Clements, F. E. and others

Guide to the trees and shrubs of Minnesota.
Minnesota Plant Studies

II. GUIDE TO THE TREES AND SHRUBS OF MINNESOTA

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GUIDE

TO THE

TREES AND SHRUBS OF MINNESOTA

SECOND EDITION

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C. O. Rosendahl, F. K. Butters

University of Minnesota
Minneapolis
September 1910
Preface

The first edition of the "Guide to the Trees and Shrubs of Minnesota" is completely exhausted. In the preparation of a new edition, the text and keys have been revised, and a number of species, especially cultivated ones, have been added. Occasion has also been taken to provide a number of illustrations, for the sake of giving the student a clearer idea of contrasting terms. The illustrations have been drawn from Gray's "Lessons in Botany," and the authors are under obligation to the publishers, the American Book Company, and to the holders of the copyright of the book for kind permission to use them. As with the other numbers of "Minnesota Plant Studies," copies of the "Guide to Trees and Shrubs" are furnished free upon request. Ten copies are sent free to each high school, academy or college in the State, and additional copies may be obtained at cost, ten cents per copy. The following list indicates the present scope of "Minnesota Plant Studies"; additional numbers of various groups of plants are in preparation.

1. Guide to the Spring Flowers of Minnesota; March 1908 (exhausted)
2. Guide to the Trees and Shrubs of Minnesota; October 1908 (exhausted)
3. Guide to the Ferns and Fern Allies; July 1909
5. Guide to the Trees and Shrubs, second edition; September 1910
6. Minnesota Mushrooms; September 1910
7. Guide to the Autumn Flowers; September 1910

Of the other publications of the Botanical Survey available for schools and plant lovers, "Minnesota Algae" is sent free upon request. The edition of "Minnesota Plant Diseases" is nearly exhausted, and copies can be furnished only to students and those who can make especial use of it. The edition of "Minnesota Plant Life" is completely exhausted, and copies can be obtained only through the dealers in second-hand books.

The University of Minnesota
September 1910

FREDERIC E. CLEMENTS,
Professor of Botany and State Botanist.
Introduction

HOW TO USE THE KEY.

The name of a plant consists as a rule of two parts or words, for example, *Pinus strobus*, *Ulmus americana*, *Acer saccharum*, etc. The first word indicates the *genus*, and is always capitalized. The second word indicates the *species*, or kind, and is never capitalized. The meaning of the terms *genus* (plural, *genera*) and *species* (plural, *species*) may be clearly illustrated by the pines and maples. The white pine, jack pine and Norway pine are different kinds, or *species*, of the *genus* of pines, *Pinus*, each one designated by a species name, e.g., *Pinus strobus*, *P. divaricata* and *P. resinosa*, respectively. The hard maple, soft maple, red maple and the boxelder are different species of the maple *genus*, *Acer*; they are designated by the respective species names, *Acer saccharum*, *A. rubrum* and *A. negundo*. Genera which are related to each other are placed in the same family, for example, the pines, spruces, firs and larches in the pine family, *Pinaceae*; the roses, apples, plums, cherries, hawthorns, etc. in the rose family, *Rosaceae*. The ending, *-aceae*, which is always used to denote a family, is the feminine plural of the Latin suffix, *-aceus*, meaning *like* or *related to*. The related families are themselves grouped into orders, which also bear a distinctive ending, e.g., *Pinales*, *Rosales*. This ending is likewise in the feminine plural, and the meaning of the name is "plant families related to the pine family," etc. Orders are further arranged into larger groups, such as *Monocotyledons*, flowering plants with a single seed leaf, scattered bundles in the stem, parallel-veined leaves, and a flower.
INTRODUCTION.

plan of 3, and *Dicotyledons*, with two seed leaves, ringed bundles, netted-veined leaves and a flower plan of 5 or 4. These two groups form the *Angiosperms*, with closed pistils and usually with sepals and petals, which are contrasted with the *Gymnosperms*, with open pistils and no sepals or petals.

III. LEAF EDGES.

III. LEAF EDGES.

![Leaf Edges Diagram]


In using the key, the beginner will note that he must choose between "I. Leaves needle-like or scale-like" and "II. Leaves not needle-like or scale-like.

III. LEAF EDGES.

In the case of the oak, for example, choice is made of II, and the decision then lies between "I. Trees" and "2. Shrubs and vines." The choice of I leads to "a. Leaves simple" and "b. Leaves compound," and then under a to "(1) Leaves not lobed" and "(2) Leaves lobed," and so on by the method of choice until one is lead to the oak genus, *Quercus*. Upon turning to page 16, the student should verify his choice by deciding whether the plant in question agrees with the family and genus descriptions, and then find the name of the species by means of the key given under each genus. In tracing a plant, the beginner should avoid at every turn the temptation to guess at the points of structure necessary for making a choice. This is equally true of the terms used: it is useless to attempt to find the name of a plant without a clear-cut idea of the difference between simple and compound, opposite and alternate, toothed and entire leaves, etc. Technical terms have been avoided in so far as possible, but the simpler ones are indispensable, and the student should familiarize himself with them as soon as possible. A careful study of the accompanying illustrations will soon give him the knowledge necessary to the ready and trustworthy use of the keys.

IV. LEAF TIPS.

IV. LEAF TIPS.

![Leaf Tips Diagram]


V. LOBED LEAVES.

V. LOBED LEAVES.

![Lobed Leaves Diagram]


PRONUNCIATION

The names of plants, families, etc., are pronounced as in Latin. The accent has been indicated for each name. Quantity has not been indicated, since for the beginner all vowels may well be regarded as long. Consonants are essentially the same as in English, with the exception of *c* and *g*, which are always hard, *j* pronounced...
like y and v like AV. The sound of the vowels may be indicated as follows: a as ah; e as ay; i as ee; o as oh; u as oo; Greek y much like the German ü. The diphthongs are as follows: ae as aye; au as ow in how; oe as oy; ei as ay; eu as eoo; ui as ooe.

**VERIFICATION AND DETERMINATION OF SPECIMENS**

The beginner will necessarily find occasional plants which he is unable to name. Even the student of more experience will now and then find very puzzling forms. In such cases, it is necessary to refer the question to a good herbarium if one is accessible, or to the botanist. The department of botany will be glad to have fresh or dried plants sent to it for verification or determination at any time. This applies to mushrooms and other lower forms as well as to flowering plants. Fresh specimens can be sent readily through the mails by wrapping them in moist paper and placing them in a paste-board box. The department will also be glad to verify the dried specimens in the herbaria of high schools or of individual students.
Key to the Genera

I. Leaves needle-like or scale-like
   1. Leaves alternate or fascicled
      a. Leaves all alternate and scattered
         (1) Trees with fragrant leaves
            (a) Leaves square, inserted on prominent bases
            (b) Leaves flat
               x. Leaves bright green; cones hanging
               y. Leaves dark and glossy above, whitish below;
                  cones erect
         (2) Shrubs, leaves not fragrant
            (a) Leaves minute and scale-like, less than 2 mm. long
            (b) Leaves more than 2 mm. long, not scale-like
               x. Leaves turned in at the edge, blunt
               y. Leaves flat, sharp-pointed
      b. Leaves or some of them fascicled
         (1) Leaves deciduous, many in each fascicle
         (2) Leaves persistent, 2-5 in each fascicle
   2. Leaves opposite or in whorls of three
      a. Leaves in whorls of three, needle-like, jointed at base
      b. Leaves opposite, scale-like, appressed on mature branches
         (1) Twigs flattened; pairs of leaves of two kinds alternating
         (2) Twigs not flattened; leaves all alike on the same twigs
   II. Leaves not needle-like or scale-like
      1. Trees
         a. Leaves simple
            (1) Leaves not lobed
               (a) Leaves ovate to round, broad
               x. Leaves entire, very large
               y. Leaves serrate to dentate
                  (x) Twigs very tough; fruit round, persistent,
                      stalk winged
                  (y) Twigs brittle; fruit disappearing in spring
               (b) Leaves somewhat oblong, much longer than broad
               x. Leaves opposite
               y. Leaves both opposite and alternate, persistent in autumn
               z. Leaves alternate
                  (x) Leaves two-ranked, or apparently so
                  m. Sap milky; small trees
                  n. Sap not milky
                     (m) Leaves with one distinct midvein
                     r. Bark smooth, except when very old,
                        splotched
                     s. Bark rough
            Catalpa: catalpa 22
            Tilia: basswood 20
            Populus: cottonwood 19
            Viburnum: black haw 18
            Rhamnus: buckthorn 13
            Morus: mulberry 20
            Carpinus: hornbeam 16
KEY TO THE GENERA.

