

# THE CHICORY FAMILY IN OHIO.\*

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## CICHORIACEÆ, Chicory Family.

Mostly herbs, almost always with milky sap, alternate or basal leaves and ligulate flowers in involucrate heads. Bracts of the involucre in one to several series. Flowers bisporangiate, epigynous, sympetalous, tetracyclic, pentamerous, zygomorphic; calyx reduced to mere scales, or simple or plumose bristles, or wanting; ovulary unilocular with one anatropous ovule, style slender with two stigmas; stamens united with the corolla, synantherous. Fruit an achene.

### PHYLETIC SYNOPSIS.

- I. Pappus of chaffy scales.
  - (1) *Cichorium*.
- II. Pappus none.
  - (2) *Lapsana*; (3) *Arnoseric*.
- III. Pappus of both scales and bristles.
  - (4) *Krigia*; (5) *Cynthia*.
- IV. Pappus plumose.
  - A. Receptacle chaffy.
    - (6) *Hypochaeris*.
  - B. Receptacle naked.
    - (7) *Picris*; (8) *Apargia*; (9) *Tragopogon*.
- V. Pappus of capillary bristles.
  - A. Achenes not spinulose above.
    - 1. Achenes nearly terete.
      - (10) *Hieracium*; (11) *Crepis*; (12) *Nabalus*; (13) *Sitilias*.
    - 2. Achenes flattened.
      - (14) *Sonchus*; (15) *Lactuca*.
  - B. Achenes spinulose above.
    - (16) *Leontodon*.

### KEY TO THE GENERA.

- 1. Pappus none..... 2
- 1. Pappus of scales or bristles, or both present..... 3
- 2. Erect branching herbs; peduncles short and slender..... *Lapsana*. (2)
- 2. Scapose herbs; peduncles very long, thickened gradually to the head.
  - Arnoseric*. (3)
- 3. Pappus of stiff scales with or without an inner series of stiff bristles..... 4
- 3. Pappus of simple or plumose bristles..... 6
- 4. Flowers blue, violet, or white; pappus scales blunt; branching herbs.
  - Cichorium*. (1)
- 4. Flowers yellow or orange..... 5
- 5. Pappus scales 5, obovate or rounded, and 10 or more slender bristles.
  - Krigia*. (4)
- 5. Pappus scales 10-15, linear to oblong, minute, with an equal or greater number of capillary bristles..... *Cynthia*. (5)

\* Papers from the Department of Botany, Ohio State University, No. 152.

6. Receptacle chaffy, flowers yellow, pappus plumose; more or less scapose herbs.....*Hypochaeris*. (6)
6. Receptacle naked, faviolate, or short fimbriate.....7
7. Pappus of plumose bristles.....8
7. Pappus of simple bristles with or without some soft white scales.....10
8. Leaves linear-lanceolate, glabrous.....*Tragopogon*. (9)
8. Leaves toothed or lobed; plants more or less hairy, or if not, then decidedly scapose.....9
9. Leafy-stemmed, hispid; several or numerous heads.....*Picris*. (7)
9. Scapose; single heads, or if more, then plants glabrous or nearly so.  
*Apargia*. (8)
10. Acaulescent, with naked hollow scapes and large solitary heads; fruit very slender, beaked.....*Leonodon*. (16)
10. Leafy-stemmed, branched; very rarely scapose but not as above.....11
11. Pappus bristles surrounded by a villous white ring at base; ours glabrous or nearly so.....*Stilias*. (13)
11. Pappus bristles not surrounded by a villous ring.....12
12. Ovularies and achenes cylindrical or nearly so.....13
12. Ovularies and achenes flattened.....15
13. Heads narrow, cylindrical, few-flowered, usually dropping; flowers white, cream, or purple.....*Nabalus*. (12)
13. Heads broad, flat, erect; flowers yellow, orange, or red.....14
14. Pappus of very slender white bristles; involucre of one series of equal bracts; achenes beakless, narrowed at the base.....*Crepis*. (11)
14. Pappus of very stiff, persistent, brown or brownish bristles; 1-3 series of bracts in the involucre; achenes oblong.....*Hieracium*. (10)
15. Involucres cylindrical; flower heads less than  $\frac{1}{2}$  in. broad; flowers white, blue, or yellow.....*Lactuca*. (15)
15. Involucres ovoid or campanulate; flower heads  $\frac{3}{4}$ -2 in. broad; flowers all yellow.....*Sonchus*. (14)

### 1. *Cichorium* (Tourn.) L.

Branching herbs with blue or white flowers. Involucral bracts in 2 series, the outer spreading, the inner erect. Receptacle flat, naked or slightly fimbriate. Pappus of 2 or 3 series of blunt chaffy scales.

