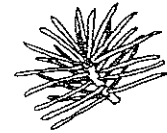


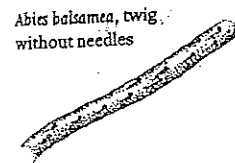
Abies balsamea (L.) Mill.

Balsam fir

Evergreen tree to 20 m tall; distinguished by its smooth to somewhat scaly bark; smooth twigs with circular leaf scars and large, upright seed cones that disintegrate in place; infrequent in cool swamps or bogs in peaty soils; N; FAC.



Abies balsamea,
twig with needles

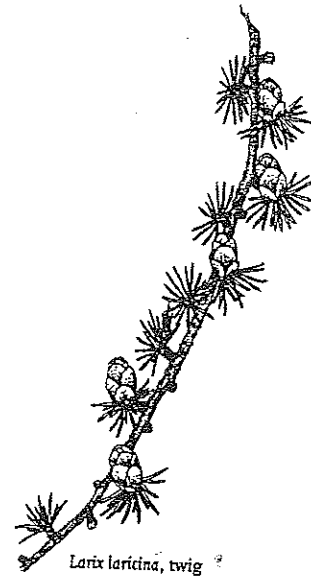


Abies balsamea, twig
without needles

Larix laricina (Du Roi) K. Koch

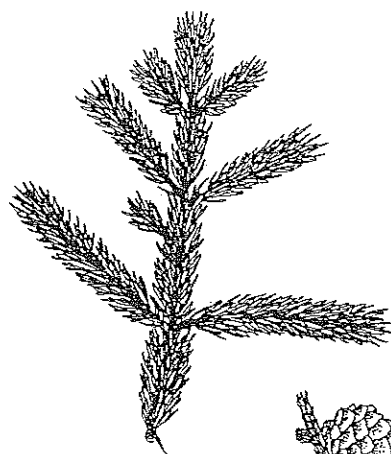
American larch, tamarack

Tree to 20 m tall with narrowly conic crown when young; needles light yellow-green to blue-green, keeled beneath with faint white stomatal bands; cones 10-15 mm; cone scales glabrous and shining on the outside, slightly incurved at the margin; infrequent in sphagnum bogs and peatlands; N; FACW.



Larix laricina, twig

Picea mariana (Mill.) Britton, Stearns & Poggenb. Black or bog spruce
 Evergreen tree to 20 m tall with narrow conic crown but often stunted and
 shrub-like; needles dark bluish-green, mostly blunt-tipped; cones 1.5–2.5 cm;
 cone scales fan-shaped with irregularly toothed margin; rare in sphagnum bogs;
 NE and NC; FACW–.



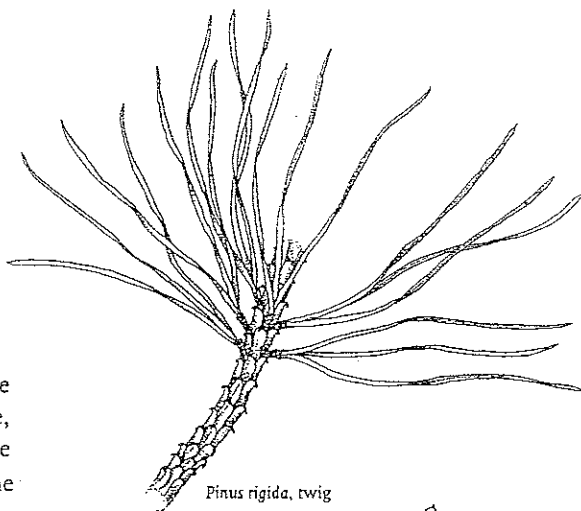
Picea mariana, twig



Picea mariana
 cone

Picea rubens Sarg. Red spruce
 Evergreen tree to 30 m tall with narrowly conic crown; needles yellow-green to
 dark green, sharp-pointed; cones 2.3–4.5 cm; cone scales fan-shaped with an
 entire to irregularly toothed margin; infrequent in cool, moist woodlands and
 margins of bogs and swamps; mostly N; FACU.

Pinus rigida Mill. Pitch pine
 Evergreen tree to 30 m, the trunk often with leafy shoots; needles 3 per fascicle,
 5–10(15) cm, straight or twisted; cones broadly ovoid with a nearly flat base
 when open, 4.5–8 cm, with a slender, downcurved spine, long-persistent on the
 branches; frequent in barrens and other moist to dry, sterile, acidic soils through-
 out, highly fire tolerant; FACU.



Pinus rigida, twig

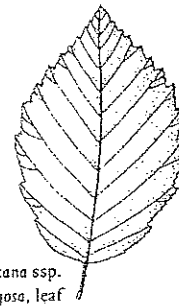


Pinus rigida, cone

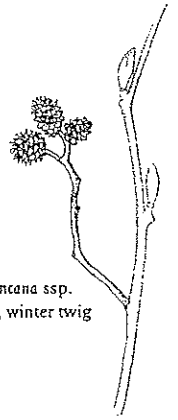
Alnus incana (L.) Moench

Colonial shrub to 6 m tall with stalked winter buds; leaves doubly serrate with 8–14 principal veins on each side, obtuse to short acuminate at the tip; mature pistillate catkins more or less bent downwards; fruits thin-margined; frequent in bogs and swamps, especially N; fl. Mar–Apr, before the leaves; FACW. Ours is ssp. *rugosa* (Du Roi) Clausen.

Speckled alder



Alnus incana ssp.
rugosa, leaf



Alnus incana ssp.
rugosa, winter twig

Chamaedaphne calyculata (L.) Moench

Evergreen shrub to 1 m tall; twigs with brown scales; leaves irregularly toothed, with brown scales below; inflorescence a raceme, the base of each pedicel with a leaf-like bract; corolla white, urn-shaped, 6–7 mm long; capsule globe-shaped, about 3 mm in diameter, 5-celled; frequent in bogs and acidic wetlands; N, and at high elevations along the Allegheny Front; fl. late Apr–early May; OBL. Ours is var. *angustifolia* (Aiton) Rehder.

Leatherleaf

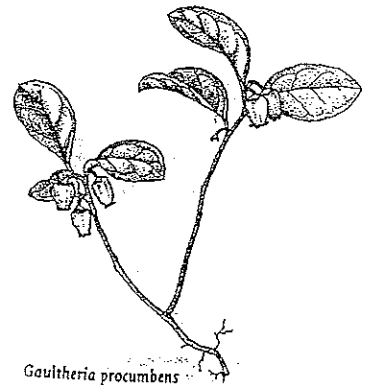


Chamaedaphne
calyculata

Gaultheria procumbens L.

Low evergreen shrub to 20 cm tall; twigs glabrous or minutely pubescent; leaves elliptic to obovate or orbicular, toothed, glabrous or nearly so; flower parts in 5s; corolla white, urn-shaped, 6–12 mm long; berry red; common in dry to wet woods and barrens; throughout; fl. Jul, frt. Sep–spring; FACU.

Teaberry

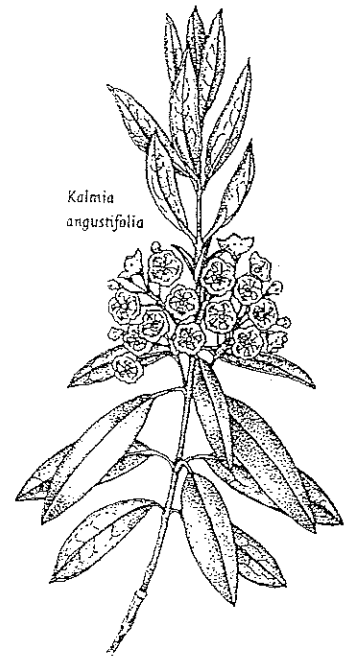


Gaultheria procumbens

Kalmia angustifolia L.

Sheep laurel

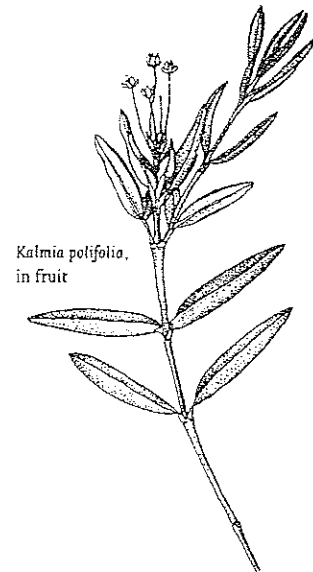
Evergreen shrub to 1 m tall with rounded twigs; leaves whorled, elliptic to oblong, paler below, margins flat or nearly so; inflorescence axillary; corolla pink to rose-purple, 6–14 mm wide; capsule 2.5–4.5 mm wide; frequent in dry woods, barrens, and bogs; E; flr. Jun–early Jul; FAC.



Kalmia polifolia Wangenh.

Bog laurel

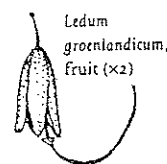
Evergreen shrub to 1 m tall with 2-edged, whitened twigs; leaves opposite, narrowly elliptic, strongly whitened below, sessile or nearly so; inflorescence terminal; corolla pink to rose-purple, 12–20 mm wide; capsule 5–7 mm wide; rare in bogs and peaty wetlands; NE; flr. May; OBL.



Ledum groenlandicum Oeder

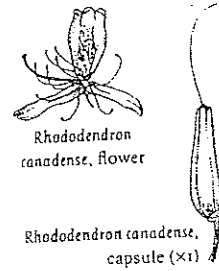
Labrador-tea

Evergreen shrub to 1 m tall with densely rusty-woolly twigs; leaves entire, elliptic, revolute, densely white to rusty-woolly beneath; flowers regular, 5-merous, in terminal clusters; corolla white, of separate petals, 3–6 mm long; capsule longer than wide, 5-celled, splitting upward from the base; rare in bogs and peaty wetlands; NE and NW; flr. Jun; OBL; ♀.



Rhododendron canadense (L.) Torr.

Deciduous shrub to 1 m tall with whitened twigs; leaves often whitened, revolute, pubescent below, the longer hairs rusty or brownish; corolla rose-purple (white), with two long lobes and three short lobes; capsule asymmetrical at the base and "hump backed," often whitened; rare, but often locally abundant in bogs, peaty wetlands, and barrens; NE; fl. late May, before the leaves; FACW.



Vaccinium corymbosum L.

Highbush blueberry

Deciduous shrub to 4 m tall; twigs warty-dotted, glabrous or pubescent; leaves elliptic, mostly entire, glabrous or pubescent; corolla white or pink, tubular, 5-12 mm long; berry blue, sweet, 5-12 mm; common in dry to wet woods, thickets, and stream banks; throughout; fl. May, frt. Jul-Aug; FACW-. [syn: *V. atrococcum* (A.Gray) A.Heller and *V. casariense* Mack. in part]

Vaccinium macrocarpon Aiton

Cranberry

Trailing evergreen shrub; twigs glabrous; leaves oblong-elliptic, entire, pale or whitened below; flower parts in 4s; corolla pink, the lobes strongly recurved, 6-10 mm long; berry red, sour, 10-20 mm; occasional in bogs, peaty wetlands, and seepy places; throughout; fl. Jun, frt. Sep-Oct; OBL.



