

North Dakota vascular plants: manual to the commonly cultivated trees and shrubs

Alexey Shipunov

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Contents

The Key	1
Glossary	8

This dichotomous key is a highly modified version of the Herman D.E. & Chaput L.J. work of 2003. A “key” is similar to a road which forks repeatedly and which has signposts indicating what may be found along each branch. Key gives the reader one of two (sometimes three) choices. A number at the right of a description indicates the next step to take. The number in parenthesis after the number at the left indicates where you came from and allows you to back track (if there is no number, go to the previous step to backtrack).

There are three parts: conifers, woody vines and leafy trees and shrubs. The relatively rare species and the horticultural cultivars have been left out because their inclusion would necessarily have increased the complexity of the key and the volume of the publication.

If you use this key as a PDF file on electronic device, you may want to click on the underlined names and this will open the Google image search for this species. All numbered references are also active links which work inside the PDF document. Names of native* North American species (including species with circumpolar distribution) are labeled with star.

A glossary at the end of the publication explains terms that may be unfamiliar.

The Key

1. Trees or shrubs whose foliage is needle-like or scale like 2.
 - Foliage not needle-like or scale-like but with normal leaves 18.
2. Usually more than five needles start from one point; deciduous . . . *Larix sibirica* (Siberian Larch)
 - Not over five needles from one point; evergreen 3.
- 3 (2). Needles in fascicles (bunches) 4.
 - Needles not in fascicles 8.
4. Needles per fascicle 5 *Pinus flexilis** (Limber Pine)
 - Needles per fascicle 2 or 3 5.
5. Needles over 10 cm long, in trios and pairs *Pinus ponderosa** (Ponderosa Pine)
 - Needles less than 8 cm long, only in pairs 6.

6. Usually multi-stemmed shrub or shrub-like small tree; cone scales crowded at cone base; young bark dark *Pinus mugo* (Mugo Pine)
 – Trees; cone scales are not crowded at base; young bark bright (orange, yellow, bright-brown) 7.
7. Cones symmetric, leaves typically about 5 cm, branches ascending
 *Pinus sylvestris* (Scotch Pine)
 – Cones asymmetric, leaves typically more 5 cm, branches mostly horizontally spreading
 *Pinus contorta** (Lodgepole Pine)
- 8 (3). Leaves scale-like or awl-shaped, not over 1.5 cm long 9.
 – Needles linear or needle-like, about 2.5 cm long 13.
9. Branchlets flattened; woody cones only about 1 cm long
 *Thuja occidentalis** (American Arborvitae)
 – Branchlets 3 or 4 angled; cones berrylike, about 0.5 cm in diameter 10.
10. Long trailing native groundcover rarely over 2 m high
 *Juniperus horizontalis** (Creeping Juniper)
 Also cultivated is *Microbiota decussata* (Siberian Cypress) with woody cones, tips of its branches are nodding whereas in junipers, tips are mostly arcuate or straight.
 – Shrub at least 2 feet high when mature 11.
11. Needles about 1 cm long, strongly boat shaped or awl-shaped, all sharp
 *Juniperus communis** (Common Juniper)
 – Some or all needles scale-like; trees 12.
 There are many other ornamental junipers in cultivation, both trees and shrubs.
12. Scale-like leaves not overlapping, or not more than by $\frac{1}{5}$ their length. Bark of larger branches in plates. Foliage turning purple-brown in winter *Juniperus virginiana** (Eastern Red-cedar)
 – Scale-like leaves overlapping by more than $\frac{1}{4}$ their length; bark of larger branches usually in strips. Foliage often bluer green, remaining the same in winter
 *Juniperus scopulorum** (Rocky Mt. Juniper)
- 13 (8). Needles fastened directly to twig, leave a circular leaf scar when removed; bark more or less smooth 14.
 – Needles attached to small pegs; bark scabrous 16.
14. Midrib visible also from above; cones berry-like; no resin *Taxus* spp. (Yews)
 Most often, *Taxus cuspidata* (Japanese Yew) and its hybrids are cultivated.
 – Midrib visible only from below; cones woody; have resin 15.
15. Needles sessile; cones disintegrating when mature; buds blunt and resinous
 *Abies balsamea** (Balsam Fir)
 – Needles petiolate; cones stable, with papery bracts extending beyond cone scale; buds sharp-pointed, dark purple and not resinous *Pseudotsuga menziesii** (Douglas fir)
- 16 (13). Needles somewhat flattened, 2 ranked; woody cones usually over 8 cm long
 *Picea abies* (Norway Spruce)
 – Needles 4 angled, not 2 ranked; cones 8 cm long or less 17.
17. Needles very sharp; cones over 5 cm long with ragged scales
 *Picea pungens** (Colorado, or Blue Spruce)
 – Needles only moderately sharp; cones less than 5 cm long with smooth, rounded edge on cone scales *Picea glauca** (Black Hills, or White Spruce)

