

CONTRIBUTIONS TO AN ILLINOIS FLORA No. 5.  
COMPOSITAE III. (TRIBE HELIANTHEAE,  
PART II—THE GENUS COREOPSIS)

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ABSTRACT.—Seven species of *Coreopsis* are reported for Illinois. Keys, descriptions, and distributional maps are provided for each species.

This is the second part of a treatment of the tribe Heliantheae in Illinois. The first part, consisting of a key to the 23 Illinois genera and a treatment of the genera *Dyssodia*, *Helenium*, *Gaillardia*, *Hymenoxys*, *Hymenopappus*, and *Polymnia*, has been published previously (Wunderlin, 1971). Treatments of the other genera will follow in subsequent publications.

*Coreopsis* consists of about 100 species native to North and South America, Hawaii, and Africa. Seven species occur in Illinois, three of which are adventive or escaped from cultivation.

Taxonomically the genus approaches *Bidens* on one hand and *Cosmos* on the other, but it is generally well demarcated as a genus in having wing-margined cypselas (rarely absent) and a pappus of two short teeth or awns, a short crown, or absent.

Many members of the genus are widely cultivated as ornamentals in temperate regions, several of which have escaped and have become naturalized.

The synonymy in this work essentially follows that of Sherff (1955).

The distributional maps are based upon specimens housed in the following herbaria: Eastern Illinois University, the Field Museum of Natural History, the Illinois Natural History Survey, the Illinois State Museum, the Missouri Botanical Garden, Southern Illinois

University, the University of Illinois, and Western Illinois University. The author is grateful to the curators of these herbaria for allowing him to study their specimens of *Coreopsis*. The author also gratefully acknowledges Dr. Robert H. Mohlenbrock, Southern Illinois University, for his critical reading of the manuscript.

SYSTEMATIC TREATMENT

11. COREOPSIS L., Sp. Pl. 907. 1753.  
*Acispermum* Neck., Elem. 1:34. 1790.  
*Coreopsoides* Moench, Meth. 594. 1794.  
*Anacis* Schrank, Denkschr. Akad. Munchen 5 (Math. Naturw.):5. 1817.  
*Leachis* Cass., Dict. Sci. Nat. 25:388. 1822.  
*Chrysomelea* Tausch, Hort. Canal. (15). 1823.  
*Diplosastera* Tausch, Hort. Canal. (15). 1823.  
*Calliopsis* Reichenb., Ic. Pl. Cult. pl. 70. 1823.  
*Chrysostemma* Less., Syn. Gen. Comp. 227. 1823.  
*Electra* DC., Prodr. 5:63. 1832.  
*Leptosyne* DC., Prodr. 5:331. 1836.  
*Agaristra* DC., Prodr. 5:569. 1836.  
*Epilepis* Benth., Pl. Hartw. 17. 1839.  
*Tuckermannia* Nutt., Trans. Amer. Phil. Soc. II. 7:363. 1841.  
*Pugiopappus* A. Gray, in Torr., Pacif. Railr. Rep. 4:104. 1857.

Annual or perennial herbs; leaves opposite or rarely alternate, simple, entire to deeply pinnately or palmately lobed or divided. Heads solitary or loosely corymbose-paniculate, radiate; involucre double, outer foliaceous, usually spreading, inner wider, submembranous, appressed; receptacle flat; palea membranous, striate, deciduous with fruit; ray-flowers usually neutral, ligule yellow, variegated, or rarely purple; disc-flowers bisexual, fertile, regular, 5-dentate, throat with annulus; anthers entire or subauriculate; style-branches truncate, conic, or caudate; pappus 2-toothed, 2-awned, or absent. Cypselas (cf. Wunderlin, 1971) flat, obcompressed, often winged.