Vaccinium oxycoccos L.

Small cranberry

Trailing evergreen shrub; twigs glabrous; leaves ovate to ovate oblong, entire, revolute, whitened below; flower parts in 4s; corolla pink, the lobes strongly recurved, 4-6 mm long; berry red, sour, 5-12 mm; infrequent in bogs and peaty wetlands; mostly N; fl. Jun, frt. Sep-Oct; OBL.



Aronia melanocarpa (Michx.) Elliot

Black chokeberry

Upright shrub with lustrous green leaves turning brown in autumn; branchlets and lower leaf surfaces nearly glabrous; fruits black, not persistent; occasional in swamps, bogs, wet or dry woods, and barrens; throughout; FAC.

Solidago uliginosa Nutt.

Bog goldenrod

Plants to 1.5 m tall, glabrous except in the inflorescence; basal leaves prominent, tapering to a long petiole with a sheathing base; blades oblanceolate to narrowly elliptic, serrate to subentire; cauline leaves reduced; inflorescence longer than broad, branches straight, not secund, or with short recurved-secund branches and a recurved tip; infrequent in bogs, swamps, sedge meadows, and fens; throughout; fr. Aug–Oct; OBL; ♀.

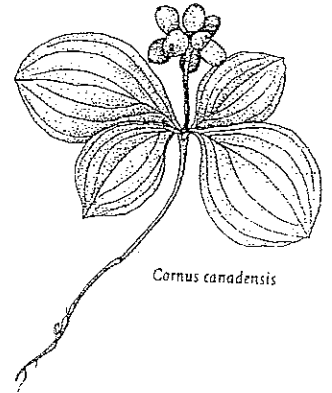
Cornus canadensis L.

Bunchberry, dwarf cornel

Erect herbaceous plant 1–2 dm tall from a woody rhizome; leaves in a whorl of 4–6 at the summit and paired below; flowers in a terminal cluster surrounded by 4 showy, white bracts; fruits red, clustered; occasional in cool, damp woods, bogs, and swamp edges; N and at high elevations along the Allegheny Front; fr. Jun, frt. late Jul–Aug; FAC–.



*Cornus
canadensis*
Flower

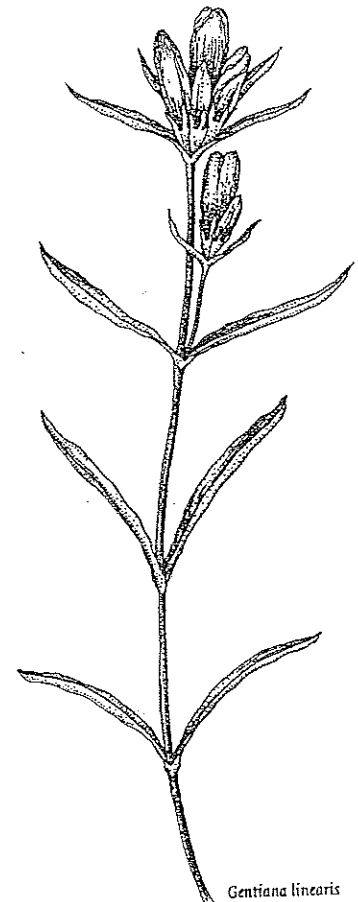


Cornus canadensis

Gentiana linearis Froel.

Narrow-leaved or bog gentian

Leaves linear to lanceolate; calyx lobes linear to oblong; corolla blue (violet or white), loosely closed or slightly open; lobes semicircular, 2.5–5 mm; appendages obliquely triangular, entire or shallowly erose; occasional in bogs, moist barrens, and wet meadows; NE and SW in the mountains; fr. Jul–Sep; OBL; ♀.



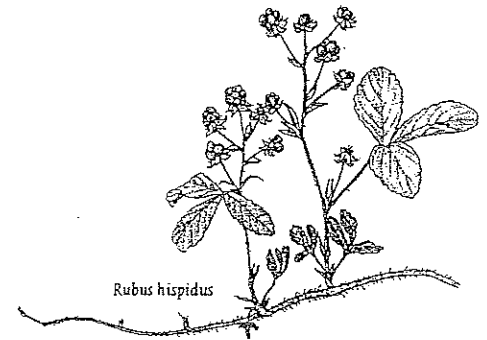
Gentiana linearis

Lycopus uniflorus Michx.

Bugleweed, water-horehound
Stolons long; leaves lanceolate to oblong, 2-6 cm long, acute to short-acuminate, teeth widely spaced; calyx lobes broadly triangular; common in swampy meadows, bogs, lake margins, and floodplains; throughout; OBL.

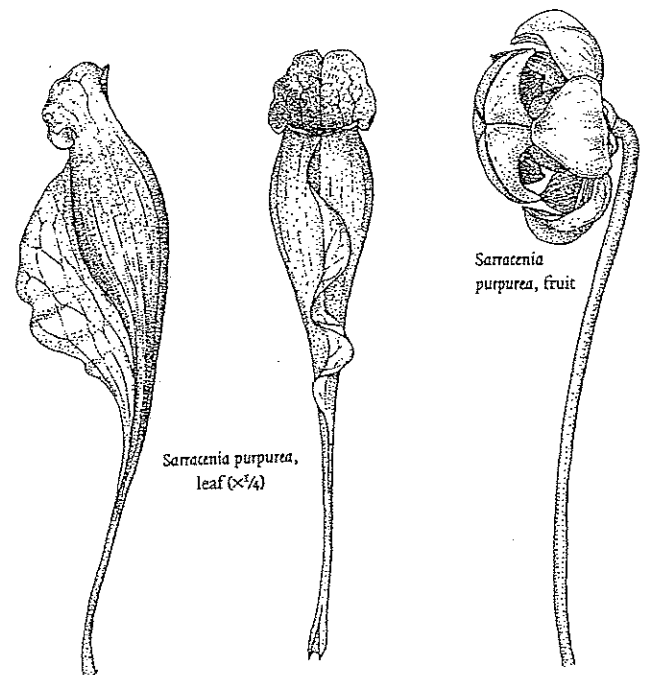
Rubus hispidus L.

Swamp dewberry
Stems trailing, rooting at the tips, with slender-based, slightly reflexed prickles and shorter glandular hairs; leaves 3-5-foliolate, shiny above; flowering branches erect; inflorescence a raceme; flowers white; frequent in bogs, swamps, moist woods, thickets, and barrens; throughout; fr. May-early Aug, frt. Aug-Sep; FACW.



Sarracenia purpurea L.

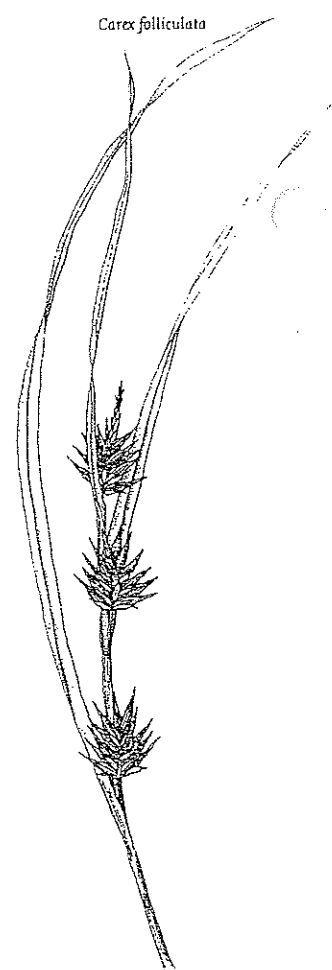
Pitcher-plant
Leaves 1-2 dm, curved-ascending at the base, winged on the lower side and with a pronounced lip; flowers nodding, petals maroon or red; style expanded in a 5-lobed, umbrella-like structure that persists long after the petals have dropped; frequent in sphagnum bogs; NE and NW and at high elevations along the Allegheny Front; fr. Jun; OBL.



Carex folliculata L.

Tufted; fertile shoots relatively stout, 3-12 dm tall; leaf blades glabrous, 6-14(17) mm wide, flat; lower bracts long-sheathing; terminal spikes male; lateral spikes female; pistillate scales awned or cuspidate; perigynia glabrous, yellow-green, lanceolate, spreading, 10-15 by 2-3.4 mm; beaks very gradually tapered, distance from summit of achene to beak apex 5-8.5 mm; achenes 3-sided; styles persistent; stigmas 3; bogs, swamps, and wet woods; frequent except in extreme SW; OBL.

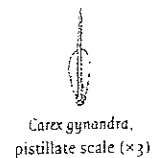
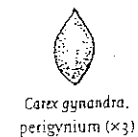
Sedge



Carex gynandra Schwein.

Tufted; fertile shoots 6.5-16.5 dm tall; sheaths scabrous; leaf blades 4-13 mm wide; ligules longer than wide; lowest bracts much longer than the inflorescence (17-60 cm long); female spikes drooping, 2.5-10 cm; pistillate scales tapering to a long awn (1.5-5.8 mm long); perigynia generally smooth, flattened, and elliptic, 2.4-4.2 by 1.4-2.1 mm, 0-1 nerve on each face; achenes indented on one side; marshy areas and wet woods; common; throughout; OBL.

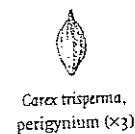
Sedge



Carex trisperma Dewey

Fertile shoots 2-5 dm tall, slender; leaf blades 0.5-2 mm wide, deep-green; inflorescences 1-5.5 cm long; lowest bracts mostly 3-10 cm long, very slender and bristle-like; spikes 1-3 per inflorescence, widely spaced, each containing 1-5 perigynia; pistillate scales acute; perigynia ascending, 2.7-3.7 by 1-1.7 mm; beak smooth, 0.4-0.7 mm long; bogs and wet woods; frequent, mostly N; OBL.

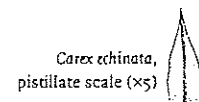
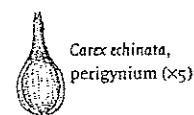
Sedge



Carex echinata Murray

Fertile shoots 1-9 dm tall; leaves shorter than to equaling fruiting shoots, the widest blades 1-2.7 mm wide; inflorescences 1-7.5 cm long; spikes aggregated to widely separated, the terminal one long-staminate at base; pistillate scales about as long as the perigynium body, acute, becoming brown-tinged; perigynia lanceolate to ovate, 2.7-4 by 0.8-2 mm, 1.8-3.2 times as long as wide, inner face with 0-12 nerves over achene; beaks long and serrulate, 0.85-2 mm, 0.4-0.85 times as long as the body; anthers 0.8-1.8 mm long; acidic wetlands on Sphagnum, peat, or wet sandy substrates; frequent E, occasional to rare W; OBL.

Prickly sedge

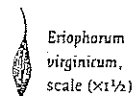


Carex echinata

Eriophorum virginicum L.

Tawny cotton-grass

Tufted with slender rhizomes; leaf blades to 4 mm wide; spikelets several, in a dense cluster; scales brown; bristles tawny; widespread in bogs, peaty meadows, and peaty swamps; throughout; frt. Aug-Sep; OBL.



