

## KEY TO FAMILIES

- 1a Plants reproducing by means of microscopic spores; producing neither flowers nor seeds. **DIVISION: PTERIDOPHYTA (Ferns and Fern Allies)** ..... **KEY A**, p. 77
- 1b ..Plants normally reproducing by means of seeds (some species may reproduce vegetatively but are usually also capable of seed production). ..... **2**
- 2a (1b) Trees, shrubs or woody vines whose stems persist above ground throughout the winter (this includes small trailing or  $\pm$  evergreen shrublets like *Gaultheria procumbens* and *Mitchella repens*) ..... **3**
- 2b (1b) Herbaceous plants which produce no woody tissues above the ground. .... **4**
- 3a (2a) Trees or shrubs with narrow, needle-like or scale-like, mostly evergreen leaves; true flowers absent; ovules borne on surface of scales or embedded in fleshy disk, never enclosed in an ovary. .... **DIVISION: PINOPHYTA (Gymnosperms) KEY B**, p. 78
- 3b (2a) Trees, shrubs or vines of various aspect, usually with broad, flat, deciduous leaves; true flowers produced, sometimes greatly reduced; ovules borne within a closed ovary. **KEY C**, ..... p.78
- 4a (2b) Plants parasitic on branches of conifers (usually *Picea mariana*); leaves scalelike; stems to 2 cm long. .... (*Arceuthobium pusillum*) **VISCACEAE**, p. 321
- 4b (2b) Plants not parasitic on conifers; leaves various; stems usually longer. .... **5**
- 5a (4b) Plants very small, thalloid (without distinct stem and leaves); roots wanting or a few from lower surface; flowers inconspicuous; aquatics. .... **LEMNACEAE**, p. 503
- 5b (4b) Plants otherwise. .... **6**
- 6a (5b) Leaves usually parallel-veined; perianth segments of flower usually in threes or sixes; seed .. with a single seed leaf (cotyledon); vascular bundles scattered in stem. **CLASS LILIOPSIDA (Monocots)** ..... **KEY D**, p. 82
- 6b (5b) Leaves usually net-veined; perianth segments of flower usually in fours or fives; seed with two seed leaves (cotyledons); vascular bundles arranged in a ring surrounding a central pith or cavity. **CLASS: MAGNOLIOPSIDA (Dicots)**..... **7**
- 7a (6b) Stems and leaves normally under or floating on water (true aquatics). ..... **KEY E**, p. 84
- 7b (6b) Stems and leaves not on or under water; base of stem may occur under water. .... **8**
- 8a (7b) Plants without green leaves, either parasitic or saprophytic, or without leaves at flowering time. .... **KEY F**, p. 85
- 8b (7b) Plants with green leaves or other chlorophyllous green tissue. .... **9**
- 9a (8b) Mature plants always without flowers or fruit when in leaf. .... **10**
- 9b (8b) Mature plants with flowers and/or fruit present when in leaf. .... **11**
- 10a (9a) Leaves cordate, angled or deeply palmately lobed, white-tomentose beneath. .... (*Petasites, Tussilago*) **ASTERACEAE**, p. 421
- 10b (9a) Leaves entire, cordate-ovate, to 6 dm broad, unpleasantly scented when crushed. (*Symplocarpus foetidus*) **ARACEAE** (a monocotyledon with confusing net-veined leaves), . p. 501
- 11a (9b) Flowers wholly or partly unisexual..... **KEY G**, p. 86
- 11b (9b) Flowers usually perfect. .... **12**
- 12a (11b) Plants fitting the complete description of one of the following common New Brunswick plant families ..... **(A-K)**
- 12b (11b) Plants not fitting the complete description of one of the following families ..... **13**

**I. FLOWERS NOT INDIVIDUALLY SMALL AND IN DENSE HEADS NOR WITH A SINGLE PISTIL IN A CUPLIKE STRUCTURE (SEE ALSO II. ON THE FOLLOWING PAGE).**

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**1. FLOWERS PERFECT AND REGULAR; PETALS, IF PRESENT, FREE**

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## a) OVARY SUPERIOR

- A. Sepals 5-6, often petaloid; stipular leaf bases or base of short petiole usually completely sheathing stem (ocreate); flowers relatively small, often aggregated; fruit achenous. .... **POLYGONACEAE**, p. 185
- B. long; Petals usually 4 and narrowed (clawed) at base; sepals 4; stamens 6, usually 2 short, 4 ..... ovary normally 2-celled; fruit usually a specialized capsule called a silicle or silique with several seeds, mostly opening (dehiscent) by 2 valves exposing their thin persistent partition (septum). .... **BRASSICACEAE**, p. 261
- C. Petals usually 5, distinct, sometimes wanting, white, pink or reddish, never yellow in our species; sepals free or connected (connate); stamens usually twice as many as petals; ovary mostly 1-celled, with free-central or basal placentation; fruit a capsule or one-seeded utricle; nodes often swollen. .... **CARYOPHYLLACEAE**, p. 173

## b) OVARY INFERIOR OR HALF INFERIOR (FLOWER PERIGYNOUS)

- D. Ovary(s) inferior or surrounded by a saucer- or cup-shaped floral tube edged with many stamens; flowers often large and conspicuous when mostly five, free petals; fruit an achene (i.e. strawberry), follicle (i.e. spiraea), drupe (i.e. cherry), set of coherent drupelets (i.e. blackberries and raspberries) or pome (i.e. apple)..... **ROSACEAE**, p. 263
- E. Ovary fully inferior; flowers borne in simple or compound umbels, regular (outer flowers of umbel may be slightly irregular); leaves often compound or deeply dissected; fruit of 2, one-seeded halves (mericarps)..... **APIACEAE**, p. 340
- F. Ovary fully inferior, flowers perfect, regular, mostly 4-merous (2 in *Circaea*); floral tube often prolonged beyond tip of ovary; fruit a many-seeded capsule or small, indehiscent and bur-like. .... **ONAGRACEAE**, p. 314

**2. FLOWERS PERFECT AND IRREGULAR**

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## a) OVARY SUPERIOR

- G. Flowers mainly irregular (nearly regular in *Mimulus*, *Veronica* and *Verbascum*), sympetalous, synsepalous; ovary 1, superior; fruit capsular, 2-celled, many-seeded ..... **SCROPHULARIACEAE**, p. 385
- H. Leaves opposite; stem 4-angled; flowers mainly irregular (nearly regular in *Lycopus* and ..... *Mentha*), sympetalous, synsepalous; ovary deeply 4-parted, superior, surrounding style base; ..... fruit of 4 nutlets; plants often aromatic. **LAMIACEAE**, p. 370
- I. Plants commonly with fruit a 1-celled, several-seeded pod (legume) splitting along both sides, occasionally divided into 1-seeded joints (*Desmodium*) or sometimes 1- few-seeded and indehiscent; ovary superior; flowers irregular, 5-merous with large upper median petal (the standard), 2 lateral petals (the wings) and 2 petals usually partly fused (the keel and

enclosing the 10 stamens and single pistil; leaves alternate, usually compound. ....  
 ..... **FABACEAE**, p. 297

## **II: FLOWERS INDIVIDUALLY SMALL AND EITHER IN DENSE HEADS OR WITH A SINGLE PISTIL IN A CUPLIKE STRUCTURE (CYATHIUM)**

- J. Flowers few to many in dense heads, each head surrounded by 4 to many bracts; ovary inferior; fruit an achene; corolla sympetalous; calyx wanting or often replaced by a ring of bristles (pappus) or scales; stamens 5, free, their anthers fused to form a tube. ....  
 ..... **ASTERACEAE**, p. 421
- K. Flowerlike structure consisting of a cup with one, stalked, female flower (reduced to one pistil) surrounded by several single male flowers (reduced to one jointed stamen); edge of cup variously ornamented with glands and/or bracts; fruit a three-lobed capsule; juice milky.  
 ..... (*Euphorbia*) **EUPHORBIACEAE**, p. 323
- 13a (12b) Calyx present (often petaloid, soon deciduous in *Thalictrum* and *Actaea*); corolla wanting.  
 ..... **KEY H**, p. 88
- 13b (12b) Calyx and corolla both present (calyx may be obscure and fall early as in *Adlumia*). ..... **14**
- 14a (13b) Petals separate or apparently so, may be free at summit of floral tube (sepals may be variously united). ..... **15**
- 14b (13b) Petals united. .... **16**
- 15a (14a) Flowers irregular. .... **KEY I**, p. 88
- 15b (14a) Flowers regular. .... **17**
- 16a (14b) Flowers not in involucrate heads. .... **18**
- 16b (14b) Flowers in involucrate heads. .... **KEY J**, p. 89
- 17a (15b) Pistil 1. .... **19**
- 17b (15b) Pistils more than 1. .... **KEY K**, p. 89
- 18a (16a) Flowers irregular. .... **KEY L**, p. 89
- 18b (16a) Flowers regular. .... **20**
- 19a (17a) Ovary superior. .... **KEY M**, p. 90
- 19b (17a) Ovary inferior. .... **KEY N**, p. 91
- 20a (18b) Ovary superior. .... **KEY O**, p. 92
- 20b (18b) Ovary inferior. .... **KEY P**, p. 93