Key to the Illinois Species of  
*Coreopsis*

1. Leaves undivided or rarely with 1 or 2 short lateral lobes.
2. Leaves mostly basal, linear to oblanceolate. . . . . 1. *C. lanceolata*
2. Leaves produced to middle of stem or higher, ovate to elliptic-lanceolate. . . . . 2. *C. pubescens*
1. Leaves 3- to 5-lobed or divided.
3. Leaves sessile, deeply 3-lobed to or below middle. . . . . 3. *C. palmata*
3. Leaves usually petiolate, divided into 3-5 segments.
4. Ligules of ray-flowers reddish-brown at base or throughout; disc-flowers reddish-brown.
5. Cypselas linear-oblong, wingless; leaf segments linear to linear-lanceolate. . . . . 4. *C. tinctoria*
5. Cypselas obovate, cartilaginous-margined; leaf segments lanceolate to elliptic-oblong to orbicular. . . . . 5. *C. basalis*
4. Ligules of ray-flowers yellow; disc-flowers yellow or reddish-brown.
6. Leaf segments elliptic-lanceolate; cypselas 5-7 mm long; disc-flowers yellow or reddish-brown. . . . . 6. *C. tripteris*
6. Leaf segments linear to linear-lanceolate; cypselas 1-4 mm long; disc-flowers yellow. . . . . 7. *C. grandiflora*

1. COREOPSIS LANCEOLATA L., Sp. Pl. 908. 1753.

*Coreopsis crassifolia* Ait., Hort. Kew. 3:253. 1787, non Sesse & Moc., 1894.

*Coreopsoides lanceolata* (L.) Moench, Meth. 594. 1794.

*Coreopsis lanceolata* L. var. *glabella* Michx., Fl. Bor.-Amer. 2:137. 1803.

*Coreopsis lanceolata* L. var. *villosa* Michx., Fl. Bor.-Amer. 2:137. 1803.

*Leachia lanceolata* (L.) Cass., Dict. Sci. Nat. 25:388. 1822.

*Chrysomelea laneolata* (L.) Tausch, Hort. Canal. (15). 1823.

*Coreopsis oblongifolia* Nutt., Jour. Acad. Phila. 7:76. 1834.

*Coreopsis lanceolata* L. var. *succisaefolia* DC., Prodr. 5:570. 1836.

*Coreopsis lanceolata* L. var. *crassifolia* (Ait.) Heynh., Nom. 1:219. 1840.

*Coreopsis lanceolata* L. var. *angustifolia* T. & G., Fl. N. Amer. 2:344. 1842.

*Coreopsis heterogyne* Fern., Rhodora 40: 475. 1938.

Erect or ascending perennial herbs; stems 2-8 dm tall, scapiform, subangular, glabrous or pubescent; leaves opposite, simple or rarely with 1-2 small lateral lobes, linear to oblanceolate, 5-10 cm long, 0.5-2.0 cm wide, lower long-petiolate, upper sessile, pubescent or with ciliate

bases only. Heads usually solitary, radiate, 3-6 cm wide; peduncles 2-4 cm long; outer phyllaries lanceolate to oblong-ovate, 4-8 mm long, inner ovate, 8-12 mm long; ray-flowers about 8, yellow, 1.3-3.0 cm long, ligule obovate or cuneate, 3-lobate; palea linear-oblong with filiform tip, 4-6 mm long; disc-flowers yellow; style branches caudate; pappus with 2 small fimbriolate teeth. Cypselas obcompressed, orbicular, 2.3-3.0 mm long, black calloused excrescences at ends, margin winged.  $2n = 24, 48$  (Bilquez, 1955);  $2n = 26$  (Turner, 1960).

*Coreopsis lanceolata* occurs naturally from Michigan and the Lake Superior region south to Florida and New Mexico and is escaped from cultivation and becoming naturalized northeast to New England. It occurs locally in dry sandy or rocky soils throughout Illinois (Fig. 1), where it flowers from June to July.

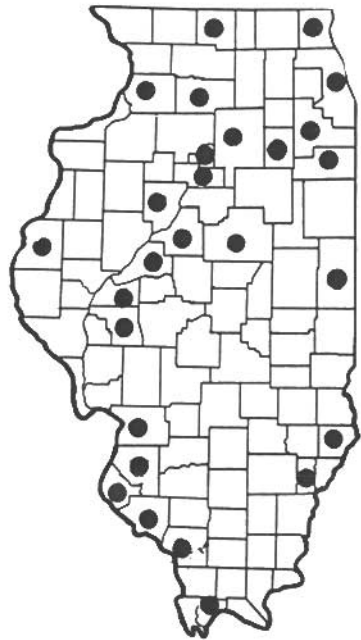


FIGURE 1. Distribution of *Coreopsis lanceolata* in Illinois.

