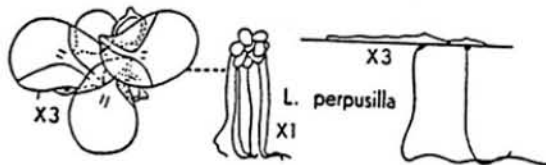
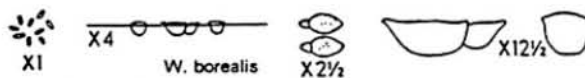
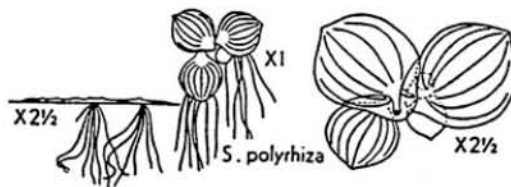
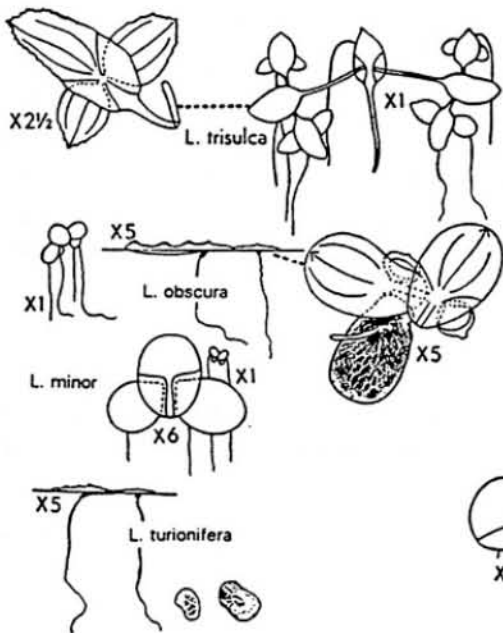
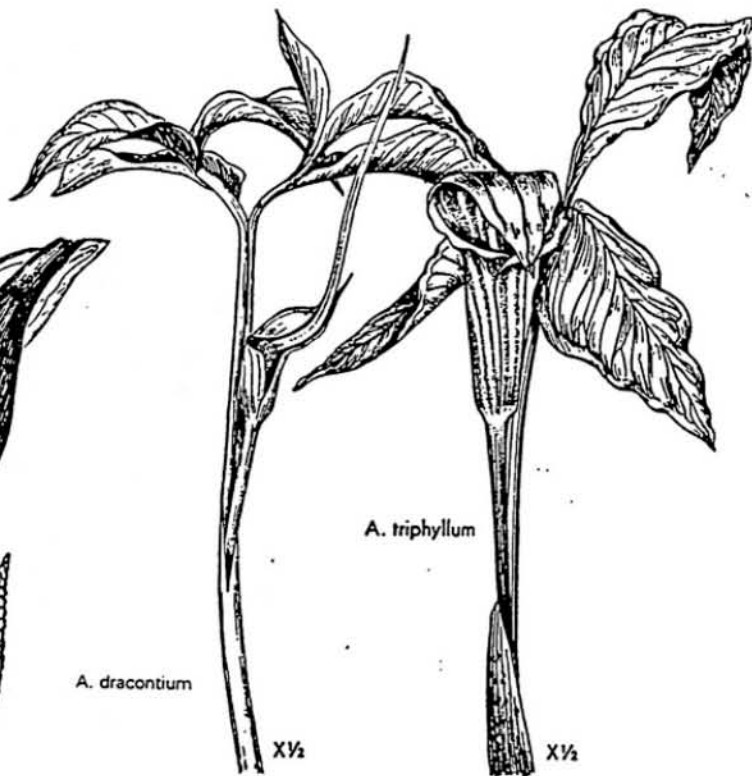
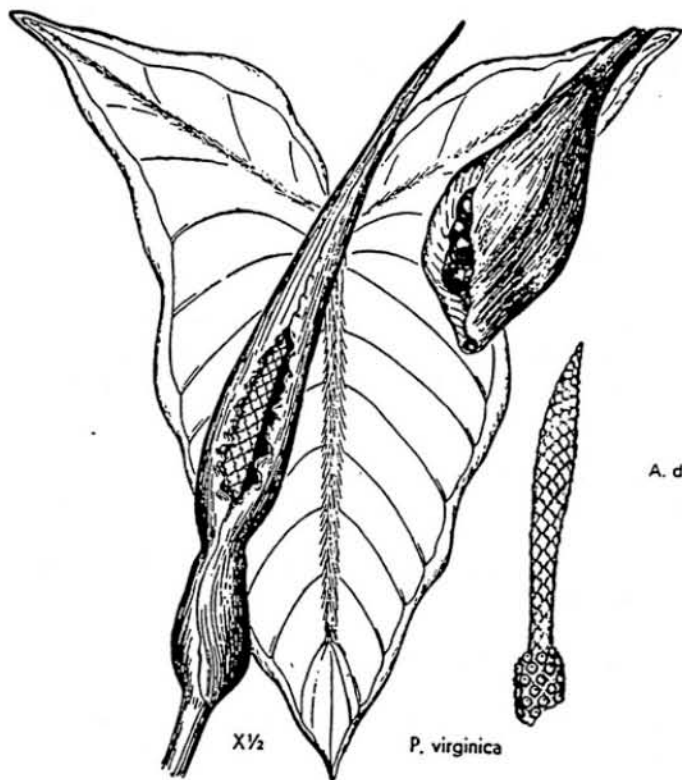