Eriophorum virginicum, scale (x1 1/2)

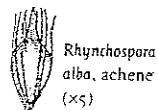


Eriophorum virginicum

Rhynchospora alba (L.) Vahl

White beak-rush

Stems erect to 7 dm tall, clustered, longer than the leaves; spikelets white or whitish-brown, in 1-3 glomerules, inflorescences from the lower axils long-peduncled; achenes flattened, pear-shaped, narrowed at the base; occasional in bogs and swamps; throughout; OBL.



Rhynchospora alba, achene (x5)

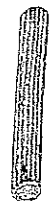
Juncus effusus L.

Soft rush

Stems densely clustered, to 1 m tall or more; leaves reduced to basal sheaths; inflorescence apparently lateral, many-flowered, the subtending bract erect, 10-25 cm long; flowers prophyllate; stamens 3; capsule obtuse to truncate, slightly shorter to slightly longer than the perianth; common in swamps, moist fields, floodplains, shores, and ditches; throughout; 2 varieties:



Juncus effusus var. *solutus* capsule (x2 1/2)



Juncus effusus var. *pylaei*, ridged stem (x2)



Juncus effusus var. *solutus*, base of plant

Juncus effusus var. *solutus*

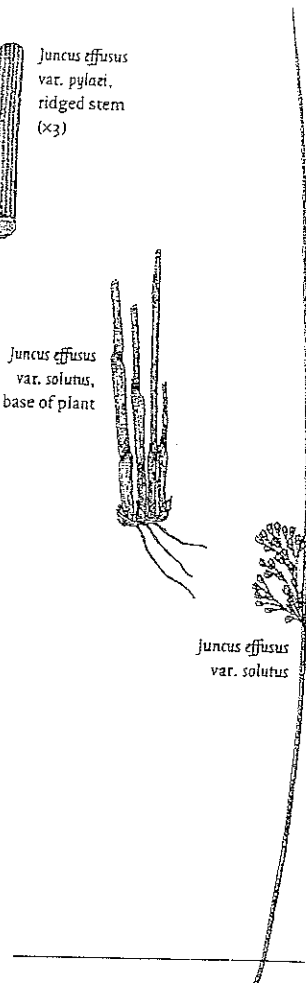
Juncus filiformis L.

Thread rush

Slender, leafless stems arising in rows from a long rhizome, the apparently lateral inflorescence subtended by an erect bract 1/2 to as long as the true stem; flowers prophyllate; stamens 6; rare in bogs and sandy shores; NE and NW; FACW; ☞.



Juncus filiformis, capsule (x2 1/2)



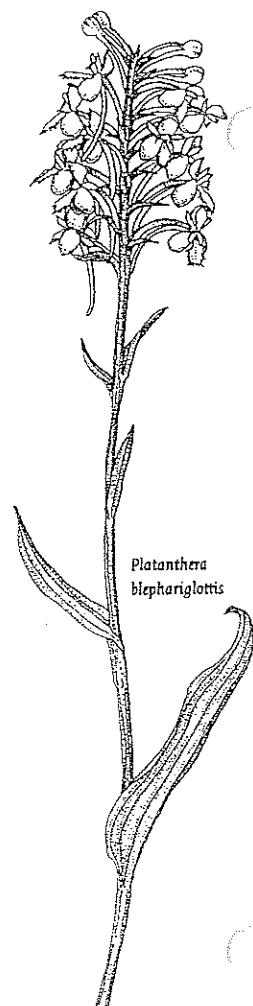
Platanthera blephariglottis (Willd.) Lindl.

White fringed-orchid

Stem 4–10 dm tall with several alternate leaves; flowers white; sepals broadly ovate; lateral petals shorter and narrower, lip narrowly oblanceolate, 8–11 mm long, deeply fringed except at the narrowed base; spur slender and elongate; rare in sphagnum bogs and swamps; NE; fl. Jun–Aug; OBL; ♀. Hybrids with *P. ciliaris* are known from several sites.



Platanthera blephariglottis, flower (×1)



Platanthera blephariglottis

Epilobium leptophyllum Raf.

Willow-herb

Erect perennial 2–10 dm tall from slender stolons, pubescent with incurved hairs; leaves linear to linear-lanceolate, 1.5–7 cm long by 1–7 mm wide, entire or revolute; flowers in the upper axils, petals pink to white, 4–6 mm, entire; capsule to 5 cm; hairs of the seeds pale brown; occasional in marshes and boggy pastures; mostly E and C; fl. Apr–early Sep; OBL.

Epilobium leptophyllum, stem (×5)



Glyceria canadensis (Michx.) Trin.

Rattlesnake mannagrass

Culms to 1 m tall, solitary or a few in a tuft; blades 3–8 mm wide; panicle diffuse, with drooping branches bearing spikelets mostly toward the tips; spikelets ovate, 5–10-flowered, 4–8 mm long; lemmas 2.9–4 mm long; moist woods, marshes, swamps, and wet shores; throughout; late Jun–early Sep; OBL.



Glyceria canadensis, spikelet (×2 1/2)

Glyceria striata (Lam.) A.Hitchc.

Fowl mannagrass

Culms 5–12 dm tall; principal blades 2–5 mm wide; panicle 1–2 dm long, with spikelets mostly beyond the middle; spikelets 3–6-flowered, sometimes purplish; lemmas 1.4–2.1 mm long; wet woods, swamps, and bogs; common throughout; late May–Aug; OBL.

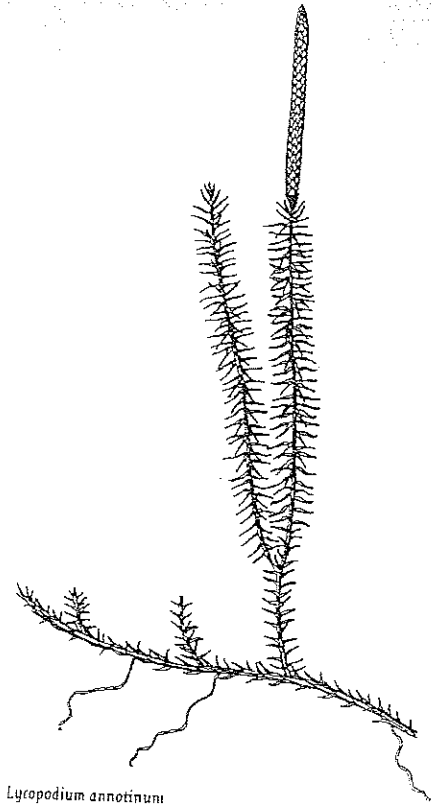


Glyceria striata, spikelet (×4)

Lycopodium annotinum L.

Horizontal stems at the soil surface; erect shoots 0.6–2.5 dm tall, sparingly dichotomously branched from near the base; leaves spreading to reflexed, dark green, linear-lanceolate, 5–8 mm by 0.6–1.2 mm, margins shallowly dentate toward the tip, apex narrowly acute but lacking a hair tip; strobili solitary, sessile on the main shoot apex; occasional in cool, shaded, often moist forests, often on rocky sites; N and at higher elevations along the Allegheny Front; FAC.

Bristly clubmoss

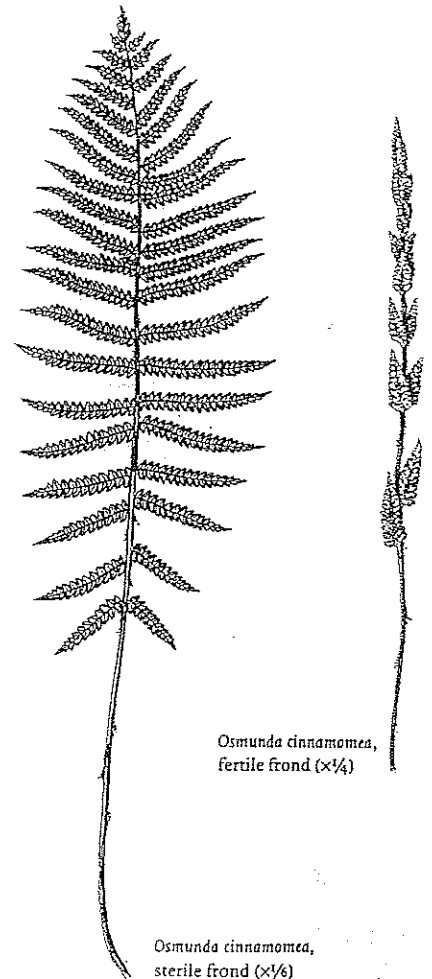


Lycopodium annotinum

Osmunda cinnamomea L.

Fronds dimorphic; stipe and rachis with rusty brown hairs, especially in tufts at pinna-rachis joints; vegetative fronds to 1.5 m tall; vegetative blade broadly lanceolate-ovate, pinnate-pinnatifid; ultimate segments broadly acute apically, margin entire to shallowly crenulate; veins branching dichotomously; first basal pinna of the basal pinna not overlapping the rachis; fertile fronds appearing in early spring, to 0.5 m tall, initially greenish, soon turning cinnamon-red and soon afterward withering; common in swamps, vernal ponds, seeps, and stream margins in acid soils throughout; FACW.

Cinnamon fern



Osmunda cinnamomea,
fertile frond (x1/4)

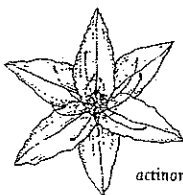
Osmunda cinnamomea,
sterile frond (x1/6)