*Coreopsis lanceolata* var. *villosa* has been segregated by some authors. In Illinois it does not appear to have any distinct geographical range and both varieties frequently grow together with intermediate forms present. It therefore is not recognized in this study.

2. *COREOPSIS PUBESCENS* Ell., Bot.

S. C. &amp; Ga. 2:441. 1823.

*Coreopsis auriculata* L. var. T. & G.,  
Fl. N. Amer. 2:343. 1842.*Coreopsis auriculata* L. var. T. & G., Fl.  
N. Amer. 2:344. 1842, excl. syn.*Coreopsis pubescens* Ell. var. *typica* Sherff,  
Brittonia 6:341. 1948.

Erect perennial herbs; stems 5-13 dm tall, pubescent; leaves opposite, lower ovate to obovate, 2-5 cm long, 1-4 cm wide, petiolate, upper ovate to elliptic-lanceolate, entire or 3- to 5-parted, 5-10 cm long, 1-7 cm wide, sessile. Heads usually solitary, radiate, 3-5 cm wide; peduncles 1-2 cm long; outer phyllaries linear-lanceolate, 7-10 mm long, inner ovate, subequal; ray-flowers about 8, yellow, 1.0-2.3 cm long, ligule cuneate to oblong-cuneate, 3-lobate; palea elongate-filiform, 6-8 mm long; disc-flowers yellow; style-branches abruptly narrowed, linear-appendaged; pappus with 2 fimbriate teeth. Cypselas obcompressed, suborbicular, 2.8-3.0 mm long, black, glabrous or papillate, calloused excrescences at ends, margin winged.  $2n = 28$  (Snoad, 1952; Turner, 1960).

*Coreopsis pubescens* occurs naturally from Virginia, south to Florida, west to



FIGURE 2. Distribution of *Coreopsis pubescens* in Illinois.

Oklahoma, and north to Missouri and is adventive or escaped from cultivation elsewhere. It occurs locally in open woods, fields, and along roadsides in southern Illinois (Fig. 2). It flowers from June to September.

3. *COREOPSIS PALMATA* Nutt., Gen. 2:180. 1818.*Calliopsis palmata* (Nutt.) Spreng., Syst. 3:611. 1826.*Coreopsis pauciflora* Lehm. ex Schlecht.,  
Linnaea 10 (Litt.-Ber.):76. 1836.*Coreopsis praecox* Fresen. ex Schlecht.,  
Linnaea 10 (Litt.-Ber.):76. 1836.

Erect perennial herbs; stems 5-9 dm tall, glabrous or hirsute at nodes; leaves opposite, principal palmately 3-parted into entire or irregularly lobed oblong or oblong-linear segments, 0.4-2.5 cm long, 3-6 mm wide, sessile. Heads 1-3 (-6), radiate, 2.5-6.0 cm wide; outer phyllaries linear-oblong, obtuse, margins scabrous-ciliolate; ray-flowers about 8, yellow, 1.5-2.7 cm long, ligule oblong-obovate, slightly dentate; palea filiform, 6-7 mm long; disc-flowers yellow; style-branches nar-

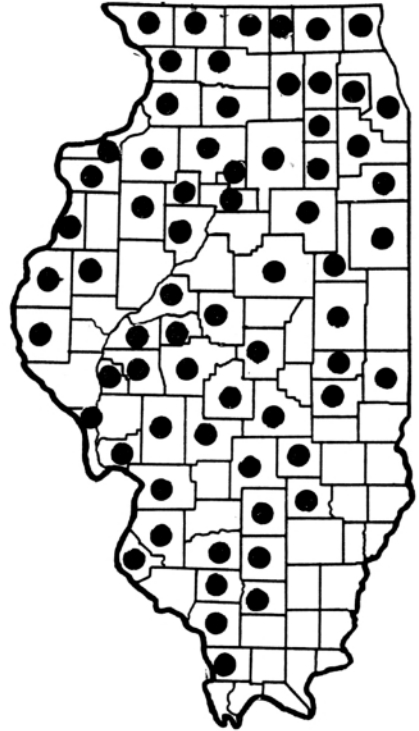


FIGURE 3. Distribution of *Coreopsis palmata* in Illinois.

rowly conic; pappus 2-toothed. Cypselas obcompressed, elliptic-oblong, 5.0-6.5 mm long, black, glabrous, narrowly winged. Chromosome number unknown.