- 18 (1). Vines 19.
 – Trees, shrubs, or herbs 22.
19. Leaves compound 20.
 – Leaves simple 21.
20. Leaves alternate; 5 leaflets; fruit a berry *Parthenocissus quinquefolia** (Virginia Creeper)
 – Leaves opposite; 3 leaflets; fruit multiple nut *Clematis* spp. (Virgin's Bower)
- 21 (19). Margin coarsely serrate; leaves sometimes lobed, fruit a black berry *Vitis* spp. (Grape)
 Several species and hybrids are cultivated, e.g., hardy grapes *Vitis labrusca** 'Valiant'.
 – Margin fine serrate, leaves never lobed; fruit orange, splitting to show red interior
 *Celastrus scandens** (American Bittersweet)
- * * *
- 22 (18). Shrubs or herbs mainly less than 0.5 m high when mature 23.
 – Shrubs or trees over 0.5 m high when mature 25.
23. Leaves simple, elliptic, leathery, evergreen *Buxus sempervirens* (Boxwood)
 – Leaves not so 24.
24. Small shrub, herb-like; always 3 leaflets, not serrate but sometimes irregularly toothed
 *Toxicodendron radicans** (Poison Ivy)
 – Perennial herb with woody underground rhizome; leaves 3-forked, each fork with 3 or 5 serrate
 leaflets *Aralia nudicaulis** (Wild Sarsaparilla)
- 25 (22). Leaves compound: triple, palmate, pinnate or double pinnate 26.
 – Leaves simple: whole, lobed or dissected 42.
26. Compact branchy shrubs, leaflets usually less than 1 cm wide 27.
 – Coarser shrubs or trees, leaflets usually more than 1 cm wide 28.
27. Stipular prickles present; fruit a pod *Caragana* spp. (Peashrub)
 Two small peashrubs are usually cultivated: *Caragana pygmaea* (Pigmy Peashrub) with lanceolate leaflets and *C.
 aurantiaca* (Orange Peashrub) with elliptic leaflets.
 – No stipular spines; fruit globose, multiple nut *Dasiphora fruticosa** (Shrubby Cinquefoil)
- 28 (26). Trees with long pinnate leaves, leaflets more than 5 pairs, elliptic, obtuse or mucronate, or
 leaves double pinnate with various leaflets 29.
 – Trees or shrubs with combination of characters different from the above 31.
29. Leaflets obtuse or mucronate, leaves pinnate or double pinnate 30.
 – Leaflets acute or acuminate, leaves double pinnate, large (sometimes up to 1 m)
 *Gymnocladus dioica** (Kentucky Coffetree)
30. Leaflets usually oblong, their size equal; leaves pinnate or double pinnate
 *Gleditsia triacanthos** (Common Honeylocust)
 – Leaflets usually ovate, becoming gradually bigger to the upper part of the pinnate leaf
 *Robinia pseudoacacia** (Black Locust)
- 31 (28). Branches with either stipular or corticular spines; shrubs 32.
 – Branches without spines; trees or shrubs 33.
32. Spines stipular; fruit a pod; bark greenish *Caragana arborescens* (Siberian Peashrub)
 While *Caragana arborescens* has pinnate leaves, cultivated is *Caragana frutex* (Russian Peashrub) has triple leaves.
 – Spines corticular; fruit a fleshy hip; bark reddish or brownish *Rosa* spp. (Rose)
 Multiple species and hybrids with tangled ancestry are cultivated, one of common species is shrubby *Rosa rugosa*
 (rugose rose) with wrinkled leaves.