(r) Leaves very oblique at base; bark coarsely furrowed
   Ulmus: elm 20
(s) Leaf base not oblique; bark finely furrowed
   Ostrya: ironwood 16
(n) Leaves with three large veins at base; bark ridged
   Celtis: hackberry 20
(y) Leaves not two-ranked
   Betula: birch 16
   m. Bark with long conspicuous lenticels
   n. Bark without conspicuous lenticels
   (m) Leaves doubly serrate or toothed
   r. Stems and twigs more or less thorny
   s. Stems and twigs without thorns
   (n) Leaf margin with a single row of teeth
   r. Buds small, scales overlapping, many; fruit fleshy
   s. Buds larger, covered by a single scale; fruit dry
   Prunus: plum, cherry 11
   Salix: willow 19
   (2) Leaves lobed
   (a) Leaves opposite
   Acer: maple 15
   (b) Leaves alternate
   Morus: mulberry 20
      x. Leaves two-ranked
      y. Leaves more than two-ranked
      (x) Leaves deeply cut-lobed; bark white
      m. Leaves small, bark separating into papery layers
      n. Leaves silvery beneath, bark not papery
      (y) Leaves less lobed; bark not white
      m. Leaf margin toothed
      (m) Stems and twigs thorny
      s. Stems and twigs without thorns
      (n) Leaf margin entire
      (2) Leaves pinnate
      (a) Leaves even-pinnate
      x. Leaves twice-compound
      (x) Leaves 3-9 dm. long; leaflets ovate
      (y) Leaves 1-2½ dm. long; leaflets oblong
      y. Leaves once-compound
      (b) Leaves odd-pinnate
      x. Leaves opposite
      (x) Leaflets entire or finely serrate
      (y) Leaflets lobed or doubly serrate
      y. Leaves alternate
      (x) Leaflets entire
      (y) Leaflets at least finely serrate
      m. Large tree; fruit a nut
      (m) Pith in plates; leaflets 11-23
      n. Small trees; fruit fleshy, bright red
      (m) Sap milky
      (n) Sap not milky
   2. Shrubs or vines
      a. Leaves evergreen and leathery
      (1) Creeping or prostrate shrubs
      (a) Leaves narrowly linear, thick, edges folded back
      (b) Leaves lanceolate to rounded, rarely linear
      Empeirum: crowberry 15
      (1) Leaves pinnate
      (a) Leaves even-pinnate
      x. Leaves twice-compound
      (x) Leaves 3-9 dm. long; leaflets ovate
      (y) Leaves 1-2½ dm. long; leaflets oblong
      y. Leaves once-compound
      (b) Leaves odd-pinnate
      x. Leaves opposite
      (x) Leaflets entire or finely serrate
      (y) Leaflets lobed or doubly serrate
      y. Leaves alternate
      (x) Leaflets entire
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      y. Leaves once-compound
      (b) Leaves odd-pinnate
      x. Leaves opposite
      (x) Leaflets entire or finely serrate
      (y) Leaflets lobed or doubly serrate
      y. Leaves alternate
      (x) Leaflets entire
      (y) Leaflets at least finely serrate
      m. Large tree; fruit a nut
      (m) Pith in plates; leaflets 11-23
      n. Small trees; fruit fleshy, bright red
      (m) Sap milky
      (n) Sap not milky
Oxycoccus: cranberry 21
Chiogenes: snowberry 21
Gaultheria: wintergreen 21
Vaccinium: mountain cranberry 21
Arctostaphylus: bearberry 21
Epiacca: trailing arbutus 21

(2) Erect shrubs
(a) Leaves entire, with revolute margins
x. Leaves woolly below
y. Leaves smooth and white below
(x) Leaves opposite or in threes
(y) Leaves alternate
(b) Leaves finely toothed

b. Leaves deciduous

(1) Leaves simple
(a) Leaves not lobed on mature twigs
x. Leaves opposite
(x) Leaves entire
m. Leaves silvery-scurfy
n. Leaves green
(m) Stems hollow
r. Low shrubs ½-1 m. high
s. Tall shrubs or vines, over 1 m. high
(n) Stems solid
r. Leaves pale or hairy beneath
(r) Leaves very short-petioled
(s) Leaves long-petioled
s. Leaves not pale or hairy beneath
(y) Leaves toothed
m. Leaves mostly in whorls of three
n. Leaves in twos, strictly opposite
(m) Buds hidden by the petiole
(n) Buds not hidden
r. Leaves coarsely toothed
s. Leaves finely serrate
(r) Bark ridged, roots white
(s) Shrub 0.7-1.3 m. high; bark not ridged
h. Petioles distinct; natives
i. Petioles very short or lacking; cultivated
(t) Shrub 2-5 m. high, petioles wide and glandular

y. Leaves alternate or fascicled
(x) Thorny shrubs with fascicled leaves
(y) Shrubs or vines with alternate leaves
m. Leaves entire
(m) Leaves silvery
(n) Leaves not silvery
r. Thorny vines

Lepargyraea: buffalo berry 14
Symphoricarpus: wolf-berry 18
Lonicera: honeysuckle 18
Lonicera: honeysuckle 18
Cornus: dogwood 17
Syringa: lilac 20
Hydrangea: hydrangea 12
Philadelphus: syringa 12
Viburnum: viburnum 18
Enonymus: burning bush 13
Dierocilla: bush honeysuckle 18
Weigelia: weigelia 18
Viburnum: black haw 18
Berberis: barberry 8
Elagagnos: silverberry 14
Similax: smilax 9
**KEY TO THE GENERA.**

s. Smooth shrubs
   (r) Tall shrub; leaves crowded at tips of twigs  
   (s) Low shrubs  
      h. Bark very tough  
      i. Bark not especially tough  
      (h) Leaves resinous below  
      (i) Leaves not resinous  

n. Leaves toothed
   (m) Twining vine  
   (n) Shrubs  
   r. Leaves with three distinct veins  
   s. Leaves pinnately veined
      (r) Leaves unequal at base  
      (s) Leaf bases equal  
      h. Shrubs with spines or thorns
         (h) Spiny shrubs, about 1 m., leaves smooth and glossy above  
         (i) Thorny shrubs, taller, leaves not glossy  
      i. Shrubs without thorns
         (h) Leaves blunt to rounded at tip
            p. Leaves fragrant  
            q. Leaves not fragrant
               (p) Cultivated shrub  
               (q) Native shrubs
                  e. Tall shrub; leaves over 5 cm.  
                  f. Low shrub; leaves less than 5 cm.
                     (e) Swamp shrubs  
                     (f) Shrubs of dry ground  
         (i) Leaves acute to long-pointed at tip
            p. Leaves long-pointed
               (p) Leaves broadly ovate
               (q) Leaves lanceolate to linear  
            q. Leaves acute but not long-pointed
               (p) Fruit fleshy
                  e. Fruit with a single stone  
                  f. Fruit several-seeded
                     (e) Fruits solitary or 1-3 in a cluster
                        v. Fruit red  
                        w. Fruit black, some leaves often opposite
                           (f) Fruits several or many in a loose cluster
                              v. Fruit ripening in mid-summer  
                              w. Fruit ripening in the fall  
                              g. Fruit many-seeded  
                              (q) Fruit dry
                                 e. Fruits in catkins; seeds cottony
                                 f. Fruits in branched clusters  
                                (b) Leaves lobed
                                   x. Leaves opposite
                                   
                               Cornus: dogwood 17
                               Dirca: leatherwood 14
                               Gaylussacia: huckleberry 22
                               Ilex: winterberry 14
                               Rhamnus: buckthorn 13
                               Amelanchier: juneberry 10
                               Aronia: chokeberry 11
                               Vaccinium: huckleberry 21
                               Prunus: plum, cherry 11
                               Salix: willow 19
                               Spiraea: spiraea 9
KEY TO THE GENERA.

(x) Petioles usually with stipules and glands
(y) Petioles without stipules or glands
m. Leaves sharply and deeply lobed
n. Leaves crenately lobed

y. Leaves alternate
(x) Leaf margin entire
m. Vines with broad palmately veined leaves
n. Low aromatic shrub with linear leaves
o. Low densely silky shrubs; leaves with 3-9 linear lobes
(y) Leaf margin toothed
m. High-climbing vines
   (m) Tendrils coiling, without disks
   (n) Tendrils attached by disks
n. Shrubs
   (m) Bark many-layered, splitting into shreds
   (n) Bark firm
   r. Tall shrub with thorns
   s. Bushes, sometimes prickly
      (r) Leaves 1-2½ dm. broad
      (s) Leaves 1-10 cm. broad
   h. Leaves broad, deeply lobed
   i. Leaves longer than broad, slightly lobed

(2) Leaves compound
(a) Leaves pinnate
x. Leaves opposite
   (x) Vines
      m. Flowers solitary, usually on the old wood
      n. Flowers clustered on the new wood
   (y) Shrubs
   y. Leaves alternate
      (x) Leaf margin entire
         m. Leaves odd-pinnate
            (m) Tall spiny shrub with aromatic leaves
            (n) Low bristly shrub; leaves not aromatic
            (o) Neither spiny nor aromatic
               r. Leaflets over 5 cm. long
                  s. Leaflets 5 cm. or less
               (r) Leaflets 5-7
                  (s) Leaflets 11-49
            n. Leaves even-pinnate
               (y) Leaf margin toothed
                  m. Leaflets 3-5
                     (m) Low small shrub or tall vine; leaflets obscurely toothed or sometimes lobed
                     (n) Spiny bushes; leaflets coarsely toothed
                     (o) Smooth shrubs; leaves finely serrate
            n. Leaflets 5-many
               (m) Bushes or vines, usually prickly
               (n) Shrubs
                  r. Sap milky
                  s. Sap clear
                     (r) Tall native shrub
                     (s) Low cultivated shrub
            (b) Leaves palmate
               x. Vine with tendrils
               y. Bushes

Viburnum: viburnum 16
Acer: maple 15
Symphoricarpus: snowberry 18
Menispermum: moonseed 9
Comptonia: comptonia 17
Artemisia: wormwood 19
Vitis: grape 14
Parthenocissus: Boston ivy 13
Opulaster: ninebark 9
Crataegus: hawthorn 11
Rubus: raspberry 9
Ribes: currant, gooseberry 12
Spiraea: spiraea 9
Atragene: atragene 8
Clematis: clematis 8
Sambucus: elderberry 18
Xanthoxylum: prickly ash 20
Robinia: rose acacia 12
Rhus: poison sumac 15
Potentilla: potentilla
   .Amorpha: amorpha 12
   Caragana: pea tree 12
Rhus: poison ivy 15
Rubus: raspberry, blackberry 9
Staphylea: bladder nut 14
Rhus: sumac 15
Sorbus: mountain ash 10
Sorbaria: 10
Parthenocissus: woodbine 13
Rubus: blackberry 9
Spermatophytes  Flowering Plants
Gymnospermae  Gymnosperms
Pinales  Pine Order
Pináceae—Pine Family

Resinous trees or shrubs; leaves needle-like or scale-like, usually evergreen; flowers monoeccious or dioecious, cone-like; staminate of an elongated axis bearing numerous scale-like or peltate stamens; the pistillate flower of an axis bearing scales in a single or double series, the fertile scales bearing 1-many (usually 2) naked ovules; fruit usually a cone with hard dry scales, occasionally berry-like, the scales becoming fleshy.

