

THE GENUS *ANEMONE* IN ILLINOIS

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The genus *Anemone* is represented in Illinois by six known species. This taxonomic study is an attempt to evaluate the genus in Illinois from a study of herbarium specimens in the University of Illinois herbarium and the herbarium of the Illinois State Natural History Survey. Descriptions have been made of the salient features of the species; an artificial key is provided for their identification.

Type localities of the species are from their original descriptions; the distribution in North America has been adapted from Rydberg's *Flora of the Prairies and Plains*. Habitats have been recorded from information on herbarium labels. Common names are those given in *Standardized Plant Names*. The synonymy of each species is not intended to be exhaustive; only those synonyms are listed to which reference as to their occurrence in Illinois is recorded. Cited specimens are from the herbaria of the University of Illinois and from the Illinois State Natural History Survey (NHS).

ANEMONE L.

(Pulsatilla Adans.)

Erect, perennial herbs usually with horizontal rhizomes and basal leaves. Basal leaves petioled, palmately divided or dissected. Stem leaves whorled, forming an involucre remote from the flower. Flowers terminal, solitary or umbellate. Sepals 4-20, usually 5, petals lacking. Stamens numerous. Pistils usually numerous, maturing into achenes. Style persistent, short, or developing a long and plumose tail.

Opinions vary as to the limits of the genus *Anemone*, it having been variously divided by some authors into several genera, or these several genera combined by others into the one genus. Tournefort recognized both *Anemone* and the closely related *Pulsatilla*. Linnaeus, in the early editions of the *Genera Plantarum*, listed *Hepatica*, *Anemone* and *Pulsatilla*, but combined all three of these as *Anemone* in the first edition of the *Species Plantarum*. Later, Adanson recognized *Anemone* and *Pulsatilla*. In Gray's Manual the first four editions maintain *Pulsatilla* and *Anemone* as distinct from each other, but later editions include both under *Anemone*.

Hepatica, in which the involucre is close to the flower and is sepal-like, is a natural genus readily separated from *Anemone* and *Pulsatilla*. The latter groups are not as easily distinguished. The long plumose style and the occasional presence of abortive stamens of *Pulsatilla* are the only obvious characters which separate it from *Anemone*. In other respects, especially in the remoteness of the involucre from the flower and the similarity of perianth parts in both, the two are closely enough allied to include them in one genus, as they are so considered in this report.

KEY TO SPECIES

1. Styles elongate, plumose; plants vil-
lous; leaf segments linear; sepals
bluish-purple. *A. ludoviciana*
1. Styles shorter, glabrous or pubes-
cent, not plumose.
2. Stem leaves sessile.

3. Stem 2-6 dm. tall, arising from a rhizome; sepals 4-6, obovate, white. *A. canadensis*
3. Stem 8-20 cm. tall, arising from a small tubercle; sepals 6-20, linear, white or purplish. *A. caroliniana*
2. Stem leaves stalked.
 4. Basal leaves numerous, simple, divided; flowers 1-several; achenes villous.
 5. Leaf segments toothed above the middle, cuneate; styles 1 mm. long. *A. cylindrica*
 5. Leaf segments toothed to below the middle, ovate to ovate-lanceolate; styles 1.5-2 mm. long.
4. Basal leaf solitary, compound, appearing after the flower; flower solitary; achenes glabrous or pubescent. *A. quinquetfolia*

Anemone ludoviciana Nutt. Gen. Am. Pl. II: 20, 1818; Jones (1945) 131; Fuller (1946) 56.

Clematis hirsutissima Pursh, Fl. Am. Sept. 385, 1814.

Pulsatilla nuttalliana Spreng. Syst. II: 663, 1825; Bebb (1860) 183.

A. patens var. *nuttalliana* A. Gray, Man. Ed. 5: 36, 1867; Vasey (1870) 217; Patterson (1876) 1; Brendel (1887) 83; Higley & Raddin (1891) 1; Huett (1897) 2:163.

A. patens var. *Wolfgangiana* sensu McDonald (1890) 103; Robinson and Fernald (1908) 401; Gleason (1910) 155; Pepon (1927) 208; not Koch.

