alto Macahé (“Alto Macahé”) on the label at P (municipality of Nova Friburgo). The region is part of the species distribution, part of Glaziou’s route in Brazil (Urban 1906) and is confirmed as the type locality of the species.

**10. *Myrcia tenuivenosa* Kiaersk.** (Kiaerskou 1893: 84). Type: Brazil, Rio de Janeiro, mun. Nova Friburgo, 8 Oct. 1880 (fl.), *Glaziou* 11989 (lectotype C [C10015901] [image] selected here; isolectotypes BR [523902], G [G00222002], K [K000170008], LE *pro parte* [LE00007234], P [P00161059], R [R000009019] [image], R [R000009019a] [image], US [00478992] [image]). Syntypes: Brazil, Rio de Janeiro, mun. Petrópolis, 30 Oct. 1868 (fl.), *Glaziou* 3004 (BR

[523869], C [C10015900] [image], K [K000170009], P [P00161060]); Rio de Janeiro, 1887 – 89 (fl.), *Glaziou* 17675 (C [C10015902], K [K000344634], LE *pro parte* [LE00007234], P [P00161061], P [P00161062]).

*Eugeniopsis acuminatissima* O.Berg (in Martius 1857: 144). *Marlierea acuminatissima* (O.Berg) D.Legrand (1962: 30). Type: Brazil, Bahia, no date (fl.), *Luschnath* s.n. (holotype HAL [HAL0089792]).

**NOTES.** The analysis of the type collections shows that *Eugeniopsis acuminatissima* is a synonym of *Myrcia tenuivenosa*. Both taxa share a set of distinctive characters: a small elliptic leaf with caudate apex, thin and numerous secondary veins, the inflorescence usually composed of a short basal internode with an abortive central bud and a pair of symmetrical lateral branches; floral buds with free calyx lobes and capitate stigma. *Myrcia acuminatissima* O.Berg already exists, so *Myrcia tenuivenosa* is the correct name for the species as it is the earliest legitimate name.

Kiaerskou (1893) cited three specimens of *Myrcia tenuivenosa* collected by Glaziou (“Glaziou: n. 3004, 11989, 17675”), all of them seen only at C (Santos *et al.* 2016b). *Glaziou* 11989 was selected as the lectotype because it matches the protologue well and is the most complete and representative of these specimens. Kiaerskou (1893) cited another specimen (*Glaziou* 6540) as a likely specimen of *Myrcia tenuivenosa*, but the immature flowers prevented confirmation. Here we confirm that *Glaziou* 6540 is a specimen of *Myrcia tenuivenosa*, but we do not consider it part of the type collection. *Glaziou* 11989 and *Glaziou* 17675 are mounted on the same sheet at LE and are cited as *pro parte*. The original label at P indicates the type locality as the neighbouring municipalities of Nova Friburgo and Petrópolis (*Glaziou* 11989 and 3004, respectively). Both cities are part of the species distribution and Glaziou’s expedition route (Urban 1906) and can be considered the type locality of *M. tenuivenosa*.

The protologue of *Eugeniopsis acuminatissima* (Berg 1857 – 1859) cites *Luschnath* (without number) in the herbarium of Schlechtendal (“v. in hb. Schlechtend.”). The Schlechtendal herbarium was incorporated into the HAL (Stafleu & Cowan 1985). A single *Luschnath* specimen of *E. acuminatissima* was found at HAL. It bears Berg’s handwriting and, being the only specimen seen by the author for the description of *E. acuminatissima*, is therefore considered the holotype. The original label of the type specimen indicates the Brazilian state of Bahia as the place of collection (as does the protologue). The state is part of the distribution of *Myrcia tenuivenosa* but the precise type locality remains unknown.

**11. *Myrcia teuscheriana* (O.Berg) M.F.Santos, comb. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:60479383-2>

*Eugeniopsis teuscheriana* O.Berg, *Linnaea* 31: 249 (1862).  
*Marlierea teuscheriana* (O.Berg) D.Legrand (1962: 30). Type: Brazil, Rio de Janeiro, “Cantagallo”, no date (fl.), *Teuscher* 516 (but *Peckolt* is also cited in the type label) (holotype BR [845810]).

**NOTES.** Berg (1857 – 1859) cited the Martius herbarium in the protologue. BR houses part of Martius’s collections (Stafleu & Cowan 1981) and among them is the type of *Eugeniopsis teuscheriana*. The specimen at BR bears Berg’s handwriting and is a unicate; we therefore consider it the holotype (there is an incorrect label indicating the specimen as an isotype). The protologue indicates Teuscher as the collector; this name is also written on the label of the type specimen along with the name Peckolt and the number 516. It was not possible to find information regarding Teuscher or his itinerary in Brazil. He may have accompanied Theodor Peckolt who is known to have included the region of the Cantagalo municipality in his Brazilian itinerary (Urban 1906).