- 33 (28). Leaves opposite 34.
 – Leaves alternate 39.
34. Palmate five-leaflet leaves; fruit a nutlike capsule *Aesculus glabra** (Ohio Buckeye)
 – Leaves not palmate; fruit not a nutlike capsule 35.
35. Leaves regularly serrate; twigs gray; buds brown; fruit samara 36.
 – Leaves irregularly toothed; twigs green or reddish brown with a bloom; buds silvery; fruit schizocarpic with two wings *Acer negundo** (Boxelder Maple)
 This tree became a noxious species in Europe.
36. Leaflets mostly 2–3 pairs, elliptic 37.
 – Leaflets mostly more than 3 pairs, lanceolate 38.
37. Base of petiole encasing bud (leaf scars concave and buds originate within it); leaflets whitened beneath *Fraxinus americana** (White Ash)
 – Base of petiole below bud (leaf scars round and buds originate above it); leaflets not whitened beneath *Fraxinus pennsylvanica* (Green Ash)
 The most common species of ashes.
- 38 (36). Leaflets sessile *Fraxinus nigra** (Black Ash)
 – Leaflets stalked *Fraxinus mandshurica* (Manchurian Ash)
- 39 (33). Base of petiole encasing bud 40.
 – Base of petiole below bud 41.
40. Twigs hairy *Rhus typhina* (Staghorn Sumac)
 – Twigs glabrous *Rhus typhina* (Smooth Sumac)
- 41 (39). Pith chambered; leaflets obtusely serrate, about 8 cm long ... *Juglans nigra** (Black Walnut)
 – Pith solid; leaflets distinctly serrate, about 4 cm long
 *Sorbus aucuparia* (European Mountain-ash)
 Also cultivated are: American *Sorbus decora** (Showy Mountain-ash), low tree or shrub with sticky, usually shiny buds, and *Sorbaria sorbifolia* (False Spirea), low shrub with long leaves and narrow, long pointed leaflets.
- 42 (25). Many or all leaves lobed or dissected (deeper than $\frac{1}{4}$ of radius) 43.
 – Leaves not lobed 52.
43. Leaves opposite 44.
 – Leaves alternate 46.
44. Some terminal leaves not lobed, when lobed always 3, a coarse shrub; fruit a drupe
 *Viburnum opulus** (Cranberrybush)
 – All terminal leaves lobed, 3 or 5, trees or shrubby trees; fruit schizocarpic with two wings ... 45.
45. Leaves silvery beneath; lobes of nearly equal length; a large tree
 *Acer saccharinum** (Silver Maple)
 – Leaves not silvery beneath; terminal lobe longer than others; small tree or shrublike
 *Acer ginnala* (Amur Maple)
Acer tataricum (Tatarian Maple) is also cultivated, it has leaves with undeveloped, almost tooth-like lobes.
- 46 (43). Leaves triangular, 2-lobed, with dichotomous venation (see Glossary)
 *Ginkgo biloba* (Ginkgo)
 This famous Chinese “living fossil” is sometimes cultivated in North Dakota.
 – Leaves not so 47.
47. Trees 48.
 – Shrubs 51.

