

The Taxonomic Reminder For Recognizing Saskatchewan Plants was developed by John Hudson and distributed by the Saskatchewan Natural History Society (Nature Saskatchewan). Both Nature Saskatchewan and John Hudson's family have provided their permission for this important contribution to identifying Saskatchewan's flora to be made available online.

The following is an article written in 2010 in tribute to John Hudson by Vernon L. Harms, originally printed in the Native Plant Society of Saskatchewan's Native Plant News (Vol. 15, No. 2) and included here with permission from the Native Plant Society of Saskatchewan. The Taxonomic Reminder begins on the next page.

Remembering a Great Botanist

By Vernon L. Harms

Former U. of S. Professor of Botany

With the passing of John Howard Hudson, we have lost a dedicated, highly knowledgeable, and prolific floristic botanist. While formally educated, John's extensive botanical knowledge and plant identification expertise were almost entirely self-learned and his many botanical contributions came via his hobby rather than through paid professional work.

John was born on July 27, 1923, to Allan and Dorothy Hudson, and raised on the family farm between Mortlach and Parkbeg, Sask. After graduating from the University of Saskatchewan with a master's degree in Chemistry, John worked for many years at the Saskatchewan Research Council in Saskatoon as a ceramics engineer.

John had an especially great love and enthusiasm for botany and Saskatchewan plants. This became an overwhelming life-time endeavour. During summers, he made numerous botanizing trips throughout the province. He collected in excess of 5,000 specimens of native and naturalized plants.

John was a selective collector, searching especially for the new, rare and unusual plants ("novelties" he called them). Besides keen vision, John appeared to have an encyclopedic mind and a photographic memory that seemingly allowing him to 'scroll' through identification keys in his mind while examining plants in the field. John's neat, well collected specimens, were accompanied by hand-scripted labels giving meticulous collecting data. John's plant collections are especially valuable in containing so many meaningful contributions to the known flora of Saskatchewan.

Over the course of more than a half-century John almost annually published botanical articles or notes, reporting and describing the new, rare or unusual, native and naturalized plants that he had found during preceding field seasons. Literally dozens of newly discovered plant species in the natural flora of Saskatchewan were collected and reported by John and the known ranges of many other species were significantly amplified. A singularly important contribution to our knowledge of Saskatchewan's flora was his *Carex* in Saskatchewan, published in 1977. John Hudson certainly left his mark with his many contributions to our knowledge of the Saskatchewan flora.

But the foregoing hardly begins to adequately describe the impact John made on many botanically interested persons in Saskatchewan. Over the years he identified or verified plant collections for numerous individuals. He accompanied many on field trips, sharing his considerable knowledge. He was our resident Saskatchewan expert on sedges (*Carex* spp.) and was frequently con-tacted in this capacity.

John Hudson was a highly intelligent and knowledgeable person. Personally, I appreciated him as a colleague and friend, and have fond memories of hours spent working together, both in the her-barium and in the field. During the non-field season, John would spend almost every noon hour, and often evenings and weekends, working with the plant collections in the University of Saskatchewan's W.P. Fraser Herbarium. We had numerous deliberations about various plants. Questions were often passed to him for comment. John was not an overly verbal man but he would deliver his words and comments deliberately and precisely. One can remember well his delightful, though subtle, sense of humour.

Recently John donated his fine plant collections to the W. P. Fraser Herbarium. These excellent collections themselves represent a valuable continuing legacy for him.

John was a special person who contributed much to Saskatchewan floristic botany. As a person, he meant much to many of us, and he will be greatly missed.

TAXONOMIC REMINDER
FOR RECOGNIZING
SASKATCHEWAN PLANTS

JOHN H. HUDSON

Saskatchewan Natural History Society

Box 1784, Saskatoon, Saskatchewan S7K 3S1

1985

TAXONOMIC REMINDER FOR RECOGNIZING
SASKATCHEWAN PLANTS

John H. Hudson

May, 1981

This list has been prepared for those in the field who can pretty well tell what genus a plant before them belongs to, but cannot always remember the distinguishing marks of the species therein. The list is to go with the writer's four checklists of Saskatchewan plants (south-west, southeast, centre, and north), so that the user may have some quick way of checking whether the name being marked off on the list pertains to the observed plant.

The statements here made about each species are primarily intended to separate it from the other species of the same genus. Thus, normally, a statement given for one species implies that the other species of its genus do not share the property, for one reason or another. Normally there is not space here to define genera and state their supporting characteristics. However, in some families where the genera are many, small and not very different from one another, it has been necessary to frame statements to exclude similar members of other genera. CRUCIFERAE and UMBELLIFERAE are such families. The authorities here have plainly set up the genera too close to one another.

All native and established introduced plants have been treated. Many ephemeral introductions mentioned in floras but which have not gotten established have been omitted. I fear the criterion for establishment has here been whether I have seen that plant or not. For such plants, should the user come across one, we now have several standard floras--Boivin, Scoggan, Moss, Looman--which may be consulted.

A list of symbols and abbreviations follows. Some uncommon words are defined there, too. As for the definition of run-of-mine botanical terms, the glossary of any flora may be consulted.

SYMBOLS, ABBREVIATIONS, & DEFINITIONS

- adnate: grown together, fused on
- alt: alternate, leaves that are borne singly
- androg: androgynous; of a CAREX, with the staminate flowers at the top or end of the spike
- caps: capsule, pod
- cesp: c(a)espitose, growing in tufts or bunches without rhizomes
- cm: centimeters
- distig EUCAREX: a sedge (CAREX) with the staminate flowers confined to the topmost spike or spikes (these spikes may not be wholly staminate), and the lateral (lower) spikes all pistillate and normally stalked, but with stigmas 2 and achenes lenticular. Usually a EUCAREX has stigmas 3 and achenes triangular in section.

- dm: decimeter; 10 cm, about a handsbreadth
- equant: dimensions more or less the same in all 3 directions
- fert: fertile; of ferns, bearing spores; of flowering plants, flowers that produce seeds
- fl, flo: flower, flowers
- glab: glabrous; hairless
- gynec: gynecandrous; of a CAREX with the pistillate flowers at the top or end of the spike
- hoods: in ASCLEPIADACEAE, the organs which look like erect petals, but are outgrowths from the reflexed true petals
- infl: inflorescence ; inf = inferior
- lf: leaf
- lflts: leaflets
- lge: large
- ligulate: in a composite, with all the flowers of a head bearing rays
- m: meter, meter tall
- mm: millimeters
- § MONTANAE: a section in EUCAREX, of usually small and dry-ground sedges, with fibrous material on the crown, reddish rhizomes, and hairy perigynia. Perigynia and achenes are nearly round in cross-section.
- opp: opposite, with 2 leaves at the same place (a node) on a stem
- § OVALES: a section in subgenus VIGNEA of CAREX, meeting the definitions given for VIGNEA and also tufted without creeping rhizomes, all spikes staminate at base, perigynia wing-margined
- perig: perigynium, perigynia; in CAREX, the baglike closed scale which contains the seed (an achene, really)
- rhiz: rhizomatic; has underground long-creeping rhizome which sends up green shoots as it goes; for this list the symbol includes plants where the creeping and suckering organ is, strictly speaking, a root.
- sori: dots on fern fronds containing spore cases
- s.l.: sensu lato, in a broad sense--the species name as used here includes one or more other described species which either are not biologically distinct anyway, or cannot be told apart in the field
- st, sts: stem, stems
- stig, stigs: stigma, stigmas
- stip: stipules
- subm: submersed; underwater

- terete: cylindrical, with a round cross-section
- turions: condensed plantlets for vegetative reproduction borne at the stem base. Bulbils are the same thing but borne higher up, often where the flowers ought to be.
- VIGNEA: The subgenus in CAREX (sedges) with all spikes sessile, all spikes normally having some staminate flowers either at tip or base, stigmas 2, achene lenticular, and perigynium flattened with cross-section D or D or D . If a CAREX is not mentioned to be 1-spiked or a VIGNEA, it is a EUCAREX, with staminate flowers in the uppermost spikes only, the lateral spikes pistillate and usually stalked, and (unless otherwise specified) stigmas 3 and achenes triangular and perigynia not flattened.

\bar{w} : with

w/o: without

1-fid: once pinnatifid, the "fid" implying that the divisions are not separate enough to be called leaflets.

2-fid: bipinnatifid- pinnatifid and the divisions themselves pinnatifid. Similarly 3-fid and 4-fid. If a statement "1-2 fid" is made, this means that the leaves in some specimens are once, in other specimens twice, pinnatifid.

♀ : pistillate; pistillate flowers

♂ : staminate plant or flowers

⊙ : annual

② : biennial. In the field you will usually see with biennials roughly as many first year rosettes as flowering plants in the same colony.

‡ : perennial

+ : 2 + means 2 or more, and the same for other numbers

± : more or less; kind of; usually, but not always

> : greater than; longer than

≧ : greater than or equal to

< : less than; shorter than

≦ : equal to or less than

≡ : as long as, equal to

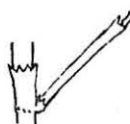
~ : about; approximately; of the order of

() : when containing a number, shows an extreme value

- Δ : triangular
 ϕ : diameter
 & : and
 / : when in the form A/B, means B is a synonym of A often used in books, but the writer prefers A as a name.
 x : by, of dimensions
 || : parallel
 \ll : much smaller/shorter than

EQUISETAC

EQUISETUM ARVENSE: Green and branched, no cone, sheath and branch:



EQUISETUM FLUVIATILE: Stems paper-thin, 4-8 mm ϕ , branched or not

EQUISETUM HYEMALE: On sheaths, a black-edged grey

ring  ; cone \bar{w} mucro 

EQUISETUM LAEVIGATUM: Stems \emptyset , unbranched; ring of dots on sheath; no mucro on cone.

EQUISETUM PALUSTRE: Green stem with whorled branches, tipped by a cone.

EQUISETUM PRATENSE: As ARVENSE, sheaths & branch:



EQUISETUM SCIRPOIDES: Stems < 1 mm ϕ , crinkly, not branched

EQUISETUM SYLVATICUM: Stem branched, branches branched; sheaths as russet flaps

EQUISETUM VARIEGATUM: Stems 1-2 mm ϕ , unbranched, teeth persistent, cone



LYCOPODIAC

LYCOPODIUM ANNOTINUM: Rhiz shallow; spike 1, sessile; shoots upright, unbranched

LYCOPODIUM CLAVATUM: Rhiz. shallow; spikes stalked; lvs bristle-tipped

LYCOPODIUM COMPLANATUM: Much branched, branches flattened, lvs adnate

LYCOPODIUM INUNDATUM: No rhizome, crawling on bog, sporophylls=leaves=



LYCOPODIUM OBSCURUM: Tree-shaped, spikes sessile, rhizome deep.

LYCOPODIUM SABINAEFOLIUM: 4 or 5 rows of adnate leaves, sterile stems in || tufts.

LYCOPODIUM SELAGO: Cespitose; bulblets and spore cases in leaf-axils, no spike.

SELAGINELLAC

SELAGINELLA DENSA: Stems rooting all along, <1 cm between roots.

SELAGINELLA RUPESTRIS: Stems running, 2-5 cm between roots.

SELAGINELLA SELAGINOIDES: No bristle-tips, sporophylls toothed, wider than leaves.

" ISOETAC

"
ISOETES ECHINOSPORA: Onionlike bottom aquatic; spore cases within leaf-bases.

OPHIOGLOSSAC

BOTRYCHIUM LANCEOLATUM: Frond Δ , sessile, 2-fid, high up stem.

BOTRYCHIUM LUNARIA: Frond oblong, 1-fid, pinnae 

BOTRYCHIUM MATRICARIAEFOLIUM: Frond oblong, 1-2 fid.

BOTRYCHIUM MULTIFIDUM: Fronds 2, basal, 2-3 fid.

BOTRYCHIUM VIRGINIANUM: Frond high up stem, 3-4 fid.

POLYPODIAC

ATHYRIUM FILIX-FOEMINA: As DRYOPTERIS AUSTRIACA but sori oblong.

CRYPTOGRAMMA CRISPA: Yellow green, fronds dimorphic, revolute edges on fert frond.

CYSTOPTERIS FRAGILIS: A nondescript fern; fronds lanceolate, bipinnate, pinnules serrate.

CYSTOPTERIS MONTANA: Frond deltoid, of 3 tripinnatifid divisions; rhiz.

DRYOPTERIS AUSTRIACA/SPINULOSA: Frond 3-fid, sori round, lvs serrate.

- DRYOPTERIS CRISTATA: Fronds 1-pinnate, the pinnae only cleft; sterile fronds overwintering.
- DRYOPTERIS FRAGRANS: Frond evergreen, red-scaly beneath.
- GYMNOCARPIUM DRYOPTERIS: Frond deltoid, of 3 bipinnatifid divisions, pale green.
- ONOCLEA STRUTHIOPTERIS: Fronds dimorphic; fertile brown & segmented; sterile ~1 m.
- PELLAEA GLABELLA: Frond 1-pinnate, revolute margined; stipes hairless.
- POLYPODIUM VULGARE: Frond evergreen, 1-divided only.
- THELYPTERIS PHEGopteris: Fronds 1-pinnate, pairs of upper pinnae joined at base; rhiz.
- WOODSIA GLABELLA: Cespitose, glabrous, frond 1-pinnate.
- WOODSIA ILVENSIS: Cespitose, rusty-chaffy, stubs uniform.
- WOODSIA OREGANA: As CYSTOPTERIS FRAGILIS but densely tufted.

MARSILEAC

- MARSILEA MUCRONATA: A 4-leaved clover \bar{w} beanlike spore cases on the rhizome.


PINAC

- ABIES BALSAMEA: Upright shattering cones, needles flat & coplanar.
- JUNIPERUS COMMUNIS: Bush; lvs needle-like; fruit a berry.
- JUNIPERUS HORIZONTALIS: Prostrate; lvs mostly scale-like; fruit a berry.
- JUNIPERUS SCOPULORUM: Tree; lvs scale-like; fruit a berry.
- PICEA GLAUCA: Cones 3-5 cm; needles solitary, squarish in section.
- PICEA MARIANA: Cones 1-2 cm; twigs fuzzy; needles as in GLAUCA.
- PINUS BANKSIANA: Cone-scales awnless; needles in 2's.
- PINUS CONTORTA: Cone-scales awned; needles in 2's.
- LARIX LARICINA: Lvs deciduous, in tufts of 15-20, cone \pm spherical
- TYPHAC
- TYPHA LATIFOLIA: Cat-tail; a big reed \bar{w} ♀ flowers a woolly sausage.

SPARGANIAC

- SPARGANIUM ANGUSTIFOLIUM: Lvs 2-4 mm wide.
- SPARGANIUM CHLOROCARPUM: Erect; infl $\frac{1}{2}$ - $\frac{1}{3}$ ht lvs;
beak=body.
- SPARGANIUM EURYCARPUM: Stigmas 2; tall (1 m), erect;
infl branched.
- SPARGANIUM FLUCTUANS: Infl branched.
- SPARGANIUM MINIMUM: Beak \sim 1 mm.
- SPARGANIUM MULTIPEDUNCULATUM: Lvs 5-10 mm wide.

