

Types and selected historic specimens of *Aster* s.l. (*Asteraceae*) in the Herbarium, Laboratoire de Phanérogamie, Muséum national d'Histoire naturelle, Paris (P)

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Summary : An annotated catalogue is presented of types and historic collections in the Herbarium at Paris of *Aster* s.l., including also some other generic names in the *Astereae*, e.g., *Machaeranthera*. Complete author citation and the place of original publication are given for each basionym. Holo-, iso-, and lectotypes on deposit at other institutions are also cited. As far as possible, the currently adopted name is furnished for each entry. Lectotypifications for 43 names are published herein for the first time. For 62 of the 144 basionyms listed, the holo- or lectotype is located at P.

Résumé : Les auteurs présentent un inventaire annoté des types et spécimens historiques dans l'herbier de Paris (P) du genre *Aster* s.l., ainsi que d'autres genres d'*Astereae*, par exemple *Machaeranthera*. Pour chaque entrée sont donnés le nom de l'auteur et le lieu de publication. Les holo-, iso-, et lectotypes examinés dans des herbiers autres que Paris sont aussi cités. Dans la mesure du possible, le nom adopté actuellement est donné pour chaque basionyme. Des lectotypifications pour 43 noms sont ici publiées pour la première fois. L'holotype ou le lectotype de 62 des 144 basionymes de cette liste se trouvent à Paris.

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INTRODUCTION

Asa GRAY (1882) gave the first account of historic *Aster* collections in the Muséum national d'Histoire naturelle in Paris. In 1925, BLAKE (1930) made a cursory study of certain members of the *Asteraceae*, and he discussed typification of some *Aster* names. Since then, the only botanists whose annotations have appeared on some of the sheets are BEAMAN, BOSSERDET, CUATRECASAS and ZARDINI. During visits at the Muséum in 1980, 1981 and 1983, augmented by loans from P to ILL, we have, for the first time since GRAY, critically examined and annotated all the types, as well as most of the general collections of the genus. The results of these endeavors are presented here in the form of an annotated catalogue.

The important type collections of the older taxonomic literature at P are, of course, those of LAMARCK (1783), MICHAUX (1803) and KUNTH (1820). Notable are many *Aster* specimens from the herbarium of SCHULTZ-BIPONTINUS, among them types of names pub-

lished by SPRENGEL (1826), as well as by himself, e.g., in SEEMANN (SCHULTZ, 1856). There are also isotypes or syntypes of names published by LINDLEY, DE CANDOLLE, NUTTALL and D. EATON. Numerous entries concern names published by GRAY (1884) in the Synoptical Flora of North America. To our surprise, however, we also found a considerable amount of type material of *Aster* names attributable to authors of the 20th Century, e.g., PIPER, E. GREENE, SUKSDORF, BURGESS, A. NELSON, BRITTON, FERNALD, WIEGAND, and BOSSERDET, among others.

To give as much information as possible on the type material examined, and to facilitate ready access to that information, this catalogue is arranged alphabetically according to the basionyms. There are 145 entries altogether. Unless indicated otherwise, original spelling and endings of the names have been retained. The place of publication is cited, and if known, the herbarium in which a holotype or lectotype is located is identified by its conventional abbreviation (HOLMGREN et al., 1981). For isotypes and isolectotypes, we have listed, in addition to P, those herbaria that hold specimens examined by the first author. With regard to syntypes and paratypes, however, this presentation is limited to specimens on deposit in Paris. Since types of names published by JUSSIEU, KUNTH, LAMARCK, MICHAUX and TOURNEFORT at the Muséum national d'Histoire naturelle are kept in separate herbaria, they are indicated as P-JU, P-HBK, P-LA, P-MICHX, and P-TOURN, respectively. If the type information was exclusively taken from the original description, rather than the specimen label, the word "citation" has been added in parentheses. When only a part of the type citation of the protologue is given, it is placed within quotation marks. Whenever necessary and feasible, we have designated lectotypes. Photographs of most of the specimens listed are on deposit at ILL.

Lectotypifications published herein for the first time are marked by an asterisk at the beginning of the entry. There are 43 such entries. Included among them are validations for lectotypes located in other herbaria that were designated by the first author (cited in the text as "A.G.J.") by annotations only, and for a few that were previously marked as types by other taxonomists but apparently were not published. The holotypes or lectotypes of 62 of the basionyms listed are at P, and isotypes or isolectotypes on deposit at the Muséum add up to more than 90 sheets. We have adopted the recently proposed term "paralectotype" (cf. HANSEN & SEBERG, 1984) for the "residual syntypes" that remain after lectotypification, not usually distinguishing, however, between syntypes and isosyntypes. Such specimens are cited for 25 names. Paratypes listed from P amount to ca. 15 sheets. The first author takes responsibility for taxonomic disposition of the basionyms furnished at the end of each statement. Names adopted herein are printed in bold face.

ANNOTATED LIST OF BASIONYMS

ASTER L.

acaulis Wedd., *Chloris* and. 1 : 189, *tab.* 33A (1857). SYNTYPES (citation) : "Hab. PÉROU : département de Cuzco! (Gay). — BOLIVIE : région alpine des Cordillères de la province d'Ayopaya!, dans le département de Cochabamba (Wedd.)" [Lectotype :

- Weddell* s.n. (designated by ZARDINI, 1985), P !]. Paralectotype : *C. Gay* 462, P ! = *Noticastrum marginatum* (Kunth) Cuatrec. fa. *acaulis* (Wedd.) Cuatrec.
- acris* L. var. β ? *trinervis* Pers., Syn. Pl. 2 : 442 (1807). TYPE : *Jussieu* s.n., "H. P." (holo-, P-LA ! ; possible iso-, LINN 997.22 ! and 997.23 !). JUSSIEU actually supplied the name *A. trinervis*, on the label of the holotype ; it was published, *pro syn.*, by LAMARCK under his unnamed *A. acris* var. β , Encycl. 1 : 304 (1783). The two specimens in the Linnaean herbarium came from Herb. Banks ; they are labelled "*Aster trinervius* Jussieu" [*nomen!*, *non* Roxb. 1814]. = *A. sedifolius* L. subsp. *trinervis* (Pers.) Thell. [See also the entry for *A. trinervis*].
- acuminatus* Michaux, Fl. bor.-amer. 2 : 109 (1803). TYPE : *Michaux* s.n., "Hab. in Canada." (holo-, P-MICHX ! ; iso-, P-JU !).
- **adnatus* Nutt., J. Acad. Nat. Sci. Philadelphia 7 : 82 (1834). TYPE : *Nuttall* s.n., W. Florida, 1830 [lectotype (designated herein), BM ! ; iso-, GH !, P !].
- amoenus* Juss. ex Lam., Encycl. 1 : 306 (1783). TYPE : *Jussieu* s.n., "H. R." (holo-, P-LA !). = *A. puniceus* L. var. *puniceus*.
- **amplexicaulis* Lam., Encycl. 1 : 304 (1783). SYNTYPES (citation) : « Cette plante croît dans l'Amérique septentrionale : on la cultive au Jardin du Roi. » [lectotype : "*Aster novae-angliae*. H. R." (designated herein), P-LA !]. The paralectotype : "*Aster Canadensis subhirsutus...*", P-TOURN !, belongs in a different species, i.e., this is a *nomen ambiguum*. = *A. novae-angliae* L. var. *novae-angliae* (the paralectotype is referable to *A. puniceus*).
- amplexicaulis* Michaux, Fl. bor.-amer. 2 : 114 (1803), *non* Lam. (1783) *nec* Muhl. ex Willd. (1803). TYPE : *Michaux* s.n., South Carolina, Bath [holo-, P-MICHX ! ; iso-, P(3) !]. = *A. patens* Aiton var. *patens*.
- **amygdalinus* Lam., Encycl. 1 : 305 (1783). SYNTYPES (citation) : "... l'Amérique septentrionale, la Virginie : on la cultive au Jardin du Roi." [lectotype : "*Aster divaricatus*. H. R." (designated herein), P-LA ! ; iso-, P-JU !]. Paralectotype : "*Aster Acadensis...*", P-TOURN ! = *A. umbellatus* Miller var. *umbellatus*.
- **anomalus* Engelm. in Torrey & Gray, Fl. N. Amer. 2 : 503 (1843). TYPE : *Engelmann* s.n., St. Louis, Sept. 1842 [lectotype (designated herein), NY ! (the sheet was annotated by A.G.J. in 1979 as "assumed holotype") ; possible iso- (in part merely authentic specimens ?), GH !, K !, P !, PH !, WIS !].
- argenteus* Michaux, Fl. bor.-amer. 2 : 111 (1803). TYPE : *Michaux* s.n., "Hab. in rupibus ripariis fluminis *Missouri*." [holo-, P-MICHX ! (mounted on the same sheet with authentic material collected by MICHAUX in Illinois) ; iso-, P(2) !]. = *A. sericeus* Vent. var. *sericeus*.
- **ascendens* Lindley in Hooker [as *adscendens*] var. *parryi* D. Eaton in S. Watson, Bot. King's exp. : 139 (1871). SYNTYPES (citation) : "Colorado (417 *Parry*, 253 *Hall & Harbour*, in part). In valleys and along creeks, from the East Humboldt Mountains to the Uintas ; July-October. [S. Watson] 497." [lectotype : *Parry* 417 (designated by A.G.J. in 1981, and validated herein), GH ! ; iso-, CU !, K !, P !, PH !]. Paralectotype : *Hall & Harbour* 253 (at least in part), P ! = *A. foliaceus* var. *parryi* (D. Eaton) A. Gray.

