

**REVISED INFRAGENERIC CLASSIFICATION OF *SOLIDAGO*
(ASTERACEAE: ASTEREAE)**

JOHN C. SEMPLE

Department of Biology
University of Waterloo
Waterloo, Ontario Canada
jcsemp@uwaterloo.ca

JAMES B. BECK

Department of Biological Sciences
Wichita State University
Wichita, Kansas 67260

ABSTRACT

A phylogenomic study of the genus *Solidago* results in a phylogenetic structure requiring a revised infrageneric classification, as outlined here. We recognize 3 subgenera and 15 sections, with some of the sections divided into subsections and series. *Oligoneuron* Small and *Brintonia* Greene are included within *Solidago* as sect. *Ptarmicoidei* (7 species) and sect. *Brintonia* (1 species). *Chrysoma* Nutt. (1 species), a woody shrub, is sister taxon to *Solidago*. The following new names and combinations are proposed: ***Solidago* ser. *Albigulae*** (Raf.) Semple & J.B. Beck, comb. et stat. nov., ***Solidago* sect. *Argutae*** (Mackenzie in Small) Semple & J.B. Beck, comb. et stat. nov., ***Solidago* subsect. *Brachychaeta*** (Torr. & Gray) Semple & J.B. Beck, comb. et stat. nov., ***Solidago* sect. *Brintonia*** (Greene) Semple & Beck, comb. et stat. nov., ***Solidago* ser. *Canadensae*** Semple & J.B. Beck, ser. nov., ***Solidago* subsect. *Drummondiani*** (Semple) Semple & J.B. Beck, comb. et stat. nov., ***Solidago* subsect. *Erectae*** (Don in Loudon) Semple & J.B. Beck, comb. et stat. nov., ***Solidago* sect. *Maritimae*** (Torr. & Gray) Semple & J.B. Beck, comb. et stat. nov., ***Solidago* subg. *Nemorales*** (Mackenzie in Small) Semple & J.B. Beck, comb. et stat. nov., ***Solidago* sect. *Odorae*** Semple & J.B. Beck, sect. nov., ***Solidago* subsect. *Patulae*** Semple & J.B. Beck, subsect. nov., ***Solidago* ser. *Puberulae*** Semple & J.B. Beck, ser. nov., ***Solidago* subsect. *Radulae*** (Rydb.) Semple & J.B. Beck, comb. et stat. nov., ***Solidago* subsect. *Serotinae*** (Rydb.) Semple & J.B. Beck, comb. et stat. nov., ***Solidago* sect. *Suffrutescentes*** Semple & J.B. Beck, sect. nov., ***Solidago* ser. *Tortifoliae*** Semple & J.B. Beck, ser. nov., ***Solidago* subsect. *Ulmifoliae*** (Mackenzie in Small) Semple & J.B. Beck, comb. et stat. nov., ***Solidago* ser. *Ulmifoliae*** (Mackenzie in Small) Semple & J.B. Beck, ser. nov., ***Solidago* sect. *Villosicarpae*** Semple & J.B. Beck, sect. nov., and ***Solidago zedia*** (Cook & Semple) Semple & J.B. Beck, comb. et stat. nov.

A phylogenomic study of the genus *Solidago* based on 893 nuclear genes (Beck et al., in prep.) provides a phylogenetic structure that requires a revised infrageneric classification, presented here. The revised nomenclature is structured around a phylogeny of 87 diploid *Solidago* species (noted below with an asterisk). The positions of 51 polyploid species or those not otherwise included in the phylogenetic analysis are based on morphology. *Chrysoma pauciflosculosa* is the sister taxon to *Solidago*.

Numerous changes in infrageneric nomenclature are needed to accommodate the evolutionary structure indicated by the phylogenetic analysis. New names and combinations below are presented in boldface. Morphological descriptions accompany both newly proposed names and of some select names in need of clarification.

