

# THOMAS WALTER TYPIIFICATION PROJECT, IV: NEOTYPES AND EPITYPES FOR 43 WALTER NAMES, OF GENERA A THROUGH C

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## ABSTRACT

*Flora Caroliniana* (1788), by Thomas Walter, was the first treatment of American plants to employ the binomial nomenclature and sexual classification system of Linnaeus. Many of its species were new to science, and their names remain important in documentation of the southeastern American flora. But Walter kept no herbarium. Though types have been chosen for a few of Walter's names, a large proportion of his new species remain untypified. A portion of these species is addressed here, with selection of appropriate neotypes or epitypes to represent 43 Thomas Walter names.

## RESUMEN

*Flora Caroliniana* (1788), por Thomas Walter, fue el primer trabajo sobre plantas americanas que emplea el uso de la nomenclatura binomial y el sistema de clasificación sexual de Linneo. Muchas de sus especies fueron nuevas para la ciencia, y sus nombres continúan siendo importantes en la documentación de la flora del sureste de América. Pero Walter no mantuvo un herbario. Aunque han sido escogidos tipos para algunos de los nombres de Walter, una proporción grande de sus especies todavía no están tipificadas. Se examina aquí una parte de estas especies, con una selección de neotipos o epitipos apropiados para representar 43 nombres de Thomas Walter.

In the 1780s, Thomas Walter owned and operated a rice plantation on the cleared bottomlands of the Santee River, South Carolina, in what is now Berkeley County. Of English origin and a classical education (Rembert 1980), Walter, though far isolated from anyone trained in botany, undertook the compilation of a flora of the plants he saw around him. The resultant book, *Flora Caroliniana* (1788), is the first treatment of American plants employing the binomial nomenclature and sexual classification system of Linnaeus.

The Thomas Walter Typification Project is intended to bring understanding and nomenclatural precision to the plant names published by Thomas Walter in his *Flora Caroliniana* (1788). Previous numbers of the Project have addressed: the Fraser/Walter folio herbarium, Natural History Museum, London, whose specimens were collected by John Fraser and whose labels often bear Walter's hand (Ward 2006); an inventory of the specimens from this herbarium and elsewhere that have been treated as types of Walter names by other authors (Ward 2007a); and a presentation of those specimens from this herbarium worthy of designation as lectotypes or selection as neotypes (Ward 2007b). Documentation that the herbarium is that of John Fraser, rather than of Walter, has been provided separately (Ward 2007c). The present task, of this and the subsequent number, is to select additional specimens from among recent collections that may serve as neotypes or epitypes in support of Walter's names.

The International Code of Botanical Nomenclature (McNeill et al. 2006; Art. 9.6, 9.11) provides rules for selection of a neotype where all original materials are missing. The Code also (Art. 9.7, 9.18) permits selection of an epitype where original materials may be extant but are demonstrably ambiguous. Walter left no herbarium, and the great majority of the specimens in the collection often known as the "Walter Herbarium" were largely gathered by John Fraser and probably not used by Walter in his writing. Thus it is to be expected that many Walter names should lack specimens that can be interpreted as their type.

But when original materials are missing, later authors have often attempted to make remedy by selecting specimens from among Fraser's materials. These authors, in good faith, selected Fraser specimens in the belief that they were the basis for Walter's names. Most unfortunately, this belief at times forced these authors to select specimens that were seriously defective, even unidentifiable except for an early notation by Fraser or Walter. However, once selected, a typification cannot be removed except by the laborious and

uncertain pathway of conservation of a more suitable specimen, as provided by the Code (Art. 14). Selection of an epitype, though not displacing the defective type, still serves to give stability to the name. Those defective typifications noted previously (Ward 2007a) merit treatment here.

For the present task, it was thought wise to obtain all possible materials from a single institutional herbarium, one with adequate Southeastern holdings and an established history of taxonomic and nomenclatural interests. The Harvard University Herbaria (GH) offered their services and the loan of their specimens. By this cooperative action, a large portion of the specimens that will now document the meaning of Walter's names will be housed together, available for scholarly use.

It is recognized that a replacement type, either neotype or epitype, should correspond as closely as possible with the materials held by the original author. This obligation is not reduced even by the impossibility of certain knowledge of that intent, obscured by time and mortality.

Specimens for use in this phase of the Project were chosen with the following guidelines: The curator (GH) was asked to select three (or occasionally more) specimens of the designated species. The specimens were to show diagnostic characters. Insofar as possible, they were to come from South Carolina, ideally from Berkeley County (Walter's home). Specimens that had been annotated were to be preferred, thus adding assurance to the identification.