GLOSSARY

- abaxial: side away from the main axis (e.g., the underside of a leaf)
achene: dry, indehiscent, one-seeded fruit with the seed not adnate to the fruit wall
actinomorphic: radially symmetrical (see also zygomorphic)
acuminate: forming an angle $<45^\circ$ (see illustration on plate 2)
acute: forming an angle $>45^\circ$ and $<90^\circ$ (see illustration on plate 2)
adaxial: side toward the main axis (e.g., the upper side of a leaf)
adnate: condition resulting from the fusion of dissimilar parts (usually stamens to petals)
adventive: locally established outside of a plant's native range
alluvial soils: soils deposited by running water
alternate leaved: having only 1 leaf attached at each node of a stem (see illustration on plate 2)
anastomosing: curving and branching repeatedly
anemophilous: wind pollinated
annual: a plant that completes its life cycle in 1 year
annular: ring-like
anther: sac-like part of a stamen that produces pollen (see illustration on plate 1)
anthesis: period of flowering
antrorse: directed upward or frontward
apetalous: without petals
apex: the top or distal end of a plant organ
apical: of the apex
apiculate: ending in a short, slender point (see illustration on plate 2)
apiculum: a short, slender point
appressed: flat against a plant organ
approximate: close to
areolae: the areas between the veinlets of a leaf
aril: a fleshy covering present on some seeds
arilate: having an aril
aristate: having a bristle at the tip (see illustration on plate 2)
armature: armament (thorns, spines, or prickles)
attenuate: tapering very gradually to a very slender tip or base (see illustration on plate 2)
auricle: ear-shaped appendage
auriculate: having auricles (see illustration on plate 2)
autumnal: occurring in the autumn
awn: long, bristle-like appendage
axillary: occurring in the axil of a leaf
axillary bud: bud occurring in the junction formed by the leaf and stem (see illustration on plate 2)
axil: the junction of a leaf and a stem



achene



actinomorphic



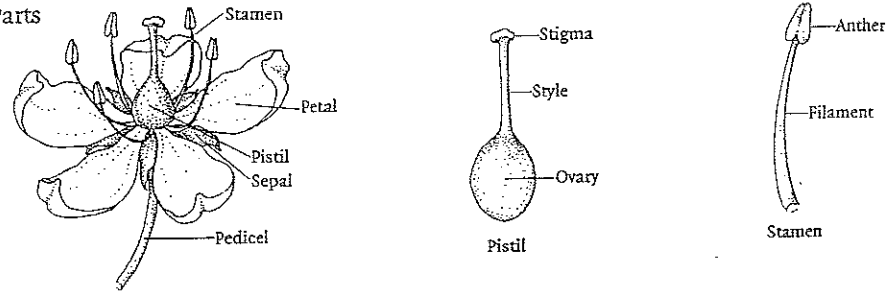
anastomosing



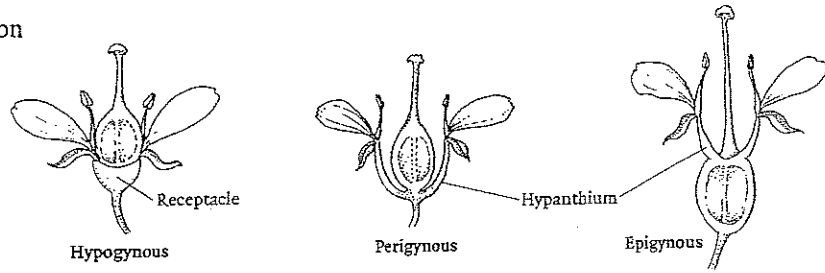
aril

PLATE 1

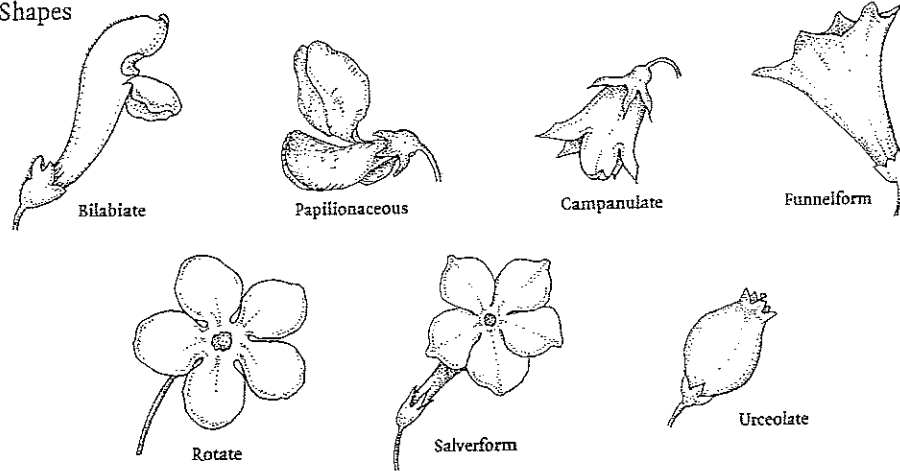
Flower Parts



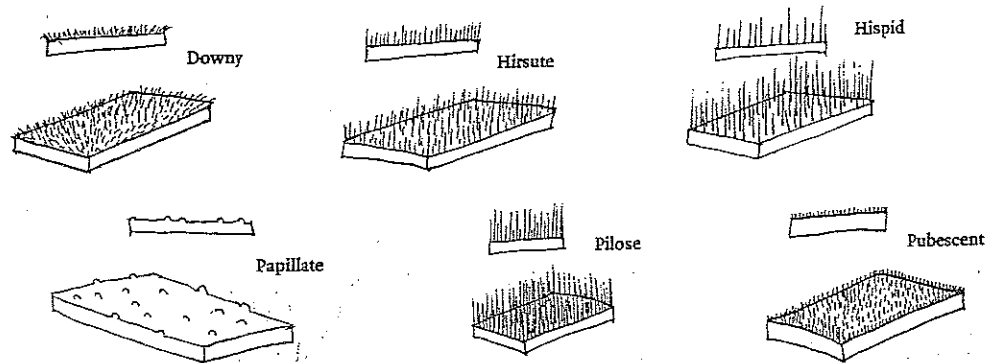
Ovary Position



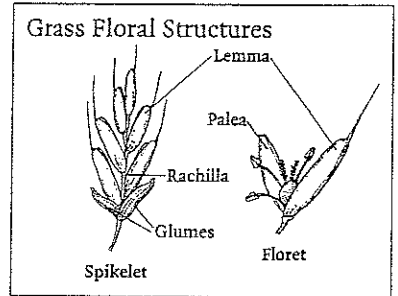
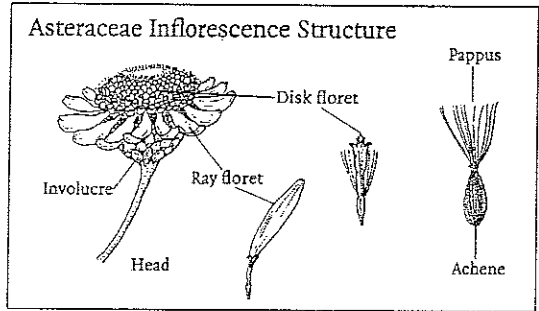
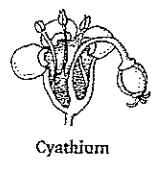
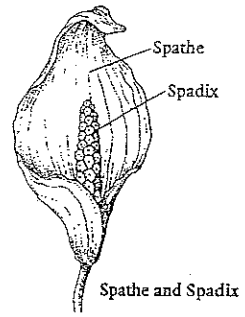
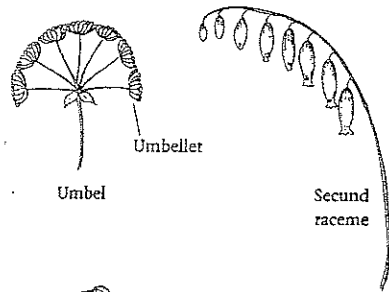
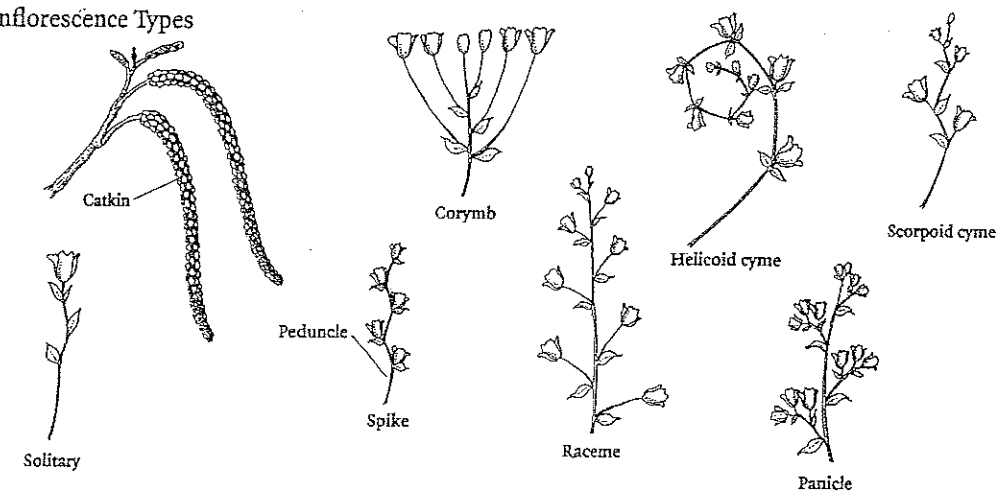
Corolla Shapes



