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Artikel: Typification of Edmond Boissier's Cruciferae (Brassicaceae) names enumerated in Flora Orientalis
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Typifications and nomenclature

Chorispora R. Br. ex DC. in Mém. Mus. Hist. Nat. 7: 237. 1821 [nom. cons.].

Tribe: *Chorisporeae* C.A. Mey.

Note. – A genus of 11 Eurasian species, of which Boissier (1842c) described three and later in *Flora Orientalis* recognized two.

Chorispora syriaca Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 384. 1842.

Type: "[Aucher-Eloy] N. 181, Alep".

Holotypus: Syria: "Alep", s.d., *Aucher-Eloy 181* (G-BOIS [G00332023]; iso-: BM [BM000522116, BM000522123], G [G00389767, G00389768], MPU [MPU013500], P [P00741723, P00741724]).

= ***Chorispora purpurascens*** (Banks & Sol.) Eig in J. Bot. 75: 189. 1935.

Note. – Boissier did not examine the duplicates in P and G herbaria, and he based the species description solely on the unicate in his herbarium.

Chorispora persica Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 384. 1842.

Type: "[Aucher-Eloy] N. 4169 Q, Ispahan".

Lectotypus (designated here): **Iran:** "Ispahan", s.d., *Aucher-Eloy 4169Q* (G-BOIS [G00332024]; isolecto-: BM [BM001172151], G [G00389769, G00389770], K [K000693524], P [P00741711, P00741712]).

Note. – Boissier studied and annotated P00741712, and that justifies the lectotypification of the name.

Chorispora iberica var. *torulosa* Boiss., Fl. Orient. 1: 144. 1867.

= ***Chorispora iberica*** (M. Bieb.) DC., Syst. Nat. 2: 734. 1821.

Note. – This is a renaming of the following entry at the varietal level.

Chorispora compressa Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 385. 1842.

Type: "[Aucher-Eloy] Inter segetes *Aderbidjan* absque numero".

Lectotypus (designated here): **Iran:** "Aderbijan", s.d., *Aucher-Eloy s.n.* (G-BOIS [G00332025]; isolecto-: P [P00741779]).

= ***Chorispora iberica*** (M. Bieb.) DC., Syst. Nat. 2: 734. 1821.

Notes. – Lectotypification of *Chorispora compressa* is needed because Boissier based his description on the duplicates in G-BOIS and P00741779 that he annotated.

Boissier in *Flora Orientalis* reduced the species to synonymy of the previous entry.

Morettia DC. in Mém. Mus. Hist. Nat. 7: 236. 1821.

Tribe: *Anastaticeae* DC.

Note. – The genus consists of four species distributed in North Africa and Southwest Asia.

Morettia asperrima Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 60. 1842.

Type: "[Aucher-Eloy] N. 4102, Mascate".

Holotypus: Oman: "Mascate", s.d., *Aucher-Eloy 4102* (G-BOIS [G00332021]; iso-: BM [BM000583729], G [G00371891, G00371892], K [K000693515], MO [MO1617736], P [P00747584], W [W0075721]).

= ***Morettia philaeana*** (Delile) DC., Syst. Nat. 2: 426. 1821.

Notes. – Because none of the four cited isotypes was examined by Boissier, the unicate in G-BOIS is recognized as the holotype despite some might erroneously interpret the listing by Stork & Wüest (1980: 254) as lectotypification.

Boissier in *Flora Orientalis* reduced *Morettia asperrima* to synonymy of *M. philaeana*.

Morettia canescens Boiss., Diagn. Pl. Orient. 8: 17. 1849.

Type: "Hab. in desertis Arabiae Petreae (Schimper! Boiss!)".

Lectotypus (designated by Stork & Wüest, 1980: 255): **Israel:** "Nakkeb Arab. Petr. in arena et rupibus prostratum", 26.IV.1835, *Schimper 341* (G-BOIS [G00332020]; isolecto-: BM [BM000522088, BM000583725],

E [E00126649, E00126650], G [G00371909, G00371907], HAL [HAL0120825], HBG [HBG506149, HBG506150, HBG506151], K [K000230655, K000230656], P [P00747576, P00747577, P00747583], TUB [TUB000684, TUB000685], W [W, W0075719, W0075720, W18890168030]).

Note. – Boissier's collection (syntype) was not located.

Morettia parviflora Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 60. 1842.

Type: "[Aucher-Eloy] N. 4076, in Deserto ad Mascate".

Lectotypus (designated by Stork & Wüest, 1980: 257): **Oman:** "in deserto Mascate", s.d., *Aucher-Eloy 4076* (G-BOIS [G00332022]; isolecto-: G [G00371896], K [K00693516], P [P00747573, P00747574]).

Note. – The sheet P00747573 was annotated by Boissier, and it supports lectotypification of the name. The sheet at G belongs to the general collection and was not examined by him.

Matthiola W.T. Aiton, Hort. Kew. ed. 2, 4: 119. 1812 [nom. cons.].

Tribe: *Anchonieae* DC.

Notes. – A taxonomically difficult genus of 52 species much in need of thorough systematic and molecular studies throughout its range.

Although the study of Jaén-Molina et al. (2009) is a good starting point, substantial more work is needed to resolve many of the taxonomic problems.

Matthiola albicaulis Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 46. 1842 [nom. illeg.].

≡ *Hesperis alyssifolia* DC., Syst. Nat. 2: 447. 1821.

≡ ***Matthiola alyssifolia*** (DC.) Bornm. in Repert. Spec. Nov. Regni Veg. 39: 80. 1935.

Note. – *Matthiola albicaulis* is illegitimate because Boissier (1842a) listed the earlier published *Hesperis alyssifolia* DC. as a name inappropriately reflecting the species characters.

Matthiola incana var. *glabra* Boiss., Fl. Orient. 1: 148. 1867.

Type: "Hab. in Graeciâ (ex Juss.) Culta olim in hort. Par.".

= ***Matthiola incana*** (L.) W.T. Aiton, Hort. Kew. ed. 2, 4: 120. 1812.

Note. – No material of this taxon was located in G or P, including P-JU, and it appears that the variety was described from a plant in cultivation.

Matthiola sinuata var. *bracteata* Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. 8: 15. 1849.

Type: "Hab. in muris castelli *Suda* in *Cretâ.* Heldreich legit Marte florif.".

Holotypus: Greece: "murs des fortifications de Souda dans le golfe de Souda", 21.III.1846, *Heldreich 1342* (G-BOIS [G00332027]); iso-: G [G00446002, G00446003]).

= ***Matthiola sinuata*** W.T. Aiton, Hort. Kew. ed. 2, 4: 120. 1812.

Notes. – Status of this variety is uncertain, and it is somewhat anomalous because it has bracteate racemes the upper bracts of which are borne on the pedicels.

The variety was not listed by Livaniou-Tiniacou (2002). It may be a variant of *M. sinuata* (L.) W.T. Aiton, but field and experimental studies are needed to confirm that.

Matthiola crassifolia Boiss. & Gaill. in Boiss., Fl. Orient. 1: 149. 1867.

Note. – This is a renaming of the following entry at the specific rank.

Matthiola sinuata var. *integrifolia* Boiss. & Gaill. in Boiss., Diagn. Pl. Orient. ser. 2, 6: 10. 1859.

≡ ***Matthiola crassifolia*** Boiss. & Gaill. in Boiss., Fl. Orient. 1: 149. 1867.

Type: "Hab. in rupibus calcareis *Rarbagrouth* propè *Sidonem* cl. Gaillardot".

Holotypus: Lebanon: "Rochers calcaires de Rarbagrouth", 4.VIII.1855, *Gaillardot 1527* (G-BOIS [G00332030]; iso-: JE [JE00006130, JE00006131], K [K000693479], P [P05445157, P05445159]).

Notes. – The holotype is a collection folder of three sheets, of which the barcoded sheet is labeled and the other two are not.

All isotypes were collected from the same locality on the same date, and none was examined or annotated by Boissier.

Matthiola odoratissima var. *dentata* Boiss., Fl. Orient. 1: 149. 1867.

Type: "Hab. in salsis ad Schabanli districtus Khoi prov. Aderbidjan (Szow!)".

Holotypus: Azerbaijan: "In colle salem continente ad pag. Schabanli, Distr. Khoi", 3.V.1828, *Szovits 171* (G-BOIS [G00332031]; iso-: K [K000618623], LE).

= ***Matthiola spathulata*** Conti in Mém. Herb. Boissier 18: 49. 1900.

Notes. – Label of the K sheet states that the locality is "Armenia" but has the same collection number *171.* However, as in many other cases where Szovits collected in Azerbaijan, which encompassed then both Azerbaijan (the country) and the Iranian province, he used "Armenia" in the abbreviated labels of his duplicates.

Lectotypification of the above varietal name by Al-Shehbaz (Zeraatkar & Assadi, 2018: 141) was not needed because Boissier in *Flora Orientalis* based the description on the unicate in his herbarium.

Matthiola odoratissima var. *ovatifolia* Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 49. 1842.

≡ ***Matthiola tomentosa*** Bélang., Voy. Indes Or. I: [tab. 3]. 1834.

≡ *Matthiola ovatifolia* (Boiss.) Boiss., Diagn. Pl. Orient. 6: 9. 1846 [nom. illeg.].

Type: "[Aucher-Eloy] N. 82, Persia, 4068, A. 4072, Ispahan; 4070, Téhéran; 4073, Asia minor. – *Matthiola tomentosa* Bélang. Voy. tab.".

Notes. – Boissier (1842a) described the variety and listed *Matthiola tomentosa* as a synyonym. It is then a renaming of *M. tomentosa* at a varietal level.

However, when Boissier (1846: 9) raised his variety to a species, *M. ovatifolia* became illegitimate even though he did not list in that publication the earlier published *M. tomentosa* in synonymy. The latter is a valid name based on an illustration with analyses.

Many earlier works (e.g., Rechinger, 1968; Jaén-Molina et al., 2009; Zerratkar & Assadi, 2018; BrassiBase, 2019) erroneously used Boissier's illegitimate name instead of taking *M. tomentosa*.

Matthiola ovatifolia var. *buhseana* Boiss., Fl. Orient. 1: 150. 1867.

Type: "Hab. in lapidosis ad limites deserti salsi prope Rischm in Persiâ orientali (Buhse!)".

Holotypus: Iran: "Rischm", IV.1849, *Buhse 1213* (G-BOIS [G00332032 excl. dehisced fruit in envelope]; iso-: LE [n.v.]).

= ***Matthiola tomentosa*** Bélang., Voy. Indes Or. I: [tab. 3]. 1834.

Note. – Boissier based the varietal description solely on the unicate in his herbarium.

Matthiola farinosa Bunge ex Boiss., Fl. Orient. 1: 150. 1867.

Type: "Hab. in jugo Elbrus Persiae bor. inter Asterabad et Schahrud (Bunge!)".

Holotypus: Iran: "In jugo Elbrusensi; inter Astrabad et Schahrud", 6000'–7000' [1830–2130 m], 17.V.1858, *Bunge s.n.* (G-BOIS [G00330322]; iso-: B [B100241934], K [K000693491], LE [LE00013098], P [P00731148, P00731149, P00731150, P00731151]).

Notes. – Of the four isotypes at P, only P00731151 carries the exact date and locality in Bunge's handwriting "Matthiola farinosa, m. prope Tasch. 17. mai. 1858". With that sheet are mounted fragmentary duplicates of P00731148 and P00731149. Except for P00731151, all other duplicates, including the holotype, have printed labels.

Unfortunately the holotype is rather fragmentary with flower and fruit fragments in a packet, though it has the original species description in Bunge's handwriting and was the only material examined by Boissier.

Matthiola damascena Boiss., Diagn. Pl. Orient. 8: 16. 1849.

Type: "Hab. in collibus aridissimis suprà *Salehieh* propè *Damascum* ubi legi Maio 1846".

Lectotypus (designated here): **Syria:** "Colles Damasci", V–VII.1846, *Boissier s.n.* (G-BOIS [G00332033 flowering plants]; isolecto-: G [G00371810 plant on right]). **Syntypi: Syria:** "Colles Damasci", V–VII.1846, *Boissier s.n.* (G [G00371812, G00371810 plant on left], G-BOIS [G00332033 fruiting plants], P [P00731154]); "colles Damasceni", VI.1846, *Boissier s.n.* (G [G00371846], K [K000693493], P [P00731153], PH [PH00017091], W [W19660021986]).

= ***Matthiola euboea*** Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 48. 1842.

Notes. – Boissier's type collection includes material gathered in May (in flower) and June into July (in fruit).

However, since the original publication stated that the plant was collected in May, only the flowering material is considered for lectotypification, and the other collections above are recognized here as syntypes.

Matthiola euboea Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 48. 1842.

Type: "[Aucher-Eloy] N. 89, Eubaea insula".

Holotypus: Greece: "Euboea", 1837, *Aucher-Eloy 89* (G [G00371848]; iso-: P [P00731152]).

Notes. – Boissier based the description of *M. euboea* solely on the unicate G00371848 and did not annotate the P duplicate. Therefore, the G specimen ought to be the holotype.

The name was listed by Boissier in *Flora Orientalis* in the synonymy of the later-published *M. damascena* (see previous entry) followed by the note "patriâ schedulae errore falsâ". The species name is perfectly validly published, and the original mistake made by *Aucher-Eloy* on the locality (Syria instead of Greece), followed by Boissier in the protologue, do not invalidate *M. euboea.*

Both Mouterde (1970) and Post (1896, 1932) recognized *M. damascena,* though Post placed *M. euboea* in its synonymy despite recognizing that the latter name predates the former.

Matthiola flavida Boiss., Diagn. Pl. Orient. 6: 9. 1846.

Type: "Hab. ad latera orientalia montis *Kuh-Ajub* prope *Persepolin.* Kotschy No. 392".

Holotypus: Iran: "Ad latera in orient. spectantia m. Kuh-Ajub pr. ruinas u. Persepolis", 19.V.1842, *Kotschy 392* (G-BOIS [G00150509]; iso-: B [B100241937], BM [BM000583719, BM000583721], E [E00386177], G [G00096679, G00096680], GOET [GOET002636], K [K000693495], KFTA [KFTA0000090], KW [KW000127933], LE [LE00013099, LE00013100], P [P00731145, P00731146, P04661038], US [US00100453], W [W19670002533], WAG [WAG0003963], WU [WU0101793]).

Notes. – The holotype is a collection folder of two sheets of which the barcoded sheet has a handwritten label by Kotschy and the other is unlabeled. Boissier based his species description solely on that material.

The isotypes have printed labels.

Matthiola revoluta Bunge ex Boiss., Fl. Orient. 1: 151. 1867.

Type: "Hab. inter Ispahan et Teheran (Bunge!)".

Holotypus: Iran: "Inter Isfahan et Teheran", V.1859, *Bunge s.n.* (G-BOIS [G00330329]; iso-: B [B100241920], GOET [GOET002638], K [K000693496], KFTA [KFTA0000091], LE [LE00013109], P [P00731124, P00731125], US [US00344589]).

Notes. – Label of the holotype sheet has the original species description in Bunge's handwriting and was somewhat modified by Boissier.

The P00731124 duplicate carries Bunge's annotation "Matthiola revoluta, m." and measurements of floral parts, as well as an illustration of the stigma.

The GOET sheet was collected from Isfahan rather than between Isfahan and Tehran and should perhaps be considered as a syntype instead of a isotype.

Matthiola dumulosa Boiss. & Buhse in Nouv. Mém. Soc. Imp. Naturalistes Moscou 12: 14. 1860.

Type: "In der dürren Ebene bei Dscheudak, 4 April 1849 (florens et fructifera). [Buhse] Nº 1253".

Holotypus: Iran: "in planitie Sicca Djendack", 4.IV.1849, *Buhse 1253* (G-BOIS [G00330328]; iso-: LE [LE00013096], P [P04657138]).

Notes. – The collection date on the LE sheet was handwritten and correctly given as in the protologue, whereas the holotype has Buhse's 1847 printed label with Boissier's handwritten locality data.

Discrepancy in the year of collections is considered here as an error that resulted from using a label pre-printed prior to the collection year, as in other taxa that appeared in Boissier & Buhse (1860).

Matthiola chorassanica Bunge ex Boiss., Fl. Orient. 1: 151. 1867.

Type: "Hab. in prov. Chorassan Persiae inter Schahrud et Nischapur (Bunge!)".

Holotypus: Iran: "Chorassan, inter Schahrud et Nischapur", VI.1858, *Bunge s.n.* (G-BOIS [G00150508]; iso-: K [K000693499], P [P00731156]).

Note. – The isotype at P carries a handwritten label by Bunge giving the species name, locality, and exact collection date "13 Juni. 58". By contrast, the holotype has the species description in Bunge's handwriting on a printed label with the date "Jun. 1858".

Matthiola montana Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 47. 1842.

Type: "[Aucher-Eloy] N. 80, Akdag".

Lectotypus (designated here): **Turkey:** "Ak-Dag", s.d., *Aucher-Eloy 80* (G-BOIS [G00330531]; isolecto-: BM [BM000522086], G [G00371839], K [K000693500], P [P00747173, P00747174]).

Note. – Boissier (1842a) based his species description on the sheet in his herbarium and P00747173 that he annotated. Therefore, lectotypification of the species is justified.

Matthiola arabica Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 49. 1842.

Type: "[Aucher-Eloy] N. 132, Sinaï. – *M. tritis* Decaisn. Florul. Sinaica. – Unio itin, n. 214 – Arabicè *Chomchom*".

Lectotypus (first step designated by Boulos, 1999: 200; second step designated here): **Egypt:** "Arabice: Chomchom. Inter lapides ad radices montis Sinai", 26.V.1835, *Schimper 314* (G-BOIS [G00332639]; isolecto-: BM [BM000614131], E [E00126651, E00126652, E00126653, E00126654], G [G00446296, G00446297], HAL [HAL0120818], HBG [HBG506160, HBG506161], K [K000230668, K000230669], KW [KW000127934], P [P00731164, P00731165, P05445189]). **Syntypus: Egypt:** "Sinaï", s.d., *Aucher-Eloy 132* (G [G00371816, G00446608], G-BOIS [G00332034], K [K000618624, K000618625], MO [MO5654247], P [P00731161, P00731162, P00731163], US [US00344712]).

Notes. – Boulos (1999) narrowed the selection to one of the two syntypes cited in the original publication and listed *Schimper 314* at K as the isolectotype (as isotype). The designation here of the duplicate in G-BOIS as the lectotype completes the process.

The collection number was erroneously given in the original description as *214,* but this was corrected to *314* in Boissier (1867a: 152).

Matthiola thessala Boiss. & Orph. in Boiss., Fl. Orient. 1: 153. 1867.

Type: "Hab. in regione inferiori Olympi Thessali ad Hagios Dionysios (Orph. exs. 3695!)".