48. Leaves palmately or triple lobed, sometimes irregularly 49.
 – Leaves pinnately lobed 50.
49. Leaves white hairy below *Populus alba* (White Poplar)
 – Leaves not white hairy below, lobes irregular *Morus alba* (White Mulberry)
- 50 (48). Bark white and papery, many branches pendulous, leaves serrate, sometimes acutely lobed or even dissected *Betula* spp. (Birches)
Betula pendula 'Dalecarlica' (Cutleaf Weeping Birch) with dissected leaves and *Betula papyrifera** (Paper Birch) are frequently cultivated in North Dakota.
 – Bark dark and ridged, leaf lobes obtuse *Quercus macrocarpa**, Bur Oak
 Also cultivated are: *Quercus mongolica* (Mongolian Oak), it has leaves with undeveloped, teeth-like lobes; and *Quercus ×bimundorum* (Prairie Stature Oak) which has leaves deeply lobed in the upper half.
- 51 (47). Leaves 1–2 cm long, rhombic ovate to rhombic obovate; fruit dry *Spiraea* spp. (Spirea)
 See also 92.
 – Leaves bigger, variably orbicular, fruit fleshy (a berry) *Ribes* spp. (Currants and gooseberries)
 North Dakota native *Ribes odoratum** (Golden Currant) and European *Ribes alpinum* (Alpine Currant) are most frequently cultivated ornamental species.
 Also cultivated is *Physocarpus opulifolius* (Common Ninebark) with papery, detachable bark and dry fruits.
- 52 (42). Leaves silvery on both sides (this is visible better on younger leaves) 53.
 – Leaves not silvery or at least upper leaf surface not silvery 55.
53. Leaves opposite; fruit red when ripe *Shepherdia argentea** (Silver Buffaloberry)
 – Leaves alternate, fruit silvery when ripe 54.
 If leaves are alternate but fruit bright orange or red when ripe, this is likely the *Hippophaë rhamnoides* (Common Sea-Buckthorn), Eurasian plant often cultivated for its berries.
54. Petiole about 3 mm long; leaves ovate, wavy-curved; fruit globose; shrubby
 *Elaeagnus commutata** (Silverberry)
 – Petiole about 1 cm long; leaves lanceolate, flat; fruit ellipsoidal; treelike
 *Elaeagnus angustifolia* (Russian Olive)
- 55 (52). Leaves small (typically less than 5 cm), obovate, often reddish, gathered in fascicles; stems spiny *Berberis thunbergii* (Red Barberry)
 – Leaves not so 56.
56. Leaves opposite, sub-opposite (see Glossary), or whorled 57.
 – Leaves alternate 68.
57. Leaves sub-opposite; end of twig frequently modified into a thorn 58.
 – Leaves opposite or whorled; twigs not thorny 59.
58. Leaves nearly as broad as long *Rhamnus cathartica** (Common Buckthorn)
 – Leaves over twice as long as broad *Rhamnus davurica* (Dahurian Buckthorn)
- 59 (57). Leaves regularly toothed 60.
 – Leaf margins entire or irregularly toothed 61.
60. Leaf margins finely serrate, leaves glabrous, large shrubs or small trees
 *Viburnum lentago** (Nannyberry)
 – Leaf margins conspicuously serrate, leaves pubescent, small shrubs
 *Hydrangea arborescens** (Smooth Hydrangea)
 Two other Asian species of hydrangeas with glabrous leaves are also in cultivation, *Hydrangea paniculata* (leaves elongated), and *Hydrangea macrophylla* (leaves broadly ovate). Both are small shrubs.
- 61 (59). Trees with large heart-shaped whorled leaves *Catalpa speciosa** (Northern Catalpa)

