GROUP 2: UNUSUAL PLANTS

This key is especially designed for identification of the families of aquatic or parasitic flowering plants. Other plants which are unusual in appearance and therefore difficult to place in either the monocots (Group 3) or herbaceous dicots (Group 4) are included here. For example, apparently leafless plants, or those in which the flowering and vegetative stages are completely separated in time will be found here. Green terrestrial plants with recognizable flowers will be found in Group 3 or 4. Refer to Group 1 for all woody plants. Algae are aquatic plants, unicellular or multicellular, and placed in many different divisions. They are not identified here, except for one genus of very large algae (Chara spp.) which may be confused with several common aquatic flowering plants.

1a. Plants aquatic, entirely submerged or floating—2
1b. Terrestrial plants, without floating or submerged leaves—38

2a. Aquatic plants, with all or most of the leaves submerged, or leafless—3
2b. Aquatic plants, with the leaves or the whole plant floating on or near the surface—29

Identification of submerged aquatic plants can be extremely difficult, often complicated by the absence of flowers or fruit. An extensive key using vegetative characters of submerged aquatic plants in Michigan is available in Voss (1967).

3a. Submerged aquatics, without noticeable leaves—4
3b. Submerged aquatics, with the leaves linear, lanceolate, or dissected—5

4a. Flowers showy, yellow or purple; corolla 2-lipped—Utricularia spp., in LENTIBULARIACEAE, p. 295
4b. Flowers small and inconspicuous, sessile, purplish or greenish; corolla not 2-lipped—Myriophyllum tenellum, in HALORAGACEAE, p. 245

5a. Leaves linear or lanceolate, not lobed or dissected—6
5b. Leaves more or less lobed or dissected—22

6a. Leaves all basal—7
6b. Stem leaves present—13

7a. Leaves flat, often ribbon-like—8
7b. Leaves filiform or tubular—12

8a. Flowers unisexual, one sex basal among the leaves, the other solitary on an elongated pedicel—9
8b. Flowers unisexual or perfect, all in clusters—10
9a. Leaves ribbon-like, 20 cm or longer; male flowers basal, female flower pedicellate—*Vallisneria americana*, in HYDROCHARITACEAE, p. 98
9b. Leaves shorter, to 5 cm long; female flowers basal, male flower pedicellate—*Littorella uniflora*, in PLANTAGINACEAE, p. 297

10a. Flowers white, in panicles or racemes—*Sagittaria* spp., in ALISMATACEAE, p. 97
10b. Flowers whitish-gray or greenish, in heads—11

11a. Flowers greenish, in a spike of globose heads—SPARGANIACEAE, p. 95
11b. Flowers minute, whitish or gray, in a small head terminating an unbranched, leafless stalk—*Eriocaulon septangulare*, in ERIOCAULACEAE, p. 115

12a. Leaves tubular, hollow, partitioned lengthwise to form two adjacent tubes; flowers very pale blue, 1 cm long or more—*Lobelia dortmanna*, in CAMPANULACEAE, p. 306
12b. Leaves minute, filiform; flowers yellow or purple—*Utricularia* spp., in LENTIBULARIACEAE, p. 295

13a. Leaves alternate—14
13b. Leaves opposite or whorled—16

14a. Leaves filiform to broadly elliptic or obovate, the blades with an evident midvein; flowers in spikes, greenish—POTAMOGETONACEAE, p. 95
14b. Leaves filiform to linear, midvein not evident; flowers solitary, petals yellow—15

15a. Leaves filiform; flower terminal; sepals 5 and petals 5—*Ranunculus reptans*, in RANUNCULACEAE, p. 165
15b. Leaves flat, linear; flower axillary; tepals 6—*Heteranthera dubia*, in PONTEDERIACEAE, p. 116

16a. Leaves abruptly widened at the base, the margin toothed, often minutely so—NAJADACEAE, p. 96
16b. Leaves not widened at the base, the margin entire—17

17a. Leaves opposite—18
17b. Leaves whorled—20

18a. Leaves thread-like, 3–8 cm long—*Zannichellia palustris*, in ZANNICHELLIIACEAE, p. 96
18b. Leaves linear to spatulate, up to 1.5 cm long—19
62 Group 2: Unusual Plants