azureus Lindley in Hooker, Comp. Bot. Mag. 1 : 98 (1835). TYPE : *Drummond s.n.*, St. Louis, 1831 [lectotype (designated by JONES, 1983), CGE! ; iso-, CGE!, P!]. = *A. oolentangiensis* Riddell var. *oolentangiensis*.

bernardinus H. M. Hall, Univ. Calif. Publ. Bot. 3 : 79 (1907). TYPE : *S.B. Parish 5543*, California, San Bernardino County, vicinity of San Bernardino, 5.9.1905 [holo-, UC! ; iso-, BM(2)!, G!, GH!, K!, MO(2)!, P!, POM!, RM!, UC!, WTU!]. This is probably an allopolyploid hybrid derivative (ALLEN, 1983, 1986), recognized herein as a distinct species.

biflorus Michaux, Fl. bor.-amer. 2 : 114 (1803). TYPE : *Michaux s.n.*, "Hab. in septentrionalibus Canadae, juxta lacus amnesque in sinum *Hudsonis* defluentes." [holo-, P-MICHX! ; possible iso-, P! (several pieces on one sheet)]. = *A. radula* Aiton var. *strictus* (Pursh) A. Gray.

bigelovii A. Gray in Torrey & Gray, Expl. railroad Mississippi Pacific 4 : 97, tab. 10 (1857). TYPE : *Bigelow s.n.*, New Mexico, Sandia Mts., Oct. 1853 (holo-, GH! ; iso-, P!). = *Machaeranthera bigelovii* (A. Gray) E. Greene.

**blepharophyllus* A. Gray, Smithsonian Contr. Knowl. 5(6) : 77 (1853). TYPE : *Wright 1164*, New Mexico, Hidalgo County, Las Playas Springs, 7.10.1851 [lectotype (designated by A.G.J. in 1982, and validated herein), GH! ; iso-, CGE!, GH(2)!, P!, PH!]. = *Machaeranthera riparia* (Kunth) A. G. Jones.

caricifolius Kunth in H.B.K., Nov. gen. sp. 4 : 92, tab. 333 (1820). TYPE : *Humboldt & Bonpland 4168*, Mexico, "Crescit in ruderalis prope urbem Mexici." [holo-, P-HBK! ; iso-, P! ; possible iso-, B-W 15879! (cf. JONES & HIEPKO, 1981)]. Authentic specimens (incorrectly marked "isotypes" by CUATRECASAS) : *Humboldt & Bonpland 4303*, P! The drawing in tab. 333 is a perfect rendering of the specimen in the H.B.K. herbarium. = *A. pauciflorus* Nutt.

castaneus Burgess in Small, Fl. s. e. U. S. : 1211, 1339 (1903). TYPE : *Burgess s.n.*, New York, Yonkers, Hillview, 15.9.1897 [lectotype (designated by WETTER & GRIMES, 1982), NY! ; possible iso-, P!]. The specimen at P is marked as "isotype" on the typed label. It is not identical to the lectotype, however, i.e., it clearly came from a different plant and perhaps should be regarded as a paralectotype, rather than an isolecotype. = *A. divaricatus* L. s.l.

coerulescens DC., Prodrum 5 : 235 (1836). TYPE : *Berlandier 510* (= no. 1885), Comancheros oriental du Texas, 1828 [holo-, G-DC! ; iso-, BM!, G!, G-DC!, GH!, K!, MO!, P(2)!]. = *A. praealtus* Poir. var. *coerulescens* (DC.) A. G. Jones.

cordifolius L. var. *incisus* Britton, Bull. Torrey Bot. Club 19 : 224 (1892). TYPE : *Moser s.n.*, Pennsylvania, [Monroe County], Pocono Mtn., Aug. 1832 [holo-, NY! ; probable iso-, BM!, MO!, P(2)!]. The original printed labels of all the specimens read : "*Aster adulterinus?* Herb. Schwz." = *A. cordifolius* subsp. *laevigatus* (Porter) A. G. Jones var. *lanceolatus* Porter.

**coridifolius* Michaux, Fl. bor.-amer. 2 : 112 (1803). TYPE : *Michaux s.n.*, "Hab. in aridis sylvarum Carolinae inferioris." [lectotype (designated herein), P-MICHX! ; iso-, P-MICHX!, P! (several sheets)]. = *A. dumosus* L. near var. *dumosus*.

- crocifolius* Kunth in H.B.K., Nov. gen. sp. 4 : 89, tab. 332 (1820). TYPE : *Humboldt & Bonpland* 3353, Ecuador, "Crescit locis frondosis juxta urbem Loxa Novo-Granatensium, alt. 1060 hex." (holo-, P-HBK !). = ***Oritrophium crocifolium*** (Kunth) Cuatrec.
- delectus* Piper, Contr. U. S. Natl. Herb. 16 : 210 (1913). TYPE : *Cusick* 2761, Oregon, Klamath County, Sycan River, 15.8.1901 (holo-, US 411493 ! ; iso-, G !, GH !, K !, MSC !, ND-G !, P !, POM !, RM !, UC !, WS !). PIPER had originally labelled the type "*A. occidentalis detectus*", but that combination was never published. = ***A. occidentalis*** (Nutt.) Torrey & Gray s.l.
- diabolicus* Piper, Bull. Torrey Bot. Club 29 : 645 (1902). TYPE : *Cusick* 2670, Oregon, Crook County, "gravelly bars of Squaw Creek," 17.7.1901 (holo-, WS 52404 ! ; iso-, CU !, G !, GH !, MSC !, ND-G !, P !, RM !, WS !). The many isotypes examined exhibit some degree of variability. = ***A.*** near ***subspicatus*** Nees (with influence of other species).
- diversifolius* Michaux, Fl. bor.-amer. 2 : 113 (1803). TYPE : *Michaux s.n.*, "Hab. in Carolina." [holo-, P-MICHX ! ; iso-, P(2) !]. = ***A. undulatus*** L. var. ***asperulus*** (Torrey & Gray) Wood.
- **douglasii* Lindley in Hooker, Fl. bor.-amer. 2 : 11 (1834). TYPE : *Douglas s.n.*, "near the confluence of the Columbia" [lectotype (annotated as "type" by several authors, e.g., EASTWOOD in 1935, and validated herein), CGE ! ; iso-, BM ! ; possible fragments of the type material (marked "low moist grassy plains on the Columbia, 1825"), perhaps = isoelectotypes, P(2) !]. = ***A. subspicatus*** s.l.
- dracunculoides* Lam., Encycl. 1 : 303 (1783). TYPE (citation) : "... Jardin du Roi." (holo-, P-LA !). = ***A. sedifolius*** s.l.
- dumosus*** L. var. ***gracilipes*** Wieg., Rhodora 30 : 166 (1928). TYPE : *A. H. Curtiss* 5345, Florida, [Duval County], pine barrens near Jacksonville, 1894 (holo-, CU ! ; iso-, FSU !). Paratype : *A. H. Curtiss* 1239, P ! This variety recognized and the name adopted. The paratype at P, however, resembles more the type of var. *pergracilis* Wieg., l. c.
- ****dumosus*** var. γ ***subulaefolius*** Torrey & Gray, Fl. N. Amer. 2 : 128 (1841). SYNTYPES (citation) : "Texas, [San Felipe de Austin, 1835] *Drummond* [156] ! Western Louisiana, *Dr. Leavenworth* !" [lectotype : *Drummond* 156 (actually designated by A. GRAY's annotation for "Syn. fl. N. Amer.", and validated herein), GH ! ; iso-, BM !, K(2) !, P !]. Paralectotype : *Leavenworth s.n.*, P ! This taxon recognized = ***A. dumosus*** var. ***subulifolius***.
- ****ehrenbergii*** Schultz-Bip. in Seemann, Bot. voy. Herald : 302 (1856). SYNTYPES (citation) : "Mexico, *C. Ehrenberg* ! n. 791 et 947 in Herb. Reg. Berol." [lectotype : *Ehrenberg* 791b (designated and annotated by A.G.J. in 1983, but imprecisely published as no. "791", JONES, 1984a), P ! ; iso-, CGE ! ; fragment of *Ehrenberg* 791a, P !]. Paralectotype : *Ehrenberg* 947, P ! The specimens at B were apparently destroyed in 1943 (HIEPKO, pers. comm.). = ***A. moranensis*** Kunth s.l.
- elegans*** (Nutt.) Torrey & Gray var. ***engelmannii*** D. Eaton in S. Watson, Bot. King's exp. : 144 (1871). SYNTYPES (citation) : "Cascade Mountains, latitude 49°, (*Lyall*), to