- Shrubs with elliptic opposite leaves 62.
- 62. Petioles less than 5 mm long; pith usually hollow 63.
 - Petioles 5 mm long or more; pith usually solid 65.
- 63. Small native shrubs; fruit white, twig usually reddish brown 64.
 - Large shrub; fruit orange or red; leaves acute; twigs tan, with hollow pith
 *Lonicera tatarica* (Tatarian Honeysuckle)
 Other similarly looking species of honeysuckles are cultivated, e.g. *Lonicera maackii* (Amur honeysuckle) with acuminate leaves and red poisonous fruits, and *Lonicera caerulea** with acute leaves and edible blue fruits. Most of non-native honeysuckles are dangerous invasive plants in U.S.
 In addition to honeysuckles, other shrubs of this family (Caprifoliaceae) such as native North Dakotan *Diervilla lonicera** (Northern Bush Honeysuckle) with yellow flowers, and Chinese *Weigela florida* (Flowering Weigela) with pink flowers, are cultivated. Both have leaves wider than *Lonicera* above, acuminate, elliptic or ovate, with serrate margins. While in *Lonicera* flowers (and fruits) are frequently in pairs, *Diervilla* and *Weigela* bear small multi-flowered clusters.
- 64. Leaves usually greater than 3 cm *Symphoricarpos occidentalis** (Western Snowberry)
 - Leaves smaller *Symphoricarpos albus** (Snowberry)
 These two species could be distinguished safely only when flower: stamens of *Symphoricarpos occidentalis* are exerted from the corolla whereas stamens of *S. albus* are included in the corolla.
- 65 (62). Twigs winged, with longitudinal emergences *Euonymus alatus* (Burning Bush)
 - Twigs smooth 66.
- 66. Twigs bright red; venation arcuate; fruit a white drupe ... *Cornus sericea** (Redosier Dogwood)
 - Twigs a greenish or brownish; venation netted; fruit a capsule 67.
- 67. Leaves green or light green, ovate, basal veins not in grooves ... *Syringa vulgaris* (Common Lilac)
 - Leaves dark green, circular or wide ovate, basal veins in grooves
 *Syringa meyeri* (Korean Dwarf Lilac)
 There are many other species and hybrids of lilacs in cultivation, e.g., *Syringa pubescens* which also has dark green leaves with veins in grooves, but they are more elongated, with the long tip.
- 68 (56). Trees 69.
 - Shrubs 85.
- 69. Leaves conspicuously heart-shaped; fruit a nut suspended from a wingy bract 70.
 - Leaves not so; fruit not so 71.
- 70. Leaves green below, midvein is 10 cm or more, fruit with the thick wall (not easy to crush with fingers) *Tilia americana** (American Linden, Basswood)
 - Leaves glaucous below, midvein is 6 cm or less, fruit with the thin wall (easy to crush with fingers)
 *Tilia cordata* (Littleleaf Linden)
 Hybrids between these two species, *Tilia* × *flavescens* are often cultivated in North Dakota. They are visually similar to *T. americana* but with have leaves with midvein 6-8 cm and coarse acuminate teeth.
 Asian *Tilia mongolica*, with prominent, long teeth or even sharp lobes, is also cultivated in the state.
 Older white mulberry (*Morus alba*) trees also have almost non-lobed heart-shaped leaves, but at least some leaves are with 3-5 obtuse lobes, and leaf base is almost always symmetric. See the 49.
- 71 (69). Bark white; peeling horizontally, marked by horizontal lenticels
 *Betula papyrifera** (Paper Birch)
 - Bark not so 72.
- 72. Petioles flattened, about as long as a leaf blade 73.
 - Petioles round, less than $\frac{3}{4}$ as long as leaf blade 74.
- 73. Leaves deltoid; bark dark and rough *Populus deltoides** (Cottonwood)
 - Leaves oval orbicular, bark light and smooth *Populus tremuloides** (Quaking Aspen)