*Cichorium intybus* L. Chicory. Stiff, much branched, slightly hispid perennials, from a fleshy tap-root, 1-3 ft. tall. Heads usually sessile in clusters of 1-4, showy, 1-1½ in. broad. Leaves spatulate, narrowed into long petioles, dentate or lobed, 3-6 in. long; the upper ones smaller, lanceolate to oblong, lobed or entire, clasping. The root is used as an adulterant of coffee. Roadsides and waste places. June-Oct. Rather general. Naturalized from Europe.

### 2. *Lapsana* L.

Heads of yellow flowers borne on short slender peduncles. Involucre cylindrical, with 1 series of equal principal bracts. Receptacle flat and naked. Achenes obovate to oblong, somewhat flattened. Pappus none.

*Lapsana communis* L. Nipplewort. Erect branching annuals, 1-3½ ft. tall. Lower leaves ovate, somewhat lyrate, obtuse, dentate, petioled; upper ones smaller, oblong to lanceolate, acute, sessile, sometimes entire. Heads paniced, numerous,  $\frac{1}{4}$ -½ in. broad. Naturalized from Europe. Roadsides and waste places. June-Sept. Franklin and Lake Counties.

3. *Arnoseris* Gærtn.

Herbs with several or numerous scapes from one root, glabrous or nearly so. Involucre campanulate, bracts in 1 series, keeled after flowering. Receptacle flat, pitted, not chaffy. Pappus none. Achenes oval.

*Arnoseris minima* (L.) Dumort. Lamb Succory. Simple or branched annuals, 3-12 in. tall, with 1-4 branches. Peduncles long, thickened gradually to the head, hollow below the head. Leaves all basal, oblanceolate or spatulate, toothed. Heads  $\frac{3}{8}$  in. or less broad. Flowers yellow. Adventive from Europe. Fields and waste ground. Summer. Lake Co.

4. *Krigia* Schreb.

Herbs with yellow or orange flowers. Involucre campanulate, with 9-18 principal bracts in 2 series, reflexed in fruit. Receptacle flat, naked. Pappus of 5 obovate or rounded scales and 10 or more simple bristles. Achenes turbinate, truncate.

*Krigia virginica* (L.) Willd. Carolina Dwarf-dandelion. Acaulescent annuals with several scapes from one root, sometimes branched near the base, 1-15 in. tall. Leaves usually all basal, lyrate, rarely, entire, spatulate, narrowed into margined petioles. Heads  $\frac{1}{4}$ - $\frac{3}{4}$  in. broad. Dry sandy soil. April-Aug. No specimens.

5. *Cynthia* D. Don.

Herbs with yellow flowers. Involucre campanulate, with 9-18 principal bracts in 1 or 2 series with no short outer ones, lanceolate, not keeled, reflexed in fruit. Pappus of scales and bristles. Achenes oblong.

*Cynthia virginica* (L.) D. Don. Virginia Cynthia. Glabrous, glaucous perennials, 1-2 $\frac{1}{2}$  ft. tall, branched above, with 1-6 long-peduncled heads. One clasping leaf below the middle; basal leaves tufted, spatulate or lyrate, toothed or entire, narrowed into margined petioles. Heads 1 $\frac{1}{2}$  in. broad. Pappus of 10-15 small scales, linear to oblong, and as many or more capillary bristles. Moist open woods and meadows. May-Oct. General.

6. *Hypochaëris* (Vaill.) L.

More or less scapose herbs with yellow flowers on a chaffy receptacle. Involucre cylindric to campanulate; principal bracts in several series. Pappus plumose. Achenes rough, long, slender, pointed.

*Hypochaëris radicata* L. Long-toothed Cat's-ear. Slender stemmed, glabrous perennials, 1-2 ft. tall, with several stems from one root, usually bracted. Basal leaves spreading, obovate to oblanceolate, dentate to pinnatifid, hirsute. Heads flat, 1 in. or more broad. Native of Eurasia. In waste places. May-Oct. Lake, Ashtabula, Wayne.

7. *Picris* L.

Leafy-stemmed, hispid herbs with spreading corymbose or paniculate clusters of flower heads. Involucre campanulate; principal bracts in 1 series with outer ones spreading. Pappus of plumose bristles. Achenes transversely wrinkled.

1. Outer involucral bracts linear.....*P. hieracioides*  
 1. Outer involucral bracts foliaceous.....*P. echioides*

*Picris hieracioides* L. Hawkweed picris. Much branched biennial, 1-3 ft. tall. Leaves lanceolate to oblong-lanceolate, irregularly toothed, narrowed to the petiole; stem leaves few and small, sessile. Heads numerous,  $\frac{1}{2}$ -1 in. broad. Outer involucre bracts linear to linear-lanceolate. Flowers yellow. Achenes short-beaked. Waste places. Adventive from Europe. June-Oct. No specimens.

*Picris echioides* L. Bugloss Picris. Branched annual or biennial about  $2\frac{1}{2}$  ft. tall. Basal leaves spatulate, 2-6 in. long, narrowed into petioles; upper ones smaller, ovate to lanceolate, sessile or clasping. Heads numerous, short peduncled,  $\frac{1}{2}$  in. broad. Outer bracts of the involucre foliaceous, inner ones membranous. Flowers yellow, Pappus densely plumose. Adventive from Europe. Waste places. July-Sept. Carroll County.

