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Typification of the names in *Armeria* (Plumbaginaceae) recorded for Italy

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Abstract

A contribution to the nomenclature of the genus *Armeria* is presented. *Armeria alpina*, *A. gracilis*, *A. macropoda*, *A. plantaginea*, *Statice nebrodensis*, *S. plantaginea*, and *S. pungens*, recorded for Italy, are typified here based on specimens deposited at B, G, MA, and NAP, plus an illustration by Allioni. The current application of these names is confirmed in most cases, except for *Statice plantaginea*, which is shown to be a heterotypic synonym of the Alpine endemic *Armeria arenaria* subsp. *praecox*, and not of the western Mediterranean *A. alliacea*, as previously thought. Accordingly, the latter species is excluded from the Italian flora.

Key words: lectotype, nomenclature, *Statice*

Introduction

Armeria (Candolle 1805: 419) Willdenow (1809: 333) (Plumbaginaceae) is a genus comprising about 100 species native to temperate regions of northern hemisphere and southern part of South America (POWO 2024). Taxa belonging to this genus show a high morphological and molecular variability (e.g. Tiburtini *et al.* 2023 and literature cited therein), which led to nomenclatural disorder and misapplication of names.

Several taxa occurring in Italy were typified in previous works by Selvi (2009), Brullo *et al.* (2011), Scassellati *et al.* (2011) and Tiburtini *et al.* (2022, 2023). As part of ongoing studies on the taxonomy of the genus *Armeria* in the central Mediterranean area, the aim of the present work is to deal with the seven remaining still untypified names recorded for Italy; namely, *A. alpina* Willdenow (1809: 333), *A. gracilis* Tenore (1831: 158), *A. macropoda* Boissier in Candolle (1848: 688), *A. nebrodensis* (Gussone 1842: 366) Boissier in Candolle (1848: 685), *A. plantaginea* Willdenow (1809: 334).

Material and methods

The present study was carried out through an extensive literature analysis and the searching/examination of specimens kept at B, BOLO, G, GZU, K, L, LISU, MA, NAP, PAD, TO, and W (codes according to Thiers 2024+). The articles cited through the text follow the *Shenzhen Code* (hereafter “ICN”; Turland *et al.* 2018).

Typification of the names

Armeria alpina Willd., Enum. Pl.: 333. 1809.

Lectotype (designated here):—AUSTRIA. Carinthia, *s.d.*, Hoppe *s.n.* (B100842431!, <http://herbarium.bgbm.org/object/B100842431>).

Other original material:—B-W06158-010 (<https://herbarium.bgbm.org/object/BW06158010>); B-W06158-020 (<http://herbarium.bgbm.org/object/BW06158020>).

Willdenow (1809: 333) described this species by providing a diagnosis, the provenance (“*Habitat in alpibus Carinthiae, Tyrolis*”), and the synonym “*Statice Armeria alpina Hoppe*”, which is a syntype according to the Art. 9.6 of the ICN. Four specimens were traced at B (barcodes B100842431, B-W06158-010, B-W06158-020) and GZU-Hoppe (barcode GZU000064305; image available at http://131.130.131.10/herbaria/jacq-viewer/viewer.html?rft_id=gzu_000064305&identifiers=gzu_000064305). B100842431 includes an original label in Hoppe’s handwriting (i.e. “*Statice alpina Hopp. | Auf der Pasterze*”; bottom-left corner of the sheet). No locality, date or name of collector occurs in the label of B-W06158-010, whereas in B-W06158-020, mounted on the same sheet, there are two Willdenow annotations: “*a. [Armeria] alpina W. [Willdenow]*” (a label on the bottom-left corner of the sheet) and “*Hoppe W.*” (bottom-right corner, directly on the sheet). Although the date of collection is lacking in these specimens, there is no reason to doubt that they are original material, due to the occurrence of Willdenow handwritings (H.W. Lack, pers. comm.; see e.g., Iamónico 2020). Finally, GZU000064305 is surely part of Hoppe collection as reported in a recent printed label (bottom-right corner of the sheet). On the other hand, we cannot be sure that Willdenow saw GZU specimen, although this Hoppe collection came from Carinthia region of Austria, i.e. the type locality of *Armeria alpina* (the label reads “*Auf dem Pasterzengletscher am Großglockner bei Heiligenblut*” = “On the Pasterzen glacier on the Großglockner near Heiligenblut”, where Heiligenblut am Großglockner is a municipality in the district of Spittal an der Drau). We designate B100842431 as the lectotype of the name *Armeria alpina* since it bears an original label by Hoppe and was certainly seen by Willdenow. The selected lectotype agrees with the protologue and with the current usage of the name. *Armeria alpina* is a species related to *A. maritima* (Mill.) Willd. Pinto da Silva (1971) and Lefèbvre (1974) considered *A. alpina* as a montane subspecies of *A. maritima*. The current taxonomy (Nieto Feliner 1990, Domina 2011+, Tison 2014, Malekmohammadi *et al.* 2024) consider these two taxa as distinct species.