A peculiar feature of *Flora Caroliniana*, which cannot but detract from the apparent credibility of Walter's work, is his repetitious use of "*Anonymos*" as a generic name. From the standpoint of the value of his new names as seen by botanists two centuries later, Walter made a significant error by his judgment that many species or groups of species which he believed of generic value should await future study, rather than be named by him. Walter employed "*Anonymos*" for 28 of his genera, containing 44 species. These names, by decision of a much later botanical congress, have been ruled illegitimate, and their epithets are not available for transfer to other genera (Sprague 1939; Ward 1962; Wilbur 1962). Even so, nearly all of Walter's *Anonymos* names with their accompanying descriptions were used by Gmelin (1791–1792) as the foundation for later legitimate names. The typification of Gmelin's later names, therefore, rests on the materials used by Walter and, where these materials are missing, justify selection of neotypes. Here, 14 of Gmelin's names are typified, each based upon Walter's name and description.

In this phase of the Project, a total of 106 specimens are chosen for selection as types, with 101 as neotypes and 5 as epitypes. (For convenience in handling, this number is divided between the 43 names addressed in the present report, and a second report, soon following.) One-third bore annotations by other persons, confirming the identification. The typifications are presented here in the format used previously (Ward 2007a, 2007b), in alphabetical sequence, using the names given them by Thomas Walter.

#### TYPIFICATIONS

WALTER'S NAME: *Aegilops aromaticum* Walter (p. 249)

MODERN NAME: **Ctenium aromaticum** (Walter) Wood

Common in eastern SC. Spm. 112-B, labeled "*Aegilops*" by Walter, was identified as this by Hitchcock (1905: 55), but not designated as type. The specimen is fragmentary. *Godfrey & Tryon* 42, 23 Jun 1939 - GH (annot. Paul Young 1970), from 12 mi N of Georgetown, Georgetown County, South Carolina, is here selected as NEOTYPE for *Aegilops aromaticum* Walter, basionym of *Ctenium aromaticum* (Walter) Wood. KNOWN ISONEOTYPES: BH, CA, DUKE, F, MO, NY, US.

WALTER'S NAME: *Aegilops saccharinum* Walter (p. 249)

MODERN NAME: **Dactyloctenium aegyptium** (L.) Willd.

Frequent in eastern SC. Spm. 112-D, labeled "*Aegilops*" by Fraser, was identified as *Dactyloctenium aegyptium* by Hitchcock (1905: 56). The specimen is mediocre. *Godfrey & Tryon* 1666, 22 Aug 1939 - GH (annot. S.L. Hatch 1993), from 8 mi SE of Kingstree, Williamsburg County, South Carolina, is here selected as NEOTYPE for *Aegilops saccharinum* Walter. (= *Dactyloctenium aegyptium* (L.) Willd.). KNOWN ISONEOTYPES: BH, CA, CAS, DUKE, MO, NY, PH, US.

WALTER'S NAME: *Aira purpurea* Walter (p. 78)

MODERN NAME: **Triplasis purpurea** (Walter) Chapm.

Frequent in eastern SC. Hitchcock (1905: 46) accepted Walter's diagnosis as representing this species. There is no specimen. *Godfrey & Tryon 1570*, 17 Aug 1939 - GH (annot. S.L. Hatch 1993), from South Island, Georgetown County, South Carolina, is here selected as NEOTYPE for *Aira purpurea* Walter, basionym of *Triplasis purpurea* (Walter) Chapm. Known ISONEOTYPES: BH, CA, CAS, DUKE, F, MO, PH, US.

WALTER'S NAME: *Aletris aurea* Walter (p. 121)

MODERN NAME: **Aletris aurea** Walter

Common in eastern SC. Spm. 112-E is this species, but consists solely of a flowering scape. The label, "*Aletris Aurea*," is in Fraser's hand. There is no indication it was seen or used by Walter. *Ahles 15423*, 25 Jun 1956 - GH, from along SC 63, 5.1 mi W of junction with SC 21, Colleton County, South Carolina, is here selected as NEOTYPE for *Aletris aurea* Walter. Known ISONEOTYPES: NCU, NY.

WALTER'S NAME: *Allionia albida* Walter (p. 84)

MODERN NAME: **Mirabilis albida** (Walter) Heimerl. [= *Oxybaphus albidus* (Walter) Sweet]

Rare in SC (3 counties). Spm. 3-B is this; it was labeled "*Allionia xxx*" by Walter, and "*Albida*" by Fraser. The species is only known in fall-line counties, outside of Walter's area; but one is Aiken Co. where Fraser is known to have traveled and collected. This specimen could perhaps be argued to be a lectotype. But since it was not recognized by Walter, one is hard put to believe it was part of material used in his writing. *Ahles 55535*, 27 Oct 1961 - GH, from North Augusta, Aiken County, South Carolina, is here selected as NEOTYPE for *Allionia albida* Walter, basionym of *Mirabilis albida* (Walter) Heimerl. Known ISONEOTYPES: FLAS, GA, MICH, NCU, NY.