SOLIDAGO L., Sp. Pl. 374. 1753. *Aster* subg. *Solidago* (L.) Kuntze, Rev. Gen. 1: 313. 1891. TYPE: *Solidago virgaurea* L.

1. **SOLIDAGO** subg. **SOLIDAGO**. Heads in racemiform, paniculiform arrays.

Sect. 1. *Solidago* sect. *Solidago*. Basal and lower stem leaves petiolate, heads generally large for genus; phyllaries lanceolate, apex usually narrowing to a round tip.

Solidago ser. *Solidago*. **TYPE:** **S. virgaurea* L. **Species included:** **S. dahurica* (Kitag.) Kitag. ex Juz., **S. decurrens* Loureiro, *S. horieana* Kadota, **S. kurilensis* Juzepczuk in Komarov, **S. litoralis* Savi, *S. minutissima* (Makino) Kitamura, *S. pacifica* Juz., **S. yokusaiana* Makino. Involucres sometimes large for genus; ovary/cypsela nearly glabrous (some hairs on distal surface) to densely sericeous; native to Eurasia.

Solidago ser. *Macrophyllae* Semple & J.B. Beck in Semple et al., Phytoneuron 2020-38: 1. 2020. **TYPE:** **S. macrophylla* Pursh. Involucres large for genus, ovary/cypsela body glabrous; northeastern North America.

Sect. 2. *Solidago* sect. *Erectae* D. Don in Loudon, Hort. Brit. 348. 1830. **TYPE:** *S. erecta* Pursh. Basal and lower stem leaves petiolate; heads of diploids mid-sized for genus; phyllaries oblong to oblong-lanceolate, apex rounded, obtuse; North America.

a. *Solidago* subsect. *Erectae* (Don in Loudon) Semple & J.B. Beck, **comb. et stat. nov.** *Solidago* sect. *Erectae* D. Don in Loudon, Hort. Brit. 348. 1830. **TYPE:** *S. erecta* Pursh

Solidago ser. *Erectae* (Don in Loudon) Hoffmann, Nat. Pflanzen. 4(5): 150. 1889. **TYPE:** **S. erecta* Pursh. **Species included:** *S. arenicola* B.R. Keener & Kral, *S. austrocaroliniana* Semple & J.B. Nelson, **S. jejunifolia* Steele, **S. kralii* Semple, **S. pallida* (Porter) Rydb., **S. plumosa* Small, *S. racemosa* Greene, **S. rigidiuscula* (Torr. & Gray) Porter, **S. speciosa* Nutt.

Solidago ser. *Albigulae* (Raf.) Semple & J.B. Beck, **comb. et stat. nov.** *Solidago* subg. *Albigula* Raf., Fl. Tellur. 2: 42. 1836 [1837]. *Solidago* subsect. *Albigula* (Raf.) Nesom, Phytologia 75: 5. 1993. **TYPE:** **S. bicolor* L. **Species included:** *S. georgiana* Semple, **S. hispida* Muhl., *S. porteri* Small, *S. sciaphila* Steele.

Solidago ser. *Puberulae* Semple & J.B. Beck, **ser. nov.** **TYPE:** **S. puberula* Nutt. Middle and upper stems densely very short canescent. **Species included:** **S. pulverulenta* Nutt., **S. roanensis* Porter.

b. *Solidago* subsect. *Humiles* (Rydb.) Semple, Sida 20: 1606. 2003. *Solidago* (sp.-group) *Humiles* Rydb., Fl. Rocky Mts. 868. 1917. **TYPE:** *Solidago humilis* of A. Gray = **S. glutinosa* Nutt. **Species included:** **S. bellidifolia* Greene, **S. chlorolepis* Fern., *S. gillmanii* (A. Gray) Steele, *S. ontarioensis* (Ringius) Semple & Peirson, *S. randii* (Porter) Britt., *S. simplex* Kunth, **S. spathulata* DC. Surfaces of upper portions of plant somewhat to obviously glutinous and shiny.