## **KEY A: PTERIDOPHYTES (FERNS AND FERN ALLIES)**

- 1a Stems jointed and grooved; leaves whorled, scalelike, forming a sheath at each joint.  
 ..... **EQUISETACEAE**, p. 102
- 1b Stems not jointed and grooved (not as above). .... **2**
- 2a (1b) Stems usually concealed, cormlike, at base of long linear awl-like leaves; sporangia on inner face of leaf bases; plants of shallow water or muddy shores. .... **ISOETACEAE**, p. 100
- 2b (1b) Stems erect or prostrate with scattered leaves; sporangia not as above. .... **3**
- 3a (2b) Leaves scalelike, numerous along stems; sporangia in axils of leaves or bracts in cones (strobili). .... **4**
- 3b (2b) Leaves not scalelike; growing from underground rootstock or on short prostrate or erect stems. .... **POLYPODIOPHYTA (FERN FAMILIES)**, p. 105
- 4a (3a) ..... Plants mosslike, less than 5 cm long; spores of 2 sizes.  
**SELAGINELLACEAE**, p. 99

4b (3a) Plants much larger, erect or trailing; spores of 1 size..... **LYCOPODIACEAE**, p. 95

**KEY B: PINOPHYTA (GYMNOSPERMS)**

1a Seeds borne in cones. .... **2**  
 1b Seeds not borne in cones, partially covered with a fleshy red covering; leaves alternate (spirally arranged), flat, sharp, narrowed to a subpetiolar base. ....  
 ..... (*Taxus canadensis*) **TAXACEAE**, p. 127

2a (1a) Leaves needlelike, alternate or bunched (fascicled), usually shed individually except in *Pinus* which shed in fascicles; cone scales overlapping. .... **PINACEAE**, p. 127  
 2b (1a) Leaves needlelike or scalelike, opposite or whorled, persisting on branches but usually shed as branchlets with age; cone scales valvate, or if imbricate, then leaves opposite and scalelike. ....  
 ..... **CUPRESSACEAE**, p. 131

**KEY C: DICOTYLEDONOUS TREES, SHRUBS AND WOODY VINES**

1a Leaves and leaf scars opposite or whorled. .... **2**  
 1b Leaves and leaf scars alternate on the stem. .... **3**

2a (1a) Leaves unexpanded at flowering. .... **4**  
 2b (1a) Leaves partly or fully expanded at flowering. .... **5**

3a (1b) Plants usually or sometimes dioecious, each plant bearing either male or female flowers but not both. .... **6**  
 3b (1b) Plants not dioecious, each plant with flowers either perfect or unisexual, but both male and .. female flowers on the same plant..... **7**

4a (2a) Both calyx and corolla present. .... **8**  
 4b (2a) Either calyx or corolla present, but not both. .... **9**

5a (2b) Leaves compound. .... **10**  
 5b (2b) Leaves simple. .... **11**

6a (3a) Plants climbing or trailing. .... **12**  
 6b (3a) Plants erect, ascending or ± prostrate. .... **13**

7a (3b) Some or all of the flowers unisexual, small and in catkins or catkinlike clusters or globose heads. .... **14**  
 7b (3b) Flowers not as above. .... **15**

8a (4a) Petals separate; flowers mostly unisexual; stamens usually 8; ovary superior, 2-lobed. .... **ACERACEAE**, p. 331  
 8b (4a) Petals united; flowers perfect; stamens 5; ovary inferior. (*Lonicera*) **CAPRIFOLIACEAE**, p. 412

9a (4b) Male or perfect flowers. .... **16**  
 9b (4b) Female flowers. .... **17**

10a (5a) ..... Plants climbing or trailing; corolla absent; calyx regular; sepals 4, petaloid; stamens numerous ..... (*Clematis*) **RANUNCULACEAE**, p. 135  
 10b (5a) Plants otherwise. .... **18**

11a (5b) Perianth of a single whorl (usually termed the calyx). .... **19**  
 11b (5b) Perianth with both calyx and corolla. .... **20**

12a (6a) Plants producing tendrils for support; leaves compound or lobes toothed; petals 4 or 5, soon dropping; tendrils arising opposite the leaves. .... **VITACEAE**, p. 328

12b (6a)	Plants without tendrils. ....	21
13a (6b)	Flowers in catkins or catkinlike clusters, elongate or globose; corolla none; calyx small and inconspicuous or absent. ....	22
13b (6b)	Flowers not in catkins or catkinlike clusters; calyx or corolla or both usually present; flowers usually large and conspicuous. ....	23
14a (7a)	Male flowers in dense globose heads; leaves pinnately veined, denticulate. ....	
	..... ( <i>Fagus</i> ) <b>FAGACEAE</b> , p. 156	
14b (7a)	Male flowers in elongated catkins. ....	24
15a (7b)	Perianth absent or of a single series. ....	25
15b (7b)	Perianth of both calyx and corolla. ....	26
16a (9a)	Stamens 2-4. ....	
	..... ( <i>Fraxinus</i> ) <b>OLEACEAE</b> , p. 384	
16b (9a)	Stamens 5-10. ....	27
17a (9b)	Leaves stellate-pubescent. ....	
	..... ( <i>Shepherdia</i> ) <b>ELAEAGNACEAE</b> , p. 309	
17b (9b)	Leaves otherwise. ....	28
18a (10b)	Petals conspicuous. ....	29
18b (10b)	Petals absent. ....	30
19a (11a)	Leaves palmately lobed. ....	
	..... <b>ACERACEAE</b> , p. 331	
19b (11a)	Leaves entire, silvery, stellate-pubescent. ....	
	..... ( <i>Shepherdia</i> ) <b>ELAEAGNACEAE</b> , p. 309	
20a (11b)	Stamens more numerous than segments or lobes of the corolla. ....	31
20b (11b)	Stamens as many as the petals or corolla lobes, or fewer. ....	32
21a (12b)	Plants climbing by adventitious roots; leaves trifoliolate. ....	
	..... <b>ANACARDIACEAE</b> , p. 334	
21b (12b)	Plants twining; leaves simple; stamens 5; pistil 1; leaves pinnately veined. ....	
	..... ( <i>Celastrus</i> ) <b>CELASTRACEAE</b> , p. 321	
22a (13a)	Female flowers. ....	33
22b (13a)	Male flowers. ....	34
23a (13b)	Leaves compound; shrubs; inflorescence large, terminal and congested; fruit a small dryish, berrylike drupe. ....	
	..... ( <i>Rhus</i> ) <b>ANACARDIACEAE</b> , p. 334	
23b (13b)	Leaves simple, or absent at flowering. ....	35
24a (14b)	Female flowers single or in small clusters. ....	36
24b (14b)	Female flowers in catkins, heads or conelike structures. ....	37
25a (15a)	Style 1, simple or branched above. ....	38
25b (15a)	Styles 2; leaves simple; stamens as many as the lobes or divisions of perianth. ....	
	..... <b>ULMACEAE</b> , p. 150	
26a (15b)	Ovaries 3 to many, distinct or nearly so; stamens more than 10; sepals and petals 5. ....	
	..... <b>ROSACEAE</b> , p. 263	
26b (15b)	Ovary 1 (styles and stigmas may be more). ....	39
27a (16b)	Sepals or calyx lobes 4, spreading, yellowish; shrubs. ....	
	..... ( <i>Shepherdia</i> ) <b>ELAEAGNACEAE</b> , p. 309	
27b (16b)	Sepals or calyx lobes commonly 5, erect, often red; trees. ....	
	..... <b>ACERACEAE</b> , p. 331	
28a (17b)	Ovary prominently 2-lobed. ....	
	..... <b>ACERACEAE</b> , p. 331	
28b (17b)	Ovary not lobed. ....	
	..... ( <i>Fraxinus</i> ) <b>OLEACEAE</b> , p. 384	
29a (18a)	Petals united; shrubs; stamens 5; leaves pinnately compound. ....	
	..... ( <i>Sambucus</i> ) <b>CAPRIFOLIACEAE</b> , p. 412	
29b (18a)	Petals free; leaves palmately compound, leaflets 5-7; flowers in erect racemes or panicles;	