WALTER'S NAME: *Alopecurus carolinianus* Walter (p. 74)

MODERN NAME: **Alopecurus carolinianus** Walter

Frequent throughout. Because he considered Walter's diagnosis ambivalent, Hitchcock (1905: 40) concluded "this species must remain doubtful." Even so, it appears impossible to match Walter's words with any other equally likely species. Of the genus *Alopecurus*, only *A. carolinianus* occurs in SC with any frequency. Spm. 112-C is fragmentary, but may be this and bears the word "*Alopecurus*." Though the writing is by Walter, he would have no need for this specimen in preparing his description. Walter's name is in general use, and *Spongberg 67-64*, 15 Apr 1967 - GH, from 40-acre Rock, Taxahaw, Lancaster County, South Carolina, is here selected as NEOTYPE for *Alopecurus carolinianus* Walter

WALTER'S NAME: *Amorpha herbacea* Walter (p. 179)

MODERN NAME: **Amorpha herbacea** Walter

Rare in coastal SC, frequent inland. Epithet is not in italics, as was customary for a Walter name; perhaps a Fraser oversight. Though spm. 5-B was labeled "*Amorpha fruticosa*" by Fraser, it has been annotated by A.M. Vail as *A. herbacea*. But since its source is unknown and there is no indication it was seen by Walter, *Correll 5263*, 13 Jun 1936 - GH (annot. Robert L. Wilbur 1959), from near Myrtle Beach, Horry County, South Carolina, is here selected as NEOTYPE for *Amorpha herbacea* Walter. Known ISONEOTYPES: GA.

WALTER'S NAME: *Amsonia ciliata* Walter (p. 98)

MODERN NAME: **Amsonia ciliata** Walter

Rare on the SC coastal plain, common inland. Spm. 5-A may be this. But the specimen is poor, and since the label ("*Amsonia*") is in Fraser's hand with no evidence it was seen by Walter, *Weatherby 6120*, 27 Apr 1932 - GH (annot. J. Williams 1992), from Columbia, Lexington County, South Carolina, is here selected as NEOTYPE for *Amsonia ciliata* Walter. Known ISONEOTYPES: PH, US.



WALTER'S NAME: *Anonymos aquatic[a]* Walter (p. 109)

MODERN NAME: **Nymphoides aquatica** (Walter ex Gmel.) Kuntze

Frequent in eastern SC. Walter's name is illegitimate, but his description still serves as the foundation for Gmelin's epithet (Ward 1962). Spm. 59-E, labeled "*Hydrocotyle*" by Walter, appears to be this, but is poor (a leaf blade without petiole). *Godfrey & Tryon* 405, 10 Jul 1939 - GH, from 2 mi NE of Lane, Williamsburg County, South Carolina, is here selected as NEOTYPE for *Anonymos aquatica* Walter and *Villarsia aquatica* Gmelin (1791: 447), basionym of *Nymphoides aquatica* (Walter ex Gmel.) Kuntze. Known ISONEOTYPES: CA, CAS, F, NY, US.

WALTER'S NAME: *Anonymos aquatic[a]* Walter (p. 230)

MODERN NAME: **Planera aquatica** Walter ex Gmel.

Frequent in eastern SC. Spm. 115-G is a poor scrap, labeled with a single word ("*aquatic*") perhaps by Walter, a number ("FC 363") by Fraser, and a Latin phrase ("*Monoechia Triandria G. nova*") apparently by Fraser's son. Walter's name is illegitimate, but his description still serves as the foundation for Gmelin's epithet (Ward 1962). *Hill* 21222, 3 Mar 1990 - GH, from Edisto River, Givhans Ferry State Park, Dorchester County, South Carolina, is here selected as NEOTYPE for *Anonymos aquatica* Walter and *Planera aquatica* Walter ex Gmelin (1791: 150).

WALTER'S NAME: *Anonymos bracteata[a]* Walter (p. 181)

MODERN NAME: **Zornia bracteata** Walter ex Gmel.

Frequent in eastern SC. No specimen has been identified. Walter's name is illegitimate, but his description still serves as the foundation for Gmelin's epithet (Ward 1962). *Wiegand & Manning* 1624, 7 Jul 1927 - GH (annot. Robert H. Mohlenbrock, [1958?]), from 3 mi W of Marion, Marion County, South Carolina, is here selected as NEOTYPE for *Anonymos bracteata* Walter and *Zornia bracteata* Walter ex Gmelin (1792: 1096). Known ISONEOTYPES: BH.

WALTER'S NAME: *Anonymos capitata[a]* Walter (p. 69)

MODERN NAME: **Burmannia capitata** (Walter ex Gmel.) Mart.

Frequent on the SC coastal plain. No specimen has been identified. Walter's name is illegitimate, but the description still serves as the foundation for Gmelin's epithet (Ward 1962). *Godfrey & Tryon* 1352, 7 Aug 1939 - GH (annot. J. van Benthem 1977; D. Q. Lewis 1994), from 6 mi SW of Moncks Corner, Berkeley County, South Carolina, is here selected as NEOTYPE for *Anonymos capitata* Walter and *Vogelia capitata* Gmelin (1791: 107), basionym of *Burmannia capitata* (Walter ex Gmel.) Mart. Known ISONEOTYPES: BH, CAS, GA, PH.

WALTER'S NAME: *Anonymos caroliniensis* Walter (p. 60); nom. illegit.