Holotypus: Greece: "In regione inferiori monti Olympi Thessalica prope Hajos-Dionysios", 25.VII–6.VIII.1857, *Orphanides 3695* (G-BOIS [G00332035]).

= ***Matthiola fruticulosa*** subsp. ***valesiaca*** (Gay ex Gaudin) P.W. Ball in Feddes Repert. Spec. Nov. Regni Veg. 66: 157. 1962.

Notes. – Boissier based the species description solely on the unicate in his herbarium.

No duplicates of the type collection were found.

Matthiola humilis var. *hirta* Boiss., Fl. Orient. 1: 154. 1867.

Type: "Hab. in arenosis ad Aboukir (Kralik!)".

Holotypus: Egypt: "Sables maritimes, Aboukir (Egypti)", 28.III.1847, *Kralik s.n.* (G-BOIS [G00332036]; iso-: G [G00446004], K [K000618626]).

= ***Matthiola longipetala*** (Vent.) DC., Syst. Nat. 2: 174. 1821.

Note. – The holotype is a collection folder of two sheets, one of which is labeled and barcoded, and Boissier based the varietal description solely on this material.

Matthiola humilis var. *ecornuta* Boiss., Fl. Orient. 1: 155. 1867.

Type: "Hab. in Aegypto (Acerbi)".

= ***Matthiola longipetala*** (Vent.) DC., Syst. Nat. 2: 174. 1821.

Note. – No material of the taxon was examined in the Geneva herbaria.

Matthiola aspera Boiss., Diagn. Pl. Orient. 8: 16. 1849.

Type: "Hab. in sterilissimis calidis Judaeae inter *S. Saba* et *mare Mortuum,* legi [Boissier] Maio 1846".

Holotypus: Palestine: "Palaestina, inter Jerusalem et Jericho", IV–V.1846, *Boissier s.n.* (G-BOIS [G00330324]; iso-: G [G00342140, G00342143], KW [KW000127935], P [P00731168, P00731169]).

Notes. – The holotype is a collection folder of two sheets, of which the barcoded one has the full label above, and the other has Boissier's handwriting as "Palestina propè Jericho." G00342140, P00731168 and P00731169 duplicates have "Mayo 1846" as date.

As shown in other cases below, Boissier's protologue of a given taxon was sometimes presented in a broader geographic interpretation than found on the specimens in his herbarium or other herbaria. The reverse situation was also observed. In the case of Saint (or S.) Saba, or Mar Saba in Arabic, Wikipedia states that it is a Greek Orthodox monastery overlooking Kidron Valley to the east of Old Jerusalem City.

Greuter & Burdet (Greuter & Raus, 1983) reduced *M. aspera* to a subspecies of *M. longipetala,* but the differences in the indumentum, presence of glands on the sepals, petal color and shape, and seed width justify the recognition of two distinct species, as done by Zohary (1966) and Gowler (1998). *Matthiola aspera* is endemic to Israel and neighboring Jordan, and its report from Iraq (Rechinger, 1968: 240) was based on plants of *M. longipetala*.

Matthiola oxyceras var. *lunata* Boiss., Fl. Orient. 1: 156. 1867.

Type: "Hab. in Bithyniâ prope Nicomediam (Noë!), Lydiâ ad basin montis Mesogis (Boiss!), Lyciâ ad Elmalu (Bourg!), Isauriâ (Heldr!), Cappadociâ (Bal!)".

Lectotypus (designated here): **Turkey:** "Elmalu, in arvis incultis arenosis", 10.V.1860, *Bourgeau s.n.* (G-BOIS [G00332037]; isolecto-: G [G00446004], P [P05348419]). **Syntypi: Turkey:** "Environs de Bérékethy (Cappadoce)", 1300 m, 15.VI.1856, *Balansa s.n.* (G-BOIS [G00332049]); "Mesogis", VI.1842, *Boissier s.n.* (G-BOIS [G00332047]); "Elmalu, in arvis incultis arenosis", 11.V.1860, *Bourgeau s.n.* (P [P05445259]); "Nicomalia", 1844, *Noë s.n.* (G-BOIS [G00332048]).

= ***Matthiola longipetala*** (Vent.) DC., Syst. Nat. 2: 174. 1821.

Notes. – Although all syntypes were collected from Turkey, the varietal name was not listed in *Flora of Turkey* (Cullen, 1965).

Heldreich's collection from Isauriâ was not located.

Matthiola oxyceras var. *angulosa* (Boiss.) Boiss., Fl. Orient. 1: 156. 1867.

≡ *Matthiola angulosa* Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 50. 1842.

Type: "[Aucher-Eloy] N. 84, Mossul".

Holotypus: Iraq: "Mossoul", s.d., *Aucher-Eloy 84* (G-BOIS [G00332039]; iso-: G [G00371843, G00371863, G00371864], K [K000693504], P [P00731142, P00747171, P00747175]).

= ***Matthiola longipetala*** (Vent.) DC., Syst. Nat. 2: 174. 1821.

Note. – Boissier based the description on the unicate in his herbarium and did not examine any of the duplicates at P or G.

Matthiola oxyceras var. *forcipifera* (Boiss.) Boiss., Fl. Orient. 1: 156. 1867.

≡ *Matthiola bicornis* var. *forcipifera* Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 51. 1842.

Type: "[Aucher-Eloy] N. 88, Rhodus".

Lectotypus (designated here): **Syria:** "Alep", s.d., *Aucher-Eloy 83* (G-BOIS [G00332040]; isolecto-: G [G00446005, G00446006, G00446008], K [K000693502], P [P05348416, P05348420]).

= ***Matthiola longipetala*** (Vent.) DC., Syst. Nat. 2: 174. 1821.

Notes. – Boissier (1842a) based his description on G00446008, the unicate in G-BOIS, and P05348416 that he annotated, and therefore the name needed lectotypification (see Boissier, 1841a).

The collection number and locality were erroneously given in the original description of the variety as "N. 88, Rhodus", but these were corrected in *Flora Orientalis*.

Farsetia Turra, Farsetia: 5. 1765.

Tribe: *Anastaticeae* DC.

Notes. – A genus of 27 species distributed from North and East Africa eastward into southern Southwest Asia into Pakistan, with the highest concentration of species in eastern Africa (Ethiopia into Somalia) and southern Arabian Peninsula.

Farsetia was broadly delimited by Fournier (1864) to encompass *Fibigia* Medik., but the two genera have very different trichome types, and they belong to the unrelated tribes *Anastaticeae* and *Alysseae,* respectively.

Farsetia linearis Decne. ex Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 150. 1842.

Type: "[Aucher-Eloy] N. 4069, Mascate".

Holotypus: Oman: "Mascate", s.d., *Aucher-Eloy 4069* (P [P00747714]; iso-: BM [BM000582900], FI, G [G00371666, G00371686], G-BOIS [G00332041], K [K000484508], LE [LE00013045, LE00013046], MPU [MPU017099]).

Notes. – Boissier (1842b) based the species description on the P duplicate indicating: "Farsetia linearis Decaisne, mss. in herb. Mus. Par.". The fragmentary G-BOIS isotype was taken from the holotype. Boissier did not examine the duplicates at G because they were not part of the Candolle herbarium.

The above duplicate at FI was listed in Jonsell (1986), though its image was not seen on the websites consulted.

Farsetia aegyptia var. *gracilior* Boiss., Fl. Orient. 1: 159. 1867.

Type: "Hab. in Affghaniâ (Griff!)".

Lectotypus (designated here): **Afghanistan:** *sine loco,* s.d., *Griffith 1363* (G-BOIS [G00332042]; isolecto-: G [G00446008], K [K000484503, K000484505], P [P06618089]). **Syntypi: Afghanistan:** *sine loco,* s.d., *Griffith 1495* (G-BOIS [G00332043], K [K000484505, K000618628]); *sine loco,* s.d., *Griffith 1497* (K [K000484503]).

= ***Farsetia aegyptia*** subsp. ***edgeworthii*** (Hook. f. & Thomson) Jonsell in Acta Univ. Upsal., Symb. Bot. Upsal. 25(3): 43. 1986.

Notes. – The presence in G-BOIS of two collection numbers by *Griffith* (*1363* and *1495*) none of which was listed in the original protologue necessitated lectotypification of the taxon.

Jonsell (1986) did not list *Griffith 1363,* though he listed both *Griffith 1495* and *1497* as syntypes.

Farsetia ovalis Boiss., Diagn. Pl. Orient. 8: 32. 1849.

Type: "Hab. in desertis *Aegypti* et *Arabiae petreae* (Aucher! Sieber! Boiss!)".

Lectotypus (designated here): **Egypt:** *sine loco,* s.d., *Aucher-Eloy 238* (G-BOIS [G00332044]; isolecto-: BM [BM000582905], E, FI, G [G00446009, G00446010], MPU [MPU016926], P). **Syntypi: Egypt:** "Tentyra", s.d., *Sieber s.n.* (G [G00446013, G00446014], JE [JE00002545], K [K000230495], LE [LE00013053, LE00013054], MPU [MPU017101], P, W [W0010333, W0010334, W0010335, W0010336, W298671, W298675]). **Sine Patria:** "Arabia petraea", III.1846, *Boissier s.n.* (G [G00446015, G00446016], G-BOIS [G00332046], K [K000230496], KW [KW000127921], LE [LE00013056, LE00012057], UPS).

= ***Farsetia aegyptia*** Turra, Farsetia: 5. 1765.

Note. – Jonsell (1986: 40) listed all syntypes cited in the original publication but did not lectotypify the taxon. He also indicated that duplicates of *Aucher-Eloy 238* are housed at E, FI, and P, though those at E and P were not found during this study.

Cardamine L., Sp. Pl.: 654. 1753.

Tribe: *Cardamineae* Dumort.

Notes. – The genus includes 239 species represented by native taxa on all continents except Antarctica. For its size, it is poorly represented in the *Flora Orientalis* area.

Both *Cardamine* and *Dentaria* were simultaneously published by Linnaeus (1753). Crantz (1769), who united the two genera, adopted *Cardamine* for the combined genus and, therefore, this name has priority (see Turland et al., 2018: Art. 11.5).

Cardamine oxycarpa Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 56. 1842.

Type: "[Aucher-Eloy] N. 113, Alpes Laristan; 4119, Zarinkou".

Lectotypus (designated here): **Turkey:** "Alpibus Lazistani", s.d., *Aucher-Eloy 113* (G-BOIS [G00332050]; isolecto-: G [G00389439], K [K000697699]). **Syntypus: Iran:** "Mt. Zarinkou", s.d., *Aucher-Eloy 4119* (G [G00389440], G-BOIS [G00332051], K [K000697700]).

= ***Cardamine pectinata*** DC., Syst. Nat. 2: 264. 1821.

Note. – Boissier in *Flora Orientalis* reduced the species to synonymy of *C. pectinata,* whereas both Cullen (1965) and Hedge (1968), who did not list *C. oxycarpa* in their accounts, recognized the former as a subspecies of *C. impatiens* L. The first author agrees with Khatri (1988) in maintaining *C. pectinata* as a distinct species related to the former.

Cardamine impatiens var. *macropetala* Boiss., Fl. Orient. Suppl.: 31. 1888.

Type: "Hab. secus torrentes vallis subalpinae Djimil Ponti Lazici 6000' (Bal.!)".

Holotypus: Turkey: "Bords des torrents de la vallée sous-alpine de Djimil (Lazistan)", c. 2000 m, VII–VIII.1866, *Balansa 33* (G-BOIS [G00332662]; iso-: JE [JE00006187], K [K000618629]).

= ***Cardamine impatiens*** L., Sp. Pl.: 655. 1753.

Notes. – The holotype is a collection folder of two sheets, of which the barcoded one has the full label above, and the other is labeled as "Lazistan. Balansa".

Seeds from the type collection were grown in Geneva, and vouchers in flower were collected in May 1868.

Except for the collection number *1360* instead of *33,* the label data of the holotype and isotypes are identical.

Cardamine huetii Boiss., Diagn. Pl. Orient. ser. 2, 5: 18. 1856.

≡ *Sisymbrium huetii* (Boiss.) Boiss., Fl. Orient. 1: 957. 1867.

≡ ***Murbeckiella huetii*** (Boiss.) Rothm. in Bot. Not. 1939: 472. 1939.

Type: "Hab. in Armeniâ suprâ *Tachkeupru* cl. Huet. du Pavillon. Fl. Maio".

Holotypus: Turkey: "supra Tachkeupru", V.1853, *Huet du Pavillon s.n.* (G-BOIS [G00332052]; iso-: G [G00446018]).

Notes. – The isotype at G was part of the Huet du Pavillon's herbarium and has the locality as "inter Baibout et Erzeroum". It was added to the Geneva herbaria in 1912 then it was not examined by Boissier.

In addition to the type collection above, Hedge (1965, 1968) listed Balansa's collection from Djimil, but this collection was not cited in the protologue of the species.

Although Boissier (1867a: 161) maintained the species in *Cardamine*, he recognized it on p. 957 as *Sisymbrium huetii,* and a note on that change was given in Boissier (1888: 31) as: "161, Cardamine Huetii delenda et in *Sisymbrium Huetii* Fl. Or. 1. P. 957 mutanda".

Cardamine uliginosa var. *amethystina* Boiss., Fl. Orient. Suppl.: 31. 1888.

Type: "Hab. in herbidis elatioribus montis Rilo Macedoniae (Pančič!)".

= ***Cardamine uliginosa*** M. Bieb., Fl. Taur.-Caucas. 3: 438. 1819.

Note. – No material of this taxon was located.

Cardamine wiedemanniana Boiss., Fl. Orient. 1: 162. 1867.

Type: "Hab. in monte Aladagh Anatoliae (Wiedem!)".

Holotypus: Turkey: "environs Aladagh", s.d., *Wiedemann s.n.* (G-BOIS [G00332054]; iso-: K, LE).

Notes. – The holotype is a collection folder of two sheets, of which the barcoded one has a handwritten label by Wiedemann and was annotated in 1902 by Schulz, and the other sheet has a handwritten label by Boissier with the species name, locality, and collector.

C. wiedemanniana was not mentioned by Cullen (1965), though Schulz (1903: 497) cited its type collection as the record of *C. amara* from Turkey.

As indicated by Khatri (1988) and Lihová et al. (2004), *C. wiedemanniana* is a distinct Anatolian-Caucasian species to which belongs *C. lazica* (see below) that Cullen recognized. Khatri also indicated that he examined a duplicate at K, but we have not been able to locate that.

Cardamine olympica Boiss., Diagn. Pl. Orient. 8: 19. 1849.

Type: "Hab. in pratis humidis regionis tertiae *Olympi Bithyni* ubi cl. Aucher eam floriferam ego autem fructiferam legimus".

Holotypus: Turkey: "Olymp. Byth.", s.d., *Aucher-Eloy 114* (G-BOIS [G00332053]; iso-: G [G00446019], P [P06651949]).

= ***Cardamine uliginosa*** M. Bieb., Fl. Taur.-Caucas. 3: 438. 1819.

Notes. – The G isotype belongs to the Moricand herbarium, and the P sheet was not annotated by Boissier. Therefore, Boissier based his description solely on the unicate in his herbarium, and that sheet should be recognized as the holotype (see Boissier, 1841a).

The species was misidentified by Boissier (1842a) as *C. tenera* C.A. Mey., but was later reduced by him to synonymy of *C. uliginosa* in *Flora Orientalis*.

Cardamine lazica Boiss. & Balansa in Boiss., Fl. Orient. Suppl.: 31. 1888.

Type: "Hab. in Ponto littorali ad rivulos prope Rhizé et in regione subalpinâ inter Andon et Djimil 3300' (Bal.!)".

Lectotypus (designated here): **Turkey:** "Fruits: Bords des ruisseaux du Lazistan prés de Rhizé", c. 100 m, V.1866, *Balansa 31* (G-BOIS [G00332101 first sheet on the right and second sheet]; isolecto-: G (G [G00446020, G00446021], GOET [GOET002730], P [P00747531]). **Syntypus: Turkey:** "Fleurs: Khan situé entre Andon et Djimil (Lazistan)", 1836 m, 6.VII.1866, *Balansa 31* (G-BOIS [G00332101 two flowering plants on first sheet on the left]) (Fig. 9, p. 53).

= ***Cardamine wiedemanniana*** Boiss., Fl. Orient. 1: 162. 1867.

Notes. – The lectotype is a collection folder of two sheets both annotated by O. E. Schulz on 31 December 1901. The second sheet has two fruiting plants and no label, and the first sheet has a fruiting plant on the right, two flowering plants on left, and a label carrying the species name in Boissier's handwriting and the field number *31* (Fig. 9, p. 53). The flowering material is recognized here as the syntype, and the fruiting material is designated as the lectotype.

Cullen (1965: 441) listed both syntypes from Rhize and between Andon and Djimil and without discriminating flowering or fruiting material as the type, though he indicated to have seen them in K. A search of all the holdings at K and JSTOR Global Plants website revealed no Balansa material of the species at K. Therefore, we are not considering Cullen's action a first step lectotypification and preferring to lectotypify the name based on material examined by Boissier. Furthermore, the listing of such K material by Dorofeyev (2003: 58) cannot be considered an effective lectotypification (see McNeill, 2014; Turland et al., 2018: Art. 9, note 6).

Cardamine graeca var. *lasiocarpa* (Boiss. & Heldr.) Boiss., Fl. Orient. 1: 164. 1867.

≡ *Pteroneurum graecum* var. *lasiocarpum* Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. 8: 20. 1849.

Type: "Hab. in lapidosis montium Lassiti Cretâ suprà *Males* alt. circ. 4000' (Heldr.!)".

Holotypus: Greece: "In lapidosis sylvaticis. Montagnes de Lassiti – revers méridional, bois de Chênes et de Pins au dessus de Males" c. 4000' [1220 m], 7.V.1846, *Heldreich 1484* (G-BOIS [G00332057]; iso-: BM [BM000750056], G [G00383416, G00446022, G00446023, G00446024], H [H1511450], P [P05419170, P06489458], W [W0075717]).

= ***Cardamine graeca*** L., Sp. Pl.: 655. 1753.

Note. – None of the above isotypes was studied by Boissier.

Arabis L., Sp. Pl.: 664. 1753.

Tribe: *Arabideae* DC.

Note. – The genus includes some 100 species centered in Europe and distributed also in Asia, North America, and North Africa.

Arabis pseudoturritis Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. ser. 2, 1: 20. 1854.

Type: "Hab. in regione sylvaticâ montis *Olympi Thessaliae* (Heldr. Jul. 1852)".

Holotypus: Greece: "In reg. sylvatica m. Olympi Thessaliae", 22.VII.1851, *Heldreich s.n.* (G-BOIS [G00332058]).

= ***Turritis glabra*** L., Sp. Pl.: 666. 1753.

Notes. – The original protologue erroneously gave the collection year as 1852 instead of 1851. No duplicate of the type collection was examined. A sheet annotated in Boissier's handwriting as *Arabis pseudoturritis* collected by C.N. Fraas (G [G00383992]) is not part of the type collection.