Surface Features



Inflorescence Types



Surface Features continued

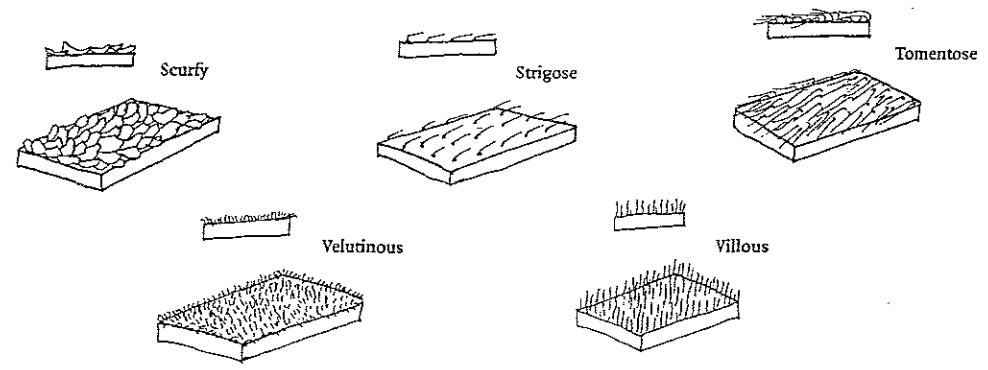
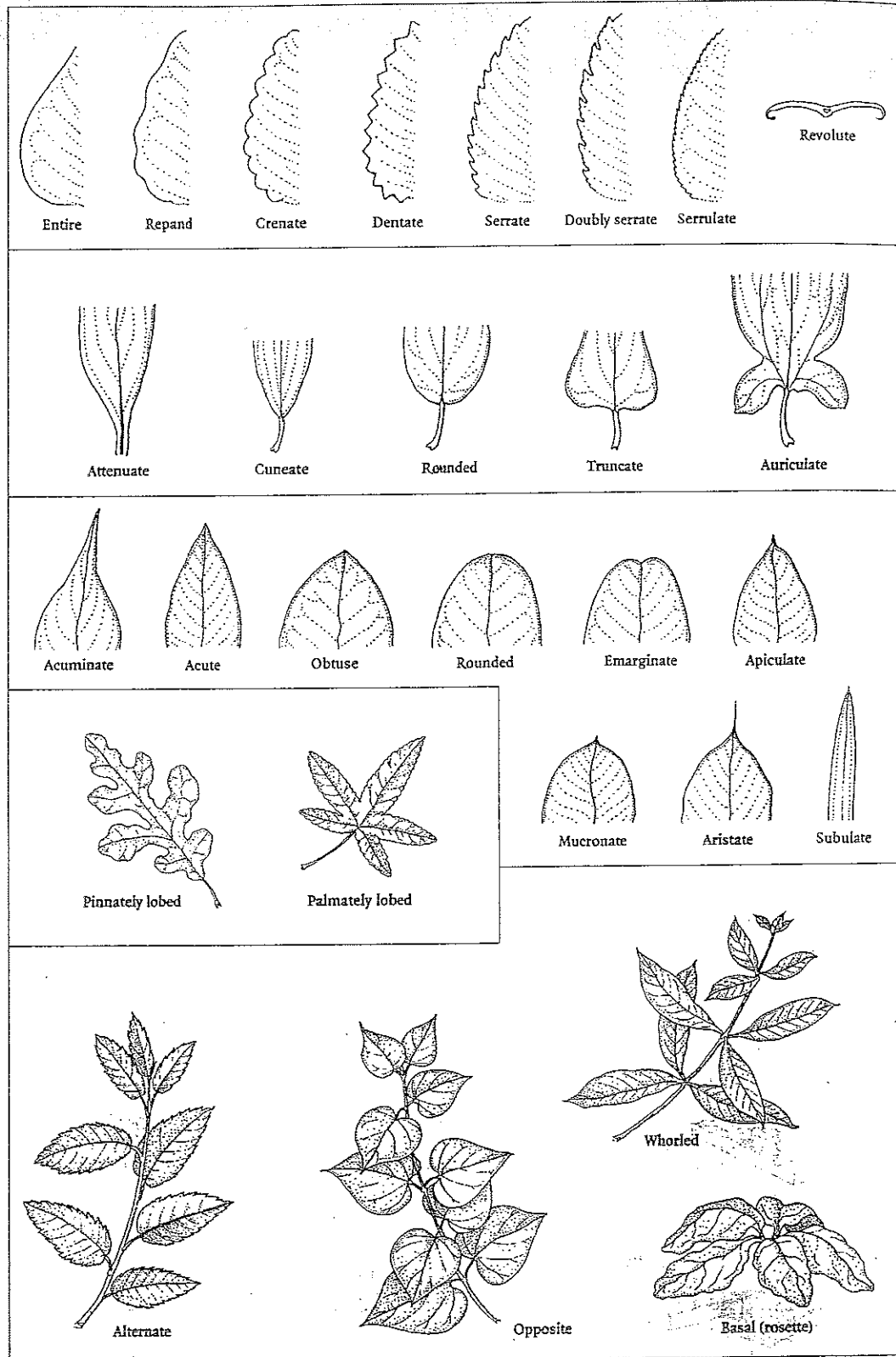
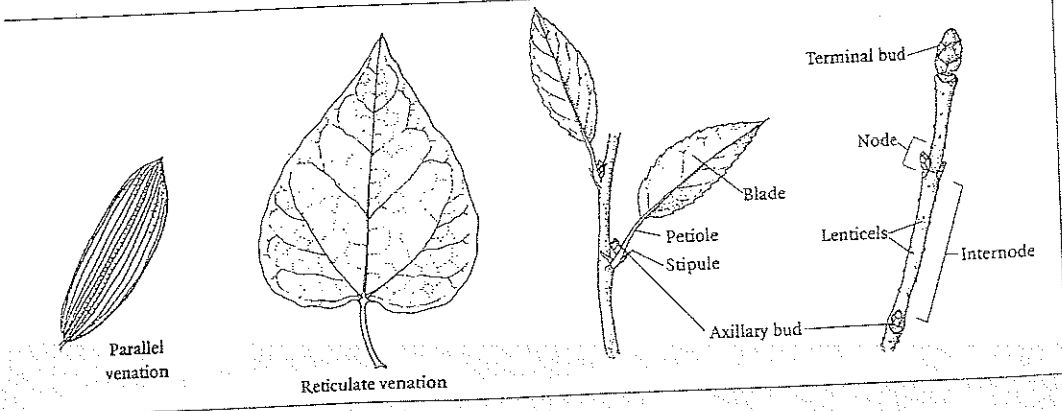
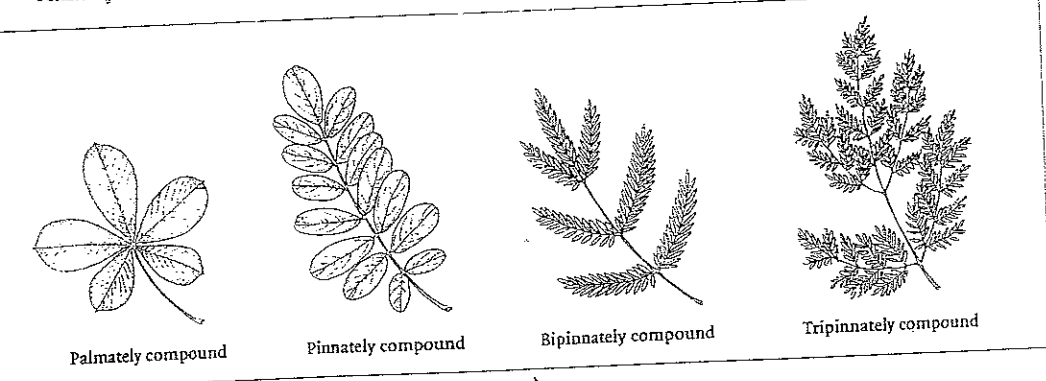
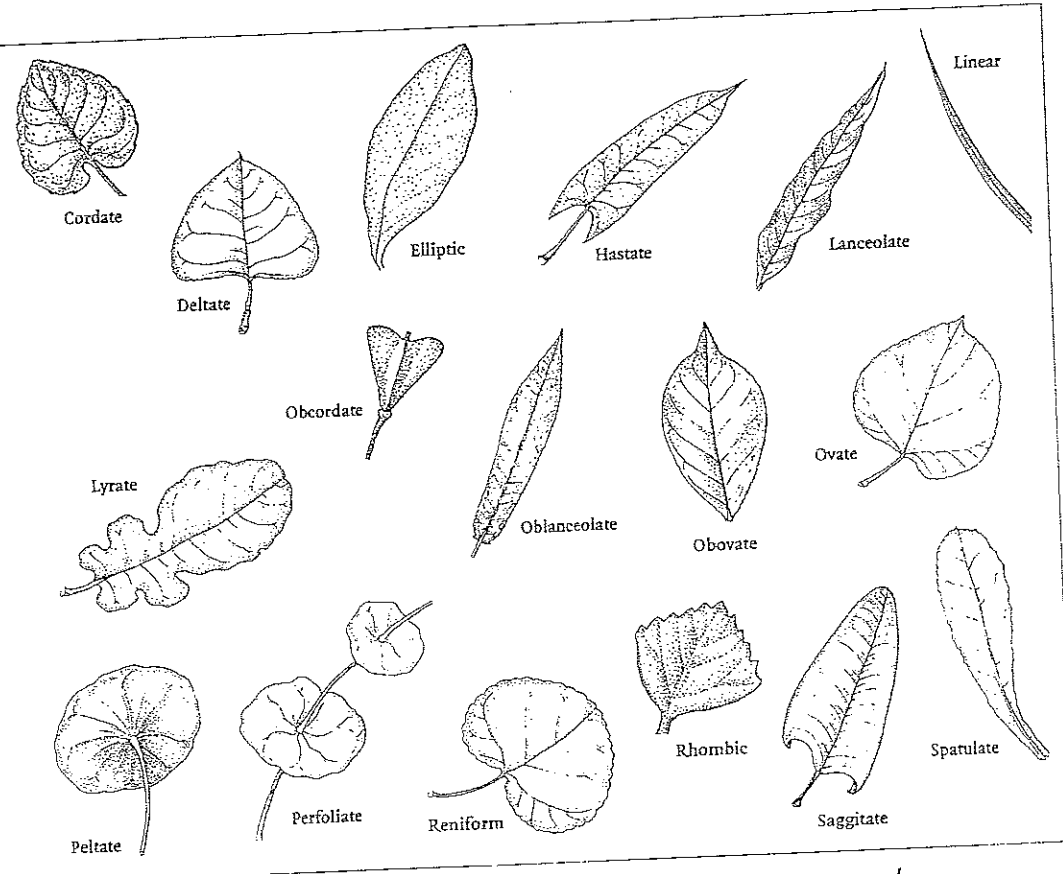
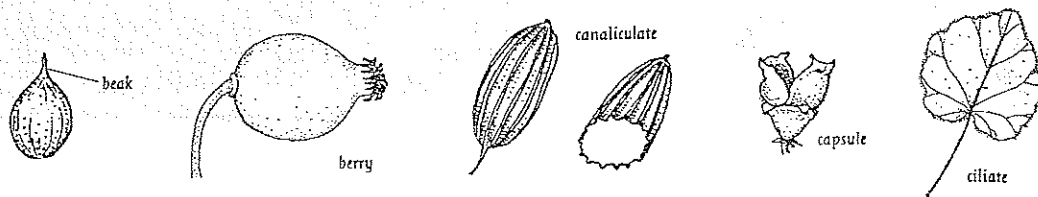