- 74 (72). Leaves lanceolate or linear; buds with single caplike scale *Salix* spp. (Willows)
Multiple willow species are cultivated. While their identification is beyond the scope of this manual, most important are *Salix pentandra** (Laurel Leaf Willow) and *Salix* × 'Prairie Cascade' and other "weeping willows" (hybrids with participation of true weeping willow, *Salix babylonica*).
- Leaves broader; buds with several imbricate scales 75.
75. Twigs usually with definite thorns; leaves prominently doubly serrate
..... *Crataegus* spp. (Hawthorn)
Multiple species are cultivated, including North Dakota native *Crataegus chrysocarpa** (Fireberry Hawthorn), extremely spiny small tree, and more ornamental (and less spiny) *Crataegus × mordenensis* (Morden Hawthorn).
- Twigs without definite thorns, serration varies but if tree somewhat thorny, then leaves singly serrate 76.
76. Leaf apex rounded; leaf shape oval; leaf base entire
..... *Amelanchier** spp. (Juneberries, Serviceberries)
Multiple species are in cultivation including North Dakota native *Amelanchier alnifolia** (Saskatoon Serviceberry).
- Leaf apex pointed; leaf shape ovate, obovate, elliptical; serrate to base of leaf 77.
77. Leaves two-ranked (see Glossary) 78.
- Leaves not two-ranked 81.
- 78 (76). Leaves symmetric at base, fruits with broad wings, in catkins
..... *Ostrya virginiana** (Hophornbeam)
- Leaves asymmetric at base, fruits different 79.
79. Pith chambered at nodes; leaves light green with three main veins; fruit a drupe
..... *Celtis occidentalis** (Common Hackberry)
- Pith not chambered; leaves deep or bright green with one main vein; fruit a spring ripening samara 80.
80. Leaves over 5 cm long, dull above; twigs coarse *Ulmus americana** (American Elm)
- Leaves 5 cm long or less; shiny above; twigs fine *Ulmus pumila* (Siberian Elm)
Closely related *Ulmus davidiana* (Japanese Elm) has slightly bigger leaves with maximal width above the middle.
- 81 (77). Buds large, odorate and gummy; leaves gray or rusty below
..... *Populus balsamifera** (Balsam Poplar)
- Buds not so; leaves not so 82.
82. Leaves often ovate or elliptic, not shiny, hairy beneath; lateral buds often on short deflected shoots covered with bark similar to rolled up long shirt sleeves; fruit a pome
..... *Malus* spp. (Apples and Crabapples)
Multiple species in cultivation, from *Malus domestica* (Apple Tree) to numerous crabapples with small pomes (e.g., *Malus baccata*). Similar to apples are pears (*Pyrus ussuriensis* and other species), they differ by having sharp lateral buds and leathery, shiny leaves.
- Leaves often oblong, shiny, glabrous beneath; lateral buds not so; fruit a drupe 83.
83. Serrations glandular tipped; twigs reddish; central stem noticeable
..... *Prunus pensylvanica** (Pin Cherry)
- Serrations without glands; bark gray; branchy crown 84.
84. Petiole hairy; veins prominent; some short twigs thornlike
..... *Prunus americana** (American Plum)
- Petiole glabrous; veins not prominent; not thornlike *Prunus virginiana** (Chokecherry)
- 85 (68). Buds with several imbricate scales 86.
- Buds with single caplike scale *Salix* spp. (Willows)

86. Dark glossy green leaves without serrations; insignificant pinkish-white flowers; black pea-sized pomes *Cotoneaster lucidus* (Hedge Cotoneaster)
 – Leaves at least partially serrate 87.
87. Leaves usually double serrate 88.
 – Leaves usually singly serrate 89.
88. Petiole hairy; fruit husk without beak *Corylus americana** (American Hazelnut)
 – Petiole glabrous; fruit husk with a long beak *Corylus cornuta** (Beaked Hazelnut)
- 89 (87). Leaf apex rounded; leaf shape oval; leaf base entire
 *Amelanchier** spp. (Juneberries, Serviceberries)
 – Leaf apex pointed; leaf shape ovate, obovate or elliptical; serrate to base of leaf 90.
90. Serrations glandular tipped; bark reddish; central stem usually noticeable
 *Prunus pensylvanica** (Pin Cherry)
 – Serrations without glands; bark gray; central stem is absent 91.
91. Petiole hairy; veins prominent; some short twigs thornlike
 *Prunus americana** (American Plum)
 – Petiole glabrous; veins not prominent; not thornlike 92.
 Also cultivated is *Prunus tomentosa* (Nanking Cherry) with hairy leaves and petioles, prominent veins and no thorns.
92. Leaves usually with large teeth (up to 1/4 of the radius), rhombic; fruit dry
 *Spiraea* spp. (Spirea)
 Most frequently cultivated spireas are *Spiraea ×vanhouttei* (leaves obovate, sometimes lobed), *Spiraea betulifolia** (leaves elliptic), *S. ×bumalda* (leaves oblong), *Spiraea japonica* (leaves ovate, frequently with yellow tint), and *Spiraea nipponica* (leaves narrow, lanceolate).
 – Leaves with smooth margin or small appressed teeth, not rhombic; fruit fleshy 93.
93. Leaves narrowly elliptical; leaf base acute *Prunus pumila** (Sand Cherry)
 – Leaves ovate or obovate; leaf base rounded or obtuse *Prunus virginiana** (Chokecherry)