**Picea—Spruce**
(L. *picea*, pitch pine)

Evergreen trees; leaves needle-like, usually four-cornered in cross-section, sharp-pointed; cones pendulous with persistent scales.
1. Leaves glaucous
2. Leaves green
   a. Cones over 8 cm. long
   b. Cones less than 8 cm. long
      (1) Twigs glabrous and glaucous; leaves light-green
      (2) Twigs pubescent; leaves dark green

**Pseudotsug-a—Douglas Spruce**
(Gr. *pseudes*, false, Jap. *tsuga*, hemlock)

Evergreen trees; leaves needle-like, flat in cross-section, soft and blunt; cones pendulous with persistent scales and conspicuous three-pointed bracts.
A single species

**Abies—Balsam Fir**
(L. *abies*, silver fir)

Evergreen trees; leaves needle-like, flat in cross-section, firm and blunt; cones erect, scales falling away from the persistent axis.
Trees with fragrant leaves and balsam-bearing bark.

**Lárix—Larch, Tamarack**
(L. *larix*, larch tree)

Deciduous trees; leaves needle-like, very many in each fascicle, soft, bright-yellow in the fall; cones erect or ascending, with persistent scales.
1. Cones 1-2 cm. long; native swamp tree
2. Cones 3-5 cm. long; cultivated

**Pinus—Pine**
(L. *pinus*, pine tree)

Evergreen trees; leaves needle-like, in fascicles of 2-5; cones ascending to pendulous, with persistent scales.
1. Leaves five in each fascicle
2. Leaves two in each fascicle
   a. Leaves 10-15 cm. long, thick
      (1) Leaf sheath long; native
      (2) Leaf sheath short, leaf sharp-pointed; cult.
   b. Leaves 3-8 cm. long, flat
      (1) Erect trees
         a. Leaves not rigid, twisted, 3-7 cm. long; cultivated
         b. Leaves rigid, straight, 2-4 cm. long; native
      (2) Dwarf tree or shrub; cultivated
**PINE FAMILY—MOONSEED FAMILY.**

Thúja—White Cedar, Arbor-Vitae
(Gr. thyia, arbor vitae)
Evergreen trees or shrubs; leaves scale-like, small, in opposite pairs, twigs flattened; cones very small, with a few persistent scales.
Swamp tree with flat twigs and scale-like fragrant leaves

Sabína—Red Cedar, Savin
(L. sabina, a kind of juniper)
Evergreen trees or shrubs; leaves scale-like, or needle-like, opposite; cones fleshy, berry-like, blue.
1. Tree or tall shrub
2. Depressed or creeping glaucous shrub

Juníperus—Juniper
(L. juniperus, juniper tree)
Evergreen shrubs; leaves awl-shaped in whorls of 3; cones berry-like, blue.
Shrub with awl-shaped leaves in whorls of 3, blue berries

Taxáceae—Yew Family
Evergreen shrubs or trees; flowers dioecious or monoecious, staminate flowers cone-like, consisting of an axis bearing stamens, pistillate flowers not cone-like, much reduced, the ovules commonly solitary and exposed; seeds exposed, with a fleshy outer integument.

Táxus—Yew
(L. taxus, yew tree)
Low evergreen shrub, fruit a red berry

**Angiospermae Angiosperms**

**Ranales Buttercup Order**

**Ranunculáceae—Buttercup Family**
Herbs or climbing shrubs, with simple or compound leaves; sepals 3-15, petals 0-15, stamens 5-many, pistil 1-many; flower apocarpous, apetalous or petalous, hypogynous, usually regular.

**Clématis—Clematis**
(Gr. klematis, a climbing plant)
Herbs or vines, mostly somewhat woody; leaves opposite, pinnate; fruit a feathery achene.
1. Leaflets toothed; flowering in summer
2. Leaflets entire; flowering in autumn

**Atrágene—Atragene**
(Name unexplained)
Woody vine; leaves opposite, pinnate; fruit a feathery achene.
A single species

**Berberidáceae—Barberry Family**
Herbs or shrubs with alternate simple or compound leaves; flower parts usually in whorls of 3, sepals 6-9, petals 6-9, stamens 6-18, pistil 1, simple; flower apetalous, hypogynous, regular.

**Bérberis—Barberry**
(Arabic name)
Introduced, spiny, deciduous shrubs with fascicled leaves; fruit an elongated red berry.
1. Leaves serrate; fruit in a raceme
2. Leaves entire; fruit mostly solitary

**Menispermáceae—Moonseed Family**
Twining vines with alternate leaves; sepals 4-8, petals 6-8, stamens 12-24, pistils 2-4; flower apocarpous, apetalous, hypogynous, regular.
SMILAX FAMILY—ROSE FAMILY

Menispérmum—Moonseed
(Gr. mene, moon, sperma, seed)
Twining vine with ovate leaves and greenish flowers.
A single species

Liliales  Lily Order

Smilacáceae—Smilax Family
Plants with woody or herbaceous stems, mostly vines, often prickly; leaves broad, net-veined; sepal 3, petals 3, stamens 6, ovary 3-celled; flowers syncarpous, apetalous, hypogynous, regular, dioecious.

Smilax—Greenbrier
(Gr. smilax, bindweed)
1. Leaves rounded or lanceolate, with 5 veins, prickles not very numerous. S. rotundifolia
2. Leaves with 7 veins, prickles very numerous S. híspida

Rosales  Rose Order

Rosáceae—Rose Family
Herbs, shrubs or trees with alternate simple or compound leaves; sepals 5, often with 5 bracteoles alternating with them, petals 5, or rarely 0, stamens 5-many, pistils 1-many, simple and free or with the ovaries united into a 2-10-celled compound ovary; flower apocarpous or syncarpous, apetalous, hypogynous or mostly perigynous, regular.

Poteníllá—Potentilla
(L. potens, powerful)
Herbs or bushes; leaves alternate, compound, entire, silky, leaflets 3-7; fruit of dry seed-like achenes.
A single shrubby species P. frutícosä

Rúbus—Blackberry, Raspberry
(L. rubus, bramble-bush)
Shrubs or bushes, sometimes prostrate, usually with prickles; leaves simple and lobed, or compound; fruit a multiple drupe, berry-like.
1. Leaves simple, lobed; stems unarmed R. parviflorus; thimbleberry
2. Leaves compound
   a. Stems prostrate
      (1) Leaflets thick, obtuse; scarcely shrubby R. híspida; swamp blackberry
      (2) Leaflets thin, acute; shrubby R. canadénsis; dewberry
   b. Stems erect
      (1) Prickles stout and recurved; fruit solid R. nigrobaccus; blackberry
      (2) Prickles weak; fruit hollow
         (a) Young stems with hooked bristles; rooting at tips, glaucous; fruit black R. occidentális; black raspberry
         (b) Young stems with weak glandular bristles; fruit red R. strígósus; red raspberry

Opuláster—Ninebark
(L. opulaster, a kind of wild tree)
Shrubs with very shreddy bark; leaves alternate, lobed, simple; fruit a follicle.
A single species O. intermédia

Spiraea—Spiraea
(Gr. spiráia, meadowsweet)
Small shrubs; leaves alternate, simple, toothed or lobed; fruit a follicle.
1. Leaves lobed; cultivated; spring flowering S. van houtei
2. Leaves not lobed; native; summer flowering
   a. Glabrous or nearly so throughout S. salícifólia
   b. Twigs and lower surfaces of leaves woolly-pubescent S. tomentósa
Sorbáriá

(L. sorbus, service tree)

Shrubs with alternate pinnately compound leaves; fruit a follicle.

A single species  

\[ S. \text{sorbifólía} \]

Rósa—Rose

(L. rosa, a rose)

Bushes, sometimes climbers, usually with prickles; leaves compound, odd-pinnate, leaflets 3-11; fruit fleshy and berry-like, containing many seed-like achenes.

1. Native species
   a. Flower branches unarmed or nearly so; sepals erect in fruit  
      R. blánda
   b. Stems all densely prickly
      (1) Leaflets 3-9, often resinous, obtuse at base; flowers solitary  
          R. aciculáris
      (2) Leaflets 7-11, not resinous; flowers several in a cluster  
          R. arkansána

2. Cultivated species
   a. Shrubs
      (1) Spines nearly straight, little larger at base
         (a) Leaflets more than 3 cm. long, leathery  
            R. rugósa
         (b) Leaflets about 1 cm. long, not leathery
            x. Leaves glandular, fragrant when crushed
               (x) Twigs brown, densely spiny; flowers yellow  
               R. hemisphaérica
               (y) Twigs green; spines scattered; flowers pink
               y. Leaves glabrous, scentless; spines numerous, bristle-like
               R. spinosissíma; Scotch rose
      (2) Spines enlarged at base, stout and often hooked; garden hybrids

   b. Vines
      (1) Stipules entire  
          R. setígera; prairie rose
      (2) Stipules deeply cut  
          R. multíflóra; rambler rose

Cydonía—Quince

(Named for the city Cydon in Crete)

Trees or shrubs with alternate simple leaves; fruit a many-seeded pome.