### 8. *Apargia* Scop.

Scapose perennials with a tuft of basal leaves, mostly pinnatifid. Involucre ovoid. Receptacle flat, fimbriate, villous or somewhat honeycombed. Pappus of plumose bristles. Achenes oblong to linear, beaked at the top.

1. Scape scaly; pappus of equal plumose bristles.....*A. autumnale*
1. Scape not scaly; pappus of two types, or of two unequal series.....2
2. Pappus of the outer flowers scales, of the inner ones plumose bristles,  
*A. nudicaulis*
2. Pappus of an outer series of short and an inner series of plumose bristles,  
the same in all flowers.....*A. hispida*

*Apargia autumnale* (L.) Hoffm. Fall Hawkbit. Nearly glabrous, scapes usually forked and scaly,  $\frac{1}{2}$ -2 ft. tall. Leaves narrow, oblong to linear-lanceolate, 3-8 in. long, toothed or pinnatifid. Heads 1-1 $\frac{1}{4}$  in. broad. Flowers yellow. Pappus tawny, equal, plumose. Achenes with short beak. Fields and roadsides. Naturalized from Europe. June-Nov. No specimens.

*Apargia nudicaulis* (L.) Britt. Rough Hawkbit. More or less hirsute, scapes slender, simple, 4-12 in. tall. Leaves linear-oblong to spatulate, hispid, narrowed into petioles, 2-5 in. long. Heads solitary,  $\frac{1}{3}$ - $\frac{1}{2}$  in. broad. Involucre pubescent, bracts lanceolate. Outer flowers with scaly pappus, inner ones with plumose bristles. Waste places. Adventive from Europe. June-Oct. Lake County.

*Apargia hispida* (L.) Willd. Common Hawkbit. Bristly hispid or glabrous stems, bractless,  $\frac{1}{2}$ -2 ft. tall. Heads nodding before flowering. Leaves oblong-lanceolate, coarsely dentate or pinnatifid. Heads 1 $\frac{1}{2}$  in. broad or less. Pappus of an outer series of short and an inner series of long plumose bristles, alike in all flowers. Fields and waste places. July-Sept. No specimens.

### 9. *Tragopogon* (Tourn.) L.

Much branched succulent herbs. Leaves linear-lanceolate, clasping, glabrous. Bracts of the involucre in 1 series, nearly equal, acuminate. Pappus of 1 series of plumose bristles, inter-webbed. Achenes terete or 5-angled, linear.

1. Flowers yellow, bracts rarely longer than the flowers.....*T. pratensis*
1. Flowers purple, bracts much longer than the flowers.....*T. porrifolius*

*Tragopogon pratensis* L. Yellow Goat's-beard. Branching perennial, 1-3 ft. tall. Leaves sometimes 10 in. long, keeled, clasping, long acuminate. Heads 1-2½ in. broad. Bracts lanceolate, acuminate, about 8 in number, rarely exceeding the yellow rays. In fields and waste places. May-Oct. Lake, Erie, Fulton, Auglaize, Franklin, Miami.

*Tragopogon porrifolius* L. Salsify. Erect, branching, from a thick root, sometimes 4½ ft. tall. Leaves lanceolate, long acuminate, clasping. Heads 2-4 in. broad, showy. Peduncles thickened and hollow below the heads. Bracts usually much longer than the purple flowers. Fruit sometimes 2 in. long. Fields and waste places. May-Oct. Rather general.

#### 10. *Hieracium* (Tourn.) L.

Perennials with orange, red, or yellow flowers. Heads broad, flat, erect. Involucral bracts in 2 or 3 series. Pappus of very stiff, persistent, brown or brownish bristles. Achenes terete or 4-5-angled, not beaked.

1. Lower stem abundantly leafy..... 2
1. Scapose or with 1-3 leaves on the stem near the base..... 6
2. Principal bracts of the involucre in two or three series; leaves numerous, short..... *H. canadense*..... 3
2. Principal bracts of the involucre in one series..... 3
3. Leaves lanceolate to lanceolate-oblong, acute or acuminate; panicle spreading, stem glabrous or pubescent below..... *H. paniculatum*..... 4
3. Leaves obovate, oblong, or broadly spatulate, mostly obtuse; stem hispid or glandular..... 4
4. Panicles leafy-bracted; achenes truncate..... 5
4. Panicles not leafy-bracted; achenes spindle-shaped..... *H. gronovii*..... 5
5. Involucre glabrous or nearly so; leaves glabrous above, hairy on veins beneath..... *H. marianum*..... 5
5. Involucre glandular; leaves hairy on both sides..... *H. scabrum*..... 5
6. Stem scapose with two or rarely two or four heads; heads one in. or more broad; stoloniferous..... *H. pilosella*..... 7
6. Stems leafless or with one or two leaves near the base; heads corymbose or paniculate, less than one in. broad..... 7
7. Principal bracts of the involucre in two or three series; plants stoloniferous... 8
7. Principal bracts of the involucre in one series; not stoloniferous..... 9
8. Flowers reddish-orange; stolons numerous..... *H. aurantiacum*..... 8
8. Flowers yellow; stolons few..... *H. pratense*..... 8
9. Involucre and stems glabrous or nearly so; leaves usually purple-veined, spreading on the ground..... *H. venosum*..... 9
9. Involucres and peduncles hairy and glandular, lower stem glabrous; leaves green, ascending..... *H. greenii*..... 9