PLATE 2 Leaf Terminology

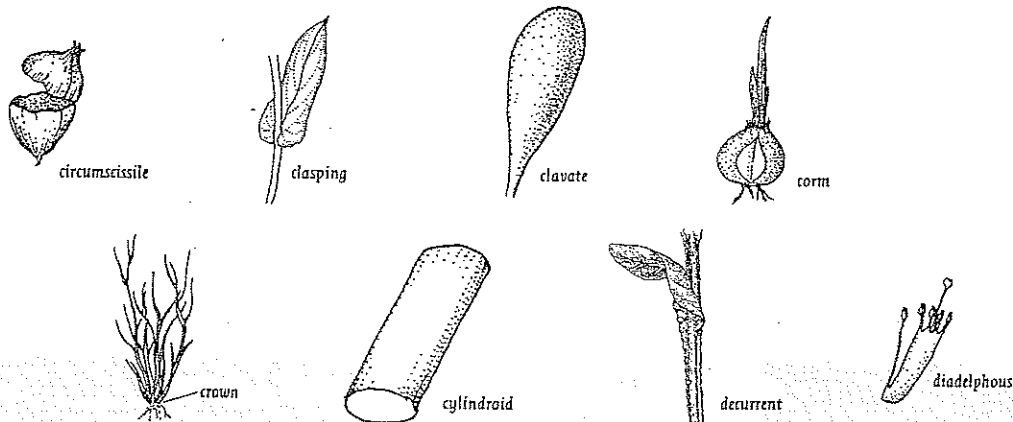




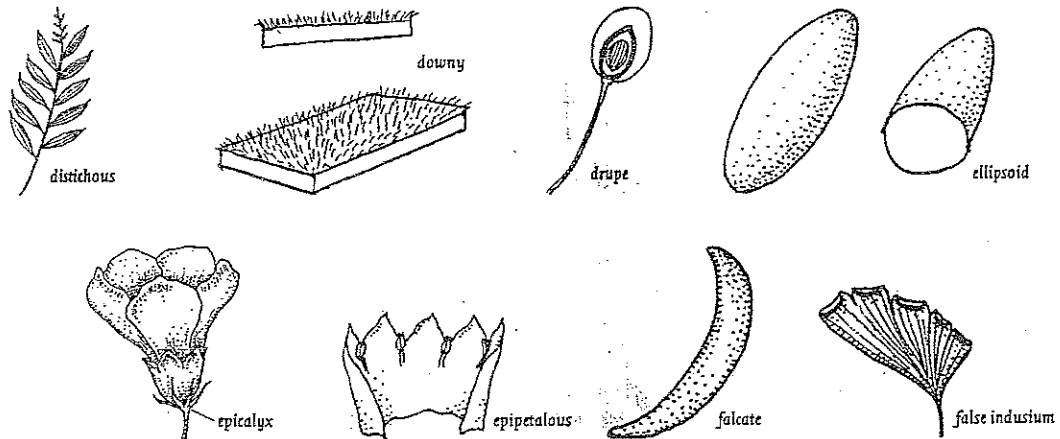


- barrens: areas of natural, often shrubby vegetation where tree growth is sparse due to droughty conditions, low nutrient soils, and/or frequent fire
- basal: at or near the base
- basifixed: attached by the base
- basilaminar: occurring at the base of a leaf blade
- beak: a narrow, prolonged tip
- berry: a fleshy, several-seeded fruit developing from a single pistil
- bicarpellate: having 2 carpels
- bidentate: having 2 teeth
- biennial: a plant that completes its life cycle over a 2-year period
- bilabiate: 2-lipped (see illustration on plate 1)
- bipinnate: twice pinnately compound (see illustration on plate 2)
- bipinnatifid: twice pinnately cleft
- blade: the flattened portion of a leaf (see illustration on plate 2)
- bog: low nutrient (usually acidic) peatland
- bractetole: see bractlet
- bract: a leaf-like structure often subtending an inflorescence
- bractlet: a small bract subtending a branch of an inflorescence or an individual flower within an inflorescence
- calcareous: soils with high calcium content, usually of limestone origin
- calyx: collective term for the set of sepals
- campanulate: bell-shaped (see illustration on plate 1)
- canaliculate: with a groove or channel (U-shaped if viewed in cross section)
- capitate: head-like
- capsule: dry, dehiscent fruit composed of more than one carpel
- carpel: organ that bears the ovules and seeds in angiosperms, basic unit of the pistil
- caryopsis: dry, indehiscent, one-seeded fruit with the seed adnate to the fruit wall
- catkin: dense, spike-like, often drooping inflorescence of reduced unisexual flowers (see illustration on plate 1)
- caudex: short, thick, persistent base of a herbaceous perennial
- cauline: of the stem
- cespitose: densely tufted or bunched
- chasmogamous: flowers that open normally
- ciliolate: with minute hairs along the margin
- ciliate: bearing long, stiff hairs along an edge or keel
- cinereous: grayish due to the presence of hairs
- circumscissile: dehiscing along an equatorial line
- claspings: partly surrounding the stem at the base of the leaf
- clavate: club-shaped
- claw: the narrowed base of some petals or sepals
- cleistogamous: flowers that never open
- collateral bud: a bud occurring beside an axillary bud
- colonial: forming spreading patches of plants or stems derived from a single individual
- composite: a plant or inflorescence of Asteraceae
- compound leaf: a leaf divided into leaflets (see illustration on plate 2)
- concave: curved inward
- conduplicate: folded and flattened lengthwise
- connate: condition resulting from the fusion of similar parts

convex: curved outward
 cordate: heart-shaped and attached at the lobed end (see illustration on plate 2)
 corm: upright, enlarged, fleshy base of a stem
 cormose: having a corm
 corolla: collective term for the set of petals
 corona: an outgrowth from the base of the petals or stamens in some flowers
 corymb: a flat- or round-topped, indeterminate inflorescence, usually with the lower pedicels longer than the upper (see illustration on plate 1)
 corymbiform: shaped like a corymb
 corymbose: corymb-like
 crenate: margin bearing rounded teeth (see illustration on plate 2)
 crenation: rounded projection along the margin of a leaf or stipule
 crown: persistent base of an herbaceous perennial
 culm: a stem or stalk in the grasses (Poaceae), sedges (Cyperaceae), or rushes (Juncaceae)
 cultivar: form of a plant originating in cultivation
 cuneate: wedge-shaped (see illustration on plate 2)
 cuspidate: tipped with a short, sharp, abrupt point
 cyathium: inflorescence type in Euphorbiaceae consisting of a cup-like involucre that contains a single pistillate flower, reduced to the pistil only and several staminate flowers, each reduced to 1 stamen only (see illustration on plate 1)
 cylindroid: like a cylinder, but elliptic in cross section
 cyme: a flat- or round-topped determinate inflorescence in which the terminal or central flower blooms first (see illustration on plate 1)
 deciduous: shedding leaves seasonally every year
 decumbent: reclining on the ground but with the tip ascending
 decurrent: extending downward along the stem
 decurved: see deflexed
 deflexed: bent downward
 dehiscent: a fruit opening at maturity to release the seeds
 deltate: triangular (see illustration on plate 2)
 deltoid: see deltate
 dentate: margin with sharp teeth that point directly outward from the midvein (see illustration on plate 2)
 depauperate: growing in a reduced form (usually a result of marginal habitat conditions)
 diabase: an igneous rock that is high in magnesium and iron
 diadelphous: having stamens united into 2 clusters
 dichotomously: branching in 2s
 digitate: finger-like
 dioecious: species with unisexual flowers borne on separate plants
 discoid: in Asteraceae, an inflorescence composed entirely of disk florets

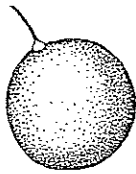


disk: in Asteraceae, the central portion of an inflorescence composed of disk florets
 disk floret: in Asteraceae, those flowers that are regular and tubular (see illustration on plate 1)
 distal: toward the tip or end
 distichous: in 2 rows on opposite sides
 distylous: having 2 styles
 divaricate: widely spreading
 doubly serrate: margin with sharp, forward-directed teeth, these bearing smaller teeth (see illustration on plate 2)
 downy: covered with soft, fine hairs
 dredge spoil: sandy or gravelly substrate removed from a stream bed and deposited on land
 droughty: subject to periodic drying
 drupe: fleshy fruit in which the inner layer of the fruit becomes stony and encloses 1- several seeds
 drupelet: a small drupe
 echinate: having prickles or spines
 ellipsoid: elliptic in 3 dimensions
 elliptic: broadest at the middle and narrowing to equal ends (see illustration on plate 2)
 emarginate: slightly indented at the apex (see illustration on plate 2)
 emersed: said of plants or plant parts occurring beneath the surface of water
 entire: without teeth or lobes (see illustration on plate 2)
 epicalyx: a whorl of bracts resembling a calyx; an additional whorl of bracts beneath the calyx
 epigynous: having an inferior ovary(s) (see illustration on plate 1)
 epipetalous: having another floral part (usually stamens) fused to the petals
 epiphyte: a plant that uses a host plant for physical support but derives no nutrient from the host
 erose: irregularly toothed
 even pinnate: pinnately compound leaf terminated by a pair of leaflets
 excurrent: extending beyond
 exfoliating: peeling in layers
 exserted: extending from
 extirpated: no longer growing in an area
 falcate: sickle-shaped
 false indusium: seen in the ferns of the genus *Adiantum*, where the edge of the leaf curls under to form an indusial flap (see also indusium)
 farinose: mealy or powdery
 fascicled: united into a bundle





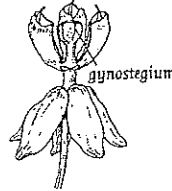
follicle



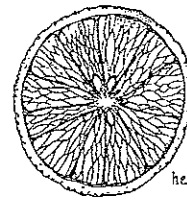
globose



glomerule



gynostegium



hesperidium



hip

fen: high nutrient peatland

fern allies: spore-bearing plants often grouped with the ferns but not closely related to them

fertile frond: a spore-producing leaf in the ferns, differing in size and/or shape from the sterile fronds (see also sterile frond)

fibrillose: bearing delicate fibers or hairs

fiddlehead: a juvenile fern leaf, curled like the end of a violin

filament: slender stalk of a stamen that supports the anther (see illustration on plate 1)

filamentous: finely thread-like

filiform: thread-like

flexuose: curving or bending

flexuous: see flexuose

floret: a small flower within a dense cluster, as in the Poaceae or Asteraceae

floricane: second-year flowering and fruiting stem of *Rubus* (Rosaceae)

floriferous: bearing flowers

foliaceous: bearing leaves

follicle: dry, dehiscent fruit derived from 1 carpel and splitting along 1 suture

friable: easily torn

frond: a fern leaf

funneliform: funnel-shaped (see illustration on plate 1)

fuscous: dark gray-brown

genera: plural of genus

genus: taxonomic level above species and below family

gibbous: swollen on one side

glabrate: mostly glabrous

glabrescent: see glabrate

glabrous: not bearing hairs

gland: structure that secretes a sticky or oily substance

glandular: bearing glands

glaucous: having a waxy coating, often resulting in a bluish color

globose: globe-shaped

glomerule: dense cluster

glume: one of a pair of bracts that subtend a spikelet in Poaceae (see also lemma and palea)

(see illustration on plate 1)

glutinous: sticky or gummy

gynostegium: structure formed by the fusion of the anthers and stigma in Asclepiadaceae

hastate: arrowhead-shaped with the basal lobes turned outward (see illustration on plate 2)

illustration on plate 2)

head: rounded, densely crowded inflorescence of sessile or subsessile flowers (see

illustration on plate 1)

helicoid cyme: spirally coiled cyme (see illustration on plate 1)

hemiparasite: photosynthetic plant that derives part of its nutrient requirements from

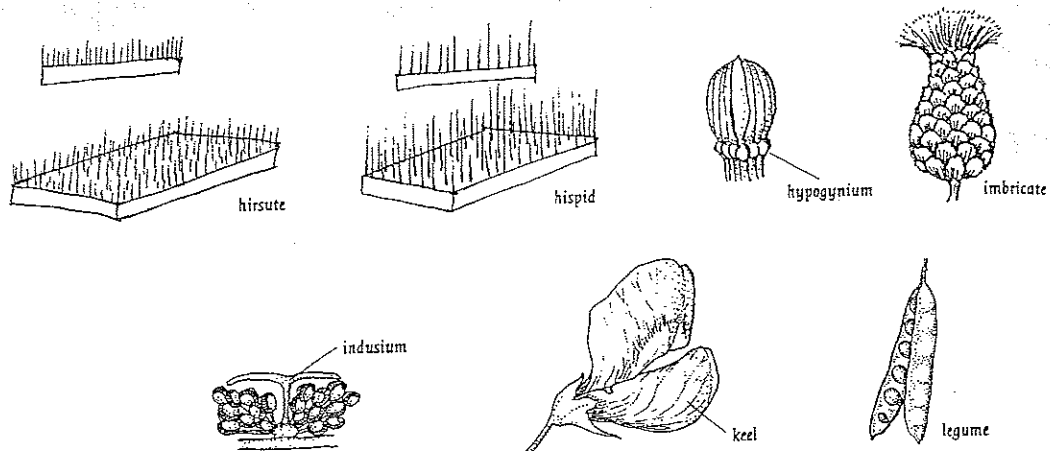
another plant

hesperidium: thick-skinned berry containing juice-filled sacs characteristic of citrus fruits

heterostylous: having 2 or more different sizes or shapes of styles

hip: fruit that is an aggregation of achenes surrounded by an urn-shaped receptacle and