stamens 6-8. ....	<b>HIPPOCASTANACEAE</b> , p. 331
30a (18b) Stamens commonly 8; ovary 2-lobed. ....	<b>ACERACEAE</b> , p. 331
30b (18b) Stamens 2-4; ovary not lobed. ....	<b>(Fraxinus) OLEACEAE</b> , p. 384
31a (20a) Petals united. ....	<b>ERICACEAE</b> , p. 240
31b (20a) Petals free. ....	<b>40</b>
32a (20b) Petals free. ....	<b>41</b>
32b (20b) Petals united. ....	<b>42</b>
33a (22a) Ovules many; trees or shrubs; twigs and bracts not resinous-dotted (buds may be resinous). .....	<b>SALICACEAE</b> , p. 213
33b (22a) Ovule solitary; shrubs; twigs and bracts resinous-dotted. ....	<b>MYRICACEAE</b> , p. 155
34a (22b) Twigs and bracts densely resinous-dotted. ....	<b>MYRICACEAE</b> , p. 155
34b (22b) Twigs and bracts not resinous-dotted. ....	<b>SALICACEAE</b> , p. 213
35a (23b) Leaves less than 5 mm wide, revolute, present at flowering; petals none. ....	<b>EMPETRACEAE</b> , p. 240
35b (23b) Leaves much larger when full grown, or absent at flowering. ....	<b>43</b>
36a (24a) Leaves pinnately compound. ....	<b>JUGLANDACEAE</b> , p. 155
36b (24a) Leaves simple, sometimes deeply lobed. ....	<b>FAGACEAE</b> , p. 156
37a (24b) Female flowers 2 or 3 behind each bract; crushed foliage not especially aromatic. .... .....	<b>BETULACEAE</b> , p. 157
37b (24b) Female flowers 1 behind each bract; crushed foliage aromatic. ....	<b>MYRICACEAE</b> , p. 155
38a (25a) Climbing or trailing vines. ....	<b>VITACEAE</b> , p. 328
38b (25a) Shrubs or small trees. ....	<b>44</b>
39a (26b) Corolla irregular. ....	<b>45</b>
39b (26b) Corolla $\pm$ regular. ....	<b>46</b>
40a (31b) Stamens 10 or fewer. ....	<b>47</b>
40b (31b) Stamens usually more than 10; flowers yellow; leaves narrow, entire. ...	<b>CISTACEAE</b> , p. 207
41a (32a) Flowers in terminal heads or cymes. ....	<b>(Cornus) CORNACEAE</b> , p. 319
41b (32a) Flowers axillary or in axillary clusters; style lobed or cleft; stamens opposite petals. .... .....	<b>RHAMNACEAE</b> , p. 327
42a (32b) Ovary inferior. ....	<b>48</b>
42b (32b) Ovary superior. ....	<b>49</b>
43a (35b) Female flowers. ....	<b>50</b>
43b (35b) Male flowers. ....	<b>51</b>
44a (38b) Flowers in freely branched terminal cymes. ....	<b>(Cornus) CORNACEAE</b> , p. 319
44b (38b) Flowers in lateral or axillary clusters. ....	<b>52</b>
45a (39a) .....Upper 3 petals separate or nearly so; lower 2 petals $\pm$ united and concealing stamens; large ..... upper median petal behind lateral ones; leaves usually compound. <b>FABACEAE</b> , p. 297	
45b (39a) ..... Upper 3 petals united nearly to their summit; lower 2 petals separate nearly to base; stamens ..... not concealed; leaves simple. <b>(Rhododendron) ERICACEAE</b> , p. 240	
46a (39b) Petals united; style and stigma 1; stamens as many as the corolla lobes and free from the corolla; style very short; stigma $\pm$ sessile. ....	<b>(Nemopanthus) AQUIFOLIACEAE</b> , p. 322
46b (39b) Petals free. ....	<b>53</b>
47a (40a) Leaves palmately lobed. ....	<b>ACERACEAE</b> , p. 331

47b (40a) Leaves entire. ....	( <i>Decodon</i> ) LYTHRACEAE, p. 313
48a (42a) .....	
Flowers numerous in dense globose heads; leaves entire.....	( <i>Cephalanthus</i> ) RUBIACEAE, p. 407
48b (42a) .....	
Flowers not in dense globose heads; leaves entire, toothed or lobed. ....	CAPRIFOLIACEAE, p. 412
49a (42b) Corolla distinctly irregular; small, creeping subshrubs with small oblong or ovate leaves. ....	( <i>Thymus</i> ) LAMIACEAE, p. 370
49b (42b) Corolla regular. ....	54
50a (43a) Calyx and corolla not distinct or none. ....	55
50b (43a) Calyx and corolla distinct (calyx sometimes inconspicuous).....	56
51a (43b) Flowers in loose or dense terminal panicles. ....	ANACARDIACEAE, p. 334
51b (43b) Flowers axillary or in axillary clusters. ....	AQUIFOLIACEAE, p. 322
52a (44b) Style unbranched, very short; stigma almost sessile. ....	AQUIFOLIACEAE, p. 322
52b (44b) Style 2-4-lobed; stigmas 2-4.....	RHAMNACEAE, p. 327
53a (46b) Ovary appearing inferior. ....	57
53b (46b) Ovary superior. ....	58
54a (49b) Ovaries 2; stems elongate, twining or trailing; corolla blue, salverform.....	( <i>Vinca</i> ) APOCYNACEAE, p. 355
54b (49b) Ovary 1; stems erect or spreading. ....	( <i>Syringa</i> ) OLEACEAE, p. 384
55a (50a) Style 1, very short; stigma 1, almost sessile. ....	AQUIFOLIACEAE, p. 322
55b (50a) Style divided above; stigmas 2-4.....	RHAMNACEAE, p. 327
56a (50b) Flowers in loose or dense terminal panicles. ....	ANACARDIACEAE, p. 334
56b (50b) Flowers axillary or in axillary clusters. ....	AQUIFOLIACEAE, p. 322
57a (53a) Stamens twice or more as many as petals.....	59
57b (53a) Stamens just as many as petals.....	60
58a (53b) Mature leaves cylindric, less than 1 cm long; flowers axillary, minute, 3-merous. ....	EMPETRACEAE, p. 240
58b (53b) Mature leaves flat, blades over 1 cm long.....	61
59a (57a) Style 1. ....	( <i>Vaccinium</i> ) ERICACEAE, p. 240
59b (57a) Styles 2-5. ....	ROSACEAE, p. 263
60a (57b) Petals 4. ....	62
60b (57b) Petals 5. ....	63
61a (58b) Flowers produced in autumn after the leaves have fallen or in spring before leaves have expanded. ....	64
61b (58b) Flowers and at least partly expanded leaves present together. ....	65
62a (60a) Flowers white, in terminal cymes. ....	( <i>Cornus</i> ) CORNACEAE, p. 319
62b (60a) Flowers yellow, in small axillary clusters, autumn flowering.....	HAMAMELIDACEAE, p. 150
63a (60b) Flowers in racemes or small corymbiform clusters. ....	( <i>Ribes</i> ) GROSSULARIACEAE, p. 256
63b (60b) Flowers in numerous umbels. ....	( <i>Aralia hispida</i> ) ARALIACEAE, p. 338
64a (61a) Sepals, petals and stamens each 4; styles 2. ....	( <i>Hamamelis</i> ) HAMAMELIDACEAE, p. 150
64b (61a) Sepals and petals each 5.....	66
65a (61b) Stamens more than twice as many as petals.....	67
65b (61b) Stamens not more than twice as many as petals.....	68