ZOSTERAC

- POTAMOGETON ALPINUS: Floating lvs tapering at base,
plant red-tinged.
- POTAMOGETON AMPLIFOLIUS: Subm lvs folded, arcuate, 1-2
dm long; floating lvs present.
- POTAMOGETON CRISPUS: Lvs ruffled at edge, achene beaked.
- POTAMOGETON EPIHYDRUS: Has floating lvs; midrib of subm
lvs w pale strip 1-2 mm wide.
- POTAMOGETON FILIFORMIS: Adnate stips, achene $1\frac{1}{2}$ -2 mm.
- POTAMOGETON FOLIOSUS: Peduncle $<$ 1 cm, infl a head
 $\sim \frac{1}{2}$ cm long.
- POTAMOGETON FRIESII: Lvs 2-3 mm wide,  at tip.
- POTAMOGETON GRAMINEUS: Subm lvs 2 sizes, floating lvs
cordate.
- POTAMOGETON NATANS: Floating lvs jointed, subm lvs linear.
- POTAMOGETON OBTUSIFOLIUS: Achenes 3-4 mm, lvs 2-4 mm wide.
- POTAMOGETON PECTINATUS: Adnate stipules, achene 3-4 mm,
beaked.
- POTAMOGETON PRAELONGUS: Lvs clasping, $>$ 1 dm; stips $2\frac{1}{2}$ cm,
persistent.
- POTAMOGETON PUSILLUS: Peduncle $>$ 1 cm, lvs \sim 1 mm, pointed
at tip.
- POTAMOGETON RICHARDSONII: Lvs clasping, $<$ 1 dm; stips
 $<$ 2 cm, vanishing.
- POTAMOGETON ROBBINSII: Distichous sheathing lvs.
- POTAMOGETON STRICTIFOLIUS: As PUSILLUS, but stipules
shreddy-fibrous.
- POTAMOGETON VAGINATUS: Adnate sheath wider than stem.
- POTAMOGETON ZOSTERIFORMIS: Leaves=flat stem.



RUPPIA MARITIMA: : carpels.

ZANNICHELLIA PALUSTRIS: Lvs opp, achenes 

NAJADAC

NAJAS FLEXILIS: Lvs opp, seeds 

JUNCAGINAC

TRIGLOCHIN MARITIMA: Fruit ovoid, 6 carpels.

TRIGLOCHIN PALUSTRIS: Fruit oblong, 3 sharp carpels.

SCHEUCHZERIA PALUSTRIS: Stem leafy; fr 3 follicles.

LILAEAC


LILAEA SCILLOIDES: Lvs cylindrical; achenes both basal and terminal on scape.

ALISMAC

ALISMA GRAMINEUM: Blades tapering, pedicels recurved.

ALISMA PLANTAGO-AQUATICA: Blades cordate, pedicels ascending.

SAGITTARIA CUNEATA: Achene 

SAGITTARIA LATIFOLIA: Achene 

HYDROCHARITAC

ELODEA CANADENSIS: Lvs 3 per whorl, 2 mm wide; fls rare.


ELODEA LONGIVAGINATA: Lvs opp, 1 mm wide; fls frequent.


GRAMINAE

AGROPYRON ALBICANS: Lemma hairy & awned; rhiz.

AGROPYRON CRISTATUM: Cesp; spikelets flattened, overlapping.

AGROPYRON DASYSTACHYUM: Rhiz, lemma hairy.

AGROPYRON REPENS: Rhiz, green, glumes 



AGROPYRON SMITHII: Rhiz, blue-grey, glumes 




AGROPYRON SPICATUM: Cesp, outcurving awn.

AGROPYRON SUBSECUNDUM: Cesp, straight awns 1-3 cm.



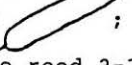

AGROPYRON TRACHYCAULUM: Cesp, awns 0-½ cm.





AGROPYRON INTERMEDIUM: Cesp, glumes & lemmas rounded at tip.



- AGROSTIS ALBA/STOLONIFERA: Nondescript; reddish panicle, often w̄ creeping overground stolons.
- AGROSTIS BOREALIS: Bent exserted awn.
- AGROSTIS EXARATA: Like KOELERIA etc., but 1 fl per spikelet.
- AGROSTIS SCABRA: Diffuse panicle, scabrous branches.
- ALOPECURUS AEQUALIS: Orange anthers, spikelets falling whole.
- ALOPECURUS ALPINUS: Panicle woolly, >1 cm wide, rhiz.
- ALOPECURUS CAROLINIANUS: ⊙, awned spikelets.
- ALOPECURUS GENICULATUS: Awn bent, exserted, 2
- ANDROPOGON GERARDI: Racemes 3-5 per node at 1-2 top nodes.
- ANDROPOGON SCOPARIUS: Raceme 1 per node, at 3-5+ culm nodes.
- ARISTIDA LONGISETA: 3 awns per lemma.
- AVENA FATUA: ⊙, elbowed awn, dark lemma.
- BECKMANNIA SYZIGACHNE: ⊙,  = spikelet, overlapping in 1-sided spikes.
- BOUTELOUA CURTIPENDULA: Spikes 15-20, ~5 spikelets/spike.
- BOUTELOUA GRACILIS: Spikes 2[±], ~50 spikelets/spike.
- BROMUS ANOMALUS: Nodding panicle, cesp, lower glume 3-nerved.
- BROMUS CARINATUS/MARGINATUS: Panicle strict, glumes & lemmas compressed-keeled.
- BROMUS CILIATUS: Cesp, lemma w̄ glabrous back & ciliate sides.
- BROMUS INERMIS: Rhiz, lemma glabrous, awn nil.
- BROMUS JAPONICUS: ⊙, awns divergent.
- BROMUS LATIGLUMIS/PURGANS: Cesp, lemma hairy, awned; auricled sheaths; lvs to 2 cm wide
- BROMUS PUMPELLIANUS: Rhiz, lemma hairy, awns [±].
- BROMUS TECTORUM: ⊙, awns straight, pedicels curved.
- BUCHLOË["] DACTYLOIDES: Dioecious; runners; ♂ fls as BOUTELOUA GRACILIS, ♀ 
- CALAMAGROSTIS CANADENSIS: Panicle open, nodes 5+.
- CALAMAGROSTIS INEXPANSA/NEGLECTA: Panicle narrow, herbage scabrous, callus hairs < lemma.

- CALAMAGROSTIS MONTANENSIS: Rhiz; culms solitary; awns bent.
- CALAMAGROSTIS LAPPONICA: Panicle loose but narrow; callus-hairs \geq lemma; nodes 2.
- CALAMAGROSTIS PURPURASCENS: Awns bent; exserted; spikelets \sim 6 mm.
- CALAMAGROSTIS RUBESCENS: Rhiz; culms clumped; collar hairy.
- CALAMOVILFA LONGIFOLIA: Callus hairy; leaves 2-6 dm.
- CATABROSA AQUATICA: Flowers 2/spikelet; leaves creeping aquatic. 
- CINNA LATIFOLIA: 1 fl/spikelet; lvs flat 1x10-15 cm.
- DANTHONIA CALIFORNICA: Infl \pm racemose; pedicels long.
- DANTHONIA INTERMEDIA: Infl paniculate; pedicels short.
- DANTHONIA SPICATA: Florets small, $<$ 5 mm.
- DANTHONIA UNISPICATA: Spikelet 1/culm; collar hirsute.
- DESCHAMPSIA CAESPITOSA: Lemma ; panicle shiny.
- DESCHAMPSIA MACKENZIEANA: Lemma ; plant \geq 1 m.
- DISTICHLIS STRICTA: Dioecious; lvs 2-ranked; collar hairy.
- ECHINOCHLOA CRUS-GALLI: \odot ; spikelets sessile, \pm awned, 3 apparent glumes.
- ELYMUS ARENARIUS: Rhiz; spikelets hairy; spikes $>$ 1 cm wide; glumes flat-bladed.
- ELYMUS CANADENSIS: Awns divergent; glumes $<$ 1 mm wide.
- ELYMUS CINEREUS: Awnless; cesp; 1-2 m tall; many stem leaves.
- ELYMUS DIVERSIGLUMIS/INTERRUPTUS: Glumes bristles; leaves 1-2 cm wide.
- ELYMUS GLAUCUS: Awns straight; glumes $>$ 1 mm wide.
- ELYMUS INNOVATUS: Rhiz; spikelets hairy; spikes $<$ 1 cm wide; glumes awnlike.
- ELYMUS JUNCEUS: Cesp; awnless; lvs \pm all basal.
- ELYMUS MACOUNII: Rachis shattering; awn straight.
- ELYMUS VIRGINICUS: Thick outbowed yellow glume-bases.
- ERAGROSTIS CILIANENSIS: \odot ; spikelets $>$ 2.5 mm wide, 20+ flowered.
- ERAGROSTIS HYPNOIDES: \odot ; culms creeping & rooting.








- ERAGROSTIS POAEOIDES: \odot Spikelets < 2 mm wide; 10-20 flowered.
- FESTUCA ELATIOR: Lvs flat, cauline; no awns.
- FESTUCA IDAHOENSIS: Herbage blue green; lemma ~ 7 mm; cesp.
- FESTUCA OCTOFLORA: $\pm \odot$ 10-15 flrs/spikelet; infl \pm racemose.
- FESTUCA OVINA/SAXIMONTANA: Lemma 4-5 mm; cesp.
- FESTUCA RUBRA: \pm rhiz, or decumbent; not cesp; lemma 5-7 mm.
- FESTUCA SCABRELLA: Glumes broad, shiny, = to awnless florets.
- GLYCERIA BOREALIS: Spikelets cylindric, 2 mm ϕ , 1-2 cm long.
- GLYCERIA CANADENSIS: Spikelets 3-4 mm broad; lemma arched & stiff.
- GLYCERIA GRANDIS: Panicle ~ 2 dm long; lvs > 6 mm.
- GLYCERIA PULCHELLA: Lemma hyaline-margined; lvs < 6 mm.
- GLYCERIA STRIATA: 1st glume < 1 mm; lvs 2-4 mm.
- HELICTOTRICHON HOOKERI: 2 , cesp; 4-6 bent awns per brown spikelet.
- HIEROCHLOE ODORATA: Coumarin smell; culm-lvs 1-2 cm long; glumes brown, shiny.
- HORDEUM BRACHYANTHERUM: Awns ~ 1 cm, otherwise as JUBATUM.
- HORDEUM JUBATUM: Awns (7 per rachis-joint) 4-8 cm.
- HORDEUM JUBATUM CAESPITOSUM: Awns 2-4 cm.
- KOELERIA CRISTATA: Cesp; glumes=florets; lemmas 2, awnless.
- LOLIUM PERSICUM: Spikelets edgewise to rachis, 1 glume.
- MILIUM EFFUSUM: Lvs ~ 1 cm wide; 1 shiny ellipsoid awnless lemma 3 mm long per spikelet.
- MUHLENBERGIA ASPERIFOLIA: Collar hair ∇ ; panicle diffuse, falling in age; spikelets ~ 1 mm.









- MUHLENBERGIA CUSPIDATA: Cesp; woody base; panicle narrow; glumes > 1 mm.
- MUHLENBERGIA GLOMERATA: Awns ~ 3 mm; culm unbranched; panicle dense.
- MUHLENBERGIA RACEMOSA: Awns ~ 3 mm; culm branched; panicle dense.
- MUHLENBERGIA RICHARDSONIS: Panicle narrow; glumes ≤ 1 mm.
- MUNROA SQUARROSA: \odot ; spikelets in axils of bunched lvs; lvs 2 mm X 10-20 mm.
- ORYZOPSIS ASPERIFOLIA: Lvs 6-7 mm wide, overwintering; lemma 6-7 mm, shiny; infl \pm racemose.
- ORYZOPSIS CANADENSIS: Lemma 4-5 mm; awn ~ 2 cm, crooked.
- ORYZOPSIS HYMENOIDES: Panicle to 2 dm, open, repeatedly forked.
- ORYZOPSIS MICRANTHA: Lemma $2\frac{1}{2}$ mm, awn ~ 5 mm.
- ORYZOPSIS PUNGENS: Panicle strict; lemma 3-4 mm, awn 0(-1) mm.
- PANICUM CAPILLARE: \odot ; diffuse panicle; spikelets .
- PANICUM SUBVILLOSUM/LANUGINOSUM: Spikelets ovoid, 2 mm long.
- PANICUM VIRGATUM: $2\frac{1}{2}$, rhiz.
- PANICUM WILCOXIANUM: Lvs hirsute; spikelets ovoid, 3 mm long, hairy.
- PANICUM XANTHOPHYSUM: Lvs glab., yellow-green; spikelets ovoid 4 mm, glabrous.
- PHALARIS ARUNDINACEA: 2 hairy scales below 1 hard shiny lemma.
- PHLEUM ALPINUM: Panicle .
- PHLEUM PRATENSE: Panicle ; base bulbous.
- PHRAGMITES COMMUNIS: Huge reed 2-3 m high; rachilla hairs $>$ spikelet.
- POA ALPINA: Tufted, lvs \pm basal, 2-5 mm wide; basal sheaths white.
- POA ANNUA: \odot
- POA ARCTICA: Rhiz; spikelets at branch-tips; no lemma-web.
- POA ARIDA: As P. PRATENSIS, but culm-lvs 1-(2).
- POA CANBYI s.l.: Glumes & lemmas faintly keeled; cesp; no web.
- POA COMPRESSA: Rhiz; culm in section ; panicle small, 3-5 cm X $\frac{1}{2}$ cm.










- POA CUSICKII: Cesp; lvs filiform; panicle pale, flattened; lemma glab.
- POA GLAUCA; Cesp; blue-green; panicle small, 3-5 cm X $\frac{1}{2}$ cm.
- POA LANATA; As PRATENSIS, but intermediate nerves of lemma hairy.
- POA PALUSTRIS s.l.: Cesp; lemma cobwebby.
- POA PRATENSIS: s.l.: Rhiz; lemma cobwebby.
- POA SECUNDA: As CANBYI, but 1-2 dm high.
- POLYPOGON MONSPELIENSIS: \odot ; spikelike panicle bristly w awned glumes.
- PUCCINELLIA NUTTALLIANA: Cesp; spikelets cylindric; lemma \pm nerveless w blunt ragged top.
- SCHEDONNARDUS PANICULATUS: Infl  of spikes spirally borne.
- SCHIZACHNE PURPURASCENS: Panicle nodding; \sim 4 bent awns per green or purple spikelet.
- SCHOLOCHLOA FESTUCACEA: Tall & aquatic; panicle whitish; callus of lemma bearded.
- SETANA VIRIDIS: \odot ; spikelike panicle bristly; bristles not awns.
- SITANION HYSTRIX: Much as HORD. JUB., but several lemmas per shattered rachis-joint.
- SPARTINA GRACILIS: Culms $<$ 1 m; spikes appressed; spikelets awnless.
- SPARTINA PECTINATA: Culms $>$ 1 m; spikes ascending; spikelets awned.
- SPHENOPHOLIS INTERMEDIA: Panicle flexuous; glumes .
- SPHENOPHOLIS OBTUSATA: Panicle stiff as in KOELERIA; glumes .
- SPOROBOLUS CRYPTANDRUS: Cesp 2 ; collar long-whiskered.
- SPOROBOLUS HETEROLEPIS: 2 in ringlike tufts; glumes awn-pointed.
- SPOROBOLUS NEGLECTUS: \odot ; panicles at every node.
- STIPA COLUMBIANA: Panicle narrow; lemma \sim 8 mm, .
- STIPA COMATA: Panicle \pm included; lemma \sim 1 cm; awn 1 dm+, curly.
- STIPA RICHARDSONII: Panicle open; lemma \sim 6 mm; awn angled. Beware ORYZOPSIS CANADENSIS.
- STIPA SPARTEA: Lemma 1-2 cm; bent awn 1 dm+; glumes 3-4 cm.

- STIPA SPARTEA CURTISETA: Lemma 1-1½ cm; glumes 2-3 cm; awn bent, < 1 dm. 
- STIPA VIRIDULA: Panicle narrow; lemma ~ 6 mm = ; sheath hairy at mouth.
- TORREYCHLOA PALLIDA: Sheaths open & lemma 5-nerved, otherwise as 7-nerved GLYCERIA.
- TRisetum SPICATUM: Like KOELERIA, but \bar{w} bent awns.
- TRisetum WOLFII: Nondescript; panicle narrow; glumes \geq the 2 florets; no awn.
- ZIZANIA AQUATICA: Aquatic \odot ; monoecious; ♀ fls awned, above; ♂ flowers below.