Armeria gracilis Ten., Fl. Napol. Syll: 158. 1831 ≡ *Armeria vulgaris* var. *minor* Ten., Fl. Napol. 2(1) (tome 3): 353. 1824–1829.

– *A. vulgaris* sensu Ten., Fl. Napol. 3: 353. 1827. excl. syn.

Lectotype (designated here):—ITALY. Abruzzo, Velino, Mt Corno, *s.d.*, Tenore *s.n.* (NAP0002550!, Fig. 1a).

= *Armeria gracilis* var. *humilis* Ten., Syll.: 158. 1831.

Lectotype (designated here):—ITALY. Abruzzo, Corno, Velino, *s.d.*, Tenore *s.n.* (NAP0003186!, Fig. 1b).

Tenore (1831: 158) published the name *Armeria gracilis* providing a Latin diagnosis and listing the following three varieties: 1) the unnamed “*B. Flore albo*” with some tentative synonyms (“*An A. alliacea* Willd.? *Statice leucantha* Lois Fl. gall. edit. 2. p. 223. an. *A. leucocephala* Salzmann. Et Koch in *Botanische Zeitung* 1823. pag. 712?”), information about the provenance (p. 159) “*Hujus varietatis [var. B] specimina in Pollino et monte Cornu lecta sunt omnino glabra, quum illa montis Velinii habent scapum basi hirtum, ut in specie typo*” (the specimens of this variety [var. B] collected in Pollino and Monte Corno are all glabrous, whereas those from Monte Velino have bristly hairs at the base, as in the type species); 2) “*C. Humilis*” (diagnosis: “*scapo semipedali basi hirta, foliis subciliatis*”); and 3) “*D. Villosa*” (diagnosis: “*scapo sesquipedali glabro, foliis linearilanceolatis utrinque villosis attenuatisque*”, with the tentative synonym “*Statice pseudo-armeria*. Petag. Inst. Bot. 2. Pag. 496 et Ten. An *A. maritimae* var?”). The localities cited for this species are: “*In pascuis montis passim. C. Velino, Monte Corno in Aprutiu; Pollino in Calabria; D. Montevergine; in Hirpinis; Morrone; in Aprutio*”.

Among the synonyms of *Armeria gracilis*, Tenore (1831) also cited “*Armeria vulgaris*” in his Flora Neapolitana (“*A. [Armeria] vulgaris* Ten. Fl. nap. III. 353. excl. syn.”; Tenore 1824–1829), where he provided the following description: “*Foliis linearibus planis obtusiusculi glabris basi attenuatis, scapo terete leviter striato glabro vel basi pubescente, calycis communis foliolis exterioribus acutis interioribus obtusis muticis* (capitulo 8-9 lin. diametro)”. In that work, he also proposed two varieties under *A. vulgaris*: 1) var. (B) *linearifolia* (“*Caule humiliori, involucri obtusiusculo, foliis angustioribus acutiusculis*”), and 2) var. (C) *minor* (“*Floribus albis*”), indicating “*comune nelle praterie di tutto il Regno, dagli Abruzzi alle Sile*” (common on meadows of all the kingdom, from Abruzzo to Sile)