66a (64b)	Stamens 5; styles 3.....	<b>ANACARDIACEAE</b> , p. 334
66b (64b)	Stamens more than 5; style 1.....	<b>(Prunus) ROSACEAE</b> , p. 263
67a (65a)	Flowers yellow; style 1; stamens separate; ovary superior; subshrubs.....	<b>(Hudsonia) CISTACEAE</b> , p. 207
67b (65a)	Flowers white (or creamy-white) to pink.....	<b>69</b>
68a (65b)	Leaves compound.....	<b>70</b>
68b (65b)	Leaves simple.....	<b>71</b>
69a (67b)	Flower clusters arising from the middle of a large, narrowly oblong, foliaceous bract.....	<b>TILIACEAE</b> , p. 202
69b (67b)	Flower clusters not as above.....	<b>(Prunus) ROSACEAE</b> , p. 263
70a (68a)	.. Flowers terminal in dense spikelike clusters; petals white or greenish; leaves once-pinnate or trifoliolate.....	<b>(Rhus) ANACARDIACEAE</b> , p. 334
70b (68a)	Flowers in lateral or axillary clusters.....	<b>72</b>
71a (68b)	Stamens more numerous than petals.....	<b>73</b>
71b (68b)	Stamens as many as petals.....	<b>74</b>
72a (70b)	. Stamens alternate with petals; shrubs or vines without tendrils; if climbing, then the terminal leaflet of trifoliolate leaves are on a longer stalk than the lateral ones.....	<b>ANACARDIACEAE</b> , p. 334
72b (70b)	..... Stamens opposite the early deciduous petals; climbing mostly by tendrils; leaves not as above.....	<b>VITACEAE</b> , p. 328
73a (71a)	Flowers yellow; low gray-tomentose subshrubs with small cylindrical leaves.....	<b>(Hudsonia) CISTACEAE</b> , p. 207
73b (71a)	Flowers white to pink; style shorter than stamens; flowers in an umbel or loose raceme.....	<b>ERICACEAE</b> , p. 240
74a (71b)	Flowers yellow, 6-merous; stems spiny.....	<b>(Berberis) BERBERIDACEAE</b> , p. 146
74b (71b)	Flowers white or greenish; stems never spiny.....	<b>75</b>
75a (74b)	. Flowers in a crowded terminal corymb; leaves evergreen, densely white or rusty-tomentose beneath, margins strongly revolute.....	<b>(Rhododendron (Ledum) groenlandicum) ERICACEAE</b> , p. 240
75b (74b)	Flowers axillary or in axillary clusters or in terminal or lateral panicles.....	<b>76</b>
76a (75b)	Stamens opposite petals; style 3-cleft or 3-lobed.....	<b>(Rhamnus) RHAMNACEAE</b> , p. 327
76b (75b)	... Stamens alternate with petals; style very short; stigma almost sessile.....	<b>AQUIFOLIACEAE</b> , p. 322

**KEY D: LILIOPSIDA (MONOCOTYLEDONS)**

1a	Flowers modified into bulblets or leaf tufts.....	<b>2</b>
1b	Flowers normally developed.....	<b>3</b>
2a (1a)	Leaves garlic or onion-scented.....	<b>(Allium) LILIACEAE</b> , p. 622
2b (1a)	Leaves without strong odour of garlic or onion.....	<b>4</b>
3a (1b)	Perianth wanting or scalelike, chaffy, bristlike or otherwise not petal-like in colour, texture ... or size.....	<b>5</b>
3b (1b)	Perianth present, petal-like in colour, texture or size.....	<b>6</b>
4a (2b)	Leaf blades cross-septate; flowers regular; fruit a capsule. .	<b>(Juncus) JUNCACEAE</b> , p. 505
4b (2b)	Leaf blades not cross-septate; sheath closed; stem usually 3-angled; fruit an achene.....	



.....	( <i>Cyperus dentatus</i> )	CYPERACEAE, p. 513
5a (3a)	Flowers in a dense fleshy spike or a single terminal buttonlike head. ....	7
5b (3a)	Flowers otherwise. ....	8
6a (3b)	Flowers ± sessile in globose heads; corolla yellow, regular. ....	
.....	( <i>Xyris montana</i> )	XYRIDACEAE, p. 504
6b (3b)	Flowers not in heads, usually pedicelled or if sessile, not yellow. ....	9
7a (5a)	Flowers in a dense fleshy spike (spadix). ....	10
7b (5a)	Flowers terminal in buttonlike heads. ....	ERIOCAULACEAE, p. 505
8a (5b)	Perianth of 6 ± similar segments, regular and paperlike, greenish or brownish; fruit a capsule. ....	JUNCACEAE, p. 505
8b (5b)	Perianth absent, saclike or reduced to bristles. ....	11
9a (6b)	Ovary inferior. ....	12
9b (6b)	Ovary superior. ....	13
10a (7a)	Leaves broad, ± net-veined; spike terminal and subtended or surrounded by a petaloid fleshy ..... bract (spathe).	
	<b>ARACEAE</b> , p. 501	
10b (7a)	Leaves swordlike, parallel-veined (midvein off-sided); spike appearing lateral; spathe appearing as a continuation of the leaflike flowering stem.....	ACORACEAE, p. 501
11a (8b)	Flowers not in axils of scales.....	14
11b (8b)	Flowers in axils of scales.....	15
12a (9a)	Flowers regular, borne from a spathe.....	IRIDACEAE, p. 632
12b (9a)	Flowers irregular, not associated with a spathe. ....	ORCHIDACEAE, p. 634
13a (9b)	Perianth petal-like.....	16
13b (9b)	Perianth with green sepals; petals various.....	17
14a (11a)	Flowers in globose heads or spikes. ....	18
14b (11a)	Flowers solitary or in small clusters in axils of sheathing leaves or subtended by a spathe, often inconspicuous or absent. ....	19
15a (11b)	Leaf sheaths split lengthwise opposite blades; leaves usually 2-ranked; stems rounded or flattened, never triangular in cross section, usually hollow and jointed; anthers attached near the middle. ....	POACEAE, p. 571
15b (11b)	Leaf sheaths continuous around stem or rupturing in age; leaves usually 3-ranked or reduced to sheathing scales; stems often triangular in cross section, usually with a pith, usually not jointed; anthers attached by the base. ....	CYPERACEAE, p. 513
16a (13a)	Carpels 6, mostly free; stamens 9. ....	( <i>Butomus umbellatus</i> ) BUTOMACEAE, p. 487
16b (13a)	Carpels 3, united; stamens 3 or 6. ....	20
17a (13b)	Carpels numerous in a ring or head; flowers trimerous, white or pinkish, pedicellate. ....	
.....	ALISMATACEAE, p. 487	
17b (13b)	Carpels 1-6.....	21
18a (14a)	Flowers in globose heads; fruit large, glabrous.....	( <i>Sparganium</i> ) SPARGANIACEAE, p. 618
18b (14a)	Flowers in spikes, clusters or whorls.....	22
19a (14b)	Leaves opposite; flowers/fruit in axils of leaves. ....	23
19b (14b)	Leaves alternate; flowers/fruit not in leaf axils; leaves to about 1.5 m long, 8 mm broad; marine habitat.....	( <i>Zostera</i> ) ZOSTERACEAE, p. 501
20a (16b)	Flowers irregular, in dense spikes, violet-blue with yellow spots. ....	
.....	( <i>Pontederia cordata</i> )	PONTERIACEAE, p. 621
20b (16b)	Flowers regular, pedicelled, never blue (in our species). ....	24

## KEYS TO FAMILIES

- 21a (17b) .....Flowers  $\pm$  sessile; perianth 4-merous, united; leaves basal, flattened at least along one side, .....not sheathing. **PLANTAGINACEAE** (not a monocotyledon, but often mistaken for such), ..... p. 382
- 21b (17b) Flowers pedicelled, perianth segments free, trimerous. ....25
- 22a (18b) Plants emergent, of marshy habitats; thick cylindrical spikes divided into basal female and terminal male segments. ....(**Typha**) **TYPHACEAE**, p. 620
- 22b (18b) Plants aquatic,  $\pm$  submerged; inflorescence of narrow short spikes or small clusters with bisexual flowers. ....26
- 23a (19a) Stems bushy branched; fruit solitary, fusiform; leaves 1-3 cm long. ....(**Najas**) **NAJADACEAE**, p. 500
- 23b (19a) Stems long-trailing; achene fruit usually in fours, curved and coarsely toothed on one side; leaves 3-10 cm long. ....(**Zannichellia palustris**) **ZANNICHELLIACEAE**, p. 500
- 24a (20b) Leaves parallel-veined, generally lacking a well-defined petiole and blade, without tendrils; plants not dioecious. ....**LILIACEAE**, p. 622
- 24b (20b) Leaves pinnately veined, with a well-defined petiole and blade and with stipular tendrils; plants dioecious. ....**SMILACACEAE**, p. 631
- 25a (21b) Leaves three, broadly flattened, pinnately-veined; flowers showy. .... (**Trillium**) **LILIACEAE**, p. 622
- 25b (21b) Leaves round in cross section and with sheathing base, parallel-veined; flowers inconspicuous. ....27
- 26a (22b) Leaves all basal, without a terminal pore; mature fruit 2.5-9 mm long, divided into 3-6 connivent 1-seeded carpels. ....(**Triglochin**) **JUNCAGINACEAE**, p. 490
- 26b (22b) Leaves alternate and basal, with terminal pore; mature fruit 7-10 mm long, divided into 3 spreading, inflated 2-seeded follicles. .... (**Scheuchzeria palustris**) **SCHEUCHZERIAACEAE**, p. 490
- 27a (25b) Fruits  $\pm$  stalked in umbel-like clusters on long, usually coiled peduncles; leaves very narrow, to about 0.5 mm broad; plants of brackish or salt water. .... (**Ruppia maritima**) **RUPIACEAE**, p. 499
- 27b (25b) Fruit sessile in short spikes or whorls on straight peduncles; leaves usually broader, often floating; plants of fresh to brackish waters. (**Potamogeton**) **POTAMOGETONACEAE**, p. 491

