

KEYS TO THE FAMILIES AND GENERA OF
NATIVE AND NATURALIZED,
WINTER- AND SPRING-FLOWERING
HERBS, VINES, AND SHRUBS
OF THE RALEIGH AREA

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ABSTRACT

Dichotomous keys were developed to families and genera of spring-flowering (February to mid-May) herbs, vines, and shrubs of Granville, Johnston, and Wake counties, NC. Due to the similarity in the floras, the keys should also work well for Chatham, Durham, Franklin, northern Harnett, Lee, and Orange counties. The keys are artificial in that the order of the taxa in the keys does not reflect evolutionary relationship. The keys use mainly flower characters. There is a key to 60 families of herbs and vines, a key to 35 shrub genera, and keys to genera in each of the 60 families. There is also a glossary including definitions of 63 terms.

The northeastern Piedmont landscape of North Carolina is rapidly being developed by urban and road construction. Additional acres have been clear cut or converted to impoundments and agricultural fields. This development has caused concern for the conservation of the natural heritage of the Piedmont. Various volunteer groups strive to evaluate the conservation value of Piedmont sites and to purchase valuable sites to conserve them. Additionally, public school students and college undergraduates are becoming more aware of the value of our region's natural heritage. One obvious component of the Piedmont's natural heritage is the diverse flora. The keys presented here were developed to help the concerned public, students, and teachers in Chatham, Durham, Franklin, Granville, Harnett, Johnston, Lee, Orange, and Wake counties identify fami-

lies and genera of plants in our spring flora. It is hoped that knowing how to identify the spring flora will encourage individuals to participate in conservation efforts.

METHODS

The decision concerning which families and genera to include in the keys was based on herbarium specimens at NCSC, information in Radford et al. (1968), and on plant species lists compiled by Stucky for sites visited during the spring seasons of the previous 28 years in Wake, Johnston, Durham, Lee, and Chatham counties. In addition to accuracy, ease of use was a primary concern in developing the keys. The bracketed format was used because students consistently have made fewer mistakes with this format than with the indented format. A moderate amount of technical terminology was used because colloquial language often is not entirely accurate. The glossary containing relatively simple definitions will help the user (Appendix A). Although the Poaceae (grass family) is included in the key to herbs and vines, a key to grass genera was not included. Instead, a list of spring-flowering grass genera is provided. One interested in identifying these grass genera should refer to Radford et al. (1968). Although there have been quite a few plant nomenclatural changes since 1968, the keys use the family and genus names of Radford et al. (1968). This is because the intended audience will more likely have that reference than more recent references with more up-to-date nomenclature. Early drafts of the keys were improved greatly by incorporating comments of previous students in Stucky's Local Flora classes.

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Herbs and vines

1. Plant a vine.....	2
1. Plant not a vine.....	7
2. Leaves alternate.....	Fabaceae
2. Leaves opposite.....	3
3. Leaves compound	Bignoniaceae
3. Leaves simple.....	4
4. Ovary inferior.....	5
4. Ovary superior.....	6
5. Petals 4; plant prostrate on ground	
.....	Rubiaceae
5. Petals 5; plant climbing on objects or other plants	Caprifoliaceae
6. Corolla yellow, > 1.5 cm long	Loganiaceae
6. Corolla blue-purple or yellow, if yellow then < 1.5 cm long	
.....	Apocynaceae
7. Perianth and perianth-like structure lacking	8
7. Perianth or structure simulating perianth present	12
8. Flowers on finger-like structure (spadix) that is surrounded by a modified leaf	Araceae
8. Flowers not on finger-like structure that is surrounded by a modified leaf	9
9. Flowers white, in a terminal spike; leaves with palmate veins, not sheathing stem; stem round in cross section.....	Saururaceae
9. Flowers green, greenish, or brown, not in terminal spike; leaves parallel veined, sheathing stem; stem round or triangular in cross section	10
10. Stem triangular in cross section.....	Cyperaceae
10. Stem round in cross section or flattened	11
11. Ligule present at junction of leaf sheath and blade.....	Poaceae
11. Ligule lacking	Juncaceae
12. Flowers aggregated in compact heads that are subtended by a series of bracts (heads not subtended by a series of bracts do not count.)	Asteraceae
12. Flowers not aggregated in compact heads as above	13