*Coreopsis palmata* occurs from Wisconsin and Manitoba south to Indiana, Missouri, and Oklahoma. It occurs in prairies, open woods, and along roadsides nearly throughout Illinois (Fig. 3). It flowers from June to July.

4. *COREOPSIS TINCTORIA* Nutt., Jour. Acad. Phila. 2:114. 1821.

*Calliopsis bicolor* Reichenb., Ic. Pl. Cult. pl. 70. 1823.

*Diplosastera tinctoria* (Nutt.) Tausch, Hort. Canal. (16). 1823.

*Calliopsis tinctoria* (Nutt.) DC., Prodr. 5:568. 1836.

*Calliopsis tinctoria* (Nutt.) DC. var. *atropurpurea* Hook., Curtis's Bot. Mag. 63:pl. 3511. 1836.

*Coreopsis bicolor* Bosse ex Buch., Linnaea 25:630. 1853, nom. nud.

*Coreopsis elegans* Hort. ex Wieg., in Bailey, Stand. Cyc. Hort. ed. 2. 2:845. 1914, pro syn.

*Coreopsis nigra* Hort. ex Wieg., in Bailey, Stand. Cyc. Hort. ed. 2. 2:845. 1914, pro syn.

*Coreopsis marmorata* Hort. ex Wieg., in Bailey, Stand. Cyc. Hort. ed. 2. 2:845. 1914, pro syn.

*Coreopsis tinctoria* Nutt. var. *nana* Hort. ex Wieg., in Bailey, Stand. Cyc. Hort. ed. 2. 2:845. 1914.

*Coreopsis radiata* Hort. ex Wieg., in Bailey, Stand. Cyc. Hort. ed. 2. 2:846. 1914, non Mill., 1768.

*Coreopsis tinctoria* Nutt. f. *atropurpurea* (Hook.) Fern., Rhodora 44:477. 1942.

*Coreopsis tinctoria* Nutt. var. *atropurpurea* Hook. f. *tinctoria* Sherff, Brittonia 6:341. 1948.

*Coreopsis tinctoria* Nutt. var. *atropurpurea* Hook. f. *atropurpurea* Fern., ex Sherff, Brittonia 6:341. 1948.

Erect annual herbs; stems 6-12 dm tall, glabrous, subquadrangulate; leaves opposite, subsessile, basal and lower pinnately divided, segments linear, 5-10 cm long, 1-2 mm wide, upper entire. Heads numerous, subcorymbose, radiate, 1.5-3.0 cm wide; peduncles slender, 4-10 cm long; outer phyllaries linear-oblong to triangular, about 2 mm long, edges scarious, inner ovate, 5-7 cm long; ray-flowers 7-8, yellow with reddish-brown bases, 0.7-1.5 cm long, ligule obovate, usually 3-lobate; palea subfiliform, 4.0-4.5 mm long; disc-flowers reddish-brown; style-branches obtuse; epappose. Cypselas obcompressed, linear-oblong, 1.5-4.0 mm long, black, papillose below, wingless.  $2n = 24$  (Turner, 1960).

*Coreopsis tinctoria* occurs naturally in low ground from Minnesota, south to Louisiana, west to California, and north to Washington and is adventive or escaped from cultivation east to the Atlan-

tic coast. It occurs locally along roadsides, railroads, and in waste ground in Illinois as an adventive or escape (Fig. 4). It flowers from July to September.