Colorado. East Humboldt and Clover Mountains, Nevada, Wahsatch [sic!] and Uintas; 7-10,000 feet altitude, July-September. [Watson] 515." [lectotype : *Watson* 515 (designated by CRONQUIST, 1955), US? (not seen)]. Paralectotype : *Lyall* s.n., P! LYALL's collection constitutes a part of the original material cited for *A. engelmannii* A. Gray, Amer. J. Sci., ser. 2, 33 : 238 (1862), *nom. nud.* However, CRONQUIST's lectotypification of the more recent WATSON collection, cited by EATON for the validly published varietal name, must be upheld. = *A. engelmannii* (D. Eaton) A. Gray (validly published in Syn. fl. N. Amer., 1884).

elmeri Piper, Bull. Torrey Bot. Club 29 : 645 (1902), *non* E. Greene (1891). TYPE : *Elmer* 571, Washington, Okanogan County, in rich bottoms of Sinlahekin Basin, near Loomiston (holo-, US 529906! ; iso-, P!). = *A. subspicatus* s.l. [syn. : *A. okanoganus* Piper (see corresponding entry)].

engelmannii (D. Eaton) A. Gray var. *glaucescens* A. Gray, Syn. fl. N. Amer. 1(2) : 200 (1884). SYNTYPES (citation) : "Washington Terr. : on Mt. Paddo [= Mt. Adams], and Sincoe [sic!] Mountains, *Suksdorf*, *Howell*. N. California, mountains of Siskiyou Co., *Greene*, *Pringle*." [lectotypification is needed but must be postponed until more information is available. Probable syntype at P! : *Pringle* 1002, California, Mts. about the headwaters of the Sacramento River]. = *A. glaucescens* (A. Gray) S. F. Blake.

ensatus E. Greene, Pittonia 4 : 223 (1900). TYPE : *S.B. Parish* 3818, California, San Bernardino County, vicinity of San Bernardino, el. 300-500 m, 15.10.1895 (holo-, ND-G 55319! ; iso-, G!, GH!, P!). = *A. hesperius* A. Gray var. *hesperius*.

ensifer Bosserdet, Taxon 19 : 250 (1970). TYPE : *Robinson & Fernald* 65, Massachusetts, Cambridge, 2.10.1901 (holo-, P! ; iso-, ILL!). = *A. subulatus* Michaux var. *subulatus*.

**ericoides* L. var. *strictus* Porter in Porter & Goulter, U.S. Dept. Interior Misc. Publ. 4 : 56 (1874). SYNTYPES (citation) : "In the mountains at middle elevations, *Hall & Harbour*, 254. Near Denver, *Coulter*. Foothills west of Denver, *Porter* ; *Meehan* ; *Hoopes*." [lectotype (designated herein) : *Hall & Harbour* 254, GH! ; iso-, G!, K!, P(2)!]. = *A. porteri* A. Gray.

foliaceus Lindley in DC. var. *apricus* A. Gray, Syn. fl. N. Amer. 1(2) : 193 (1884). SYNTYPES (citation) : "High mountains of Colorado, at Union Pass, *Rothrock*, and near Gray's Peak, at 11,000-12,000 feet, in open and very dry places, *Patterson*. On Mt. Paddo [= Mt. Adams], Washington Terr., *Suksdorf*, *Howell*, the latter in a taller form, and looking toward *A. spathulatus*." [lectotype : *Wolf & Rothrock* 521 (designated by CRONQUIST, 1943), GH!]. Paralectotype : *Howell* s.n., "Mt. Adams" etc., 12.8.1882, P! This variety recognized, and the name adopted. The HOWELL collection at P, however, represents "the taller form" cited in the protologue, and probably belongs in or near var. *parryi*.

**foliaceus* var. *burkei* A. Gray, Syn. fl. N. Amer. 1(2) : 193 (1884). SYNTYPES (citation) : "Rocky Mountains, *Burke* in Herb. Hook. Simkoe Hills, Washington Terr. *Howell*. Wahsatch [sic!] Mountains at Alta, Utah, *M.E. Jones*. Mogollon Mountains, New Mexico, and Arizona, *Rusby*." [lectotype : *Burke* s.n. (received from Herb. Hooker ;

- designated by CRONQUIST's annotation as "type" in 1940, and validated herein), GH!; iso-, K!). Two paralectotypes, P! : *M.E. Jones 1226*, and *Rusby 689*. = *A. foliaceus* s.l. [The lectotype probably belongs in (or near) var. *foliaceus*, but the two paralectotypes at P, although morphologically similar, may be referable to var. *canbyi* A. Gray].
- fremontii* (Torrey & Gray) A. Gray var. *parishii* A. Gray, Syn. fl. N. Amer. 1(2) : 192 (1884). TYPE : *Parish & Parish 180*, southeastern California, Bear Valley in the San Bernardino Mountains (holo-, GH!; iso-, M!, P!). = *A. occidentalis* var. *parishii* (A. Gray) Ferris.
- gooddingii* Onno, Bibl. Bot. 26 (Heft 106) : 18 (1932). This is a renaming of *Xylorhiza scopulorum* A. Nelson under *Aster* (see corresponding entry). = *X. tortifolia* (Torrey & Gray) E. Greene.
- **graveolens* Nutt., Trans. Amer. Philos. Soc., n.s., 7 : 294 (1841). SYNTYPES : *Nuttall s.n.*, "on the banks of the Arkansa [sic!] and Missouri." [lectotype : "Arkansas, 1825" (marked "type or isotype" by SHINNERS, and validated herein), PH! (Schweinitz herbarium); iso-, BM!, P!]. = *A. oblongifolius* Nutt. s.l.
- **grayi* Suksd., Werdenda 1 : 41 (1927). SYNTYPES : Washington, Klickitat County, "Am Bachufer im Falkentale, 21 Sept. 1885, [Suksdorf] Nr. 767; 22 Aug. 1926, [Suksdorf] Nr. 12062." [lectotype : *Suksdorf 12062* (validated herein), WS 138225!; iso-, BM!, GH(2)!, ILL!, MO!, WS!, WTU!]. The lectotype had been marked in 1929 by an unknown person as "type specimen" and was incorrectly annotated as "holotype" by A.G.J. in 1983. Paralectotype : *Suksdorf 767*, P! = *A.* near *subspicatus* (with influence of other species).
- **hesperius* A. Gray, Syn. fl. N. Amer. 1(2) : 192 (1884). SYNTYPES (citation) : "Damp soil and along streams, S. Colorado and New Mexico to Arizona and S. California ... coll. by Wright, Greene, Rothrock, Cleveland, Parish, Lemmon, &c." [lectotype : *Parish & Parish 564*, California, San Bernardino Valley, Oct. 1881 (designated by A.G.J. in 1981, and validated herein), GH!; iso-, M!, MO!, P!]. The many syntypes studied (including paralectotypes at BM!, CGE!, GH!, MO!, ND-G!, etc.) exhibit a certain degree of variability. We are, at this time, adopting the name. Most plants so named are closely related to and perhaps conspecific with *A. longifolius* Lam.
- hesperius* var. *wootonii* E. Greene, Bull. Torrey Bot. Club 15 : 119 (1898). TYPE : *Wooton 329*, New Mexico, Lincoln County, White Mts., 12.8.1897 (holo-, ND-G 55427!; iso-, G!, GH!, K!, MO!, NY!, P!).
- hirtellus* Lindley in DC., Prodrum 5 : 233 (1836). TYPE : *Drummond s.n.*, St. Louis, 1831 (holo-, CGE!; probable iso-, P!). = *A. urophyllus* Lindley.
- hispidus* Lam., Encycl. 1 : 307 (1783). TYPE (citation) : "... cultivée au Jardin du Roi." [holo-, P-LA!; iso-, P! ("Herb. Poiret in Herb. Moquin-Tandon")]. = *A. puniceus* s.l.
- **infirmus* Michaux, Fl. bor.-amer. 2 : 109 (1803). SYNTYPES (citation) : "*A. caule infirmo, folius ovatis, &c. Gronovii. Plukn. t. 79. f. 1. Hab. a Canada ad Carolinam, per tractus montium.*" [lectotype (designated herein), BM!]. This is the name-