13. Milky latex exudes from broken leaves	14
13. Milky latex lacking	15
14. Perianth of two whorls, sepals minute; carpels 2 .	Apocynaceae
14. Perianth-like structure of one whorl; carpels 3 ..	Euphorbiaceae
15. Corolla in 3's or multiples of 3 AND leaf venation parallel ...	16
15. Lacking one or both of the character states noted above	20
16. Corolla irregular	Orchidaceae
16. Corolla regular	17
17. Ovary superior	18
17. Ovary inferior	19
18. Stamen filaments bearded	Commelinaceae
18. Stamen filaments glabrous	Liliaceae
19. Stamen 3	Iridaceae
19. Stamen 6	Amaryllidaceae
20. Ovary(ies) inferior	21
20. Ovary(ies) superior	25
21. Flowers 5-merous	22
21. Flowers 4-merous	24
22. Leaves compound or divided	Apiaceae
22. Leaves simple, undivided	23
23. Stems dichotomously branched	Valerianaceae
23. Stem unbranched throughout or in upper part .	Campanulaceae
24. Leaves opposite or whorled	Rubiaceae
24. Leaves alternate	Onagraceae
25. Perianth of calyx only or corolla only	26
25. Perianth of both calyx and corolla	32
26. Sheathing stipule present at base of leaf.....	Polygonaceae
26. Sheathing stipule lacking at base of leaf.....	27
27. Upright aerial stem lacking.....	Aristolochiaceae
27. Upright aerial stem present	28
28. Petals or petaloid sepals > 4.....	29
28. Petals or petaloid sepals 4 (but may look like only 2).....	30
29. Stamen 5	Santalaceae
29. Stamen >5	Ranunculaceae

30. Perianth urn-shaped.....	Ranunculaceae
30. Perianth not urn-shaped	31
31. Perianth saccate; corolla irregular.....	Fumariaceae
31. Perianth not saccate; corolla regular	Gentianaceae
32. Corolla irregular	33
32. Corolla regular	37
33. Ovary 4-lobed	Lamiaceae
33. Ovary unlobed or lobes not 4.....	34
34. Stamen 10.....	Fabaceae
34. Stamen 2 – 6.....	35
35. Stamen with white or orange appendages.....	Violaceae
35. Stamen without white or orange appendages.....	36
36. Sepals 2	Fumariaceae
36. Sepals >2	Scrophulariaceae
37. Sepals 2	38
37. Sepals > 2.....	39
38. Stamen 5.....	Portulacaceae
38. Stamen > 5	Papaveraceae
39. Stamen > 10	40
39. Stamen ≤ 10	42
40. Sepals 6	Berberidaceae
40. Sepals 5	41
41. Stolons present	Rosaceae
41. Stolons lacking.....	Ranunculaceae
42. Sepals 4; petals 4.....	43
42. Sepals 5; petals 5.....	45
43. Plant scapose	Plantaginaceae
43. Plant not scapose	44
44. Carpels fused throughout their lengths	Brassicaceae
44. Carpels fused only basally, separate throughout upper parts.....	Crassulaceae
45. Stamen connate	Diapensiaceae
45. Stamen not connate	46
46. Stamen adnate to inside surface of petals	47
46. Stamen not adnate to petals.....	49

47. Ovary distinctly 4-lobed	Boraginaceae
47. Ovary unlobed or lobes 1-2	48
48. Leaves entire	Polemoniaceae
48. Leaves lobed or divided	Hydrophyllaceae
.....	
49. Carpels fused to each other only in their basal halves	
.....	Saxifragaceae
49. Carpels fused to each other throughout all or most of their lengths	50
50. Leaves compound, with 3 leaflets	Oxalidaceae
50. Leaves simple, possibly lobed or dissected	51
51. Leaves lobed or dissected	Geraniaceae
51. Leaves neither lobed nor dissected	52
52. Leaves uniformly green	Caryophyllaceae
52. Leaves variegated	Ericaceae