Sect. 3. *Solidago* sect. *Villosicarpae* Semple & J.B. Beck, **sect. nov.** Involucres cylindrical, 5-8 mm tall, phyllaries ovate to oblong, apex obtuse, appressed; ray floret laminae 5-7 mm long, 1-2 mm wide; oak woods near coast in southern North Carolina. **TYPE:** **S. villosicarpa* LeBlond.

Sect. 4. *Solidago* sect. *Squarrosae* A. Gray, Syn. Fl. N. Amer. 1, 2: 144. 1884. *Solidago* ser. *Squarrosae* (A. Gray) Hoffmann, Nat. Pflanzen. 4(5): 150. 1889. **TYPE:** *S. squarrosa* Muhl. ex Willd. Involucres cylindrical, phyllaries lanceolate with a reflexed to recurved somewhat foliaceous apex; eastern North America from Québec south in mountains to North Carolina.

- Sect. 5. *Solidago* sect. ***Brintonia*** (Greene) Semple & Beck, **comb. et stat. nov.** *Brintonia* Greene, *Erythraea* 3: 89. 1895. **TYPE:** **S. discoidea* (Ell.) Torr. & Gray. Heads rayless; phyllaries lanceolate, apex spreading to reflexed, somewhat foliaceous; pappus sometimes strongly anocyanotic; piedmont and coastal plain western Georgia to Louisiana.
- Sect. 6. *Solidago* sect. *Thyrsiflorae* (A. Gray) A. Gray, Proc. Amer. Acad. Arts 17: 190. 1882. *Solidago* subsect. *Thyrsiflorae* A. Gray, Syn. Fl. N. Amer. 1, 2: 146. 1884. *Solidago* subsect. *Thyrsiflorae* (A. Gray) Nesom, Phytologia 75: 7. 1993, nom. superfl. **LECTOTYPE** [Nesom 1993]: **S. wrightii* A. Gray. **Species included:** *S. buckleyi* Torr. & Gray, *S. capulinensis* Cockerell & Andrews, **S. correllii* Semple, *S. orientalis* (Nesom) Nesom, **S. petiolaris* Ait., *S. spellenbergii* Semple. Generally lower middle stem leaves the largest, rosettes rarely present at flowering, lower stem leaves usually dehisced by flowering; phyllaries mostly lanceolate, sometimes obviously stipitate glandular.
2. **SOLIDAGO** subg. **PLEIACTILA** Raf., Fl. Tellur. 2: 42. 1836 [1837]. **LECTOTYPE** [Nesom 1993]: *S. flexicaulis* L. Heads in secund conical or corymbiform arrays, or axillary clusters of leaf terminal arrays.
- Sect. 7. *Solidago* sect. *Glomeruliflorae* Torr. & Gray, Fl. N. Amer. 2(2): 197. 1842. *Solidago* subsect. *Glomeruliflorae* (Torr. & Gray) A. Gray, Syn. Fl. N. Amer. 1(2): 145. 1884. *Solidago* ser. *Glomeruliflorae* (Torr. & Gray) Hoffmann, Nat. Pflanzen. 4(5): 150. 1889. *Solidago* subsect. *Glomeruliflorae* (Torr. & Gray) Nesom, Phytologia 75: 6. 1993, nom. superfl. **LECTOTYPE** [Nesom, 1993]: **S. caesia* L. **Species included:** **S. flexicaulis* L., *S. curtisii* Torr. & Gray, **S. flaccidifolia* Small, *S. glomerata* Michx., *S. lancifolia* (Torr. & Gray) Torr. & Gray ex Chapm., **S. ouachitensis* C. & J. Taylor, ***Solidago zedia** (Cook & Semple) Semple & J.B. Beck, **comb. et stat. nov.**, based on *Solidago caesia* var. *zedia* Cook & Semple, Sida 21(1): 221. 2004. Inflorescences leafy, heads in axillary clusters of terminal arrays; woodlands of eastern North America.
- Sect. 8. *Solidago* sect. *Ptarmicoidei* (House) Semple & Gandhi, Sida 21: 756. 2004. *Aster* sect. *Ptarmicoidei* House, N.Y. State Mus. Bull. 254. 710. 1924. *Oligoneuron* sect. *Ptarmicoidei* (House) Nesom, Phytologia 75: 27. 1993. **TYPE:** *Aster ptarmicoides* Torr. & Gray = **Solidago ptarmicoides* (Torr. & Gray) Boivin. **Species included:** *S. houghtonii* Torr. & Gray in A. Gray, **S. nitida* Torr. & Gray, **S. ohioensis* Riddell, **S. riddellii* Frank, **S. rigida* L., *S. vossii* Pringle & Loreto. Basal rosettes usually present; weathered petiole bases usually persisting on stems into the next growing season; heads in corymbiform arrays; phyllaries with multiple veins (except *S. ptarmicoides*). These species have been segregated as the genus *Oligoneuron* Small.
- Sect. 9. *Solidago* sect. *Multiradiatae* (Semple) Semple & J.B. Beck, Phytoneuron 2020-38: 2. 2020. *Solidago* subsect. *Multiradiatae* Semple, Sida 21: 760. 2004. **TYPE:** **S. multiradiata* Ait. **Species included:** *S. leiocarpa* DC., *S. spithamaea* M.A. Curtis ex A. Gray. Large heads in small corymbiform arrays that become more paniculiform with lower branches developing; mostly boreal and alpine habitats in North America extending into far eastern arctic Russia.
- Sect. 10. *Solidago* sect. ***Maritimae*** (Torr. & Gray) Semple & J.B. Beck, **comb. et stat. nov.** *Solidago* sp-group *Maritimae* Torr. & Gray, Fl. N. Amer. 2(2): 211. 1842. *Solidago* subsect. *Maritimae* (Torr. & Gray) Nesom, Phytologia 75: 12. 1993. **LECTOTYPE** [Nesom, 1993]: **S. sempervirens* L. **Species included:** **S. austrina* Small, **S. azorica* Hochstetter ex Seubert, **S. chrysopsis* Small, **S. gracillima* Torr. & Gray, *S. maya* Semple, **S. mexicana* L., *S. paniculata* DC., *S. pulchra* Small, *S. simulans* Fern., *S. stricta* Ait., **S. uliginosa* Nutt., *S. × viminea* Ait., *S. virgata* Michx. Lower stem leaf petioles sheathing stem; moist habitats, marshes and bogs of eastern Canada, USA and eastern Mexico.