19a. Apex of submerged leaves split, forming two teeth; petals absent—CALLITRICHACEAE, p. 224
19b. Apex of submerged leaves entire, not toothed; petals present—Elatine minima, in ELATINACEAE, p. 235

20a. Whorled leaves cylindrical—Chara spp., an alga (Division Charophyta)
20b. Whorled leaves flat—21

21a. Stems flexuous, not erect; leaves mostly in whors of 3—Elodea spp., in HYDROCHARITACEAE, p. 98
21b. Stems erect; leaves in whors of 4 or more—Hippuris vulgaris, in HIPPURIDACEAE, p. 245

22a. Leaves or branches with numerous small bladders attached, each bladder 1–3 mm long—Utricularia spp., in LENTIBULARIACEAE, p. 295
22b. Leaves or branches without bladders—23

23a. Leaves alternate—24
23b. Leaves opposite or whorled—27

24a. Leaves palmately dissected—Ranunculus spp., in RANUNCULACEAE, p. 165
24b. Leaves pinnately divided—25

25a. Leaves twice-pinnate—Armoracia aquatica, in CRUCIFERAE, p. 179
25b. Leaves once-pinnate—26

26a. Leaves divided into ovate segments, the terminal one enlarged—Nasturtium officinale, in CRUCIFERAE, p. 174
26b. Leaves divided into linear segments, the terminal one not enlarged—Proserpinaca palustris, in HALORAGACEAE, p. 244

27a. Leaves pinnately compound—Myriophyllum spp., in HALORAGACEAE, p. 244
27b. Leaves palmately compound—28

28a. Leaves whorled, consistently dichotomously forked—CERATOPHYLLACEAE, p. 164
28b. Leaves opposite or appearing whorled, not dichotomously forked—Megalodonta beckii, in COMPOSITAE, p. 329

29a. Plants minute, flattened, consisting of a rounded or ovate thallus (no distinction into stem and leaf); the whole plant floating on or near the surface—LEMNACEAE, p. 114
29b. Plant attached to the soil, with differentiated stem and leaves—30
30a. Leaves circular to elliptic, petiole attached to center of blade or blade with a deep basal slit, with net veins—31
30b. Leaves linear to elliptic; petiole attached to margin of blade, basal slit absent; net or parallel veins—32

31a. Leaf blades entire or with a deep basal slit; flowers large, solitary on long peduncles held on or above the water surface; stamens 12 to many—NYMPHAEACEAE, p. 165
31b. Leaf blades shallowly lobed or crenate; flowers small, several in an umbel; stamens 5—Hydrocotyle umbellata, in UMBELLIFERAE

32a. Leaves basal, with parallel veins—Sagittaria cuneata, in ALISMATACEAE, p. 97
32b. Stem leaves present, with net or parallel veins—33

33a. Leaves opposite or whorled—34
33b. Leaves alternate—35

34a. Leaves less than 2 cm long—CALLITRICHACEAE, p. 224
34b. Leaves more than 2 cm long—POTAMOGETONACEAE, p. 95

35a. Leaves net-veined, with a single midvein; lanceolate or elliptical in outline—Polygonum amphibium, in POLYGONACEAE, p. 150
35b. Leaves parallel-veined—36

36a. Leaves not over 20 cm long—POTAMOGETONACEAE, p. 95
36b. Leaves over 20 cm long—37

37a. Leaf base forms a sheath around the stem; flowers in 1 or more bracted spikelets—GRAMINEAE, p. 98
37b. Leaf sheath absent; flowers in a spike of spherical heads—SPARGANIACEAE, p. 95

38a. Brown, yellow, or white plants, without green color—39
38b. Plants with normal green color, at least in some parts—44

39a. Plants growing on or twining around stems or branches of other plants—40
39b. Plants emerging from the ground, stems not twining—41

40a. Small brown plants, growing as parasites on branches of black spruce (rarely on other gymnosperms)—Arceuthobium pusillum, in VIS-CACEAE, p. 144
40b. Stems resembling yellow or white threads, twining around plant stems—CUSCUTACEAE, p. 269
41a. Plants emerging in late winter, appearing to consist only of yellowish flowers in a partly-underground reddish spathe—*Symplocarpus foetidus*, in ARACEAE, p. 113