Shrubs

1. Leaves opposite	2
1. Leaves alternate	9
2. Leaves compound	3
2. Leaves simple	5
3. Leaves trifoliolate	<i>Staphylea</i>
3. Leaves with > 3 leaflets	4
4. Leaves palmately compound	<i>Aesculus</i>
4. Leaves pinnately compound	<i>Sambucus</i>
5. Stem green to ground level	<i>Euonymus</i>
5. Stem brown or gray to ground surface (only new growth green)	6
6. Inflorescence flat-topped or nearly so	7
6. Inflorescence not flat-topped	8
7. Flowers perfect	<i>Viburnum</i>
7. Flowers imperfect	<i>Nestronia</i>
8. Petal length > 5 X width	<i>Chionanthus</i>
8. Petal length < 5 X width	<i>Ligustrum</i>

9. Stem with prickles	10
9. Stem lacking prickles	12
10. Leaf scars encircling much of stem circumference	<i>Aralia</i>
10. Leaf scars not nearly encircling stem	11
11. Stipule adnate to petiole	<i>Rosa</i>
11. Stipule not adnate to petiole	<i>Rubus</i>
12. Male flowers in dangling catkins	13
12. None of the flowers in catkins or catkins not dangling	14
13. Mature fruit surrounded by leafy bracts	<i>Corylus</i>
13. Mature fruit subtended by woody bracts	<i>Alnus</i>
14. Wood (not bark) bright yellow	<i>Xanthorhiza</i>
14. Wood brown, light yellow, or cream colored	15
15. Perianth lacking	<i>Salix</i>
15. Perianth present	16
16. Corolla pink, red, maroon	17
16. Corolla (or petaloid perianth) white, cream, or yellow	19
17. Flowers distinctly irregular, ≤ 10 mm broad	<i>Cercis</i>
17. Flowers regular or slightly irregular, > 10 cm broad	18
18. Sepals 3; petals unfused	<i>Asimina</i>
18. Sepals 5; petals partly fused	<i>Rhododendron</i>
19. Stipular scar completely encircling stem at nodes	<i>Magnolia</i>
19. Stipular scar not encircling stem	20
20. Perianth yellow	21
20. Perianth white, cream, or only partly yellowish	23
21. At least some leaves lobed	<i>Sassafras</i>
21. All leaves unlobed	22
22. Perianth parts fused throughout their lengths	<i>Dirca</i>
22. Perianth parts separate	<i>Lindera</i>
23. Leaves strongly 3-nerved from base	<i>Ceanothus</i>
23. Leaves not strongly 3-nerved	24
24. Perianth of petal-like sepals only (petals lacking)	<i>Elaeagnus</i>
24. Perianth of both sepals and petals	25
25. Petals separate	26
25. Petals at least partly fused	28
26. Ovary inferior	<i>Amelanchier</i>

26. Ovary superior	27
27. Stamen ≥ 10	<i>Prunus</i>
27. Stamen 5	<i>Itea</i>
28. Flowers imperfect (female may have abortive stamen).....	<i>Ilex</i>
28. Flowers perfect	29
29. Petals fused only in lower half, unfused lobes ≥ 7 mm long	<i>Styrax</i>
29. Petals fused throughout most or all of their length.....	30
30. Golden glands on lower leaf surface	<i>Gaylussacia</i>
30. Golden leaf glands lacking	31
31. Corolla open, stamen exposed	32
31. Corolla urn-shaped, stamen enclosed	33
32. Corolla pleated; stamen held in pleats of corolla tube until sprung by pollinators	<i>Kalmia</i>
32. Corolla unpleated; stamen not as above	<i>Vaccinium</i>
33. Ovary inferior	<i>Vaccinium</i>
33. Ovary superior	34
34. Calyx pubescent, lacking subtending bractlets	<i>Lyonia</i>
34. Calyx glabrous, with two subtending bractlets	<i>Leucothoe</i>

MONOCOTS

Sepals and petals usually in 3's; stamen often 6; carpels often 3, sometimes numerous and separate; leaf venation usually parallel or nearly so (a few notable exceptions).