Low thorny cultivated shrub with glossy leaves and scarlet flowers C. japónica

Sórbus—Mountain Ash

(L. sorbus, service-tree)

Trees or shrubs; leaves alternate, compound, odd-pinnate, leaflets many; fruit berry-like, red and fleshy, borne in large clusters.

1. Leaflets acuminate, smooth on both sides  
   S. americána
2. Leaflets more or less obtuse, hairy on the lower side  
   S. sambucifólía

Málus—Apple

(L. malus, apple-tree)

Trees or shrubs; leaves alternate, toothed or lobed; fruit a pome.

1. Leaves narrowed at the base; native  
   M. ioáusis; wild crabapple
2. Leaves rounded or cordate at base; cultivated  
   M. malus; apple

Amelánchier—June-berry, Service-berry

(The Savoy name)

Trees or shrubs; leaves alternate, simple, toothed; fruit berry-like, red and fleshy.

1. Leaves rounded or truncate at apex  
   A. alnifólía
2. Leaves narrowed and acute at the apex
   a. Flowers and fruits 1-4 in a cluster  
      A. oligocárpa
   b. Flowers and fruits several to many in a cluster
      (1) Hairs of young leaves quickly disappearing  
          A. canadénsis
      (2) Hairs of young leaves dense, woolly and persistent  
          A. botryápium
ROSE FAMILY—PEA FAMILY

Arónia—Chokeberry
(Name unexplained)
Trees or shrubs; leaves alternate, simple, toothed; fruit berry-like.
1. Inflorescence and lower sides of leaves woolly
   A. arbutifolia
2. Inflorescence and leaves glabrous
   A. nigra

Crataégus—Thorn, Hawthorn
(Gr. krataegos, a thorn)
Trees or shrubs, usually spiny; leaves alternate, simple, usually both toothed and lobed; fruit a scarlet pome.
1. Leaves merely serrate
   a. Leaves 2-5 cm. long; thorns 5-10 cm. long
   C. crus-galli
   b. Leaves 5-8 cm. long; thorns 2-5 cm. long
   C. puncéata
2. Leaves distinctly lobed, as well as serrate
   a. Leaves broadly ovate, 8-12 cm. long; twigs dense hairy
   C. mollis
   b. Leaves elliptic to ovate, 5-8 cm. long; twigs smooth
      (1) Leaves mostly fine-hairy below
      C. succulénta
      (2) Leaves mostly smooth below
      C. cocciénea

Prúnus—Plum, Cherry
(Gr. prunus, plum tree).
Trees or shrubs; leaves alternate, simple, toothed; fruit fleshy with a single stone, i.e., a drupe.
1. Dwarf shrubs with narrow leaves
   a. Branches wand-like; leaves thin, acute at apex; eastern
   P. púmila
   b. Branches bushy; leaves thick, somewhat acute; western
   P. bésseyi
2. Large shrubs or trees; leaves usually broad
   a. Branches usually thorny; fruit solitary
      (1) Stone of fruit flat
      P. nígra
      (2) Stone of fruit round
      P. americána
   b. Branches not thorny; fruit clustered
      (1) Fruit black in a raceme; leaves strong-smelling when bruised
         (a) Shrub or small tree with broadly ovate leaves
         P. virginíina
         (b) Large tree with narrow ovate or lanceolate leaves
         P. serótina
      (2) Fruit red in a small corymb; leaves not strong-smelling
         P. peninsulvána

Fabáceae—Pea Family

Herbs, shrubs, vines or trees with alternate mostly compound leaves; sepals 4-5, petals 5. rarely fewer, stamens 10, usually in two groups, pistil 1, simple, i-many seeded; flower apopetalous, hypogynous or perigynous, irregular. The typical flower of this family, e.g., the pea, has the sepals united into an irregular cup. The petals are of three forms, an upper odd petal (standard), two lateral spreading petals (wings) and the two lower ones (keel) more or less united and enclosing the stamens and pistils. The stamens are usually united by their filaments in a group of nine, the tenth stamen being free.

Gledítsia—Honey Locust
(Named for Gleditsch)
Large thorny trees; leaves alternate, once or twice compound, even-pinnate, leaflets many; fruit a large flat twisted pod.
A single species
G. triacántha

Gymnócladus—Kentucky Coffee-tree
(Gr. gymnós, naked, klados, branch)
Trees; leaves alternate, twice-compound, even-pinnate, sometimes odd-pinnate, leaflets many; fruit a short thick pod.
A single species
G. dioécca
Robinia—Locust
(Named for the brothers Robin)
Thorny trees or shrubs; leaves alternate, compound, odd-pinnate, leaflets 9-19; fruit a flat straight pod.
1. Tree with glabrous foliage and twigs
   R. pseudacacia; locust
2. Low shrub with bristly twigs
   R. hispida; rose acacia

Amorpha—Amorpha
(Gr. amorpha, formless)
Low shrubs or bushes; leaves alternate, compound, odd-pinnate, glandular-dotted; fruit a small curved pod; in dense spikes.
1. Tall, 1-3 m. high; leaflets 2-5 cm. long
   A. fruticosa
2. Low shrubs, one third-1 m. high; leaflets 6-12 mm. long
   a. Densely silky-hairy all over
   A. canescens
   b. Smooth, or nearly so
   A. nana

Caragana—Pea tree
Shrubs or small trees; leaves alternate, compound, even pinnate; fruit a narrow pod.
1. Small tree, leaflets 8-18
   C. arborescens
2. Shrub, leaflets 4, almost palmate
   C. fruticosa

Saxifragaceae—Saxifrage Family
Shrubs or herbs; leaves alternate or opposite; sepals 5, rarely 4, petals 5, rarely none, stamens 5-10, ovary 1-several-celled; fruit various; flower syncarpous, apopetalous, perigynous to epigynous, regular.

Hydrangea—Hydrangea
(Gr. hydro, water, angeion, vessel)
Shrubs or small trees; leaves opposite or whorled, simple, toothed; fruit a membranous capsule.
A single cultivated species
H. paniculata grandiflora

Philadelphus—Mock Orange, Syringa
(Gr. philadelphon, a sweet-flowering shrub)
Shrubs; leaves opposite, simple; fruit a many-seeded capsule.
1. Leaves broadly ovate, 8-12 cm. long
   P. grandiflorus
2. Leaves elliptic or ovate-elliptic, 12-20 cm. long
   P. coronarius

Hamamelidaceae—Witch Hazel Family
Trees or shrubs; leaves alternate, simple, toothed or lobed; sepals 5-0, united, petals 4-many or none, stamens 4-many, ovary 2-celled; fruit a capsule; flower syncarpous, apopetalous or apetalous, perigynous, regular.

Hamamelis—Witch Hazel
(Gr. hamamelis, service-tree)
Shrubs; leaves alternate, simple, wavy-toothed; fruit a woody capsule.
A single species
H. virginiana

Grossulariaceae—Gooseberry Family
Shrubs with alternate or clustered leaves and often with spines; sepals 4-5, petals 4-5, stamens 4-5, ovary 1-celled; flowers syncarpous, apopetalous, epigynous, regular.

Ribes—Gooseberry, Currant
(Of uncertain derivation)
Shrubs or bushes; leaves alternate, simple, lobed; fruit a berry, red or black.
1. Stems usually with spines; gooseberries
   a. Spines stout, usually in threes
   R. uva-crispa
   b. Spines slender
   (1) Branches usually densely bristly
   R. lacustre
   (2) Branches with few or no bristles
(a) Petioles smooth  
(b) Petioles pubescent  
  x. Berries prickly  
  y. Berries smooth

2. Stems always smooth; currants  
a. Leaf lobes few-toothed or entire  
b. Leaf lobes toothed throughout  
   (1) Leaves with resinous dots, at least below  
      (a) Swamp species  
      (b) Woodland species  
   (2) Leaves without resinous dots  
      (a) Upright cultivated shrub  
      (b) Prostrate native shrub

Celastrales  
Bittersweet Order

Celastraceae—Bittersweet Family

Trees and shrubs, sometimes climbing, with simple, opposite or alternate leaves; sepals 4-5, more or less united, petals 4-5, stamens 4-5, ovary 3-5-celled; fruit fleshy, dehiscent; flower syncarpous, apopetalous, hypogynous, regular.

Euonymus—Burning Bush, Wahoo  
(Gr. eu, good, onyma, name)

Shrubs; leaves opposite, simple, entire or toothed; fruit a 3-5-lobed capsule.
A single species  
E. atropurpureus

Celastrus—Bittersweet  
(Gr. kelastron, an evergreen tree)

Woody climbers; leaves alternate, simple, finely toothed; fruit a yellow 2-4-celled capsule, exposing the scarlet aril when ripe.
A single species  
C. scandens

Rhamnaceae—Buckthorn Family

Shrubs or small trees, with alternate simple leaves; sepals 4-5, petals 4-5, rarely none, stamens 4-5, ovary 2-5-celled; flower syncarpous, apopetalous or apetalous, perigynous, regular.

Rhamnus—Buckthorn  
(Gr. rhamnos, buckthorn)

Shrubs or small trees; leaves alternate or sometimes opposite, simple; fruit berry-like, black.
1. Often thorny; leaves 3-6 cm. long; large shrub or tree  
   R. cathartica  
2. Thornless; leaves 5-10 cm. long; small shrub  
   R. alnifolia

Ceanothus—Redroot  
(Gr. keanothus, a kind of thistle)

Shrubs or bushes; leaves alternate, simple, toothed; fruit a 3-lobed capsule.
1. Leaves ovate to ovate-oblong, finely hairy  
   C. americana  
2. Leaves oblong or oval, nearly smooth  
   C. ovatus

Vitaceae—Grape Family

Woody vines with tendrils; leaves alternate, simple and lobed, or compound; sepals 4-5, often minute, petals 4-5, often disappearing as the flower opens, stamens 4-5, ovary 2-6-celled, fruit a berry; flower syncarpous, apopetalous, hypogynous or perigynous, regular.