- bringing collection in the Gronovius Herbarium. Paralectotypes : *Michaux s.n.*, P-MICHX! (3 pieces on one sheet, probably from at least two different collections).
- jalapensis* Fern., Proc. Amer. Acad. Arts 35 : 572 (1900). TYPE : *Pringle 8118*, Mexico, Veracruz, Barranca de Chavarillo, el. 920 m, 24.4.1899 (holo-, GH! ; iso-, BM!, CM!, G!, M!, MO!, MSC!, ND-G!, P!, RM!). = *A. bullatus* Schultz-Bip. ex Klatt.
- junciformis* Rydb., Bull. Torrey Bot. Club 37 : 142 (1910). TYPE : *Flodman 833*, Montana, East Gallatin Swamps, 24.7.1896 (holo-, NY! ; iso-, MO!, ND-G!, NY!). Paratype : *Shaw 1081*, British Columbia, 3.8.1905, P! = *A. borealis* (Torrey & Gray) Prov., or near (the SHAW collection exhibits genetic influence of *A. subspicatus*).
- laetevirens* E. Greene, Pittonia 4 : 219 (1900). SYNTYPES (many collections cited, the citation in part) : “ ... Wyoming and adjacent Colorado ... nearly all from Mr. A. Nelson ... numbers in the order of excellence of their character as types. [*A. Nelson*] No. 5293, from Hutton's Lake, Albany County [Wyoming], 1898 ... ” [lectotype (designated by CRONQUIST, 1943), GH! ; iso-, CU!, G!, MO!, ND-G(2)!, NEB(2)!, P!, RM!]. The type material examined is somewhat variable, showing (in part) influences of other taxa. = *A. hesperius* var. *wootonii* (or near).
- **laevigatus* Lam., Encycl. 1 : 307 (1783). SYNTYPES (citation) : “ ... originaire de l'Amérique septentrionale, & cultivée au Jardin du Roi. ” [lectotype : “ H. R. ” (designated herein), P-LA!]. Paralectotype (incorrectly marked as “ isotype ”) : “ *Aster serotinus ramosus alter flore purpurascens*. Juss. ”, P-JU! = *A. novi-belgii* L. s.l.
- **lamarckianus* Nees, Gen. sp. Aster. : 100 (1832). This is renaming of *A. paniculatus* Lam. non Miller, lectotypified herein (see entry for that name). Authentic specimens from the herbarium of NEES VON ESENBECK (GH!, G-DC!) correspond to the lectotype of *A. paniculatus* Lam., i.e., they belong in *A. lanceolatus* Willd. subsp. *lanceolatus*.
- laurentianus* Fern. var. *contiguus* Fern., Rhodora 16 : 60, tab. 109, fig. 5 (1914). TYPE : *S. F. Blake 5645*, New Brunswick, Gloucester County, Tracadie, 10.9.1913 (holo-, GH! ; iso-, CU!, P!). = *Brachyactis ciliata* (Ledeb.) Ledeb. subsp. *laurentiana* (Fern.) A. G. Jones.
- **laxifolius* Nees var. γ ? *laetiflorus* Torrey & Gray, Fl. N. Amer. 2 : 138 (1841). SYNTYPES (citation) : “ Milwaukie [sic!], Wisconsin, *Dr. Lapham*! Columbus, Ohio, *Mr. Sullivant*! Sept.-Oct. ” [lectotype : *Lapham s.n.* (designated by A.G.J. in 1983, and validated herein), GH! ; iso-, K!, WIS(2)!]. Paralectotype : *Sullivant s.n.*, P! = *A. borealis* (or near).
- lemmoni* A. Gray, Syn. fl. N. Amer. 1(2) : 199 (1884). SYNTYPES (citation) : “ S. Arizona : Santa Rita Mountains, *Pringle*, and Huachuca Mountains, *Lemmon*. ” [lectotype : *Lemmon 2743* (designated by JONES, 1984a), GH!]. Paralectotypes : *Pringle s.n.*, P! ; *Lemmon 2742*, P(2)! = *A. potosinus* A. Gray.
- leonis* Britton, Mem. Torrey Bot. Club 16 : 114 (1920). TYPE : *Léon & Cazanias 5753*, Cuba, Prov. Havana, W of Batabanó, 7.12.1915 (holo-, NY! ; iso-, P!).
- lindenii* Schultz-Bip. in Seemann, Bot. voy. Herald : 302 (1856). TYPE : *Linden 1170*, Mexico, Veracruz, “ in savannis Miradoris, ” Jan. 1839 [lectotype (designated by JONES, 1984a), P! (this may be the holotype) ; iso-, G(2)!]. = *A. moranensis* s.l.

- **linguiformis* Burgess in Small, Fl. s. e. U. S. : 1217, 1339 (1903). TYPE : *A. H. Curtiss* 5343, Florida, Jacksonville, 27.10.1894, in part [holo-, lost (fide WETTER & GRIMES, 1982) ; lectotype (designated by A.G.J. in 1983, and validated herein), US 226061 ! ; iso-, K 66 !]. There is a duplicate of the type number at P that was annotated as "isolectotype" by A.G.J. in 1983, but clearly came from a different plant than the lectotype. CURTISS customarily applied his numbers to species, rather than individual collections. The specimen at P resembles US 226062 ! and K 65 ! = elements of *Curtiss* 5343 that belong in the same taxon, but should probably be regarded as paralectotypes, rather than isoelectotypes. = ***A. undulatus* var. *asperulus***.
- **longifolius* Lam., Encycl. 1 : 306 (1783). SYNTYPES (citation) : "... originaire de l'Amérique septentrionale, & cultivée au Jardin du Roi." [lectotype : "H. R." (designated herein), P-LA ! ; iso-, P ! ("Herb. Poiret in Herb. Moquin-Tandon")]. Paralectotype : "*Aster Canadensis longissimo* ... Juss.", P-JU ! (the several pieces on this sheet do not quite match the lectotype). This name adopted. The paralectotype essentially fits within the circumscription of this species, exhibiting perhaps some genetic influence of *A. novi-belgii*.
- **marginatus* Kunth in H.B.K., Nov. gen. sp. 4 : 91 (1820). TYPE : *Humboldt & Bonpland* s. n., Colombia, Santa Fe de Bogotá [lectotype (designated herein), P-HBK ! (the specimen was annotated and regarded as the holotype by CUATRECASAS, 1969, but there is a second sheet) ; iso-, P-HBK !]. = ***Noticastrum marginatum***.
- marginatus* var. *tomentosus* Wedd., Chloris and. 1 : 188 (1857). TYPE : *Philippi* 338, Chile, Prov. Valdivia, San Juan, 1855 (holo-, P ! ; iso-, P !). This is also the type material of *Noticastrum philippii* Schultz-Bip., nom. nud. (see corresponding entry). = ***Noticastrum sericeum* (Less.) Less. ex Philippi**.
- meritus* A. Nelson, Bot. Gaz. 37 : 268 (1904). TYPE : *A. & E. Nelson* 6754, Wyoming, Yellowstone Natl. Park (holo-, RM 20788 !). Paratype : *A. & E. Nelson* 6610, P ! = ***A. sibiricus* L. var. *meritus* (A. Nelson) Raup** (the paratype at P is a somewhat larger-leaved and coarser plant than the holotype, perhaps verging toward *A. radulinus* A. Gray).
- moranensis* Kunth in H.B.K., Nov. gen. sp. 4 : 93 (1820). TYPE : *Humboldt & Bonpland* 4113, "in montibus Mexicanorum inter Cerro Ventoso et Sodinam Moran." (holo-, P-HBK !).
- nelsonii* E. Greene, Pittonia 4 : 219 (1900). TYPE : *A. Nelson* 5326, Wyoming, Albany County, Fisher's Ranch (holo-, ND-G 55614 ! ; iso-, COLO !, P !, RM !). Paratype : *A. & E. Nelson* 6868, P ! = ***A. near ascendens* (with influence of other species)**.
- **novi-belgii* L., Sp. pl. 2 : 877 (1753). SYNTYPES (citation) : "Hort. cliff. 408. Hort. ups. 262." [lectotype : "Hort. cliff. 408" (designated and annotated by W. T. STEARN, and validated herein), BM !]. A specimen at P (!) from "Herb. A. L. de Bunge" may have come from the original stock of this Linnaean species at "Hort. Lugd. Bat.". The plant is nearly identical to the lectotype.
- nudicaulis* Lam., Encycl. 1 : 308 (1783). TYPE : *Commerson* 33, "terres de Magellan" (holo-, P-LA !). = ***Lagenifera nudicaulis* (Lam.) Dusén**.

oblongifolius Nutt. var. **rigidulus** A. Gray, Syn. fl. N. Amer. 1(2) : 179 (1884). TYPE : *Th. Kumlien*, Wisconsin, Dane County, Albion, "in distrib. Mus. Ups. no. 5." (holo-, GH! ; iso-, P!). This variety recognized and the name adopted (GRAY cited, *pro syn.*, *A. Kumleini* [sic!] Fries, an illegitimate name).