*Hieracium canadense* Mx. Canada Hawkweed. Plants leafy-stemmed pubescent or glabrate, 1-5 ft. tall. Leaves numerous, ovate to oblong-lanceolate, acute or acuminate; upper ones rounded or subcordate, sessile or clasping at the base; lower somewhat spatulate, or toothed; no rosette of basal leaves at flowering time. Several to many heads in a corymb. Heads 1 in. broad; 2 or 3 series of bracts in the involucre. Achenes truncate. Woods and thickets. July-Sept. Erie and Cuyahoga.

*Hieracium paniculatum* L. Panicked Hawkweed. Slender, erect, leafy-stemmed herbs, 1-3 ft. tall, glabrous except at the base. Leaves thin, lanceolate, remotely toothed, acute, glabrous, narrowed at the base; upper ones sessile, lower ones may be petioled. Heads in panicle

with widely divergent peduncles. Heads 12–20-flowered; involucre of 1 principal series of usually glabrous bracts. Achenes truncate. In dry open woods. July–Sept. Hamilton, Cuyahoga, Wayne, Richland, Fairfield, Monroe.

*Hieracium gronovii* L. Gronovius' Hawkweed. Slender, stiff, leafy-stemmed herbs, sometimes nearly leafless, villous near the base, 1–3 ft. tall. Basal leaves obovate or spatulate, narrowed into a petiole, obtuse, denticulate or entire, hirsute or villous; upper leaves smaller, usually sessile. Heads numerous in a racemose panicle, without leaf-like bracts, 15–20-flowered, on slender glandular peduncles. Involucre of 1 series of principal bracts and several outer ones. Achenes spindle-shaped. Dry soil. July–Oct. Fulton, Erie, Franklin, Gallia, Brown.

*Hieracium mariannum* Willd. Maryland Hawkweed. Erect, slender herbs, pubescent at least below, with few to several leaves, 2–3 ft. tall. Basal leaves obovate, obtuse, narrowed at the base, ascending, hirsute on veins below, usually glabrous above; stem leaves smaller. Heads in paniculately branched clusters, 15–40-flowered, peduncles slender. Achenes truncate. May–Aug. Brown County.

*Hieracium scabrum* Mx. Rough Hawkweed. Erect, stoutish, leafy-stemmed herbs, hispid below, glandular pubescent above, 1–4 ft. tall. Leaves oblong to obovate or spatulate, narrow at base, obtuse, denticulate or entire, hirsute. Heads on glandular, leafy-bracted peduncles. Involucre with 1 series of principal bracts. Achenes truncate. In dry open woods and pastures. July–Oct. General.

*Hieracium pilosella* L. Mouse-ear Hawkweed. Plants pilose-pubescent throughout, with numerous leafy stolons rooting at the nodes. Leaves oblong to spatulate, entire, obtuse, often white tomentose beneath. Head 1 in. or more broad, usually solitary on a leafless scape. Involucre of 1 or 2 series of linear, pubescent, principal bracts and 1 or 2 series of outer small ones. Achenes truncate. Dooryards and fields. Adventive from Europe. May–Sept. Lake Co.

*Hieracium venosum* L. Veined Hawkweed. Slender, widely branched stems, with few or no leaves, 1–3 ft. tall. Leaves tufted, obovate, oblong, or spatulate, purple-veined, glabrous or hirsute. Numerous heads on slender, spreading, glabrous peduncles. Involucral bracts in 1 series. Pappus brown, not copious. Achenes truncate. In dry woods and sandy places. May–Oct. Eastern Ohio to Cuyahoga, Knox, Jackson, and Lawrence Counties.

*Hieracium greenii* Port. & Britt. Green's Hawkweed. Slender scapose plants, occasionally with 1 or 2 leaves on the stem, 1½–2½ ft. tall. Leaves tufted, obovate to spatulate, narrowed into a petiole, obtuse, bristly pubescent. Branches canescent-tomentose and glandular. Involucre in 1 series of principal bracts, glandular. Flowers yellow. Pappus brown, sparse. Achenes truncate. Dry woods. May–Sept. Highland County.