Strid & Titz (1986: 262) lectotypified the species, but that was unnecessary because Boissier based the species description solely on the unicate in his herbarium. They and Titz & Schnattinger (1980) recognized this taxon as *Arabis glabra* var. *pseudoturritis* (Boiss. & Heldr.) Fiori (Nuova Fl. Ital. 1: 576. 1924). However, the taxon definitely belongs to *Turritis* (tribe *Turritideae*) rather than to *Arabis* (tribe *Arabideae*). Whether or not it merits recognition at the infraspecific rank is another matter, though the first author feels that it is not sufficiently distinct to be accepted.

Arabis laxa var. *cremocarpa* (Boiss. & Balansa) Boiss., Fl. Orient. 1: 168. 1867.

≡ *Arabis cremocarpa* Boiss. & Balansa in Boiss., Diagn. Pl. Orient. ser. 2, 5: 16. 1856.

Type: "Hab. in pinetis vallis *Kar Boghas* suprâ *Gülek Boghas*. Fructiferam legit fine Julii cl. Balansa".

Holotypus: Turkey: "Forêts de Pins de la partie inférieure de la vallée de Kar-Boghas, au-dessus de Gulek-Boghas", 30.VII.1855, *Balansa 214* (G-BOIS [G00332059]).

= ***Turritis laxa*** (Sm.) Hayek in Repert. Spec. Nov. Regni Veg. Beih. 30(1): 402. 1925.

Notes. – No duplicates of the type collection were examined.

Two unnumbered collections by Balansa, P00747417 and P00747418, have mimeographed handwritten labels by him indicating a collection date of July 1855 and locality data as "région montagneuse du Taurus au nord du défilé des Portes ciliciennes". However, we believe that these do not belong to the type collection.

Arabis cordata Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 51. 1842.

Type: "[Aucher-Eloy] N. 111, Glibra cum *T. glabr*â mixta".

Holotypus: Sine patria: "Glibra", s.d., *Aucher-Eloy 111* (G-BOIS [G00332060]; iso-: K [K000618630]).

= ***Turritis laxa*** (Sm.) Hayek in Repert. Spec. Nov. Regni Veg. Beih. 30(1): 402. 1925.

Note. – The species was reduced by Boissier in *Flora Orientalis* to synonymy of *A. laxa*.

Arabis montbretiana Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 53. 1842.

Type: "[Aucher-Eloy] N. 98, Ak-Dag et in h. DC. ex Aleppo".

Lectotypus (designated here): **Turkey:** "Ak-Dag", s.d., *Aucher-Eloy 98* (G-BOIS [G00332061]; isolecto-: K [K000693257], P [P00747415]). **Syntypus: Syria:** *sine loco,* s.d., *Aucher-Eloy s.n.* (G [n.v.]).

= ***Arabis auriculata*** Lam., Encycl. 1: 219. 1783.

Notes. – No specimen of *Aucher-Eloy s.n.* was found in G under *A. auriculata, A. montbretiana,* or *A. nova* Vill., and the material examined by Boissier is likely misplaced.

Cullen (1965) and Hedge (1968) reduced *A. montbretiana,* together with *A. auriculata,* to synonymy of *A. nova*. However, as indicated by Titz (1973), the last species is quite distinct from the other two together, and the correct name for them is *A. auriculata*.

Arabis auriculata var. *sinaica* (Boiss.) Boiss., Fl. Orient. 1: 169. 1867.

≡ *Arabis sinaica* Boiss., Diagn. Pl. Orient. 8: 21. 1849.

Type: "Hab. in rupestribus vallium jugi *Sinaitici,* legi [Boissier] Marte 1846".

Holotypus: Egypt: "Arabia Petraea. Sinai", III.1846, *Boissier s.n.* (G-BOIS [G00332062]; iso-: G [G00446038, G00446039, G00446050], K [K000693261, K000693262], LE [LE00012991, LE00012992], P [P00747455, P05122994], PH [PH00003578], W [W19660021973]).

= ***Arabis auriculata*** Lam., Encycl. 1: 219. 1783.

Notes. – Boissier based his species description solely on the unicate in his herbarium.

Therefore, Boulos (1999: 194) listing the type at K and his annotation on K000693261 (25.IX.1997) are rejected.

Arabis cadmea Boiss., Diagn. Pl. Orient. 8: 21. 1849.

Type: "Hab. in pinguibus arenosis *Cadmi* orientalis suprà *Colossam* in *Cariâ* alt. 5000'-6000'. Legi [Boissier] Junio 1842".

Lectotypus (designated here): **Turkey:** "regio alpina Cadmi suprà Colossam", VIII.1842, *Boissier s.n.* (G-BOIS [G00332063]; isolecto-: JE [JE00003186]). **Syntypi: Turkey:** "Cadmes ad or. Denisleh in arenosis panguibus", VI.s.a., *Boissier s.n.* (G-BOIS [G00332064]); "Cadmus orientalis", VI.1842, *Boissier s.n.* (K [K000693259, K000693260]).

= ***Arabis auriculata*** Lam., Encycl. 1: 219. 1783.

Notes. – Based on Mermoud (1980), the two collections were made only a few days apart starting at Denisleh then Khonas (= *Colossas*). It appears that Boissier mixed the collection month because the lectotype has flowers and fruit, and the second collection has fully mature fruit.

The mere listing of the above lectotype as type by Tan (2002) does not constitute a valid lectotypification of the species (see Turland et al., 2018: Art. 9, note 6; McNeill, 2014).

The lectotype is a collection folder of two sheets one of which is unlabeled.

Arabis aucheri Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 52. 1842.

Type: "[Aucher-Eloy] N. 97, Alep".

Holotypus: Syria: "Alep", s.d., *Aucher-Eloy 97* (G-BOIS [G00332065]; iso-: BM [BM000583662, BM000583663], G [G00389095, G00389096, G00389097], K [K000963235], P [P00747456, P00747457, P00747458]).

Note. – Boissier (1842a) based the species description on the unicate in his herbarium and did not annotate any of the duplicates above.

Arabis hirsuta var. *glabrescens* Boiss., Fl. Orient. 1: 170. 1867.

≡ *Arabis constricta* Griseb., Spic. Fl. Rumel. 1: 249. 1843.

= ***Arabis sudetica*** Tausch in Flora 19: 407. 1836.

Notes. – This is a renaming at the varietal rank of *A. constricta.*

According to Strid & Titz (1986: 264), Grisebach's collection from Scardus is the type collection of *A. constricta* Griseb., and it is likely that our plant belongs to same collection, with duplicates at B, GOET, and K.

Arabis sagittata var. *glabrata* Boiss., Fl. Orient. 1: 171. 1867.

Type: "Hab. in monte Elbrus Persiae bor. (Ky. exs. 197!), in prov. Asterabad prope Siaret (Bunge!)".

Lectotypus (designated here): **Iran:** "In m. Elbrus pr. Derbend", 27.V.1843, *Kotschy 197* (G-BOIS [G00332067]; isolecto-: G [G00446032, G00446033, G00446034], K [K000693264], P [P00747427, P00747428, P00747429]). **Syntypus: Iran:** "in montosis prov. Astrabadensis [Gorgan] pr. Siaret", IV–V.1858, *Bunge s.n.* (G-BOIS [G00790755], K [K000693263]).

= ***Arabis sagittata*** (Bertol.) DC. in Lam. & DC., Fl. Franç. ed. 3, 5: 592. 1815.

Note. – Two sheets in the Bunge herbarium at P belong to this species, but their locality do not match the protologue and they were collected in 1868, a year after the publication of the varietal name.

Arabis sagittata var. *rosea* Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 52. 1842.

Type: "[Aucher-Eloy] N. 106, Taurus; 153, Olympus Bithynus".

Lectotypus (designated here): **Turkey:** "Olympo Bythinia", s.d., *Aucher-Eloy 153* (G-BOIS [G00332665]; isolecto-: K [K000618631, K000618632], P [P05431939]). **Syntypus: Turkey:** "Taurus", s.d., *Aucher-Eloy 106* (G [G00389094], P [P00747414, P05431938]).

= ***Arabis sagittata*** (Bertol.) DC. in Lam. & DC., Fl. Franç. ed. 3, 5: 592. 1815.

Notes. – Boissier in *Flora Orientalis* did not mention this varietal name, though he listed the above lectotype number among the material cited under *A. sagittata*.

The limits of *A. sagittata* and *A. hirsuta* are often confused, but as shown by Titz (1978a and references therein), they are quite distinct cytologically, and more recent molecular studies (Karl & Koch, 2014) confirmed that morphologically and molecularly.

Arabis ochroleuca Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. ser. 2, 1: 21. 1854 [nom. illeg.] [non Lam.].

≡ ***Arabis subflava*** B.M.G. Jones in Feddes Repert. Spec. Nov. Regni Veg. 69: 60. 1964.

Type: "Hab. rara in regione alpinâ montis *Kyllenes* Peloponnesi suprâ *Livadi* 5500'–6500' (Heldr.! Orphanides!)".

Lectotypus (designated by Strid & Titz, 1986: 267): **Greece:** "in m. Kyllenes regione alpinâ", 6500' [1980 m], 6.VII.1848, *Heldreich 2161* (G-BOIS [G00332068]; isolecto-: B [B100201869]). **Syntypus: Greece:** "in reg. sup. montis Ziriae (Kuzznim) supra Livadi", 5000'–6000' [1520–1830 m], 8–20.VI.1852, *Orphanides 247* (G-BOIS [G00790758], K [K000693238], W [W0075713]).

Note. – The later homonym *A. ochroleuca* was renamed as *A. subflava.*

Arabis muralis var. *cretica* (Boiss. & Heldr.) Boiss., Fl. Orient. 1: 172. 1867.

≡ ***Arabis cretica*** Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. 8: 20. 1849.

Type: "Hab. in rupibus montium *Sphacioticorum* Cretae propè *Askyphous* alt. 4000' (Heldr.)".

Holotypus: Greece: "montagne Sphakiotes du côté d'Askyphous", 4000' [1220 m], 3.IV.1846, *Heldreich 1372* (G-BOIS [G00332069]; iso-: BM [BM000750071], G [G00389261, G00389262, G00389263], K [K000693228, K000693229, K000693230], KW [KW000127930], W [W18890026287]).

Note. – The species was described solely on the unicate in Boissier's herbarium and, therefore, that specimen ought to be recognized as the holotype.

Arabis drabaeformis Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 55. 1842.

Type: "[Aucher-Eloy] N. 100, Olympus Thessalus aut Bithynus".

Holotypus: Turkey: "Olymp. Bithyn.", s.d., *Aucher-Eloy 100* (G-BOIS [G00332077]; iso-: BM [BM000522055], G [G00389099, G00389279 two plants on top and one on lower left, G00389112], MPU [MPU013369], P [P00747449 plant on lower left, P00747447 four plants numbered 2 in pencil on upper half of sheet, P00747450]).

Notes. – The above isotype G00389112, was erroneously numbered as *Aucher-Eloy 160* instead of *100,* and the former number is *Erysimum carium* (see p. 38).

The major source of confusion came from Boissier's (1842a) citation of the same collection number *(Aucher-Eloy 100)* and exact locality data (Olympus Thessalus aut Bithynus) for both *A. drabaeformis* and *A. bryoides*. This resulted from Aucher-Eloy's giving the same number for the Turkish Bithynean Olympus for *A. drabaeformis* and Greek Thessalean Olympus

for *A. bryoides*. Both Cullen (1965) and Strid & Titz (1986) realized this label mix-up.

P00747447 is a mixed collection of *A. drabaeformis* and *A. bryoides*.

Arabis drabaeformis is generally a taller plant, (7–)10–20 cm, with much-branched loose caudex covered by some leaf remains with persistent midveins, sparsely pubescent, non-canescent basal leaves, and petals 4–6 mm long. By contrast, *A. bryoides* is a mat-forming plant with shorter stems 2–7(–10) cm, compact and few-branched caudex covered by persistent leaves with obscurely developed midvein, densely canescent basal leaves, and petals 6–11 mm long.

Arabis bryoides Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 55. 1842.

Type: "[Aucher-Eloy] N. 100, Olympus Thessalus aut Bithynus".

Holotypus: Greece: "in Olymp. Thessal. & Byth.", 1837, *Aucher-Eloy 100* (G-BOIS [G00332070]; iso-: BM [BM000750094], G [G00389277, G00389278, G00389279 two plants on the bottom center and right], K [K000693237], MPU [MPU013554], P [P00747446 six plants numbered 1 in pencil on upper half of the sheet]).

Note. – P00747446 is a mixed collection of *A. drabaeformis* and *A. bryoides*.

Arabis carduchorum Boiss., Fl. Orient. 1: 173. 1867.

Type: "Hab. in summo jugo Agerowdagh Armeniae Kurdicae inter Van et Müküs alt. 12000' (Ky!)".

Lectotypus (designated by Vitek et al., 2018: 228): **Turkey:** "Plantae in Karduchia ad Agerow Dàgh lectae. Crescit in summo jugo inter Wan et Müküs", 12000' [3660 m], IX.1859, *Kotschy 747* (W [W0050692 excl. plant in the middle]; isolecto-: G-BOIS [G00332071]).

Notes. – The lectotype at W has the collection number as *Kotschy 747,* but all other information on its label are basically identical to that of the G-BOIS isolectotype except the missing number and date and the original naming of the plant as "Draba gigas Stur".

At the end of the protologue, Boissier wrote "Drabo gigas Stur mss. in herb. Imp. Vindob!" This clearly means that he based his species description on the sheet at W. Furthermore, the sheet at W is a mixed collection involving a tiny fruiting plant of *Erysimum sp.,* a sterile portion of cushion, and much larger one of which the fruits were taken, except one left on the sheet which confirms the generic identity. Boissier did not annotate the W sheet, though based on the phrase above, he examined it and from which he most likely took the plant in G-BOIS and wrote its label. Therefore, the name needed lectotypification.

Arabis sulphurea Boiss., Fl. Orient. 1: 173. 1867.

≡ ***Draba aucheri*** Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 166. 1842.

Note. – Although one might erroneously consider *A. sulphurea* an illegitimate name resulting from citing the earlier published *Draba aucheri,* the correct interpretation is that Boissier renamed the species in *Arabis* to avoid creating a later homonym of *A. aucheri* (see above).

Arabis albida var. *umbrosa* Boiss., Fl. Orient. 1: 174. 1867.

≡ *Arabis viscosa* DC., Syst. Nat. 2: 216. 1821.

= ***Arabis alpina*** subsp. ***caucasica*** (Willd.) Briq., Prodr. Fl. Corse 1: 48. 1913.

Note. – This is a renaming at the varietal level of *A. viscosa* DC.

Arabis deflexa Boiss., Fl. Orient. 1: 175. 1867.

Type: "Hab. in rupestribus montis Akdagh Lyciae (Bourg!)".

Holotypus: Turkey: "Mt. Ak-Dagh. Dans les rochers", 3.VII.1860, *Bourgeau s.n.* (G-BOIS [G00332076]; iso-: G [G00446031], K [K000693234], P [P00747452, P00747453], W [W18890067070]).

Notes. – The holotype in G-BOIS is a collection folder of two sheets collected on the same day, but one has the information as above and the other "Ag-D'hag. région alpine" but with the number *44*.

The mimeographed labels of K, P, and W indicate "In regione alpina montis Ak-Dagh" but without any numbers. The note on sheet *44* reads "Sous ce nº 44 il y a deux espèces l'échant. fructifère appartient a l'arabis brevifolia DC l'autre est probablement une espèce nouvelle", translated by one of us (GB) as "Under nº 44 there are two species, the fructiferous sample belongs to *Arabis brevifolia* DC. the other is probably a new species".

Arabis aubrietioides Boiss., Fl. Orient. 1: 175. 1867.

Type: "Hab. in saxosis regionis subalpinae et alpinae Tauri Cilicici (Ky. exs. 26! 14! 259! Bal! sub *A. purpureâ*). Fl. aest.".

Lectotypus (designated here): **Turkey:** "Fleurs: région alpine du Taurus, au-dessus de Boulgarmaden. août. Fruits: chateau de Gulek Boghos, 9 juillet" 9.VII.1855 & VIII.1855, *Balansa 233* (G-BOIS [G00332079]; isolecto-: G [G00446028, G00442029], K [K000693274, K000693276], P [P00747377, P00747378]). **Syntypi: Turkey:** "Iter Cilicicum in Tauri alpes 'Bulgar Dagh.' in valle Gusguta locis argiloso-schistosis", 26.VI.1853, *Kotschy 14b* (GOET [GOET002699], P [P00747380, P00747384, P00747385]); "In Mounte Tauro", 1836, *Kotschy 26* (G [G00446027], G-BOIS [G00332080], K [K000693269, K000693270, K000693272], P [P00747381, P00747382], W [W0075712]); "Plantae montibus Bulhgar Dagh. In Karli Boghas", 6000' [1830 m], 6.VI.1859, *Kotschy 239* (G [G00446030], G-BOIS [G003320281], JE [JE00003183, JE00003184], K [K000693273], P [P00747387], W [W0075729, W18890058145]).

Notes. – The lectotype is a collection folder of three sheets, of which one is unlabeled, another has a handwritten label by Balansa with the field number *233*, and third is barcoded with the mimeographed Balansa label: "B. Balansa, Pl. d'Orient, 1855. Arabis purpurea Sibth. et Smith? (Boiss.). Fl. Région alpine du Taurus, au-dessus de Boulgarmaden, août – Fr. Rochers du chateau dominant le défilé des Portes ciliciennes 9 juillet". Also, a syntype folder in G-BOIS [G003320281] consists of two sheets, both are labeled.

Upon checking in the *Supplementum* and all available *Brassicaceae* collections made by Kotschy, none has number *259,* and Boissier in *Flora Orientalis* erroneously took that number for *239*. Also, the other syntype of *A. aubrietioides* is *Kotschy 14b,* rather than *Kotschy 14*.

Arabis ionocalyx Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. 8: 20. 1849.

Type: "Hab. in *Cariâ* (Pinard), in pinetis montis *Solyma* Lyciae (Heldreich)".

Lectotypus (designated here): **Turkey:** "In pinetis montis Solyma Lyciae", IV.1845, *Heldreich s.n.* (G-BOIS [G00332082]; isolecto-: B [B100249631], BM [BM001172157], E [E00386133], G [G00446051], K [K000693277, K000693278], KW [KW000127932], P [P00747421, P00747422, P00747423, P00747424], W [no barcode], WAG [WAG0004236]). **Syntypus: Turkey:** "Caria", s.d., *Pinard s.n.* (G [G00446035, G00446036, G00446052], G-BOIS [G00332084]).

Note. – The lectotype is a collection folder of two sheets with identical mimeographed labels handwritten by Boissier, of which one has a single plant and the barcoded sheet has three.