MODERN NAME: **Elytraria caroliniensis** (Walter ex Gmel.) Pers.

Very rare in SC, but one of the two known modern stations is in Berkeley Co. No corresponding specimen has been identified. Ward (1962) and Wilbur (1962) have verified the modern name. Walter's name is illegitimate, but the description still serves as the foundation for Gmelin's epithet (Ward 1962). *Godfrey & Tryon* 886, 24 Jul 1939 - GH, from Moncks Corner, Berkeley County, South Carolina, is here selected as NEOTYPE for *Anonymos caroliniensis* Walter and *Tubiflora caroliniensis* Gmelin (1791: 27), basionym of *Elytraria caroliniensis* (Walter ex Gmel.) Pers. Known ISONEOTYPES: CA, CAS, DUKE, MO, NY, US.

WALTER'S NAME: *Anonymos caroliniensis* Walter (p. 91); nom. illegit.

MODERN NAME: **Lithospermum caroliniense** (Walter ex Gmel.) MacM.

Infrequent in southern SC. Ward (1962) and Wilbur (1962) have verified the modern name. Walter's name is illegitimate, but it still serves as the foundation for Gmelin's epithet (Ward 1962). No specimen has been identified. *Boufford & Wood* 23567, 13 May 1985 - GH, from Williston, Barnwell County, South Carolina, is here selected as NEOTYPE for *Anonymos caroliniensis* Walter and *Batschia caroliniensis* Gmelin (1791: 315), basionym of *Lithospermum caroliniense* (Walter ex Gmel.) MacM. Known ISONEOTYPES: CAS, NY.

WALTER'S NAME: *Anonymos caroliniensis* Walter (p. 168)

MODERN NAME: **Ruellia caroliniensis** (Walter ex Gmel.) Steud.

Common throughout. Walter's name is illegitimate, but his description still serves as the foundation for Gmelin's epithet (Ward 1962). No specimen has been identified. *Ravenel s.n.*, [1886?] - GH (annot. E. C. Leonard 1928; M.L. Fernald 1944), from the Santee Canal, [Berkeley County], South Carolina, is here selected as NEOTYPE for *Anonymos caroliniensis* Walter and *Pattersonia caroliniensis* Gmelin (1792: 925), basionym of *Ruellia caroliniensis* (Walter ex Gmel.) Steud. Known ISONEOTYPES: DUKE.

WALTER'S NAME: *Anonymos cassioides* Walter (p. 171)

MODERN NAME: **Seymeria cassioides** (Walter ex Gmel.) Blake

Frequent throughout. No specimen has been identified. Walter's name is illegitimate, but his description still serves as the foundation for Gmelin's epithet (Ward 1962; Wilbur 1962). *Godfrey* 8213, 13 Sep 1939 - GH (annot. John E. Williams 1980), from St. Stephens, Berkeley County, South Carolina, is here selected as NEOTYPE for *Anonymos cassioides* Walter and *Afzelia cassioides* Gmelin (1792: 927), basionym of *Seymeria cassioides* (Walter ex Gmel.) Blake. Known ISONEOTYPES: CA, US.

WALTER'S NAME: *Anonymos odoratissim[a]* Walter (p. 198)

MODERN NAME: **Carphephorus odoratissimus** (Walter ex Gmel.) Hebert [= *Trilisa odoratissima* (Walter ex Gmel.) Cass.]

Common in southeast SC (incl. Berkeley Co.). Although combinations under the name *Anonymos* are illegitimate, Gmelin (1792) based his name on that of Walter (Ward 1962). No specimen has been identified. *Wiegand & Manning* 3168 - GH (annot. Henry Hebert 1966), from 4 mi NW of Early Branch, Hampton County, South Carolina, is here selected as NEOTYPE for *Anonymos odoratissima* Walter and *Chrysocoma odoratissima* Gmelin (1792: 1204), basionym of *Carphephorus odoratissimus* (Walter ex Gmel.) Hebert.

WALTER'S NAME: *Anonymos petiolat[a]* Walter (p. 108)

MODERN NAME: **Mitreola petiolata** (Walter ex Gmel.) Torr. & A. Gray [= *Cynoctonum mitreola* (L.) Britt.]

Common in eastern SC. No specimen has been identified (Leeuwenberg 1974: 9). Walter's name is illegitimate, but it still serves as the foundation for Gmelin's epithet (Ward 1962). *Godfrey & Tryon* 890, 24 Jul 1939 - GH (annot. A.J.M. Leeuwenberg 1974), from 10 mi NE of Moncks Corner, Berkeley County, South Carolina, is here selected as NEOTYPE for *Anonymos petiolata* Walter and *Cynoctonum petiolatum* Gmelin (1791: 443), basionym of *Mitreola petiolata* (Walter ex Gmel.) Torr. & A. Gray. Known ISONEOTYPES: CA, CAS, DUKE, F, MICH, NY, US.

WALTER'S NAME: *Anonymos pinnat[a]* Walter (p. 103); nom. illegit.