P. hirsutissima (Pursh) Britt., in Ann. N. Y. Acad. Sci. 6: 217, 1892; Britton (1892) 217.

P. ludoviciana (Nutt.) Heller, Cat. N.A. Pl., Ed. 2:4, 1900; Rydberg (1932) 333.

P. patens sensu Britton and Brown (1913) 2: 102. Not (L.) Mill., Mill. Gard. Dict., Ed. 8, No. 4, 1768.

Type locality: "Commencing near the confluence of the river Platte and Missouri; on gravelly hills."

Range: Ill.—Tex.—Utah—Wash.—Alaska.

Perennial from a thick rhizome. Stem villous, 15-35 cm. tall. Leaves dissected into numerous divisions; basal leaves petioled, involucre leaves sessile. Peduncle bearing a solitary large purple or white flower. Sepals 5-7, ovate. Stamens numer-

ous, the outer often sterile. Achenes in a globose head, with long plumose persistent styles. American Pasque Flower.

In prairies, northern Illinois. Rare.

The earliest flowering and rarest species in Illinois, occurring only in the northernmost counties.

Specimens examined: McHenry Co. Ringwood, no date, G. Vasey; Ogle Co. Byron, 1885, Blount; Winnebago Co. Fountindale, no date, M. S. Bebb; Rockford, March 30, 1910, J. G. Mosier; prairies, Rockford, April 16, 1940, April 19, 1940, G. D. Fuller (NHS).

Anemone canadensis L. Syst., Ed. 12, 3, App.: 231, 1768; Gleason (1910) 155; Britton and Brown (1913) 2: 99; Gates (1922) 167; Fuller (1925) 102; Gates (1926) 228; Pepon (1927) 311; McDougall and Liebtog (1928) 228; McDougall (1936) 105; Jones (1942) 71; Fuller (1943) 94; Jones (1945) 131; Fuller (1946) 56.

A. pennsylvanica L. Mant. 2: 247, 1771; Beck (1828) 115; Mead (1846) 35; Forbes (1870) 352; Greene (1870) 6; Babcock (1872) 20; Patterson (1874) 1; Schneck (1876) 514; Higley and Raddin (1891) 2; Huett (1879) 43; Snare & Hicks (1898) 1.

Type locality: "Hab. in Pennsylvania."

Range: Lab.—Que.—Alta.—Colo.—Mo.—Md.

Stem 2-6 dm. tall, branching at the involucre, sparingly pubescent. Basal leaves long petioled, hairy, 3-5 lobed, the lobes dentate. Involucre leaves 3, sessile; secondary involucre often present. Flowers on long naked peduncles. Sepals 4-6, obovate, white. Head of achenes globose. Achenes pubescent, winged, style persistent, as long as or longer than the achene. Meadow Anemone.

Woods and moist places, northern and central Illinois.

A. dichotoma L., a Siberian species, closely resembles *A. canadensis*, differing from the latter in its narrower, oblong leaf segments and

glabrous, ovate achenes. Brendel (1887) 43, attributes *A. dichotoma* to the Peoria region; an examination of one of his specimens so labeled shows it to be *A. canadensis*.