**12. *Myrcia vellozoi* Mazine** (in Mazine *et al.* 2014: 98). *Myrtus racemosa* Vell. (Vellozo 1829: 202, t. 60). *Eugeniopsis cannifolia* O.Berg (in Martius 1857: 148), **nom. superfl.** *Marlierea cannifolia* Nied. (Niedenzu in Engler & Prantl 1893: 76), **nom. superfl.** *Marlierea racemosa* (Vell.) Kiaersk. (Kiaerskou 1893: 51). Type: Brazil, Rio de Janeiro, Iconograph, Vellozo (1831: tabula 60) (neotype selected by Mazine *et al.* [2014]). Epitype: Brazil, Rio de Janeiro, mun. Rio de Janeiro, “Corcovado”, 21 March 1882 (fl.), *Glaziou* 11996 (K [K000330579] selected by Mazine *et al.* (2014); isopitypes P [P05208976], R [R000008880] [image], US [1123480] [image]).

*Eugeniopsis affinis* O.Berg (in Martius 1857: 149).  
*Marlierea affinis* (O.Berg) D.Legrand (1962: 30). Type: Brazil, Bahia, no date (fl.), *Luschnath* s.n. (holotype HAL [HAL89747]).

**NOTES.** Analysis of the type of *Eugeniopsis grandifolia* showed that this species is not a synonym of *Myrcia vellozoi* as has been proposed by previous studies (Govaerts *et al.* 2008); discussion follows in the “Excluded species” section. The nomenclature of *Myrtus racemosa* is provided by Mazine *et al.* (2014).

The protologue of *Eugeniopsis affinis* cites the Schlechtendal herbarium as the location of the type specimen; this collection is currently housed at HAL (Stafleu & Cowan 1985). The sheet at HAL includes Berg’s handwriting and was the only duplicate of this collection seen; for this reason

we consider it to be the holotype. The collection locality indicated in the protologue is Bahia, part of Luschnath’s route (Urban 1906), but the precise type locality remains unknown.

### Excluded species

**1. *Myrcia ochraciflora* M.F.Santos, nom. nov.**

<http://www.ipni.org/urn:lsid:ipni.org:names:60479384-2>

*Eugeniopsis grandifolia* O.Berg (in Martius, *Fl. Bras.* 14: 149 (1857). *Marlierea bergiana* D.Legrand (1962: 30). Type: Brazil, Bahia, no date (fl.), *Luschnath* s.n. (holotype HAL [HAL89619]).

**NOTES.** Analysis of type material of *Eugeniopsis grandifolia* indicated that this species is not a synonym of *Myrcia vellozoi* (Govaerts *et al.* 2008; WCSP 2018). *Eugeniopsis grandifolia* has ochraceous trichomes, a low density of translucent dots, cataphylls at the base of the internodes and turbinate flower buds. These features contrast with the typical features of *Myrcia* sect. *Eugeniopsis*, characterised by reddish trichomes, numerous translucent dots on leaves and flowers, absent cataphylls, and clavate flower buds (as found in *M. vellozoi*). The former suite of characteristics indicates that the species may be related to *Myrcia* sect. *Sympodiomyrcia*, despite the vertical tearing in the hypanthium wall, a rare feature in *Myrcia* sect. *Sympodiomyrcia* (Santos *et al.* 2016a, 2018). The new name *Myrcia ochraciflora* is necessary because *M. grandifolia* Cambess. already exists. The epithet refers to the flowers that are densely covered with light brown trichomes on the external surface.

The protologue cites the Schlechtendal herbarium, currently at HAL (Stafleu & Cowan 1985). As in the case of *Eugeniopsis affinis*, the duplicate of the type at HAL was the only one seen and includes Berg’s handwriting. For this reason we consider this the holotype. The collecting locality is given as Bahia state, part of the route taken by Luschnath (Urban 1906), but a more precise locality is not given.

### Final remarks

The present paper is part of an ongoing taxonomic revision of *Myrcia* sect. *Eugeniopsis*. The nomenclatural part of the revision and some taxonomic changes are published here in advance to accelerate the transfer of *Marlierea* names to *Myrcia* and to clarify the application of names, continuing the stabilisation of the nomenclature of the group. Nomenclatural updates published here build on a wider effort that has improved the nomenclature of *Myrcia* in recent years (Govaerts *et al.* 2008; Sobral *et al.* 2010; Lucas & Sobral 2011; Lucas *et al.* 2016; Santos *et al.* 2016b; Wilson 2017; Lima *et al.* 2018). Increased order regarding *Myrcia*



taxonomy is an essential instrument to better and more accurately appreciate the diversity of the genus. This is important for an increased understanding of the biodiversity of the Neotropics where *Myrcia* is among the richest taxa (Barthlott *et al.* 2005; BFG 2015).

### Acknowledgements

The first author acknowledges CNPq for the postdoc fellowship (grant#150217/2016-1). We thank the herbarium staff of all visited herbaria for allowing study of the Myrtaceae collections and the staff of G for providing high resolution images of type specimens.

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