CYPERAC










- CAREX ABDITA/UMBELLATA: As ROSSII, but infl exceeding spike-bracts.
- CAREX ADUSTA: § Ovals, scales covering perig; Δ beak; spikes close; perig $\frac{1}{2}$ as thick as wide.
- CAREX AENEA: As ADUSTA, but perig thin, body brown when ripe; spikes distant.
- CAREX ALOPECOIDEA: VIGNEA, androg; infl \pm compound; perig ; culm wing-angled.
- CAREX AQUATILIS: Large distig EUCAREX; rhiz; perig flattened. 
- CAREX ARCTA: VIGNEA; spikes separated; gynec; perig wingless, widest near base.
- CAREX ASSINIBOINENSIS: Stolons arched, rooting at tip; perig , hairy.
- CAREX ATHERODES: Sheaths hairy; perig .
- CAREX ATHROSTACHYA: § OVALES; perig ; 2-(3) bracts exceeding spikes.
- CAREX ATRATIFORMIS: Several limber-stalked spikes, 1 gynecandrous; perig short-beaked.
- CAREX AUREA: Distig EUCAREX;  no beak, orange in maturity.
- CAREX BACKII: Cesp; ♀ scales green, leaflike; perig 5 mm, beak 2 mm.
- CAREX BACKII SAXIMONTANA: Perig 4 mm; beak 1 mm.
- CAREX BEBII: § OVALES; perig  2½ mm; spikes congested.

- CAREX BICOLOR: As GARBERI but ♀ spikes ~ 2; sheath of ♀ spike bracts just dark auricles.
- CAREX BIGELOWII: As AQUATILIS, but bracts < infl; much smaller plant.
- CAREX BREVIOR: ♂ OVALES, perig  = orbicular.
- CAREX BRUNNESCENS: VIGNEA, perig wingless;  ; beaks serrate, ascending; spikes sep'd.
- CAREX BUXBAUMII: Rhiz; top spike gynec; spikes sessile; scales awned; perig flat.
- CAREX CANESCENS: VIGNEA; perig wingless  ; beak not serrate, appressed; spikes apart.
- CAREX CAPILLARIS: Spikes limber stalked; ♀ bracts sheathing; perig ~ 2 mm; cesp.
- CAREX CAPITATA: Spike 1, [±] equant, androg; stigmas 2; cesp.
- CAREX CHORDORRHIZA: VIGNEA; stems crawling in moss, branched; spikes closely bunched.
- CAREX CONCINNA: Bracts sheathing, bladeless; spikes bunched; perig hairy.
- CAREX CRAWEI: Rhiz; ♀ bracts sheathing; ♀ spikes all along culm; perig pointed 
- CAREX CRAWFORDII: ♂ OVALES; perig  ; bracts small.
- CAREX DEFLEXA: As ROSSII, but ♂ spike 2-4 mm; beak of perig $\frac{1}{2}$ mm.
- CAREX DEWEYANA: VIGNEA; cesp; gynecandrous; perig wingless, translucent, 2 swellings at base.
- CAREX DIANDRA: VIGNEA; infl compound; spikes androg; sheath red-dotted.
- CAREX DISPERMA: VIGNEA; spikes > 1 , spaced; perig ~ 2 per spike, , shiny.
- CAREX DOUGLASII: VIGNEA; rhiz; dioecious; dense wide head; scales 5-6 mm, hiding perig.
- CAREX EBURNEA: Bracts sheathing, bladeless; ♀ spikes beyond ♂ ; achene black, $1\frac{1}{2}$ mm.
- CAREX ECHINATA: As INTERIOR, but perig .
- CAREX ELEOCHARIS: VIGNEA; rhiz; spikes androg; head ~ 2 cm; culms $\frac{1}{2}$ - $1\frac{1}{2}$ dm.
- CAREX FILIFOLIA: Cesp; 1 androg spike; perig hairy; scales white-translucent.
- CAREX FLAVA: As VIRIDULA, but beak long and deflexed 

- CAREX GARBERI: As AUREA, but perig white-powdery & closely stacked in spikes.
- CAREX GLACIALIS: Cesp; 1 ♂ & 2 close ♀ spikes; beak tubular; lowest bract tubular.
- CAREX GRANULARIS: Cesp; ♀ bracts sheathing; perig  ; leaves wide 1-2 cm.
- CAREX GRAVIDA: As ALOPECOIDEA, but culm not wing-angled.
- CAREX GYNOCRATES: Spike 1; rhiz; dioecious; perig spreading.
- CAREX HELEONASTES: VIGNEA; 3 brown roundish separate spikes atop culm.
- CAREX HOODII: VIGNEA, just like a § OVALES, but spikes androg.
- CAREX HOOKERANA: VIGNEA; spikes androg, distant; bracts & ♀ scales both awned.
- CAREX HOUGHTONII: Rhiz; perig hirsute & ribbed, 5 mm.
- CAREX HYSTRICINA: ♀ spikes on limber stalks; ♀ scales mere awns; perig beaks spreading.
- CAREX INTERIOR: VIGNEA; spikes gynec; perig wingless, , spreading.
- CAREX LACUSTRIS: Large water sedge; perig , short-toothed, not inflated.
- CAREX LAEVICONICA: Perig  bellied out over achene, not inflated.
- CAREX LANUGINOSA: Perig hairy; rhiz; rust spot atop inner leaf-sheath; lvs flat.
- CAREX LASIOCARPA: As LANUGINOSA, but lvs rolled.
- CAREX LAXIFLORA VARIANS: Cesp; ♀ bracts sheathing; basal lvs 1-2 cm; perig  short, oblique beak.
- CAREX LENTICULARIS: Distig EUCAREX; cesp; perig  nerved; spikes ± abreast.
- CAREX LEPTALEA: Spike 1, androg; ♂ scales tubular; perig beakless.
- CAREX LIMOSA: Rusty fuzz on roots; ♀ spikes stalked; perig  flattened, as wide as scales.
- CAREX LIVIDA: Blue green plant; ♀ bracts sheathing; perig fusiform  promptly falling.
- CAREX LOLIACEA: As DISPERSA, but perig  strongly nerved and sticking straight out.
- CAREX MACLOVIANA MACLOVIANA: § OVALES: as var MICROPTERA but ♂ scales clear on edge.

- CAREX MACLOVIANA MICROPTERA: § OVALES; spikes in a head; beak terete; ♂ scales brown.
- CAREX MAGELLANICA/PAUPERCULA: As LIMOSA, but ♀ scales narrower than perig.
- CAREX MARITIMA: VIGNEA; androg; rhiz; round head of several spikes.
- CAREX MICHAUXIANA: 2 or 3 spherical spikes of radiating perig 1-1½ cm long.
- CAREX NORVEGICA/MEDIA: Spikes bunched; end spike gynec, but stigs 3; perig 2½ mm.
- CAREX OBTUSATA: 1 spike, androg; perig black, shiny; thin red rhizomes.
- CAREX OLIGOSPERMA: Perig inflated, 6-8 mm long; beak 1-2 mm; few (5-10) per spike.
- CAREX PARRYANA: Perig ovate, flattened, 2-3 mm long; ♂ fls anywhere in top spike.
- CAREX PAUCIFLORA: Spike 1, androg; stigmas 3; perig soon dropping.
- CAREX PECKII: § MONTANAE, perig hairy, none basal; all spikes at culm-top.
- CAREX PEDUNCULATA: Spike bracts sheathing w/o blades; perig ± hairy; many basal ♀ spikes.
- CAREX PENNSYLVANICA: Rhiz, ♂ spike oblong 1½-2 cm; 2 round ♀ spikes below; perig hairy.
- CAREX PETASATA: § OVALES, scales covering perig; perig 7-8 mm.
- CAREX PRAEGRACILIS: VIGNEA; rhiz; spikes androg (oft dioecious); culms 2 dm+; perig.
- CAREX PRAIREA: VIGNEA; spikes compound, androg; red-brown blotch on sheath.
- CAREX PRATICOLA: § OVALES; scales covering terete-beaked perig (4-6 mm).
- CAREX PSEUDO-CYPERUS: ♀ spikes long-stalked; ♀ scales awns; perig beaks deflexed.
- CAREX RAYNOLDSII: Perig plump, ~ 4 mm long; little-beaked, bracts sheathless.
- CAREX RETRORSA: Perig inflated, long-beaked, beaks down-pointing; spikes sessile, adjoining.
- CAREX RICHARDSONII: Perig hairy; ♀ spike-bract red-brown, sheathing, bladeless.

- CAREX ROSSII: Perig pubescent, some basal; ♂ spike 6-10 mm, beak 1-1½ mm, bracts > spikes.
- CAREX ROSTRATA: A water sedge; yellow green; perig inflated, 50-100 per spike.
- CAREX SARTWELII: VIGNEA; androg; rhiz; spikes distichous; 2 spots at join lf & sheath.
- CAREX SAXATILIS s.l.: Distigmatic EUCAREX; perig dark, inflated, w̄ bidentate beak.
- CAREX SCIRPOIDEA SCIRPOIDEA: Spike 1, dioecious; stigmas 3, perig hairy.
- CAREX SCIRPOIDEA SCIRPIFORMIS: As var SCIRPOIDEA, but scales pale-edged.
- CAREX SICCATA/FOENEA: VIGNEA; very rhiz; ♀ and ♂ fls variable; perig 5-6 mm, winged.
- CAREX SIMULATA: As PRAEGRACILIS, but beak short .
- CAREX SPRENGELII: Coco-matting on crown; cesp; perig long-beaked. .
- CAREX STERILIS: As INTERIOR, but dioecious or with top spike unisexual.
- CAREX STIPATA: VIGNEA; androg; cesp; infl compound; perig ; culms wing-margined.
- CAREX SUPINA: Rhiz; 1 ♂ & 2 ♀ spikes; perig shiny, ± yellow.
- CAREX SYCHNOCEPHALA: § OVALES; spikes hidden by many long bracts; perig .
- CAREX TENERA: § OVALES; perig , spikes often separated.
- CAREX TENUIFLORA: VIGNEA; 2-3 spikes together at culm tip; perig wingless, beakless.
- CAREX TETANICA: As AUREA, but stigmas 3 and 2 ± dm taller.
- CAREX TONSA: ± all perig at lf-bases, only ♂ spike on culm; perig .
- CAREX TORREYI: Lvs hairy; perig  obovate.
- CAREX TRISPERMA: VIGNEA; culm angled at spikes, bracts long; perig 3-3½ mm.
- CAREX VAGINATA: Strongly rhiz; bracts sheathing; perig fusiform, beaked ~ 4 mm.
- CAREX VIRIDULA/OEDERI: Several sessile spikes together, beaks 1 mm, spreading.
- CAREX VULPINOIDEA: VIGNEA; androg; spike dense, compound, bracts & scales awned.


- CAREX XERANTICA: § OVALES; silvery scales covering appressed perig; golden spot on perig.
- CLADIUM MARISCOIDES: A RHYNCHOSPORA \bar{w} extra lateral cymes.
- CYPERUS INFLEXUS: ⊙, scales \bar{w} reflexed awn; coumarin smell.
- CYPERUS SCHWEINTZII: 2 from cormlike rhizomes; in loose sand.
- ELEOCHARIS ACICULARIS: Green carpets 3-6 cm high; rhiz 2; achene white.
- ELEOCHARIS COMPRESSA: Culms flattened, achene brown  .
- ELEOCHARIS ELLIPTICA: Culms round; achene yellow  .
- ELEOCHARIS ENGELMANNII: ⊙, culms many, all lengths; achenes lenticular.
- ELEOCHARIS NITIDA: As ELLIPTICA but smaller; stems 4-angled.
- ELEOCHARIS PALUSTRIS: Rhiz; achenes lenticular  .
- ELEOCHARIS PARVULA: ⊙ with tubers; <3 cm high; achene  .
- ELEOCHARIS QUINQUEFLORA: 2 with tubers; achene  .
- ERIOPHORUM ANGUSTIFOLIUM: Spikes 2+; green bracts 2+, slaty at base; scales  .
- ERIOPHORUM BRACHYANTHERUM: Cesp, but few culms per tuft; spike 1; scales  .
- ERIOPHORUM CHAMISSONIS: Rhiz; spike 1; outer scale 5-6 nerved.
- ERIOPHORUM GRACILE: Spikes several; green bracts 1; scales obovate, 2-toned.
- ERIOPHORUM VAGINATUM: Large tufts; spikes 1; scales translucent on margins. 
- ERIOPHORUM VIRIDICARINATUM: Spikes 2+. green bracts 2+; scales  .
- RHYNCHOSPORA ALBA: 2 with turions; glomerules as wide as long, pale brown.
- RHYNCHOSPORA CAPILLACEA: 2 \bar{w} turions, glomerules twice as long as wide, deep brown.
- RHYNCHOSPORA FUSCA: Rhizomatic.
- SCIRPUS ACUTUS: Stem round; infl lateral; umbel once branched.
- SCIRPUS AMERICANUS: Stem Δ ; infl lateral; scales \bar{w} mucro.
- SCIRPUS ATROVIRENS: Bracts 2+, leaflike; spikes small, sheaths green.

- SCIRPUS CAESPITOSUS: Large tufts, spike 1, outmost scale blunt-awned.
- SCIRPUS CLINTONII: Spike 1, stem scabrous; cesp; bract 1, $<$ the spike.
- SCIRPUS CYPERINUS: Cesp; bracts 2+, leafy; spikes small \sim 5 mm, bristles crinkly, visible.
- SCIRPUS FLUVIATILIS: Bracts 2+, leafy; spikes \sim 2 cm, some stalked; achenes Δ .
- SCIRPUS HUDSONIANUS: Spike 1, bristles long (6 per achene, not many); rhiz.
- SCIRPUS MICROCARPUS: Bracts 2+, leafy; spikes small; sheaths red.
- SCIRPUS NEVADENSIS: Stem Δ , infl lateral, scales awnless.
- SCIRPUS PALUDOSUS: Bracts 2+, leafy; spikes 1-2 cm, all sessile; achenes lenticular.
- SCIRPUS PUMILUS: Rhiz; spike 1, outmost scale awnless.
- SCIRPUS RUFUS: Spikes red-brown, lanceolate, arranged in 2 ranks at culm-end.
- SCIRPUS VALIDUS: As ACUTUS, but umbel-branches branched.

ARAC

- ACORUS CALAMUS: A yellow green tule \bar{w} lateral spadix.
- CALLA PALUSTRIS: Like a house calla; white spathe.

LEMNAC

- LEMNA MINOR: Floating, 3-4 mm ϕ , 1 root.
- LEMNA TRISULCA: Submerged, units of  in zig-zag chains.
- SPIRODELA POLYRHIZA: Floating, 5-8 mm ϕ , 2+ roots, nerved.
- WOLFFIA ARHIZA: Featureless green balls 0.5-1 mm ϕ

JUNCAC

- JUNCUS ALPINUS: Infl diffuse, heads of fls 1 cm apart.
- JUNCUS BALTICUS: Leafless; cymes lateral, 3/4 up stem.
- JUNCUS BREVICAUDATUS: Infl strict; heads of fls $<$ 1 cm apart; stamens 3.

- JUNCUS BUFONIUS: \odot , fls separate; infl $> \frac{1}{2}$ stem height.
- JUNCUS CASTANEUS: Rhiz; lvs flat; fls ~ 6 mm long, dark brown, in heads.
- JUNCUS DUDLEYI: Cesp, lvs \bar{w} hard auricles, fls separate, caps \bigcirc .
- JUNCUS ENSIFOLIUS s.l.: Lvs equitant, iris-like; heads dark brown.
- JUNCUS FILIFORMIS: Leafless; cymes lateral, halfway up stem.
- JUNCUS LONGISTYLIS: Lvs flat; fls in heads, ~ 6 mm long, silvery in bloom.
- JUNCUS NEVADENSIS: Lvs terete; heads dark brown, \pm hemispheric.
- JUNCUS NODOSUS: Rhiz; capsules pointed; heads < 1 cm ϕ .
- JUNCUS STYGIUS: 2-3 fls per head, capsules ~ 8 mm; sts solitary, \bar{w} turions.
- JUNCUS TENUIS: As DUDLEYI, but auricles soft, translucent.
- JUNCUS TORREYI: Rhiz, capsule pointed, spherical heads > 1 cm ϕ .
- JUNCUS TRACYI: As ENSIFOLIUS, but styles 1 mm, seeds tailed.
- JUNCUS TRIGLUMIS: Cesp; 1 terminal head.
- JUNCUS VASEYI: Fls separate, \pm secund; lvs \pm all basal, caps \bigcirc .
- LUZULA ACUMINATA: Fls separate, in an umbel.
- LUZULA CONFUSA: Fls in heads, lvs rolled.
- LUZULA MULTIFLORA: Fls in heads, lvs flat, bracts $>$ infl.
- LUZULA NIVALIS: Fls in heads, lvs flat, bract $<$ head.
- LUZULA PARVIFLORA: Fls separate in compound cyme; lvs ~ 1 cm wide.