Sect. 11. *Solidago* sect. ***Argutae*** (Mackenzie in Small) Semple & J.B. Beck, **comb. et stat. nov.** *Solidago* (sp.-group) *Argutae* Mackenzie in Small, Man. SE. Fl. 1345, 1347. 1933. **TYPE:** *S. arguta* Ait.

- a. *Solidago* subsect. *Argutae* (Mackenzie in Small) Nesom, Phytologia 75: 10. 1993. *Solidago* ser. *Argutae* (Mackenzie in Small) Nesom, Phytologia 75: 10. 1993. **TYPE** **S. arguta* Ait. Species included: **S. boottii* Hook., *S. faucibus* Weiboldt in Wieboldt & Semple, *S. harrisii* Steele, **S. ludoviciana* (A. Gray) Small, *S. tarda* Mackenzie ex Small, *S. vaseyi* Heller, *S. verna* M.A. Curtis ex Torr. & Gray.
- b. *Solidago* subsect. ***Brachychaeta*** (Torr. & Gray) Semple & J.B. Beck, **comb. et stat. nov.** *Brachychaeta* Torr. & Gray, Fl. N. Amer. 2: 194. 1842. *Solidago* ser. *Brachychaeta* (Torr. & Gray) Nesom, Phytologia 75: 10. 1993. **TYPE:** *Brachychaeta cordata* (Short & Peter) Torr. & Gray = **S. sphacelata* Raf. Pappus bristles very reduced in length.
- c. *Solidago* subsect. ***Patulae*** Semple & J.B. Beck, **subject. nov.** Stems ridged; leaves scabrous with minute pustulate hairs with a distally oriented acute tip; moist habitats in eastern North America. **TYPE:** **S. patula* Muhl. Species included: **S. salicina* Ell.