Specimens examined: Adams Co. Bottoms around Big Lake, 3 miles south of Quincy, May 29, 1943, Rev. Brinker (NHS). Bureau Co. Normandy, May 29, 1946, Boewe (NHS). Calhoun Co. Low swales, Pepoon and Barrett, May 30, 1932 (NHS). Cass Co. Moist field, Meredosia, June 7, 1942, G. D. Fuller. Champaign Co. Without definite locality, June 28, 1886, M. B. Waite; woods, Urbana, June 5, 1900, Clinton; forest border, Urbana, July 26, 1928, McDougall; roadside, east of Urbana, May 24, 1929, S. J. Ewer; edge of thicket near Urbana, June 6, 1940, G. N. Jones; Sangamon River, near Mahomet, July 20, 1940, G. N. Jones; without definite locality, Gregory, No. 14002. Christian Co. Taylorville, 1887, DeMotte; Taylorville, no date, DeMotte; "Half Acre," Taylorville, May 22, 1897, W. Andrews. Cook Co. Damp ground, DesPlaines valley, May 25, 1896, A. Chase. Du Page Co. Wheaton, no date, Moffatt; Naperville, May 30, 1915, Keinholz. Ford Co. Moist ground near Paxton, May 29, 1940, G. N. Jones. Hancock Co. Cedar Glen, July 26, 1917, F. C. Gates. Henry Co. Damp meadows, Galva, June 1883, McDonald; prairie roadside near Galva, May 24, 1908, V. H. Chase; roadside south of Kewanee, May 29, 1946, Boewe (NHS). Jo Daviess Co. Apple River Canyon State Park, June 17, 1943, G. N. Jones, G. D. Fuller (NHS). Kankakee Co. Open woods and thickets, May 31, 1873, E. J. Hill; St. Anne, June 16, 1940, G. N. Jones. Kendall Co. Roadside north of Lisbon, May 28, 1946, Boewe (NHS). La Salle Co. Starved Rock State Park, June 5, 1939, D. T. Ries (NHS), May 27, 1939, F. G. Wer-

ner (NHS). Lake Co. Beach region north of Waukegan, June 16, 1909, F. C. Gates. Lee Co. Roadside south of Dixon, May 27, 1946, Boewe (NHS). Logan Co. West of Lincoln, June 18, 1930, L. R. Tehon; along Route 10 near Logan-DeWitt Co. line, May 29, 1946, Boewe (NHS); roadside near New Holland, May 29, 1946, Boewe (NHS). Macon Co. Damp woods east of Decatur, May 30, 1915, I. W. Clokey. Madison Co. Cahokia bottom, May 13, 1916, Drushel. Mason Co. Lake Matanzas, July 23, 1910, F. C. Gates. McHenry Co. Algonquin, June 14, 1878, Nason. Ogle Co. Oregon, July 8, 1882, M. B. Waite; White Pines Forest State Park, May 30, 1942, May 24, 1942, A. L. Hills. Peoria Co. Damp ground, Peoria, June 1889, McDonald. Stark Co. Clay bank north of Wady Petra, May 29, 1897, June 9, 1907, V. H. Chase. Wabash Co. Shannon's swamp, Mt. Carmel, July 21, 1882, Schneck. Winnebago Co. Above Rockford, July 23, 1933, Pepoon and Barrett (NHS).

Anemone caroliniana Walt., Fl. Car. 157: 1788; Lapham (1857) 500; Brendel (1859) 586; Patterson (1874) 1; Boltwood (1880) 71; Higley & Raddin (1891) 1; Huett (1897) 43; Robinson & Fernald (1908) 401; Gleason (1910) 155; Britton & Brown (1913) 2: 98; Pepoon (1927) 308; Jones (1945) 131.

A. tenella Pursh, Fl. Am. Sept. II: 387, 1814; Beck (1828) 115.

Type locality: "Carolina."

Range: Wis.—S. D.—Tex.—Fla.—N. C.

Perennial from a short thick rhizome. Stem 8-20 cm. tall, sparingly pubescent, stout. Leaves 3-divided; basal leaves petioled, often much toothed; stem leaves sessile. Sepals 6-20, bluish or white, pubescent outside, glabrous within. Achenes villous, in a cylindrical head. *Carolina Anemone*.

Bluffs and open places, central and northern Illinois. Rare.

This species may be confused with *A. decapetala* Ard. of more southern distribution. In the latter species the basal leaves are merely crenate. It is doubtful that *A. decapetala* occurs in Illinois. Brendel (1887) 43, cites it as occurring in the Peoria region. An examination of Brendel's specimen shows it to be *A. caroliniana*.

