

GROUP 3: MONOCOTS

Monocots (Class Liliopsida) have one cotyledon (seed leaf) in the seed and scattered vascular bundles within the stem. Most monocots have parallel-veined, often linear, leaves and flower parts in 3s or 6s. However, there are several exceptions to this rule. It is important to look at all the characters displayed in determining whether one is examining a monocot. **Arisaema** spp. (Jack-in-the-pulpit) are the only monocots in our flora which have compound leaves. The Araceae have a specialized inflorescence consisting of a fleshy spike (spadix) and a large enclosing bract (spathe). Leaves of most Araceae and all Dioscoreaceae, **Trillium** spp., and **Smilax** spp. are both broad and net-veined. Trees and shrubs in Michigan are either dicots or gymnosperms (see Group 1, Woody Plants). Keys to floating and/or submerged aquatic monocots are in Group 2, Unusual Plants. Several dicots which could be confused with monocots are included in this key.

- 1a. Twining or climbing plants; leaves broad and net-veined—2
- 1b. Non-climbing herbs; leaves narrow or broad—4

- 2a. Stem twining, tendrils absent; flowers in spikes or panicles—**Dioscorea villosa**, in DIOSCOREACEAE, p. 125
- 2b. Stem climbing or scrambling, tendrils present; flowers in umbels or racemes—3

- 3a. Leaf blades lobed; petals 5 or 6, united—CUCURBITACEAE, p. 305
- 3b. Leaf blades entire; tepals 6, separate—**Smilax** spp., in LILIACEAE, p. 117

- 4a. Flowers in a head and plants with milky juice—**Tragopogon** spp., in COMPOSITAE, p. 309
- 4b. Flowers various, but if in a head, then plants without milky juice—5

- 5a. Margin of the leaf blade spiny—**Eryngium yuccifolium**, in UMBELLIFERAE, p. 247
- 5b. Margin of the leaf blade not spiny—6

- 6a. Flowers in a dense, fleshy spike (*spadix*), surrounded or subtended by a green or colored bract (*spathe*), the combination resembling a single flower; perianth minute or absent; leaves broad, often net-veined—ARACEAE, p. 113
- 6b. Flowers not in a spathe-spadix arrangement; leaves often narrow, linear to lanceolate, seldom broad and net-veined—7

- 7a. Flowers in a solitary head terminating an unbranched, leafless stalk—8
- 7b. Flowers variously arranged; if in a head, the head not terminal and solitary—9

- 8a. Perianth whitish or grayish, woolly—*Eriocaulon septangulare*, in ERI-
OCAULACEAE, p. 115
- 8b. Petals yellow, glabrous—XYRIDACEAE, p. 115
- 9a. Flowers greenish, yellowish, or brownish, never brightly colored, the pe-
rianth absent, or inconspicuous, dry, or chaffy in texture; individual
flowers small, but sometimes grouped into conspicuous clusters—10
- 9b. Flowers in which all or part of the perianth is petaloid, conspicuous,
white or colored—16
- 10a. Flowers arise in, and are mostly hidden by, the axils of dry, membra-
nous, or chaffy scales which are arranged into spikelets of uniform size
and structure; spikelets variously arranged; fruit a grain or an achene—
11
- 10b. Flowers not subtended individually by dry, membranous, or chaffy
scales or not hidden by such scales; fruit various—12
- 11a. Leaf sheaths often split on the side opposite the blade; leaves usually 2-
ranked, i.e., in two longitudinal rows with the third leaf above the first;
stems usually rounded or flat, never triangular, almost always hollow;
stem nodes solid, conspicuous—GRAMINEAE, p. 98
- 11b. Leaf sheaths closed into a continuous tube; leaves usually 3-ranked;
stems frequently triangular, usually solid; stem nodes neither solid nor
conspicuous—CYPERACEAE, p. 108
- 12a. Flowers unisexual, male and female flowers differing in appearance—
13
- 12b. Flowers perfect, uniform in appearance—14
- 13a. Inflorescence a dense spike, the pistillate flowers at the base and stami-
nate flowers at the apex of the spike—TYPHACEAE, p. 94
- 13b. Inflorescence a spike of globose heads; the lower heads pistillate, the
upper staminate—SPARGANIACEAE, p. 95
- 14a. Inflorescence a fleshy spike, appearing to be lateral near the middle of
a flattened stem—*Acorus calamus*, in ARACEAE, p. 114
- 14b. Inflorescence a cyme, raceme, or spike-like raceme—15
- 15a. Inflorescence a cyme of solitary or (often) clustered flowers; ovary 1—
JUNCACEAE, p. 116
- 15b. Inflorescence a raceme or spike-like raceme; ovaries 3 or 6—
JUNCAGINACEAE, p. 96

- 16a. Flowers regular, with the petals of approximately the same size and shape—17
- 16b. Flowers irregular, with the petals of each flower not of the same size or shape—26
- 17a. Ovaries 2 or more, separate or barely united with each other at the base—18
- 17b. Ovary 1 in each flower—20
- 18a. Leaves compound or pinnately divided; ovaries 2 or 3—*Floerkea proserpinacoides*, in LIMNANTHACEAE, p. 224
- 18b. Leaves simple, entire; ovaries 3 or more—19
- 19a. Petals and sepals both pink; inflorescence an umbel—*Butomus umbellatus*, in BUTOMACEAE, p. 97
- 19b. Petals white, sepals green; inflorescence a panicle or raceme of 3-flowered whorls—ALISMACEAE, p. 97
- 20a. Perianth differentiated into greenish sepals and 2 or 3 colored petals—21
- 20b. Perianth not differentiated, all divisions essentially alike (tepals)—22
- 21a. Leaves broad, net-veined; flower solitary, terminal—*Trillium* spp., in LILIACEAE, p. 117
- 21b. Leaves narrow, with parallel veins; flowers in an umbel—*Tradescantia* spp., in COMMELINACEAE, p. 115
- 22a. Ovary superior, appearing within the perianth—23
- 22b. Ovary inferior, appearing below the perianth—24
- 23a. Tepals 6; stamens 3; mud flats or in shallow water—*Heteranthera dubia*, in PONTEDERIACEAE, p. 116
- 23b. Tepals 4 or 6; stamens 4 or 6—LILIACEAE, p. 117
- 24a. Leaves broad, net-veined; tepals reddish- or purplish-brown; stamens 6 or 12—ARISTOLOCHIACEAE, p. 145
- 24b. Leaves narrow, with parallel veins; tepals blue, white, or yellow; stamens 3 or 6—25
- 25a. Stamens 6; tepals bright yellow—*Hypoxis hirsuta*, in AMARYLLIDACEAE, p. 125
- 25b. Stamens 3 (concealed by prominent petaloid style branches in *Iris* spp.); tepals blue, white, or yellow—IRIDACEAE, p. 125

- 26a. Flowers not blue; ovary inferior; floral structure complex; stamens attached to other parts of the flower and not resembling ordinary stamens in form or structure—ORCHIDACEAE, p. 127
- 26b. Flowers blue; ovary superior; stamens distinct from the other parts of the flower—27
- 27a. Base of leaf blade cordate; perianth of 6 blue tepals—*Pontederia cordata*, in PONTEDERIACEAE, p. 116
- 27b. Base of leaf blade tapering to leaf sheath; sepals green—*Commelina communis*, in COMMELINACEAE, p. 115