## KEY E: AQUATIC PLANTS

- 1a Leaves, at least those submerged, divided into linear or filiform segments. ....2
- 1b Leaves not finely dissected, the uppermost often floating, lanceolate to orbicular. ....3
- 2a (1a) Leaves or branches bearing bladder-traps; corolla yellow or purple, 2-lipped and spurred. ....(**Utricularia**) **LENTIBULARIACEAE**, p. 400
- 2b (1a) Leaves or branches without bladder-traps. ....4
- 3a (1b) Leaves all basal (may actually be alternate but crowded towards the base). ....5
- 3b (1b) Leaves cauline. ....6
- 4a (2b) Leaves once-divided from a central rachis; flowers axillary; emersed leaves usually not divided. .... (**Myriophyllum**) **HALORAGACEAE**, p. 310
- 4b (2b) Leaves divided more than once. ....7
- 5a (3a) Flowers irregular, few to many in racemes; leaves neither cordate nor trifoliolate. ....8
- 5b (3a) Flowers regular; leaves cordate or trifoliolate. ....9
- 6a (3b) Stems creeping, rooting at the nodes; flowers single; pistils several-many. .... (**Ranunculus**) **RANUNCULACEAE**, p. 135
- 6b (3b) Stem not both creeping and rooting at nodes or flowers not single; pistil usually 1. ....10

- 7a (4b) Plants attached to boulders in rapid currents by fleshy disks; leaves filiform, alternate, 2-ranked, rigid and algaelike. **(Podostemum ceratophyllum) PODOSTEMACEAE**, p. 310
- 7b (4b) Plants with normal roots or free-floating. .... **11**
- 8a (5a) Corolla yellow; calyx free from ovary; leaves minute. ....  
..... **(Utricularia) LENTIBULARIACEAE**, p. 400
- 8b (5a) Corolla light blue; calyx fused to ovary; leaves linear, in a basal rosette. ....  
..... **(Lobelia) CAMPANULACEAE**, p. 404
- 9a (5b) Flowers large, to 20 cm wide, single, often with very long pedicels; leaves large, 10- 30 cm wide. .... **NYMPHAEACEAE**, p. 133
- 9b (5b) Flowers smaller, less than 2 cm wide, in bracteate umbels or racemes; leaves smaller, 3-7 cm wide. .... **MENYANTHACEAE**, p. 362
- 10a (6b) Submerged leaves alternate or basal. .... **12**
- 10b (6b) Submerged leaves opposite or whorled; flowers single, axillary. .... **13**
- 11a (7b) Leaves alternate, dilated-sheathing at base; petals  $\pm$  5, yellow or whitish. ....  
..... **(Ranunculus) RANUNCULACEAE**, p. 135
- 11b (7b) Leaves opposite or whorled, not dilated-sheathing at base. .... **14**
- 12a (10a) Stipules sheathing stem. .... **POLYGONACEAE**, p. 185
- 12b (10a) Stipules not sheathing stem. .... **15**
- 13a (10b) Leaves whorled, 6-12 at a node, linear or filiform; flowers sessile, perfect. ....  
..... **(Hippuris vulgaris) HIPPURIDACEAE**, p. 380
- 13b (10b) Leaves opposite; petals minute or wanting. .... **16**
- 14a (11b) Upper leaves not usually densely overlapping, nearly black, entire; emerged leaves, if present, ..... deeply to shallowly lobed; flowers in a closely bracted head; ligulate flowers yellow.  
..... **(Megalodonta beckii) ASTERACEAE**, p. 421
- 14b (11b) Upper leaves densely overlapping, dull green, often finely serrate; emerged leaves wanting; . plants usually without roots, free-floating; flowers inconspicuous in axils of leaves. ....  
..... **(Ceratophyllum) CERATOPHYLLACEAE**, p. 134
- 15a (12b) Leaves peltate, glutinous beneath, floating; flowers dull purple, long-petioled. ....  
..... **(Brasenia schreberi) CABOMBACEAE**, p. 134
- 15b (12b) Leaves deeply lobed to serrate, the uppermost often emergent; flowers inconspicuous in leaf axils. .... **(Proserpinaca palustris) HALORAGACEAE**, p. 310
- 16a (13b) Ovary inferior; leaves  $\pm$  petioled, reddish green. **(Ludwigia palustris) ONAGRACEAE**,  
..... p. 314
- 16b (13b) Ovary superior. .... **17**
- 17a (16b) Fruit flattened, notched; floating leaves sometimes present; stem and leaves flaccid, collapsing out of water. .... **(Callitriche) CALLITRICHACEAE**, p. 381
- 17b (16b) Fruit neither flattened nor notched; floating leaves wanting; stem and leaves turgid, not collapsing out of water. .... **18**
- 18a (17b) Leaves linear, sessile, connate around the stem; pistils 3 or 4; fruit a follicle with few inconspicuous seeds. .... **(Crassula aquatica) CRASSULACEAE**, p. 258
- 18b (17b) Leaves lanceolate to spatulate, petiolate to subsessile, not connate; pistil 1; fruit a capsule with many cylindrical, minutely pitted seeds. .... **(Elatine) ELATINACEAE**, p. 199

**KEY F: PLANTS WITHOUT CHLOROPHYLL, EITHER PARASITIC OR SAPROPHYTIC OR WITHOUT LEAVES AT FLOWERING TIME**

- 1a Flowers individually small, numerous in bracteate heads. ....  
..... **(Tussilago, Petasites) ASTERACEAE**, p. 421

## KEYS TO FAMILIES

1b	Flowers not in bracteate heads. ....	2
2a (1b)	Flowers irregular; corolla bilabiate; ovary superior. ....	3
2b (1b)	Flowers regular or petals wanting. ....	4
3a (2a)	Corolla bright yellow, spurred; leaves inconspicuous, mostly subterranean; roots with minute bladders. .... ( <i>Utricularia cornuta</i> ) LENTIBULARIACEAE, p. 400	
3b (2a)	Corolla white, violet or white with 2 purplish brown lines, spurless. .... ..... ( <i>Orobanche, Epifagus</i> ) OROBANCHACEAE, p. 400	
4a (2b)	Leaves inconspicuous, reduced to minute scales; stems 1 mm or less near base, green or if yellowish than vinelike. ....	5
4b (2b)	Leaves bractlike or wanting; stems more than 1.5 mm thick near base, not green. .... ..... ( <i>Monotropa</i> ) MONOTROPACEAE, p. 250	
5a (4a)	Stems rooted in the ground, not viny but often twisted; inflorescence racemose or a loose panicle. .... ( <i>Bartonia</i> ) GENTIANACEAE, p. 352	
5b (4a)	Stems viny, yellowish, attached to various herbaceous plants. ....	CUSCUTACEAE, p. 360