***occidentalis** (Nutt.) Torrey & Gray var. **intermedius** A. Gray, Syn. fl. N. Amer. 1(2) : 192 (1884). SYNTYPES (citation) : "Wet meadows, Falcon Valley, &c., Washington Terr., *Suksdorf*, *Howell*, *Brandegee*, and N. California, *Pringle*." [lectotype : *Suksdorf* 62 (marked "type" by CRONQUIST in 1940, and validated herein), GH!]. Paralectotype : *Suksdorf* 357, P! This variety tentatively recognized and the name adopted. The plants exhibit characteristics that suggest influences of *A. hendersonii* Fern. and *A. laevis* L.

ochraceus Kunth in H.B.K., Nov. gen. sp. 4 : 94 (1820). TYPE : *Humboldt & Bonpland s.n.*, Ecuador, "Crescit in montibus Quitensibus?" (holo-, P-HBK!). = **Diplostegium ochraceum** (Kunth) Nees.

okanoganus Piper, Proc. Biol. Soc. Wash. 29 : 101 (1916). This name is an avowed substitute for *A. elmeri* Piper *non* E. Greene (see corresponding entry). = **A. subspicatus** s.l.

palmeri A. Gray, Proc. Amer. Acad. Arts 17 : 209 (1882). SYNTYPES (citation) : "S. Texas at Corpus Christi Bay and on the Rio Grande at Eagle Pass, September and December 1879." *E. Palmer* 509 and 516 [lectotype : *Palmer* 516 (designated by M. C. JOHNSTON, 1967), GH! ; iso-, K!, P!]. The lectotype is also the holotype of *Ericameria austrotexana* M. C. Johnston (see corresponding entry). Paralectotype : *Palmer* 509, P! = **Ericameria austrotexana** [syn. : *Isocoma palmeri* (A. Gray) Shinnery]. Specimens seen of *Palmer* 509 are variable, and some of them may not belong in this species.

***paniculatus** Lam., Encycl. 1 : 306 (1783), *non* Miller (1768). SYNTYPES (citation) : "... l'Amérique septentrionale : on la cultive au Jardin du Roi." [lectotype : *Tournefort* 482, "*Aster serotinus procerior ramosus*" (designated herein), P-TOURN!]. There is no specimen of this name in the LAMARCK herbarium. A questionable duplicate of LAMARCK's plant at P! ("Herb. Poiret in Herb. Moquin-Tandon"), and the syntype (= lectotype) belong in two different species, but usage of the above name in the older literature is preserved with this lectotypification. = **A. lanceolatus** Willd. subsp. **lanceolatus** [syn. : *A. lamarckianus* Nees (see corresponding entry)]. The questionable specimen from Herb. Poiret belongs in or near *A. novi-belgii*.

patentissimus Lindley in DC., Prodrum 5 : 232 (1836). TYPE : *Drummond s.n.*, St. Louis, 1831 (holo-, CGE! ; iso-, P!). = **A. patens** Ait. var. **patentissimus** (Lindley) Torrey & Gray.

***pattersonii** A. Gray, Proc. Amer. Acad. Arts 13 : 372 (1878). SYNTYPES (citation) : "... along branch of Clear Creek flowing from Torrey and Gray's Peaks. Dr. Parry, 1872 ; H. N. Patterson ... 1876 ; J. D. Hooker and Gray, 1877." [lectotype : *Hooker & Gray s.n.* (designated by A.G.J. in 1984, and validated herein), GH!]. Paralectotype : *C. C. Parry s.n.*, P! = **Machaeranthera pattersonii** (A. Gray) E. Greene.

- *patulus* Lam., Encycl. 1 : 308 (1783). SYNTYPES (citation) : “... originaire de l’Amérique septentrionale, & cultivée au Jardin du Roi.” [lectotype : “H. R.” (designated herein), P-LA !]. Paralectotype : “*Virga aurea patula* ... Tournef. 484.”, P-TOURN ! (this specimen may have come from the original stock of the plant cultivated in the Jardin du Roi). A putative hybrid : *A. cf. ciliolatus* Lindley (or *A. cordifolius* ?) × *A. puniceus*.
- pellitus* Kunth in H.B.K., Nov. gen. sp. 4 : 91 (1820). TYPE : *Humboldt & Bonpland* 3087, Colombia, “Crescit in montosis Andium Novo-Granatensium in radicibus Parami de Puntas, locis uliginosis, alt. 1680 hex.” [holo-, P-HBK ! ; possible iso-, B-W 15878 ! (cf. JONES & HIEPKO, 1981)]. = ***Oritrophium peruvianum*** (Lam.) Cuatrec.
- phylicoides* Kunth in H.B.K., Nov. gen. sp. 4 : 93 (1820). TYPE : *Humboldt & Bonpland s.n.*, [Colombia ?], “Crescit in Nova Hispania ?” (holo-, P-HBK !). = ***Diplostegium phylicoides*** (Kunth) Wedd.
- phyllolepis* Torrey & Gray, Fl. N. Amer. 2 : 113 (1841). SYNTYPES (citation) : “Texas, *Berlandier* ? *Drummond* ! Western Louisiana, *Dr. Leavenworth* ! *Dr. Hale* !” (lectotypification is needed but not possible at this time). Probable syntype : *Drummond s.n.* (marked “? Texas II” by SCHULTZ-BIP.), P ! = *A. sericeus* var. ***microphyllus*** DC.
- *porteri* A. Gray, Proc. Amer. Acad. Arts 16 : 99 (1881). This is a renaming necessitated by the recognition, at species rank, of *A. ericoides* var. *strictus* Porter in Porter & Coulter (1874) ; see corresponding entry [lectotype : *Hall & Harbour* 254 (designated herein), GH ! ; iso-, G !, K !, P(2) !]. The lectotype and several isoelectotypes, including one of the specimens at P, are mounted on the same sheet with pieces of an authentic collection (cited by GRAY) : *C. C. Parry* 418. In 1983, A.G.J. had incorrectly annotated a specimen of the latter at GH as the lectotype of *A. porteri*. That lectotypification cannot be upheld, because PARRY’s collection was not cited among the syntypes of PORTER’s varietal name.
- potosinus* A. Gray, Proc. Amer. Acad. Arts 15 : 32 (1880). TYPE : *Parry & Palmer* 384, Mexico, San Luis Potosí, Lat. 22° N, 1878 (holo-, GH ! ; iso-, BM !, P !).
- praealtus* Poir. var. ***imbricator*** Wieg., *Rhodora* 35 : 26 (1933). TYPE : *Ness s.n.*, Texas, College Station, 1896 (holo-, CU !). Paratype : *Lindheimer* 883, Texas, New Braunfels, 1851, P !
- *proteus* Burgess in Small, Fl. s. e. U. S. : 1216, 1339 (1903). TYPE : *A. H. Curtiss* 1278* (in part), northeastern Florida, Duval County, October [lectotype (designated by A.G.J. in 1983, and validated herein), US 19043 ! ; probable iso-, BM !, M !, NCU !, ND-G !, NEB !, NY !, P !]. CURTISS’ numbers were generally applied to the species, rather than individual collections. = *A. undulatus* var. ***asperulus***.
- proximus* E. Greene, *Pittonia* 4 : 220 (1900). SYNTYPES (citation) : “... Mr. Nelson’s n. 6788, from Madison River, Yellowstone Park, and n. 2478, from Pass Creek, Wyoming.” [lectotype : *A. & E. Nelson* 6788 (designated by CRONQUIST, 1955), ND-G 55873 ! ; iso-, BM !, ND-G !, ILL !, RM !]. Paralectotype : *A. Nelson* 2478, P ! = *A. eatonii* (A. Gray) Howell.
- pubescens* Lam., Encycl. 1 : 307 (1783). TYPE (citation) : “... a été envoyée de l’Angleterre au Jardin du Roi.” (holo-, P-LA !). = *A. tataricus* L.f.