LILIAC

- ALLIUM CERNUUM: Umbel nodding; corolla cup-shaped, white or pink.
- ALLIUM GEYERI: Bulb fibrous; fls 6-8 mm, pink; bulbils present?

- ALLIUM SCHOENOPRASUM: Fls almost sessile, > 1 cm long, purple.
- ALLIUM STELLATUM: Umbel erect; corolla spreading, light purple.
- ALLIUM TEXTILE: Bulb fibrous; fls 4-6 mm, white.
- ASPARAGUS OFFICINALIS: Asparagus; myriads of filiform "leaves"; berry red.
- DISPORUM TRACHYCARPUM: Lvs broad, cordate-based; fls terminal; berry orange-red, velvety.
- LILIUM PHILADELPHICUM: Prairie Lily; fls red, 6-10 cm ϕ .
- MAIANTHEMUM CANADENSE: Petals 4; 2-3 cordate stem lvs.
- POLYGONATUM CANALICULATUM: Fls in 2's & 3's from middle nodes, tubular.
- SMILACINA RACEMOSA: Fls in a panicle.
- SMILACINA STELLATA: Fls in a raceme; berry striped; lvs many.
- SMILACINA TRIFOLIA: Fls in a raceme, 2-3 stem lvs narrowed to base.
- SMILAX HERBACEA: Climbing by tendrils; lvs roundish, 3-7 cm ϕ .
- STREPTOPUS AMPLEXIFOLIUS: Fls in 1's under most lvs; stalk elbowed.
- TOFIELDIA GLUTINOSA: Lvs equitant; plant sticky.
- TOFIELDIA PUSILLA: Glabrous; lvs all basal, in fanlike groups.
- TRILLIUM CERNUUM: 3 big lvs only, fl thereunder.
- ZYGADENUS ELEGANS: Glaucous; fls greenish white, 1-2 cm ϕ , Javex smell.
- ZYGADENUS VENENOSUS: Green; fls yellow, < 1 cm ϕ .






AMARYLLIDAC

- HYPOXIS HIRSUTA: Lvs hairy, grassy; ovary inf.; petals yellow.

IRIDAC











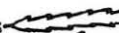




- SISYRINCHIUM BERMUDENSE: Blue-eyed Grass; lvs iris-like; 6 blue petals.


ORCHIDAC


- ARETHUSA BULBOSA: Large deep-pink flower; 1 basal linear lf.
- CALYPSO BULBOSA: Pink fl, lip yellow-hairy; 1 basal round lf.
- CORALLORHIZA MACULATA: Fl \pm white, with purple dots.
- CORALLORHIZA STRIATA: Fl red-striped.
- CORALLORHIZA TRIFIDA: Fl small, white; plant yellow; pod green.
- CYPRIPEDIUM ACAULE: 1 pink fl; 2 basal lvs.
- CYPRIPEDIUM ARIETINUM: Red-brown fl, lip  from side.
- CYPRIPEDIUM CALCEOLUS PUBESCENS: Yellow lip 3-5 cm.
- CYPRIPEDIUM CALCEOLUS PARVIFLORUM: Yellow lip 2-3 cm.
- CYPRIPEDIUM PASSERINUM: Lip white, 2-3 cm, \pm purple-dotted.
- CYPRIPEDIUM REGINAE: Lip white, 2½-5 cm; other petals pink.
- GOODYERA OBLONGIFOLIA: Rhiz; lvs 3-6 cm, \bar{w} white midstripe.
- GOODYERA REPENS: Rhiz; lvs 1-3 cm, rhomboid, often white along veins.
- HABENARIA DILATATA: Fl white, scented; upper lvs sharp-pointed.
- HABENARIA HYPERBOREA: Fl green; upper lvs round-tipped.
- HABENARIA OBTUSATA: 1 basal \pm oblanceolate lf.
- HABENARIA ORBICULATA: 2 round basal lvs.
- HABENARIA VIRIDIS: Bracts $>$ fls, lip .
- LIPARIS LOESELII: 2 lanceolate erect basal lvs, side petals threadlike.
- LISTERA BOREALIS: 2 lvs, opposite, on stem, shaped .
- LISTERA CORDATA: As BOREALIS, but lvs , lip .
- MALAXIS MONOPHYLLOS: Fls 2-3 mm ϕ ; 1 elliptic basally sheathing lf.
- MALAXIS PALUDOSA: Fls also tiny, lip uppermost; 2-3 basal lvs.
- ORCHIS ROTUNDIFOLIA: Fls mauve, purple-spotted; 1 oval lf, basal.
- SPIRANTHES GRACILIS/LACERA: Fls 4-6 mm long, in 1 spiral.


SPIRANTHES ROMANZOFFIANA: Fls 6-10 mm long, in 2-3 rowed spiral.

SALICAC


- POPULUS ANGUSTIFOLIA: Small narrow tree, lvs  .
- POPULUS BALSAMIFERA: Balsam Poplar, lvs  , white underneath.
- POPULUS DELTOIDES: Cottonwood, lvs  .
- POPULUS TREMULOIDES: Aspen, lf-stalks flattened.
- SALIX AMYGDALOIDES: Tree; lvs serrate,  , bracts pale, caps whorled.
- SALIX ARBUSCULOIDES/TYRELLII: As PETIOLARIS, lvs rugose, revolute, \pm silky beneath, caps \pm sessile.
- SALIX ARCTOPHILA: Undershrub, lvs  , capsule hairy.
- SALIX BEBBIANA: Lvs  , oft rugose; scales pale, catkins w lvs, caps hairy; lge shrub.
- SALIX BRACHYCARPA: Small grey shrub, lvs  ; catkins 1-2 cm long, roundish, w lvs.
- SALIX CANDIDA: Bog shrub, capsule white woolly, lvs green above, white below. 
- SALIX DISCOLOR: Lge shrub, lvs  , crenate, glabrous, paler underneath; catkins before lvs.
- SALIX GLAUCA: As BRACHYCARPA but catkins oblong, > 2 cm long.
- SALIX HUMILIS: Lvs  , hairy below; catkins before the entire lvs; caps pub; bracts dark.
- SALIX INTERIOR/FLUVIATILIS: Long-suckering; lvs  fls after lvs.
- SALIX LUCIDA/CAUDATA: Lge shrub, lvs serrate, dark green, some > 1 dm long. 
- SALIX LUTEA/TURNORII: Lge shrub, yellowish twigs, lvs serrate; fls w lvs. 
- SALIX MACCALLIANA: Lvs  , serrate, midrib yellow; catkins w lvs; caps hairy.
- SALIX MACKENZIEANA: As LUTEA, but twigs not yellowish; caps long-stalked.
- SALIX MONTICOLA: Lvs cordate at base,  , serrate; catkins before lvs; caps glabrous.


SALIX MYRTILLIFOLIA: Lvs , serrate; catkins w̄ lvs;
caps yellow, glab, .


SALIX PEDICELLARIS/ATHABASCENSIS: Bog shrub, lvs 
blue-green, entire.


SALIX PELLITA: Lvs , dark green, white below;
catkins naked.

SALIX PETIOLARIS: Lvs ; suckering shrub w̄ reddish
equal twigs, no main stems.

SALIX PLANIFOLIA: As DISCOLOR, lvs narrower, , entire.

SALIX PYRIFOLIA: Lvs like PRUNUS, ; balsam smell;
catkins w̄ the lvs.

SALIX RETICULATA: Undershrub; lvs , white beneath;
catkins terminal, opp a lf.

SALIX SCOULERIANA: Like BEBBIANA, but lvs , much
paler below, fls before lvs.

SALIX SERISSIMA: Lvs , serrate; bracts yellowish,
caps glabrous; catkins on all summer.

SALIX SILICICOLA: Twigs (4 mm ϕ) & lvs above & below
white woolly.


MYRICAC


MYRICA GALE: Shrub, lvs ; catkins on lfless branches.


BETULAC

ALNUS CRISPA/VIRIDIS: Lvs singly serrate; buds sessile.

ALNUS INCANA/RUGOSA: Lvs doubly serrate, buds stalked.

BETULA OCCIDENTALIS: Bark dark, lvs 

BETULA PAPYRIFERA s.l.: Bark white, lvs 


BETULA PUMILA s.l.: Shrub, twigs warty; lvs 

CORYLUS CORNUTA: Hazelnut, filbert at bottom of baglike
involucre.


FAGAC

QUERCUS MACROCARPA: Oak with acorns.

ULMAC

ULMUS AMERICANA: Elm with lvs  lopsided.

CANNABINAC

HUMULUS LUPULUS: Hops; twining, opp  lvs.

URTICAC

LAPORTEA CANADENSIS: 4, stinging; lvs alt, atop stem.

PARIETARIA PENNSYLVANICA: ⊙, non-stinging; lvs , flimsy, sticky; fls axillary.

URTICA DIOICA: 4; stinging, lvs opp.

URTICA URENS: ⊙, stinging.

SANTALAC

COMANDRA PALLIDA/UMBELLATA: White fls, terminal; frt greenish, inferior.

GEOCAULON LIVIDUM: Red drupes from middle nodes; lvs often yellow along veins.

LORANTHAC

ARCEUTHOBIUM AMERICANUM: On jack pine; yellow green, > 1 cm long.


ARCEUTHOBIUM PUSILLUM: On spruce, brownish, < 1 cm long.


POLYGONAC

ERIOGONUM CERNUUM: ⊙; heads hanging in branching racemes.


ERIOGONUM FLAVUM: 4 from caudex; heads umbellate, yellow.


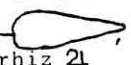






ERIOGONUM MULTICEPS: Sub-shrub; heads pinkish.

POLYGONUM ACHOREUM: ⊙. Leaves .





POLYGONUM AMPHIBIUM (water): 4, leaves , spikes 1-2 cm, pink.























POLYGONUM AMPHIBIUM (land): 4, green flange on sheath, hairy.

POLYGONUM AVICULARE (introd): ⊙, sprawling, lvs , fls ± pink.

- POLYGONUM AVICULARE (native): \odot , ascending, lvs , fls grnsh.
- POLYGONUM CILINODE: Twining \mathcal{L} , fringed nodes.
- POLYGONUM COCCINEUM: Lvs , pink spikes 5-10 cm; rhiz \mathcal{L} .
- POLYGONUM CONFERTIFLORUM: \odot , terminal spikes, bracts white-edged.
- POLYGONUM CONVULVULUS: Wild Buckwheat; \odot , twining.
- POLYGONUM DOUGLASII: Frts reflexed.
- POLYGONUM LAPATHIFOLIUM: \odot , many \pm pink spikes, achene 
- POLYGONUM PUNCTATUM: \odot , spikes lax, calyx gland-dotted, achene .
- POLYGONUM RAMOSISSIMUM: \odot erect $\frac{1}{2}$ -1 m, fls greenish.
- POLYGONUM SCABRUM: \odot ; as LAPATHIFOLIUM, spikes green, erect; achene \geq calyx.
- POLYGONUM SCANDENS: Twining, calyx white-winged.
- POLYGONUM VIVIPARUM: 1 terminal spike of bulbils.
- RUMEX ACETOSA: Dioecious, acid, lvs .
- RUMEX ACETOSELLA: Dioecious, acid, lvs .
- RUMEX CRISPUS: Joint present, 1-3 grains, lvs crinkled.
- RUMEX FENNICUS/PSEUDONATRONATUS: Joint present, no grains or 1 small one.
- RUMEX MARITIMUS: \odot , valves \bar{w} long bristles.
- RUMEX OCCIDENTALIS: Joint 0, grains 0, lvs flat .
- RUMEX ORBICULATUS: Joint 0, grains 3, lvs flat .
- RUMEX SALICIFOLIUS/MEXICANUS: Grains 1-3; branched, axillary lf-tufts.
- RUMEX STENOPHYLLUS: Joint present; grains 3, valves toothed; frts often in whorls.
- RUMEX VENOSUS: Frt lge, 2-4 cm ϕ , red.

CHENOPODIAC

- ATRIPLEX ARGENTEA: Silvery \odot ; bracts .
- ATRIPLEX DIOICA: \odot , lvs ; bracts entire, ; σ fls pink.
- ATRIPLEX HORTENSIS s.l.: \odot , 2-3 m; 2 kinds ϕ fls; bracts  1-1 $\frac{1}{2}$ cm ϕ .
- ATRIPLEX NUTTALLII: Dioecious undershrub, silvery.

- ATRIPLEX PATULA s.l.: , lvs , lowest lvs opp.
- ATRIPLEX POWELLII: Silvery ; lvs , bracts 
- ATRIPLEX ROSEA: Silvery , lvs toothed.
- ATRIPLEX TRUNCATA: Silvery , bracts 
- AXYRIS AMARANTHOIDES: Monoecious ; ♀ spikes \bar{w} overlapping entire bracts.
- BASSIA HYSSOPIFOLIA: ; Calyx hairy & 5-hooked.
- CHENOPODIUM ALBUM s.l.: Lamb's Quarters; lvs 
- CHENOPODIUM CAPITATUM: Calyx red, berry-like.
- CHENOPODIUM FREMONTII: Lvs  as wide as long, glomerules small & far apart.
- CHENOPODIUM GLAUCUM: Lvs 
- CHENOPODIUM HYBRIDUM: Lvs  4-8 cm long.
- CHENOPODIUM LEPTOPHYLLUM: Lvs  to , silvery beneath.
- CHENOPODIUM RUBRUM: Lvs variable, ca 1 mm thick; glabrous.
- CHENOPODIUM SUBGLABRUM: Lvs linear, glabrous.
- CHENOPODIUM WATSONII/DACOTICUM: Lvs , silvery; smells of amines.
- CORISPERMUM HYSSOPIFOLIUM: Wing on seed.
- CORISPERMUM HYSSOPIFOLIUM EMARGINATUM: No such wing.
- EUROTIA LANATA: Silvery undershrub; fused bracts hairy.
- KOCHIA SCOPARIA: Whiskers about frts; calyx \bar{w} or w/o 5 flaps, glabrous.
- MONOLEPIS NUTTALLIANA: Prostrate ; lvs 
- SALICORNIA EUROPAEA: Samphire; lfless; fleshy; segmented.
- SALSOLA COLLINA: As KALI, but fls all spicate, not spiny.
- SALSOLA KALI: Russian Thistle.
- SARCOBATUS VERMICULATUS: Greasewood; spiny shrub, ♀ calyx flanged.
- SUAEDA DEPRESSA: , lvs linear, fleshy; black in fall.
- SUAEDA INTERMEDIA: Undershrub; as a small spineless SARCOBATUS.
- SUCKLEYA SUCKLEYANA: Prostrate ; lvs ; fr bracts fused, ribbed.

AMARANTHAC

- AMARANTHUS ALBUS: Bushy; seeds 1 mm; lvs to 5 cm long.
- AMARANTHUS CALIFORNICUS: Prostrate, late in season;
seeds 1 mm ϕ , lvs to 2 cm long.
- AMARANTHUS GRAECIZANS/BLITOIDES: Prostrate; seeds 1½ mm ϕ .
- AMARANTHUS RETROFLEXUS: Red root, strict & erect.




NYCTAGINAC.







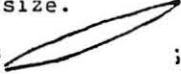


- ABRONIA MICRANTHA: Fruit like RUMEX VENOSUS but \odot , lvs. opp.
- MIRABILIS HIRSUTA: Lvs lanceolate, sessile; fl mauve,
1+ in a green involucre; frt a
nutlet.
- MIRABILIS LINEARIS: Lvs linear, stalked; fl + frt as
above.
- MIRABILIS NYCTAGINEUS: Lvs ovate, cordate, stalked;
fl & frt as above.