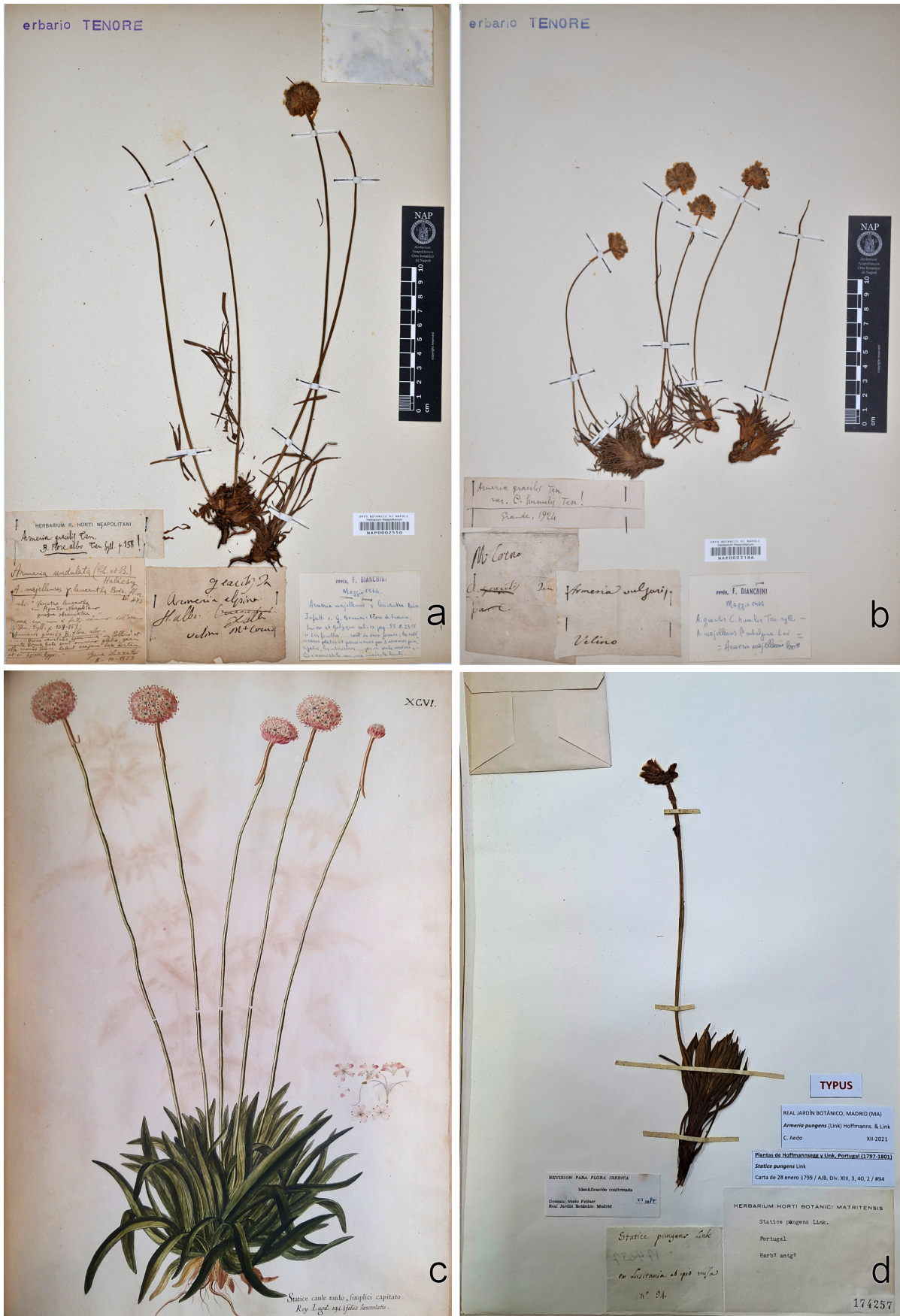


FIGURE 1. a) Lectotype of the names *A. gracilis* Ten. and *Armeria vulgaris* var. *minor* Ten. conserved in the Herbarium Tenore (NAP0002550); b) lectotype of the name *Armeria gracilis* var. *humilis* Ten. conserved in the Herbarium Tenore (NAP0003186); c) original illustration of *Statice plantaginea* (tab. 96 in Allioni, 1757–1765) selected as the lectotype of that name; d) lectotype of the names *Statice pungens* conserved in the Herbarium of the Real Jardín Botánico of Madrid (MA-01-00174257).

as the provenance for *A. vulgaris* var. *linearifolia* and “si trova sulle più alte vette de’ monti di Abruzzo: al Velino, al Costone, ad Intermesole” (it can be found on the highest peaks of Abruzzo: at Velino, Costone, Intermesole) for *A. vulgaris* var. *minor*. Tenore (1824–1829) also listed the legitimate name *Statice armeria* var. *tenuifolia* DC. (in Lamarck & Candolle 1815) as a synonym of *A. vulgaris* var. *linearifolia*, making this latter name illegitimate according to the Art. 42.1 of ICN. Although Tenore (1831) did not explicit a varietal autonym within *Armeria gracilis*, this autonym should obviously include the unnamed var. “B”. The only indirect mention of the autonym in the protologue is when he shortly discussed the unnamed var. B (“...scapum basi hirtum, ut in speciei typo”). On the other hand, *A. vulgaris* var. (C) *minor* in Tenore’s *Flora Neapolitana*, distinct in having white flowers, is clearly corresponding to the unnamed variety B reported later in the *Sylloge* (Tenore 1831).