PELTANDRA
 ARISAEMA
 SPIRODELA
 LEMNA
 WOLFFIA



Syn.: *Lecontia virginica*

REFERENCE: Riddell 1834:158 (wet prairies).

NOTE: No specimens seen from Franklin Co. Not mapped for Franklin Co. by Braun 1967:297 (illus. p. 298).

3. ARISAEMA Mart. Indian-turnip

With corms; monoecious or dioecious; flowers monosporangiate; staminate flower a cluster of almost sessile anthers, carpellate, an ovary with broad stigma, when on one spadix, the staminate above; fruit a red 1-3-seeded berry.

a Spathe longer than club-shaped spadix, arching over it; leaflets 3.

b Lateral leaflets not strongly asymmetric; flange of spathe 0.5-2.0 mm wide, hood 2-3 cm wide; rare.

1. *A. triphyllum*

b' Lateral leaflets strongly asymmetric; flange of spathe 2-8 mm wide, hood 3-6 cm wide; common.

2. *A. atrorubens*

a' Spathe shorter than long-pointed spadix; leaflets more than 3. 3. *A. draconium*

1. †*Arisaema triphyllum* (L.) Schott var. *triphyllum*

Small Jack-in-the-pulpit, Indian-turnip

Plants smaller, leaves with 3 leaflets, lustrous and green beneath, tapering to base and apex; hood attenuate, tube of spathe shallowly furrowed; spadix slender, little longer than spathe-tube. Moist woods and thickets. Syn.:

A. triphyllum Torr., *Arum triphyllum* L.

REFERENCES: Riddell 1834:158; Sullivant 1840:45; Craig 1890:106 (common in the E part of the woods, 8 May 1883, 6 May 1884, 16 May 1885, 21 Apr 1886, 30 Apr 1887, 6 May 1888, 25 Apr 1889); Selby & Craig 1890:16.

HERBARIUM RECORDS: 29 May 1893—Alum Creek Station, Cols., Kerr; 20 May 1904—Franklin Co., F. King; 12 May 1991—Flint Ravine, Camp Mary Orton, N of Worthington & W of Rt. 23, Sharon Twp., Lowden 4625.

NOTE: Not mapped for Franklin Co. by Braun 1967:295 (illus. p. 294). Perhaps, what most of these authors referred to as *Arisaema triphyllum* was *Arisaema atrorubens*. Cronquist (1991) treated *A. atrorubens* in synonymy with *A. triphyllum*.

2. *Arisaema atrorubens* (Aiton) Blume

Jack-in-the-pulpit, Indian Turnip

Leaves with 3 leaflets, strongly asymmetric, dull and whitened beneath; hood abruptly acuminate; spadix stout, longer than spathe-tube. Woods.

REFERENCE: Braun 1967:296 (illus. 294).