Amaryllidaceae

1. Corolla yellow	<i>Hypoxis</i>
1. Corolla white	<i>Zephyranthes</i>

Araceae

1. Leaves compound	<i>Arisaema</i>
1. Leaves simple	2
2. Spathe purplish	<i>Symplocarpus</i>
2. Spathe green.....	<i>Peltandra</i>

Commelinaceae	<i>Tradescantia</i>
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Cyperaceae	<i>Carex</i>
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Iridaceae

1. Flowers ≥ 3 cm wide	<i>Iris</i>
1. Flowers < 3 cm wide	<i>Sisyrinchium</i>

Juncaceae

1. Flowers and fruits brown	<i>Luzula</i>
1. Flowers and fruits green.....	<i>Juncus</i>

Liliaceae

1. Stem leaves whorled	2
1. Stem leaves alternate, opposite, or lacking	3
2. Leaves in 1 whorl.....	<i>Trillium</i>
2. Leaves in > 1 whorl.....	<i>Medeola</i>
3. Stems lacking leaves or leafy mainly near base; basal leaves usually present	4
3. Stems leafy throughout; basal leaves usually absent	10
4. Flower 1 per stem.....	5
4. Flowers > 1 per stem.....	6
5. Petals yellow; basal leaves ≥ 10 mm wide.....	<i>Erythronium</i>
5. Petals white or bluish; basal leaves < 10 mm wide	<i>Ipheion</i>
6. Inflorescence an umbel	<i>Allium</i>
6. Inflorescence a spike or raceme	7
7. Perianth blue-purple	<i>Muscari</i>
7. Perianth white or mainly so	8
8. Flowers imperfect	<i>Chamaelirium</i>
8. Flowers perfect.....	9
9. Stem leafless	<i>Ornithogalum</i>
9. Stem with one-a few leaves	<i>Amianthium</i>
10. Inflorescence terminal.....	<i>Smilacina</i>
10. Inflorescence or solitary flowers axillary.....	11

- 11. Flowers in successive axils; fruit a berry..... *Polygonatum*
- 11. Flowers not in successive axils; fruit a capsule *Uvularia*

Orchidaceae

- 1. Leaves absent at flowering, dull green above, purple below.....
..... *Tipularia*
- 1. Leaves present at flowering, not colored as above2
- 2. Leaves green with white reticulations *Goodyera*
- 2. Leaves lacking white reticulations3
- 3. Some perianth parts white, others pink *Orchis*
- 3. Perianth coloration not as above4
- 4. Leaves whorled *Isotria*
- 4. Leaves basal or alternate5
- 5. Lower petal saccate *Cypripedium*
- 5. Lower petal not saccate *Liparis*

Poaceae

Grasses are described by unique terminology. The genera you might find blooming and in fruit include *Agrostis*, *Aira*, *Anthoxanthum*, *Bromus*, *Dactylis*, *Danthonia*, *Festuca*, *Glyceria*, *Holcus*, *Hordeum*, *Hystrix*, *Lolium*, *Melica*, *Poa*, *Sphenopholis*, and *Stipa*.

DICOTS

Sepals and petals usually in 4's or 5's; stamen usually 3 or 5, sometimes ≥ 10 ; carpels frequently 3 or 5, sometimes > 10 and separate; leaf venation usually pinnate or palmate.

- Annonaceae** *Asimina*

Apiaceae

- 1. Flowers yellow..... *Zizia*
- 1. Flowers white.....2
- 2. Crushed leaves anise-scented *Osmorhiza*
- 2. Crushed leaves unscented or scent not of anise3

- 3. Compound umbel > 2 cm broad..... *Daucus*
- 3. Compound umbel ≤ 2 cm broad..... *Chaerophyllum*

Apocynaceae

- 1. Erect herb *Apocynum*
- 1. Climbing or trailing vine2
- 2. Trailing vine; flowers blue, purple, or pinkish *Vinca*
- 2. Climbing vine; flowers yellow..... *Trachelospermum*

- Araliaceae** *Aralia*

Aristolochiaceae

- 1. Leaves pubescent, not aromatic when broken or only slightly so .
..... *Asarum*
- 1. Leaves glabrous, distinctly aromatic when crushed *Hexastylis*