Arabis ionocalyx var. *cilicica* (Boiss. & Balansa) Boiss., Fl. Orient. 1: 176. 1867.

≡ *Arabis cilicica* Boiss. & Balansa in Boiss., Diagn. Pl. Orient. ser. 2, 5: 17. 1856.

Type: "Hab. in umbrosis fauceis *Sedichig* suprâ *Mersina* in regione calidâ Ciliciae cl. Balansa".

Holotypus: Turkey: "Lieux ombragés de la gorge de Sedi-chig. Au NO de Mersina. – Région chaude", 4.V.1855, *Balansa 229* (G-BOIS [G00332085]; iso-: E [E00386134], K [K000693279], MPU [MPU13367], P [P00747419, P00747420]).

= ***Arabis ionocalyx*** Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. 8: 20. 1849.

Notes. – The holotype and isotypes were collected from the same general area on the same date.

Label of the holotype was handwritten by Boissier, whereas the isotypes have mimeographed, handwritten labels by Balansa but without the collection number and with a slightly different locality name correctly interpreted by Cullen (1965: 425) to be the same as that of the holotype.

Arabis nepetifolia Boiss., Fl. Orient. 1: 177. 1867.

Type: "Hab. in alpinis montis Elbrus Persiae borealis inter Asterabad et Schahrud (Bunge!)".

Holotypus: Iran: "Alpinis in jugo Elbrusensi; inter Astrabad et Schahrud", V.1858, *Bunge s.n.* (G-BOIS [G00332086]; iso-: K [K000693281], P [P00747412]).

Note. – Boissier based the species description solely on the unicate in his herbarium and, therefore, the listings by Hedge (1968) and Titz (1978b) are not treated as lectotypifications.

Arabis stylosa Boiss. & Balansa in Boiss., Fl. Orient. Suppl.: 34. 1888.

Type: "Hab. in regione alpinâ Ponti Lazici supra Djimil ad rivos (Bal.!), in jugo alpino Zehra Zehraros Cartaliniae (Brotherus!), in monte Hirtscha Abchasiae (Nordm.)".

Lectotypus (designated here): **Turkey:** "Bords des ruisseaux de la région alpine du Lazistan, au-dessus de Djimil", 17.VIII.1866, *Balansa s.n.* (G-BOIS [G00332087 plant

on lower left]; isolecto-: E [E00386136 plant on left], JE [JE00003167 plant on right], K [K000693284 plant on left], P [P00747371 plant on left, P00747372 plant on left, P05422077], W [W18890148462 plant on right]). **Syntypi: Turkey:** "Bords des ruisseaux de la région alpine du Lazistan, au-dessus de Djimil", 18.VII.1866, *Balansa s.n.* (G-BOIS [G00332087 plant on upper right], E [E00386136 plant on right], JE [JE00003167 plant on left], K [K000693283; K000693284 plant on right], P [P00747371 plant on right, P00747372 plant on right], US [US00324473], W [W18890148462 plant on left]); "Carthalinia: in alpe Zehra Zehraros", VI.1881, *A.H. & V.F. Brotherus s.n.* (G [G00446037], G-BOIS [G00332088], JE [JE00003166], P [P05446458]).

= ***Arabis brachycarpa*** Rupr., Fl. Cauc.: 73. 1869.

Notes. – Balansa's collection included flowering and fruiting material collected a month apart, and the fruiting material, which is more diagnostic, is designated here as the lectotype collection.

Nordmann's collection from Abkhazia was not located in the major herbaria consulted and was likely misplaced.

Nasturtium W.T. Aiton, Hort. Kew. ed. 2, 4: 109. 1812 [nom. cons.].

Tribe: *Cardamineae* Dumort.

Notes. – A genus of five species, of which two are native to North America, one in Morocco, one European species, and another a crop and cosmopolitan weed naturalized throughout world (Al-Shehbaz & Price, 1998).

The genus was so broadly delimited by Kuntze (1891) to include more than 50 species, but most other earlier authors, including Boissier in *Flora Orientalis,* circumscribed it to include species currently assigned to *Barbarea* and *Rorippa*.

Nasturtium niloticum Boiss., Diagn. Pl. Orient. 8: 19. 1849.

Type: "Hab. in humo limoso ad margines praeruptos Nili in Aegypto superiori (Boiss.!), in Nubiâ propè *Chartum* Kotschy pl. exs. Nº 324 sub *N. palustri*".

Lectotypus (first step designated by Jonsell, 1982: 56; second step designated here): **Sudan:** "Ad ripas nili caerulei prope Chartum", 4.III.1840, *Kotschy 324* (G [G00446042]; isolecto-: BM, BR [BR0000008886910], G [G00446043, G00446044], HAL [HAL0026657], HBG [HBG506141], HOH [HOH009372], JE [JE00003848], P [P04719362], REG [REG000606], STU [STU000335], TUB [TUB000547, TUB000548, TUB000552], UPS, W [W18890321737, W0036024]). **Syntypus: Egypt:** "Superior ad ripas praeruptus Nili", I–III.1846. *Boissier s.n.* (G [G00446045, G00446046], G-BOIS [G00332090]).

= ***Rorippa micrantha*** (Roth) Jonsell in Svensk Bot. Tidskr. 68: 384. 1974.

Notes. – The area of the designated lectotype falls outside the *Flora Orientalis* region, and that is why the specimen is housed in G rather than G-BOIS. *Kotschy 324,* instead of *Boissier s.n.,* is designated as lectotype because it has fully mature fruit with well-developed (vs undeveloped) seeds, both of which structures are essential in the determination of *Rorippa* (and *Nasturtium*) species.

There are three duplicates of the lectotype gathering in the Geneva herbaria, and Jonsell (1982) did not indicate which one is the "type" nor did he annotate any of them. For this reason, a second step designation is done here.

Nasturtium kurdicum Boiss. & Hausskn. in Boiss., Fl. Orient. Suppl.: 35. 1888.

≡ ***Rorippa kurdica*** (Boiss. & Hausskn.) Hedge in Rech. f., Fl. Iran. 57: 217. 1968.

Type: "Hab. ad rivulos montium Kurdistaniae Persicae prope Awiheng et Sihua 5–7000' (Haussk.!)".

Holotypus: Iran: "Ad rivul. mont p. Awiheng-Sihua", 5000'–7000' [1520–2130 m], VII.1867, *Haussknecht s.n.* (G-BOIS [G00332091]; iso-: BM [BM000583683, BM000583684], JE [JE00000008, JE00000009], K [K000693348, K000693349], P [P05444379], W [W0075707, W0075708]).

Note. – The holotype is a collection folder of two sheets of which label of the one handwritten by Haussknecht reads "Ad rivulos in montibus p. Awiheng. Kurdist. pers., 5–7000'" with printed "Persica austro-occidentalis. Haussknecht. 1868" and another with the above informations handwritten by Haussknecht.

Nasturtium aureum Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. 8: 17. 1849.

≡ ***Rorippa aurea*** (Boiss. & Heldr.) Hub.-Mor. in Feddes Repert. 52: 189. 1943.

Type: "Hab. in pratis ad orientem fluvii *Catarrhacti* non procul ab urbe *Adalia* Pamphyliae. (Heldreich Aprili.)".

Holotypus: Turkey: "in pratis. Dans la plaine à l'Est du Catarrhactus 3 lieues d'Adalia", 3.IV.1845, *Heldreich 524* (G-BOIS [G00332094]; iso-: BM [BM001172158], G [G00446047, G00446048, G00446054],

JE [JE00003956], K [K000567987, K000567988], P [P000747280], W [W0075709]).

Notes. – The holotype in G-BOIS is a collection folder of three sheets of which one was handwritten by Heldreich with the label above and another label with Boissier's handwritten diagnosis. This is the original sheet from which derived the abbreviated, mimeographed, handwritten label identical to those of all isotypes, and the two sheets in the collection folder in G-BOIS.

The locality data of the K duplicate is "In pratis ad fluv. Catarrhactum Pamphyliae", and it lacks the collection day and collector number.

Nasturtium macrocarpum Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. 8: 18. 1849.

≡ ***Barbarea macrocarpa*** (Boiss. & Heldr.) Al-Shehbaz & Jacquemoud in Candollea 55: 202. 2000.

Type: "Hab. in ericetis siccis ad radices Antilibani inter *Hasbeya* et *Rascheya,* legi [Boissier] Maio 1846".

Holotypus: Lebanon: "In ericetis inter Hasbeya et Rascheya", V–VII.1846, *Boissier s.n.* (G-BOIS [G00332095]; iso-: G [G00389132]).

Notes. – The holotype is a collection folder of three sheets of which sheet 1 has the label above and a barcode, sheet 2 has neither, and sheet 3 has only a label with: "Antilibanus infrà Rascheya" indicated.

The G isotype has the locality as "infra Rascheya", but it is not possible to determine beyond doubt whether it is from the very same locality as the holotype.

The species is known from limited collections, and it is morphologically more at home in *Barbarea* than in an other genus of the family (Al-Shehbaz & Jacquemoud, 2000).

Alyssopsis Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 57. 1842.

Tribe: *Alyssopsideae* Al-Shehbaz et al.

Note. – A genus of two species restricted to Azerbaijan, Iran, and Turkmenistan.

Alyssopsis deflexa Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 58. 1842 [nom. illeg.].

≡ *Nasturtium sagittatum* (Aiton) W.T. Aiton, Hort. Kew. ed. 2, 4: 111. 1812.

= ***Alyssopsis mollis*** (Jacq.) O.E. Schulz in Engl., Pflanzenr. 86: 186. 1924.

Notes. – *Alyssopsis deflexa* is illegitimate because Boissier (1842a) listed the earlier published *Nasturtium sagittatum* (Aiton) W.T. Aiton as a synonym.

Boissier then reduced in *Flora Orientalis A. deflexa* to synonymy of *A. sagittata* (Aiton) Boiss., but his combination is illegitimate also because he listed *Sisymbrium molle* Jacq. (1787) as a synonym, a name that predates *S. sagittatum* Aiton (1789).

Alyssopsis kotschyi Boiss., Diagn. Pl. Orient. 6: 14. 1846.

≡ ***Dielsiocharis kotschyi*** (Boiss.) O.E. Schulz in Engl., Pflanzenr. 86: 184. 1924.

Type: "Hab. in fissuris rupium regionis summae montium *Kuh-Daëna* et *Kuh-Barfi* Persiae australis Kotschy No. 334 et 760".

Lectotypus (designated here): **Iran:** "In fissuris rupium reg. summarum m. Kuh-Daëna", 29.VII.1842, *Kotschy 760* (G-BOIS [G00332107]; isolecto-: G [G00441261 plant on left], JE [JE00002217 two plants on top, JE00002218], K [K000693991 two plants in middle], KW, P [P02272358, P02272359 plant on right, P02272354 five plants in middle]). **Syntypus: Iran:** "Ad rupes in cacumine m. Kuh-Barfi pr. m. Schiras", 4.V.1842, *Kotschy 334* (BM [BM000522274, BM000522276], CAS [CAS0026901], CORD [CORD00002718], E [E00373165], FR [FR0031148], G [G00441261 plants on right, G00441262], G-BOIS [G00332108], GOET [GOET002746], HAL [HAL0085356], JE [JE00002217 plant on bottom], K [K000693991 plants on right and left], KW [KW000127995], LE [LE00012977], MO [MO5483551, MO5483552], P [P02272353, P02272355, P02272357, P02272359 plants in center and left, P02272354 plants on right and left]).

Notes. – The lectotype and syntype in G-BOIS are mounted on separate sheets, but the other collections elsewhere have one label for *Kotschy*'s both *334* (in flower and fruit remnants of the previous season) and *760* (in fruit of that current season). Since the lectotype is fruiting material collected in July, it is quite possible to determine whether the plants on a given herbarium sheet represent a syntype and/or an isolectotype.

The lectotype has four plants, a pair of which has a label with the collection number *760,* and the other pair with the number *760b*.

The duplicate P02272355 is a mixed collection of this species and the isotype of *Draba aucheri* [P02272365].

Barbarea W.T. Aiton, Hort. Kew. ed. 2, 4: 109. 1812 [nom. cons.].

Tribe: *Cardamineae* Dumort.

Note. – *Barbarea* includes 29 species native primarily to Eurasia, with few in Australia and North America.

Barbarea arcuata var. *pinnatisecta* Boiss., Fl. Orient. 1: 183. 1867.

Type: "Hab. in humidis montis Argaei Cappadociae (Ky. Suppl. 307!), in monte Aladagh Anatoliae (Wied!)".

Lectotypus (designated here): **Turkey:** "Plantae in itinero ad Argaeum montem lectae. Crescit in humidis Argaei", 5200' [1580 m], 31.V.1859, *Kotschy 307* (G-BOIS [G00332109]). **Syntypus: Turkey:** "Aladagh", s.d., *Wiedermann s.n.* (G-BOIS [G00790971]).

= ***Barbarea vulgaris*** subsp. ***arcuata*** (Opiz) Hayek in Repert. Spec. Nov. Regni Veg. Beih. 30(1): 387. 1925.

Note. – The more complete material of the two syntypes cited in the original publication is designated herein as the lectotype.

Barbarea conferta Boiss. & Heldr. in Boiss., Fl. Orient. Suppl.: 36. 1888.

Type: "Hab. in humidis regionis mediae montis Kyllenes supra Trikala Achaiae 3–4500' (Heldr. 3646!)".

Holotypus: Greece: "In humidis pagi. In m. Kyllenes regione media pr. Trikala (Achaiae)", 3000'–4500' [920–1370 m], 1.VIII.1871, *Heldreich 3646* (G-BOIS [G00332110]; iso-: B [B100241063]).

= ***Barbarea vulgaris*** subsp. ***arcuata*** (Opiz) Hayek in Repert. Spec. Nov. Regni Veg. Beih. 30(1): 387. 1925.

Note. – The holotype is a collection folder of three sheets, of which only one has a handwritten label by Heldreich, and the other two are unlabeled.

Barbarea brachycarpa Boiss., Diagn. Pl. Orient. 5: 80. 1844.

Type: "Hab. in muscosis madidis regionis alpinae *Olympi Bithyni* ad originem vallis *Kirkbounar* in consortio *Arenariae rotundifoliae* MB., fructiferum Aug. 1842 legi. [Boissier]".

Holotypus: Turkey: "Olympus in pratis humidis de Kirkbounar", VIII.1842, *Boissier s.n.* (G-BOIS [G00332113]; iso-: G [G00446055]).

Notes. – The above G duplicate is tentatively recognized as an isotype because of the incomplete locality data and collection in 1843 instead of 1842.

Coode & Cullen (1965) treated *B. brachycarpa* as a synonym of *B. minor* var. *eriopoda* N. Busch (Fl. Cauc. Crit. 3(4): 318. 1909). However, as pointed out by Greuter et al. (1986), *B. brachycarpa* has priority over *B. minor* K. Koch (Linnaea 19: 55. 1846).

The species was divided by Parolly & Eren (2006) into several infraspecific taxa, and our plant belongs to subsp. *brachycarpa*.

Cheiranthus L., Sp. Pl.: 661. 1753.

Tribe: *Erysimeae* Dumort.

Note. – *Cheiranthus* is universally accepted as a synonym of *Erysimum* L. Both genera were simultaneously described by Linnaeus (1753). Wettstein (1889) was the first to unite the genera, and he adopted *Erysimum* for the combined genus. Therefore, the latter has priority (see Turland et al., 2018: Art. 11.5).

Cheiranthus corinthius Boiss., Diagn. Pl. Orient. ser. 2, 1: 18. 1854.

≡ ***Erysimum corinthium*** (Boiss.) Wettst. in Österr. Bot. Z. 39: 283. 1889.

Type: "Hab. in fissuris rupium verticalium in monte *Acrocorintho* ubi legi [Boissier] floriferum primo vere 1842".

Lectotypus (designated by Snogerup, 1967: 60): **Greece:** "Acrocorinthus", IV.1842, *Boissier s.n.* (G-BOIS [G00332114]; isolecto-: G-BOIS [G00332115]). **Syntypus: Greece:** "Acrocorinthi rupes", III.1842, *Boissier s.n.* (G [G00371641, G00371646], GOET [GOET002581], K [K000693772, K000693773], UPS, W [W18890316200]) (Fig. 10, p. 54).

Notes. – The lectotype is a collection folder of two sheets the plants of which were collected in April. One sheet was annotated by Snogerup in 1967 as the lectotype, and it has a single plant with a flowering raceme and a fruit from the previous season. The second sheet of the lectotype folder is unlabeled and consists of four flowering branches one with fruit.

The G-BOIS isolectotype is another collection folder with three sheets, of which one is unlabeled, one has the locality name but without the date of collection and the third has both. Both collection folders in G-BOIS were collected in April 1842.

Although all syntypes above, were annotated and/or cited by Snogerup and/or Polatschek as isotypes, they were collected in March 1842 and, therefore, cannot be considered as isolectotypes (Fig. 10, p. 54).

Erysimum L., Sp. Pl.: 660. 1753.

Tribe: *Erysimeae* Dumort.

Notes. – Boissier (1842a) described the genus *Strophades* Boiss. and assigned two new species to it. However, he reduced in *Flora Orientalis* that genus to synonymy of *Erysimum.*

Erysimum is a well-defined, easily distinguished genus distributed primarily in Eurasia, with fewer species in North America and North Africa. It is taxonomically difficult because there is a general lack of agreement about the total number of species that range from ca. 200 (Al-Shehbaz, 2012), 274 (BrassiBase, 2019), and substantially higher number (290–350) in the works of Polatschek (2010, 2011, 2012, 2013a, 2013b, 2014), especially Polatschek & Snogerup (2002). Perhaps a more realistic number is something in the neighborhood of ca. 250 species (D.A. German, pers. comm.). The major sources of difficulty are the need of complete plants (with basal leaves, flowers, mature fruits) and the heavy dependence on trichome morphology that often shows tremendous qualitative and quantitative overlap.

As shown below, most of Polatschek's (2011) typifications of species described by Boissier were based on duplicates at W that Boissier never examined. In the vast majority of cases (almost 95%), Boissier based his species descriptions on the material in his own herbarium and, therefore, no typification is needed whenever a single collection was cited by Boissier, and the material in G-BOIS has to be the holotype.

Erysimum griffithianum Boiss., Diagn. Pl. Orient. ser. 2, 1: 28. 1854.

Type: "Hab. in *regno Cabulico* ad *Sinab, Quettah* (Griffith N° 300), in ditione *Beloutschistan* propè *Nichara* (Stocks N° 909)".

Lectotypus (designated by Polatschek & Rechinger, 1968: 304): **Pakistan:** "Sinab. Quettah", s.d., *Griffith 300* (G-BOIS [G00330496]; isolecto-: K [K000075638, K000075640]). **Syntypus: Pakistan:** "Nichara. Beloutchistan", 1851, *Stocks 909* (G-BOIS [G00330497], K [K000075637, K000075639]).