puniceus L. var. *colbyi* Benke, Amer. Midl. Naturalist 16 : 426 (1935). TYPE : *Colby* 5715, Wisconsin, Wood County, Pittsville, 7.9.1934 [holo-, F (not seen) ; iso-, BM!, P!].
= **A. puniceus** s.l. (a form with rose-red ligules).

purpurascens* Schultz-Bip. in Seemann, Bot. voy. Herald : 303 (1856). TYPE : *Ehrenberg* 474, Mexico, Real del Monte, "in Herb. Reg. Berol." (lectotype, P!). This lectotypification was suggested by BEAMAN's annotation (1963), in the case that the holotype at B was destroyed in 1943. HIEPKO (pers. comm.) has confirmed that the type is not at B, and lectotypification of this name with the specimen at P is validated herein. = **A. moranensis s.l.

purpuratus* Nees, Gen. sp. Aster. : 118 (1832), *pro parte* (excl. coll. *Horto Argentoratensi* and *Herb. Nestler*), and DC., Prodrum 5 : 244 (1836). TYPE : "*Aster miser* Hort. Par.", i.e., *sensu* Lam., Encycl. 1 : 308 (1783), *non* L. (1753) [holo-, P-LA! (published as such by JONES, 1984a)]. Perhaps the single specimen at P-LA more accurately should be regarded as the lectotype, because it is only a part (= syntype) of NEES's citation. = **A. laevis L. var. *purpuratus* (Nees) A. G. Jones.

quiescens* Burgess, Mem. Torrey Bot. Club 13 : 382, fig. 101 (1906). TYPE : not specified! BURGESS cited many "Examples included" from five different localities [lectotype : *Burgess s.n.*, New Jersey, Palisades Park "no. 10," 7.10.1899 (designated by BURGESS' annotation as "Type" and validated herein), NY!]. This specimen consists of only a sterile piece of two basal leaves, and WETTER & GRIMES (1982) did not regard it as the type collection. However, it may be a part of the plant depicted in fig. 101. Under the incorrect assumption that no type was designated, A.G.J. (in 1983) had annotated as lectotype an authentic specimen at P from the above locality : *Burgess s.n.*, 14.9.1900. However, since this lectotypification was preceded by that of BURGESS, it is herein revoked. = **A. macrophyllus s.l. (cf. LAMBOY & JONES, in press).

**regnellii* Schultz-Bip. ex Baker in Martius, Fl. bras. 6(3) : 21 (1882) ; based on *Erigeron regnellii* Schultz-Bip., Linnaea 22 : 571 (1849), *nom. nud.* (cited by BAKER, "pro syn.")). TYPE : *Regnell I-201*, Brazil, Prov. Minas Gerais, Caldas, 1828 [lectotype (designated herein), P! ; iso-, M!, P!]. This name has been tentatively adopted (fide SUNDBERG, pers. comm.) ; affinities of this taxon rest with *A. subulatus*.

repens Kunth in H.B.K., Nov. gen. sp. 4 : 90, tab. 332 (1820). TYPE : *Humboldt & Bonpland s.n.*, Ecuador, Loja (holo-, P-HBK!). = **Oritrophium repens** (Kunth) Cuatrec.

riparius Kunth in H.B.K., Nov. gen. sp. 4 : 92 (1820). TYPE : *Humboldt & Bonpland* 4308, Mexico, "in humidis juxta lacum Cuiseo ... alt. 900 hex." [holo-, P-HBK! ; iso-, B-W 15821! (cf. JONES & HIEPKO, 1981), P!]. = **Machaeranthera riparia** (Kunth) A. G. Jones.

rubricaulis Lam., Encycl. 1 : 305 (1783). TYPE (citation) : "... originaire de l'Amérique septentrionale ; on la cultive au Jardin du Roi." [holo-, P-LA! ; iso-, P(4)!]. = **A. laevis**.

rupestris Kunth in H.B.K., Nov. gen. sp. 4 : 94, tab. 334 (1820). TYPE : *Humboldt & Bonpland* 3047, Ecuador, "Crescit locis illustribus frigidissimis montium Rucu-

- Pichincha et Antisana, alt. 1800 hex." [holo-, P-HBK! ; iso-, B-W 15838! (cf. JONES & HIEPKO, 1981)]. = **Diplostephium rupestre** (Kunth) Wedd.
- ***salicifolius** Lam., Encycl. 1 : 306 (1783). SYNTYPES (citation) : "... originaire du Canada, & cultivée au Jardin du Roi." [lectotype : "*Virga aurea Canadensis elatior, salicis minoris folio*. Juss." (designated herein), P-JU!]. There is no specimen in the LAMARCK herbarium. The above syntype (= lectotype) probably came from the original stock in the Jardin du Roi. = **A. puniceus** s.l. (or near, with possible influence of *A. longifolius*).
- schaffneri** Schultz-Bip. ex Sundberg & Jones, Bull. Torrey Bot. Club 113 : 173 (1986). TYPE : *Schaffner 371*, Mexico, Veracruz, "prope Orizaba", Oct. 1855 (holo-, P!). Paratypes at P!, all from the state of Veracruz : *Bourgeau 3341* ; *Botteri 1153, 1155, 1156* ; *Castillo 448* ; *Pringle 8208* ; *Schaffner 187* and s.n. ; *Schiede 202*. This name has been posthumously validated (syn. : *A. bullatus sensu auct. non* Schultz-Bip. ex Klatt).
- ***scoparius** DC., Prodrum 5 : 242 (1836), non Nees (1818). SYNTYPES : *Berlandier 1868, 1871* and *1894*, Texas, Comancheros oriental, 1828 [lectotype : *Berlandier 1871* (designated by A.G.J. in 1981, and validated herein), G-DC! ; iso-, BM!, G!, GH!, MO!, P!, WIS!]. Paralectotypes : *Berlandier 1868* and *1894*, both at P!. = **A. ericoides** L. subsp. **ericoides**.
- sericeus** Vent., Descr. pl. nouv., tab. 33 (1801). TYPE : *Ventenat, h. Cels. no. 33* [lectotype (designated by JONES & HIEPKO, 1981), P-LA! ; iso-, B-W 15826!]. The name inscribed on the label of the lectotype is in VENTENAT's handwriting, and this specimen may be the holotype.
- sericeus** var. β **microphyllus** DC., Prodrum 5 : 233 (1836). TYPE : *Berlandier 1876*, Comancheros orientales du Texas, 1828 (holo-, G-DC! ; iso-, BM!, G!, P!). This variety recognized, and the name adopted (syn. : *A. phyllolepis* Torrey & Gray ; *A. pratensis* Raf.).
- solidagineus** Michaux, Fl. bor.-amer. 2 : 108 (1803). This is a renaming, under *Aster*, of *Conyza linifolia* L., Sp. pl. 2 : 861 (1753). TYPE : "Habitat in America septentrionali." [holo-, LINN 993.10!, in part (= the right-hand specimen, mounted on the same sheet with the type of *C. asteroides* L.)]. A sheet at P-MICHX (!) is an authentic specimen, not a type.
- sparsiflorus** Michaux, Fl. bor.-amer. 2 : 112 (1803). TYPE : *Michaux s.n.*, South Carolina, Bath [holo-, P-MICHX! ; iso-, P! (at least some of the several pieces that are mounted on two sheets)]. = **A. dumosus** s.l. (a depauperate form).
- ***subasper** Lindley in Hooker, Comp. Bot. Mag. 1 : 97 (1835). TYPE : *Drummond 185*, St. Louis, 1831 [lectotype (designated herein), K! ("Herb. Hooker") ; iso-, P!] = **A. praealtus** var. **subasper** (Lindley) Wieg.
- subulatus** Michaux, Fl. bor.-amer. 2 : 111 (1803). SYNTYPES : *Michaux s.n.*, "Hab. in maritimis paludosis Pennsylvaniae [sic!] et Carolinae." [lectotype : *Michaux s.n.*, "Pennsylvania" (designated by BOSSERDET, 1970), P-MICHX!]. This is the largest of four pieces, located in the center of the sheet. The other pieces on that sheet

(*Michaux s.n.*, "Carolinas") are paralectotypes. There is another paralectotype in the general herbarium : *Michaux s.n.*, "Amériq. sept.", P! This specimen was previously marked "isotype", but morphologically, it corresponds to the specimens from the Carolinas, rather than the lectotype.