Asteraceae

- 1. Leaves white tomentose beneath.....2
- 1. Leaves not white tomentose beneath4
- 2. Leaves apically rounded with short, distinct point *Facelis*
- 2. Leaves apically rounded-acute, lacking distinct point3
- 3. Basal leaves ≥ 2 times as wide as stem leaves *Antennaria*
- 3. Basal leaves < 2 times as wide as stem leaves or absent
..... *Gnaphalium*
- 4. Heads of both disk and ray flowers.....5
- 4. Heads of ray flowers only or disk-discoid flowers only12
- 5. Ray flowers white, pinkish, bluish, purplish.....6
- 5. Ray flowers yellow10
- 6. Heads ≤ 3 cm broad (ray tip to ray tip7
- 6. Heads > 3 cm broad (ray tip to ray tip8
- 7. Leaves finely dissected; pappus absent *Achillea*
- 7. Leaves entire, toothed, or lobed; pappus of bristles..... *Erigeron*
- 8. Leaves finely dissected *Anthemis*
- 8. Leaves entire, toothed, or lobed9
- 9. Petiole lobed at base; disk yellow..... *Chrysanthemum*

- 9. Petiole not lobed at base; disk brown – black..... *Echinacea*
- 10. Pappus a united cartilaginous crown *Chrysogonum*
- 10. Pappus of bristles 11
- 11. Stem leaves few, opposite; pappus yellowish-white *Arnica*
- 11. Stem leaves more than a few, alternate; pappus white *Senecio*
- 12. Head of disk-discoid flowers only 13
- 12. Head of ray flowers only 14
- 13. Outer bracts spine-tipped *Carduus*
- 13. Outer bracts not spine-tipped *Centaurea*
- 14. Ray flowers blue or white *Cichorium*
- 14. Ray flowers yellow 15
- 15. Nutlet flattened 16
- 15. Nutlet not flattened 17
- 16. Fruit apically truncate *Sonchus*
- 16. Fruit apically beaked or tapered *Lactuca*
- 17. Mature nutlet with beak ≥ 5 mm long 18
- 17. Mature nutlet beakless or with beak < 5 mm long..... 20
- 18. Longest bracts bilobed or widest at apex..... *Pyrrhopappus*
- 18. Longest bracts tapered to apex 19
- 19. Stem unbranched; pappus capillary *Taraxacum*
- 19. Stem branched; pappus plumose *Hypochoeris*
- 20. Bracts all of one length..... *Krigia*
- 20. Bracts of several lengths *Hieracium*

Berberidaceae..... *Podophyllum*

Betulaceae

- 1. Fruit subtended by woody scale *Alnus*
- 1. Fruit subtended by leafy scales *Corylus*

Bignoniaceae

- 1. Petals uniformly orange; leaflets > 4 *Campsis*
- 1. Petals maroon & yellow; leaflets < 4 *Anisostichus*

Boraginaceae

- 1. Petals blue-violet..... *Cynoglossum*
- 1. Petals white-pale bluish 2
- 2. Style unbranched..... *Myosotis*
- 2. Style branches 2 *Lithospermum*

Brassicaceae

- 1. Corolla distinctly yellow 2
- 1. Corolla white, cream-pale yellow, green, pink, or purplish..... 4
- 2. Petals light yellow; fruit contracted between seeds *Raphanus*
- 2. Petals dark yellow; fruit not contracted between seeds 3
- 3. Leaves lustrous *Barbarea*
- 3. Leaves not lustrous *Brassica*
- 4. Stem and basal leaves entire or toothed, not lobed nor divided... 5
- 4. Stem leaves (at least lower ones) &/or basal leaves lobed/divided 12
- 5. Flowers > 8 mm broad *Cardamine*
- 5. Flowers < 8 mm broad 6
- 6. Stem leaf length $< 2X$ width..... 7
- 6. Stem leaf length $> 2X$ width..... 8
- 7. Fruit < 1 cm long..... *Draba*
- 7. Fruit ≥ 1 cm long..... *Cardamine*
- 8. Fruit triangular *Capsella*
- 8. Fruit round, elliptic, ovate, or elongated 9
- 9. Fruit length \leq width or only slightly longer 10
- 9. Fruit length distinctly $>$ width..... 11
- 10. Fruit winged *Lepidium*
- 10. Fruit wingless *Camelina*
- 11. Fruit < 1 cm long..... *Draba*
- 11. Fruit > 1 cm long..... *Cardamine*
- 12. Leaves digitately (palmately) lobed/divided..... *Cardamine*
- 12. Leaves pinnately lobed/divided 13
- 13. Fruit length $> 3X$ width..... 14
- 13. Fruit length $< 3X$ width..... 15
- 14. Fruit with cross walls between the seeds *Raphanus*