We traced two specimens in the Herbarium Tenore at NAP which can be considered as part of the original material:

1) NAP0002550 bears two parts of the same plant and the following labels: “HERBARIUM R. HORTI NEAPOLITANI | *Armeria gracilis* Ten. | *B. Flore albo* Ten. Syll. p. 158” and “*gracilis* Ten. | *Armeria alpina* ... Velino M^e Corno” (further two labels are revisions by G. Luzzatto made on October 8, 1955, and by F. Bianchini in May 1964). The toponym “Corno” refers to Gran Sasso massif (Abruzzo region, central Italy) according to Tenore (1830). In this work, the author listed the taxa found during a field trip in Abruzzo in the summer of 1829 (including “*Armeria vulgaris*”). Tenore early identified the plant in the label as *A. alpina*, and later revised it as “*A. gracilis*”. We select this specimen as the lectotype of both *Armeria gracilis* var. *gracilis* and *A. vulgaris* var. *minor*. Based on the morphological features of this specimen, it is likely that its original provenance was Velino, given that the scape is hairy at the base. In addition, by comparing the lectotype with plants sampled in a low altitude population from Monte Velino (PI), the lectotype well fits morphologically with these plants. The lectotype also agrees with the current application of the name to a central-southern Italian endemic taxon, typical of montane habitats typically below 2000 m a.s.l. (Arrigoni 2015). Incidentally, the latter author lists several specimens attributed to *A. gracilis* s.str. and coming from Sirente-Velino area, at elevations between 1000 and 1500 m a.s.l.