*Hieracium aurantiacum* L. Orange Hawkweed. Slender stemmed, stoloniferous, scapose plants, occasionally with 1 or 2 leaves near the base, 6–20 in. tall. Basal leaves tufted, spatulate, hirsute, entire or

denticulate. Several heads in a corymbose cluster, peduncles short. Involucre hirsute or glandular. Flowers orange or red. Pappus a single row of brown bristles. Achenes truncate. Fields, woods, and roadsides. June–Sept. Ashtabula, Geauga, Belmont.

*Hieracium pratense* Tausch. Field Hawkweed. Stoloniferous, with blackish hairs on the stem, hirsute or pilose, scapose, sometimes with 1 or 2 leaves near the base, 1–2 ft. tall. Basal leaves tufted, oblanceolate to oblong, light green, entire with a few glandular teeth, hirsute on both sides. Heads less than  $\frac{1}{8}$  in. broad in a corymbose panicle. Flowers yellow. Involucre pilose or glandular. Achenes truncate. Fields and roadsides. Naturalized or adventive from Europe. June–Aug. No specimens.

### 11. *Crèpis* L.

Leafy-stemmed or scapose plants with yellow or orange flowers in flat, erect heads. Involucre of 1 series of principal equal bracts. Pappus of very slender white bristles, copious. Achenes cylindrical or prismatic, beakless, or nearly so, narrowed at the base.

1. Leaves linear, sometimes sagittate.....*C. tectorum*
1. Leaves lanceolate to oblong or spatulate, clasping, margins not revolute.....2
2. Heads one-third to two-thirds inches broad, outermost bracts of the involucre not spreading.....*C. capillaris*
2. Heads 1–1½ in. broad, outermost bracts of the involucre spreading,  
*C. biennis*

*Crèpis tectorum* L. Narrow-leaf Hawksbeard. Slender, pubescent annuals with branched leafy stems, 1–2 tall. Leaves narrow, entire, dentate or runcinate-pinnatifid, margins revolute; stem leaves sessile, often sagittate. Heads in corymbose cluster. Involucre narrow, pubescent or canescent; bracts lanceolate, acuminate, downy within, exterior ones spreading. Achenes with short beak, 10-ribbed. In waste places. Adventive from Europe. June–Sept. No specimens.

*Crèpis capillaris* (L.) Wallr. Smooth Hawksbeard. Branched, leafy annuals, 8–30 in. tall, glabrous or slightly hirsute below. Basal leaves spatulate, pinnatifid or dentate, tufted, margins not revolute; stem leaves much smaller, lanceolate, sessile or clasping with sagittate base. Heads numerous in a spreading corymb,  $\frac{1}{8}$ – $\frac{3}{8}$  in. broad, peduncles slender, glabrous or glandular. Involucre oblong, pubescent or glandular, glabrous within, principal bracts lanceolate, outermost not spreading. Fields and waste places. Adventive from Europe. July–Sept. Franklin, Belmont, Lake.

*Crèpis biennis* L. Rough Hawksbeard. Leafy branched annuals or biennials, pubescent or hirsute at least below, 2–3 ft. tall. Basal leaves oblong to spatulate, narrowed into a petiole, dentate or pinnatifid, margins not revolute; the uppermost lanceolate, clasping. Heads 1–1½ in. broad. Involucre pubescent or canescent, bracts lanceolate, downy within, outermost spreading. Achenes narrowed above. Fields and waste places. Naturalized or adventive from Europe. June–Aug. No specimens.

12. *Nabalus* Cass.

Branched, leafy-stemmed herbs. Heads narrow, cylindrical, few-flowered, usually drooping. Flowers cream, white, or purple. Pappus of simple bristles. Achenes truncate, 4-5 angled or nearly terete.

1. Heads in a long slender thyrsus, numerous; stems simple, wand-like.....2
1. Heads in paniculate or corymbose clusters, more or less divergent.....3
2. Stems and leaves rough-hispid, flowers light yellow.....*N. asper*
2. Lower stems and leaves glabrous and glaucous, flowers purplish.....*N. racemosus*
3. Flowers 12-35 in a head, involucre hirsute-pubescent.....*N. crepidineus*
3. Flowers 5-16 in a head, involucre glabrous or nearly so.....4
4. Heads 5-7-flowered; involucre less than one-eighth inch wide, with 5 light green bracts.....*N. altissimus*
4. Heads 8-16-flowered; involucre one-eighth to one-fourth inch wide, with 6-8 green, purple, or glaucous bracts.....5
5. Branches of panicle diverging; involucre nearly glabrous, bracts shorter than the pappus.....*N. serpentarius*
5. Branches of panicle ascending; involucral bracts glabrous and equalling the pappus in length.....6
6. Pappus deep cinnamon brown.....*N. albus*
6. Pappus straw-color or light brown.....*N. trifoliatius*

*Nabalus asper* (Mx.) T. & G. Rough Rattlesnake-root. Rough pubescent perennials with wand-like simple stems, 2-4 ft. tall. Leaves ovate to oblong or lanceolate, dentate to entire, closely sessile or clasping; basal ones narrowed to winged petioles. Heads numerous, close to stem on a long thyrsus,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad. Involucre oblong, hirsute, with 8 or 9 principal bracts. Flowers light yellow. Pappus straw-colored. On dry prairies. Aug.-Sept. Erie County.