***subulatus** var. **elongatus** Bosserdet, *Taxon* 19 : 250 (1970). SYNTYPES (citation) : "Curtiss, North-Amer. Pl. N.E. Florida, n° 1250 et 1275, [Herb. Mus. Par.] G.V. Nash, Pl. Florida, n° 2416, 1896 [Herb. Delessert, Genève et Herb. Mus. Par.] ; San Antonie de la Baños, Habana, col. Jasima, sans n°, 1905 [Herb. Mus. Par.]." [lectotype : *Nash 2416* (designated by A.G.J. in 1981, and validated herein), P!]. All paralectotypes cited are at P! This variety recognized and the name adopted (fide SUNDBERG, pers. comm.).

surculosus Michaux, *Fl. bor.-amer.* 2 : 112 (1803). TYPE (citation) : "*Hab. in sylvis Carolinae septentrionalis comitatus Burke.*" (holo-, P-MICHX!).

tanacetifolius Kunth in H.B.K., *Nov. gen. sp.* 4 : 95 (1820). TYPE : *Humboldt & Bonpland s.n.*, "Colitur in horto Mexicano." (holo-, P-HBK!). = **Machaeranthera tanacetifolia** (Kunth) Nees.

tortifolius Michaux, *Fl. bor.-amer.* 2 : 109 (1803). TYPE : *Michaux s.n.*, "*Hab. in Carolina inferiore.*" [holo-, P-MICHX! ; iso-, P! (several pieces on one sheet)].

trilineatus Schultz-Bip. ex Klatt, *Leopoldiana* 20 : 91 (1884). TYPE : *Liebmann 519*, Mexico, Lachopa [holo-, C (not seen) ; iso-, P!]. This name adopted (syn. : *A. bimater* Standl. & Steyerl.).

trinervis [Pers.] Desf., *Tabl. école bot.*, Ed. 2 : 122 (1815). See the entry for *A. acris* L. var. β *trinervis* Pers. DESFONTAINES made no reference to PERSOON's varietal combination or to LAMARCK's (1783) citation of "*Aster trinervis*. Hort. Reg.", but his name is based on the same type. Most subsequent authors have regarded him, rather than PERSOON, as the authority for the basionym. WAGENITZ (1964) thought that *A. trinervis* Desf. is a "*nomen nudum*", and that NEES VON ESENBECK (1818) was the first author who validly published the name at the rank of species. This is not true. A short descriptive phrase (in French) was provided for the species by DESFONTAINES (1815), and therefore the name in the Tableau was validly published. = **A. sedifolius** subsp. **trinervis**.

uniflorus Michaux, *Fl. bor.-amer.* 2 : 110 (1803). TYPE : *Michaux s.n.*, "*Hab. in vastis sphagnosis, juxta lacus Mistassinis.*" (holo-, P-MICHX!). = **A. nemoralis** Aiton.

urophyllus Lindley in DC., *Prodromus* 5 : 233 (1836). TYPE : *Drummond s.n.*, St. Louis, 1831 [holo-, CGE! ; probable iso-, P! ("ex hb. Nees")]. This name adopted (syn. : *A. sagittifolius sensu auct. non Willd.*).

vaccinus Piper, *Bull. Torrey Bot. Club* 29 : 646 (1902). TYPE : *Cusick 2782*, Oregon, Malheur County, Cow Valley, 4.9.1901 [holo-, WS 26843! ; iso-, CU!, G!, GH!, K!, MO!, MSC!, ND-G!, P(2)!, RM!, UC!]. Paratype : *Cusick 2785*, P(2)! Probably of hybrid origin ; somewhat intermediate between *A. subspicatus* and *A. foliaceus* var. *parryi*.

venustus M. E. Jones, Zoe 2 : 247 (1891). TYPE : *M. E. Jones s.n.*, Utah, Grand County, Cisco, 2.5.1890 [lectotype (designated by T. J. WATSON, 1977), POM! ; iso-, ARIZ!, CAS!, GH!, MSC!, NY!, P!, RM!]. = *Xylorhiza venusta* (M. E. Jones) A. A. Heller.

villosus Michaux, Fl. bor.-amer. 2 : 113 (1803), *non* Thunb. (1800). TYPE : *Michaux s.n.*, "Hab. in pratis Illinoensibus." [holo-, P-MICHX! ; iso-, P! (ex Herb. Richard)]. = *A. pilosus* var. *pilosus*.

vimineus Lam., Encycl. 1 : 306 (1783). SYNTYPES (citation) : "... originaire du Canada, & cultivée au Jardin du Roi." [lectotype : "H. R." (designated by JONES, 1984a), P-LA! ; iso-, P-LA!]. Paralectotype : "*Virga aurea Canadensis* ... Juss.", P-JU! ; plus an authentic specimen labelled "*Aster vimineus angustifolius*," etc., P-LA! The above collections are morphologically somewhat dissimilar, but all are variants of *A. lateriflorus* (L.) Britt. The lectotype and isolectotype probably belong in var. *lateriflorus* ; the paralectotype (*Jussieu s.n.*) belongs in var. *horizontalis* (Desf.) Farw., and the entirely vegetative authentic specimen (P-LA) may be referable to var. *angustifolius* Wieg.

vimineus Lam. var. *saxatilis* Fern., Rhodora 1 : 188 (1899). TYPE : *Fernald 361*, Maine, Penobscot County, Upper Stillwater [River], 29.7.1895 (holo-, GH! ; iso-, MO!, ND-G!, P!, WIS!). = *A.* near *fragilis* Willd. (with influence of other species).

warmingii Baker in Martius, Fl. bras. 6(3) : 23 (1882). TYPE : *Warming s.n.*, Brazil, Lagoa Santa [holo-, K? (not seen) ; iso-, P!]. Probably = *Oritrophium* sp.

**willkommii* Schultz-Bip., Flora (Abt. B) 34 : 742 (1851). TYPE : *Willkomm s.n.*, in arenosis silvarum Juniperi Sabinae inter Pozondón et Celda in Arragonia australi rariss., Aug. 1850 [lectotype (designated herein), P! (Herb. Schultz-Bip.)]. This may be the holotype (syn. : *A. aragonensis sensu auct. non* Asso).

CONYZA L.

chrysocomoides Desf., Fl. Atl. II : 269, tab. 232 (1799). TYPE : *Desfontaines s.n.*, north-western Africa, "Barberie" (holo-, P!). = *Nolletia chrysocomoides* (Desf.) Cass. [syn. : *Aster chrysocomoides* (Desf.) B. D. Jackson, Index kew. 1 : 219 (1895), *nom. invalid.*].

**graminifolia* Sprengel, Syst. veg. (Ed. 16) 3 : 515 (1826). TYPE : *Sello[w] 567* = *Sprengel Herb. no. 1063*, Uruguay, Montevideo [lectotype (designated herein), P! (Herb. Schultz-Bip.)]. This may be the holotype [see "SPRENGEL" in STAFLEU & COWAN (1985)]. Aff. *Aster subulatus* or *A. regnellii* (fide SUNDBERG, pers. comm.).

oleaefolia Lam., Encycl. 2 : 86 (1786). TYPE : *Tournefort s.n.*, "a trouvé cette plante dans l'Arménie." The specimen labelled : "*Conyza orientalis pumila incana, oleae folio* Tournef. Cor. 33" (holo-, P-LA!). = *Aster oleifolius* (Lam.) Wagenitz [syn. : *Linosyris villosa* (L.) DC. (cf. WAGENITZ, 1964)].

squamata Sprengel, Syst. veg. (Ed. 16) 3 : 515 (1826). TYPE : *Sello[w] s.n.* = *Sprengel Herb. no. 1064*, Uruguay, Montevideo [lectotype (designated by JONES, 1984b), P! (Herb. Schultz-Bip.)]. This may be the holotype [see "SPRENGEL" in STAFLEU & COWAN (1985)]. = *Aster subulatus* var. *sandwicensis* (A. Gray) A. G. Jones.

DIETERIA Nutt.

- **divaricata* Nutt., Trans. Amer. Philos. Soc., n. s., 7 : 301 (1841). TYPE : *Nuttall s.n.*, "denudated plains of the Rocky Mts. and Oreg." [lectotype (designated herein), BM! ; iso-, ND-G!, P!]. = ***Machaeranthera canescens*** (Pursh) A. Gray s.l.
- **sessiliflora* Nutt., Trans. Amer. Philos. Soc., n. s., 7 : 301 (1841). TYPE : *Nuttall s.n.*, Oregon, "Columbia Plains." [lectotype (designated herein), BM! ; iso-, P!]. Aff. *Machaeranthera canescens*.