Specimens examined: Henderson Co. Banks of Mississippi River near Oquawka, May 18, 1873, Patterson. LaSalle Co. Sandy field, Utica, April 27, 1941, G. D. Fuller. Lee Co. Bank of Rock River, Dixon, May 21, 1860, E. J. Hill. Macon Co. Blue Mound, May 4, 1901, Andrews. Mason Co. Havana, April, 1942, T. H. Frison (NHS). Peoria Co. Dry gravelly slopes near Peoria, Apr. 1900, Apr. 1903, F. E. McDonald; Peoria, no date, Brendel. St. Clair Co. Mascoutah, no date, W. Welsch.

Anemone cylindrica A. Gray, Ann. Lyc. N.Y. III: 221, 1836; Lapham (1857) 500; Bebb (1860) 183; Greene (1870) 6; Babcock (1873) 248; Patterson (1876) 1; Brendel (1887) 43; Higley & Raddin (1891) 1; Huett (1897) 43; Snare & Hicks (1896) 1; Gleason (1910) 155; Gates (1912) 359; Sampson (1921) 563; Fuller (1925) 8; Thone (1925) 100; Pepoon (1927) 311; McDougall (1936) 104; Deam (1940) 461; Fuller (1943) 94; Jones (1945) 131; Fuller (1946) 56.

Type locality: "In dry pine barrens, near Oneida Lake, New York."

Range: Que.—B.C.—Ariz.—Kan.—Ill.—Pa.

Perennial. Stem 2-6 dm. tall, pubescent, branching above, stout. Leaves on long petioles, 3-divided, the divisions toothed above the middle; teeth obtuse to acute; leaf divisions cuneate. Involucral leaves 3-18. Flowers several, on long peduncles. Achenes villous, tipped with the minute styles, borne in a cylindrical head 2.5 cm. or more long. Candle Anemone.

Open woods, central and northern Illinois, common.

Specimens examined: Champaign Co. No definite locality, June 22, 1876, Savage; no definite locality, June 19, 1896, M. B. Waite; Urbana, June 28, 1886, M. B. Waite. Cook Co. Sandy woods, South Chicago, July 9, 1875, E. J. Hill; sandy woods, Evanston, June 15, 1896, A. Chase; sunny woods, Evanston, June 15, 1896, A. Chase; dry field, Evanston, June 17, 1896, A. Chase; Rogers Park, August 16, 1896, Moffatt; near Addison, August 12, 1938, J. C. Carter (NHS). Du Page Co. Railroad east of Andrews, June 18, 1937, R. J. Dobbs (NHS). Kankakee Co. Dry woods near Waldron, July 10, 1873, E. J. Hill; barrens near St. Anne, June 12, 1932, Pepoon & Barrett (NHS). Lake Co. Beach region north of Waukegan, June 29, 1908, F. C. Gates; along Lake Michigan, Waukegan, Aug. 18, 1906, Gleason & Shobe; Libertyville, Sept. 7, 1912, E. Sherff. LaSalle Co. Starved Rock State Park, No. 137, Thone. Macoupin Co. Carlinville, June 7, 1880, Robertson (NHS). McHenry Co. Algonquin, July 13, 1878, June 21, 1878, Nason. McLean Co. Prairie, Normal, July 18, 1881, Seymour. Ogle Co. Gales Hill, Oregon, July 7, 1885, M. B. Waite. Peoria Co. Open woods, Peoria, June 18, 1889, F. E. McDonald; Peoria, no date, Brendel; dry slopes, Peoria, July 1903, F. E. McDonald. St. Clair Co. Mascoutah, no date, W. Welsch. Winnebago Co. Rockford, June 13, 1940, July 12, 1940, G. D. Fuller (NHS); west of Shirland, June 10, 1946, E. W. & G. B. Fell.

Anemone virginiana L. Sp. Pl. 540, 1753; Beck (1828) 115; Mead (1846) 35; Babcock (1872) 20; Patterson (1874) 1; Schneck (1876) 514; Brendel (1887) 43; Higley & Raddin (1891) 1; Gleason (1910) 155; Gates (1912) 359;

Fuller (1925) 8; Pepon (1927) 311; Jones (1942) 71; Fuller (1943) 94; Jones (1945) 131; Fuller (1946) 56.