## KEY G: FLOWERS WHOLLY OR PARTLY UNISEXUAL

1a	Leaves dissected into linear or filiform segments; plants ± aquatic. ....	2
1b	Leaves otherwise. ....	3
2a (1a)	Leaves pinnately dissected. .... ( <i>Myriophyllum</i> ) HALORAGACEAE, p. 310	
2b (1a)	Leaves palmately dissected. ....	CERATOPHYLLACEAE, p. 134
3a (1b)	Leaves scalelike or wanting. ....	4
3b (1b)	Leaves neither scalelike nor dissected. ....	5
4a (3a)	Plants parasitic on the roots of beech, without green colour. .... ..... ( <i>Epifagus virginiana</i> ) OROBANCHACEAE, p. 400	
4b (3a)	Plants not parasitic, with green colour. ....	6
5a (3b)	Leaves compound. ....	7
5b (3b)	Leaves simple. ....	8
6a (4b)	Plants of salt marshes, stems fleshy jointed. .... ..... ( <i>Salicornia europaea</i> ) CHENOPODIACEAE, p. 162	
6b (4b)	Plants with delicate tapering stems on fresh water or shores. .... ..... ( <i>Myriophyllum tenellum</i> ) HALORAGACEAE, p. 310	
7a (5a)	Leaves ternately or palmately compound. ....	9
7b (5a)	Leaves pinnately compound, or ternately or pinnately compound into numerous leaflets. ...	10
8a (5b)	Leaves all basal. ....	11
8b (5b)	Leaves ± cauline. ....	12
9a (7a)	Flowers aggregated on a fleshy spadix subtended by a coloured spathe. .... ( <i>Arisaema</i> , a monocotyledon with net-veined leaves often confused for a dicotyledon.) ..	ARACEAE, p. 501
9b (7a)	Flowers in umbels. ....	13
10a (7b)	Inflorescence umbellate. ....	ARALIACEAE, p. 338
10b (7b)	Inflorescence spicate, paniculate or flowers solitary. ....	14
11a (8a)	Flowers in spikes. ....	PLANTAGINACEAE, p. 382
11b (8a)	Flowers in open panicles. .... ( <i>Rumex</i> ) POLYGONACEAE, p. 185	
12a (8b)	Leaves opposite or whorled. ....	15
12b (8b)	Leaves alternate. ....	16

13a (9b)	Leaves alternate or basal.....	<b>(Sanicula)</b> APIACEAE, p. 340
13b (9b)	Leaves cauline, in a single whorl. ....	<b>(Panax)</b> ARALIACEAE, p. 328
14a (10b)	Flowers in dense cylindric spikes.....	<b>(Sanguisorba canadensis)</b> ROSACEAE, p. 263
14b (10b)	Flowers in panicles or solitary. ....	<b>17</b>
15a (12a)	Flowers solitary; plants of mud, swamps or shallow water.....	<b>18</b>
15b (12a)	Flowers in axillary or terminal clusters. ....	<b>19</b>
16a (12b)	Calyx and corolla both present, the latter usually white or coloured.....	<b>20</b>
16b (12b)	Calyx present or absent; corolla always lacking; calyx sometimes petaloid. ....	<b>21</b>
17a (14b)	Stem leaves opposite.....	<b>22</b>
17b (14b)	Stem leaves alternate; flowers with either calyx (often petal-like) or corolla but not both, or perianth lacking.....	<b>(Thalictrum)</b> RANUNCULACEAE, p. 135
18a (15a)	Leaves in whorls of 6-12. ....	<b>(Hippuris vulgaris)</b> HIPPURIDACEAE, p. 380
18b (15a)	Leaves opposite.....	<b>(Callitriche)</b> CALLITRICHACEAE, p. 381
19a (15b)	Inflorescence axillary.....	<b>23</b>
19b (15b)	Inflorescence terminal. ....	<b>24</b>
20a (16a)	Plants climbing by tendrils or trailing; stamens 3; pistil 1; ovary inferior. ....	<b>(Echinocystis lobata)</b> CUCURBITACEAE, p. 213
20b (16a)	Plants erect, spreading or creeping; stamens more than 6; pistils 4 or more, separate or united.....	<b>25</b>
21a (16b)	Flowers very small in small axillary clusters or cyathia.....	<b>26</b>
21b (16b)	Flowers in spikes, racemes, or panicles.....	<b>27</b>
22a (17a)	Stamens numerous; pistils several to many.....	<b>(Clematis)</b> RANUNCULACEAE, p. 135
22b (17a)	Stamens 3; pistil 1, with 1 style.....	<b>(Valeriana)</b> VALERIANACEAE, p. 419
23a (19a)	Leaves ± entire.....	<b>PLANTAGINACEAE</b> , p. 382
23b (19a)	Leaves serrate.....	<b>28</b>
24a (19b)	Stamens 3; style 1.....	<b>VALERIANACEAE</b> , p. 419
24b (19b)	Stamens 10; styles usually 5.....	<b>(Lychnis)</b> CARYOPHYLLACEAE, p. 173
25a (20b)	Leaves ± sessile, fleshy; flowers in panicles.....	<b>(Sedum)</b> CRASSULACEAE, p. 258
25b (20b)	Leaves petioled; flowers single. ....	<b>(Dalibarda, Rubus)</b> ROSACEAE, p. 263
26a (21a)	Flowers female.....	<b>29</b>
26b (21a)	Flowers male.....	<b>30</b>
27a (21b)	Perianth segments 6, (3 inner and 3 outer).....	<b>(Rumex)</b> POLYGONACEAE, p. 185
27b (21b)	Perianth segments 5 or fewer or lacking.....	<b>31</b>
28a (23b)	Stamens 8-20; fruit a 2-celled capsule.....	<b>(Mercurialis, some Euphorbia)</b> EUPHORBIACEAE, p. 323
28b (23b)	Stamens 3-5; fruit an achene or drupe.....	<b>URTICACEAE</b> , p. 153
29a (26a)	Styles branched.....	<b>EUPHORBIACEAE</b> , p. 323
29b (26a)	Styles unbranched.....	<b>32</b>
30a (26b)	Bracts foliaceous, lobed or cleft.....	<b>(Acalypha)</b> EUPHORBIACEAE, p. 323
30b (26b)	Bracts entire, scarious, acute.....	<b>AMARANTHACEAE</b> , p. 171
31a (27b)	Sepals acute, scarious, subtended by scarious bracts; filaments often connate below.....	<b>AMARANTHACEAE</b> , p. 171

## KEYS TO FAMILIES

31b (27b)	Sepals not scarious, often green; filaments usually free.....	<b>CHENOPODIACEAE</b> , p. 162
32a (29b)	Plants with obvious stinging hairs. ....	<b>(Laportea) URTICACEAE</b> , p. 153
32b (29b)	Plants without stinging hairs.....	<b>33</b>
33a (32b)	Sepals and bracts acute, scarious. ....	<b>AMARANTHACEAE</b> , p. 171
33b (32b)	Sepals (often lacking) and the bracts herbaceous. ...	<b>(Atriplex) CHENOPODIACEAE</b> , p. 162

**KEY H: FLOWERS PERFECT; CALYX PRESENT; COROLLA WANTING**

1a	Pistil 1. ....	<b>2</b>
1b	Pistils more than 1. ....	<b>RANUNCULACEAE</b> , p. 135
2a (1a)	Ovary $\pm$ superior. ....	<b>3</b>
2b (1a)	Ovary inferior. ....	<b>4</b>
3a (2a)	Fruit a loculicidal or septicidal (splitting through the septa, so that the carpels are separated)	<b>5</b>
capsule.		
3b (2a)	Fruit a berry, pyxis (a capsule with circumscissile dehiscence, the upper portion acting as a lid) or hard or leathery 1-seeded structure. ....	<b>6</b>
4a (2b)	Fruit drupaceous (dry in <b>Comandra</b> ). ....	<b>SANTALACEAE</b> , p. 320
4b (2b)	Fruit capsular or nutlike. ....	<b>7</b>
5a (3a)	Leaves alternate. ....	<b>8</b>
5b (3a)	Leaves whorled; plants decumbent with central root. ....	<b>(Mollugo verticillata) MOLLUGINACEAE</b> , p. 171
6a (3b)	Leaves lobed, divided or compound, or plants vinelike and twining. ....	<b>9</b>
6b (3b)	Leaves otherwise. ....	<b>10</b>
7a (4b)	Fruit capsular, several-seeded. ....	<b>11</b>
7b (4b)	Fruit nutlike, one-seeded; aquatics. ....	<b>12</b>
8a (5a)	Capsules 3-lobed; seeds 1-2 per cell. ....	<b>EUPHORBIACEAE</b> , p. 323
8b (5a)	Capsules 5-lobed. ....	<b>(Penthorum sedoides) SAXIFRAGACEAE</b> , p. 260
9a (6a)	Flowers in dense racemes; fruit a berry. ....	<b>(Actaea) RANUNCULACEAE</b> , p. 135
9b (6a)	Flowers in sessile axillary clusters or terminal spikes. ....	<b>(Alchemilla, Sanguisorba) ROSACEAE</b> , p. 263
10a (6b)	Calyx petaloid; stipules sheathing; fruit an achene or small nut. ....	<b>POLYGONACEAE</b> , p. 185
10b (6b)	Calyx not petaloid.....	<b>13</b>
11a (7a)	Plant mat-forming, of wet habitats. <b>(Chrysosplenium americanum)</b>	<b>SAXIFRAGACEAE</b> , p. 260
11b (7a)	Plants not mat-forming, larger, of mesic habitats; leaves cordate-ovate; perianth trimerous. ....	<b>(Asarum canadense) ARISTOLOCHIACEAE</b> , p. 133
12a (7b)	Fruit 3-4 lobed; leaves $\bar{A}$ wanting, finely divided or sharply toothed. ....	<b>HALORAGACEAE</b> , p. 310
12b (7b)	Fruit unlobed; leaves entire, linear. ....	<b>HIPPURIDACEAE</b> , p. 380
13a (10b)	Inflorescence axillary. ....	<b>14</b>
13b (10b)	Inflorescence terminal and axillary; fruit an utricle. ....	<b>(Chenopodium) CHENOPODIACEAE</b> , p. 162
14a (13a)	Leaves small, entire and 1-nerved. ....	<b>(Scleranthus annuus) CARYOPHYLLACEAE</b> , p. 173
14b (13a)	Leaves larger, usually toothed. ....	<b>URTICACEAE</b> , p. 153