DIPLOSTEPHIUM Kunth

- amygdalinum* (Lam.) Cass. var. β *humilius* DC., Prodrum 5 : 273 (1836). TYPE : *De La Pilaie s.n.*, Newfoundland, Islands of St. Pierre and Miquelon, 1819 (holo-, G-DC! ; iso-, P!). = ***Aster umbellatus*** (a dwarf form).
- lavandulifolium* Kunth in H.B.K., Nov. gen. sp. 4 : 97, tab. 335 (1820). TYPE : *Humboldt & Bonpland 3064*, Ecuador. "Crescit locis arenosis exustis in radicibus montium ignivomorum Ilinissae et Cotopaxi, juxta Mulalo, alt. 1600 hex." (holo-, P-HBK! ; iso-, B-W 15839!). This is the type of the generic name *Diplostephium*. The isotype at B-W is listed as "*Aster lavandulaceus* Willd. in Herb." (JONES & HIEPKO, 1981), the latter name cited, *pro syn.*, by DE CANDOLLE (1836).

DOELLINGERIA Nees

- sericocarpoides* Small, Bull. Torrey Bot. Club 25 : 620 (1898). TYPE : *A. A. & E. G. Heller 4137*, Arkansas, Miller County, near Texarkana, 23.8.1898 (holo-, NY! ; iso-, GH!, MO!, NY!, P!). = ***Aster umbellatus*** var. *latifolius* A. Gray [syn. : *A. sericocarpoides* (Small) K. Schum.].

DORONICUM L.

- peruvianum* Lam., Encycl. 2 : 316 (1786). TYPE : *Jussieu s.n.*, Peru (holo-, P-LA!). = ***Oritrophium peruvianum*** [syn. : *Aster peruvianus* (Lam.) Cabrera].

ERICAMERIA Nutt.

- austrotexana* M. C. Johnston, Southw. Naturalist 12 : 106 (1967). This is a renaming necessitated by the transfer to this genus of *Aster palmeri* A. Gray (see corresponding entry).

ERIGERON L.

- **andersonii* A. Gray, Proc. Amer. Acad. Arts 6 : 540 (1865). SYNTYPES (citation) : "Nevada, near Carson City. Dr. C. L. Anderson. Lake Tenaya in the Sierra Nevada, Prof. Brewer, a single depauperate specimen." [lectotype : *Anderson 97113* (designated by A.G.J. in 1984, and validated herein), GH! ; iso-, P!]. = **Aster alpigenus** Torrey & Gray subsp. *andersonii* (A. Gray) Onno.
- diffusus* Pers., Syn. pl. 2 : 431 (1807). TYPE : *Commerson 105*, Uruguay, "Environs de Montevideo." (holo-, P-JU!). = **Noticastrum diffusum** (Pers.) Cabrera.
- regnellii* Schultz-Bip., Linnaea 22 : 571 (1849), *nom. nud.* ; validly published as **Aster regnellii** Schultz-Bip. ex Baker (see corresponding entry).

LEUCOPSIS Baker

- gnaphalioides* Baker in Martius, Fl. bras. 6(3) : 8, tab. 3 (1882). Syntype (citation) : "Habitat in prov. Minas Geraës campis petrosis ad Caldas Regnell III. n. 733! ; in Brasilia australi : *Sello[w]* n. 2362!, 4408 : sin do gnatione loci ; in Paraguay in campis ad Caaguazu : *Balansa* n. 85 [sic! = 885]." [lectotype : *Balansa 885* (designated by ZARDINI, 1985), K (not seen) ; iso-, P(2)!]. Paralectotype : *Regnell III-733*, P(2)! Prior lectotypification of this name by CUATRECASAS (1973) with a specimen of *Regnell III-733* (US), was overruled by ZARDINI, who correctly pointed out that REGNELL had applied that number to the species, i.e., to several different collections, none of which was annotated by BAKER. = **Noticastrum gnaphalioides** (Baker) Cuatrec. [syn. : *Aster gnaphalioides* (Baker) Hassler].
- macrocephala* Baker in Martius, Fl. bras. 6(3) : 7 (1882). TYPE : *Balansa 886*, Paraguay, Caaguazu (holo-, K (not seen) ; iso-, P!). = **Noticastrum macrocephalum** (Baker) Cuatrec. [syn. : *Aster macrocephalus* (Baker) Hassler].

LINOSYRIS Cass.

- *?*carnosa* A. Gray, Smithsonian Contr. Knowl. 5(6) : 80 (1853). TYPE : *Wright 1187*, Arizona, "Low, subsaline valley, west of the [Chiricahua] Mts., Sonora." [lectotype : (designated by A.G.J. in 1982, and validated herein), GH! ; iso-, GH(2)!, P(2)!]. = **Aster intricatus** (A. Gray) S. F. Blake (probably to be excluded from *Aster*).

MACHAERANTHERA Nees

- spectabilis* E. Greene, Leafl. Bot. Obs. & Crit. 1 : 148 (1905). TYPE : *C. F. Baker 873*, southern Colorado, Marshall Pass, el. 3200 m, 20.8.1901 (holo-, ND-G 00657! ; iso-, G!, P!). = **M. canescens** s.l.

superba A. Nelson, Bot. Gaz. 30 : 197 (1900). TYPE : A. & E. Nelson 6337, Wyoming, Yellowstone National Park, Yellowstone Lake, 6.8.1899 (holo-, RM! ; iso-, ILL!, ND-G!, P!). = **M. cf. commixta** E. Greene.

tanacetifolia (Kunth) Nees var. *humilis* A. Gray, Smithsonian Contr. Knowl. 5(6) : 74 (1853). TYPE : Wright 1151, New Mexico, near Ojo de Gavillan, Aug. 1851 (holo-, GH ; iso-, CGE!, P!). = **M. tagetina** E. Greene.

tanacetifolia var. *pygmaea* A. Gray, Smithsonian Contr. Knowl. 5(6) : 74 (1853). TYPE : Wright 1395, "... valley of the Salado, Chihuahua, and near El Paso." Apr. 1852 (holo-, GH! ; iso-, CGE!, P!). = **M. parviflora** A. Gray.

verna A. Nelson, Bot. Gaz. 37 : 267 (1904). TYPE : Goodding 757, Arizona, Big Bend, Virgin River, 10.5.1902 [holo-, RM (not seen) ; iso-, G!, P(2)!, RENO!]. = **M. cf. canescens** s.l.

NOTICASTRUM DC.

erectum Remy in C. Gay, Fl. chil. 4 : 19 (1849). TYPE : C. Gay 366, Chile, Valdivia, Feb. 1835 (holo-, P! ; iso-, P!). This name adopted [syn. : *Aster erectus* (Remy) O. Ktze.].

eriophorum Remy in C. Gay, Fl. chil. 4 : 20 (1849). TYPE : C. Gay 308, Chile, Prov. Colchagua, Yaquil, Apr. 1831 [lectotype (designated by ZARDINI, 1985), P! ; iso-, P!]. This name adopted [syn. : *Aster eriophorus* (Remy) O. Ktze.].

philippii Schultz-Bip., Bonplandia 4 : 54 (1856), *nom. nud.* (see entry for *Aster marginatus* var. *tomentosus*). = **N. sericeum**.

ONOSERIS DC.

montevidensis* Sprengel, Syst. veg. (Ed. 16) 3 : 502 (1826). TYPE : Sello[w] s.n. = Sprengel Herb. no. 976, Uruguay, Montevideo [lectotype (designated herein), P!]. This may be the holotype [see "SPRENGEL" in STAFLEU & COWAN (1985)]. = **Noticastrum diffusum (Pers.) Cabrera [syn. : *Aster montevidensis* (Sprengel) Griseb. ; *Noticastrum montevidense* (Sprengel) Cuatrec.].

TRIPOLIUM Nees

conspicuum Lindley in DC., Prodrum 5 : 254 (1836). TYPE : Bridges 183, Chile [holo-, CGE? (not seen) ; fragment of the type, P!] = **Oritrophium cf. vahlii** (Gaudich.) Cuatrec. (syn. : *Aster bangii* Rusby).

XYLORHIZA Nutt.

scopulorum A. Nelson, Bot. Gaz. 37 : 270 (1904). TYPE : *Goodding* 669, southern Nevada, "The Pockets," 30.4.1902 (holo-, RM ; iso-, P !). = **X. tortifolia** [syn. : *Aster gooddingii* Onno (see corresponding entry)].

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