*Nabalus racemosus* (Mx.) DC. Glaucous Rattlesnake-root. Glabrous and glaucous below, with stems and inflorescence similar to the preceding species, perennials. Leaves glabrous and glaucous, basal ones narrowed into a petiole, ovate to oblong to obovate, entire, dentate or pinnatifid; the upper sessile, lanceolate. Heads  $\frac{1}{8}$ - $\frac{1}{4}$  in. broad. Involucre pubescent. Flowers purplish. In moist places. July-Sept. Fulton, Lucas, Ottawa, Erie, Huron, Wyandot, Champaign, Clark.

*Nabalus crepidineus* (Mx.) DC. Corymbed Rattlesnake-root. Stout-stemmed, leafy, branched perennials, 5-9 ft. tall, stems glabrous below, somewhat puberulent above. Basal leaves hastate or deltoid with margined petioles, dentate, lobed, or incised, sometimes 10 in. long; stem leaves smaller, short petioled or sessile, ovate, deltoid, or lanceolate. Heads numerous in a corymbose panicle, drooping,  $\frac{1}{4}$ - $\frac{1}{2}$  in. broad, 20-35 flowered. Involucre hirsute, green or purplish, with 12-15 principal bracts. Flowers cream colored. Pappus brown. In fields, Aug.-Oct. Cuyahoga, Champaign, Warren.

*Nabalus altissimus* (L.) Hook. Tall Rattlesnake-root. Slender, glabrous or slightly hispid, not glaucous perennials, 3-7 ft. tall, stems green or sometimes purplish. Leaves various, hastate to lanceolate, cut or lobed, mostly with long slender petioles. Heads narrow, 5-7 flowered in terminal and axillary panicles, pendulous. Involucre glabrous, light green, with 5 principal bracts. Flowers greenish or yellowish white. Pappus straw-color or cinnamon-brown. Woods and thickets. July-Oct. General.

*Nabalus serpentarius* (Pursh.) Hook. Lion's foot. (Rattlesnake-root). Glabrous or slightly pubescent perennials, green, not glaucous, 1-4 ft. tall. Leaves variable in outline, similar to the preceding species. Branches of the panicle divergent. Heads numerous, drooping, 8-12 flowered. Involucre hispid or rarely glabrous, green or purplish, with about 8 principal bracts, shorter than the pappus. Flowers whitish, cream, or yellow. Pappus light brown or straw-color. In dry open woods and thickets. July-Oct. Guernsey County.

*Nabalus albus* (L.) Hook. White Rattlesnake-root. Glabrous and glaucous, stems often purplish, 2-5 ft. tall. Leaves variable in outline as in the preceding species. Inflorescence paniculate, heads drooping. Involucre nearly glabrous, glaucous, with about 8 principal bracts. Flowers almost white. Pappus deep cinnamon-brown. In rich woods. Aug.-Oct. General.

*Nabalus trifoliolatus* Cass. Tall Rattlesnake-root. Glabrous plants, 1-9 ft. tall. Leaves long-petioled, usually 3-divided, with stalked or sessile divisions; the upper lanceolate, usually cut and lobed or merely crenate. Inflorescence a panicle of ascending branches. Heads few, drooping, with 7-12 pale yellow or whitish flowers. Involucres glabrous of 6-8 principal bracts equalling the light brown or straw-colored pappus. Woods and thickets. Aug.-Oct. No specimens.

### 13. *Sitilias* Raf.

Leafy-stemmed, branched herbs, very rarely scapose. Our species glabrous or nearly so. Pappus of 5 obovate scales and an inner series of bristles surrounded by a villous white ring at the base. Flowers yellow.

*Sitilias caroliniana* (Walt.) Raf. Leafy-stemmed False-dandelion. Glabrous annuals or biennials, 2-5 ft. tall with leafy much-branched stems. Leaves lanceolate-oblong, pinnatifid, dentate, or entire, acute or acuminate; basal leaves narrowed into a margined petiole; stem leaves sessile or partly clasping. Heads few, 1-1½ in. broad. Involucre usually pubescent. Achenes tipped with a filiform beak about 3 times their length. Dry sandy soil. April-July. Not reported from Ohio.

### 14. *Sonchus* (Tourn.) L.

Leafy-stemmed, branched herbs. Involucres ovoid, campanulate. Flower heads ¼-2 in. broad. Flowers all yellow. Receptacle flat, naked. Pappus of simple white bristles, copious. Achenes flattened.