Note. – Although the types of both *E. griffithii* (Hook. f. & Thomson) Jafri and *E. griffithianum* were collected by Griffith, the two species should not be confused as the former is a suffrutescent perennial with distinct pedicels and is a narrow endemic to Afghanistan, whereas the latter is an annual with subsessile fruits and is common in both Afghanistan and Pakistan (see Polatschek, 2011).

Erysimum thyrsoideum Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 79. March 1842 [nom. illeg.].

≡ ***Erysimum pycnophyllum*** J. Gay, Erysim. Nov.: 3. January 1842.

Type: "Habitat in Armeniae monte Mouziourdag (Montbret! et Auch! in herb. mus. Par. et Webb.)".

Lectotypus (designated here): **Turkey:** "Armenia, Monzourdag", 1835, *Aucher-Eloy 163* (P [P02272777]; isolecto-: FI [009694], G-BOIS [G00154058], K [K000075626]).

Notes. – Boissier's name is illegitimate because its holotype is a syntype of *E. pycnophyllum*.

The fragmentary G-BOIS duplicate was taken from the P specimen that was annotated by Boissier.

As indicated above, Gay (1842) cited two collections under his *E. pycnophyllum.* Polatschek (2011) listed *Aucher-Eloy 163* [P02272777] as the holotype, thus failing to typify the name by overlooking Montbret's syntype. Therefore, both *E. pycnophyllum* and illegitimate *E. thyrsoideum* are formally lectotypified here on the same sheet**.** An image of the Montbret syntype from Webb's herbarium (#009694), which was annotated by J. Gay, was kindly sent by D. A. German.

Erysimum olympicum Boiss., Fl. Orient. 1: 191. 1867.

Type: "Hab. in regione sylvaticâ Olympi Thessali ad Mavrolonghos (Heldr!)".

Holotypus: Greece: "In reg. sylvatica m. Olympi Thessaliae (ad Mavrolonghos)", 25.VII.1851, *Heldreich 2403* (G-BOIS [G00332117]; iso-: B [B100249594], FI, W [W0064324, W18890311919], WU [WU0075954]).

Note. – The holotype is a collection folder of two sheets one of which is with a label as above and the other with: "Olympus Thessales" on the label.

Erysimum creticum Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. ser. 2, 1: 26. 1854.

Type: "Hab. in Cretâ, in saxosis *Contopoura* Eparchiae *Apocorona,* Heldr. pl. Cret. exs. sub *E. australi* (ubi mixtum est cum speciminibus floriferis pube simplici distinctis quae *E. longifolium* Dc. vel speciem affinem sistunt)".

Lectotypus (designated by Boissier, 1867a: 192): **Greece:** "Creta, in saxosis Contopoura Eparch. Apocorona", IV.1846, *Heldreich s.n.* (G-BOIS [G00332118]; isolecto-: FI [FI010140], G [G00371635, G00371638], GOET [GOET002583], K [K000693728, K000693749, K000693750], KW [KW000127961], W, WU [W0077278, WU0075959]).

Notes. – The original description of *E. creticum* listed from the same general locality mixed collections that belong to two species. Of these, one species has horizontally spreading to divaricate fruits, and the other has erect fruits appressed to the stem. However, Boissier in *Flora Orientalis* removed the species with erect-appressed fruits to *E. raulinii* and retained those with horizontal-divaricate fruits to *E. creticum,* thus indirectly "lectotypifying" the name.

Polatschek (1973) and Polatschek & Snogerup (2002) further clarified the case by citing the duplicates of the original collections under the appropriate species.

Although the collection *Heldreich 1363* was used for plants of both species, the fruit orientation should be relied on to assign a given duplicate to one or the other species. For example, that collection number was given to lectotype of *E. raulinii,* but it is also given on the FI and WU isolectotypes of *E. creticum*.

Erysimum raulinii Boiss., Fl. Orient. 1: 192. 1867.

Type: "Hab. in rupestribus ad Contopoura prov. Apocorona Cretae (Heldr. exs. sub *E. australi* ex parte!), in montibus Sphacioticis (Raulin!)".

Lectotypus (designated by Polatschek, 1973: 124): **Greece:** "In rupibus et saxis. Contopoura (Eparchio d'Apokorona)", 1.IV.1846, *Heldreich 1363* (G-BOIS [G00332119]; isolecto-: G [G00371655], GOET, H, W, WU [WU0075979]).

Notes. – Raulin's syntype was not found in the Geneva or other herbaria visited, and it must have been misplaced.

The lectotype was listed by Polatschek (1973) as a holotype.

Erysimum bulgaricum (Velen.) Ančev & Polatschek in Ann. Naturhist. Mus. Wien, B 104: 692. 2003.

= *Erysimum canescens* var. *latifolium* Boiss., Fl. Orient. 1: 193. 1867, **syn. nov.**

Type: "Hab. in Caucaso circa Elisabethgrad (Boschn!), in prov. Talysch (C.A.M!)".

Lectotypus (designated here by German & Al-Shehbaz): **Ukraine:** "Elisabethgrad", s.d., *Boschniak s.n.* (G-BOIS [G00332120]).

Notes. – No duplicates were found in the major herbaria consulted, though it is likely that LE might have one.

The C.A. Meyer's syntype was not located in any of the major herbaria consulted.

Erysimum graecum Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. ser. 2, 1: 27. 1854.

Type: "Hab. circâ *Athenas* vere copiosum (Boiss! Heldr. exs. Nº 1708)".

Lectotypus (designated by Polatschek, 1973: 118): **Greece:** "In campis Atticae", 24.V.1854, fl., *Heldreich 1708* (G-BOIS [G00154041 first sheet and plant on left of third sheet]; isolecto-: E [E00438496], FI [FI10144], G [G00446056], GJO, K [K000693747 plant on top], LI, M, PR, W [W0063911]). **Syntypi: Greece:** *sine loco,* 1842, *Boissier s.n.* (G-BOIS [G00330476]); *sine loco,* s.d., *Boissier s.n.* (G [G00446610], K [K000693747 two fruiting branches on bottom]); "Attica", VII.1854, fr., *Heldreich 1708* (BM [BM00125400], FI [FI10144 two fruiting branches], G [G00446056 second sheet, fruiting material], G-BOIS [G00154041 second sheet, and plant on right of third sheet]); *sine loco,* 1847, *Heldreich 1708* (G-BOIS [G00330477]).

Notes. – The type collection of *Erysimum graecum* in G-BOIS, which consists of three sheets in a collection folder, is a mixed collection of flowering plants collected in May 1854 and fruiting material collected in July of that year.

The first sheet of this folder (G-BOIS [G00154041]) is the lectotype, which is a single plant in flower, annotated in 1972 by Polatschek as the holotype and later (Polatschek, 1973) cited it as such. The second sheet is a single plant in fruit, and this is recognized here as a syntype. The third sheet, which is with a handwritten label by Boissier indicating "Attica Heldreich 1854", has a fruiting plant on right (syntype) and a flowering plant on the left, which is recognized as part of the lectotype.

Boissier's handwritten duplicates of the type collection of this species at G, as well as the sheet at E, do not carry Heldreich's collection number *1708*.

Erysimum uncinatifolium Boiss. & A. Huet in Boiss., Diagn. Pl. Orient. ser. 2, 5: 23. 1856.

Type: "Hab. in Armeniâ propè *Maimansour* cl. Huet du Pavillon".

Holotypus: Turkey: "Maimansour", V.1853, *Huet du Pavillon s.n.* (G-BOIS [G00154059]; iso-: B [B100068830], BM [BM000946328], BP, FI [FI005679], G [G00002431, G00002432], GH [GH00055747], JE [JE00003152],

K [K000075634], P [P02272775, P02272776], WAG [WAG0004249]).

Note. – Label of the holotype does not have a collection date, whereas that of the K isotype reads "Inter Baibout et Erzeroum. Suprà Maimansour. Maio 1853".

Erysimum smyrnaeum Boiss. & Balansa in Boiss., Diagn. Pl. Orient. ser. 2, 5: 23. 1856.

Type: "Hab. in collibus lapidosis maritimis ad meridiem *Smyrnae* ubi fine Aprilis floriferum et fine Junii fructibus maturis legit cl. Balansa anno 1854".

Lectotypus (designated by Yildrimili, 2008: 14): **Turkey:** "Collines pierreuses bordant le sud du golfe de Smyrne", 26.IV.1854, fl., *Balansa 82* (G-BOIS [G00154057, first sheet]; isolecto-: B [B100068806], BM [BM000522234 plant on right], BR [BR0000006992842 plant on left], C [C10008846], E [E0037148, E00384840 plant on left], G [G00002430], GH [GH00275833 plant on right], GOET [GOET002601], JE [JE00003141 plant on right], K [K000075635 plant on left], KW [KW000127965], MPU [MPU017946, MPU017948], P [P02272764, P02272765, P04022665, P04022666], W [W0026686 plant on left], WAG [WAG0004248 plant on right]). **Syntypus: Turkey:** *ibid. loco,* 23.VI.1854, fr., *Balansa 82* (B [B100068806], BM [BM000522234 plant on left], BR [BR0000006992842 plant on right], C [C10008845], E [E00373147, E00384840 plant on right], FI [FI005678], G-BOIS [G00154057 second sheet], GH [GH00275833 plants on left], JE [JE00003141 plant on left], K [K000075635 plant on right], MPU [MPU017947, MPU017949], P [P02272763, P04022664, P02272766, P04627877], W [W0026686 plant on right], WAG [WAG0004248 two branches on left]).

Notes. – Yildrimili (2008) realized that the type collection of *E. smyrnaeum* cited by Boissier (1856) included flowering and fruiting material collected almost two months apart (flowers on April 26 and fruits on June 23), and he designated the flowering material as the lectotype collection.

The type collection in G-BOIS consists of two sheets in a collection folder, the first sheet consists of flowering plants (lectotype) and the second sheet of fruiting material (syntype).

Polatschek (2011: 461) treated both flowering and fruiting collections as one, as evidenced from his designation of a lectotype based on W0026686, which has a plant in flower on left and another in fruit to the right. Indeed, Polatschek did not discriminate between flowering or fruiting material, as he cited duplicates with flower only, with fruit only, and mixed collection as one thing.

Erysimum asperulum Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. ser. 2, 6: 11. 1859.

Type: "Hab. in ipso pago *Carpenisi Eurytaniae* cl. Samaritani et Guicciardi".

Holotypus: Greece: "In pago Carpenisi Eurytaniae", 2.VIII.1857, *Samaritani & Guicciardi 3285* (G-BOIS [G00332125]; iso-: FI [FI010134], K [K000693751]).

Notes. – The K isotype has only *Guicciardi 3285* as the collector, and all other data are the same as in the holotype.

Erysimum asperulum was lectotypified by Polatschek & Snogerup (in Tan & Iatroú, 2001: 144), but that action was unnecessary because the species description was based solely on the single sheet in G-BOIS.

Erysimum verrucosum Boiss. & Gaill. in Boiss., Diagn. Pl. Orient. ser. 2, 6: 12. 1859.

Type: "Hab. in latere occidentali montis *Gebel Cheick* (*Hermon*) loco *Ouadi el Habesch* dicto inter *Akabet Heurna* et *Chebâ*; cl Dr. Gaillardot legit fructiferum Junio".

Holotypus: Lebanon: "Ouadi el Habesch, entre la montée d'Akbet Heurna et Chebâ a Djebel cheikh, versant ouest", 18.VII.1856, *Gaillardot 1537* (G-BOIS [G00154060]; iso-: JE [JE00003147, JE00003148], WU [WU0033116]).

= ***Erysimum smyrnaeum*** Boiss. & Balansa in Boiss., Diagn. Pl. Orient. ser. 2, 5: 23. 1856.

Note. – *Erysimum verrucosum* was lectotypified by Yildrimili (2008: 14) based on the G-BOIS specimen and by Polatschek (2011: 461) based on JE00003147, but both actions were not needed because the species description by Boissier was based solely on the G-BOIS unicate.

Erysimum verrucosum var. *leptocarpum* Boiss., Fl. Orient. 1: 195. 1867.

Type: "Hab. in montibus Ssoffdagh et prope Marasch in Syriâ boreali (Haussk!)".

Lectotypus (designated here): **Syria:** "inter Aintabes & Aleppo. Beilau; Soffdagh", 23.IV.1865, *Haussknecht s.n.* (G-BOIS [G00154061 fruiting material on top]). **Syntypus: Syria:** *ibid. loco,* 23.IV.1865, *Haussknecht s.n.* (G-BOIS [G00154061 flowering plant at bottom]).

= ***Erysimum smyrnaeum*** Boiss. & Balansa in Boiss., Diagn. Pl. Orient. ser. 2, 5: 23. 1856.

Notes. – The varietal name was not accounted for by Polatschek (2011).

Boissier wrote on the label: "Les fleurs vont-elles bien avec le fruit??" i.e. do the flowers combine with the fruit? Because of that, as well as the listing of a syntype collection from Marasch (Turkey), which was not located in G or JE, lectotypification of the varietal name becomes necessary.

Erysimum brachycarpum Boiss., Fl. Orient. 1: 195. 1867 [nom. illeg.] [non Spreng.].

Type: "Hab. in Armeniâ Rossicâ vel Persiâ bor. (Szow!)".

Holotypus: Azerbaijan: "Armenia", s.d., *Szovits s.n.* (G-BOIS [G00154035]; iso-: GH [GH00283045], K [K000693833], LE).

= ***Erysimum hajastanicum*** Wissjul. & Bordz. in Bull. Jard. Bot. Kieff 12–13: 125. 1931.

Notes. – Polatschek (2011: 423) lectotypified *E. brachycarpum* based on the G-BOIS duplicate above, whereas Dorofeyev (1987: 1539, 2012: 403) lectotypified the name twice based on one of two sheets at LE. However the specimen of G-BOIS is recognized herein as the holotype because it was the sole sheet on which the species description was based.

The status of *E. brachycarpum* has fluctuated a great deal among authors or sometimes by the same author. It was recognized as a distinct species (Busch, 1939; Avetisian, 1966; Polatschek & Rechinger, 1968; Dorofeyev, 1987, 2012), as a synonym of *E. chazarjurti* N. Busch (Polatschek, 2011), or a synonym of *E. hajastanicum* (German, 2014). For a thorough discussion on the problem, the reader is advised to consult the last reference.

Erysimum kurdicum Boiss. & Hausskn. in Boiss., Fl. Orient. Suppl.: 38. 1888.

Type: "Hab. in graminosis montium Schahu et Avroman Kurdistaniae Persicae 5–7000' (Haussk.!)".

Holotypus: Iran: "Montes Avroman et Schahu", 5000'–7000' [1520–2130 m], VII.1867, *Haussknecht 78* (G-BOIS [G00154045]; iso-: B [B100068694], JE [JE00001844, JE00001845], P [P00531930], W [W0026700]).

Notes. – Boissier based his description on a specimen in his own herbarium and listed an unnumbered collection of Haussknecht in the protologue.

Polatschek (2011), who designated the W duplicate as the lectotype, did not annotate that collection but may have seen an image of it, and he considered all Haussknecht specimens from Schahu-Avroman as one collection regardless to whether unnumbered (B, JE [JE00001845], P), *Haussknecht 72* (JE [JE00001844], W [W0026700]), or *Haussknecht 78* (G-BOIS [G00154045]). Because the species description was based only on the G-BOIS specimen, there was no need for lectotypifying the name in the first place.

Erysimum gayanum Boiss., Fl. Orient. 1: 196. 1867 [nom. illeg.].

≡ *Erysimum aucherianum* J. Gay, Erysim. Nov: 9. 1842.

Type: "Habitat in Persiae borealis provinciâ Aderbigianâ, inter Tebris et Ardebil (Auch. exsicc. nº 4113! in herb. mus. Par., Deless. et Webb.)".

Lectotypus (designated by German, 2014: 17): **Iran:** "Aderbidjan", s.d., *Aucher-Eloy 4113* (G [G00002420]; isolecto-: BM, G [G00002421], K [K000075632], LE, P [P00535975, P02272695], W [W0026675]).

= ***Erysimum collinum*** (M. Bieb.) Andrz. ex DC., Prodr. 1: 198. 1824.

Notes. – Boissier in *Flora Orientalis* listed the earlier and validly published *E. aucherianum* in synonymy of *E. gayanum,* a name that he proposed to replace the former because he believed that his earlier published *aucheri* (see entry below) is the same as *aucherianum.*

He did not examine any of the duplicates at G because G00002421 belongs the Moricand herbarium, and G00002420, which was annotated by Gay in 1841, belongs to the Delessert herbarium. Furthermore, he did not annotate P00535975.

Boissier listed *Aucher-Eloy 4415* both in *Fl. Orient.* 1: 196 as the type of *E. gayanum* and in *Fl. Orient.* 2: 260 as *Astragalus mollis*. A considerable search in the Geneva herbaria and P failed to find any species of *Erysimum* with a type collection number *Aucher-Eloy 4415.*

We agree with Polatschek (2011: 486) and German (2014) in considering both species based on the same type, *Aucher-Eloy 4113* rather than *4415,* though we follow the latter author in synonymizing them with *E. collinum* instead of recognizing *E. aucherianum* as distinct from *E. collinum,* as done by Polatschek (2011).

Erysimum goniocaulon Boiss., Diagn. Pl. Orient. 8: 23. 1849.

Type: "Hab. in *Cariâ* (Pinard), in rupestribus propè *Tcheltickchi* Pisidiae (Heldreich), Antilibano propè *Zebdani* et monte *Cassio*. (Boiss.)".

Lectotypus (first step designated by Polatschek, 2011: 458; second step designated here): **Turkey:** "Caria", 1843, *Pinard s.n.* (G-BOIS [G00332128]; isolecto-: BM [BM001254041],

FI [FI01042], G [G00446058, G00446059, G00446060], GH [GH00275834], GOET [GOET002599], H [H1552458], K [K000075385], P [P02272716, P02272717, P02272719, P02272720], S [S06-0480], W [W0026667, W0026678]). **Syntypi: Bulgaria:** "Syria. Cassius près du sommet", V–VII.1846, *Boissier s.n.* (G-BOIS [G00332127], GH [GH00275835], K [K000075386, K000075387], KW [KW000127969], PH [PH00012968]); "In rupestribus inter frutices montagne près de Tcheltikchi à 6 heures au Sud de Bouldour", 2500' [760 m], 20.V.1845, *Heldreich 657* (B [B100068655], FI [FI010143], G-BOIS [G00332126]).

Notes. – The designation by Polatschek (2011) of the lectotype is corrected herein as a second-step typification from W to G-BOIS because Boissier did not examine any material additional to that of his herbarium on which he based the name.

None of the two following varieties was lectotypified by Polatschek (2011), though he cited their type collections among the examined specimens of *E. goniocaulon* and *E. scabrum* DC.