- 14. Fruit lacking cross walls between the seeds*Cardamine*
- 15. Fruit triangular*Capsella*
- 15. Fruit 2-lobed, each lobe round*Coronopus*

Campanulaceae*Specularia*

Caprifoliaceae

- 1. Plant a vine*Lonicera*
- 1. Plant a shrub2
- 2. Leaves simple*Viburnum*
- 2. Leaves compound*Sambucus*

Caryophyllaceae

- 1. Petals lacking2
- 1. Petals present3
- 2. Sepals acute; fruit 1-seeded*Scleranthus*
- 2. Sepals obtuse; fruit several-seeded*Sagina*
- 3. Petals pink, red, or purple4
- 3. Petals white5
- 4. Petals shorter than sepals*Agrostemma*
- 4. Petals longer than sepals*Dianthus*
- 5. Leaves whorled*Spergula*
- 5. Leaves opposite6
- 6. Petals deeply notched7
- 6. Petals not notched or only slightly so8
- 7. Styles 5; stem pubescent throughout*Cerastium*
- 7. Styles 3; stem pubescence in lines*Stellaria*
- 8. Inflorescence an umbel*Holosteum*
- 8. Inflorescence not an umbel9
- 9. Petals inconspicuous*Sagina*
- 9. Petals conspicuous*Arenaria*

Celastraceae*Euonymus*

Crassulaceae*Diamorpha*

Diapensiaceae*Galax*

Elaeagnaceae*Elaeagnus*

Ericaceae

- 1. Plant an herb*Chimaphila*
- 1. Plant a shrub2
- 2. Fruit inferior3
- 2. Fruit superior4
- 3. Leaves glandular-dotted beneath; fruit 10-seeded*Gaylussacia*
- 3. Leaves not glandular-dotted beneath; fruit > 10-seeded*Vaccinium*
- 4. Corolla irregular*Rhododendron*
- 4. Corolla regular5
- 5. Inflorescences terminal corymbs or fascicles*Kalmia*
- 5. Inflorescences axillary racemes or panicle6
- 6. Calyx pubescent, lacking subtending bractlets*Lyonia*
- 6. Calyx glabrous, with two subtending bractlets*Leucothoe*

Euphorbiaceae*Euphorbia*

Fabaceae

- 1. Plant a shrub/small tree; flowers produced before leaves... *Cercis*
- 1. Plant a vine or herb; flowers produced with or after leaves2
- 2. Leaves with 3 leaflets3
- 2. Leaves with > 3 leaflets4
- 3. Terminal leaflet lacking stalk (petiolule)*Trifolium*
- 3. Terminal leaflet with stalk*Medicago*
- 4. Plant woody*Wisteria*
- 4. Plant herbaceous5
- 5. Leaves with tendrils*Vicia*
- 5. Leaves lacking tendrils*Tephrosia*

Fumariaceae

- 1. Corolla yellow *Corydalis*
- 1. Corolla pink or white *Dicentra*

Gentianaceae *Obolaria*

Geraniaceae

- 1. Leaves palmately lobed or compound *Geranium*
- 1. Leaves pinnately compound *Erodium*