Type locality: "Habitat in Virginia."

Range: Que.—S. C.—Kan.—Wyo.—Alta.

Stem pubescent, 5-9 dm. tall, branching at the involucre. Basal leaves long petioled, 3-divided, the divisions toothed to below the middle, the margins serrate; divisions ovate to ovate lanceolate. Involucral leaves 3, short petioled. Flowers on long naked peduncles, sepals 5, white. Achenes villous, tipped by the subulate style. Head of fruit oblong, 1.8 to 2.5 cm. long. Virginia Anemone.

Woods and moist places; the commonest species in Illinois.

Specimens examined: Adams Co. Woods near Coe Springs, August 15, 1941, R. Evers (NHS); Fall Creek Gorge, July 19, 1941, Evers & Jones, No. 633, No. 675. Boone Co. Shady bank of slough northwest of Belvidere, June 14, 1946, E. W. & G. B. Fell. Carroll Co. Wooded hillside, Savana, July 12, 1902, A. Chase. Champaign Co. Urbana, July 15, 1886, M. B. Waite; Urbana, Oct. 1898, "GPC"; railroad, Seymour, July 5, 1928, McDougall; Sangamon River near Mahomet, July 20, 1940, G. N. Jones. Christian Co. Taylorville, June 19, 1889, June 25, 1899, June 26, 1897, Andrews. Coles Co. Fox Ridge State Park, Sept. 16, 1939, G. N. Jones, Aug. 21, 1941, Rennels (NHS); open woods near Charleston, Sept. 9, 1946, G. N. Jones. Cook Co. Washington Heights, June 1884, Moffatt; woods, Prospect Park, August 1887, Moffatt; woods, Glen Ellyn, June 20, 1894, Moffatt; damp woods, River Forest, July 7, 1896, A. Chase; wooded banks of Des Plaines River, Maywood, Sept. 9, 1900, A. Chase; woods, Thornton, July 14,

1902, Lansing. Fayette Co. St. Elmo, July 10, 1943, O'Dell; woods south of Ramsey, July 27, 1941, O'Dell. Franklin Co. Near Christopher, July 6, 1940, G. N. Jones. Jo Daviess Co. Apple River Canyon State Park, June 17, 1943, G. D. Fuller (NHS). Kane Co. Clearings, Elgin, Sept. 22, 1912, E. Sherff. Kankakee Co. Woods and thickets, Durham's Grove, July 18, 1873, E. J. Hill; woods and thickets, Kankakee, July 8, 1873, E. J. Hill. Knox Co. Wooded hills near Williamsport, July 5, 1908, V. H. Chase. Lake Co. Channel Lake, Antioch, Aug. 14, 1906, Gleason & Shobe; beach region north of Waukegan, July 19, 1909, F. Gates. Lee Co. North of Prairieville, Oct. 31, 1945, Boewe (NHS). McHenry Co. Algonquin, July 5, 1878, Nason. Ogle Co. Oregon, July 18, 1882, M. B. Waite. Peoria Co. Dry open woods north of Princeville, July 21, 1898, V. H. Chase; rich woods, Peoria, no date, McDonald; Peoria, no date, Brendel. St. Clair Co. Valley twp. July 6, 1895, V. H. Chase. Vermilion Co. Woods, June 24, 1880, Seymour & Butts; along Vermilion River between Oakwood and Colli-son, July 14, 1940, G. N. Jones. Wabash Co. Walter's Farm, Mt. Carmel, June 30, 1878, Schneck; woods, Mt. Carmel, Sept. 15, 1888, Schneck. Winnebago Co. Woods and meadows, Rockford, June 24, 1940, G. D. Fuller (NHS); bank of Kishwaukee River, June 4, 1946, E. W. & G. B. Fell.

Anemone quinquefolia L. Sp. Pl. 541, 1753; McDonald (1890) 105; Fuller (1925) 8; Pepon (1927) 311; Jones (1945) 131; Fuller (1946) 56.