MODERN NAME: **Petalostemon pinnatum** (Walter ex Gmel.) Blake

Infrequent in eastern SC. Walter's name is illegitimate, but it still serves as the foundation for *Kuhnia pinnata* Gmelin (Ward 1962). Spm. 117-D was labeled "*Anonymos* 102" in an unknown hand, followed by "FC" perhaps in Fraser's hand; this is a direct reference to Genus 102, *Anonymos*, of the *Flora*. Also on the original label is "*Kuhniae affinis*" in an unknown hand; these words are copied from Walter's subheading for genus *Anonymos*. Spm. 117-D also bears a modern annotation stating it to be "TYPE SPECIMEN of *Anonymos pinnata* Walter." Barneby (1977: 278) cited an unspecified Walter specimen (as "verified by Wemple 1970, p. 26") as "Holotypus." In the absence of evidence that *Fraser/Walter* 117-D [1787] - BM was seen or used by Walter, Barneby's typification is here corrected to NEOTYPE.

But spm. 117-D is a slender leafless stem, wholly unsuitable to serve any identification purpose. *Godfrey* 8001, 7 Sep 1939 - GH, from McBee, Chesterfield County, South Carolina, is here selected as EPITYPE for *Kuhnia pinnata* Gmelin (1791: 375), basionym of *Petalostemon pinnatum* (Walter ex Gmel.) Blake, in support of Barneby's typification (as corrected). Known ISOEPITYPES: BH, MO, US.



WALTER'S NAME: *Anonymos quaternat[a]* Walter (p. 246); nom. illegit.

MODERN NAME: ***Dioscorea quaternata*** Walter ex Gmel.

Common throughout. There is no specimen. Walter's name is illegitimate, but it still serves as the foundation for Gmelin's epithet (Ward 1962). Hill 22286, 15 May 1991 - GH, from Parris Bridge road, N side of Lake Blalock, N of Carlisle, Union County, South Carolina, is here selected as NEOTYPE of *Anonymos quaternata* Walter and *Dioscorea quaternata* Walter ex Gmelin (1791: 581). Known ISONEOTYPES: NY.

WALTER'S NAME: *Anonymos sessifol[ia]* Walter (p. 108)

MODERN NAME: ***Mitreola sessilifolia*** (Walter ex Gmel.) D. Don [= *Cynoctonum sessilifolium* Walter ex Gmel.]

Common in eastern SC. Spm. 117-B is a slender stem of poor diagnostic character, marked with Fraser's number 685. It was labeled "*Genus nov. Pentand digyn*" by Walter, not recognized by him as his *Anonymos* "*sessifolia*." The specimen has been annotated as "holotype" of *Mitreola sessilifolia* by A.J.M. Leeuwenberg. Leeuwenberg (1974: 21) then designated no. 685 as "Type." Walter's name is illegitimate, but his description still serves as the foundation for Gmelin's epithet (Ward 1962). Since Walter would have had living materials available, spm. 117-B was surely not used by him in forming his description; it is thus neither holotype nor lectotype. In view of Walter's failure to recognize the plant as his own, Leeuwenberg's typification of Fraser/Walter 117-B (BM) has been corrected (Ward 2007a) to neotype for *Cynoctonum sessilifolium* Gmelin (1791: 443), basionym of *Mitreola sessilifolia* (Walter ex Gmel.) D. Don. Because the specimen scarcely shows useful diagnostic features, Godfrey & Tryon 929, 26 Jul 1939 - GH, from 3 mi SW of Manning, Clarendon County, South Carolina, is here selected as EPITYPE, in support of Leeuwenberg's typification (as corrected). Known ISOEPITYPES: CAS, NY, US.

WALTER'S NAME: *Anonymos umbros[um]* Walter (p. 63); nom. illegit.

MODERN NAME: ***Micranthemum umbrosum*** (Walter ex Gmel.) Blake

Common on SC coastal plain. Pennell (1920: 248) stated Blake (1915: 131) had identified Walter's "type," an overstatement in that Blake had merely observed "no specimen, but the description is perfectly definitive of this species." Ward (1962) and Wilbur (1962) have verified the modern name. Walter's name is illegitimate, but it still serves as the foundation for Gmelin's epithet (Ward 1962). Bell 3632, 25 Jun 1956 - GH, from Ashton, Colleton County, South Carolina, is here selected as NEOTYPE for *Anonymos umbrosum* Walter and *Globifera umbrosa* Gmelin (1791: 32), basionym of *Micranthemum umbrosum* (Walter ex Gmel.) Blake. Known ISONEOTYPES: NCU, NY.

WALTER'S NAME: *Arenaria caroliniana* Walter (p. 141)

MODERN NAME: ***Arenaria caroliniana*** Walter

Unknown on SC coastal plain, but frequent to west. Probably a Fraser discovery. No specimen has been identified. Cronquist 4932, 3 Apr 1948 - GH, from 3 mi W of Reidsville, Tatnall County, Georgia, is here selected as NEOTYPE for *Arenaria caroliniana* Walter. Known ISONEOTYPES: FLAS, MO, NY, PH, US.