Hippocastanaceae *Aesculus*

Hydrophyllaceae *Nemophila*

Lamiaceae

- 1. Anther-bearing stamen 2 *Salvia*
- 1. Anther-bearing stamen 4 2
- 2. Some or all stems trailing on ground 3
- 2. All stems erect 4
- 3. Leaves cordate *Glechoma*
- 3. Leaves tapering basally *Ajuga*
- 4. Corolla tube < 1 cm long *Lamium*
- 4. Corolla tube ≥ 1 cm long 5
- 5. Lower corolla lip fringed *Prunella*
- 5. Lower corolla lip not fringed *Dracocephalum*

Lauraceae

- 1. At least some leaves lobed *Sassafras*
- 1. All leaves unlobed *Lindera*

Loganiaceae *Gelsemium*

Magnoliaceae *Magnolia*

Oleaceae

- 1. Petal length > 5 X width *Chionanthus*
- 1. Petal length < 5 X width *Ligustrum*

Onagraceae *Oenothera*

Papaveraceae *Sanguinaria*

Polemoniaceae *Phlox*

Polygonaceae *Rumex*

Portulacaceae

- 1. Ovary partly inferior *Portulaca*
- 1. Ovary completely superior 2
- 2. Sepals persistent; leaves opposite *Claytonia*
- 2. Sepals deciduous; leaves alternate *Talinum*

Plantaginaceae *Plantago*

Ranunculaceae

- 1. Plant a shrub; inflorescence a drooping panicle *Xanthorhiza*
- 1. Plant an herb; inflorescence not as above 2
- 2. Perianth conspicuously spurred *Aquilegia*
- 2. Perianth not spurred 3
- 3. Mature inflorescence > 10 cm long *Cimicifuga*
- 3. Mature inflorescence < 10 cm long 4
- 4. Leaves ternately compound; leaflet apices acute *Actaea*
- 4. Leaves lacking one or both features noted above 5
- 5. Both calyx & corolla present (or apparently so) 6
- 5. Either calyx or corolla lacking 7
- 6. Petals yellow *Ranunculus*
- 6. Petals (actually sepals that look like petals) white-bluish *Hepatica*
- 7. Inflorescence an umbel *Thalictrum*
- 7. Inflorescence not an umbel 8

- 8. Perianth leathery *Clematis*
- 8. Perianth not leathery *Anemone*

Rhamnaceae *Ceanothus*

Rosaceae

- 1. Plant a shrub 2
- 1. Plant an herb 4
- 2. Ovary inferior *Amelanchier*
- 2. Ovary superior 3
- 3. Gynoecium of fused carpels; single ovary surrounded by floral cup (hypanthium) *Prunus*
- 3. Gynoecium of many unfused carpels; numerous ovaries of single flower superior *Rubus*
- 4. Sepals interspersed with sepaloid bracts 5
- 4. Sepals not interspersed with bracts *Waldsteinia*
- 5. Bracts narrowing towards apex, entire *Potentilla*
- 5. Bracts widest at apex, toothed *Duchesnia*

Rubiaceae

- 1. Leaves in whorls of 4 or more 2
- 1. Leaves opposite or in whorls of 3 3
- 2. Sepals lacking *Galium*
- 2. Sepals present *Sherardia*
- 3. Stem erect-nearly erect *Houstonia*
- 3. Stem trailing on ground *Mitchella*

Salicaceae *Salix*

Santalaceae

- 1. Herb; flowers perfect *Commandra*
- 1. Shrub; flowers imperfect *Nestronia*

Saururaceae *Saururus*

Saxifragaceae

- 1. Plant a shrub *Itea*
- 1. Plant an herb 2
- 2. Inflorescence a raceme *Tiarella*
- 2. Inflorescence a panicle 3
- 3. Stamen 5 *Heuchera*
- 3. Stamen 10 *Saxifraga*

Scrophulariaceae

- 1. Corolla only slightly irregular *Veronica*
- 1. Corolla distinctly irregular 2
- 2. Stem leaves opposite *Penstemon*
- 2. Stem leaves alternate 3
- 3. Corolla blue, basally spurred *Linaria*
- 3. Corolla yellow, not spurred basally *Pedicularis*