Sect. 12. *Solidago* sect. *Venosae* (G. Don in Loudon) Nesom, Phytologia 75: 9. 1993. *Solidago* ser. *Venosae* G. Don in Loud., Hort. Brit. 348. 1830. *Solidago* (sp.-group) *Venosae* (G. Don in Loud.) DC., Prodr. 5: 332. 1836. **LECTOTYPE** [Nesom 1993]: *S. rugosa* Mill. Leaves with reticulate venation, not triple-nerved; lower stem leaves often dehisced by flowering; eastern North America.

- a. *Solidago* subsect. *Venosae* (G. Don in Loudon) Nesom, Phytologia 75: 9. 1993. *Solidago* ser. *Venosae* G. Don in Loud., Hort. Brit. 348. 1830. *Solidago* (sp.-group) *Venosae* (G. Don in Loud.) DC., Prodr. 5: 332. 1836. **LECTOTYPE** [Nesom 1993]: **S. rugosa* Mill. Species included: **S. fistulosa* Mill., *S. latissimifolia* Mill. Pappus longer than just corolla tube, extending about bases of corolla lobes.
- b. *Solidago* subsect. ***Ulmifoliae*** (Mackenzie in Small) Semple & J.B. Beck, **comb. et stat. nov.** *Solidago* (sp.-group) *Ulmifoliae* Mackenzie in Small, Man. SE. Fl. 1345, 1357. 1933. **TYPE:** *S. ulmifolia* Muhl. ex Willd. Inflorescences usually with a few long-diverging lower branches; rosettes generally not present; upper stem leaves generally much reduced, pappus about the length corolla tube; eastern North America.

Solidago ser. ***Ulmifoliae*** (Mackenzie in Small), Semple & J.B. Beck, **ser. nov.** *Solidago* (sp.-group) *Ulmifoliae* Mackenzie in Small, Man. SE. Fl. 1345, 1347. 1933. **TYPE:** **S. ulmifolia* Muhl. ex Willd. Species included: **S. brachyphylla* Chapm. ex Torr. & Gray, **S. delicatula* Small. Leaves not auriculate or clasping; phyllaries appressed.

Solidago ser. *Auriculatae* Semple, Sida 20: 1606. 2003. **TYPE:** **S. auriculata* Shuttlew. ex S.F. Blake Leaf petioles and blades auriculate, clasping stem; phyllaries with spreading to recurved tips, inner ones sometimes with multiple veins.

- c. *Solidago* subsect. ***Drummondiani*** (Semple) Semple & J.B. Beck, **comb. et stat. nov.** *Solidago* ser. *Drummondiani* Semple, Sida 20: 1606. 2003. **TYPE:** *S. drummondii* Torr. & Gray. Lower stem leaves the largest, usually with multiple prominent proximal lateral veins. The placement of the species is suggested by its position in the phylogeny included in Beck et al. (2021).

Sect. 13. *Solidago* sect. *Unilaterales* D. Don in Loudon, Hort. Brit. 348. 1830. *Solidago* series *Unilaterales* (G. Don in Loud.) DC., Prodr. 5: 330. 1836. **LECTOTYPE** [Nesom, 1993]: *S. canadensis* L. At least lower stem leaves with two larger lateral veins present, causing middle portion of leaves to appear triple-nerved.

- a. *Solidago* subsect. *Triplinerviae* (Torr. & Gray) Nesom, Phytologia 75: 8. 1993. *Solidago* sp.-group *Triplinerviae* Torr. & Gray, Fl. N. Amer. 2(2): 222. 1842. A. Gray, Syn. Fl. N. Amer. 1, 2: 155. 1884. **LECTOTYPE** [Nesom, 1993]: *S. canadensis* L. Basal rosette leaves absent; stems distally sparsely to densely short strigose-villose, often to base of stem. Much of North America north of Honduras; several species introduced and naturalized in Europe, Asia, Africa, and scattered locations in Oceania.