WALTER'S NAME: *Asclepias cinerea* Walter (p. 105)

MODERN NAME: ***Asclepias cinerea*** Walter

Very rare in SC (2 counties, but on coastal plain where Walter may have encountered it). No specimen has been identified. Wiegand & Manning 2588 19 Jul 1927 - GH, from Early Branch, Hampton County, South Carolina, is here selected as NEOTYPE for *Asclepias cinerea* Walter. Known ISONEOTYPES: BH.

WALTER'S NAME: *Asclepias humistrata* Walter (p. 105)

MODERN NAME: ***Asclepias humistrata*** Walter

Frequent on the SC coastal plain. There is no specimen. Godfrey & Tryon 1069, 2 Aug 1939 - GH (annot. T.J. Rosatti 1987), from Georgetown, Georgetown County, South Carolina, is here selected as NEOTYPE for *Asclepias humistrata* Walter.

WALTER'S NAME: *Asclepias lanceolata* Walter (p. 105)

MODERN NAME: ***Asclepias lanceolata*** Walter

Frequent on SC coastal plain. Spm. 10-B appears to be this, but was labeled "*Asclepias incarnata*" by Fraser. It was annotated *A. paupercula* Michx. [= *A. lanceolata* var. *paupercula* (Michx.) Fern.] by A.M. Vail. But since spm. 10-B is a non-typical form of *A. lanceolata*, it is inappropriate as a type for Walter's new species. *Godfrey & Tryon* 154, 27 Jun 1939 - GH, from 4 mi SW of Andrews, Georgetown County, South Carolina, is here selected as NEOTYPE for *Asclepias lanceolata* Walter. Known ISONEOTYPES: BH, CA, CAS, DUKE, MICH, MO, NY, PH, US.

WALTER'S NAME: *Asclepias pedicellata* Walter (p. 106)

MODERN NAME: ***Asclepias pedicellata*** Walter

Very rare in SC (one county: Beaufort); probably a discovery of Fraser's. No specimen has been identified. *Mellichamp s.n.*, 1880 - GH (annot. T.S. Rosatti 1987), from Bluffton, [Beaufort County], South Carolina, is here selected as NEOTYPE of *Asclepias pedicellata* Walter. Known ISONEOTYPES: CAS ("1887"), MICH ("1886"), US ("1884," "1893").

WALTER'S NAME: *Asclepias perennis* Walter (p. 107)

MODERN NAME: ***Asclepias perennis*** Walter

Frequent in coastal SC. Walter labeled 10-F as "*Asclepias*," and Fraser marked 10-G as "*Asclepias an Nevea*" (in reference to "white" flowers, or "new"?). By annotation, A.M. Vail has identified spms. 10-F and 10-G as *Asclepias perennis*. Both are of mediocre quality, and there is no evidence that Walter had occasion to use these specimens of a common species in preparing his descriptions. *Godfrey & Tryon* 130, 27 Jun 1939 - GH, from Palmer Bridge, 5 mi ESE of Honey Hill, Berkeley County, South Carolina, is here selected as NEOTYPE of *Asclepias perennis* Walter. Known ISONEOTYPES: CA, NY, US.

WALTER'S NAME: *Asclepias viridis* Walter (p. 107)

MODERN NAME: ***Asclepias viridis*** Walter

It seems unlikely that Walter, even through the agency of Fraser, would have encountered this largely Floridian species. It is presently unknown in the Carolinas and is very rare in GA (Glynn Co.). There is no specimen. The name could be misapplied; but the diagnosis is detailed and distinctive. To preserve usage, *Harper* 2184, 3 May 1904 - GH, from near Thalmann, Glynn County, Georgia, is here selected as NEOTYPE for *Asclepias viridis* Walter. Known ISONEOTYPES: MO, NY, US.

WALTER'S NAME: *Aster carolinianus* Walter (p. 208)

MODERN NAME: ***Aster carolinianus*** Walter

Rare in SC (2 counties), NC and GA (one county each). Walter's lengthy and accurate description ("*caule fruticoso ramosissimo flexuoso subscandente...*" etc.) clearly indicates he had adequate materials. There is no specimen in the herbarium, nor would one of Fraser's fragmentary specimens have been sufficient. Walter may have encountered the plant near Charleston, where it is known to occur. *Leonard* 2172, 18 Oct 1968 - GH, from along SC 703, NE of Isle of Pines, Charleston County, South Carolina, is here selected as NEOTYPE for *Aster carolinianus* Walter. Known ISONEOTYPES: CAS, FLAS, MICH, NCU, NY, USCH.

WALTER'S NAME: *Aster squarrosus* Walter (p. 209)

MODERN NAME: ***Aster walteri*** Alexander in Small

Common in eastern SC. Spms. 13-C and 15-D appear to be this; both were labeled "*Aster*" by Walter. Since Walter did not recognize his own species, and better material would have been available to him elsewhere, *Boufford* 12340 19 Oct 1973 - GH, from 6 km. S of Socastee, Horry County, South Carolina, is here selected as NEOTYPE for *Aster squarrosus* Walter. Walter's name is a later homonym (non *A. squarrosus* All., 1785).