hypanthium characteristic of *Rosa* (Rosaceae)



hirsute: bearing stiff hairs

hirsutulous: bearing very short stiff hairs

hirtellous: see hirsutulous

hispid: bearing very stiff straight hairs

hispidulous: bearing short very stiff hairs

hyaline: thin, colorless, and nearly transparent

hypanthium: cup-like floral structure resulting from the fusion of the calyx, corolla, and stamens, often surrounding or partly fused to the ovary(s) (see illustration on plate 1)

hypogynium: disk at the base of the achene in some Cyperaceae

hypogynous: having a superior ovary(s) (see illustration on plate 1)

imbricate: made up of scales whose edges overlap (usually refers to bud scales) (see also valvate)

indehiscent: a fruit not opening at maturity

indigenous: native to a given area

indusium: a protective flap of tissue associated with a sorus in the ferns

inferior ovary: condition in which the stamens and perianth parts are attached above the ovary (= epigynous)

inflexed: bent downward or inward

inflorescence: a grouping or cluster of flowers

infrastipular: below the stipules

infructescence: an inflorescence in fruit

inrolled: rolled inward (usually leaf margins)

internerves: the area between the nerves or veins (usually of a leaf)

internodal: between the nodes

internode: portion of the stem to which leaves are not attached (see also node) (see illustration on plate 2)

intervenal: see internerve

intranodal: within the node

introduced: a non-native plant brought in intentionally

involucral: of an involucre

involucre: a set of usually small, overlapping bracts subtending an inflorescence or flower

irregular: bilaterally symmetrical, zygomorphic

keel: a longitudinal ridge; the lower fused petals of some Fabaceae

lacinate: deeply divided into long flat segments

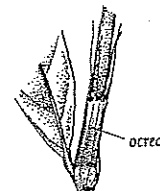
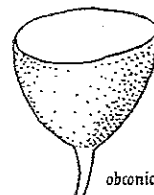
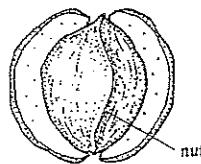
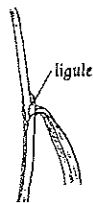
lacunar: having an empty, air-filled space

lanceolate: much longer than wide with the widest part below the middle, lance-shaped (see illustration on plate 2)

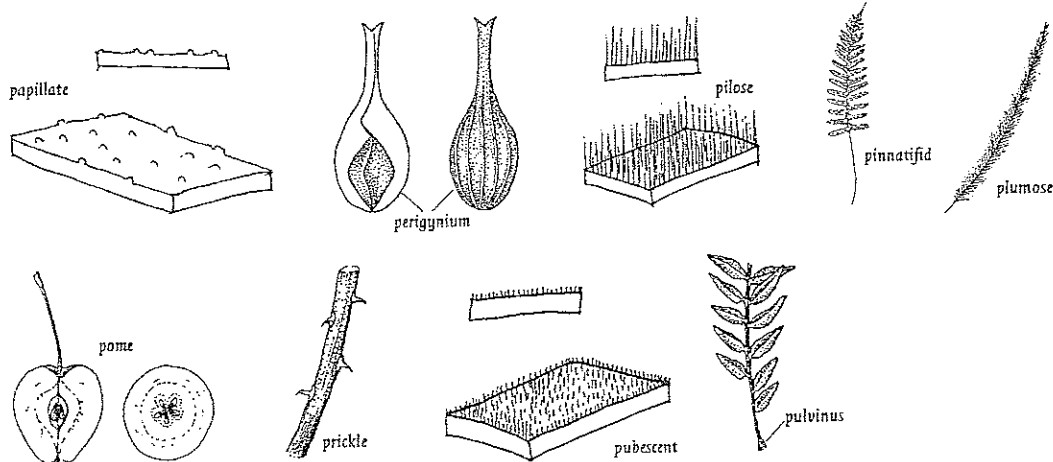
leaflet: a division of a compound leaf

legume: dry, dehiscent fruit formed from 1 carpel and splitting along 2 sutures, characteristic of Caesalpinaceae, Fabaceae, and Mimosaceae

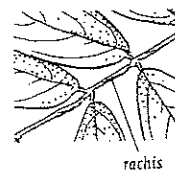
lemma: the lower of the 2 bractlets that subtend a floret in a grass spikelet (see also palea and glume) (see illustration on plate 1)
 lenticel: corky pore in the bark of a stem (see illustration on plate 2)
 lenticular: lens-shaped
 ligulate: having ligules
 ligule: tongue- or strap-shaped organ (sometimes reduced to a fringe of hairs) at the junction of the blade and sheath in grasses and sedges
 linear: very narrow with parallel sides (see illustration on plate 2)
 lobulate: with small lobes
 locule: chamber within an ovary containing the developing ovules or seeds
 loculocidal: dehiscing through the locules
 lyrate: lyre-shaped (see illustration on plate 2)
 megasporangium: sporangium that produces large, female spores
 membranaceous: thin and membrane-like
 membranaceous: see membranaceous
 merous: parts of a set
 mesic: moist
 microsporangium: sporangium that produces small, male spores
 midnerve: the usually prominent central nerve or vein of a leaf or other structure
 midvein: see midnerve
 monadelphous: having stamens united into 1 cluster or fascicle
 monoecious: species with unisexual flowers borne on the same plant
 monospecific: a genus or family containing only 1 species
 monotypic: any taxonomic level containing only 1 taxon of lower rank
 mucronate: abruptly tapered to a short, sharp point (see illustration on plate 2)
 mucronulate: very shortly mucronate
 mycorrhiza: a symbiotic relationship between a fungus and the roots of a plant
 mycotrophic: having a mycorrhizal relationship
 native: a plant occurring within its pre-European settlement range
 naturalized: non-native plants that have become established and reproduce without human assistance
 nectary: a tissue that produces nectar
 node: specific region of the stem to which the leaf or leaves are attached (see also internode) (see illustration on plate 2)
 nut: dry, indehiscent fruit with a single seed enclosed in a hardened carpel wall
 nutlet: a small nut
 obconic: cone-shaped and attached at the narrow end
 obcordate: heart-shaped and attached at the narrow end (see illustration on plate 2)
 oblanceolate: much longer than wide with the widest part above the middle (see illustration on plate 2)
 obligate: restricted to certain conditions
 obovate: egg-shaped and attached by the narrow end (see illustration on plate 2)
 obovoid: egg-like and attached at the narrow end
 obpyramidal: pyramid-like and attached at the narrow end
 obtuse: forming an angle $>90^\circ$ (see illustration on plate 2)
 ocrea: a stipular sheath at the nodes in Polygonaceae
 ocreae: plural of ocrea



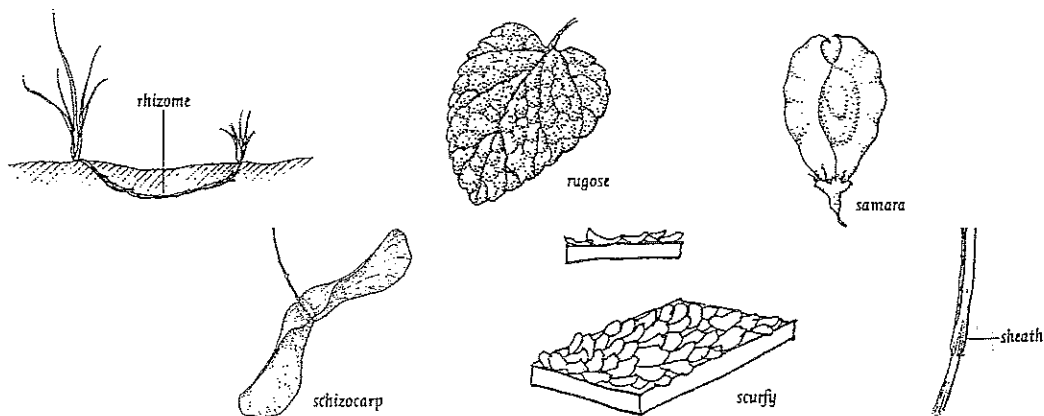
ocreolae: a small stipular sheath at the branches of the inflorescence in some Polygonaceae
 odd pinnate: pinnately compound leaf terminated by a single leaflet
 old field: an abandoned agricultural field, usually in the early stages of succession
 oogonium: an egg bearing cell in some algae
 opposite leaved: having 2 leaves attached at each node on opposite sides of the stem (see illustration on plate 2)
 outcurved: curved outward
 ovary: that portion of the pistil that contains the ovules and seeds (see illustration on plate 1)
 ovate: egg shaped and attached at the wider end (see illustration on plate 2)
 ovoid: egg-like
 ovule: an immature seed
 palea: the upper of the 2 bracts that subtend a floret in a grass spikelet (see also lemma and glume) (see illustration on plate 1)
 palmate: like the fingers of a hand (see illustration on plate 2)
 palustrine: of wet meadows or marshes
 panicle: a branched inflorescence with pedicelled flowers (see illustration on plate 1)
 papilionaceous: butterfly-shaped, as in pea or bean flowers (see illustration on plate 1)
 papilla: a short, rounded bump
 papillate: having papillae
 pappus: the bristles or scales at the apex of the achenes in Asteraceae (see illustration on plate 1)
 parallel venation: having the major veins of the leaf parallel to the axis or margins (see illustration on plate 2)
 parasite: a plant (nonphotosynthetic) which derives all of its nutrient requirements from another plant
 pedicel: the stalk of an individual flower (see illustration on plate 1)
 pedicellate: having a pedicel
 peduncle: the stalk of an entire inflorescence, or of a single flower if solitary (see illustration on plate 1)
 pellucid dots: translucent dots in the leaves most visible when held up to the light
 peltate: leaf with the petiole attached near the middle of the blade (see illustration on plate 2)
 perennial: a plant that survives for more than 2 years
 perfect flower: a flower having both functional male and female reproductive organs
 perfoliate: leaf with the blade surrounding the stem so that the stem appears to pass through the leaf (see illustration on plate 2)
 perianth: collective term for the set of petals and sepals
 perigynium: a sac-like structure that encloses the pistil or achene in *Carex* (Cyperaceae)
 perigynous: a flower in which the ovary sits in a cup formed by the hypanthium (see illustration on plate 1)
 petal: an individual segment of the corolla (see illustration on plate 1)
 petaliferous: having petals
 petaloid: petal-like
 petiolate: having a petiole(s)
 petiole: the stem-like stalk of a leaf (see also blade) (see illustration on plate 2)
 petiolulate: having a petiolule(s)
 petiolule: the stem-like stalk of a leaflet
 phyllary: an individual bract of an involucre (usually in Asteraceae)
 pilose: bearing long, soft, straight hairs
 pinnae: the first order divisions of a pinnately compound leaf, especially in the ferns
 pinnate: arranged on opposite sides of an elongate axis (see illustration on plate 2)
 pinnatifid: pinnately cleft
 pinnules: divisions of a pinna
 pistil: the female reproductive organ of a flower (see illustration on plate 1)
 pistillate: a flower lacking male reproductive organs