Erysimum goniocaulon var. *brachycarpum* Boiss., Fl. Orient. 1: 197. 1867.

Type: "Hab. in monte Cassio (Boiss!)".

Holotypus: Turkey: "Mons Cassius cacumen", VI. 1846, *Boissier s.n.* (G-BOIS [G00154040]; iso-: G [G00446061], P [P05354973, P05354974]).

= ***Erysimum goniocaulon*** Boiss., Diagn. Pl. Orient. 8: 23. 1849.

Note. – Boissier based the description of this variety on the unicate in his herbarium.

Erysimum goniocaulon var. *minus* Boiss., Fl. Orient. 1: 197. 1867.

Type: "Hab. in Antilibano ad Zebdani (Boiss! Gaill! Ky exs. 95!), in Libano ad Bscherre (Ky exs. 268!), ad Eden (Bl!)".

Lectotypus (designated here): **Syria:** "Antilianon propé Zebdani", V.1846, *Boissier s.n.* (G-BOIS [G00332130]). **Syntypi: Lebanon:** "Entre Eden et les Cèdres", 4.VII.1854, *Blanche 1130* (JE [JE00003145]); "In Libano ad Bscherre et circa Cedretum", 4500' [1370 m], 19.VII.1855, *Kotschy 266* (BM [BM001254042], E [E00384776, E00384778], G-BOIS [G00332132], P [P05354943, P05354944, P05354945], PR, W [W0026746]). **Syria:** "Circa Zebdaine prope Damascus, Monte Babri", 5000' [1520 m], 11.VI.1855, *Kotschy 95* (BM [BM001254043], G-BOIS [G00332131], K [K000075390], P [P00868473, P05354942], W [W18990311922]).

= ***Erysimum scabrum*** DC., Syst. Nat. 2: 505. 1821.

Notes. – The Gaillardot's syntype was not located in any of the major herbaria consulted.

Furthermore, the *Kotschy 266* syntype was listed in the original protologue as *268*.

Erysimum passgalense Boiss., Fl. Orient. 1: 198. 1867.

Type: "Hab. in regione inferiori montis Elburs Persiae borealis prope Passgala (Ky exs. 733!), in cacumine montium prope Schachbulagh (Szow!), ad Seidabad prope Tabris (Bunge!)".

Lectotypus (designated by Polatschek, 2011: 486): **Azerbaijan:** "In cacumine montium ad Schachbulagh", 18.V.1829, *Szovits 179* (G-BOIS [G00154051]; isolecto-: H, K [K000075395 not located], LE]). **Syntypi: Iran:** "Seidabad prope Tabriz", s.d., *Bunge 105* (P [P02272750]); "In m. Elbrus pr. pagum Passgala", 1843, *Kotschy 733* (G-BOIS [G00154050], P [P02272749]).

= ***Erysimum collinum*** (M. Bieb.) Andrz. ex DC., Prodr. 1: 198.

Notes. – Polatschek (2011) treated *E. passgalense* as a synonym of *E. aucherianum,* whereas German (2014) treated both as synonyms of *E. collinum*.

None of the above duplicates of the lectotype collection was examined.

Erysimum persicum Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 79. March 1842 [nom. illeg.].

≡ ***Erysimum subulatum*** J. Gay, Erysim. Nov.: 8. January 1842.

Type: "Habitat in Persiae borealis provinciâ Aderbigianâ (Auch. exsicc. nº 4105! in herb. mus Par., Deless. et Webb.)".

Holotypus: Iran: "Aderbidjan", s.d., *Aucher-Eloy 4105* (P [P02272779]; iso-: BM [BM000522231 plant on lower right], G [G00002427, G00002428], G-BOIS [G00154054], K [K000756396], W [W19810013750]).

Notes. – Both *E. persicum* and *E. subulatum* were based on the same type collection *(Aucher-Eloy 4105)*. As indicated in the introduction, Gay's taxa of *Erysimum* predate those of Boissier based on the same type.

The duplicate at K has a detailed, 3-page description of *E. subulatum* in Gay's hand-writing.

Erysimum szowitsianum Boiss., Fl. Orient. 1: 198. 1867.

Type: "Hab. in saxosis montium prope lacum Ourmiah (Szow!)".

Holotypus: Iran: "In vicino lac. Ormiah in saxosis montium", 24.IV.1828, *Szovits 133* (G-BOIS [G00150146]; iso-: H [H11076381], LE).

Notes. – The designation by Dorofeyev (1987) and Polatschek (2011: 444) of the G-BOIS specimen as the lectotype was unnecessary because it was the only specimen used by Boissier to generate his species description.

The isotype H11076381 is without the collection number.

Erysimum crassicaule (Boiss.) Boiss., Fl. Orient. 1: 199. 1867.

≡ *Cheiranthus crassicaulis* Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 45. 1842.

Type: "[Aucher-Eloy] Ispahan *absque numero*".

Holotypus: Iran: "Ispahan", s.d., *Aucher-Eloy s.n.* (P [P02272710]; iso-: G-BOIS [G00332133], P [P02272709]).

Notes. – Both duplicates at P have the catalogue (not collection) number *1442*. The single material that Boissier examined for the species description was P02272710, which he annotated and from which he took a fragment consisting of an upper cauline leaf and three flowering tips. He did not annotate P02272709 and, most certainly did not examine it.

Jafri (1973: 234) arbitrarily indicated that the type is at G, though he did not examine nor annotate it. By contrast, Polatschek (2010: 251) designated P02272709 as the lectotype, and one of us (IAS) erroneously annotated it in 2016 as such. However, that sheet is less complete and does not show the inflated and thickened stem as does P02272710. In our opinion, no lectotypification is necessary, and P02272710 ought to be considered as the holotype (see Boissier, 1841a).

Erysimum stocksianum (Boiss.) Boiss., Fl. Orient. 1: 199. 1867.

≡ *Cheiranthus stocksianus* Boiss., Diagn. Pl. Orient. ser. 2, 1: 19. 1854.

Type: "Hab. in *Beloutchistan* superiori (Dr Stocks), in regno *Cabulico* propè *Quettah* (cl. Griffith)".

Lectotypus (designated by Polatschek & Rechinger, 1968: 301): **Pakistan:** "Beloutchistan", 5000' [1520 m], 13.IV–28.V.1851, *Stocks s.n.* (G-BOIS [G00330498]; isolecto-: K [K000693815, K000693816, K000693818, K000693819, K000693820]). **Syntypus: Pakistan:** "Quettah", s.d., *Griffith s.n.* (G-BOIS [G00330499], K [K000075397, K000075398, K000075399, K000693831], P [P02272783, P02272784]).

= ***Erysimum crassicaule*** (Boiss.) Boiss., Fl. Orient. 1: 199. 1867.

Notes. – The lectotype label does not have the day and month indicated. The three isolectotypes [K000693818, K000693819, K000693820] have *Stocks 923* as collection number. Only the duplicate K000693820 has the date as above and the locality as "Belouchistania superior, supra Kapota, Kelat, Kurdigap" indicated.

The above Griffith syntypes were collected from Quettah but no collection date was given. They carry the collection numbers *1352, 1439,* and *1440,* which correspond to Griffith's journal number *305*. Therefore, Polatschek's annotations of the K duplicates as syntypes are accepted.

Erysimum nanum Boiss. & Hoh. in Boiss., Diagn. Pl. Orient. 8: 23. 1849.

Type: "Hab. in cacuminibus alpium *Hasartschal* montis *Elbrus* alt. 1000'. Kotschy N° 487".

Holotypus: Iran: "Pr. cacumi in alpibus Hasartschal in partibus occidentalibus m. Elbrus", 10000' [3050 m], 12.VII.1843, *Kotschy 487* (G-BOIS [G00332134]; iso-: BM [BM001031449], BP, FI [FI005675], G [G00343205], GJO, KW [KW000127962], LE [LE00013005], MO [MO3831820], P [P02272738, P02272739], TUB, W [W0026724]).

= ***Erysimum caespitosum*** DC., Syst. Nat. 2: 497. 1821.

Notes. – Because Boissier based the species description solely on the unicate in his herbarium, the first lectotypification of the name by Polatschek & Rechinger (1968: 290) and second by Polatschek (2011: 421) based on the W rather than the G-BOIS duplicate were not needed.

The W duplicate slightly differs from the holotype in the locality and elevation and is recognized as a questionable isotype.

Erysimum carium Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 77. 1842.

Type: "[Aucher-Eloy] N. 160, Moglah".

Lectotypus (designated by Polatschek, 2011: 398): **Turkey:** "Moglah", 1832, *Aucher-Eloy 160* (G-BOIS [G00154036]; isolecto-: P [P00535981, P00535892], W [W18891702299]).

Notes. – Boissier (1842a) based his species description on the sheet in his herbarium and on P00535981 which he

annotated and from which he described the fruit morphology, as evidenced from his notes on the packet of that sheet.

Therefore, Polatschek's (2011) designation of the sheet in G-BOIS as the lectotype, instead of considering it as the holotype, is justified.

Erysimum mutabile Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. 8: 24. 1849.

Type: "Hab. in saxosis montium *Lassiti* Cretae alt. circ. 5000' et rarissimè in monte *Idâ* (Heldreich.) Floret Maio".

Holotypus: Greece: "In saxosis. Montagnes de Lassiti (Monte Lazzaro et Astheuti). Très rare au Mt Ida", 5000' [1520 m], 9.V.1846, *Heldreich 1492* (G-BOIS [G00332135]; iso-: B [B100249679], BP, GOET [GOET002593], JE [JE00001857], K [K000693741], KW [KW000127967], W [W0064325, W0064326, W0064327], WU [WU0075978]).

Notes. – The holotype is a collection folder of two sheets, the first one has a label in French and was annotated by Polatschek in 1972 as the lectotype. The second sheet has two labels in Latin and was annotated by Polatschek as syntypes. However, both sheets belong to the same collection as discussed below.

Label of the holotype sheet was written by Heldreich in French with his field collection number *(1492),* date of collection, and rarity of the species in Mt. Ida. By contrast, the isotypes were distributed as exsiccatae with printed, handwritten labels by Boissier in Latin but as *Heldreich s.n.* and without day of collection. Despite that, all belong to the same collection, as done by Boissier for many taxa collected by various botanists who co-authored those taxa with him.

Erysimum blancheanum Boiss., Fl. Orient. Suppl.: 38. 1888.

Type: "Hab. in ditione Gebel Abiad deserti ad Palmyram (Bl.)".

Holotypus: Syria: "Désert de Syrie. Hama à Palmyr. Dans le Djebel Abiad", 21.V.1857, *Blanche 2899* (G-BOIS [G00154034]; iso-: JE [JE0002791]).

= ***Erysimum oleifolium*** J. Gay, Erysim. Nov.: 6. 1842.

Notes. – Polatschek (2011: 442) examined both of the JE and G-BOIS duplicates and designated the former as the isolectotype of the illegitimate *E. hamosum* Post, which is based on the same collection of the earlier published *E. blancheanum*.

However, the latter name does not need lectotypification because Boissier examined only the unicate in his herbarium to draft the species description.

Erysimum hirschfeldioides Boiss. & Hausskn. in Boiss., Fl. Orient. Suppl.: 39. 1888.

Type: "Hab. in Mesopotamiae deserto fluvii Chabur (Haussk.!)".

Holotypus: Syria: "In deserto fl. Chabur", s.d., *Haussknecht s.n.* (G-BOIS [G00154042]; iso-: JE [JE00001840]).

Notes. – Polatschek (2011) designated the JE specimen as the lectotype and the G-BOIS (as G) as isolectotype. Both specimens were collected from the same locality, but the JE sheet has the collection date as May 1865, whereas the G-BOIS sheet has a preprinted label that reads "Inter Orient. Mesopotamia. C. Haussknecht. Mars-Juin 1867" in addition to handwritten locality exactly as in the protologue.

We believe that Haussknecht's preprinted label, which were encountered in several collections of other species, was used in error and does not imply a different collection date from that of JE specimen.

Furthermore, Polatschek erred by indicating that the JE sheet is *Haussknecht 39* (instead of *Haussknecht s.n.*) because that sheet has no such number, and the collection number that he added was a mistake resulting from taking the publication page "39" as the collection number. Finally, there is no evidence indicating that the original description of the species by Boissier was drafted from using both duplicates and, therefore, the G-BOIS sheet is recognized as the holotype.

Erysimum pseudocheiri Boiss., Fl. Orient. 1: 201. 1867.

≡ *Erysimum cheiriflorum* Boiss., Diagn. Pl. Orient. ser. 2, 5: 24. 1856 [nom. illeg.] [non Wallr.].

Type: "Hab. in regione alpinâ, mons Techdagh Armeniae (Calv!)".

Holotypus: Turkey: "Tech-dagh", 1853, *Calvert 92* (G-BOIS [G00154056]).

Notes. – *Erysimum pseudocheiri* was proposed as a new name based on the replaced later homonym *E. cheiriflorum* Boiss. Neither homonym was listed by Polatschek (2011: 409), who indicated that the lectotype is at G and isolectotype in G-BOIS.

However, both sheets are in G-BOIS, and they are in a collection folder representing the same specimen. The discrepancy in the "collection" date is misleading because 1854 represents the year Boissier received the specimen, and Erzeroum is part of Tech-Dagh Mts.

Erysimum gelidum var. *kotschyi* Boiss., Fl. Orient. 1: 202. 1867.

Type: "Hab. in alpibus circâ Erzeroum (Calv!), in summis Bingöldagh (Tchih! Ky Suppl. 660!), in monte Berytdagh Cataoniae alt 9000' (Hausskn!)".

Lectotypus (designated here): **Turkey:** "Crescit in Bimgoell alpinis", 7000' [2130 m], 23.VIII.1859, *Kotschy 660* (G-BOIS [G00332137]; isolecto-: G [G00446067], P [P02272712], PR, S, W [W0026647]). **Syntypi: Turkey:** "Erzeroum", 1853, *Calvert 557* (G-BOIS [G00332139]); *ibid. loco,* 1854, *Calvert 557* (G-BOIS [G00332140]); "Bertdagh, Taurus Cataonicus", 9000' [2740 m], 10.VIII.1865, *Haussknecht s.n.* (BM [BM001254046, BM001254047], G [G00446062], G-BOIS [G00332138], P [P02272713, P02272715]).

= ***Erysimum gelidum*** Bunge in Seidlitz, Bot. Erg. Reise Transkaukas.: 78. 1857.

Note. – The Tchihatcheff's syntype was not located in any of the herbaria consulted, and it is likely to be misplaced or lost.

Erysimum frigidum Boiss. & Hausskn. in Boiss., Fl. Orient. Suppl.: 39. 1888.

Type: "Hab. in rupestribus frigidis montis Sawus Persiae occidentalis 10–12000' (Haussk.!)".

Holotypus: Iran: "In rupestr. frigidis m. Sawers, dit Kuh Kilugek", 10000–12000' [3050–3660 m], VII.1868, *Haussknecht s.n.* (G-BOIS [G00154038]; iso-: BM, JE [JE00002772], W [W0026701]).

Note. – Lectotypification of the species name by Polatschek (2011: 414) based on the JE sheet is not justified because Boissier drafted the species description solely on the specimen in his herbarium.

Erysimum elbrusense Boiss., Fl. Orient. 1: 202. 1867.

Type: "Hab. in regione alpinâ montis Elburs supra Derbent (Ky exs. 164!)".

Holotypus: Iran: "Prope nives. In m. Elbrus pr. Derbend", 17.V.1843, *Kotschy 164* (G-BOIS [G00332141]; iso-: BM [BM001254048], BP, G [G00343195, G00343196, G00343197], GOET [GOET002587], K [K000075401, K000075402], MO [MO3831784], P [P02272706, P02272707], TUB, W [W0022401]).

Notes. – All of the collections above were made on the same day and have the same collection number. However, the W unicate differs from the others and the protologue in the locality data, and that is why it is considered as a questionable isotype.

The label data in the protologue, G-BOIS holotype, and all other isotypes are exactly the same. Derbend is a former village at the outskirts of Tehran, and the distance from Tehran to Mt. Tochal is several kilometers.

Polatschek & Rechinger (1968: 290) erroneously listed the type locality data as "In regione alpine M. Totschal supra Derbent" based of the unicate at W. The locality data of that sheet is "ad nives deliquescentes montis Totschal prope Tehran" and it is exactly the same way cited by Polatschek (2010: 257), who designated it as the lectotype.

There is no evidence indicating that Boissier used more than the single specimen in his herbarium to draft the species description and, therefore, the G-BOIS duplicate has to be taken as the holotype.

Erysimum alpestre Kotschy ex Boiss., Fl. Orient. 1: 202. 1867 [nom. illeg.] [non Jordan].

Type: "Hab. in regione alpinâ districtus Kassan Oglu Ciliciae Kurdicae prope Gorumse (Ky Suppl. 92!) in monte Berytdagh Cataoniae ad fodinas ferreas (Haussk!)".

Lectotypus (first step designated by Polatschek, 2011: 397; second step designated here): **Turkey:** "Plantae ex montibus Kassan Oghlu. Crescit in alpinis jugis ad Gorumse", 7200' [2190 m], 15.V.1859, *Kotschy 92* (G-BOIS [G00154032]; isolecto-: B, BP, P [P02272688, P02272689], S, W [W0026611, W0026612]). **Syntypus: Turkey:** "Taurus Cataonicus. Berytdagh", 8000' [2440 m], 10.VIII.1865, *Haussknecht s.n.* (G-BOIS [G00154033]).

= ***Erysimum adcumbens*** (Boiss.) Polatschek in Willdenowia 13: 88. 1983.

Notes. – A second step is needed to correct the Polatscheck's lectotypification from W to G-BOIS. The lectotype is a collection folder of two sheets, one of which with a label as above and the other with the printed label: "Th. Kotschy. Iter Orientale 1859".

Polatschek (2011) indicated that the lectotype is W0026611 and W0026612 (two duplicates), but there are three sheets all have the same printed label and were annotated by Polatschek in 1985 as holotypes.

Erysimum alpestre var. *adcumbens* Boiss., Fl. Orient. 1: 202. 1867.

≡ ***Erysimum adcumbens*** (Boiss.) Polatschek in Willdenowia 13: 88. 1983.

Type: "Hab. in monte Argaeo Cappadociae alt. 7500' (Ky!)".

Holotypus: **Turkey:** "Plantae Argaei montis Cappadociae. In jugo versus Caesaream", 7500' [2290 m], 30.V.1859, *Kotschy 200* (G-BOIS [G00332143]; iso-: B [B100068547, B100068552], BM [BM001254049], BP, E [E00373161], G [G00446063], JE [JE00002778], K [K000075403], P [P02272690, P02272691], PR, S [S04-346], US [US00100406], W [W0026769, W0026770]).

Note. – Davis et al. (1988) reduced *E. adcumbens* to synonymy of *E. sintensianum* Bornm., but the former is readily distinguished from the latter by having abaxially pubescent (vs glabrous) petals.