HERBARIUM RECORDS: 1889—Cols., Selby; May 1890—Cols., Selby; 20 May 1899—Minerva Park, Cols., Helfrich; 22 May 1901—N Cols., Mead; 19 May 1911—Westerville, dense woods, Hanawalt; 1921—Cols., J. H. Schaffner; 15 May 1923—Canal Winchester, E. L. Moore; 14 May 1924—Westerville, Botkin; 27 Apr 1970—University woodlot at corner of Kenny Rd. & Ackerman Rd., damp woods, Boone 84; 26 Apr 1973—Don Scott Airfield, NW side, wet woods, Roberts 3361; 19 May 1982—Blendon Woods, Owens; 6 May 1986—Highbanks Metro Park, woods, Watts 293 (OWU); 17 May 1986—OSU woodlot, ½ mi. N of Lane & Kenny Rd. intersection, Cols., R. Burnes 23; 1 Aug 1990—E side of Hoover Dam Park, woods just W of Cabbage Rd. & S of Walnut St., Blendon Twp., Lowden 4496; 25 Apr 1992—Highbanks Metro Park (Franklin Co.), woods in nature preserve area, Sharon Twp., Lowden 4927.

3. *Arisaema draconium* (L.) Schott

Green Dragon, Dragon-root

Leaflets more than three (7-13); spathe much shorter than slender tapering spadix. Moist woods. Syn.: *A. draconium* Schott, *Arum draconium* L.

REFERENCES: Riddell 1834:158 (open woods); Sullivant 1840:45; Craig 1890:106 (in the SE part of the woods; a few specimens have been found on the island, but it is a rare plant, 24 May 1887); Selby & Craig 1890:16; Braun 1967:297 (illus. p. 298).

HERBARIUM RECORDS: 1889—Cols., Craig; Spring 1889—Cols., Craig; Jun 1892—Worthington Woods, Selby; 22 May 1899—Big Darby, Selby; 27 May 1902—OSU, Redhead; 30 May 1904—OSU woods, moist wood, Farley; 14 May 1970—woodlot behind the Research & Development Center on Kinnear Rd., frequent in damp woods, Boone 139; 20 May 1982—Blendon Woods, colonies along the connecting trail and the trail to the lake, Owens; 3 Jun 1992—Gahanna Woods State Nature Preserve, occasional in beech-maple woods, SW corner of Havens Corner Rd. & Taylor Station Rd., Jefferson Twp., Reynoldsburg Quad., McCormac 4660; 29 May 1993—Camp Mary Orton, floodplain, E bank of Olentangy R., W of Rt. 23, N of Worthington, Sharon Twp., Lowden 5047.

LEMNACEAE, Duckweed Family

Small floating herbs; plant body a globose, convex, or flat thallus, with or without roots from lower side; plants solitary or, when they do not separate after budding, in colonies; flowers (rarely observed) at edge of or on upper surface of thallus, perianth none; staminate flower of 1 stamen, carpellate of an ovary with 1 to few ovules.

- a Plant with roots.
 - b Several roots on each thallus. **1. SPIRODELA**
 - b' Only 1 root on each thallus. **2. LEMNA**
- a' Plant without roots; thallus globose, ovoid, or ellipsoid, usually solitary. **3. WOLFFIA**

1. SPIRODELA Schleid. Duckweed

Thallus flat or somewhat convex below, oval or ovate, to about 1 cm long, green above, purple below, with 5 or more nerves; roots few to 15 or more.

1. *Spirodela polyrhiza* (L.) Schleid.

Greater Duckweed

Plant floating with few-many roots on each thallus; thallus usually reddish purple below and green above, 5 or more nerves. Syn.: *S. polyrhiza* Schleid., *Lemna polyrhiza* L.

REFERENCES: Craig 1890:106 (very abundant in the ponds around the island, completely covering the water with its green fronds); Selby & Craig 1890:16; Braun 1967:303 (illus. p. 306).

HERBARIUM RECORDS: [ca. 1834]—Cols., [Lapham] (URB); 4 Oct 1890—Central College, E. V. Wilcox (mixed with *Lemna trisulca*, *L. perpusilla* & *L. minor*); 22 Aug 1899—S Cols., Selby (mixed with *Lemna minor* & *L. perpusilla*); 25 May 1929—Baumgardner's Pond, Hicks (mixed with *Lemna trisulca* & *Wolffia columbiana*); Summer 1988—along the Olentangy R., OSU campus, Cols., Delong (mixed with *Lemna minor*); 13 Oct 1991—W bank of the Olentangy R., mudflat N of Lane Ave. Bridge, S of Fawcett Center for Tomorrow, Clinton Twp., Lowden 4876A (mixed with *Lemna minor*); 18 May & 6 Jul 1992—Pickerington Pond, wetland wildlife area, just S of Wright Rd. & E of Bowen Rd., Madison Twp., Lowden 4964 & 4984 (mixed with *Lemna minor*).