Parthenocissus—Woodbine, Virginia Creeper  
(Gr. parthenos, maiden, kíssos, ivy)

Woody climbers; leaves alternate, lobed or palmate, leaflets usually 5; fruit a black berry.
1. Leaves palmate  
P. quinquefolia; woodbine  
2. Leaves simple and lobed  
P. tricuspidata; Boston ivy
**GRAPE FAMILY—MAPLE FAMILY**

**Vitis—Grape**

(L. *vitis*, grapevine)

Woody climbers; leaves alternate, simple, lobed; fruit a dark blue berry.

1. Lower leaf surface velvety or woolly; berries large; cult. *V. labrusca*
2. Lower leaf surface nearly smooth; berries small; native *V. vulpina*

**Thymeleáceae—Leatherwood Family**

Shrubs; leaves alternate; sepals 4-5, petals 0, stamens 8-10, pistil 1, simple; fruit berry-like; flower apetalous, perigynous, regular.

**Dirca—Leatherwood**

Shrubs; leaves alternate, simple, entire; fruit berry-like, reddish.

A single species *D. palustris*

**Elaeagnáceae—Oleaster Family**

Shrubs with silvery leaves; sepals 4, petals 0, stamens 4-8, pistil 1, simple; fruit berry-like; flower apetalous, apparently epigynous, regular, often dioecious.

**Elaeagnus—Silverberry**

(Gr. *elainognos*, a marsh shrub)

Shrubs or small trees; leaves alternate, simple, entire, silvery; fruit silvery.

1. Twigs with brown scales; native *E. argentea*
2. Twigs without brown scales, often thorny; cultivated *E. angustifolia*

**Lepargyraéa—Buffalo-berry**

(Gr. *lepis*, scale, *argyreos*, silvery)

Shrubs; leaves opposite, simple, entire, silvery; fruit red or yellow.

A single species *L. argentea*

**Ilicáceae—Holly Family**

Shrubs or trees; leaves alternate, simple, entire or toothed; fruit small, berry-like; sepals 3-6, petals 4-6, stamens usually 4-6, ovary 3-several-celled; flower syncarpous, apopetalous, perigynous, regular.

**Illex—Holly**

(L. *ilex*, holly oak)

Shrubs or trees; leaves alternate, simple; fruit a berry-like drupe, red or black.

A single species with small red berries *I. verticillata*

**Sapindales **

**Maple Order**

**Staphyleáceae—Bladdernut Family**

Trees or shrubs; leaves opposite, pinnate; sepals 5, petals 5, stamens 5, ovary 2-3-celled, fruit bladdery; flower syncarpous, apopetalous, perigynous, regular.

**Staphylaéa—Bladdernut**

(Gr. *staphyle*, a bunch of grapes)

Leaves pinnately trifoliate *S. trifolia*

**Hippocastanáceae—Horse Chestnut Family**

Trees or shrubs; leaves opposite, palmate; fruit a leathery capsule; sepals 5, petals 4-5, stamens 5-8, ovary 3-celled; flower syncarpous, apopetalous, perigynous, somewhat irregular.

**Aesculus—Buckeye**

(L. *aesculus*, a kind of oak)

Trees or shrubs; leaves usually of 5 leaflets; fruit often prickly.

A single species *Ae. glabra*

**Aceráceae—Maple Family**

Trees or large shrubs with opposite, lobed or compound leaves; sepals 5, petals 5 or 0, sta-
MAPLE FAMILY—WALNUT FAMILY

mens usually 5 or 8, ovary 2-celled, fruit a pair of winged pistils; flower syncarpous, apopetalous or apetalous, perigynous, dioecious or polygamous, usually regular.

Acer—Maple

(T. acer, maple tree)

Trees or large shrubs; leaves simple and lobed or compound; fruit winged, i. e., samaras.
1. Leaves simple, palmately lobed
   a. Shrub with persistent fruit
   b. Trees
      (1) Bark deeply furrowed, fruit persistent
      (2) Bark not deeply furrowed, fruit falling in June
         (a) Leaves about 3-lobed, lobes not narrowed at base
         (b) Leaves deeply 5-lobed, lobes narrowed at base
         (c) Leaves finely and deeply cut; cultivated
      A. plicatum; mountain maple
      A. saccharum; hard maple
      A. rubrum; red maple
      A. saccharinum; soft maple
      A. saccharum varii: cut-leaf maple
      A. negundo; boxelder

Empetraceae—Crowberry Family

Low evergreen shrubs; leaves alternate, small, linear, entire; fruit a berry-like drupe; sepals 3, petals 2-3, or none, stamens 2-4, ovary 2-several-celled; flower syncarpous, apopetalous or apetalous, dioecious or polygamous, regular.

Empetrum—Crowberry

(Gr. en, in, petros, stone)

Depressed shrubs with small simple evergreen leaves; fruit berry-like, black.
A single species

E. nigrum

Anacardiaceae—Sumac Family

Trees, shrubs or woody vines, usually with alternate compound leaves; sepals 3-7, petals 3-7 or none, stamens 3-7, ovary 1-celled; fruit a dry drupe; flower syncarpous, usually apopetalous, perigynous, regular.

Rhus—Sumac, Poison Ivy

(Gr. rhous, sumac)

Shrubs or vines, rarely small trees; leaves alternate, compound, pinnate, leaflets 3-35; fruit berry-like, red or white. Our white-berried species are poisonous to the touch, the red-berried ones are harmless.
1. Erect shrubs or trees; leaflets numerous
   a. Leaflets toothed; fruit red
      (1) Twigs hairy
      (2) Twigs smooth
   b. Leaflets deeply lobed and cut—cultivated forms
      (1) Twigs hairy
      (2) Twigs smooth
   c. Leaflets entire, fruit white; poisonous!
2. Vine or low shrub; leaflets three; poisonous!

Juglandaceae—Walnut Family

Trees with alternate odd-pinnate leaves; flowers monoeccious, the staminate in catkins; staminate flower with sepals 3-6 or 0, petals 0, stamens 3-many; pistillate flower, sepals 3-5, petals 4 or 0, ovary 1-celled, styles 2; flower syncarpous, apopetalous or apetalous, epigynous, regular.

Juglans—Butternut, Black Walnut

(T. juglans, walnut tree)

Trees; leaves alternate, pinnate; fruit a dry drupe, containing a furrowed nut.
1. Bark gray, twigs and foliage viscid hairy
2. Bark dark brown, twigs and foliage almost smooth

J. cinerea; butternut
J. nigra; black walnut
Hicória—Hickory, Bitternut
(From the Indian name)
Trees; leaves alternate, pinnate; fruit with a 4-lobed outer coat; nut not furrowed.
1. Bark shaggy, leaves white-tufted at margin

H. ováta; shag-bark hickory

2. Bark not shaggy, mature leaves almost smooth

H. mínima; pignut hickory

Betuláceae—Birch Family

Trees or shrubs with alternate simple leaves; flowers monoecious, rarely dioecious, the staminate and often the pistillate also in catkins; staminate flower, sepals 2-4 or 0, petals 0, stamens 2-10; pistillate flower, sepals minute or 0, ovary 1-2-celled, style 2-cleft; flower syncarpous, epigynous, regular.

Córylus—Hazel-nut
(Gr. korys, helmet)
Shrubs; leaves alternate, simple; fruit enclosed in a leafy cup.
1. Twigs and petioles densely hairy, involucre of nut short

C. americána; hazel-nut

2. Twigs and petioles smooth, involucre with a beak

C. rostráta; beaked hazel-nut

Carpínus—Hornbeam
(Gr. karpinos, fruitful)
Trees; leaves alternate, simple; fruit a nut.

Small tree with smooth gray bark and very hard wood

C. carolíniána

Óstrya—Ironwood
(Gr. ostrya, tree with very hard wood)
Trees; leaves alternate, simple; fruit inflated.

Small tree with furrowed bark and very hard wood

O. virginiána

Bétula—Birch
(L. betula, birch-tree)
Trees or shrubs; leaves alternate, simple; fruit winged.

1. Trees

a. Bark separating in papery layers

(1) Bark white

(a) Leaves not deeply lobed; native

B. papyrisfera; paper birch

(b) Leaves deeply cut and lobed; cultivated

B. álba péndula; cut-leaf birch

(2) Bark yellow or brown

(a) Leaves narrowed at base; pistillate catkins stalked

B. nígrá; river birch

(b) Leaves round or cordate at base; catkins not stalked

B. látea; yellow birch

B. lémenta; black birch

b. Bark not papery, very fragrant; leaves glossy above

2. Low shrubs

a. Twigs glandular, leaves glabrous

B. glandulósa; dwarf birch

b. Twigs not glandular, young leaves pubescent

B. púmila; dwarf birch

Alnus—Alder
(L. alnus, alder)
Trees or shrubs; leaves alternate, simple; fruits in a woody catkin.

1. Leaves finely serrate, resinous beneath when young

A. alnobétula

2. Leaves coarsely serrate, not resinous

A. íncána

Fagáceae—Beech Family

Trees or shrubs with simple often deeply lobed or cleft leaves; flowers monoecious, the staminate in catkins; staminate flower, sepals 4-7, petals 0, stamens 4-20; pistillate flower, sepals disappearing, petals 0, ovary 3-celled; flower syncarpous, epigynous, regular.

Quercus—Oak
(L. quercus, oak tree)
Trees or shrubs; leaves alternate, simple; fruit an acorn.