Erysimum aucheri Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 78. March 1842 [nom. illeg.].

≡ *Erysimum pulvinatum* J. Gay, Erysim. Nov.: 5. January 1842.

Type: "Habitat in Persiae borealis montibus *Elamout* (Auch. exsicc. nº 4111! in herb. mus. Par. et Deless.)".

Holotypus: **Iran:** "Elamout", s.d., *Aucher-Eloy 4111* (P [P02272758]; iso-: BM [BM000522226, BM001254044], FI [FI010138], G [G00343199, G00343186], G-BOIS [G00332144], K [K000693821, K000693822], KW [KW000127968], P [P02272759], S, W [W0026673]).

= ***Erysimum caespitosum*** DC., Syst. Nat. 2: 497. 1821.

Notes. – *Erysimum aucheri* is illegitimate because the single type collection cited is the same as that of the earlier published *E. pulvinatum* J. Gay (see the *E. persicum* entry above).

The duplicate P02272759 is from Cosson's herbarium that was not consulted by Gay.

Polatschek (2011: 420) recognized P02272758 and P02272759 as the holotype and isotype, respectively, of *E. pulvinatum* J. Gay which he synonymized with *E. caespitosum.*

Erysimum hookeri Boiss., Fl. Orient. 1: 203. 1867 [nom. illeg.].

≡ *Cheiranthus griffithii* Hook. f. & Thomson in J. Proc. Linn. Soc., Bot. 5: 137. 1861.

≡ ***Erysimum griffithii*** (Hook. f. & Thomson) Boiss. ex Hook. f. & T. Anderson in Hook. f., Fl. Brit. India 1: 153. 1872.

Note. – *Erysimum hookeri* is illegitimate because it is superfluous for *Cheiranthus griffithii.*

Erysimum caespitosum var. *brachycarpum* Boiss., Fl. Orient. 1: 203. 1867.

Type: "Hab. in jugo Elbrusensi inter Asterabad et Schahrud (Bunge!)".

Holotypus: **Iran:** "In jugo Elbrusensi; inter Astrabad et Schahrud", V.1858, *Bunge 108* (G-BOIS [G00332145]; iso-: P [P00868475, P05413799]).

= ***Erysimum caespitosum*** DC., Syst. Nat. 2: 496. 1821.

Note. – The P05413799 duplicate has the exact printed labels of the other two duplicates above but lacks the collection number.

Erysimum persepolitanum Boiss., Diagn. Pl. Orient. 6: 11. 1846.

Type: "Hab. in collibus prope *Persepolin* et *Schiraz*. Kotschy No. 261, in Persiâ Aucher No. 165".

Lectotypus (first step designated by Polatschek & Rechinger, 1968: 291; second step designated here): **Iran:** "In collibus pr. ruinas u. Persepolis", 19.IV.1842, *Kotschy 261* (G-BOIS [G00154052]; isolecto-: B [B100068696], BM [BM000522230, BM000946241], BP, C [C10008836, C10008837], E [E00373151, E00373152], FR [FR0038225], G [G00002423, G00002424, G00002425], GJO, GOET [GOET002591], H [H1107639], HAL [HAL0084090], JE [JE00001846], K [K000693789], KW [KW000127966], LE [LE00013007], M, MO [MO3831822], P [P02272751, P02272752, P022727531, P02272754], PR, S, W [W0026707, W0026708, W18890154970, W18890072844], WU [WU0067616]). **Syntypus:** **Iran:** "Persia", s.d., *Aucher-Eloy 165* (G-BOIS [G00154053]).

= ***Erysimum laxiflorum*** J. Gay, Erysim. Nov.: 4. 1842.

Notes. – There are four sheets of the type collection *Kotschy 261* at W, and none of which was annotated by the publication of Polatschek & Rechinger (1968) or later on, and none was examined by Boissier. Therefore, second-step is needed to correct the lectotypification from W to G-BOIS.

Boissier (1867a: 204) corrected the collection number from *Kotschy 231* to *Kotschy 261,* and that correction was indicated by Boissier (1888). *Kotschy 231,* which was collected on 3 June 1843 in Tochal near Tehran, was cited by Boissier (1867a: 342) under *Aethionema trinervium.*

Erysimum aciphyllum Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 80. March 1842 [nom. illeg.].

≡ ***Erysimum leptocarpum*** J. Gay, Erysim. Nov.: 4. January 1842.

Type: "Habitat in Armeniâ (Auch. exsicc. nº 161! in herb. mus. Par.: specimen fructiferum, et igitur petalis prorsùs destitutum)".

Holotypus: Turkey: *sine loco,* 1834, *Aucher-Eloy 161* (P [P02272733]; iso-: G [G00154046], K [K000075622]).

Notes. – Boissier's name is illegitimate because it was based on the same type collection of *E. leptocarpum* J. Gay.

Polatschek (2011: 408) lectotypified the species based on the P02272733 material that he annotated and indicated that isolectotypes were at G and K, both of them currently on JSTOR. These three sheets have fruiting material, and the K sheet also has a detailed handwritten description by J. Gay.

Boissier did not examine or annotate any of these three sheets. Instead, he annotated P05354918 as *Erysimum aciphyllum,* a flowering material that was subsequently annotated by Gay in 20 March 1842 as *Erysimum leptocarpum,* or more than two months after the publication of his species. All four sheets are *Aucher-Eloy 161.* Furthermore, both species names do not need lectotypification because both Gay and Boissier based their species descriptions on the unicates P02272733 and P05354918, respectively.

Yildrimili (2008: 13) lectotypified the species based on G-BOIS [G00154027], but that typification was erroneous for two reasons. First, Boissier (1842a) cited only *Aucher-Eloy 161,* not *Boissier s.n.,* in his description of the species. Second, Yildrimili's typification was predated by 25 years and correctly by Polatschek (1983: 93) but for *E. aciphyllum* var. *stylosum* (see below).

Yildrimili (2008) recognized *E. aciphyllum* as a distinct species. However, a comparison of the types of this and *E. leptocarpum* shows no significant differences and, therefore, Polatschek (2011)'s reduction of the former name to synonymy of the latter is accepted.

Erysimum aciphyllum var. *stylosum* Boiss., Fl. Orient. 1: 204. 1867.

≡ ***Erysimum stenophyllum*** Polatschek in Willdenowia 13: 93. 1983.

Type: "Hab. in regione excelsiori Tmoli (Boiss!), monte Karamas Cappadociae (Bal!)".

Lectotypus (designated by Polatschek, 1983: 93): **Turkey:** "Tmolus supra Bozdagh", VI.1842, *Boissier s.n.* (G-BOIS [G00154027]). **Syntypus: Turkey:** "Région sous-alpine du Karamas-Dagh, à 5 lieues à l'Est du Mont- Argée", 3.VII.1856, *Balansa 458* (G-BOIS [G00154031]).

Note. – No duplicates of the above two collections were found in any of the major herbaria consulted.

Erysimum nasturtioides Boiss. & Hausskn. in Boiss., Fl. Orient. Suppl.: 40. 1888.

Type: "Hab. ad nives regionis alpinae montium Kellal et Ssebsekuh ditionis Bachtiaris Persiae occidentalis (Haussk.!)".

Lectotypus (first step designated by Polatschek, 2011: 441; second step designated here): **Iran:** "In m. Kellal & Sebsekuh, dit. Bachtiariorum", IX.1868, *Haussknecht s.n.* (G-BOIS [G00154048]; isolecto-: B [B100068761], JE [JE00001855], K [K000075411], P [P00531931]).

Notes. – There are two sheets in G-BOIS, and Polatschek (2011: 441), who lectotypified the species and designated the JE specimen as the lectotype, overlooked the fact that Haussknecht's collection includes plants with fully mature fruit and others in flower, and they must have been from substantially different elevations from the two localities given in the protologue.

A second step lectotypification is needed to correct JE to G-BOIS and consider the fruiting material as the lectotype.

The G-BOIS lectotype is a collection folder of two sheets each with three plants, of which one sheet has all three plants with mature fruit, and the other has two with mature fruit and one in flower. Unfortunately, there is no way of knowing the locality from which Haussknecht collected the plants with mature fruit or with flower. Despite that, Polatschek's (2011) lectotypification based on the JE duplicate is rejected.

Erysimum gladiiferum Boiss. & Hausskn. in Boiss., Fl. Orient. Suppl.: 40. 1888.

Type: "Hab. in graminosis calcareis montis Pir Omar Gudrun Kurdistaniae Persicae 3–6000' (Haussk.!)".

Holotypus: Iraq: "In gramin. calc. Pir Omar Gudrun", 3000'–6000' [910–1820 m], VI.1867, *Haussknecht 71* (G-BOIS [G00154039]; iso-: B [B100068654], BM [BM000522227], BP, JE [JE00002774, JE00002775, JE00002776], K [K000075621], P [P5354979, P05354980], W [W0026710]).

Note. – The G-BOIS holotype is a collection folder of five sheets, of which two have the exact collection data, another two lack the printed label, and the fifth has the same printed label with Mesopotamia handwritten on it and with Polatschek annotation in 2005.

Erysimum boryanum Boiss. & Spruner in Boiss., Diagn. Pl. Orient. 1: 71. 1843.

Type: "Hab. in rupestribus montanis, *Pentelicus, Parnes* in *Atticâ,* montes *Arcadiae* (Boiss. Sprunner), in *Messeniâ* (Bory)".

Lectotypus (designated by Polatschek & Snogerup, 2002: 133): **Greece:** "Sommet et flancs du Pentélique", IV.s.a., *Spruner s.n.* (G-BOIS [G00332150]; isolecto-: LD [LD1064662]). **Syntypus: Greece:** "Pentelicus", V.1842, *Boissier s.n.* (G [G00446064, G00446065, G000446066], KW [KW000127964], W [W0077277]).

Notes. – Polatschek & Snogerup (2002) indicated an isolectotype at W, but that specimen was collected by Boissier not Spruner.

All three syntypes at G belong to the Reuter-Barbey herbarium, and despite search in several major herbaria, Bory's collection from Messenia was not found.

Erysimum boryanum var. *atticum* (Boiss.) Boiss., Fl. Orient. 1: 205. 1867.

≡ ***Erysimum atticum*** Boiss., Diagn. Pl. Orient. ser. 2, 1: 25. 1854.

Type: "Hab. in faucibus *Hymetti* meridionalis et in monte *Corydalo Atticae* (Heldr. et Sartori)".

Holotypus: Greece: "in faucibus Hymetti meridionalis", VI.1844, *Satori & Heldreich 1838* (G-BOIS [G00332149]).

Notes. – No duplicates of this type collection are found in the major herbaria consulted, and the G-BOIS sheet ought to be recognized as the holotype.

Therefore, the designation of that sheet by Polatschek & Snogerup (2002: 132) as a lectotype was unnecessary.

Erysimum boryanum var. *parnassi* (Boiss. & Heldr.) Boiss., Fl. Orient. 1: 205. 1867.

≡ *Cheiranthus parnassi* Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. ser. 2, 1: 18. 1854.

≡ ***Erysimum parnassi*** (Boiss. & Heldr.) Hausskn. in Mitth. Thuring. Bot. Vereins 3–4: 109. 1893.

Type: "In regione alpinâ montis *Parnassi* rarus (Heldr. 1852. N° 2651)".

Holotypus: Greece: "In monte Parnasso", 11.VIII.1852, *Heldreich 2651* (G-BOIS [G00332151]; iso-: BP, E [E009438493], FI [FI010136], GOET, W [W0064531, W19670010510]).

Note. – Although Polatschek (1986: 243) designated the above G-BOIS sheet as the lectotype, there was no need for such lectotypification because Boissier based the species description solely on the unicate in his herbarium.

Erysimum macrostigma Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 81. 1842.

Type: "[Aucher-Eloy] N. 4106, Aderbijan".

Lectotypus (designated by Polatschek, 2011: 440): **Iran:** "Aderbidjan", s.d., *Aucher-Eloy 4106* (G-BOIS [G00154047]; isolecto-: BM [BM000522229], G [G00446126, G00446227], K [K000075616], KW [KW000127963], MO [MO1617726], P [P02272734, P02272735, P02272736, P02272737], W [W0026650, W18890077524]).

Notes. – Boissier examined and annotated P02272734, and therefore the lectotypification by Polatschek (2011) is justified.

Polatschek & Rechinger (1968: 289) reduced *E. macrostigma* to synonymy of *E. caespitosum* DC., but Polatscheck (2011) maintained it as a distinct species.

Erysimum purpureum Aucher ex Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 82. March 1842 [nom. illeg.].

≡ ***Erysimum purpureum*** Aucher ex J. Gay, Erysim. Nov.: 7. January 1842.

Type: "Habitat in Armeniae montibus (Auch.! in herb. mus. Par., Montbret! in herb. Webb.)".

Lectotypus (designated here): **Turkey:** *sine loco,* s.d., *Aucher-Eloy 162* (P [P02272760]; isolecto-: BM [BM000522232], G [G00371620, G00371630], G-BOIS [G00332152], K [K000075610, K000075611, K000075613], MPU [MPU017777], P [P02272761]).

Notes. – Boissier's name is illegitimate because it was based on the same type collection of *E. purpureum* Aucher ex J. Gay. Gay's name has priority and needed lectotypification.

We were unable to locate the Montbret syntype and as P02272760 was annotated by Gay we choose it as lectotype.

The lecto- and isolectotype sheets at P were annotated by Polatschek in 1983 as holotype and isotype, respectively. However, he (Polatschek, 2011: 416) cited one sheet as a holotype and did not cite the other or specify which one was meant.

Erysimum laciniatum Boiss., Diagn. Pl. Orient. 1: 71. 1843.

Type: "[Boissier] Hab. in regione alpinâ montium *Lydiae* et *Cariae* ad umbram Juniperorum, *Mesogis, Cadmus, Tmolus.* Floret Junio".

Lectotypus (first step designated by Polatschek, 2011: 401; second step designated here): **Turkey:** "In dumosis Cadmi ad orientum Denislah", VI.1842, *Boissier s.n.* (G-BOIS [G00332155]; isolecto-: C [C10008844], GH [GH00055746], GOET [GOET002595], K [K000075607, K000075608], NY [NY00689139, NY00689140]). **Syntypi: Turkey:** "Tmolus supra Bozdagh ad rivus Lydia", VII.1842, *Boissier s.n.* (G-BOIS [G00332157]); "Tmolus", s.d., *Boissier s.n.* (G-BOIS [G00332153]); "Caria", 1843, *Pinard s.n.* (W [W0026657]).

= ***Erysimum pulchellum*** (Willd.) J. Gay, Erysim. Nov.: 10. 1842.

Notes. – Polatschek (2011) erroneously lectotypified the name on the unicate W0026657, which was not annotated by Boissier, and attributed its collection to Boissier instead of Pinard. The duplicates in C, GH, GOET, and NY that he cited were Boissier's collections listed above as isolectotypes.

Boissier (1843) based his species description almost exclusively on his own collections in G-BOIS that Polatschek did not examine or cite. Therefore, a second step is necessary to designate the lectotype in G-BOIS.

The lectotype has only the month and not the year, but all the isolectotypes have "Tmolus et Cadmus. VI. 1842" indicated.

Erysimum pulchellum var. *microphyllum* Boiss., Fl. Orient. 1: 207. 1867.

≡ *Cheiranthus rupestris* Sm. in Sibth., Fl. Graec. Prodr. 2: 23. 1813.

= ***Erysimum pulchellum*** (Willd.) J. Gay, Erysim. Nov.: 10. 1842.

Note. – This is a renaming at the varietal rank of *Cheiranthus rupestris* (holotype: *Sibthorp s.n.,* probably at OXF).

Erysimum pulchellum var. *calvertii* (Boiss. & A. Huet) Boiss., Fl. Orient. 1: 207. 1867.

≡ *Erysimum rupestre* var. *calvertii* Boiss. & A. Huet in Boiss., Diagn. Pl. Orient. ser. 2, 5: 22. 1856.

Type: "Hab. in Armeniâ propè *Messiré* in valle *Kassuklu* cl. Huet, in monte *Techdagh* cl. Calvert".

Lectotypus (designated here): **Turkey:** "Tech Dagh", 1853, *Calvert 38* (G-BOIS [G00332160]). **Syntypi: Turkey:** "In valle Kassuklu. Inter Baibout et Erzeroum", V.1853, *Huet du Pavilion s.n.* (G [G00446068], K [K000075603, K000075605], W [W18890010515]); "Ad viam propè Messiré. Inter Trapezuntem et Baibout", V.1853, *Huet du Pavilion s.n.* (GOET, K [K000075602, K000075606], W).

= ***Erysimum pulchellum*** (Willd.) J. Gay, Erysim. Nov.: 10. 1842.

Note. – Polatschek (2011) did not typify the variety, though he cited the syntypes under *E. pulchellum*.

Erysimum pallidum Boiss., Fl. Orient. 1: 207. 1867.

Type: "Hab. in rupestribus regionis alpinae Lyciae supra Elmalu (Bourg!)".

Holotypus: Turkey: "In rupestribus regionis alpinae montis Elmalu", 26.V.1860, *Bourgeau s.n.* (G-BOIS [G00154049]; iso-: K [K000075601], P [P02272748]).

= ***Erysimum kotschyanum*** J. Gay, Erysim. Nov.: 5. 1842.

Notes. – The three duplicates above fully agree with the protologue and all were collected on the same date. Boissier based the species description solely on the unicate in his herbarium, and that specimen has to be taken as the holotype, instead of lectotype as listed by Yildrimili (2008: 14).

Polatschek (2011: 406) erroneously listed an entirely different collection with a label that reads: "E. Bourgeau – Plantae Lyciae 1860. Erysimum kotschyi J. Gay (Boiss.) In cacuminibus regionis alpinae montis Elmalu, 9 Jun.", designated the W duplicate as the lectotype, and listed specimen in G-BOIS, GOET, and K as the duplicates. There are no such duplicates in G-BOIS or K, and Boissier never examined such a collection for this species.

Furthermore, the material collected on 26 May was distributed under the name *E. pallidum* whereas that collected on June 9 was distributed as *E. kotschyi*. All these factors collectively show some inaccuracies in designating a type. Since Polatschek examined the holotype of *E. pallidum,* it is surprising that he considered the two mixed collections as one.

Erysimum strophades Boiss., Diagn. Pl. Orient. 8: 24. 1849.

≡ *Strophades lanceolata* Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 83. 1842 [non *Erysimum lanceolatum* W.T. Aiton].

Type: "[Aucher-Eloy] N. 192, Mesopotamia".

Holotypus: Iraq: "Mesopotamia", 1835, *Aucher-Eloy 192* (P [P02272745]; iso-: G-BOIS [G00332161], K [K000075600], P [P02272746]).

= ***Erysimum oleifolium*** J. Gay, Erysim. Nov.: 6. 1842.