PORTULACAC

- CLAYTONIA LANCEOLATA: 4 \bar{w} corm; 2 opp lvs on stem;
petals > sepals.
- CLAYTONIA LINEARIS: \odot , lvs linear; petals=sepals.
- PORTULACA OLERACEA: Purslane. Lvs opp, fleshy; fls
yellow.

CARYOPHYLLAC

- ARENARIA CONGESTA: Lvs 2-6 cm; cyme dense.
- ARENARIA LATERIFLORA: Lvs 
- ARENARIA MACROPHYLLA: Lvs 
- ARENARIA RUBELLA: Glandular-puberulent, lvs 3-nerved.
- ARENARIA SERPYLLIFOLIA: \odot ; no petals; lvs  4-6 mm.
- ARENARIA STRICTA: Lvs \sim 1 cm, cyme diffuse, axillary
lf-tufts.
- CERASTIUM ALPINUM: White-woolly; no axillary tufts.
- CERASTIUM ARVENSE: Subshrub, overwintering axillary
tufts.

- CERASTIUM NUTANS: \odot , sticky & woolly.
- CERASTIUM VULGATUM: Infl on few-lved stems.
- GYPSOPHILA PANICULATA: Fls small, 3 mm; infl huge, spherical, 4-6 dm ϕ .
- LYCHNIS ALBA: Dioecious \mathcal{L} , calyx lobes 1-2 mm.
- LYCHNIS PUDICA/DRUMMONDII: Petals ± 0 ; sticky, strict \mathcal{L} .
- PARONYCHIA SESSILIFLORA: As PHLOX HOODII, yellow fls, silvery stipules.
- SAGINA NODOSA: Petals entire, axillary bulbils.
- SILENE ACAULIS: Moss Champion; stemless, pink fls.
- SILENE ANTIRRHINA: Petals nil; sticky patches on stems.
- SILENE CONOIDEA: \odot ; Calyx ~ 30 -nerved.
- SILENE CSEREI: $\textcircled{2}$; calyx 
- SILENE CUCUBALUS: \mathcal{L} ; calyx 
- SILENE MENZIESII: Rhiz \mathcal{L} , fls ~ 8 mm ϕ , lvs 
- SILENE NOCTIFLORA: \odot or $\textcircled{2}$, calyx lobes 4-10 mm.
- SILENE SIBIRICA: \mathcal{L} , fls small, in a dense thyrse.
- SPERGULA ARVENSIS: Lvs threadlike, whorled.
- SPERGULARIA MARINA: Sticky \odot ; stipules  , petals lilac.
- STELLARIA CALYCANTHA: Petals nil; lvs 
- STELLARIA CRASSIFOLIA: Lvs  , those on the branches $\frac{1}{2}$ size.
- STELLARIA LONGIFOLIA: Lvs  ; stems slightly catchy.
- STELLARIA LONGIPES: Lvs 
- STELLARIA MEDIA: Lvs  , petals $<$ sepals.
- VACCARIA VULGARIS: \odot ; Cow Cockle; 5-angled calyx, pink showy fls.








CERATOPHYLLAC

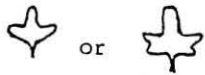






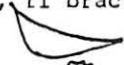

- CERATOPHYLLUM DEMERSUM: Lvs whorled, serrate one side; submerged aquatic.

NYMPHAEAC

- NUPHAR VARIEGATUM: Yellow Water Lily
- NYMPHAEA TETRAGONA: White Water Lily.

RANUNCULAC






- ACTAEA RUBRA: 1 or 2 lvs 3-4 times ternate, red or white berries.
- ANEMONE CANADENSIS: Stem lvs sessile, achenes not woolly.
- ANEMONE CYLINDRICA: Long woolly head; lflets lobed, nowhere serrate.
- ANEMONE MULTIFIDA: Fls pink to white; lvs divided into (~ 2 mm) lobes; ovoid woolly head.
- ANEMONE PARVIFLORA: Stem lvs $< \frac{1}{4}$ up the stem.
- ANEMONE PATENS: Crocus; styles feathery.
- ANEMONE QUINQUEFOLIA/NEMOROSA: 3 trifoliolate stalked stem lvs.
- ANEMONE RICHARDSONII: Fls yellow.
- ANEMONE VIRGINIANA s.l.: Long woolly head, lflets \pm serrate.
- AQUILEGIA BREVISTYLA ; Blue Columbine.
- AQUILEGIA CANADENSIS : Red Columbine.
- CALTHA NATANS: \pm Floating aquatic; fls white ~ 1 cm ϕ
- CALTHA PALUSTRIS: Marsh Marigold; fls golden, 3-4 cm ϕ
- CLEMATIS LIGUSTICIFOLIA: Fls white, 1 cm ϕ , in panicles.
- CLEMATIS VERTICELLARIS: Fls blue, 2-4 cm ϕ , solitary.
- COPTIS TRIFOLIA: Rhiz yellow; lvs 3-foliolate, overwintering.
- DELPHINIUM BICOLOR: Stem $< \frac{1}{2}$ m, fls 3-5 cm.
- DELPHINIUM GLAUCUM/BROWNII: Stem 1-2 m, fls ~ 2 cm.
- MYOSURUS ARISTATUS: Achenes long-beaked.
- MYOSURUS MINIMUS: Achenes beakless; fruit-spike $\frac{1}{2}$ ht plant.
- RANUNCULUS ABORTIVUS: Petals ~ 2 mm; basal lvs 
- RANUNCULUS ACRIS: Petals 1 cm \pm ; lvs palmately divided.
- RANUNCULUS AQUATILIS s.l.: Lvs dissected, fls white; aquatic.
- RANUNCULUS CARDIOPHYLLUS: Achenes hairy; basal lvs  to 
- RANUNCULUS CYMBALARIA: Runners; lvs 
- RANUNCULUS FLAMMULA/REPTANS: Runners; lvs  to 
- RANUNCULUS GLABERRIMUS: Lvs entire 
- RANUNCULUS GMELINII: Aquatic; fls yellow.

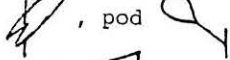




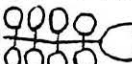
















- RANUNCULUS HYPERBOREUS: Creeping; lvs  or
- RANUNCULUS INAMOENUS: Achenes hairy; lvs 
- RANUNCULUS LAPPONICUS: 1 fl, 1 basal lf per stem.
- RANUNCULUS MACOUNII: Hairy; lvs ternate; petals 4-7 mm; seed head round.
- RANUNCULUS PENNSYLVANICUS: Hairy; lvs ternate; petals 2-3 mm; seed head oblong.
- RANUNCULUS RHOMBOIDEUS: Lvs , petals narrow 
- RANUNCULUS SCELERATUS: , lvs , achenes beakless.
- THALICTRUM DASYPARPUM: Lvs sessile, lflets 
- THALICTRUM OCCIDENTALE: As VENULOSUM, but fruiting pedicels spreading & equal.
- THALICTRUM SPARSIFLORUM: Fls bisexual, fl bracts like lvs; achenes 
- THALICTRUM VENULOSUM: Lvs stalked; lflets ; fruiting pedicels ascending & unequal.







FUMARIAC

- CORYDALIS AUREA: Yellow pealike fl, blunt-spurred.
- CORYDALIS SEMPERVIRENS: Fl mostly pink.

CRUCIFERAE

- ALYSSUM DESERTORUM: Pod  
- ARABIS ARENICOLA: As LYRATA, but pods $1\frac{1}{2}$ -2 mm wide.
- ARABIS DIVARICARPA: Pods 
- ARABIS DRUMMONDII: Pods , 2-3 mm wide, flat.
- ARABIS GLABRA: Pods erect, terete; stem lvs to 1 cm wide.
- ARABIS HIRSUTA: Hirsute; pods erect, 1 mm wide, flat.
- ARABIS LYRATA: Fls 1 cm ϕ , white; lvs \pm serrate; pods $\frac{1}{2}$ - $1\frac{1}{2}$ mm wide.
- ARABIS RETROFRACTA: Pods 
- BARBAREA ORTHOCERAS: Fls yellow, basal lvs 
- BERTEROA INCANA: Cleft white petals.
- BRASSICA JUNCEA: \pm Glabrous; pod stalks \geq 1 cm.
- BRASSICA KABER: Hairy; pod-stalks $<$ 1 cm.
- BRASSICA RAPA: Glabrous, lvs clasping; escaped Rape.

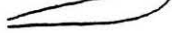


- CAMELINA MICROCARPA: Stem-lvs , pod 
- CAPSELLA BURSA-PASTORIS: Pods 
- CARDAMINE PARVIFLORA: Lvs ; fls ~ 3 mm ϕ , white.
- CARDAMINE PENNSYLVANICA: Fls ~ 3 mm ϕ , white; lvs 
- CARDAMINE PRATENSIS: Lvs ; fls white ~ 1 cm ϕ
- CARDARIA DRABA: ④; pod , not opening, glabrous.
- CARDARIA PUBESCENS: ④, same pod but hairy.
- CONRINGIA ORIENTALIS: Lvs , cabbagey; pod 1 dm long,  in section .
- DESCURAINIA PINNATA: Pod 
- DESCURAINIA RICHARDSONII: ②; grey; pod 
- DESCURAINIA SOPHIA: ①; cat-dung smell; pod 
- DRABA AUREA: ④, stems leafy; fls yellow.
- DRABA CINEREA: Scapose ④; fls white.
- DRABA LANCEOLATA/CANA: ④ \bar{w} stem lvs; fls white.
- DRABA NEMOROSA: ①, fls yellow; stem lvs some; pods well spaced, 
- DRABA REPTANS: ①, fls white; stem lvs 0 or 1; pods bunched, 
- ERUCASTRUM GALLICUM: Racemes \pm bracted \bar{w} small lvs.
- ERYSIMUM ASPERUM: ④, fls 2 cm ϕ , pods ~ 1 dm.
- ERYSIMUM CHEIRANTHOIDES: ①, fls 3-4 mm ϕ ; pods 1-2 cm.
- ERYSIMUM INCONSPICUUM: ① or ②, fls 6-8 mm ϕ ; pod 2-5 cm.
- HALIMOLOBOS VIRGATA: As ARABIS, but pods  & \pm terete.
- HUTCHINSIA PROCUMBENS: Pods  in section; tiny spring \odot , < 1 dm high.
- LEPIDIUM DENSIFLORUM: Pod , glabrous; racemes spreading.
- LEPIDIUM PERFOLIATUM: Basal lvs 2-3 pinnatifid, stem lvs clasping, entire.
- LEPIDIUM RAMOSISSIMUM: Pod , faintly hairy; racemes strict.
- LEPIDIUM RUDERALE: ②, 1st year lvs 2-fid.
- LESQUERELLA ALPINA/SPATHULATA: Fls \pm corymbose, pods 
- LESQUERELLA ARENOSA: Pods ; fls racemose.
- NESLIA PANICULATA: ① fls yellow; fruit not opening, .

- RORIPPA ISLANDICA: Pod  , ± ⊙
- RORIPPA NASTURTIUM-AQUATICUM: Aquatic; creeping & rooting; lvs pinnate.
- RORIPPA OBTUSA: ⊙ , pod 
- RORIPPA SINUATA: Rhiz 2 , fls showy, pod 
- SISYMBRIUM ALTISSIMUM: Tumbling Mustard; fls pale yellow; lvs pinnatifid.
- SISYMBRIUM LOESELII: Fls bright yellow; lvs runcinate.
- SUBULARIA AQUATICA: Like ISOETES, but w̄ mustard pods  in a raceme. 
- THELLUNGIELLA SALSUGINEA: Lvs  ; pod ± terete, 1-2 cm long.
- THLASPI ARVENSE: Stinkweed.

CAPPARIDAC

- CLEOME SERRULATA: Lflets 3; petals 4, pink; pod stipitate beyond calyx.
- POLANISIA DODECANDRA: Lflets 3; petals white; plant sticky w̄ coal-tar odor.


DROSERAC

- DROSERA ANGLICA: Lvs 
- DROSERA LINEARIS: Lvs 
- DROSERA ROTUNDIFOLIA: Lvs 

SARRACENIAC







- SARRACENIA PURPUREA: Lvs as water-filled vases.

CRASSULAC




- SEDUM LANCEOLATUM: Fleshy, lvs  ; fls yellow, 5-petaled.




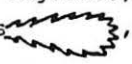



SAXIFRAGAC




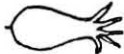

- CHRYSOSPLENIUM TETRANDRUM: No petals, sepals yellow; lvs around terminal fls.
- HEUCHERA RICHARDSONII: "Geranium" lvs; baglike fls, orange stamens.

- LITHOPHRAGMA BULBIFERA: Bulbils in axils; petal 
- MITELLA NUDA: Corolla 
- PARNASSIA GLAUCA: Lvs basal, , thick, smooth, shiny.
- PARNASSIA KOTZEBUEI: Petals=sepals, no stem lf.
- PARNASSIA PALUSTRIS: 1 stem lf, lvs 
- RIBES AMERICANUM: Black currant smell; fls yellowish, bracts \geq pedicels.
- RIBES AUREUM: Fl \bar{w} long tube, bright yellow.
- RIBES GLANDULOSUM: Glandular red berries, skunk smell.
- RIBES HUDSONIANUM: Black currant smell; fls white, bracts minute.
- RIBES LACUSTRE: Glandular black berries; spiny.
- RIBES OXYACANTHOIDES s.l.: Spiny, fl or frt in 2's or 3's, nearly sessile.
- RIBES TRISTE: Red berries, saucer-shaped \pm red fls.
- SAXIFRAGA OCCIDENTALIS: Lvs basal 
- SAXIFRAGA TRICUSPIDATA: Lvs 
- SAXIFRAGA PENNSYLVANICA: As a gigantic S. OCCIDENTALIS; lvs 1-2 dm, scape 3-10 dm.

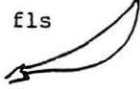



ROSAC














- AGRIMONIA STRIATA: Fls yellow, frt a bur 
- AMELANCHIER ALNIFOLIA: Saskatoon. Bark grey-violet.
- CHAMAERHODOS ERECTA: Small ②; petals white; lvs 2-3 divided.
- CRATAEGUS DOUGLASII: Frts black; thorns 2-3 cm.
- CRATAEGUS ROTUNDIFOLIA/CHRYSOCARPA: Hawthorn. Fruits red, thorns 3-6 cm.
- DRYAS DRUMMONDII: Undershrub; fls yellow, solitary, styles feathery.
- FRAGARIA VESCA/AMERICANA: Lf-tips , achenes flush \bar{w} surface.
- FRAGARIA VIRGINIANA/GLAUCA: Lf-tips , achenes in pits. Strawberry.
- GEUM ALEPPICUM/STRICTUM: Hooked style; petals yellow; upper lvs fully 3-foliolate.
- GEUM PERINCISUM: Hooked style, petals yellow; upper (microphyllum) lvs 3-parted.
- GEUM RIVALE: Hooked style; petals white & sepals purplish.
- GEUM TRIFLORUM: Feathery style; sepals pink.
- POTENTILLA ANSERINA: With runners; fls solitary, long-stalked.