2. LEMNA L. Duckweed

Thallus flat or convex beneath, 1-5-nerved, with 1 root.

Lemna minor is often confused with *L. obscura* and *L. turionifera*. The following key to *Lemna* species is based on Landolt's monographic study of the family (1986).

- a Thallus oblong, up to 1 cm long, with a green stalk at one end to 1.5 cm long. **1. *L. trisulca***
- a' Thallus oval or oblong, without a green stalk, 5 mm long or less.
 - b Root sheath winged at the base, root tip sharply pointed, fronds without reddish color. **5. *L. perpusilla***
 - b' Root sheath not winged, root tip rounded, fronds often with red pigment.
 - c Fronds with distinct papillae along the median line of the upper surface, those at tip not distinctly larger than the proximal ones, plants forming rootless turions that sink to the bottom of the water. **4. *L. turionifera***
 - c' Fronds without distinct papillae or papillae near the tip distinctly larger than the proximal ones, no turions formed.
 - d Fronds not gibbous, papillae indistinct on the midnerve, rarely reddish on lower surface. **2. *L. minor***
 - d' Fronds gibbous, with a very distinct papilla near the tip, without pronounced papillae along the midnerve, red pigment often on the lower surface. **3. *L. obscura***

1. *Lemna trisulca* L.

Submerged Duckweed, Star Duckweed

Plants submerged; thallus oblong, with ends narrowed into petiole-like connective stalks, often forming long and branched chains.

REFERENCES: Sullivant 1840:46; Selby & Craig 1890:16; Braun 1967:304 (illus. p. 306).

HERBARIUM RECORDS: 4 Oct 1890—Central College, E. V. Wilcox (mixed with *Lemna minor*, *L. perpusilla* & *Spirodela polyrhiza*); 25 Apr & 25 May 1929—Baumgardner's Pond, Hicks (mixed with *Lemna minor*, *L. turionifera*, *Spirodela polyrhiza* & *Wolffia columbiana*).

2. *Lemna minor* L.

Lesser Duckweed

Fronds usually 3-nerved, never gibbous, not reddish on the lower surface; papillae indistinct along the midnerve; no turions present.

REFERENCES: Riddell 1834:159 (standing pools); Craig 1890:106 (occurs sparingly with *Spirodela polyrhiza* in the river bed); Selby & Craig 1890:16; Braun 1967:304 (illus. p. 306).

HERBARIUM RECORDS: 4 Oct 1890—Central College, E. V. Wilcox (mixed with *Lemna perpusilla*, *L. trisulca* & *Spirodela polyrhiza*); 22 Aug 1899—S Cols., Selby (mixed with *Lemna perpusilla* & *Spirodela polyrhiza*); 3 Oct 1907—canal at S. Cols., Detmers (mixed with *Lemna obscura*); 25 Apr 1929—Baumgardner's Pond, Hicks (mixed with *Lemna trisulca*, *L. turionifera* & *Wolffia columbiana*); Summer 1988—OSU Campus, along the

Olentangy R., Cols., *DeLong* (mixed with *Spirodela polyrhiza*); 13 Oct 1991—W bank of Olentangy R., mudflat N of Lane Ave. bridge, S of Fawcett Center for Tomorrow, Clinton Twp., *Lowden 4876B* (mixed with *Spirodela polyrhiza*); 18 May 1992—Pickerington Pond, wetland wildlife area, S of Wright Rd. & E of Bowen Rd., Madison Twp., *Lowden 4965*; 6 Jul 1992—Pickerington Pond, wetland wildlife area, S of Wright Rd. & E of Bowen Rd., Madison Twp., *Lowden 4984* (mixed with *Spirodela polyrhiza*).