Notes. – The duplicate in G-BOIS consists of four fragmentary branches taken by Boissier from P02272745 that he annotated on its packet. Boissier did not examine nor annotate P02272746. Therefore, he based his species description solely on P02272745, which ought to be considered as the holotype.

For this reason, Polatschek's (2011: 442) lectotypification of the name based on the same sheet is not needed at all.

Strophades linearis Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 83. March 1842 [nom. illeg.].

≡ ***Erysimum oleifolium*** J. Gay, Erysim. Nov.: 6. January 1842.

Type: "Habitat in Persiae maximè australis provinciâ Laristân, ann. 1838, Aprili mense lectum (Auch. exsicc. nº 4169! in herb. Webb.)".

Holotypus: Iran: "Laristan", s.d., *Aucher-Eloy 4169 I* (FI; iso-: BM [BM001254045], G [G00371623], G-BOIS [G00332162], K [K000075599], P [P02272742, P02272744]).

Notes. – Boissier's name is illegitimate because it was based on the same type collection of *Erysimum oleifolium* J. Gay.

Gay (1842) did not examine the two P duplicates of *Aucher-Eloy 4169 I* prior to the publication of his *Erysimum oleifolium*. Instead, he based his description on the unicate at FI, which has to be the holotype. Therefore, Polatschek's (2011: 442) designation of P02272744 as the lectotype for *E. oleifolium* was erroneous.

Boissier (1849) transferred *Strophades linearis* to *Erysimum* and later in *Flora Orientalis* reduced it to synonymy of *Erysimum oleifolium*. The type collection of *S. linearis* was erroneously listed in Boissier (1867a, 1888) as *Aucher-Eloy 4199 L* instead of *4169 I*.

Erysimum filifolium Boiss. & Hausskn. in Boiss., Fl. Orient. Suppl.: 41. 1888 [nom. illeg.] [non F. Muell.].

≡ ***Erysimum boissieri*** Polatschek in Phyton (Horn) 34: 200. 1994.

Type: "Hab. in rupestribus calcareis montis Avroman Kurdistaniae Persicae 5–6000' (Haussk.!)".

Holotypus: Iran-Iraq: "In rup. calc. m. Avroman", 5000'–6000' [1520–1830 m], VII.1867, *Haussknecht 72* (G-BOIS [G00154037]; iso-: B [B100068744], JE [JE00002737], K [K000075623], W [W0026674]).

Notes. – The G-BOIS holotype is a collection folder of three sheets, of which one has the full collection data listed above on a printed label with "Montes Avroman et Schahu" indicated, another has only Mesopotamia written on the same printed label and was annotated by Polatschek in 2005 as isotype, and the third is unlabeled.

Polatschek (1994) renamed Boissier's illegitimate name as *E. boissieri,* but he later (Polatschek, 2011) erroneously indicated the JE00002737 as the lectotype.

Conringia Heister ex Fabr., Enum.: 160. 1759.

Tribe: *Conringieae* D.A. German & Al-Shehbaz.

Note. – A genus of five species distributed in Europe and SW Asia.

Conringia grandiflora Boiss. & Heldr. in Boiss., Diagn. Pl. Orient. 8: 25. 1849.

Type: "Hab. in *Lyciâ* cl. Pestalozza, in montibus *Climax* et *Solyma* Lyciae in regione inferiori (Heldreich), in monte *Ghibelleis* Pamphyliae suprà *Alaya* (Heldreich)".

Lectotypus (designated here): **Turkey:** "In rupestribus montis Solyma Lyciae", V.1845, *Heldreich s.n.* (G-BOIS [G00332165]; isolecto-: B [B100244872], G [G00389499, G00389500], GOET [GOET002741], K [K000653970, K000653971], P [P02272678], W[0075706A]). **Syntypi: Turkey:** "In saxosis. Région supérieure du Mt. Ghibelleïs à l'Est d'Alaya", c. 1500' [460 m], 17.IV.1845, *Heldreich 561* (G-BOIS [G00332167], W[0075706B]); "In rupestribus apricis. Montagne à l'Ouest d'Adalia rég. infér. du Mt. Solyma, Climax", V.1845, *Heldreich 561* (G-BOIS [G00332168]); "Pamphylia", 1846, *Pestalozza s.n.* (G-BOIS [G00332166]).

Note. – Although W007576B has the same collection number, month, and year as the G-BOIS syntype, the missing day of collection and slightly different locality makes including the specimen here tentative.

Conringia clavata Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 84. 1842.

≡ *Sisymbrium perfoliatum* C.A. Mey., Verz. Pfl. Casp. Meer.: 188. 1831.

Type: "[Meyer] 1645. In montibus Talüsch prope pagum Swant (alt. 670 hexap.)".

Lectotypus (designated by Dorofeyev, 2012: 376): **Azerbaijan:** "In campis siccis prope Swant", 23.VI.1830, *Meyer 1645* (LE; isolecto-: G-BOIS [G00789725]).

Notes. – Hedge (1965: 278, 1968: 61) treated *C. clavata* as a synonym of *Sisymbrium perfoliatum* C.A. Mey. and the illegitimate later combination *Conringia perfoliata* (C.A. Mey.) N. Busch (Fl. CCCP 8: 497. 1939), non *C. perfoliata* Link (Enum. Hort. Berol. Alt. 2: 172. 1822), which Hedge was apparently unaware of.

Indeed, Boissier (1842a) cited *Sisymbrium perfoliatum* in synonymy of *Conringia clavata,* and most likely he was aware of Link's earlier homonym. Therefore, Boissier's name is a new name based on Meyer's type rather than on *Aucher-Eloy 152* that he cited.

Conringia persica Boiss., Diagn. Pl. Orient. 6: 12. 1846.

Type: "Hab. prope *Schiraz* et in convallibus superioribus montis *Kuh-Barfi.* Kotschy No. 339 et 251a".

Lectotypus (designated here): **Iran:** "In convallibus reg. sup. m. Kuh-Barfi pr. u. Schiras", 4.V.1842, *Kotschy 339* (G-BOIS [G00332170]; isolecto-: B [B100244871], BM [BM000552466], E [E00199703], FR [FR0038279], G [G00389497, G00389498], GOET [GOET002742], H [H1263807], HAL [HAL0084091], JE [JE00001392], K [K000653973], MO [MO3830119], P [P02272679, P02272680, P02272681, P04739272, P04739273], W [W00075705, W18890029620, W18890154974], WU [WU0101801]). **Syntypus: Iran:** "Prope urbem Schiras", V.1842, *Kotschy 251a* (G-BOIS [G00332171]).

Note. – Hedge (1968: 60) listed *Kotschy 339* (K), as a type, but that duplicate was not examined by Boissier who based the species description solely on the pair of Kotschy specimens in his herbarium.

Chalcanthus Boiss., Fl. Orient. 1: 211. 1867.

Tribe: *Eutremeae* Al-Shehbaz et al.

Notes. – Based on molecular phylogenetic studies and a closer re-examination of morphology in light of molecular data, this monospecific genus has recently been reduced by Hao et al. (2017) to synonymy *Eutrema* R. Br.

Eutrema renifolium is distributed in Afghanistan, Iran, and Turkmenistan.

Chalcanthus renifolius (Boiss. & Hohen.) Boiss., Fl. Orient. 1: 212. 1867.

≡ *Hesperis renifolia* Boiss. & Hohen. in Boiss., Diagn. Pl. Orient. 8: 22. 1849.

≡ ***Eutrema renifolium*** (Boiss. & Hohen.) Al-Shehbaz et al. in Bot. J. Linn. Soc. 184: 218. 2017.

Type: "Hab. propè *Schah Neschim* in monte *Totschal* propè *Teheran* alt. 7–8000'. Kotschy Nº 248".

Holotypus: Iran: "Passim in valle Latkau prope Schah-Neschin in m. Totschal pr. Teheran", 7000–8000' [2130–2440 m], 2.VI.1843, *Kotschy 228* (G-BOIS [G00332172]; iso-: BM [BM000552465, BM000587810], E [E00386046], G [G00389772, G00389773, G00446071], GOET [GOET002734], H [H1512240], K [K000653967], KW [KW000127979], LE [LE00013090, LE00013123], MO [MO3831963], P [P05324865, P05324866, P05324868], US [US00100452], W [W0055932]).

Note. – The collection number in the original publication of the species was given as *Kotschy 248.* The holotype has two labels, one with printed *228* and the other with handwritten *248*. However, that error was corrected as *Kotschy 228* by Boissier in *Flora Orientalis* and confirmed later in its *Supplementum*.

Sisymbrium L., Sp. Pl.: 657. 1753.

Tribe: *Sisymbrieae* DC.

Note. – *Sisymbrium* includes some 47 species in Eurasia and North Africa, with only one native species in North America and three in South Africa.

Sisymbrium griffithianum Boiss., Diagn. Pl. Orient. ser. 2, 1: 23. 1854.

Type: "Hab. in *regno Cabulico* circâ *Quettah* (Griffith Nº 1481)".

Holotypus: Pakistan: "Quettah", s.d., *Griffith 1481* (G-BOIS [G00330374]; iso-: K [K000618633, K000618634]).

= ***Olimarabidopsis pumila*** (Stephan) Al-Shehbaz et al. in Novon 9: 303. 1999.

Notes. – Because of its descending or strongly reflexed (vs ascending or strongly incurved) fruits, there has been some debate as to whether or not *S. griffithianum* should be

recognized as a distinct species in *Olimarabidopsis* Al-Shehbaz, O'Kane & R.A. Price or be merged with *O. pumila*.

The isotype duplicate at K [K000618633] has two plants one with ascending and the other with reflexed fruits, whereas the other K isotype [K000618634] has only ascending, strongly incurved fruit. By contrast, the G-BOIS holotype is a single plant with sharply reflexed fruit.

Furthermore, another material (*Griffith 1483,* K) has eight plants, of which four have divaricate-ascending fruit and the other four have sharply reflexed fruits. Therefore, the recognition of *Sisymbrium griffithianum* as distinct from *Olimarabidopsis pumila* is unjustified. For related matters and conservation of the epithet "*pumilum*", see German & Al-Shehbaz (2015).

Sisymbrium nudum var. *brachycarpum* Boiss., Fl. Orient. 1: 215. 1867.

≡ *Arabis scapigera* Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 54. 1842.

= ***Draba nuda*** (Bél.) Al-Shehbaz & M. Koch in Novon 13: 173. 2003.

Note. – This is a renaming of the following entry at the varietal level.

Arabis scapigera Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 54. 1842.

Type: "[Aucher-Eloy] N. 205, Armenia; 4115, Bayazid".

Lectotypus (designated here): **Turkey:** "Bayaza", s.d., *Aucher-Eloy 4115* (G-BOIS [G00332089]; isolecto-: BM [BM12054053, BM001250456], G [G00446040, G00446041], K [K000618638], KW [KW000127931], LE [LE00012990], P [P00868489, P05413414], W [W0075704]).

= ***Draba nuda*** (Bél.) Al-Shehbaz & M. Koch in Novon 13: 173. 2003.

Notes. – For some reason, *Aucher-Eloy 205,* which Boissier (1842a) cited as a syntype of *A. scapigera,* was not found in any of the herbaria consulted, and Boissier (1867a, 1888) did not list that collection again.

Two *Aucher-Eloy 205* duplicates, P00741481 and P00741482, clearly belong to *Isatis,* and the former was annotated by Boissier as *Isatis latisiliqua*.

Typification of *Draba nuda* (as *Arabis*) remained a mystery for over 160 years until the recent discovery of the holotype (see Al-Shehbaz, 2019).

Sisymbrium schimperi Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 76. 1842.

≡ ***Robeschia schimperi*** (Boiss.) O.E. Schulz in Engl., Pflanzenr. 86: 360. 1924.

Type: "[Schimper] N. 170".

Holotypus: Egypt: "Ad templum Eliae in monte Sinai inter glareas graniticas", 9.IV.1835, *Schimper 170* (G-BOIS [G00332173]; iso-: B [B100000710, B100000806], BM [BM000614092, BM000614093], E [E00126646, E00126648, E00438543], G [G00446072, G00446073, G00446074], HAL [HAL0120833], HBG [HBG506120, HBG506121], HOH [HOH009371], JE [JE00004168], K [K000618538, K000725117, K000725118, K000725119, K000725120], KW [KW000127971], M [M0108041, M0108042], P [P00747197, P00747198, P00747200, P00747201, P02272622, P02272623, P05383239], S [S14-30997], W [W0015898, W0015899, W0316261, W18890020449, W18890167963]).

Note. – Although described in *Plantae Aucherianae orientales* (Boissier, 1842a), the collection did not belong in that series, as confirmed by Boissier (1888: 462).

Sisymbrium sophia var. *brachycarpum* Boiss., Fl. Orient. 1: 216. 1867.

Type: "Hab. in Armeniâ circa Erzerum (Huet!)".

Holotypus: Turkey: "Erzeroum", VI.1853, *Huet du Pavillon s.n.* (G-BOIS [G00332174]; iso-: BM [BM001254061], K [K000725097], P [P04686475]).

= ***Descurainia sophia*** (L.) Webb ex Prantl, Nat. Pflanzenfam. 3(2): 192. 1891.

Note. – Boissier based the description of the variety solely on the unicate in his herbarium.

Sisymbrium irioides Boiss. in Ann. Sci. Nat., Bot. ser. 2, 17: 76. 1842.

Type: "[Aucher-Eloy] N. 140, Mesopotamia".

Holotypus: Iraq: "Mesopotamia", s.d., *Aucher-Eloy 140* (P [P02272615]; iso-: G-BOIS [G00332175]).

= ***Sisymbrium irio*** L., Sp. Pl.: 659. 1753.

Note. – The above specimen in G-BOIS is a fragmentary material consisting of a leaf and part of inflorescence taken from the unicate P02272615 that Boissier annotated and which should be considered as the holotype (see Boissier, 1841a).

Sisymbrium damascenum Boiss., Diagn. Pl. Orient. ser. 2, 6: 11. 1859.

Type: "Hab. in hortis circà *Damascum* cl. Dr Gaillardot. Fl. Aprili".

Lectotypus (designated here): **Syria:** "Boustan el Nahâs. N. O. de Damas", 20.IV.1856, *Gaillardot 1580* (G-BOIS [G00332176]; isolecto-: JE [JE00001272]). **Syntypus: Syria:** "Boustan Seidoune ouest de Damas", 8.IV.1856, *Gaillardot 1579ter* (G-BOIS [G00332177], JE [JE00001273, JE00001274]).

Notes. – Most authors (e.g., Hedge, 1968: 314) and indices (e.g., IPNI, 2019) erroneously followed Boissier in *Flora Orientalis,* rather than the original description (Boissier, 1859), in attributing the authorship of the species to Boissier and Gaillardot rather than to Boissier alone.

There are two *Gaillardot's* specimens in G-BOIS and none in the general herbarium at G. Both specimens were collected on April 1856, but the plant collected on April 8 [G00332177] is in flowers and with small immature fruits, whereas the one collected on April 20 [G00332176] has fully mature fruit and few flowers. Boissier (1859) indicated that "Fl. Aprili", but the original account of the species gives full description of the mature fruit.

Because *S. damascenum* is closely related to and distinguished primarily from *S. irio* by having densely scabrid (vs glabrous) fruit, the designation of the fruiting, rather than flowering, material as the lectotype would be the only way to preserve the correct concept of the species limits.

Sisymbrium tetracmoides Boiss. & Hausskn. in Boiss., Fl. Orient. Suppl.: 43. 1888.

≡ ***Neotorularia tetracmoides*** (Boiss. & Hausskn.) Hedge & J. Léonard in Bull. Jard. Bot. Natl. Belgique 56: 394. 1986.

Type: "Hab. in deserto Mesopotamiae ad fluvium Chabur (Haussk.!)".

Holotypus: Syria: "In deserto fl. Chabur", V.1867, *Haussknecht 131* (G-BOIS [G00330350]; iso-: B [B100272095], BM [BM001254052], JE [JE00002855], K [K000725004], W [W0050786]).

Note. – The holotype is a collection folder of two sheets.

Malcolmia W.T. Aiton, Hort. Kew. ed. 2, 4: 121. 1812 [nom. cons.].

Tribe: *Malcolmieae* Al-Shehbaz & Warwick.

Notes. – Although Boissier (1854) described *Strigosella* as a distinct, monospecific genus, he reduced it to synonymy of *Malcolmia* in *Flora Orientalis,* though both genera are currently maintained.

All floras that covered the areas of *Flora Orientalis, Flora Europaea,* and floras of North Africa broadly delimited *Malcolmia* to include five genera currently assigned to the tribes *Anastaticeae* (*Maresia* Pomel and *Marcus-Kochia* Al-Shehbaz), *Conringieae* (*Zuvanda* Askerova), *Euclidieae* (*Strigosella* Boiss.), and monogeneric *Malcolmieae*. However, starting with Botschantzev (1972), who transferred most species of *Malcolmia* to *Strigosella,* and ending with Al-Shehbaz et al. (2014), *Malcolmia* presently includes only six species distributed primarily in the eastern Mediterranean region, especially the Balkan Peninsula.

Malcolmia confusa Boiss., Fl. Orient. 1: 221. 1867.

Type: "Hab. in arenosis maritimis Aetoliae ad Missolonghi (Nieder!), Aeginae (Sprun!), Anatoliae ad Samsun (Tchih! Wiedem!)".

Lectotypus (designated here): **Turkey:** "Samsoun", 1858, *Tchihatchef s.n.* (G-BOIS [G00332178]). **Syntypi: Greece:** "Aeginae", s.d., *Spruner s.n.* (G-BOIS [G00332181]). **Turkey:** "pr. Mesolongi Aetoliae", V.1860, *Nieder s.n.* (G-BOIS [G00332180]); "Samsoun", s.d., *Wiedemann s.n.* (G-BOIS [G00332179], K [K000693873]).

= ***Maresia nana*** (DC.) Batt. in Batt. & Trab., Fl. Algérie: 68. 1888.

Notes. – The lectotype specimen is the most complete of the four syntypes cited in the original publication.

Maresia nana is a tiny polymorphic annual widely distributed in the Mediterranean region and SW Asia.

Malcolmia africana var. *trichocarpa* (Boiss. & Buhse) Boiss., Fl. Orient. 1: 223. 1867.

≡ *Malcolmia trichocarpa* Boiss. & Buhse in Nouv. Mém. Soc. Imp. Naturalistes Moscou 12: 21. 1860.

≡ ***Strigosella trichocarpa*** (Boiss. & Buhse) Botsch. in Bot. Zhurn. (Moscow & Leningrad) 57: 1038. 1972.

Type: "Wüstenebene bei Dschendak, 5 und 6 April 1849 (fructifera et florens). [Buhse] No 1265".

Holotypus: Iran: "In desserto prope Djendak", 1847, *Buhse 1265* (G-BOIS [G00790354]; iso-: LE [LE01037309]).