- pith: the central soft portion of a stem
- placentation: the arrangement of ovules or seeds within a fruit
- planoconvex: flat on one side and convex on the other
- plumose: feather-like
- pollinium: an often sticky packet or cluster of pollen (usually in Orchidaceae or Asclepiadaceae)
- polygamodioecious: mostly dioecious, but with some perfect flowers
- polygamous: bearing both unisexual and perfect flowers on the same plant
- polyploid: having 3 or more complete sets of chromosomes
- polyploidy: the condition of being polyploid
- pome: a fleshy, berry-like fruit from a multi-carpellate inferior ovary adnate to a modified hypanthium as in *Malus* or *Pyrus* (Rosaceae)
- prickle: a sharp spine-like outgrowth of the plant epidermis, occurring anywhere on the plant
- primocane: the first year non-flowering stems of *Rubus* (Rosaceae)
- procumbent: lying flat on the ground, but not rooting at the nodes
- prophyllate: subtended by small bracts
- prostrate: see procumbent
- protuberance: a rounded bulge or projection
- proximal: toward the base
- pseudobulb: bulb-like base of the leaves often found in the Orchidaceae
- puberulence: minute pubescence
- puberulent: minutely pubescent
- pubescent: bearing short, soft hairs
- pulvinus: a swelling at the base of the petiole or petiolule of some leaves
- pyramidal: pyramid-like and attached at the wide end
- raceme: unbranched inflorescence with pedicelled flowers (see illustration on plate 1)
- racemiform: shaped like a raceme
- rachilla: the axis of a grass or sedge spikelet (see illustration on plate 1)
- rachis: the main axis of a compound leaf or inflorescence
- radiate: spreading from a central point
- ray floret: in Asteraceae, those flowers that are irregular and bear a single strap-shaped petal (see illustration on plate 1)
- receptacle: the portion of the pedicel to which the flower parts are attached (see illustration on plate 1)
- receptacular: of the receptacle
- recurved: bent backward or downward
- reflexed: see recurved



regular: radially symmetrical, actinomorphic
 reniform: kidney-shaped (see illustration on plate 2)
 repand: slightly wavy (see illustration on plate 2)
 reticulate venation: with the veins of the leaf branching repeatedly, net-veined (see illustration on plate 2)
 retrorse: directed downward or backward
 revolute: with the margin rolled under (see illustration on plate 2)
 rhizoid: a small root-like structure without vascular tissue
 rhizome: horizontal usually below ground stem
 rhombic: diamond-shaped (see illustration on plate 2)
 rootlet: a small root
 rosette: a radiating cluster of leaves at ground level (see illustration on plate 2)
 rotate: a flat, circular corolla with widely spreading lobes and little or no tube (see illustration on plate 1)
 rounded: without an indentation or point (see illustration on plate 2)
 rugose: wrinkled
 rugulose: slightly wrinkled
 saccate: sac-like
 sagittate: arrowhead-shaped with the basal lobes directed downward (see also hastate) (see illustration on plate 2)
 salverform: trumpet-shaped (see illustration on plate 1)
 samara: a dry, indehiscent winged fruit
 scaberulous: slightly rough to the touch
 scabrous: rough to the touch
 scape: a naked peduncle
 scarious: a thin, non-green, membranous tissue
 schizocarp: dry, indehiscent fruit splitting into 2 one-seeded segments at maturity
 scorpioid cyme: cyme with a zigzag rachis (see illustration on plate 1)
 scurfy: bearing small scales
 secund: bearing all of the flowers or other structures along 1 side of an elongate rachis (see illustration on plate 1)
 sepal: an individual segment of the calyx (see illustration on plate 1)
 septate: bearing a partition(s)
 septum: a partition
 serpentinite: a metamorphic rock high in magnesium and heavy metals
 serrate: margin with sharp, forward directed teeth (see illustration on plate 2)
 serrulate: margin with very small, sharp, forward directed teeth (see illustration on plate 2)
 sessile: attached directly without a stalk
 setose: bearing bristles
 setulose: bearing short bristles
 sheath: the basal portion of a leaf which surrounds the stem

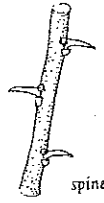




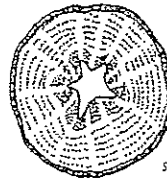
silique



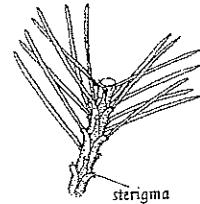
sorus



spine



stellate



sterigma

sheathing: having a sheath

silique: dry, dehiscent fruit derived from 2 carpels and dehiscing along 2 sutures, leaving a persistent septum, characteristic of Brassicaceae

simple leaf: a leaf not divided into leaflets

sinuous: wavy or snake-like

sinus: the cleft between 2 lobes of a leaf

solitary: an inflorescence consisting of a single flower (see illustration on plate 1)

sorus: aggregation of sporangia in the ferns, commonly appearing as spots on the underside of a frond

spadix: a spike-like inflorescence subtended or enclosed by a sheathing bract (see illustration on plate 1)

spathe: a large, leaf-like bract subtending or enclosing a spadix or an inflorescence (see illustration on plate 1)

spatulate: rounded toward the top and very gradually tapered to the base (see illustration on plate 2)

spike: an inflorescence with sessile flowers along an elongate axis (see illustration on plate 1)

spikelet: small, spike-like inflorescence or section of an inflorescence (see illustration on plate 1)

spine: sharp pointed projection of leaf origin

spinulose: bearing very small spines

sporangiaster: hairs with numerous apical branches mixed with the sporangia in the sori of some ferns of the genus *Polypodium*

sporangium: sac-like structure where spores are produced

spores: dust-sized propagules of non-seed plants

spur: slender sac-like appendage

squarrose: abruptly recurved or spreading

stamen: the male reproductive organ of a flower (see illustration on plate 1)

staminal: of or having to do with stamens

staminate: a flower lacking female reproductive organs

staminode: a modified and usually greatly reduced stamen, not functional as a sexual organ

staminodia: plural of staminode

staminoids: stamen-like structures

stellate: star-shaped, as the pith of *Quercus* (Fagaceae)

sterigma: persistent peg-like base of a leaf remaining on the twig (as seen in the genus *Picea*)

sterigmata: plural of sterigma

sterile frond: in the ferns, a leaf not producing spores

stigma: the portion of the pistil that receives the pollen (see illustration on plate 1)

stipe: the "petiole" of a fern frond

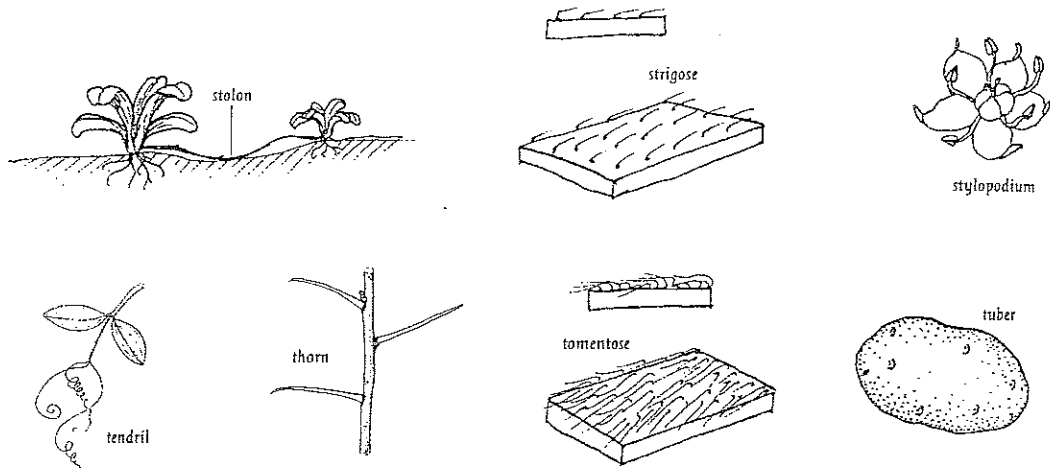
stipel: stipule-like structure at the base of a leaflet

stipellule: see stipel

stipitate: on a stalk

stipule: leaf-like appendage at the base of the petiole (see illustration on plate 2)

stipule scar: linear mark on the twig at the base of the petiole or leaf scar left after the falling of a stipule



stolon: horizontal stem at ground level, rooting at the nodes

stoloniferous: having stolons

stramineous: straw-colored

striate: with parallel lines

strigose: bearing stiff, straight, appressed hairs

stylal: of the style

style: portion of the pistil that connects the stigma to the ovary (see illustration on plate 1)

stylopodium: disk-like expansion at the base of the style in Apiaceae

sub- (prefix): used to indicate nearly, almost, somewhat, etc.

submergent: remaining under water

subtend: to occur closely below

subulate: tipped by a fine, sharp point (see illustration on plate 2)

succulent: juicy and fleshy, thickened

superior ovary: condition in which the stamens and perianth parts are attached below the ovary (= hypogynous)

superposed bud: a bud occurring directly above an axillary bud

suture: a line of fusion or dehiscence

swale: low, wet area

sympetalous: having fused petals

syncarp: a fruit with united carpels

taproot: large, dominant central root

taxa: plural of taxon

taxon: any level of classification

tendril: a coiled organ used for support

tepal: sepals and petals when the two are indistinguishable

terete: rounded when viewed in cross section

terminal bud: a bud occurring at the apex of a stem (see illustration on plate 2)

ternate: occurring in 3s

thallus: a flattened plant body

thorn: sharp pointed projection of branch origin

tomentose: bearing soft, tangled hairs

trichome: a plant hair

trichotomously: splitting in 3s

trilocular: having 3 locules

tripinnate: 3 times pinnately divided (see illustration on plate 2)

truncate: abruptly flattened as if cut off (see illustration on plate 2)

tuber: an underground storage organ of stem origin

- tubercule: tuber-like swelling
 tuberosity: small swelling at the base of the lip in the flowers of *Spiranthes* (Orchidaceae)
 turion: overwintering short, vegetative shoot in some aquatic plants
 twice pinnate: see bipinnate (see illustration on plate 2)
 umbel: a more or less flat topped or rounded inflorescence in which the pedicels arise from a common point (see illustration on plate 1)
 umbellet: a subdivision of a compound umbel (see illustration on plate 1)
 umbelliform: shaped like an umbel
 understory: tree layer below the canopy in a forest
 unilocular: having 1 locule
 urceolate: urn-shaped (see illustration on plate 1)
 utricle: small, one-seeded bladder-like fruit
 valvate: made up of scales whose edges do not overlap (usually refers to bud scales) (see also imbricate)
 valve: a segment of a dehiscent fruit
 veinlet: a small vein
 vein scar: dot-like marks within the leaf scar indicating the number of vascular traces to the leaf
 velutinous: bearing short, soft, spreading hairs
 vernal: occurring in the spring
 vesicle: small bladder-like structure
 villous: bearing long, soft hairs
 viscid: sticky or gummy
 whorled: having 3 or more leaves or other structures attached at a node or point on a stem (see illustration on plate 2)
 zygomorphic: bilaterally symmetrical (see also actinomorphic)