1. Bracts of the involucre glandular-pubescent.....*S. arvensis*
1. Bracts of involucre glabrous.....2
2. Leaves mucronate, not spiny; auricles pointed; achenes ribbed and transversely wrinkled.....*S. oleraceus*
2. Leaves spinulose-dentate or spinulose-denticulate; auricles rounded; achenes ribbed, not wrinkled transversely.....*S. asper*

*Sonchus arvensis* L. Field Sow-thistle. Glabrous perennials with creeping rootstock. Stems leafy below, nearly naked above, 2-4 ft. tall. Lower leaves runcinate-pinnatifid, spinulose-dentate, often 12 in. long;

upper ones smaller, lanceolate, clasping. Heads corymbose-paniculate, 1-2 in. broad, showy, bright yellow. Involucral bracts bristly. Achenes oblong, compressed, ribbed. Fields and waste places. Naturalized from Europe. July-Oct. Lake, Franklin, Belmont.

*Sonchus oleraceus* L. Common Sow-thistle. Annuals with nearly simple stems, leafy below, 1-10 ft. tall. Leaves pinnatifid or lyrate, narrowed into petioles, terminal segment usually large, margins dentate, mucronate; upper leaves clasping, lanceolate, dentate or pinnatifid, auricles pointed; the uppermost sometimes entire. Heads several to numerous,  $\frac{3}{4}$ -1 $\frac{1}{4}$  in. broad. Flowers pale yellow. Bracts glabrous. Achenes flat. A common weed in cultivated land and waste places. May-Nov. General in Ohio.

*Sonchus asper* (L.) Hill. Spiny Sow-thistle. Hispid annuals similar to the preceding species. Lower and basal leaves spatulate to obovate, pinnatifid or dentate, petioled; upper ones clasping, lanceolate or oblong, auricles rounded. Bracts of the involucre glabrous. Heads 1 in. or less broad. Flowers pale yellow. Achenes flat. In waste places. May-Nov. General.

#### 15. *Lactuca* (Tourn.) L.

Leafy-stemmed herbs with usually numerous heads of white, blue, or yellow flowers. Heads less than  $\frac{1}{2}$  in. broad. Involucres cylindrical. Receptacle naked, flat. Pappus of simple bristles. Achenes flat, narrowed above.

- |  |                        |
|--|------------------------|
| 1. Flowers yellow.....   | 2                      |
| 1. Flowers blue or white.....  | 6                      |
| 2. Heads 6-12-flowered; leaves sagittate, clasping.....  | 3                      |
| 2. Heads 12-20-flowered; basal leaves petioled.....  | 4                      |
| 3. Panicles narrow; leaves glabrous, runcinate-pinnatifid, lobes pointed, margins not spinulose.....                 | <i>L. saligna</i>      |
| 3. Panicles spreading; mid-ribs spinulose, leaves entire or pinnatifid, lobes broad, margins spinulose.....          | <i>L. virosa</i>       |
| 4. Leaves lanceolate, acuminate or acute; entire or denticulate, lower rarely pinnatifid, sagittate at the base..... | <i>L. sagittifolia</i> |
| 4. Leaves obovate, obtuse, crenate.....  | <i>L. sativa</i>       |
| 4. Leaves mostly sinuate-pinnatifid, uppermost often lanceolate, entire.....   | 5                      |
| 5. Leaves hirsute-pubescent on both sides or at least on the mid-rib.....  | <i>L. hirsuta</i>      |
| 5. Glabrous throughout, somewhat glaucous.....   | <i>L. canadensis</i>   |
| 6. Pappus white.....   | 7                      |
| 6. Pappus brown.....   | <i>L. spicata</i>      |
| 7. Leaves oblong to ovate or lanceolate, acutely dentate.....  | <i>L. villosa</i>      |
| 7. Leaves deeply pinnatifid or lobed.....  | 8                      |
| 8. 1-3 ft. tall; leaves linear-lanceolate, lobed or pinnatifid.....  | <i>L. pulchella</i>    |
| 8. 3-7 ft. tall; leaves broad, deeply lyrate, divisions broad.....   | <i>L. floridana</i>    |

*Lactuca virōsa* L. Prickly Lettuce. Glaucous biennial. Stems glabrous or bristly below, 2-7 ft. tall. Leaves oblong to lanceolate, dentate or pinnatifid, often arranged vertically, margins and mid-ribs spinulose. Heads paniced, 6-12-flowered. Flowers pale yellow. Involucres cylindric, outer series of bracts shorter than the inner. Variety *integrata* Gren. and Godr. has oblong denticulate leaves, none of them or only the lowest pinnatifid. A troublesome weed in fields and

waste places. Naturalized from Europe. June–Sept. General and abundant.

*Lactuca saligna* L. Willow Lettuce. Light green biennial with slender, smooth stems. Similar to the preceding species but with runcinate-pinnatifid leaves, lobes narrow, mid-veins usually not spinulose. Waste and cultivated ground. Naturalized from Europe. July–Aug. Franklin, Green, Montgomery, Highland.