- POTENTILLA ARGENTEA: Stem leafy; fls many, cymose; lflets 3-5, digitate, white beneath.
- POTENTILLA ARGUTA: Petals cream.
- POTENTILLA BIPINNATIFIDA: Lvs 5-7 pinnate, lflets pinnatifid, white beneath; lobes obtuse.
- POTENTILLA CONCINNA: Tufted, under 1 dm; lvs 5-foliolate, \pm digitate, white below.
- POTENTILLA DIVERSIFOLIA: Lvs 5-7 digitate, green both sides; lflets 
- POTENTILLA FINITIMA: Lvs pinnate, yellow-green; lflet-teeth ; stem oft w fusiform galls. 
- POTENTILLA FLABELLIFORMIS: Lvs digitate; lflets pinnatifid, white below.
- POTENTILLA FRUTICOSA: Shrub; lvs 5-7 foliolate.
- POTENTILLA GRACILIS: Lvs 7-digitate, 2-3 on stem; lflets , paler beneath.
- POTENTILLA HIPPIANA/EFFUSA: Lvs pinnate, lflets toothed, silvery below & \pm so above.
- POTENTILLA MULTIFIDA: Lvs 5-7 pinnate, lflets pinnatifid, revolute, white below; lobes acute.
- POTENTILLA NIVEA s.l.: Lvs 3-5-digitate; lflets serrate, white below; stem erect.
- POTENTILLA NORVEGICA: \pm ②; stems lfy; lvs ternate; fls many; petals \leq sepals.
- POTENTILLA PALUSTRIS: Aquatic; petals & sepals maroon.
- POTENTILLA PARADOXA: As NORVEGICA, but lvs pinnate, \sim 7-9 lflets.
- POTENTILLA PENNSYLVANICA: Lvs 5-9 pinnate, green or grey below; lflet-teeth  or 
- POTENTILLA PLATTENSIS: Spreading, lvs pinnate + lflets pinnatifid, green both sides. 
- POTENTILLA QUINQUEFOLIA: Lvs 3-5-digitate; lflets incised, white beneath, grey above.
- POTENTILLA RECTA: Lvs 5-7-digitate, 4+ per stem, greenish; petals pale yellow.




- POTENTILLA RIVALIS: \pm , fls many in lfy cymes; lvs ternate, petals 1-2 mm,  sepals.
- POTENTILLA SAXIMONTANA: As CONCINNA, but lvs pinnate, lflets divided, stems 1-2 dm long.
- POTENTILLA TRIDENTATA: Lvs ternate, \pm evergreen; lflets petals white. 
- PRUNUS AMERICANA: Plum. Large spiny bush.
- PRUNUS PENNSYLVANICA: Pin Cherry. Frts red, few together, \bar{w} separate stalks.
- PRUNUS PUMILA: Sand Cherry. Willow-like lvs; black frts \bar{w} separate stalks.
- PRUNUS VIRGINIANA: Choke Cherry. Frts black, in long racemes.
- ROSA ACICULARIS: Shrubby; hips often 
- ROSA ARKANSANA: Fl stems \pm , \angle 3-4 dm high; fls often whitish.
- ROSA WOODSII: Shrubby; hips always round.
- RUBUS ACAULIS/ARCTICUS: **Fls** rose, 2-3 cm ϕ
- RUBUS CHAMAEMORUS: Lvs simple, serrate; frt \pm tawny; fls white.
- RUBUS IDAEUS/STRIGOSUS: Raspberry.
- RUBUS PUBESCENS: Runners present; fls white, \sim 1 cm ϕ
- SORBUS AMERICANA: Rowan.
- SPIRAEA ALBA: Lvs oblanceolate, serrate; fls paniculate.
- SPIRAEA LUCIDA: Lvs ovate, double serrate; fls corymbose.

LEGUMINOSAE





- ASTRAGALUS ABORIGINUM: Raceme elongating in frt; fls cream & purple; pods 
- ASTRAGALUS ALPINUS: Rhiz, raceme elongating; fls blue, pods , black-hairy.
- ASTRAGALUS AMERICANUS/FRIGIDUS: Tall, fls cream \sim 1½ cm, pods 2-3 cm, inflated, papery.
- ASTRAGALUS BISULCATUS: Selenium smell; fls blue-purple; pods  
- ASTRAGALUS CANADENSIS: Fls yellow-green; pods approximate, erect, woody, overwintering.

- ASTRAGALUS CRASSICARPUS: Fls cream & purple, 2 cm; pods
 1½ cm ϕ , fleshy & woody.
- ASTRAGALUS DRUMMONDII: White-woolly; fls cream, 1½ cm;
 pod  
- ASTRAGALUS EUCOSMUS: Fls blue, ~7 mm, raceme elongating;
 pods  black or white hairy.
- ASTRAGALS FLEXUOSUS: Fls weak violet; pods ,
 in cross-section.
- ASTRAGALUS GONIATUS/AGRESTIS: Rhiz; blue-purple fls in
 round heads.
- ASTRAGALUS KENTROPHYTA: Lflets spine-tipped, persistent
 when dead.
- ASTRAGALUS LOTIFLORUS: Short raceme on a scape, but
 most pods from crown.
- ASTRAGALUS MISSOURIENSIS: Lvs silvery; fls blue purple
 2-3 cm; pods brown, woody.
- ASTRAGALUS PECTINATUS: Lvs , fls white, ~2 cm;
 selenium smell.
- ASTRAGALUS PURSHII: Tufted, scapose, woolly; fls 2 cm,
 yellow; pod white woolly.
- ASTRAGALUS RACEMOSUS: Fls cream, 1½ cm; selenium smell;
 pods  
- ASTRAGALUS SPATULATUS: Cesp. from caudex; lvs simple, ;
 fls 8 mm, purple; scapose.
- ASTRAGALS STRIATUS/ADURGENS: Cesp; purple fls in
 round head; malpighian
 hairs.
- ASTRAGALUS TENELLUS: Fls white, ~8 mm; pods  
 stalk < raceme.
- ASTRAGALUS TRIPHYLLUS/GILVIFLORUS: 3-foliate lvs &
 creamy fls (2-3 cm)
 from caudex.
- ASTRAGALUS VEXILLIFLEXUS: Cesp from caudex, lfy-stemmed;
 fls blue ~6 mm.
- ASTRAGALUS YUKONIS: Much as FLEXUOSUS, but pod < 1 cm,
 ovate 
- CARAGANA ARBORESCENS: Caragana.
- GLYCYRRHIZA LEPIDOTA: Legume a red-brown bur, otherwise
 as ASTRAGALUS CANADENSIS.
- HEDYSARUM AMERICANUM: Keel petals > other petals; frt
 a loment; fls purple, 15-18 mm.



- HEDYSARUM CINERASCENS: As AMERICANUM, but silvery-hairy; calyx lobes linear.
- HEDYSARUM MACKENZII: As CINERASCENS, but green & fls 20-25 mm.
- LATHYRUS OCHROLEUCUS: Tendrils; fls cream.
- LATHYRUS PALUSTRIS: Tendrils; standard bent; fls 2-6, blue; lflets 
- LATHYRUS VENOSUS: As PALUSTRIS, but pubescent, fls 6-15, lflets  or 
- LOTUS AMERICANUS: , fls solitary; pods 
- LOTUS CORNICULATUS: 4, pods 
- LUPINUS ARGENTEUS: Silvery Lupine; 4
- LUPINUS PUSILLUS: 
- MEDICAGO FALCATA: As M. SATIVA, but fls yellow, pod coiled 180°.
- MEDICAGO LUPULINA: ; fls yellow, small; frts black, 1-seeded, in short-cylindric spikes.
- MEDICAGO SATIVA: Alfalfa; fls blue; pod spirally coiled, more than 360°.
- MELILOTUS ALBA: White Sweet Clover.
- MELILOTUS OFFICINALIS: Yellow Sweet Clover.
- OXYTROPIS BESSEYI: Fls magenta, ~2 cm; spike round, ~5 cm ϕ ; pod falling off.
- OXYTROPIS CAMPESTRIS GRACILIS: Fls pale yellow, ~15 mm, spike 5-20 cm long.
- OXYTROPIS DEFLEXA: Stem present; lflets many, ~40; fls ~8 mm, mauve or cream.
- OXYTROPIS LAMBERTII: Fls magenta, 1½-2 cm; spike oblong, 5-15 cm long.
- OXYTROPOIS SERICEA SPICATA: Fls yellow, 18-20 mm; spike 4-5 cm long.
- OXYTROPIS SPLENDENS: Silvery-woolly; lflets whorled in 3's or 4's.
- PETALOSTEMON CANDIDUM: Fls white.
- PETALOSTEMON PURPUREUM: Fls purple; aniline-dye smell; lflets 5-7, linear.
- PETALOSTEMON VILLOSUM: Fls purple; lflets 9-13, lanceolate, visibly hairy.
- PSORALEA ARGOPHYLLA: Rhiz; silvery-hairy; fls blue in long-stalked spikes.

- PSORALEA ESCULENTA: Tuberous tap-root; long-hairy; fls cream & purple, in 1 spike.
- PSORALEA LANCEOLATA: Rhiz, hairless; fls white, in lateral spikes; pods warty.
- THERMOPSIS RHOMBIFOLIA: Rhiz; lvs 3-digitate; fls yellow, 2 cm; pod 
- TRIFOLIUM HYBRIDUM: Cespitose, fls pink & white.
- TRIFOLIUM PRATENSE: 2 lvs next to head; fls rose.
- TRIFOLIUM REPENS: Stems creeping & rooting; fls white.
- VICIA AMERICANA: Fls 2-8, blue, standard straightish; lflets 
- VICIA CRACCA: Fls 20 or 30 per raceme.
- VICIA SPARSIFOLIA: As AMERICANA, but lflets  & plant oft distorted by rust.



GERANIAC

- ERODIUM CICUTARIUM: Lvs pinnate, lflets bipinnatifid.
- GERANIUM BICKNELLII: , stalks > calyx.
- GERANIUM CAROLINIANUM: , stalks ≤ calyx.
- GERANIUM RICHARDSONII: , fls white.
- GERANIUM VISCOSISSIMUM: Sticky , fls rose-purple.

OXALIDAC

- OXALIS CORNICULATA s.l.: , lvs , fls yellow, fl stalks elbowed.



LINAC


- LINUM LEWISII: , fls blue.
- LINUM RIGIDUM: , fls yellow.


BALSAMINAC

- IMPATIENS CAPENSIS/BIFLORA: Fls orange, 2-2½ cm; oft cleistogamous, pod w/o fl.
- IMPATIENS NOLI-TANGERE: Fls yellow, 2½-4 cm.

POLYGALAC

- POLYGALA ALBA: , lvs , fls white.


POLYGALA PAUCIFOLIA: 24, fls pink, 1½-2 cm; lvs ,
± terminal.

POLYGALA SENEGA: 24, fls ± green, lvs 

POLYGALA VERTICILLATA: Small ⊙, < 1 dm high; lvs
whorled.


EUPHORBIAC


EUPHORBIA ESULA: Tall rhiz 24, inflorescence bracts
yellow, 1-2 cm φ

EUPHORBIA GLYPTOSPERMA: Prostrate ⊙, lvs 

EUPHORBIA SERPYLLIFOLIA: ⊙, ascending, lvs  w ±
red midrib.

CALLITRICHAC

CALLITRICHE HERMAPHRODITICA: Aq; lvs , opposite;
stem filiform; frt axillary
of 4 nutlets.

CALLITRICHE PALUSTRIS: As HERMAPHRODITICA, but terminal
lvs floating, 


EMPETRAC

EMPETRUM NIGRUM: Small shrub, lvs linear, evergreen,
5 mm long; berry black.

ANACARDIAC

RHUS GLABRA: Sumac. Lflets 9-15, pinnate; frts red
in term. panicle.

RHUS RADICANS: Poison Ivy. Petioles long & erect; lflets
3; berries ± white, beneath lvs.


RHUS TRILOBATA: Skunk Bush. Lvs , berries red,
in small bunches.

CELASTRAC


CELASTRUS SCANDENS: Woody twiner; lvs ± cherry-like;
capsule revealing red seeds.


ACERAC

ACER NEGUNDO: Manitoba Maple. Dioecious; lvs pinnate.


ACER SPICATUM: Lvs ; fls perfect.


RHAMNAC

RHAMNUS ALNIFOLIA: Colonial shrub $\frac{1}{2}$ -1 m high; lvs , serrate; berries black, lateral.

RHAMNUS CATHARTICA: Thorny shrub 2-5 m; lvs \pm opposite, , \pm parallel-veined.




MALVAC



MALVA NEGLECTA: Petals lavender, $1\frac{1}{2}$ cm; carpels rounded, .

MALVA ROTUNDIFOLIA: Petals white, $<$ calyx; carpels angled, .


SPHAERALCEA COCCINEA: Lvs palmately divided, grey; fls scarlet, 2-3 cm ϕ

HYPERICAC

HYPERICUM MAJUS: 4 by turions; lvs  or ; petals yellow; pod , red.

HYPERICUM VIRGINICUM: Rhiz ; lvs , pale beneath; petals pinkish.

ELATINAC


ELATINE TRIANDRA: Aq; lvs opp, ; stem \pm as wide as lvs; frt an axillary capsule.

CISTAC


HUDSONIA TOMENTOSA: Small blackish shrub; lvs scaly, appressed; fls yellow.





LECHEA INTERMEDIA: 4, \sim 1 dm long; stem lvs alternate, lvs of basal offshoots \pm opp; fls red.

VIOLAC

VIOLA ADUNCA: Stem present; lvs , \pm puberulent; fls blue, 1-2 cm

VIOLA BLANDA/PALLENS: Rhizomatic plants w white fls & no stems may be this or a form of PALUSTRIS.

VIOLA NEPHROPHYLLA: Stemless; rhiz short & vertical; lvs ; fls blue-violet.

- VIOLA NUTTALLII: Fls yellow; lvs  , stem short, 0-5 cm.
- VIOLA NUTTALLII VALLICOLA: As NUTTALLII, but lvs  Just an ecological form.
- VIOLA PALUSTRIS: Stemless; rhiz running; fls \pm pale mauve.
- VIOLA PEDATIFIDA: Lvs palmately divided; fls blue.
- VIOLA PUBESCENS: Fls yellow; stem tall, 2-4 dm, lfy towards top.
- VIOLA RENIFOLIA: Stemless; rhiz short & vertical; fls white.
- VIOLA RUGULOSA: Lfy-stemmed; rhiz running; fls white to pale mauve.
- VIOLA SELKIRKII: Lvs  , hairy above; fls blue.
- VIOLA SORORIA: As NEPHROPHYLLA, but lvs toothed  ; woods, not bogs.

LOASAC

- MENTZELIA ALBICAULIS ①; rough-hairy; 5 yellow petals 5mm long
- MENTZELIA DECAPETALA: ②; rough-hairy; incised lvs; 10 white petals ~ 5cm long


CACTAC:



- MAMILLARIA VIVIPARA: Ball Cactus. Plant hemispherical; fls magenta.
- OPUNTIA FRAGILIS: Fls yellow, segments \pm cylindrical.
- OPUNTIA POLYCANTHA: Fls yellow, segments disk-like or slab-like.

ELAEAGNAC


- ELAEAGNUS COMMUTATA: Wolf-willow. Fls yellow, perfumed; drupe silvery.
- SHEPHERDIA ARGENTEA: Thorny shrub; lvs silvery, opposite; drupes red, edible.
- SHEPHERDIA CANADENSIS: Thornless; lvs opposite, green above, rusty below; frt orange, bitter.

ONAGRAC


- BOISDUVALLIA GLABELLA: ③; lvs alternate,  , grey; petals red, tiny; pods as in OENOTHERA.


CIRCAEA ALPINA: Lvs opposite, , filmy; frt , not opening, catchy.

EPILOBIUM ANGUSTIFOLIUM: Fireweed. Lvs alt, willow-like; petals magenta, > 1 cm.


EPILOBIUM GLANDULOSUM: \odot or $2\downarrow$ by offsets; lvs  fls \pm pink.

= *E. ciliatum*

EPILOBIUM LEPTOPHYLLUM: Rhiz $2\downarrow$; lvs , revolute; fls white.

EPILOBIUM PALUSTRE: Rhiz $2\downarrow$, lvs ; fls white.

EPILOBIUM PANICULATUM: \odot w white shedding bark; petals pink, bifid.

GAURA COCCINEA: Rhiz $2\downarrow$; petals white, turning red; frt , 4-angled, not opening.

OENOTHERA ANDINA: Tiny \odot ; fl yellow, ~ 2 mm ϕ

OENOTHERA BIENNIS: Big \odot ; fl yellow, 2-4 cm ϕ

OENOTHERA BREVIFLORA: Stemless $2\downarrow$; fls yellow, ~ 1 cm ϕ , lvs toothed the whole length.