2) NAP0003186 bears four labels, of which two in Tenore’s handwriting (“M. [Mount] Corno | *A. gracilis* Ten. | var. C.” and “*Armeria vulgaris* | Velino”), one as a revision by L. Grande (“*Armeria gracilis* Ten. var. C. *humilis* Ten. | Grande 1924”) and the fourth a second revision by F. Bianchini (“revis. F. BIANCHINI | Maggio 1964 | *A. gracilis* C. *humilis* Ten. syll. – *A. majellensis* β *subalpina* Lev. = *Armeria majellensis* Boiss.”). The two Tenore’s labels were added in different times, “*Armeria vulgaris*” (the name accepted in *Flora Neapolitana*; Tenore 1824–1829) being the first one, “*A. gracilis* var. C” the second (referring to *A. gracilis* var. *humilis* in *Sylloge*; Tenore, 1831). Accordingly, NAP0003186 is part of the original material for *A. gracilis* var. *humilis*, and is here designated as its lectotype. Based on the morphological features of this specimen, it is impossible to establish whether the original provenance of the specimens was Monte Corno or Velino. However, the lectotype more fits with the current application of *A. gracilis* subsp. *majellensis* (Boiss.) Arrigoni, based on the narrower scapes and the shorter inflorescence sheaths and external bracts, with respect to *A. gracilis* s.str. (see e.g., Arrigoni 2015). Even in the hypothesis that also this specimen was collected in Velino as the lectotype of *A. gracilis* s.str. was, we can safely assume that it was likely collected at higher elevations. Indeed, Arrigoni (2015) also lists several specimens attributed to *A. gracilis* subsp. *majellensis* originating from Sirente-Velino area, but at elevations between 1800 and 2476 m a.s.l. However, further studies are needed to better understand the taxonomic value of this subspecies with regard to *A. gracilis* s.str.

Armeria macropoda Boiss. in DC., Prodr 12: 688. 1848.

Lectotype (designated here):—ITALY. Campania, *Montevergine et Monte Terminio in Principato Ultra s.d., Gussone s.n.* (G00390387!, <https://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=612957&base=img>).

Boissier (1848: 688) described *Armeria macropoda* by providing a detailed description and citing the following synonym: “*A. scorzonerifolia* Ten. syll. non Willd.”. The name *A. scorzonerifolia* was misapplied by Tenore (1831) to a plant occurring on Montevergine and Matese massif (southern Apennines). Boissier (1848) cited, as type localities for *A. macropoda*, “monte Vergine et Terminio regni Neapolitani (Guss.!)”. This citation refers to two different localities, as Montevergine and Mt. Terminio are two mounts in separate massifs in the province of Avellino (roughly the former “Principato ultra”, Campania region, southern Italy). Boissier (1848) also reported “v.s. [vidi siccus] comm. ab. amiciss. Guss.!” (“I examined the specimen(s) sent by the great friend Gussone”). Therefore, the specimens from Montevergine and Mt. Terminio cited in the protologue are syntypes according to Art. 9.6 of the ICN. However, we traced at G-BOISS (barcode G00390387) only one specimen bearing a complete plant (from root to inflorescence) and the following labels: “*Statice alliacea?* | *Montevergine et Monte Terminio in Principato Ultra*” (Gussone handwriting)

and “*Arm. macropoda*” (Boissier handwriting). For this reason, we cannot establish the exact locality of this specimen, which, in any case, is original material for the name *A. macropoda* and originated from “Principato ultra”. Further five specimens by Gussone, collected in Montevegine (four) or Mt. Terminio (one) before the description of the species, are preserved on separate sheets in NAP (Collection “Gussone Generale”). Nevertheless, it cannot be established if one of them belongs to the same gathering of G00390387, so that the latter specimen remains the only known syntype. No apparent difference in leaf features is detectable. We select G00390387 as the lectotype of the name *Armeria macropoda*. By comparing with plants sampled by us in Monte Terminio (PI), the lectotype morphologically well agrees particularly with plants originating from this population, so that the original source locality for the lectotype could be possibly Monte Terminio. The lectotype also agrees with the current application of the name (Arrigoni 2015).

Statice nebrodensis Guss., Fl. Sic. Syn. 1: 366. 1842.

≡ *Armeria nebrodensis* (Guss.) Boiss. in DC., Prodr. 12: 685. 1848.

Lectotype (designated here):—ITALY. Sicily, *s.d.*, Gussone *s.n.* (G00440380!, <http://www.ville-ge.ch/musinfo/bd/cjb/chg/adetail.php?id=302799&lang=en>).