1. Leaves deeply cut or lobed
BEECH FAMILY—HONEYSUCKLE FAMILY

a. Lobes of leaves acute, bristle-pointed
   (1) Leaves dull green, cup of acorn shallow
   (2) Cup about half as long as acorn
      (a) Scales of cup appressed, smooth
         x. Acorn much elongated
   y. Acorn nearly round
      (b) Scales of cup loose, pubescent
b. Lobes of leaves rounded
   (1) Leaves dull, smooth, acorn cup not fringed
   (2) Leaves glossy, hairy below; acorn cup fringed
2. Leaves merely crenate
   a. Large tree; leaves hairy beneath, acorn long-stalked
   b. Shrub; leaves smooth, acorn sessile

Myricaceae—Bayberry Family

Shrubs or trees with alternate aromatic simple leaves; flower in catkins, monoecious or dioecious; staminate flower, sepals 0, petals 0, stamens 2-16; pistillate flower, with 2-8 bracts, sepals 0, petals 0, ovary 1-celled, stigmas 2; flower syncarpous, naked.
I. Leaves entire or slightly serrate
II. Leaves deeply cut

Myrica—Sweet Gale
(GR. myrike, tamarisk)

Fragrant swamp shrub, resembling a small willow

Myrica Comptonia

Comptonia—Comptonia
(Named for Bishop Compton)

Fragrant shrub with thick, linear, deeply cut leaves

Apiales Carrot Order

Cornaceae—Dogwood Family

Shrubs and trees, rarely herbs, usually with opposite leaves; sepals 4, rarely 5, petals 4, stamens 4, pistil 1-2-celled, style 1; flower syncarpous, apopetalous, epigynous, regular.

Cornus—Dogwood
(L. cornus, cornel)

Shrubs or small trees; leaves simple, usually opposite, petioled, entire; fruit berry-like, white or blue.
1. Leaves opposite
   a. Twigs green; leaves broadly ovate or rounded
   b. Twigs gray; leaves lanceolate
   c. Twigs red, purple or yellow; leaves ovate
      (1) Leaves pubescent beneath
         (a) Fruit blue
         (b) Fruit white
      (2) Leaves glabrous and glaucous beneath
   2. Leaves alternate, crowded

Rubiales Madder Order

Caprifoliaceae—Honeysuckle Family

Herbs, shrubs or vines with opposite leaves; sepals 3-5, often very tiny, petals 5, stamens 5, ovary 1-6-celled, style 1; flower syncarpous, sympetalous, epigynous, regular or irregular.
HONEYSUCKLE FAMILY—ASTER FAMILY

Sambucus—Elder
(L. sambucus, elder tree)

Shrubs; leaves opposite, pinnate, leaflets 5-11, serrate; fruit a berry-like drupe.

1. Leaflets ovate-lanceolate, hairy below; pith brown  
   S. pubens
2. Leaflets oblong, usually smooth; pith white  
   S. canadensis
3. Leaflets deeply cut and lobed; pith white  
   S. canadensis laciniata

Viburnum—Viburnum, Cranberry-tree, Snowball
(L. viburnum, the wayfaring tree)

Shrubs or small trees; leaves opposite, simple, serrate to lobed; fruit berry-like, 1-seeded.

1. Leaves lobed; fruit red  
   a. Leaves deeply lobed  
      (1) Fruit in a large terminal cluster; native  
          V. opulus; high-bush cranberry
      (2) Fruit absent; cultivated  
          V. opulus stérilis; snowball
   b. Leaves slightly and irregularly lobed; fruit lateral

2. Leaves not lobed; fruit black
   a. Leaves coarsely dentate  
   b. Leaves finely serrate  

Symphoricarpus—Wolfberry, Snowberry
(G. syn, together, phoreo, bearing, karpos, fruit)

Shrubs; leaves opposite, simple, short-petioled; fruit a 2-seeded berry, red or white.

1. Leaves 1-2 cm. long  
   S. pauciflorus
2. Leaves 2-8 cm. long
   a. Berry white; style smooth  
      (1) Leaves mostly 2-5 cm. long  
          S. racemósus
      (2) Leaves mostly 5-8 cm. long  
          S. occidentális
   b. Berry red, persistent; style bearded  
      S. symphoricárus

Lonicerá—Honeysuckle
(From Lonitzer, a German botanist)

Shrubs or climbing vines; leaves opposite, simple, mostly entire, often perfoliate; fruit a berry.

1. Vines; clusters several-flowered, terminal; upper leaves perfoliate  
   a. Low native vine  
       L. dioéca
   b. High-climbing cultivated vine  
       L. sempérvirens; trumpet h.
2. Erect shrubs; flowers in pairs
   a. Leaves somewhat pubescent, not cordate; mostly native  
      (1) Leaf margin bristly  
          (a) Leaves pale, thick, veiny; fruit blue  
              L. coerúlea
          (b) Leaves bright green, thin; fruit red  
              L. ciliáta
          (c) Leaves dark green, thick; fruit red, very persistent; cultivated
              L. morrówí
      (2) Leaf margin not bristly; fruit red  
          b. Leaves glabrous, cordate; cultivated

Diervilla—Bush honeysuckle
(Named for Dierville)

Shrubs; leaves opposite, simple, toothed; flowers small; fruit a many-seeded capsule.
A single species  
D. diervilla

Weigélia—Weigelia
(Named for Weigel)

Shrubs; leaves opposite, simple, toothed; flowers large; fruit a many-seeded capsule.
A single species  
W. hybrida

Asterales  Aster Order

Asteráceae—Aster Family

Herbs; flowers in dense heads, sepals usually forming a pappus, petals 5, stamens 5 or 0, ovary 1-celled, stigmas 2, fruit an achene; flower syncarpous, sympetalous, epigynous.
ASTER FAMILY—WILLOW FAMILY

Artemisia—Wormwood
(Gr. *artemisia*, wormwood)

Perennials often with woody stems; leaves divided; fruit an achene. A single species

*A. frigida*

Caryophyllales    Pink Order

Tamaricaceae—Tamarisk Family

Trees and shrubs with alternate scale-like leaves; sepals 4-5, petals 4-5, stamens 4-5 or many, ovary 1-celled; fruit a capsule with many small hairy seeds; flower syncarpous, apopetalous, hypogynous, regular

Támarix—Tamarisk

Shrubs or trees with minute scale-like leaves, and dense racemes of very small pink flowers. Cultivated shrub with flowers in spring, petals 4

*T. parviiflóra*

Salicaceae—Willow Family

Trees or shrubs with simple leaves; sepals 0, petals 0, stamens 1-60, ovary i-celled, capsule 2-4-valved, seeds hairy; flowers dioecious, calyx and corolla both lacking.

Sálíx—Willow

(L. *salix*, a willow-tree)

Trees or shrubs; leaves alternate, simple, buds with a single scale; fruit a capsule, seeds cottony.

1. Leaves and stipules with glands
2. Leaves and stipules without glands
   a. Leaves glabrous on both sides when mature
      1. Leaves narrow, linear-lanceolate, low shrub
      2. Leaves broader, lanceolate to ovate
         a. Leaves oblong-lanceolate, merely acute
         b. Leaves acuminate
   b. Leaves pubescent or tomentose below
      1. Leaves oblong, low bog shrub
      2. Leaves broadly lanceolate, or oblanceolate
         a. Leaves elliptic to lanceolate
         b. Leaves oblanceolate
            x. Leaves 5-10 cm. long
            y. Leaves 2-5 cm. long

S. lúcida

Pópulus—Poplar, Cottonwood, Aspen

(L. *populus*, a poplar-tree)

Trees or shrubs; leaves alternate, simple, buds with several scales; fruit a capsule, seeds cottony.

1. Leaves with strongly flattened petioles
   a. Twigs and under surfaces of leaf white-hairy; leaves often deeply lobed, and maple-like
   b. Twigs and mature leaves smooth
      1. Leaves coarsely way-toothed
      2. Leaves more finely crenate-toothed
         a. Leaves round or ovate, short-pointed
         b. Leaves truncate at base, long-pointed
            x. Branches spreading; crown broad
            y. Branches erect; crown very narrow
   2. Leaves with round or channelled petioles
      a. Leaves smooth on both sides
      b. Leaves hairy below

P. álba

P. grandidentáta

P. tremuloídes; aspen

P. deltoídes; cottonwood

P. nigra itálica; Lombardy poplar

P. balsamífera; balsam poplar

P. cándicans; balm of gilead
**Malvales**  **Mallow Order**

**Tiliaceae—Linden Family**

Trees or shrubs with alternate simple leaves and a clear sap; sepals 5, petals 5-0, stamens many, usually in 5-10 groups, ovary 2-10-celled; fruit berry-like; flower syncarpous, apopetalous or apetalous, hypogynous, regular.

*Tilia—Basswood, Linden*  
(*L. tilia, linden*)

Trees; leaves alternate, simple, serrate, usually with unequal bases; fruit dry, 1-2-seeded.  
A single species *T. americana*

**Moráceae—Mulberry Family**

Trees with simple leaves and usually a milky juice; sepals 4-5, petals 0, stamens 4-5, ovary 1-celled; flower syncarpous, apetalous, hypogynous.

*Morus—Mulberry*  
(*Gr. morea, mulberry-tree*)

Trees; leaves alternate, simple; fruit aggregate, berry-like.

Tree with milky sap and dentate leaves  
*M. rubra*

**Ulmáceae—Elm Family**

Trees with alternate simple serrate leaves; sepals 3-9, petals 0, stamens 3-9, ovary 1-celled, stigmas 2; flowers perfect to polygamous, syncarpous, apetalous, hypogynous, regular.

*Ulmus—Elm*  
(*L. ulmus, elm-tree*)

Trees; leaves alternate, simple; fruit winged.