Solidago* ser. *Canadensae Semple & J.B. Beck, **ser. nov.** Lower stems glabrous or sparsely to densely canescent; lower stem leaves senescing and dehiscing, not persisting; basal rosettes not present. **TYPE:** **S. canadensis* L. **Species included:** **S. altissima* L., **S. brendae* Semple, **S. elongata* Nutt., **S. fallax* (Fern.) Semple, **S. lepida* DC., *S. rupestris* Raf., *S. shortii* Torr. & Gray.

Solidago* ser. *Tortifoliae Semple & J.B. Beck, **ser. nov.** Lower stems usually finely canescent; lower middle stem leaves often persisting after senescing, twisted multiple times along blade, hanging downward, brown to black; basal rosettes not present. **TYPE:** **S. tortifolia* Ell. **Species included:** *S. durangensis* Nesom, *S. gypsophila* Nesom, **S. juliae* Nesom, *S. leavenworthii* Torr. & Gray, *S. macvaughii* Nesom, *S. pringlei* Fern., *S. veracruzensis* Semple.

- b. *Solidago* subsect. *Junceae* (Rydb.) Nesom, Phytologia 75: 11. 1993. *Solidago* (sp.-group) *Junceae* Rydb., Fl. Prairies & Plains. 792. 1932. **TYPE:** *S. juncea* Ait. Basal rosettes often present at anthesis; stems glabrous to sparsely canescent distally; fascicles of leaves of very short lateral branches usually developing in nodes of upper stem leaves.

Solidago* ser. *Junceae (Rydb.) Nesom, Phytologia 75: 11. 1993. **TYPE:** **S. juncea* Ait. **Species included:** *S. argentinensis* Lopez Laphitz & Semple in Lopez Laphitz. et al., **S. missouriensis* Nutt., **S. pinetorum* Small. Arrays pyramidal to rhombic or obpyramidal, never racemiform; leaves waxy, not fleshy, sometimes 3-nerved; caudices short to long rhizomatous; eastern North America, Great Plains to Pacific Northwest, Bolivia and western Argentina.

Solidago* ser. *Spectabiles Nesom, Phytologia 75: 9. 1993. **TYPE:** **S. spectabilis* (D.C. Eaton) A. Gray. **Species included:** **S. confinis* A. Gray, **S. guiradonis* A. Gray. Arrays club-shaped to subracemiform; leaves not obviously 3-nerved, sometimes fleshy and waxy; caudices short-branched; usually boggy, marshy ground or stream margins; far western USA and adjacent Baja California.

- c. ***Solidago* subsect. *Radulae*** (Rydb.) Semple & J.B. Beck, **comb. et stat. nov.** *Solidago* sp.-group *Radulae* Rydb., Fl. Rocky Mts. 869. 1917. **TYPE:** *S. garrettii* Rydb. = *S. sparsiflora* A. Gray = **S. velutina* DC. [Rydberg (1917) did not cite *S. radula* Nutt.]. **Species included:** **S. altiplanities* C. & J. Taylor, *S. californica* Nutt., **S. gattingeri* Chapm. ex A. Gray, *S. hintoniorum* Nesom, *S. mollis* Bartl., **S. radula* Ait. Lower stem leaves largest, triple-nerved; stems finely hispid-canescens; basal rosette sometimes present.

- d. ***Solidago* subsect. *Serotinae*** (Rydb.) Semple & J.B. Beck, **comb. et stat. nov.** *Solidago* (sp.-group) *Serotinae* Rydb., Fl. Rocky Mts. 868. 1917. **TYPE:** *S. serotina* Rydb. = **S. gigantea* Ait. **Species included:** **S. chilensis* Meyen, **S. microglossa* DC. Basal rosettes absent; stem

glabrous to densely short strigose or long strigose-villose; North America and South America, *S. chilensis* introduced and naturalized in India and Australia.