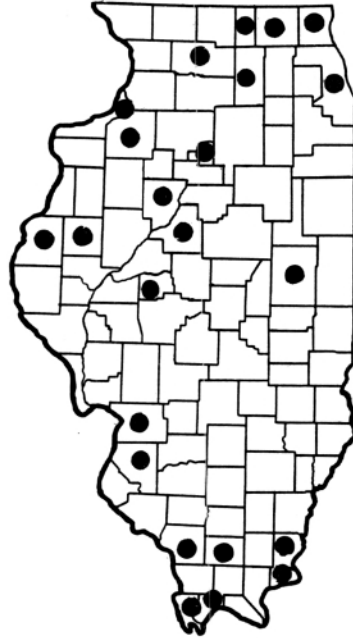


FIGURE 4. Distribution of *Coreopsis tinctoria* in Illinois.

*Coreopsis tinctoria* f. *atropurpurea* is segregated by some authors. Since it intergrades with f. *tinctoria* and is a cultigen its validity as a distinct taxon is in the opinion of the author not warranted.

5. *COREOPSIS BASALIS* (Otto & Dietr.) Blake, Proc. Amer. Acad. 51:525. 1916.

*Calliopsis basalis* Otto & Dietr., Allg. Gart. 3:329. 1835. (17 Oct.).

*Calliopsis drummondii* D. Don, in Sweet, Brit. Fl. Gard. II. pl. 315. 1835. (1 Dec.).

*Coreopsis diversifolia* Hook., Curtis' Bot. Mag. 63:pl. 3474. 1836, excl. syn.

*Coreopsis picta* Hort. ex Sieb. & Voss, in Vilmorin, Blumengartnerei ed. 3. 1:487. 1894.

*Coreopsis basalis* (Otto & Dietr.) Blake var. *typica* Sherff, Brittonia 6:341. 1948.

Erect annual herbs; stems 2-4 dm tall, subglabrous to pubescent; leaves opposite, basal and lower 1- to 3-pinnate, segments lanceolate to elliptic-oblong to or-

bicular, 3-8 cm long, 2-4 cm wide; petioles 1-5 cm long. Heads numerous, subcorymbose, radiate, 3-6 cm wide; peduncles slender, naked, 5-15 cm long; outer phyllaries linear-lanceolate, 5-9 mm long, inner ovate, 6-10 mm long; ray-flowers about 8, yellow with reddish-brown bases, 1.3-2.3 cm long, ligule cuneate-obovate, 2- to 3-lobate; palea linear, 6-10 mm long; disc-flowers reddish-brown; style-branches obtusely conic; epappose. Cypselas obcompressed, obovate, 1.4-1.8 (-2.0) mm long, black, papillate, incurved margins thickened and cartilaginous.  $2n = 26$  (Gelin, 1934).

*Coreopsis basalis* occurs naturally in dry rocky soils only in Texas although it occurs as an escape from cultivation elsewhere in the eastern United States. It is known in Illinois only from the following collection: LAKE CO.: Cedar Lake, Lake Villa, Fuller 13272 (ISM) (Fig. 5).

6. COREOPSIS TRIPTERIS L., Sp. Pl. 908. 1753.

*Anacis tripteris* (L.) Shrank, Denkschr. Akad. Munchen 5 (Math. Naturw.):7. 1817.

*Chrysostemma tripteris* (L.) Less., Syn. Gen. Comp. 227. 1832.

*Coreopsis tripteris* L. var. T. & G., Fl. N. Amer. 2:341. 1842.



FIGURE 5. Distribution of *Coreopsis basalis* in Illinois.

*Coreopsis tripteris* L. var. *deamii* Standl., Rhodora 32:33. 1930.

*Coreopsis tripteris* L. var. *intercedens* Standl., Rhodora 32:34. 1930.