41b. Plants with erect stems, appearing later in the year—42

42a. Corolla regular; stamens 6–12—MONOTROPACEAE, p. 256

42b. Corolla irregular; stamens 1 or 4 or not evident—43

43a. Sepals and petals each 3—*Corallorhiza* spp., in ORCHIDACEAE

43b. Sepals 5; corolla of united petals, 2-lipped—OROBANCHACEAE

44a. Stem flattened, thick and fleshy, leafless, spiny—CACTACEAE, p. 239

44b. Stem not spiny—45

45a. Flowers replaced by bulblets—46

45b. Flowers present, not replaced by bulblets—47

46a. All leaves simple, linear, entire; bulblets in a terminal umbel—*Allium* spp., in LILIACEAE, p. 117

46b. Most leaves pinnately compound, upper leaves simple and much reduced; bulblets in upper leaf axils and sometimes in terminal umbels—*Cicuta bulbifera*, in UMBELLIFERAE, p. 251

47a. Leaves absent when plant is flowering, flower peduncle may be scaly—48

47b. Leaves and flowers present—54

48a. Flowers small, greenish or brownish, without obvious colored petals—49

48b. Flowers with conspicuous white or colored petals—50

49a. Perianth of 6 small chaffy tepals; flowers in cymes—*Juncus* spp., in JUNCACEAE, p. 116

49b. Perianth absent, each flower in the axil of a single chaffy bract within a terminal spikelet—*Eleocharis* spp., in CYPERACEAE, p. 108

50a. Inflorescence a composite head, with several or many small flowers closely aggregated into a dense head surrounded by a calyx-like involucre of small bracts—51

50b. Flowers separate, variously clustered, but never crowded into involucral heads—52

51a. Flowers yellow—*Tussilago farfara*, in COMPOSITAE, p. 328

51b. Flowers whitish—*Petasites* spp., in COMPOSITAE, p. 318
52a. Flowers regular, tepals 6, white—*Allium tricoccum*, in LILIACEAE, p. 123
52b. Flowers irregular, sepals 3 or 5, corolla pinkish, purple or yellow—53

53a. Sepals 3; corolla pinkish—*Arethusa bulbosa*, in ORCHIDACEAE, p. 132
53b. Sepals 5; corolla yellow or purple—*Utricularia* spp., in LENTIBULARIACEAE, p. 295

54a. Leaves pitcher-shaped, open at the top—*Sarracenia purpurea*, in SARRACENIACEAE, p. 185
54b. Leaves flat, variously shaped—55

55a. Leaves reduced to small, often brownish scales—56
55b. Leaves various, but not reduced to scales—61

56a. Stem erect, unbranched or with only 1 or 2 branches—57
56b. Stem freely branched—58

57a. Plants of moist sandy meadows, open woods, and bog margins; scales opposite; corolla regular, 4-lobed—*Bartonia virginica*, in GENTIANACEAE, p. 262
57b. Plants in mud or water; scales few, alternate; corolla irregular, 2-lipped—*Utricularia* spp., in LENTIBULARIACEAE, p. 295

58a. Leaves numerous and close, concealing the stem—59
58b. Leaves spreading, not concealing the stem—60

59a. Plants succulent, growing in highway median areas; leaves opposite, tiny papery scales—*Salicornia europaea*, in CHENOPODIACEAE, p. 152
59b. Plants shrubby, growing on sand dunes and in adjacent forests; leaves alternate, not papery—*Hudsonia tomentosa*, in CISTACEAE, p. 235

60a. Leaf scales subtending filiform branches, mostly alternate; petals 6, greenish—*Asparagus officinalis*, in LILIACEAE, p. 117
60b. Leaf scales distinctly opposite; petals 5, yellow—*Hypericum gentianoides*, in GUTTIFERAE, p. 234

61a. Plant with a rosette of small basal leaves bearing large glandular hairs on the upper surface; cauline leaves absent—DROSERAECAE, p. 186
61b. Basal rosette of leaves absent; cauline leaves succulent—62

62a. Sepals 2—*Portulaca* spp., in PORTULACACEAE, p. 156
62b. Sepals 4 or 5—CRASSULACEAE, p. 186