3. *Lemna obscura* (D.F.Austin) Daubs

Fronds gibbous, 3-nerved, more reddish on the lower surface than the upper, pigmentation beginning around the node; midnerve of upper surface with indistinct smaller papillae; tip of frond with a very distinct papilla; no turions present.

HERBARIUM RECORDS: 3 Oct 1907—canal at S Cols., *Detmers* (mixed with *Lemna minor*); 13 Jul 1993—OSU, pond behind Research Center, W side of Kinnear Rd., abundant, Cols., Clinton Twp., *Lowden 5080* (mixed with *Wolffia columbiana* & *W. borealis*).

NOTE: Not reported by Braun 1967:304.

4. *Lemna turionifera* Landolt

Fronds with distinct papillae along the midnerve, those at tip not larger than the proximal ones; lower surface more intensely red-pigmented; turions rootless, olive-brown, sinking to the bottom of the water.

HERBARIUM RECORDS: [ca. 1834]—Cols., [*Lapham*] (URB); 25 Apr 1929—Bumgardner's Pond, *Hicks* (mixed with *Lemna minor*, *Lemna trisulca* & *Wolffia columbiana*); 31 May 1990—Pickerington Pond, wetland wildlife area, S of Wright Rd. & E of Bowen Rd., Madison Twp., *Lowden 4363* (mixed with *Lemna perpusilla*); 22 Aug 1990—Quarry Place, E side of Scioto R. off Rt. 33 just S of Rt. 161, Perry Twp., *Lowden 4561*.

NOTE: Not reported by Braun 1967:304.

5. †*Lemna perpusilla* Torr.

Minute Duckweed

Fronds floating, without reddish color; thallus often with 2-3 papillae along the midnerve bigger than the papillae near the tip of frond; wing of root sheath 2-3 times as long as wide; tip of root sharply pointed.

HERBARIUM RECORDS: 4 Oct 1890—Central College, *E. V. Wilcox* (mixed with *Lemna minor*, *Lemna trisulca* & *Spirodela polyrhiza*); 22 Aug 1899—S Cols., *Selby* (mixed with *Lemna minor* & *Spirodela polyrhiza*); 31 May 1990—Pickerington Pond, wetland wildlife area, S of Wright Rd. & E of Bowen Rd., Madison Twp., *Lowden 4363* (mixed with *Lemna turionifera*).

NOTE: Not mapped for Franklin Co. by Braun 1967:304.

3. WOLFFIA Horkel

Thallus minute, to 1.5 mm long, globose or ellipsoid, rootless, nerveless, the individuals separating soon after budding.

a Lower surface rounded, upper surface flat; symmetric; brown-dotted; papilla 1, at one end. 1. *W. borealis*

a' Both upper and lower surface rounded, usually 3 papillae along upper median line. 2. *W. columbiana*

1. *Wolffia borealis* (Engelm.) Landolt

Dotted Wolffia

Thallus oblong, flattened above, upper surface above water, brown-punctate; papilla at one end.

HERBARIUM RECORD: 13 Jul 1993—OSU, pond behind Research Center, W side of Kinnear Rd., Cols., Clinton Twp., *Lowden 5080* (mixed with *Lemna obscura* & *Wolffia columbiana*).

NOTE: Not mapped for Franklin Co. by Braun 1967:307 (illus. p. 306). The name *Wolffia punctata* Griseb., used by many North American authors for *W. borealis*, is a synonym of *W. brasiliensis* Wedd.

2. *Wolffia columbiana* H.Karst.

Common Wolffia

Thallus rounded above and below; the upper surface mostly under the water, not punctate, bearing several papillae.

HERBARIUM RECORDS: 25 Apr 1929—Bumgardner's Pond, *Hicks* (mixed with *Lemna minor*, *L. trisulca* & *L. turionifera*); 25 May 1929—Bumgardner's Pond, *Hicks* (mixed with *Lemna trisulca* & *Spirodela polyrhiza*); 13 Jul 1993—OSU, pond behind Research Center, W side of Kinnear Rd., abundant, Cols., Clinton Twp., *Lowden 5080* (mixed with *Lemna obscura* & *Wolffia borealis*).

NOTE: Not mapped for Franklin Co. by Braun 1967:306.

XYRIDACEAE, Yellow-eyed-grass Family

1. XYRIS L. Yellow-eyed-grass