A. nemorosa sensu Mead (1846) 35; Lapham (1857) 500; Warne (1870) 314; Babcock (1872) 20; Patterson (1876) 1; Schneck (1876) 514; Brendel (1887) 83; Higley & Raddin (1891) 2; Huett (1897) 43; Snare & Hicks (1898) 1; not L. (1753).

A. nemorosa var. *quinquefolia* A. Gray, Man. Ed. 5, 38, 1867; Higley & Raddin (1891) 2.

A. quinquefolia var. *interior* Fern., Rhodora 37: 260, 1935; Deam (1940) 460.

Type locality: "Habitat in Virginia, Canada."

Range: Que.—Man.—Iowa—Ohio.

Stem simple, 1-2 dm. tall. Stem leaves 3, petioled, 3-divided, toothed. Basal leaf solitary, on a long petiole, trifoliolate, appearing after the flower. Stem glabrous or pubescent. Flower solitary. Sepals 4-7, ovate, white. Head of achenes globose; achenes few to several, not wing margined, tipped with the recurved style. American Wood Anemone.

Moist woods, northern Illinois; not common.

Fernald (1935) describes as var. *interior* specimens from the Great Lakes region in which the stems are spreading villous. In a study of Illinois specimens variation from almost glabrous to spreading pubescent and spreading villous was found. Specimens of the same collection number showed similar variation. Although some specimens might be referred to the variety, the variability in the amount and type of pubescence indicates that no clear distinction can be made between *A. quinquefolia* and its variety *interior* in Illinois.

Specimens examined: Cook Co. Rich woods, Hog Island, May 3, 1876, E. J. Hill; sandy woods, Hyde Park, April 20, 1878, E. J. Hill; Grand Crossing, May 3, 1883, Schneck; Prospect Park, May 11, 1890, Moffatt; sandy soil, Evanston, April 28, 1897, A. Chase; River Forest, May 4, 1897, A. Chase; woods, Evanston, May 7, 1897, A. Chase; rich woods, Edgebrook, May 11, 1897, A. Chase; Leyden, April 28, 1906, F. C. Gates; moist rich woods, Thornton, May 20, 1944, G. D. Fuller (NHS). DuPage Co. Thicket north of Wheaton, no

date, Moffatt; Naperville, April 26, 1915, Kienholz; rich oak woods, Wheaton, April 19, 1938, G. D. Fuller (NHS). Jo Daviess Co. No definite location, no date, Brendel; Apple River Canyon State Park, May 6, 1944, G. N. Jones. Kankakee Co. Open woods, Kankakee, May 17, 1873, E. J. Hill. LaSalle Co. Starved Rock State Park, May 6, 1939, Werner, May 4, 1939, D. T. Ries (NHS). McHenry Co. Algonquin, no date, A. L. Hills. Will Co. Rich woods, Mokena, May 7, 1902, A. Chase. Winnebago Co. Margin of woods, Rockford, May 14, 1940, G. D. Fuller (NHS).

EXCLUDED NAMES

Anemone hepatica L. Sp. Pl. 538, 1753; Mead (1846) 35; Higley & Raddin (1891) 2.

This species is now designated *Hepatica americana* (DC.) Ker.

Anemone acutiloba (DC.) Laws. Trans. Nov. Scot. Inst. III: 30, 1870. Higley & Raddin (1891) 2.

This species is also referred to the genus *Hepatica*, as *H. acutiloba* DC.

Anemone thalictroides L. Sp. Pl. 542, 1753; Beck (1828) 115.

This species is now considered as *Anemonella thalictroides* (L.) Spach.

SUMMARY

The six species of the genus *Anemone* in Illinois have been studied. *Anemone* is found throughout the state. In northern and central Illinois all six species are represented; in southern Illinois are found one (*A. virginiana*) or possibly two (*A. cylindrica*) species. Additional collections are needed to establish the range of these two species in Illinois. Four of the species (*A. canadensis*, *A. virginiana*, *A. cylindrica*, and *A. quinquefolia*) are typically found in woodlands and moist places. Two species of dry ground and prairies (*A. caroliniana* and *A. ludoviciana*),

both rare, occur in northern and central Illinois.

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