OENOTHERA CAESPITOSA: Stemless $2\downarrow$; fl white, 5-8 cm ϕ .

OENOTHERA FLAVA: Stemless $2\downarrow$; fls yellow, 2-4 cm ϕ ; capsules woody & winged.


OENOTHERA NUTTALLII: Rhiz $2\downarrow$, stems white; fls white, 3-5 cm ϕ .

OENOTHERA SERRULATA: Small shrub; fls yellow, ~ 2 cm ϕ .


HALORAGIDAC

MYRIOPHYLLUM ALTERNIFLORUM: As SPICATUM, but sprays ~ 1 cm ϕ

MYRIOPHYLLUM PINNATUM: Some lvs alternate; floral bracts aerial, toothed, ~ 2 cm long.

MYRIOPHYLLUM SPICATUM s.l.: Lvs whorled, ; sprays 3-5 cm ϕ ; frt of 4 nutlets.

HIPPURIDAC


HIPPURIS VULGARIS: Aquatic; lvs whorled, , entire; frt an axillary nutlet.

ARALIAC

- ARALIA HISPIDA: Stem woody, bristly; lvs bipinnately compound.
- ARALIA NUDICAULIS: No stem; 1 lf of 15-21 lflets, 1 scape w 3 umbels.

UMBELLIFERAE






- ANETHUM GRAVEOLENS: ① ; lvs finely divided; fls yellow; dill-pickle smell.
- CARUM CARVI: ② ; lvs finely divided; fls white.
- CICUTA BULBIFERA: Lvs \pm bipinnate, the divisions 1 mm \pm wide; infl mostly bulbils.
- CICUTA MACKENZIEANA: As MACULATA, but divisions oblong, \leq 5 mm wide.
- CICUTA MACULATA s.l.: Lvs compound, 2-pinnate, the divisions lanceolate, \sim 1 cm wide.
- CYMOPTERUS ACAULIS: Stemless; glabrous; white-flowered; achenes winged on back.
- HERACLEUM LANATUM: Huge, 1 $\frac{1}{2}$ -2 $\frac{1}{2}$ m high; the 3 lflets \sim 1 dm ϕ ; outer fls enlarged.
- LOMATIUM COUS: Stemless; glabrous; celery odor; fls yellow, bractlets obovate.
- LOMATIUM DISSECTUM: Stem present, fls brown-purple.
- LOMATIUM FOENICULACEUM: Stemless; grey-hairy; fls yellow.
- LOMATIUM MACROCARPUM: Stemless; \pm grey-hairy; fls white; bractlets green, $>$ fls.
- LOMATIUM ORIENTALE: Stemless; glabrous; fls white; bractlets scarious=fls.
- MUSINEON DIVARICATUM: \pm stemless; \pm glabrous; fls yellow; frt wingless.
- OSMORHIZA CHILENSIS: As OBTUSA, but frt \sim 2 cm, $>$ pedicels, acute at tip.
- OSMORHIZA LONGISTYLIS: Anise smell; bractlets present; stipular sheath hairy.
- OSMORHIZA OBTUSA/DEPAUPERATA: Bractlets absent; frt \sim 1 $\frac{1}{2}$ cm, $<$ pedicels, obtuse at tip.
- PASTINACA SATIVA: ② with parsnip root; lvs 1-pinnate; fls yellow.

- PERIDERIDIA GAIRDNERI: Lvs skeletal, pinnate \bar{w} 5-7
filiform lflets, soon withering.
- SANICULA MARILANDICA: Lvs palmately divided; lflets
5-7, frt a bur.
- SIUM SUAVE: As CICUTA, but lvs ONCE pinnate, divisions
4-8 mm wide.
- ZIZIA APTERA: Basal lvs simple , serrate; fls yellow.

CORNAC







- CORNUS CANADENSIS: Lvs in 1 whorl, fls surrounded by
4 white bracts.
- CORNUS STOLONIFERA: Shrub; red bark; lvs opposite; fls
w/o bracts.

PYROLAC











- CHIMAPHILA UMBELLATA: Undershrub; lvs  evergreen,
on the stem.
- MONOTROPA HYPOPITHYS: Peach-coloured, fls in a raceme.
- MONOTROPA UNIFLORA: White saprophyte \bar{w} 1 fl.
- PTEROSPORA ANDROMEDEA: Brownish-pink, sticky-hairy,
6-10 dm high; fls urn-shaped.
- PYROLA ASARIFOLIA: Fls deep pink, lvs 
- PYROLA ELLIPTICA: Fls white, lvs 
- PYROLA GRANDIFLORA/ROTUNDIFOLIA: Fls white, \sim 15 mm ;
calyx-lobes 3-4 mm.
- PYROLA MINOR: Style straight, 2 mm long; fls white,
globular.
- PYROLA SECUNDA: Lvs , toothed; style straight,
4-5 mm; raceme 1-sided.
- PYROLA UNIFLORA: 1 white fl.
- PYROLA VIRENS: Fls greenish-white, lvs , calyx-
lobes \leq 2 mm.

ERICAC

- ANDROMEDA GLAUCOPHYLLA: As POLIFOLIA, but lvs 3-5 cm
long, puberulent beneath.
- ANDROMEDA POLIFOLIA: Evergreen shrub, lvs alternate,
2-4 cm long; fl pink, globose.
- ARCTOSTAPHYLOS RUBRA: Lvs corrugated, deciduous; berry
pulpy, red.

- ARCTOSTAPHYLOS UVA-URSI: Creeping shrub, lvs evergreen, , berry mealy, red.
- CHAMAEDAPHNE CALYCVLATA: Fls urn-shaped, in one-sided lfy-bracted raceme.
- GAULTHERIA HISPIDULA: Tiny, 3-8 mm, evergreen lvs  ; berry white, wintergreen odor.
- KALMIA POLIFOLIA: Evergreen shrub; lvs opposite; fls rose-pink, saucer-shaped.
- LEDUM GROENLANDICUM: Shrub; lvs , very rusty beneath.
- LEDUM PALUSTRE/DECUMBENS: Small shrub; lvs , rusty beneath.
- LOISELEURIA PROCUMBENS: Shrub; lvs oblong, evergreen, opposite; fls bell-shaped, pink.
- OXYCOCCUS MICROCARPUS: \pm Herbaceous; petals pink, \pm separate, reflexed; lvs 3-5 mm long.
- OXYCOCCUS QUADRIPETALUS: As MICROCARPUS, but lvs 6-12 mm & fl-stalk puberulent.
- VACCINIUM CAESPITOSUM: Lvs obovate, toothed; berry blue.
- VACCINIUM MYRTILOIDES: Blueberry; branches hairy; lvs  entire, \pm hairy.
- VACCINIUM ULIGINOSUM: Lvs , entire; berry blue.
- VACCINIUM VITIS-IDAEA: Lvs leathery, evergreen; berry red, acid, with calyx at end.


PRIMULAC


- ANDROSACE OCCIDENTALIS: Tiny , scapose; bracts  ; fruiting calyx white.
- ANDROSACE SEPTENTRIONALIS: Scapose  ; bracts 
- CENTUNCULUS MINIMUS: Tiny  ; lvs alternate,  capsule sessile in axils 
- DODECATHEON CONJUGENS: Scapose $2\frac{1}{2}$; corolla lobes reflexed, deep pink $1\frac{1}{2}$ -2 cm.
- DODECATHEON PULCHELLUM: As foregoing, but corolla lobes $1-1\frac{1}{2}$ cm.
- GLAUX MARITIMA: Rhiz $2\frac{1}{2}$; lvs  opposite; mauve axillary sessile fls.
- LYSIMACHIA CILIATA: Rhiz $2\frac{1}{2}$; lvs  ; fls 2-3 cm, yellow, long-stalked.
- LYSIMACHIA HYBRIDA: As CILIATA, but no rhizome, but offsets; lvs 

LYSIMACHIA THYRSIFLORA: Fls yellow, 5-7 mm ϕ , in stalked racemes from middle axils.

PRIMULA INCANA: Scapose, 2-4 dm high; calyx & leaf-undersides white/yellow mealy.

PRIMULA MISTASSINICA: Scapose, \sim 1 dm high; herbage not mealy.

TRIENTALIS BOREALIS: White 7-petalled fl; lvs in a terminal whorl 

TRIENTALIS EUROPAEA: Likewise, but lvs , some on the stem.


PLUMBAGINAC


ARMERIA MARITIMA: Stemless; sleeve-like downpointing bract below round fl head.


OLEAC


FRAXINUS PENNSYLVANICA: Green Ash; lvs opposite, pinnately compound.


GENTIANAC


GENTIANA AFFINIS: , stems decumbent, closely lfy; fls blue, 2-3 cm, open.


GENTIANA AMARELLA: , erect; fls white, yellow, blue, 1-2 cm, clusters from most nodes.



GENTIANA ANDREWSII: , stems decumbent; corolla blue, 4-5 cm, almost closed at end.

GENTIANA AQUATICA/FREMONTII: , 2-7 cm; lvs scaly, white-margined; corolla white, 4-pleated.


GENTIANA TONSA: ; fls long-stalked, blue, 2-4 cm, \bar{w} 4 lobes serrate on margin.



HALENIA DEFLEXA:  erect; corolla \bar{w} 4-5 downpointing spurs.

LOMATOGONIUM ROTATUM: , erect; corolla lobes white, oblong, \pm separate; no style.






MENYANTHES TRIFOLIATA: Rhiz ; lvs , all basal; petals furry.

APOCYNAC



APOCYNUM ANDROSAEMIFOLIUM: Lvs , fls pink, bell-shaped, 5-8 mm long.

APOCYNUM CANNABINUM/SIBIRICUM: Lvs  to ; fls white, cylindrical, 2-4 mm long.



ASCLEPIADAC

- ASCLEPIAS OVALIFOLIA: Lvs  ; fls \pm creamy; hoods=
2 (stamens + pistil).
- ASCLEPIAS SPECIOSA: Lvs  ; fls pinkish; hoods ,
12-15 mm long.
- ASCLEPIAS SYRIACA: As SPECIOSA, but hoods 5-8 mm, .
- ASCLEPIAS VERTICILLATA: Lvs , whorled; fl
 \sim 6 mm long.
- ASCLEPIAS VIRIDIFLORA: Rhiz \pm vertical; fls green-
white; hoods= stamens + pistil.

CONVOLVULAC

- CONVOLVULUS ARVENSIS: Trailing; lvs  ; fls 2-3 cm ϕ
2 small bracts on stalk.
- CONVOLVULUS SEPIUM: Twining; lvs  ; fls 5-7 cm ϕ ; 2 big
bracts enclosing calyx.
- CUSCUTA GRONOVII s.l.: Twining yellow stem \rightarrow parasite;
no roots, no lvs.

POLEMONIAC








- COLLOMIA LINEARIS: \odot ; fls mauve, 1 cm long, 2-3 mm ϕ ,
in terminal cluster surrounded by lvs.
- LINANTHUS SEPTENTRIONALIS: Flimsy \odot , lvs seemingly
linear & whorled.
- NAVARRETIA MINIMA: \odot Lvs bipinnatifid into spiny div-
isions, mostly terminal.
- PHLOX ALYSSIFOLIA: Tufted \mathcal{Z} , woody base; lvs  ; fls
2-3 cm ϕ , pale lavender.
- PHLOX HOODII: Tufted \mathcal{Z} , woody base; lvs  ; fls 1 cm,
 \pm white.

HYDROPHYLLAC

- ELLISIA NYCTELEA: Sprawling \odot ; lvs pinnatifid; pods
solitary, papery, 4-6 mm ϕ
- PHACELIA FRANKLINII: Erect $\textcircled{2}$; fls mauve in coiled
1-sided "racemes", lvs pinnatifid.

BORAGINAC







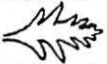



- CRYPTANTHA FENDLERI: \odot ; branched above, tree-shaped;
4 like smooth nutlets.

- CRYPTANTHA KELSEYANA: ☉ ; basally branched, bush-shaped;
1 large smooth + 3 smaller rough
seeds.
- CRYPTANTHA MACOUNII: 4, bristly-hairy; corolla 8-10 mm ϕ ,
white w yellow eye.
- CRYPTANTHA MINIMA: ☉ . As KELSEYANA, but most fls bracted.
- CYNOGLOSSUM BOREALE: 4 ; nutlets 3-4 mm ϕ , prickly all
over back.
- HELIOTROPIUM CURASSAVICUM: Glabrous; fls 8-10 mm ϕ ,
white w yellow eye.
- LAPPULA/HACKELIA AMERICANA: ② ; lvs  ; fls blue ~3 mm,
frts reflexed.
- LAPPULA ECHINATA: ☉ , lvs  ; fls blue, 3-4 mm; 2
rows prickles per nutlet angle.
- LAPPULA/HACKELIA FLORIBUNDA: ② ; lvs  ; fls ~5-6
mm ϕ , frts reflexed.
- LAPPULA REDOWSKII: ☉ , fls \pm white, 2-3 mm ϕ ; 1 row
prickles per nutlet angle.
- LITHOSPERMUM CANESCENS: Lvs  , fls orange.
- LITHOSPERMUM INCISUM: Lvs  ; fls lemon-yellow.
- LITHOSPERMUM RUDERALE: Fls yellow-green, \leq 1 cm ϕ ;
nutlets ~ 5 mm long.
- MERTENSIA LANCEOLATA: Glabrous; basal lvs cuneate;
fls ~ 1½ cm long.
- MERTENSIA PANICULATA: Hairy; basal lvs cordate-ovate;
fls ~ 2 cm long.
- ONOSMODIUM MOLLE: Big 4 ; lvs  , strongly veined;
fls  , creamy.
- PLAGIOBOTHRYIS SCOPULORUM: Sprawling ☉ ; early lvs opp-
osite; fls 1 mm ϕ .



VERBENAC

- VERBENA BRACTEATA: Lvs pinnately cleft; fls in dense
terminal spikes; bracts > fls.
- VERBENA HASTATA: Lvs ovate, toothed; infl a panicle of
dense spikes; fls blue; bracts \ll fls.
- VERBENA URTICIFOLIA: As HASTATA, but fls white & re-
mote in the spikes.








LABIATAE












- AGASTACHE FOENICULUM: Tall; lvs pale beneath; anise odor; fls blue in cylindrical spikes.
- GALEOPSIS TETRAHIT: , fls \pm axillary; 5 calyx-lobes equal & long-awned; corolla $>$ calyx.
- GLECOMA HEDERACEA: Creeping; lvs ; fls several per axil, blue, 1 cm.
- HEDEOMA HISPIDA: Small , all axils \bar{w} fls; calyx , strongly ribbed.
- LAMIUM AMPLEXICAULE: , lvs ; fls \pm axillary; corolla pink & 15 mm long or ± 0 .
- LEONURUS CARDIACA: Lvs palmately cleft, like a sugar maple.
- LYCOPUS AMERICANUS: Fls small, white, 4 merous, \pm regular; lvs incised 
- LYCOPUS ASPER: Fls as foregoing; lvs serrate, sessile.
- LYCOPUS UNIFLORUS: Lvs serrate, stalked; calyx-lobes = nutlets in length.
- MENTHA ARVENSIS: Fls mauve, in axillary bunches, \pm regular; mint smell.
- MOLDAVICA PARVIFLORA: Spikes short & dense; calyx-lobes 4 narrow + 1 wide, awned; bracts awned.
- MOLDAVICA THYMIFLORA: Spikes long & interrupted; calyx-lobes as foregoing; bracts awnless.
- MONARDA FISTULOSA: Long 2-4 cm magenta fls in terminal heads.
- NEPETA CATARIA: Fls in dense term. spikes, \pm white; calyx ribbed.
- PHYSOSTEGIA VIRGINIANA s.l.: Fls mauve, 1 $\frac{1}{2}$ -2 $\frac{1}{2}$ cm in only 2's in terminal spikes.
- PRUNELLA VULGARIS: Bracts of terminal spikes 1 cm wide, ; lvs \pm entire.
- SCUTELLARIA GALERICULATA: Fls blue, S-curved, 2-2 $\frac{1}{2}$ cm long, 2 together at node.
- SCUTELLARIA LATERIFLORA: Fls 6-7 mm in axillary racemes; lvs stalked.
- STACHYS PALUSTRIS: Fls in terminal spike, 1 $\frac{1}{2}$ cm long,  from front.
- TEUCRIUM CANADENSE: As STACHYS, but no upper lip to corolla 

SOLANAC

- HYOSCYAMUS NIGER: Fls 2-4 cm ϕ , yellowish, \bar{w} netted purple veins.
- PHYSALIS GRANDIFLORA: Bushy \odot , sticky-hairy; fls 3-4 cm ϕ , white \bar{w} yellow eye.
- SOLANUM NIGRUM: Erect \odot , lvs  ; berries black, in stalked umbels from internodes.
- SOLANUM TRIFLORUM: Sprawling \odot , lvs  ; berries green.