**KEY I: CALYX AND COROLLA BOTH PRESENT; PETALS SEPARATE; FLOWERS IRREGULAR**

1a	Leaves simple and usually not deeply lobed. ....	2
1b	Leaves compound, or deeply lobed or divided. ....	3
2a (1a)	Flowers pendulous and spurred; capsule explosive when ripe. .... ..... ( <i>Impatiens</i> ) <b>BALSAMINACEAE</b> , p. 337	
2b (1a)	Flowers otherwise. ....	4
3a (1b)	Plant viny. ....	5
3b (1b)	Plant not viny. ....	6
4a (2b)	Sepals petaloid, unequal; petals variously united, upper two similar; stamens usually 8. .... ..... <b>POLYGALACEAE</b> , p. 330	
4b (2b)	Sepals green, ± similar; petals separate; stamens 5. .... ( <i>Viola</i> ) <b>VIOLACEAE</b> , p. 208	
5a (3a)	Leaves ternately once compound; flowers purplish brown; stem firm, dry. .... ..... ( <i>Amphicarpaea bracteata</i> ) <b>FABACEAE</b> , p. 297	
5b (3a)	Leaves ternately 3-4 compound; flowers pale pink; stem soft, succulent. .... ..... ( <i>Adlumia fungosa</i> ) <b>FUMARIACEAE</b> , p. 148	
6a (3b)	Pistil 1. ....	7
6b (3b)	Pistils more than 1. ....	<b>RANUNCULACEAE</b> , p. 135
7a (6a)	Fruit a legume; stamens usually 10. ....	<b>FABACEAE</b> , p. 297
7b (6a)	Fruit otherwise. ....	8
8a (7b)	Ovary superior; inflorescence not umbellate; plants delicate and ± succulent. .... ..... <b>FUMARIACEAE</b> , p. 148	
8b (7b)	Ovary inferior; fruit of two similar seedlike divisions; inflorescence umbellate; plants not particularly delicate or succulent. ....	<b>APIACEAE</b> , p. 340

**KEY J: CALYX AND COROLLA BOTH PRESENT; PETALS UNITED; FLOWERS IN HEADS SURROUNDED BY BRACTS (INVOLUCRATE)**

1a	Stamens separate. .... ( <i>Knautia arvensis</i> ) <b>DIPSACACEAE</b> , p. 420
1b	Stamens united by their anthers. .... <b>ASTERACEAE</b> , p. 421

**KEY K: CALYX AND COROLLA BOTH PRESENT; PETALS SEPARATE; FLOWERS REGULAR; PISTILS MORE THAN 1**

1a	Stamens borne on calyx tube or distinct hypanthium. ....	<b>ROSACEAE</b> , p. 263
1b	Stamens borne on receptacle or appearing so. ....	2
2a (1b)	Stamens numerous. ....	<b>RANUNCULACEAE</b> , p. 135
2b (1b)	Stamens 5-10. ....	3
3a (2b)	Plants ± succulent; carpels as many as the petals, free or united only at base. .... ..... <b>CRASSULACEAE</b> , p. 258	
3b (2b)	Plants not succulent; carpels 2-5, ± united. ....	<b>SAXIFRAGACEAE</b> , p. 260

**KEY L: CALYX AND COROLLA BOTH PRESENT; PETALS UNITED; FLOWERS IRREGULAR, NOT IN INVOLUCRATE HEADS**

1a	Petals 3; sepals 5, unequal; perianth variously united. ....	<b>POLYGALACEAE</b> , p. 330
1b	Petals 4 or 5. ....	2
2a (1b)	Leaves mainly alternate (occasionally opposite at base); plants rough-hairy. .... ..... ( <i>Anchusa, Echium</i> ) <b>BORAGINACEAE</b> , p. 364	

## KEYS TO FAMILIES

2b (1b)	Leaves opposite; plants not especially rough-hairy (sometimes on angles of stem). .....	3
3a (2b)	Ovary superior. ....	4
3b (2b)	Ovary inferior. ....	5
4a (3a)	Fruit of 1-4 separate nutlets. ....	6
4b (3a)	Fruit capsular. ....	7
5a (3b)	Leaves opposite or connate; fruit a dry berry. .... .....( <i>Triosteum aurantiacum</i> ) <b>CAPRIFOLIACEAE</b> , p. 412	
5b (3b)	Leaves alternate; fruit capsular. .... .....( <i>Lobelia</i> ) <b>CAMPANULACEAE</b> , p. 404	
6a (4a)	Fruit of 4 nutlets; stem often 4-angled. ....	<b>LAMIACEAE</b> , p. 370
6b (4a)	Fruit of a single nutlet, reflexed and racemose in oppositely arranged pairs. .... .....( <i>Phryma leptostachya</i> ) <b>VERBENACEAE</b> , p. 369	
7a (4b)	Capsule with 1 cell; leaves all basal. ....	<b>LENTIBULARIACEAE</b> , p. 400
7b (4b)	Capsule with 2 or more cells; leaves all or mostly cauline (basal in <i>Limosella</i> ). ..... <b>SCROPHULARIACEAE</b> , p. 385	

**KEY M: CALYX AND COROLLA BOTH PRESENT; PETALS SEPARATE; FLOWERS REGULAR; OVARY ONE, SUPERIOR; STAMENS MORE NUMEROUS THAN PETALS**

1a	Leaves hollow, pitcherlike or covered with glandular hairs. ....	2
1b	Leaves otherwise. ....	3
2a (1a)	Leaves hollow. ....	<b>SARRACENIACEAE</b> , p. 206
2b (1a)	Leaves covered with tentaclelike glandular hairs. ....	<b>DROSERACEAE</b> , p. 206
3a (1b)	Sepals 2, rarely 3. ....	4
3b (1b)	Sepals 3 or more. ....	5
4a (3a)	Plants succulent; juice not coloured. ....	<b>PORTULACACEAE</b> , p. 172
4b (3a)	Plants not succulent; juice coloured. ....	<b>PAPAVERACEAE</b> , p. 147
5a (3b)	Stamens more than twice as many as petals. ....	6
5b (3b)	Stamens twice as many as petals (or apparent petals) or fewer. ....	7
6a (5a)	Leaves simple. ....	8
6b (5a)	Leaves compound. .... .....( <i>Actaea</i> ) <b>RANUNCULACEAE</b> , p. 135	
7a (5b)	Stamens just twice as many as petals. ....	9
7b (5b)	Stamens usually more than petals but fewer than twice as many. ....	10
8a (6a)	Style 1; low, bushy branched, small-leaved plants. ....	<b>CISTACEAE</b> , p. 207
8b (6a)	Styles 2 or more. ....	11
9a (7a)	Petals 3. ....	12
9b (7a)	Petals 4 or more. ....	13
10a (7b)	Styles 2-5; leaves entire, opposite or whorled. ....	14
10b (7b)	Style 1; leaves alternate. ....	15
11a (8b)	Leaves alternate. ....	16
11b (8b)	Leaves opposite. ....	17
12a (9a)	Flowers minute, sessile in leaf axils; leaves opposite. .. ( <i>Crassula</i> ) <b>CRASSULACEAE</b> , p. 258	
12b (9a)	Flowers large, solitary, terminal; leaves in a single whorl of 3. .... .....( <i>Trillium</i> , a monocotyledon with net-veined leaves which could be confused with dicotyledons). .... ..... <b>LILIACEAE</b> , p. 622	