WALTER'S NAME: *Cacalia ovata* Walter (p. 196)

MODERN NAME: **Arnoglossum ovatum** (Walter) H. Robins.

Frequent in eastern SC. Two varieties of *Arnoglossum ovatum* have been recognized: var. *ovatum*, and var. *lanceolatum* (Nutt.) D. B. Ward. From his description ("*foliis ovatis*"), Walter had the typical variety. No specimen has been identified. Boufford 23094, 11 Sep 1982 - GH, from along SC 162, 3.3 mi SE of I-30, SE of Ridgeland, Jasper County, South Carolina, is here selected as NEOTYPE for *Cacalia ovata* Walter, basionym of *Arnoglossum ovatum* (Walter) H. Robins.

WALTER'S NAME: *Catalpa bignonioides* Walter (p. 64)

MODERN NAME: **Catalpa bignonioides** Walter

Rare on the Carolina coastal plain, frequent and scattered inland. Its few SC stations are surely introductions. Thought by Little (1979) to be probably native in southwest GA, northwest FL, AL, and MS, well beyond the area traversed by either Walter or Fraser. But the tree was in early cultivation, attributed to "Carolina" by Linnaeus (1753: 623) and perhaps known to Walter near the port of Charleston (where now known as an escape). A single broken leaf in the herbarium (spm. 28-D) bears "*Catalpa bignonioides*" in Fraser's hand. Its poor quality and lack of linkage with Walter justifies selection here of Nelson 18315, 30 May 1997 - GH, from Leesville, Lexington County, South Carolina, as NEOTYPE for *Catalpa bignonioides* Walter. Known ISO-NEOTYPES: USCH.

WALTER'S NAME: *Chironia decandra* Walter (p. 95)

MODERN NAME: **Sabatia decandra** (Walter) Harper [= *Sabatia bartramii* Wilbur]

There is no specimen. Wilbur (1955) replaced the long-familiar *Sabatia decandra* with a new name, *S. bartramii*. However, Walter's description of *Chironia decandra* is closely matched by Wilbur's description of *S. bartramii*. Though *S. decandra* (= *S. bartramii*) is unknown north of central Georgia, it is within the range traveled by Fraser. Further, Walter must have had something, and discarding his name leaves the ambiguity unresolved. Wilbur & Webster 2691, 18 Aug 1950 - GH, from Sparks, Cook County, Georgia, is here selected as NEOTYPE for *Chironia decandra* Walter, basionym of *Sabatia decandra* (Walter) Harper. Known ISO-NEOTYPES: US.

WALTER'S NAME: *Chrysanthemum carolinianum* Walter (p. 204)

MODERN NAME: **Boltonia caroliniana** (Walter) Fern.

Infrequent in SC (but known in Berkeley Co.). Spm. 31-E was identified as this by Fernald & Schubert (1948: 227), but they did not call it the type. A 3-digit number ("684") on the label is by Fraser; the name "*Chrysanthemum*" is in Walter's hand. But since Walter would have had access to this species near his home, there is no reason to believe he used this specimen in preparing his text. Though the specimen is of fair quality, a better one is to be preferred. Godfrey 8155, 11 Sep 1939 - GH (annot. Judy Tate Morgan 1966), from along Santee River, 3 mi NE of Pineville, Berkeley County, South Carolina, is here selected as NEOTYPE for *Chrysanthemum carolinianum* Walter, basionym of *Boltonia caroliniana* (Walter) Fern. Known ISO-NEOTYPES: CAS, US.

WALTER'S NAME: *Chrysocoma acaulis* Walter (p. 196)

MODERN NAME: **Vernonia acaulis** (Walter) Gleason

Frequent in SC. Walter's description was identified by Blake (1915: 135). No specimen. Godfrey 8083, 7 Sep 1939 - GH (annot. S. B. Jones 1968), from 1 mi W of McBee, Chesterfield County, South Carolina, is here selected as NEOTYPE for *Chrysocoma acaulis* Walter, basionym of *Vernonia acaulis* (Walter) Gleason. Known ISO-NEOTYPES: NY, US.

WALTER'S NAME: *Cistus carolinianus* Walter (p. 152)

MODERN NAME: **Helianthemum carolinianum** (Walter) Michx.

Frequent on SC coastal plain. Spm. 33-B is poor, but may be *Helianthemum carolinianum*. Daoud & Wilbur (1965: 211) noted they had seen (by photo) a specimen in "Walter's Herb." but did not specify which one



they intended. Rather than assign spm. 33-B to type status, *Weatherby & Griscom 16586*, 10 Apr 1932 - GH, from 1 mi S of Murrell's Inlet, Georgetown County, South Carolina, is here selected as NEOTYPE for *Cistus carolinianus* Walter, basionym of *Helianthemum carolinianum* (Walter) Michx. Known ISONEOTYPES: US.