1. Bud-scales densely brown hairy, samara not ciliate  
2. Bud-scales smooth, samara ciliate

a. Some of the twigs with corky lines, sides of fruit hairy  
b. None of the twigs with corky lines, sides of fruit smooth

*U. fulva; slippery elm*  
*U. racemosa; rock elm*

*Celtis—Hackberry*

Trees; leaves alternate, simple; fruit a berry-like drupe.  
Tree with ridged bark, and simple serrate leaves  
*C. occidentalis*

**Geraniales**  **Geranium Order**

**Rutáceae—Rue Family**

Trees or shrubs, usually with compound leaves; sepals 4-5 or none, petals 4-5, stamens 4-10, pistils distinct, 2-5, or compound; flower apocarpous or syncarpous, apetalous, hypogynous, regular.

*Xanthoxylum—Prickly Ash*  
(*Gr. xanthos, yellow, xylon, wood*)

Trees or shrubs usually spiny; leaves alternate, odd-pinnate; fruit fleshy.  
Small tree; leaves pinnate, leaflets 5-11; flowers greenish  
*X. americanum*

*Ptelea—Hoptree*  
(*Gr. ptelea, elm*)

Shrubs or small trees, smooth; leaves alternate, 3-5-foliolate; fruit a 2-winged samara.  
A single species  
*P. trifoliata*

**Oleáceae—Olive Family**

Trees or shrubs with simple or pinnate leaves; sepals 4, petals 2-4 or none, stamens 2-4, ovary 2-celled; flowers perfect to dioecious, syncarpous, often apetalous, hypogynous, regular.

*Syringa—Lilac*  
(*Gr. syrinx, a tube*)

Shrubs; leaves opposite, simple, entire; fruit a leathery capsule.

1. Leaves ovate, cordate at base, 5-12 cm. long  
2. Leaves smaller, not cordate, 2-8 cm. long  
*S. vulgaris*  
*S. pérsica*
Fraxinus—Ash
(L. fraxinus, ash-tree)
Trees; leaves opposite, pinnate; fruit winged.
1. Lateral leaflets sessile
2. Lateral leaflets stalked
   a. Wing mostly at the end of fruit
   b. Wing extending down the sides of fruit
      (1) Leaves and twigs velvety
      (2) Leaves and twigs smooth

F. nigra; black ash
F. americana; white ash
F. pennsylvanica; red ash
F. lanceolata; green ash

Ericáceae—Heath Family
Herbs or shrubs with simple leaves; sepals 4-5, petals 4-5, stamens 4-10, ovary 2-5-celled, flower syncarpous, usually sympetalous, hypogynous, regular.

Ledum—Labrador Tea
(Gr. ledon, an oriental shrub)
Evergreen shrub with simple entire leaves; flowers white
L. groenlandicum

Kálmia—Swamp Laurel
(Named for Peter Kalm)
Evergreen shrubs with purple flowers
K. glauca

Andrómeda—Moorwort
(Named from Andromeda)
Evergreen shrub with linear leaves; white flowers in 1-sided racemes
A. polifolia

Chamaedáphne—Leatherleaf
(Gr. chamae, on the ground, Daphne)
Leaves oblong, scurfy, denticulate; flowers white, in 1-sided racemes
C. calyculata

Epigaéa—Trailing Arbutus
(Gr. epigeios, on the earth)
Leaves oval; flowers rose-colored
E. rípens

Arctostáphylus—Bearberry
(Gr. arctos, bear, staphyle, grape)
Leaves spatulate; flowers white or pinkish
A. uva-ursi

Gaulthériá—Wintergreen
(Named for Gaulther)
Evergreen shrub; leaves alternate, simple, serrate
G. procúmbens

Vacciniáceae—Huckleberry Family
Shrubs with alternate simple leaves; sepals 4-5, petals 4-5, stamens 8-10, ovary 2-10-celled; flower syncarpous, mostly sympetalous, epigynous, regular.

Oxycóccus—Cranberry
(Gr. oxys, sour, kokkos, berry)
Creeping evergreen shrubs with very small ovate to oblong leaves; fruit a scarlet berry.
1. Leaves oval or oblong, obtuse
2. Leaves ovate, acute
O. macrocarpus
O. oxycoccus

Chiógenes—Snowberry
(Gr. chion, snow, genes, born)
Creeping evergreen shrubs with oval leaves; flowers and fruit white
C. hispidula

Vaccinium—Huckleberry, Blueberry, Cranberry
(L. vaccinium, blueberry)
Shrubs, rarely evergreen; leaves alternate, simple; fruit a berry, blue to red.
1. Leaves evergreen
2. Leaves deciduous
   a. Low shrubs, 1-6 dm. high
      (1) Leaves pale and glaucous beneath
      (2) Leaves green or hairy below
         (a) Leaves green and shining on both sides
         (b) Leaves not shining below but usually hairy
            x. Twigs and leaves pubescent
            y. Twigs and leaves glabrous
   b. Tall shrubs, 6 dm.-5 m. high
      (1) Stems 6 dm.-2 m. high
      (2) Stems 2-5 m. high

Gaylussácia—Huckleberry
(Named for the chemist, Gay-Lussac)
Shrubs; leaves alternate, simple, entire or toothed; fruit berry-like, blue or black.
A single species

Scrophulariales   Snapdragon Order

Bignoniáceae—Trumpet-creeper Family
Trees or vines with compound or simple leaves; sepals 5, petals 5, stamens 2-4, ovary 2-celled; flowers syncarpous, sympetalous, hypogynous, irregular.

Catálpa—Catalpa
(The Indian name)
Trees; leaves opposite, simple, entire; fruit an elongated capsule.
A single species
Achene  A dry, one-seeded fruit
Acuminate  Gradually tapering to a point
Acute  Sharp-pointed
Alternate  Not opposite; with a single leaf at each place of attachment
Annual  Lasting only one growing season
Anther  The upper part of the stamen, containing the pollen; the pollen pouch
Apetalous  Without petals
Apex  Tip or upper end
Apocarpous  Having or consisting of separate carpels
Apopetalous  Having or consisting of separate petals
Appressed  Lying close to or against another organ
Aquatic  Growing in the water
Ascending  Growing obliquely upward
Awl-shaped  Narrowed upward from the base to a slender, rigid point
Awn  A slender bristle-like structure
Awn-pointed  Tipped with an awn
Axil  The angle between leaf and stem
Axillary  Borne in the axils of leaves
Axis  A term generally applied to that portion of a branch which bears the flowers or the parts of a flower
Barbed  Having a tip like a fish-hook
Basal  Arising from the base
Beak  An elongated tapering structure
Beaked  Bearing a beak
Bearded  With hairs limited more or less to a certain area of an organ
Berry  A fruit in which the seeds are imbedded in a soft or fleshy substance
Bitemate  Twice ternate
Blade  The flat expanded part of a leaf
Bract  A leaf, usually small, standing below a flower or a flower-cluster
Bracteole  A small leaf or scale on the pedicle below the flower
Bristle  A stiff hair or any similar outgrowth
Bulb  A short stem with fleshy scales, usually subterranean
Bulblets  Small bulbs
Bulbous  Like a bulb; bearing bulbs

Capsule  A dry fruit consisting of two or more carpels
Carpel  A simple pistil, or one member or division of a compound pistil
Catkin  An elongated axis covered with scales all around that bear either stamens or pistils
Cell  A cavity or chamber in an ovary
Ciliate  Provided with marginal hairs
Claw  Applied to the much narrowed lower portion of a petal
Cleft  Cut about half way to the middle
Climbing  Growing upon a support of some kind
Compound  Composed of two or more similar parts united into one whole
Compound leaf  One divided into separate leaflets
Cone  An elongated axis bearing stamens or thickened scales with naked ovules; the flower and fruit of conifers
GLOSSARY

Convolute  Rolled up lengthwise
Cordate  Heart-shaped
Corm  A swollen fleshy base of a stem
Corymb  A flat-topped or convex open flower cluster
Creeping  Growing along the ground
Crenate  Scalloped; with rounded, shallow teeth
Crenate-toothed  With rounded teeth
Cyme  A flower cluster in which the terminal or middle flower blossoms first; usually somewhat flat

Deciduous  Falling off at the close of the growing period
Declined  Bent down
Decurrent  Applied to leaf bases, running down the stem
Dentate  Toothed, with outwardly projecting teeth
Denticulate  With small teeth
Depressed  Vertically flattened
Dioecious  Bearing pistils and stamens on different plants
Disk  An enlargement of the axis of a flower around the base of the pistil; the group of tubular flowers in the Asteraceae
Dissected  Cut or divided into numerous segments
Divided  Lobed to the base

Entire  Without lobes, divisions, or teeth
Epigynous  Applied to a flower with the parts upon the ovary
Erect  Standing upright
Even-pinnate  Without an odd leaflet at the tip
Exserted  Projecting beyond the surrounding parts

Fascicle  A dense cluster
Fascicled  Borne in dense clusters
Fertile  Bearing seeds, or bearing pollen
Filament  The stalk bearing the anther
Fleshy  Soft, containing more or less sap
Flower  An axis bearing stamens or pistils or both; generally sepals and petals are associated with these
Fruit  A ripened ovary, sometimes that part of the axis which becomes fleshy as the seeds ripen

Glabrous  Without hairs
Gland  A secreting surface or structure; any small appendage or protuberance having the appearance of such an organ
Glandular  With glands or gland-like
Glaucous  Covered with a bluish or white, fine, mealy substance, a bloom
Globose  Spherical or nearly so
Glume  The small scale of the spikelets of grasses and sedges