13a (9b)	Petals or petal-like sepals 6 or more.....	<b>18</b>
13b (9b)	Petals 4 or 5. ....	<b>19</b>
14a (10a)	Flowers yellow; leaves with translucent internal glands.....	<b>CLUSIACEAE</b> , p. 200
14b (10a)	Flowers not yellow; leaves without translucent internal glands.....	<b>20</b>
15a (10b)	Petals 4; stamens 6 (2 short and 4 long); flowers in racemes. ....	<b>BRASSICACEAE</b> , p. 221
15b (10b)	Petals 3; stamens mostly 5-15 (of equal length); flowers in leaf axils or in leafy panicles; dwarf plants with small, sessile leaves.....	<b>(Lechea) CISTACEAE</b> , p. 207
16a (11a)	Stamens united by their filaments and forming a sheath around style....	<b>MALVACEAE</b> , p. 203
16b (11a)	Stamens free.....	<b>LINACEAE</b> , p. 329
17a (11b)	Leaves with translucent internal glands; flowers yellow or pink. ....	<b>CLUSIACEAE</b> , p. 200
17b (11b)	Leaves without translucent internal glands; flowers white. ....	<b>LINACEAE</b> , p. 329
18a (13a)	Leaves compound, bluish green when young; flowers in small panicles; petal-like sepals yellowish green or greenish purple; petals reduced to large glands; plants of rich hardwoods. ....	<b>(Caulophyllum) BERBERIDACEAE</b> , p. 146
18b (13a)	Leaves simple; flowers clustered in upper leaf or bract axils, purple or pink; stems angled. ....	<b>(Lythrum salicaria) LYTHRACEAE</b> , p. 313
19a (13b)	Leaves compound or divided $\pm$ to base.....	<b>21</b>
19b (13b)	Leaves simple. ....	<b>22</b>
20a (14b)	Stamens united by their filaments into fascicles (bunches); nodes not swollen.....	<b>(Triadenum) CLUSIACEAE</b> , p. 200
20b (14b)	Stamens not fascicled; nodes often swollen. ....	<b>CARYOPHYLLACEAE</b> , p. 173
21a (19a)	Leaves opposite; flowers pink to red or purple; leaves palmately divided or dissected. ....	<b>(Geranium) GERANIACEAE</b> , p. 336
21b (19a)	Leaves alternate, ternately compound; flowers white veined with pink or yellow.....	<b>OXALIDACEAE</b> , p. 335
22a (19b)	Style 1. ....	<b>23</b>
22b (19b)	Styles 2 or more. ....	<b>24</b>
23a (22a)	Sepals alike in size and shape; anthers usually opening by terminal pores. ....	<b>PYROLACEAE</b> , p. 248
23b (22a)	Sepals not alike in size and shape; anthers opening by lateral slits. ....	<b>CISTACEAE</b> , p. 207
24a (22b)	Ovary lobed, each with a style. ....	<b>25</b>
24b (22b)	Ovary not lobed. ....	<b>26</b>
25a (24a)	Styles 2; leaves mostly all basal.....	<b>(Mitella, Saxifraga) SAXIFRAGACEAE</b> , p. 206
25b (24a)	Styles 4-5; leaves all or chiefly cauline.....	<b>CRASSULACEAE</b> , p. 258
26a (24b)	Flowers yellow. ....	<b>CLUSIACEAE</b> , p. 200
26b (24b)	Flowers white, red or purple, never yellow. ....	<b>CARYOPHYLLACEAE</b> , p. 173

**KEY N:** CALYX (MAY BE MINUTE AND INCONSPICUOUS) AND COROLLA BOTH PRESENT; PETALS SEPARATE; FLOWERS REGULAR; PISTIL ONE; OVARY INFERIOR

1a	Flowers in umbels or sometimes in headlike inflorescences.....	<b>2</b>
1b	Flowers otherwise; fruit indehiscent, $\hat{A}$ nutlike, bristly or dehiscent and capsular. ....	<b>ONAGRACEAE</b> , p. 314
2a (1a)	Fruit drupaceous. ....	<b>3</b>
2b (1a)	Fruit dry, of 2 seedlike divisions. ....	<b>APIACEAE</b> , p. 340
3a (2a)	Inflorescence surrounded by large, white bracts (false petals); leaves simple. ....	

- .....(*Cornus canadensis*) **CORNACEAE**, p. 319  
 3b (2a) Inflorescence otherwise; leaves compound. .... **ARALIACEAE**, p. 338

**KEY O: CALYX AND COROLLA BOTH PRESENT; PETALS UNITED; FLOWERS NOT IN BRACTEATE (INVOLUCRATE) HEADS; FLOWERS REGULAR; OVARY SUPERIOR**

- 1a Plants green. .... **2**  
 1b Plants nongreen, vinelike; flowers usually in dense clusters. ....  
 ..... (*Cuscuta*) **CONVOLVULACEAE**, p. 360
- 2a (1a) Stamens 2; corolla 4-lobed. .... **3**  
 2b (1a) Stamens more than 2. .... **4**  
 3a (2a) Flowers usually blue; style persistent at summit of  $\pm$  flattened capsule. ....  
 ..... (*Veronica*) **SCROPHULARIACEAE**, p. 385
- 3b (2a) Flowers white; style surrounded at base by 4 lobes of ovary (4 nutlets in fruit); stem  $\pm$  square. ....  
 (*Lycopus*) **LAMIACEAE**, p. 370
- 4a (2b) Stamens opposite lobes of corolla. .... **5**  
 4b (2b) Stamens alternate with lobes of corolla or fewer. .... **6**
- 5a (4a) Fruit capsular, many-seeded. .... **PRIMULACEAE**, p. 251  
 5b (4a) Fruit utricular, one-seeded; leaves basal; flowers small, lavender. ....  
 ..... (*Limonium carolinianum*) **PLUMBAGINACEAE**, p. 199
- 6a (4b) .....Plants with milky juice; leaves opposite; fruit follicular.  
**7**  
 6b (4b) Plants without milky juice; fruit not follicular. .... **8**
- 7a (6a) Filaments distinct; corolla campanulate to tubular. .... (*Apocynum*) **APOCYNACEAE**, p. 355  
 7b (6a) Filaments and anthers united, surrounding stigma; corolla deeply 5-parted. ....  
 ..... **ASCLEPIADACEAE**, p. 356
- 8a (6b) Leaves basal, simple. .... **PLANTAGINACEAE**, p. 382  
 8b (6b) Leaves cauline, if all or mainly basal, than compound or cordate. .... **9**
- 9a (8b) Fruit capsular. .... **10**  
 9b (8b) Fruit either berrylike or of 1-4 dry nutlets. .... **11**
- 10a (9a) Leaves opposite or compound. .... **12**  
 10b (9a) Leaves alternate, not compound. .... **13**
- 11a (9b) Fruit dry. .... **14**  
 11b (9b) Fruit berrylike or podlike. .... **SOLANACEAE**, p. 357
- 12a (10a) Stigmas 3. .... **POLEMONIACEAE**, p. 362  
 12b (10a) Stigma 1 (may be 2-lobed). .... **15**
- 13a (10b) Plants mostly twining, trailing or creeping. .... **CONVOLVULACEAE**, p. 360  
 13b (10b) Plants erect. .... **SOLANACEAE**, p. 357
- 14a (11a) Stamens as many as corolla lobes; inflorescence commonly circinate cymes. ....  
 ..... **BORAGINACEAE**, p. 364  
 14b (11a) Stamens fewer than corolla lobes; inflorescence otherwise. .... **16**
- 15a (12b) Stigma capitate or 2-lobed; flowers of various colour. .... **17**  
 15b (12b) Stigma flattened and  $\pm$  elongate; flowers pink. .... (*Agalinis*) **SCROPHULARIACEAE**, p. 385
- 16a (14b) Style arising from top of ovary (apically). .... **VERBENACEAE**, p. 369  
 16b (14b) Style surrounded at base by 4 lobes of ovary; stems  $\pm$  square; leaves opposite, often

aromatic. .... (*Mentha*) LAMIACEAE, p. 370

- 17a (15a) Leaves simple and entire, neither cordate nor floating, usually opposite or whorled (alternate in *Bartonia* with scaly leaves); plants terrestrial. .... GENTIANACEAE, p. 352
- 17b (15a) Leaves alternate (often clustered near the base), either trifoliolate or cordate and floating; plants aquatic or semiaquatic. .... MENYANTHACEAE, p. 362

**KEY P: CALYX AND COROLLA BOTH PRESENT; PETALS UNITED; FLOWERS NOT IN BRACTEATE HEADS; FLOWERS REGULAR; OVARY INFERIOR**

- 1a Leaves opposite or whorled. .... 2
- 1b Leaves alternate. .... 3
- 2a (1a) Stamens 3. .... VALERIANACEAE, p. 419
- 2b (1a) Stamens 4 or 5. .... 4



*Cicuta maculata*