Gussone (1842: 366) provided a description, provenance and collector (“In aridis apricis montosis: *Madonie sopra Petralia, ed al Cuzzo del Predicatore: alla Colma grande, allo Sferru, ed alla Serra del soglio (Parlatore)*”), and the synonyms: “*Armeria alpina* Guss. *pr. 1. p. 378, non Willd.*” (Gussone 1827), “*Statice armeria. Ucria H. Pan. P. 145 non Lin.*” (Ucria 1789: 145), and “*Armerius montanus, minor, Cast. H. Mess. p. 4*” (Castelli 1640: 4).

Three specimens were traced at G (G00440380), K (K000704661, <https://plants.jstor.org/stable/viewer/10.5555/al.ap.specimen.k000704661?loggedin=true>), and NAP (without barcode). G00440380 bears a Boissier label (with the following four names: “*Armeria Nebrodensis guss. | Statice Nebrodensis guss. Synops. | Statice alpina guss. Prodr. non W [Willdenow] | Statice heterophylla Wallroth.*”), a Gussone label (“*Armeria alpina | Gussone*”), a Laurence identification (“*A. sardoa var. nebrodensis* (Guss.) Parl. | Goe. H. M. Laurence *12-I-1951*”), and a label referring to Boissier’s *Flora Orientalis* (“Conservatori botanique, Genève | Herbarium BOISSIER, séries n’ayant pas servi à la rédaction du *Flora Orientalis*”). K000704661 has the label “Herbarium Parlatoreanum 1847 | *Armeria nebrodensis* Parl. | *Sicilia*”. The NAP specimen bears three original Gussone labels reporting the provenance (“*Madonie al Cuzzo de Suvareddi*”, “*Madonie*”, and “*In aridis apricis montosis*”) and the months of collection [“Majo” (= May) and “Giugno” (= June)]. Only the G specimen can be considered as part of the original material, bearing the Gussone label “*Armeria alpina | Gussone*”, a name which was included in the protologue; this means that the specimen was certainly seen by Gussone before the publication of *Statice nebrodensis*. K000704661 was collected after the publication date (1847 vs. 1842), whereas no date of collection appears at the NAP specimen. G00440380 is selected as the lectotype of the name *Statice nebrodensis*. The lectotype fits the original description and corresponds to the current application of the name to an accepted species (Domina 2011+) endemic to the Madonie mountains in northern Sicily.

Armeria plantaginea Willd., Enum. Pl.: 334. 1809.

= *Armeria alliacea* (Cav.) Hoffmanns. & Link, Gl. Portug. 1: 441. 1813–1820. ≡ *Statice alliacea* Cav., Icon. 2: 6. 1793.

Lectotype (designated here):—In Europa australi, *s.d.*, *s.coll. s.n.* (B-W06164-020!).

Willdenow (1809: 334) described *Armeria plantaginea* by providing a diagnosis and a provenance. Two specimens of *A. plantaginea* are housed in the Herbarium Willdenow in B (B-W06164-010 bearing two flowering stems and B-W06164-020 bearing five flowering stems) within a single folder (B-W06164-000) bearing the locality “In Europa Australi”. Although the collection date is lacking, the presence of Willdenow handwriting allows to consider these specimens as original material, as already done in other cases (see e.g., Iamónico 2020). Both specimens fit the description and belong to the same taxon. We select the more complete specimen B-W06164-020 as lectotype. The type fits the original description and allows to confirm that *A. plantaginea* is a later heterotypic synonym of the western European *A. alliacea* (Cavanilles 1793: 6) Hoffmanns. & Link (1813–1820: 441) (Domina 2011+, Malekmohammadi *et al.* 2024), which actually does not occur in Italy (see also the discussion under the following name).

Statice plantaginea All., Fl. Pedem. 2: 90. 1785.