Hastate  Arrow-shaped but with the basal lobes diverging
Head  A dense cluster of sessile or nearly sessile flowers on a very short axis
Herb  A non-woody plant which dies annually, at least down to the ground
Herbaceous  Of the nature of herbs
Hispid  With bristly stiff hairs
Hirsute  With somewhat coarse, stiff hairs
Epigynous  Applied to a flower, with the other parts below the ovary
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Included</td>
<td>Not projecting beyond the surrounding parts</td>
</tr>
<tr>
<td>Indehiscent</td>
<td>Applied to fruits that do not open or split to let out the seeds</td>
</tr>
<tr>
<td>Inferior</td>
<td>Applied to an organ situated below another one</td>
</tr>
<tr>
<td>Inflorescence</td>
<td>The position of a plant bearing the flowers; mode of arrangement of flowers</td>
</tr>
<tr>
<td>Integument</td>
<td>A projecting layer or coat, as the covering of a seed</td>
</tr>
<tr>
<td>Internode</td>
<td>The part of the stem between two successive nodes</td>
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<tr>
<td>Involucrure</td>
<td>A group of leaves or scale-like leaves borne just underneath a flower or a close cluster of flowers</td>
</tr>
<tr>
<td>Involucral</td>
<td>Of an involucrure</td>
</tr>
<tr>
<td>Irregular</td>
<td>Applied to a flower in which the petals, or other parts, are unlike</td>
</tr>
<tr>
<td>Keel</td>
<td>The two fused lower petals of the flower of the Pea Family</td>
</tr>
<tr>
<td>Keeled</td>
<td>Ridged, like the keel of a boat</td>
</tr>
<tr>
<td>Lanceolate</td>
<td>Shaped like a lance</td>
</tr>
<tr>
<td>Lenticle</td>
<td>A corky projection on the bark</td>
</tr>
<tr>
<td>Ligule</td>
<td>A strap-shaped organ, as the rays in the Asteraceae</td>
</tr>
<tr>
<td>Ligulate</td>
<td>In the form of a strap</td>
</tr>
<tr>
<td>Linear</td>
<td>Long and narrow with sides nearly parallel</td>
</tr>
<tr>
<td>Linear-lanceolate</td>
<td>Narrowly lance-shaped</td>
</tr>
<tr>
<td>Lip</td>
<td>Each of the main upper and lower divisions of a zygomorphic corolla or calyx; the peculiar modified petal of an orchid flower</td>
</tr>
<tr>
<td>Lipped</td>
<td>Having a lip</td>
</tr>
<tr>
<td>Lobed</td>
<td>Margin more or less deeply cut or divided</td>
</tr>
<tr>
<td>Monoecious</td>
<td>Bearing stamens and pistils on the same plant but in different flowers</td>
</tr>
<tr>
<td>Nerve</td>
<td>One of the lines or ridges running through a leaf</td>
</tr>
<tr>
<td>Net-veined</td>
<td>Veins running in various directions and connecting with each other</td>
</tr>
<tr>
<td>Netted-veined</td>
<td>Veins running in various directions and connecting with each other</td>
</tr>
<tr>
<td>Nodding</td>
<td>Hanging on a bent pedicel</td>
</tr>
<tr>
<td>Node</td>
<td>The part of the stem which normally bears a leaf</td>
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<tr>
<td>Nut</td>
<td>A dry, one-seeded, indehiscent fruit with a stony shell or covering</td>
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<tr>
<td>Nutlet</td>
<td>A diminutive nut</td>
</tr>
<tr>
<td>Obcordate</td>
<td>Inversely heart-shaped</td>
</tr>
<tr>
<td>Oblanceolate</td>
<td>Inverse of lanceolate</td>
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<tr>
<td>Oblong</td>
<td>Somewhat longer than broad, with the sides nearly parallel</td>
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<tr>
<td>Oblong-lanceolate</td>
<td>Broadly lance-shaped</td>
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<tr>
<td>Obtuse</td>
<td>Rounded or blunt</td>
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<tr>
<td>Odd-pinnate</td>
<td>With an odd leaflet at the tip</td>
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<tr>
<td>Opposite</td>
<td>Applied to organs inserted at the same level but 180° apart</td>
</tr>
<tr>
<td>Orbicular</td>
<td>Circular</td>
</tr>
<tr>
<td>Ovary</td>
<td>The part of the pistil in which the young seeds are borne</td>
</tr>
<tr>
<td>Ovate</td>
<td>Shaped like the outline of an egg</td>
</tr>
<tr>
<td>Ovule</td>
<td>A young seed</td>
</tr>
<tr>
<td>Palmate</td>
<td>Radiately lobed or divided</td>
</tr>
<tr>
<td>Palmately</td>
<td>In a palmate manner</td>
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<tr>
<td>Panicle</td>
<td>A compound flower cluster, the lower branches longest and blossoming first</td>
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<tr>
<td>Pappus</td>
<td>The bristles, hairs, awns, and like structures which are borne upon the fruit in the Chicory and Aster Families</td>
</tr>
<tr>
<td>Parasitic</td>
<td>Growing upon and getting its nourishment from some other plant</td>
</tr>
<tr>
<td>Parted</td>
<td>Deeply cleft</td>
</tr>
<tr>
<td>Peduncle</td>
<td>The stalk of a flower or of a flower cluster</td>
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Pedicel The stalk of a flower in a flower-cluster
Peltate Shaped like a shield with a stalk attached in the middle below
Perennial Lasting from year to year
Perfect A flower having both stamens and pistils
Perfoliate Leaves appearing to be pierced by the stem
Perigynous Applied to a flower in which the parts are united into a cup around the ovary
Perigynium The sack-like membrane enclosing the ovary or the achene in the genus Carex
Persistent Organs that remain attached after the growing season
Petal One of the inner set of flower leaves, usually brightly colored, of a corolla
Petaloid Resembling a petal, especially as to color
Petiole The stalk of a leaf
Pilose With long soft hairs
Pinnate Leaves divided into leaflets or segments along a common stalk
Pinnately In a pinnate manner
Pinnatifid Pinnately cleft to the middle or beyond
Pistil The central or terminal organ in a flower, containing the young seeds
Pistillate With pistils but without stamens
Plumose Having fine hairs on each side like a feather
Plumy Feathery
Pod A dry fruit made up of one carpel and splitting along two sides
Pollen The minute grains found in the anther
Puberulent With very short hairs
Pubescent With hairs
Raceme A more or less elongated axis bearing flowers with about equal pedicels
Ray One of the marginal flowers in the Asteraceae
Receptacle The end of a flower stalk or axis bearing the floral organs; in the Asteraceae bearing flowers
Recurved Bent back
Regular Having the members of each part alike in size and shape
Reniform Kidney-shaped
Resinous Bearing resin
Retrose Turned downward or backward
Revolute Margin rolled back
Rhombic In outline like a rhombus; obliquely four-sided
Rootstock An underground stem
Rotate Flat and circular in outline; wheel-shaped
Rush-like Resembling a rush
Salver-form Having a slender tube, abruptly expanded into a flat limb
Samara A winged fruit
Scabrous Rough
Scale A minute or much reduced leaf
Scape A leafless or nearly leafless stalk bearing a flower or a cluster of flowers and arising from the underground portion of a plant
Scurfy With small bran-like scales on the epidermis
Segment One of the parts of a flower or similar organ that is cleft or divided
Sepal One of the outer set of flower leaves, usually green
Serrate With teeth projecting forward
Serrulate Finely serrate
Sessile Without a stalk or pedicel
Sheath The part of a leaf or leaf base which clasps or encloses the stem
Sheathing A term applied to the manner in which the base of a leaf wraps the stem
Shrub A woody plant; smaller than a tree
Simple Of one piece, not compound
Sinuate With strongly wavy margins
Spadix A fleshy axis bearing sessile flowers
Spathe A leaf-like structure standing below an inflorescence
Spatulate Spoon-shaped, shaped like a spatula
Spike An axis bearing sessile flowers
Spikelet A small few-flowered spike, the flower cluster of grasses and sedges
Spine A sharp, woody or rigid outgrowth from the stem
Spiny Provided with spines
Spur A hollow projection from the sepal or petal of a flower
Stamen The organ of a flower which bears the pollen
Staminate With stamens but without pistils
Staminoids A sterile stamen
Standard The large upper petal of the flower of the Pea Family
Stigma The top of the pistil to which pollen grains become attached
Stipule Outgrowths of, or appendages to the base of a petiole
Strap-shaped Long and narrow in outline
Style The narrowed or pointed part of the pistil, bearing on its top the stigma
Stylopodium A disk-like expansion at the base of the style, as in the Apiaceae
Submerged Under water
Subtend To stand below on the axis
Superior Applied to an organ situated above another one
Sympetalous Having or consisting of united petals
Syncarpous Having or consisting of carpels joined together
Teeth The regular projection along the margin of a leaf
Tendril A slender coiling organ
Ternate Consisting of three leaflets
Terrestrial Growing on the ground
Thorn A stiff, sharp-pointed outgrowth from the bark or rind
Tomentose Covered with dense, matted, wool-like hairs
Trailing Creeping along the ground
Trifoliate Having three leaflets
Truncate Terminated by a nearly straight edge or surface
Twining Winding spirally about a support
Umbel A flower-cluster with all the pedicels arising from the same point
Umbellate Borne in umbels
Unarmed Without spines, thorns, or prickles
Valve One of the portions into which some dry fruits split; a trapdoor-like opening in the
pollen chambers of some anthers
Vestigial Reduced almost to disappearance
Villous With long soft hairs not matted together
Webby With a tuft of slender, curly hairs
Whorl A group of three or more similar organs, as leaves, radiating from the place of at-
tachment
Whorled Borne in a whorl
Wing One of the two lateral petals of the flower of the Pea Family
Zygomorphic Applied to a flower with petals of different form
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Clements, Frederic Edward
Guide to the trees and shrubs of Minnesota
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