Erect perennial herbs; stems 1-3 m tall, glabrous or rarely pubescent; leaves opposite, principal ones pinnately 3- to 5-parted, segments elliptic-lanceolate, 3-10 cm long, 1-3 cm wide, petioles 0.5-3.0 cm long, rameal leaves usually simple, sessile. Heads subcorymbose, radiate, 3-5 cm wide; peduncles 3-8 cm long; outer bracts oblong-linear, obtuse, 2-3 mm long, inner oblong-ovate, 4-6 mm long; ray-flowers 7-8, yellow, 1.2-2.4 cm long, ligule ellip-

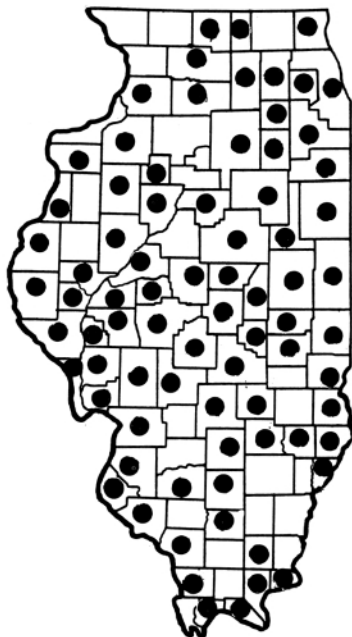


FIGURE 6. Distribution of *Coreopsis tripteris* in Illinois.

tic-oblong, subentire or dentate; palea filiform, purple-striate, 5-7 mm long; disc-flowers yellow to reddish-brown; style-branches caudate; epappose. Cypselas obcompressed, cuneate, 5-7 mm long, brownish-black, glabrous, margin winged.  $2n = 26$  (Gelin, 1934).

*Coreopsis tripteris* occurs from Ontario to Wisconsin, south to Georgia, Louisiana, and Kansas and is escaped from cultivation northeast to New England. It occurs frequently in open woods and along roadsides throughout Illinois (Fig. 6).

7. COREOPSIS GRANDIFLORA Hogg ex Sweet, Brit. Fl. Gard. pl. 175. 1826.

*Coreopsis boykiniana* Nutt., Trans. Amer. Phil. Soc. II. 7:358. 1841.

*Coreopsis heterophylla* Nutt., Trans. Amer. Phil. Soc. II. 7:358. 1841, non Cav., 1796, nec Bertol., 1848.

*Coreopsis grandiflora* Hogg ex Sweet var. *subintergrifolia* T. & G., Fl. N. Amer. 2:345. 1842.

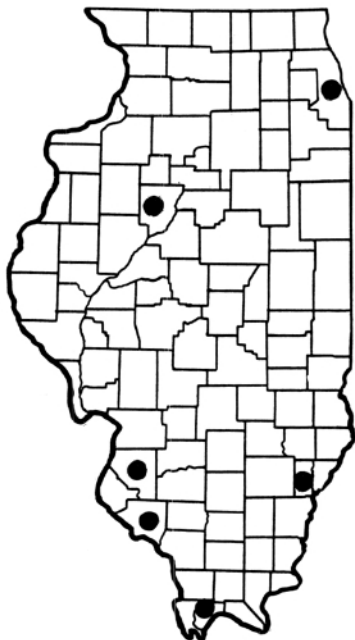


FIGURE 7. Distribution of *Coreopsis grandiflora* in Illinois.

Erect or ascending perennial or rarely annual herbs; stems 3-6 dm tall, subglabrous; leaves opposite, basal and lower simple or irregularly divided, upper 3- to 5-parted, segments linear to linear-lanceolate, 5-10 cm long, 1-5 mm wide; petiole 0.5-4.0 cm long. Heads usually soli-

tary, radiate, 3-6 cm wide; peduncles slender, 1.0-1.5 dm long; outer phyllaries lanceolate, subulate, 5-9 (-18) mm long, margins ciliate, inner ovate, subequal; ray-flowers about 8, yellow, 1.3-2.5 cm long, ligule cuneate-obovate, 3-lobate; palea linear, 6-7 mm long; disc-flowers yellow; style-branches conspicuously cuspidate; pappus small or wanting. Cypselas obcompressed, orbiculate, 1-4 mm long, black, papillate, usually with calloused excrescences at ends, margin winged.  $2n = 26$  (Gelin, 1934).

*Coreopsis grandiflora* occurs naturally in sandy or rocky prairies and thickets from Missouri to Kansas, south to New Mexico and Florida and is adventive or escaped from cultivation in the midwest and New England areas. It occurs locally along roadsides and in waste ground as an adventive or escape in Illinois (Fig. 7).

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