Glossary

Achene	Small, dry, one-seeded fruit.
Acuminate	With long pointed tip.
Acute	With triangle-shaped tip.
Alternate	Bud or leaf arrangement (singly) along a stem at spiraled intervals.
Appressed	Flattened against.
Arcuate venation	To arch or curve like the veins in Dogwood (Cornus).
Ascending	Rising somewhat obliquely and curving upward.
Awl-shaped	Linear, with sharp pointed end.
Blade	The broad, flat, green part of the leaf.
Bract	A modified leaf from the axil of which a flower or flower cluster arises.
Capsule	Pod consisting of two or more chambers.

Catkin	A scaly-bracted spike of unisexual flowers.
Compound	A leaf that is made up of more than one leaf blade, termed leaflets.
Conical	Cone shaped.
Coniferous	Cone bearing trees and shrubs.
Cultivar	A cultivated variety as distinguished from a botanical variety.
Dichotomous venation	Each vein divided into two.
Deciduous	Not persistent, leaves falling in autumn.
Drupe	Fleshy fruit with a pit or stone.
Drupelet	A small drupe.
Entire margin	Unbroken, without teeth or lobes.
Erose	Irregularly toothed or eroded.
Evergreen	Retains leaves year-round.
Fascicle	A small bundle.
Follicle	A dry, dehiscent fruit developed from a simple ovary and splitting along one suture.
Glabrous	Without hair, smooth.
Glandular	Small, usually shiny bumps on the surface.
Globose	Spherical.
Imbricate	Overlapping, like shingles on a roof.
Inconspicuous	Small, not readily noticed by the naked eye.
Incurved	Curved inward.
Lateral buds	Those buds below the terminal buds where side branches arise.
Leaflet	A single segment of a compound leaf.
Lenticel	A breathing pore in young bark, appearing as a light-colored, often lens-shaped, dot.
Miticide	A chemical that is used to control or kill mites.
Needle	Elongate, linear, sharp-pointed leaves.
Nut	Dry 1-seeded indehiscent fruit.
Opposite	Growing in pairs but separated by a stem.
Palmate	With three or more lobes, veins or leaflets arising from one point.
Pendulous	Hanging down.

Petiole	The stalk of a leaf.
Pinnate	Compound leaf with leaflets on either side of central axis.
Pith	Spongy center of a twig; if it has crosswalls, it is called “chambered.”
Pome	Fleshy fruit with a core, such as a crabapple.
Resinous	Sticky with resin.
Samara	Dry fruit with a membranous wing.
Scale	Bud covering or tiny, blunt leaf.
Scar	Place where leaf base was attached to stem.
Schizocarp	Winged, samara-like fruits borne in pairs.
Scurfy	Scaly or flaky on the surface.
Serrate	With sharp teeth along the margin pointing forward.
Sessile	With no stalk or petiole.
Sinus	The space between lobes.
Spines	Stipular spines came out of stipules, they are usually paired and attached to leaf bases; cortical spines came out of stem surface, they do not correspond with leaves.
Spur	A saclike or tubular projection on a sepal or petal.
Stipules	Small (usually) paired (usually) attachments to the base of leaf petiole, they are not similar to leaflets.
Stomatiferous	Many pores on the epidermis of a leaf and appearing as many white dots or lines.
Sub-opposite	A bud/leaf arrangement in which they are close to being opposite from each other, but one is slightly lower than the other.
Thorns	Prominent, sharp leafless shoots.
Two-ranked	Appearing to come from only two sides of the twig; not equally distributed around the twig.
Venation	Pertaining to the vein pattern in the leaf blades.