*Lactuca sagittifolia* Ell. Arrow-leaf Lettuce. Glabrous biennial, sometimes slightly hirsute below, 2–6 ft. tall, leafy. Leaves oblong to lanceolate, acute, entire or rarely unevenly toothed; stem leaves sessile or clasping; basal ones petioled and occasionally pinnatifid. Heads numerous, small. Involucre cylindric with outer series of bracts shorter than the inner. Flowers yellow or reddish. Pappus white. Achenes oval, with filiform beak. In open dry soil. July–Sept. Fairfield, Cuyahoga.

*Lactuca sativa* L. Garden Lettuce. Similar to the preceding species but with broader, obtuse leaves; margins entire or crenate. Escaped from cultivation in Franklin County.

*Lactuca hirsuta* Muhl. Hairy Lettuce. Stems erect, 1–6 ft. tall, sparingly leafy, usually hirsute. Leaves narrow, pinnatifid, hirsute on both sides or only on the under mid-vein; stem leaves sessile or clasping, sometimes entire; basal ones petioled. Heads numerous. Involucre glabrous, outer bracts shorter than the inner. Flowers yellow. Pappus white. Achenes oblong, beaked. Dry open soil. June–Sept. Tuscarawas, Ross, Union.

*Lactuca canadensis* L. Tall Lettuce. Glabrous, glaucous annual or biennial, leafy-stemmed, 3–10 ft. tall. Leaves mostly sinuate-pinnatifid; basal ones narrowed into a petiole; the upper sessile or clasping, uppermost often lanceolate and entire. Flowers pale yellow. Outer involucre bracts shorter than the inner. Pappus white. Achenes oval, about as long as the beak. In moist soil. June–Nov. General.

*Lactuca spicata* (Lam.) Hitchc. Tall Blue Lettuce. Stout glabrous annuals or biennials, leafy-stemmed, 3–12 ft. tall. Leaves deeply lobed or entire, margins coarsely dentate, mucronate, smooth on both sides but may be pubescent on under mid-rib; stem leaves sessile, lower ones may be narrowed into a petiole. Heads numerous in a rather dense panicle. Flowers blue to white. Pappus brownish. Achenes short-beaked. Low moist ground. July–Oct. Rather general. Variety *L. spicata aurea* Jennings. A yellow-flowered variety is reported. Holmes, Defiance, Cuyahoga, Franklin, Athens.

*Lactuca villòsa* Jacq. Hairy-veined Blue Lettuce. Glabrous, leafy-stemmed annuals or biennials, 5–6 ft. tall. Leaves obovate to lanceolate, acuminate, mucronate, glabrous above but veins may be pubescent. Numerous heads on a divergently branched panicle. Peduncles with minute scales. Flowers blue. Involucre bracts mostly obtuse, outer series shorter than the inner. Achenes thick with short thick beak. In borders of thickets. July–Oct. Miami and Montgomery.

*Lactuca pulchella* (Pursh) DC. Large-flowered Blue Lettuce. Slender erect perennials, 1-3 ft. tall, leafy-stemmed, glaucous. Stem leaves sessile or clasping, lanceolate, entire; lower ones runcinate-pinnatifid, lobes narrow. Heads numerous on scaly-bracted peduncles. Involucre of 3 or 4 series of principal bracts. Pappus white. Achenes with short slender beak. In moist soil. No specimens.

*Lactuca floridana* (L.) Gaertn. Florida Lettuce. Nearly glabrous leafy-stemmed annuals or biennials, 3-7 ft. tall. Leaves large, ovate-cordate, lyrate, rarely entire, petioles margined, segments broad, glabrous above, pubescent on veins below, 4-12 in. long. Flowers blue. Outer series of involucral bracts shorter than the inner. Achenes thick, the beak short, thick. Moist soil. July-Sept. From Erie, Franklin, and Ross Counties west.

#### 16. *Leontodon* L.

Scapose herbs with hollow naked scapes and large solitary heads. Fruit very slender, roughened, spinulose. Papps of simple bristles. Receptacle naked, honeycombed.

*Leontodon taraxacum* L. Dandelion. Acaulescent perennials from a deep tap-root. Leaves in a rosette, oblong to spatulate, variously cut and pinnatifid, dentate or nearly entire, according to the age of the plant, the younger being less deeply cut. Scapes hollow bearing a head 1 in. or more broad. Flowers numerous, golden yellow. Outer bracts of the involucre reflexed as the head becomes older. Bracts linear. Achenes greenish, spinulose above, narrowed to a filiform beak which bears an abundant white pappus. Mass of fruit globose when ripe. A common weed in open places all over the world. Several varieties have been noted which bear red, green, or brown seeds. Old plants split longitudinally through the root and rejuvenate naturally. When roots are divided new plants grow which have the characteristics of young plants. Although much pollen develops the eggs are not fertilized. Flowers develop seed parthogenically. This is one of the highest plants in the plant kingdom. Naturalized from Europe. Jan.-Dec. Main blooming period April-May. General and abundant.