= *Armeria arenaria* subsp. *praecox* (Jord. ex Boreau) Kerguélen ex Greuter, Burdet & G.Long, Med-Checkl. 4: 309 (1989)

= *Armeria alliacea* subsp. *praecox* (Jord. ex Boreau) Jovet & R.Vilm. in Bailly & al., Fl. Descr. France, Suppl. 4: 410 (1977)

Lectotype (designated here):—*Statice plantaginea* in All., Iconographia Taurinensis IX: tab. 96. (Fig. 1c).

In the protologue, Allioni (1785: 90) referenced table 96 of the volume IX of his *Iconographia Taurinensis*, table 42 of Jacquin's *Hortus Botanicus Vindobonensis* (Jacquin 1770), and *Statice lusitanica Scorzoneraefolio* in Tournefort (1700). Two localities ("In vallis *Locanae* montibus, atque inter *Lance*, & *Viù* nascitur") are also reported. The illustration by Allioni is part of the original material for *Statice plantaginea*. We traced at TO, where Allioni's herbarium is preserved (HUH-Index of Botanists 2013-onwards), one specimen bearing a plant and the following label: "HERBARIUM ALLIONI [printed] | *Statice armeria major* Jacq. [Allioni handwriting]". Although this specimen was seen by Allioni, no information is reported in the label, especially concerning locality and collection date. Specimens lacking collection data and/or locality could be considered as possible lectotypes if, e.g., Allioni annotated the word "nobis" or "N.", as occurred, for instance, in *Plantago serpentina* All. (see Di Pietro *et al.* 2013). In this case, we cannot safely consider the specimen at TO as original material. The illustration cited in the protologue ("tab. 96") is available, and matches the original description, so that it is here selected as the lectotype of the name *Statice plantaginea*. The type falls within the current concept of *A. arenaria* subsp. *praecox* (Tiburtini *et al.* 2022), specifically by the long sheaths, rose-pale petals in medium size capitula and dull green leaves, albeit important characteristic such as the length of the intermediate scales cannot be appreciated. Notably, *S. plantaginea* is the oldest name available applying to this systematic unit. However, this name cannot be transferred under the genus *Armeria* at species level, since in this genus the same epithet is already used in the heterotypic *A. plantaginea* Willdenow (1809: 334). Also at subspecies level, the name originally published by Allioni does not hold priority, since the first name used at this rank under *Armeria* is *A. alliacea* subsp. *praecox* (Jordan ex Boreau 1857: 537) Jovet & Vilmorin (1977: 410), while *A. alliacea* subsp. *plantaginea* (Allioni 1785: 90) Bolòs & Vigo (1979: 30) was published two years later. We also remark that, differently from the report by Domina (2011+), after typification the name by Allioni is not related with *A. alliacea* (as instead the name by Willdenow does) but refers instead to *A. arenaria*. Consequently, the occurrence in Italy of *A. alliacea* (Domina 2011+) is wrong, and due to a misapplication of the name by Allioni.

Statice pungens Link, J. Bot. 1: 60. 1800.

≡ *Armeria pungens* (Link) Hoffmanns. & Link, Fl. Portug. 1: 439. 1813.

Lectotype (designated here):—PORTUGAL. 94. *Statice pungens* Link / ex Lusitania ab ipso misa (MA-01-00174257!; Fig. 1d).

Despite this name is often referred to Brotero (1804: 487) (see e.g., Malekmohammadi *et al.* 2024, POWO 2024, WFO 2024), actually it was first described by Link (1800: 60) four years earlier, as already highlighted by Nieto Feliner (1990). In the protologue, a description and the provenance ("in den sandigen Gegenden zwischen Capo Espichel und Porto Brandano") are provided. Despite most of Link collections in B were destroyed during World War II, a specimen of *Statice pungens* is conserved in MA (MA-01-00174257) and can be considered as original material. Indeed, this specimen was sent by Link to Cavanilles in January 1799 (see Medina & Aedo 2022). The lectotype fits the original description and corresponds to the current application of the name (Nieto Feliner 1990, Domina 2011+) to a sand-dune coastal species widespread in the western Mediterranean, from Portugal to Sardinia (Piñeiro *et al.* 2007, 2011).

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