WALTER'S NAME: *Clematis reticulata* Walter (p. 156)

MODERN NAME: **Clematis reticulata** Walter

Rare in eastern SC. Spm. 34-F is *Clematis reticulata*. It bears a label, securely attached by the stem inserted through slits, with "*Clematis*" written by Walter, and "*Crispa*" added by Fraser. The specimen also bears a second label, less securely attached, with "*Clematis Reticulata*" by Fraser. Since Walter appeared not to recognize the species, it is unlikely he used this collection in forming his description. *Wherry s.n.*, 7 Jul 1936 - GH, from 4 mi S of Brookland, Lexington County, South Carolina, is here selected as NEOTYPE for *Clematis reticulata* Walter

WALTER'S NAME: *Convolvulus aquaticus* Walter (p. 94)

MODERN NAME: **Stylisma aquatica** (Walter) Raf. [= *Bonamia aquatica* (Walter) A. Gray]

Infrequent in eastern SC. Identified "*ex char.*" by Myint (1966). No specimen. [Spm. 36-E, with its very narrow leaves, appears to be *Stylisma patens* (Desr.) Myint.] *Radford 24551*, 11 Jun 1957 - GH, from Summerton, Clarendon County, South Carolina, is here selected as NEOTYPE for *Convolvulus aquaticus* Walter, basionym of *Stylisma aquatica* (Walter) Raf. Known ISONEOTYPES: FLAS, GA, NCU, NY.

WALTER'S NAME: *Convolvulus humistratus* Walter (p. 94)

MODERN NAME: **Stylisma humistrata** (Walter) Chapm.

Frequent in eastern SC. No specimen has been identified. Identified "*ex char.*" by Myint (1966). *Wiegand & Manning 2635*, 8 Jul 1927 - GH (annot. T. Myint 1961), from Mars Bluff bridge over Pee Dee River, Florence County, South Carolina, is here selected as NEOTYPE for *Convolvulus humistratus* Walter, basionym of *Stylisma humistrata* (Walter) Chapm.

WALTER'S NAME: *Cornucopiae hyemalis* Walter (p. 73)

MODERN NAME: **Agrostis hyemalis** (Walter) BSP.

Common in SC. Hitchcock (1905: 38) considered Walter's diagnosis to be "undoubtedly" *Agrostis hyemalis*. There is no specimen. *Robinson 97*, 27 Apr 1912 - GH, from Navy Yard, Charleston, Charleston County, South Carolina, is here selected as NEOTYPE for *Cornucopiae hyemalis* Walter, basionym of *Agrostis hyemalis* (Walter) BSP. Known ISONEOTYPES: BH, US.

WALTER'S NAME: *Cornucopiae perennans* Walter (p. 74)

MODERN NAME: **Agrostis perennans** (Walter) Tuckerm.

Mostly a piedmont species, but infrequently reaches the SC coastal plain. Walter's diagnosis as this species was accepted by Hitchcock (1905: 38) without question. This is the grass Walter and Fraser hoped to introduce into English cultivation, to great profit (Rembert 1980). There is no specimen. *Kelly 254*, 11 Jul 1995 - GH, from Ft. Jackson Military Reservation, Richland County, South Carolina, is here selected as NEOTYPE for *Cornucopiae perennans* Walter, basionym of *Agrostis perennans* (Walter) Tuckerm.

WALTER'S NAME: *Corylus americana* Walter (p. 236)

MODERN NAME: **Corylus americana** Walter

Very rare in eastern SC, common in western SC and NC. Probably a Fraser discovery. No specimen. *Small s.n.*, 17 Aug 1895 - GH (annot. John S. Drumke 1964), from Taccoa, Habersham County, South Carolina, is here selected as NEOTYPE for *Corylus americana* Walter. Known ISONEOTYPES: NY.

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M. Tryon) was sent to the Carolinas for the summer of 1939, charged with the task of documenting the flora that would have once been known to Thomas Walter. The abundant collections that flowed to GH, and thence to other institutions, have long been a staple of monographers and floristic writers. Though no special effort was made to select Godfrey materials, just under one third of the specimens chosen here as neotypes or epitypes have felt his hand. These specimens (and others of similar high quality) passed an initial screening by Walter T. Kittredge (GH), then came to me for final selection. Robert Dirig and Melissa A. Luckow (BH), Andrew Doran (CA), Debra Trock (CAS), Robert L. Wilbur (DUKE), Maria Lucia Kawasaki (F), Kent D. Perkins (FLAS), Kelly Bettinger and Wendy B. Zomlefer (GA), Stuart Lindsay and Anton A. Reznicek (MICH), James C. Solomon (MO), Carol Ann McCormick and Alan S. Weakley (NCU), Thomas A. Zanon (NY), Carrie A. Kiel (PH), George F. Russell (US), and John B. Nelson (USCH) have supported this effort by searching for isoneotypes from within their herbaria. The abstract was efficiently hispanicized by Christine M. Housel (ABT).

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