3. **SOLIDAGO** subg. **NEMORALES** (Mackenzie in Small) Semple & J.B. Beck, **comb. et stat. nov.** *Solidago* sp.-group *Nemorales* Mackenzie in Small, Man. SE. Fl. 1345, 1348. 1933. *Solidago* subsect. *Nemorales* (Mackenzie) Nesom, Phytologia 75: 8. 1993. **TYPE:** **S. nemoralis* Ait. **Species included:** *S. decemflora* DC., **S. nana* Nutt. Leaves generally not triple-nerved; stem and leaf hairs soft; leaves gray-green to sometimes whitish; basal rosettes often present at flowering.
4. **SOLIDAGO** subg. **TRIACTIS** Raf., Raf., Fl. Tellur. 2: 42. 1836 [1837]. **TYPE:** *Solidago retrorsa* Michx. = *Solidago odora* Ait. (as designated by Raf. — Semple et al. 2020). Nesom (1993) unnecessarily selected *Solidago tortifolia* Ell. as the lectotype because Rafinesque had designated the type species; Nesom also treated subg. *Triactis* as a synonym of *S. ser. Junceae* (Rydb.) Nesom. Small shrubs or herbaceous perennials; leaves with one prominent midvein; leaf bases persistent on stems to only sometimes persistent; phyllaries lanceolate, acute tipped, hyaline margins well developed.

Sect. 14. *Solidago* sect. ***Odorae*** Semple & J.B. Beck, **sect. nov.** Herbaceous perennials from thick woody branching to short rhizomatous rootstocks; stem internodes not very short; bases of senesced leaves sometimes persisting on stem later in growing season; phyllaries lanceolate, apex acute, hyaline margins well developed; leaves with only main vein prominent; crushed leaves with anise scent; eastern USA. **TYPE:** **Solidago odora* Ait. **Species included:** **S. chapmanii* A. Gray.

Sect 15. *Solidago* sect. ***Suffrutescentes*** Semple & J.B. Beck, **sect. nov.** Suffrutescent perennials; base of leaves persisting on stems with short internodes for more than a season; phyllaries like *S. odora*, sometimes multiple veined; Nuevo León, Mexico. **TYPE:** **S. ericamerioides* Nesom.

CHRYSOMA Nutt., Trans. Amer. Phil. Soc. n.s. 7: 67. 1841. *Solidago* subg. *Chrysoma* (Nutt.) Torr. & Gray, Fl. N. Amer. 2(2): 225. 1842. **TYPE:** *Chrysoma solidaginoides* Nutt. = *Solidago pauciflosculosa* Michx. = *Chrysoma pauciflosculosa* (Michx.) Greene. Woody shrubs; leaves with deeply sunken veins; leaf bases persisting on woody stems with short nodes; flowering branches arising from older branches senescing after fruit maturation; edge of Piedmont and outer coast plain from North Carolina to Mississippi.

LITERATURE CITED

- Beck, J.B., M.L. Markley, M.G. Zielke, J.R. Thomas, H.J. Hale, L.D. Williams, and M.G. Johnson. 2021. Is Palmer's elm leaf goldenrod real? The Angiosperms353 kit provides within-species signal in *Solidago ulmifolia* s.l. <bioRxiv doi.org/10.1101/2021.01.07.425781>
- Nesom, G.L. 1993. Taxonomic infrastructure of *Solidago* and *Oligoneuron* (Asteraceae: Astereae) and observations on their phylogenetic position. Phytologia 75: 1–44.
- Rydberg, P. 1917. Flora of the Rocky Mountains and Adjacent Plains. Published by the author, New York.
- Semple, J.C., V. Durand-Andro, G. Flament, C. Aupic, and F. Jabbour. 2020. Typification of *Solidago retrorsa* Michx. (Asteraceae: Astereae). Phytoneuron 2020-69: 1–8.