Staphyleaceae *Staphylea*

Styracaceae *Styrax*

Thymeliaceae *Dirca*

Valerianaceae *Valerianella*

Violaceae

- 1. Petals green *Hybanthus*
- 1. Petals white, blue, yellow or purple *Viola*

LITERATURE CITED

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APPENDIX A: Glossary

Acute: sharp pointed but not long tapering
Adnate: fusion of unlike flower parts
Alternate: type of leaf arrangement in which one leaf is attached to each node
Axil: angle between a stem and a petiole
Beak: relatively long, thickened point
Berry: fleshy or pulpy fruit
Bract: small leaf; several-many subtend flowers of the Asteraceae
Calyx: outer whorl of perianth parts; often green
Capsule: dry fruit of ≥ 2 carpels
Carpel: component part of gynoecium
Catkin: usually pendant, elongated cluster of flowers
Compound: composed of ≥ 2 similar parts
Connate: fusion of like flower parts
Cordate: with a sinus and rounded at the base; like the notched/rounded part of a valentine; type of leaf base or shape of leaf with notched/rounded base
Corolla: inner whorl of perianth parts; often colored
Corymb: short, relatively flat-topped inflorescence
Dichotomous: equally forked
Disk flowers: tubular, perfect flowers of Asteraceae
Dissected: deeply divided
Divided: deeply cut into recognizable divisions
Fascicle: group, cluster
Floral cup (hypanthium): cup-shaped structure composed of fused basal parts of sepals, petals, and stamen
Glabrous: lacking hairs, sometimes called "smooth"
Imperfect: flower with stamen only or carpels only, unisexual flower
Inferior ovary: positioned below the level at which sepals and petals are attached
Inflorescence: arrangement of flowers
Irregular flower: asymmetrical arrangement of parts
Ligule: relatively short membrane or row of hairs located on dorsal surface of grass leaves at the point where the leaf blade joins the leaf sheath
Lobed: recognizable segment; leaf type with segments separated by incisions that extend at least half way from margin to midvein
Node: point on a stem where one or more leaves are attached
Opposite: type of leaf arrangement in which 2 leaves are attached to each node; *i.e.* leaves are paired along length of stem
Palmate: with parts basally attached to a common point, digitate; palmate veins & palmately compd. leaves
Panicle: an inflorescence with an elongated primary axis, secondary branches,

and stalked (pedicellate) flowers

Pappus: modified calyx of Asteraceae; usually are bristles or scales, sometimes absent
Parallel: type of leaf venation in which at least the major veins are elongated and nearly parallel
Perfect: individual flower that has both stamen and carpels
Perianth: calyx plus corolla of individual flower
Pinnate: parts attached along an elongated axis; feather-like; pinnate veins & pinnately compd. leaves
Prickle: sharp, short, rigid projections from internode regions of stem; usually basally thickened, not as flexible as bristle
Pubescent: hairy
Raceme: type of flower/fruit arrangement; individual flrs./frts. each attached by stalk (pedicel) to an elongated central axis
Ray flower: strap-shaped, perfect or imperfect flower of Asteraceae
Regular: symmetrical arrangement of parts
Saccate: with a sac
Scape: aerial, leafless, flowering stem
Simple: type of leaf with 1 blade (instead of several blade segments, leaflets, as in compound leaf type)
Spadix: inflorescence type; spike with a fleshy, elongated axis
Spathe: a leaf or large bract closely surrounding an inflorescence
Spike: inflorescence type; flowers unstalked, attached directly to axis
Spur: sac-like projection of a perianth part
Stipule: basal, paired appendages of a leaf; variable in size & shape; Leaves of some species have stipules while those of other species lack stipules.
Stolon: above-ground, prostrate stem
Style: part of gynoecium between stigma and ovary; often elongated
Superior ovary: positioned above the level at which sepals and petals are attached
Tendrils: elongated, twining appendage
Ternate: in three's
Tomentose: with soft, wooly hairs
Trifoliolate: leaf composed of three leaflets
Truncate: blunt; somewhat squared off
Umbel: inflorescence with flower stalks (pedicels) originating from common point
Variegated: non-uniformly colored
Vine: plant that attaches to &/or climbs on structures or a plant with an elongated, prostrate stem
Whorled: arrangement of leaves/flowers/branches in which more than 2 are attached around the perimeter of a stem at individual nodes