SCROPHULARIAC

- BESSEYA WYOMINGENSIS: Basal lvs  , toothed; stem lvs bracts; fls in spike, corolla 0.
- CASTILLEJA COCCINEA: \odot \bar{w} basal lvs; bracts red.
- CASTILLEJA MINIATA: Bracts old rose to red, 3-toothed; fls 2 $\frac{1}{2}$ -3 cm, > bracts.
- CASTILLEJA RAUPII: Bracts \pm dull violet; fls 1 $\frac{1}{2}$ -2 cm, < bracts.
- CASTILLEJA SESSILIFLORA: Fls creamy, 4-5 cm, much > green bracts.
- CHAENORRHINUM MINUS: Small \odot ; lvs alt, sticky hairy; fls \sim 5 mm, lavender, spurred. *introd. see along RR.*
- COLLINSIA PARVIFLORA: Small \odot ; lvs opp; fls 5 mm, bright blue, long-stalked.
- EUPHRASIA ARCTICA: \odot ; lvs \pm opp, \sim 1 cm long, \pm palmately veined. 
- GRATIOLA NEGLECTA: Mud \odot , sticky-hairy, lvs opp; fls as PENSTEMON, but 1 cm, white.
- LIMOSELLA AQUATICA: Mud \odot with runners, stemless; lvs  ; capsule spherical, 3 mm ϕ .
- LINARIA DALMATICA: As VULGARIS, but lvs  & no rhizomes.
- LINARIA VULGARIS: Rhiz \mathcal{Z} , lvs  ; fls spurred, yellow \bar{w} orange throat-patch.
- MELAMPYRUM LINEARE: \odot \bar{w} opp lvs; fls pale yellow 1 cm long, 2 per axil. 
- MIMULUS GLABRATUS: Aquatic, creeping; lvs \sim 1 cm long; fls \sim 1 cm long, yellow.
- MIMULUS GUTTATUS: Lvs 1-6 cm  ; fls yellow, 2-4 cm long.
- MIMULUS RINGENS: Erect \mathcal{Z} \bar{w} offsets; fls blue, 2-3 cm long.

- ORTHOCARPUS LUTEUS: Erect \odot ; fls bright yellow  ,
1½ cm, in terminal spike .
- PEDICULARIS GROENLANDICA: 4 ; lvs pinnatifid & serrate;
fls in 1 spike, red  , 1 cm.
- PEDICULARIS LABRADORICA: \pm ② , branched from base; fls
in >1 spikes, yellow 
- PEDICULARIS PARVIFLORA: \odot , lvs pinnatifid; fls \pm axil-
lary, purplish 
- PENTSTEMON ALBIDUS: Fls white \bar{w} black anthers, 1½ cm ϕ
X 2 cm long; plant \pm sticky.
- PENTSTEMON GRACILIS: Fls mauve, 2-3½ cm long, corolla-
lobes not flared; lvs \pm toothed.
- PENTSTEMON NITIDUS: Fls blue, 1½ cm ϕ X 2 cm long;
bracts  ; plant glaucous.
- PENTSTEMON PROCERUS: Fls blue, 4-5 mm ϕ X 10 mm long;
plant woody-based.
- RHINANTHUS CRISTA-GALLI: \odot ; lvs opp, strongly serrate;
spike terminal; frting calyx
1-1½ cm ϕ
- SCROPHULARIA LANCEOLATA: Tall, 1-2 m; lvs  ; fls
brown, paniculate. 
- VERONICA AMERICANA: Blue fls in racemes from middle
axils; lvs  , opp, stalked.
- VERONICA ANAGALLIS-AQUATICA: As foregoing, but lvs
sessile, fls mauve, pods ϕ ascending.
- VERONICA COMOSA/CATENATA/SALINA: As 2 foregoing, lvs
sessile, fls \pm white, pods  ,
spreading.
- VERONICA PEREGRINA: Mud \odot , lvs \pm alternate; fls white,
sessile, in most axils.
- VERONICA PERSICA: \odot ; fls blue, singly from 1½ axils, long-stalked.
- VERONICA SCUTELLATA: As AMERICANA, but lvs sessile, 
- VERONICA SERPYLLIFOLIA: 4 , fls blue in terminal spike;
lvs 

LENTIBULARIAC



- PINGUICULA VILLOSA: As VULGARIS, but scape hairy & fl
< 1 cm long.
- PINGUICULA VULGARIS: Lvs basal, yellow-green; fl 1,
blue, spurred, 1½-2½ cm long.

- UTRICULARIA CORNUTA: Fls bright yellow, spurred, 1½-2 cm; no lvs, no bladders.
- UTRICULARIA INTERMEDIA: Bladders on separate branches; lf-segments flat.
- UTRICULARIA MINOR: Bladders 1-2 mm ϕ , sprays ~1 cm ϕ ; fls 6-8 mm, spur small.
- UTRICULARIA VULGARIS: Bladders 2-4 mm ϕ , sprays 3-5 cm ϕ ; fls 1½ cm, spurred.



OROBANCHAC

- OROBANCHE FASCICULATA: On ART. FRIG.; fls many, long-stalked, but stalk=stem.
- OROBANCHE LUDOVICIANA: On ART. CAMP.; fls sessile in dense spike.
- OROBANCHE UNIFLORA: Fl 1, stalk much > stem.





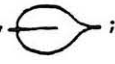

PLANTAGINAC

- PLANTAGO ELONGATA: Small \odot ; \pm hairless, lvs thread-like.
- PLANTAGO ERIOPODA: 2, lvs , thick; crown brown-woolly.
- PLANTAGO MAJOR: 2, lvs .
- PLANTAGO PATAGONICA/PURSHII: \odot , white-woolly all-over, lvs linear but flat.
- PLANTAGO SPINULOSA: As foregoing, but bracts 2-3 times as long as fls.

RUBIAC

- GALIUM APARINE: \odot , catchy; lvs 6-8 per whorl, ; frts 3 mm ϕ
- GALIUM BOREALE: Rhiz 2, erect; lvs 4 per whorl; fls in term. panicle, white, perfumed.
- GALIUM TRIFIDUM/LABRADORICUM: 2, catchy; lvs 4 per whorl.
- GALIUM TRIFLORUM: Lvs 6 per whorl, ; coumarin smell; fls in 3's
- HOUSTONIA LONGIFOLIA: Tufted 2; lvs opp, w̄ stipules; fls lavender, bell-shaped, 6-8 mm long.


CAPRIFOLIAC

- DIERVILLA LONICERA: As LONICERA, but frt a capsule  & 1 fl per stalk.
- LINNAEA BOREALIS: \pm Herbaceous, long-trailing; lvs ; fls 2, scapose, pink, \sim 1 cm.
- LONICERA CAERULEA/VILLOSA: Fls yellow, 2 on same "ovary", w 2 filiform bracts 6-8 mm.
- LONICERA DIOICA: Woody twiner, lvs paler beneath; 2 end lvs fused into a cup cont'g fls.
- LONICERA INVOLUCRATA: Black berries subtended by 4 red bracts 2-3 cm ϕ
- LONICERA OBLONGIFOLIA: As CAERULEA, but no filiform bracts; frts \pm red.
- LONICERA TATARICA: Fls mostly pink; berries red or orange; lvs 
- SAMBUCUS RACEMOSA/PUBENS: Lvs pinnately compound.
- SYMPHORICARPOS ALBUS: Stamens & style=corolla; berry white, dropping in Fall.
- SYMPHORICARPOS OCCIDENTALIS: Stamens & style > corolla; berries many, purplish, overwintering.
- VIBURNUM EDULE: Lvs ; 1 pair lvs on fl branches; frt red.
- VIBURNUM LENTAGO: Lvs cherry-like, serrate, ; frt black.
- VIBURNUM OPULUS: Lvs , 2 prs on fl branches; outer fls enlarged; frt red.



ADOXAC

- ADOXA MOSCHATELLINA: Basal lvs 2-ternate, 2 stem lvs 1-ternate; frt head green, \pm cubical.

CUCURBITAC

- ECHINOCYSTIS LOBATA: \odot climbing by tendrils; lvs ; frt 3-4 cm ϕ , spiny, \pm hollow.




CAMPANULAC

- CAMPANULA APARINOIDES: All lvs linear & catchy; fls ; \pm white.
- CAMPANULA ROTUNDIFOLIA: Harebell; basal lvs ovate, stem lvs linear; fl 


LOBELIAC

- DOWNINGIA LAETA: Mud ☉ ; fls sessile, ovary acting as stalk; calyx \supseteq lavender corolla.
- LOBELIA DORTMANNIA: Bottom-loving aquatic 4 ; lvs all basal, linear, ○ in X-section.
- LOBELIA KALMII: Lvs linear; fls deep blue \bar{w} white eye.
- LOBELIA SPICATA: Lvs lanceolate, toothed; fls pale blue.




VALERIANAC



- VALERIANA DIOICA: Basal lvs , upper , opp; frt ; unwashed feet smell.




COMPOSITAE








- ACHILLEA BOREALIS: Involucral bracts dark-margined
- ACHILLEA LANULOSA: Corymb round-topped, 2-10 cm ϕ
- ACHILLEA MEGACEPHALA: White \bar{w} wool; heads 6-7 mm high.
- ACHILLEA MILLEFOLIUM: Lvs bipinnate-tripinnate, segments \dagger coplanar; corymb flat, > 1 dm ϕ .
- ACHILLEA SIBIRICA: Lvs simple, edges incised $\frac{1}{2}$ way to midrib.
- AGOSERIS/MICROSERIS CUSPIDATA: As GLAUCA, but lvs folded, hairy on margins.
- AGOSERIS GLAUCA: As TARAXACUM, but lvs glaucous, ≤ 1 cm wide; all bracts appressed.
- AMBROSIA ARTEMISIIFOLIA: ☉, lvs divided right to midrib.
- AMROSIA PSILOSTACHYA: Rhiz 4, lvs not divided wholly to midrib.
- AMBROSIA TRIFIDA: ☉, lower lvs 3-lobed.
- ANAPHALIS MARGARITACEA: Fls like ANTENNARIA; rhiz 4; lvs oblong, all on the stem.
- ANTENNARIA ANAPHALOIDES: Rhiz; no runners; lvs ; bracts white.
- ANTENNARIA APRICA: Lvs silvery both sides; involucre 7-10 mm high. No ♂
- ANTENNARIA DIMORPHA: Tufted; no runners; stemless; ♀ heads on crown; ♂ heads on 1 cm scapes.















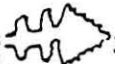

} Treated as species for brevity, but all 3 actually varieties of MILLEFOLIUM.














- ANTENNARIA HOWELLII: Lvs green above, the basal 4-6 cm long. No ♂
- ANTENNARIA MICROPHYLLA/NITIDA: Basal lvs silvery above, 6-12 mm; involucre 5-7 mm; ♂ & ♀.
- ANTENNARIA NEGLECTA/CAMPESTRIS: Lvs green above, the basal 1½-3 cm  . ♂ rare.
- ANTENNARIA NEODIOICA: As NEGLECTA, but lvs  . No ♂
- ANTENNARIA PULCHERRIMA: As ANAPHALOIDES, but outer bracts straw or brown; ♀ and ♂
- ANTENNARIA ROSEA: As MICROPHYLLA, some bracts pink, lvs 1-2 cm; only ♀
- ANTENNARIA RUSSELLII: As NEODIOICA, but bracts straw-yellow to light brown; only ♀
- ANTENNARIA UMBRINELLA: Lvs yellow-grey; bracts brown; ♀ and ♂ .
- ARCTIUM MINUS: Huge ② ; rhubarb-like basal lvs; thistle heads falling off as burs.
- ARNICA ALPINA: As LONCHOPHYLLA, but lvs entire.
- ARNICA CHAMISSONIS: Rhiz; stem-lvs 3-5 pairs, not reduced upward.
- ARNICA CORDIFOLIA: Lvs 
- ARNICA FULGENS: Brown wool on crown; herbage glandular; heads 1(-3), orange yellow.
- ARNICA LONCHOPHYLLA: Lvs (feebly) toothed; heads (1-3), lemon yellow.
- ARTEMISIA ABROTANUM: Half-shrubby, 1-2 m, dying back ½ way; lvs finely divided.
- ARTEMISIA ABSINTHIUM: Silvery; lvs much dissected; absinthe smell.
- ARTEMISIA BIENNIS: ② , green, lvs much dissected; pleasant smell.
- ARTEMISIA CAMPESTRIS SCOULERIANA: ② to 24 , lvs dissected, mostly basal; no smell.
- ARTEMISIA CAMPESTRIS DOUGLASIANA/CAMPORUM: As var. SCOULERIANA, but grey-hairy.
- ARTEMISIA CANA: Sage Brush; shrub ½-1½ m; lvs entire, oblong; sage smell.
- ARTEMISIA DRACUNCULUS: 24 ; green; lvs entire, ~2 mm wide; ± no smell.
- ARTEMISIA FRIGIDA: Pasture Sage; † over-wintering; lvs grey, finely divided; sage smell.











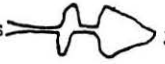





- ARTEMISIA LONGIFOLIA: As CANA, but 4 from woody caudex, branches 1 yr only.
- ARTEMISIA LUDOVICIANA LUDOVICIANA: 4 by rhiz; lvs oblong, silvery, >5 mm wide; sage smell.
- ARTEMISIA L. GNAPHALODES/PABULARIS: As foregoing, but lvs < 5 mm, curved, folded, yellow-grey.
- ARTEMISIA VULGARIS: Lvs 1-2 times dissected, not finely divided, green above, white below.
- ASTER BRACHYACTIS: ⊙, rays wholly lacking (compare ERIGERON ACRIS etc.); pappus obvious.
- ASTER CANESCENS: ⊙ or ② w̄ tap-root; ligules blue; only basal lvs toothed.
- ASTER CHILENSIS: Rays blue; stem lvs linear; bracts hairy, well imbricate.
- ASTER CILIOLATUS: Basal lvs both cordate and stalked
 ; ligules blue.
- ASTER CONSPICUUS: Lvs all cauline,  infl flat-topped; bracts glandular; rays blue.
- ASTER EATONII: Rays ± pink; outer involucrel bracts green, obtuse, longer than the inner.
- ASTER FALCATUS/COMMUTATUS: Bracts hairy, recurved, awn-tipped; infl ± racemose; rays white; Rhiz.
- ASTER HESPERIUS: Lvs narrowly lanceolate, entire; stem hairy in lines; rays white to blue.
- ASTER JUNCIFORMIS: Rhiz; lvs uniform, < 5 mm wide; infl few-headed, flat-topped; rays white.
- ASTER LAEVIS: Glabrous & glaucous; stem lvs clasping; rays blue.
- ASTER MODESTUS: Puberulent; lvs oblong, clasping, paler beneath; rays blue.
- ASTER PANSUS/ERICOIDES: As FALCATUS, but no rhiz; infl paniculate, many-flowered.
- ASTER PAUCIFLORUS: Stems decumbent at base; bracts glandular; lvs linear; rays white.
- ASTER PTARMICOIDES: Tufted; lvs linear, reduced above; heads 3-5, corymbose; rays white.
- ASTER PUNICEUS: Spreading-hairy; lvs clasping; outer bracts green & lfy; rays blue.
- ASTER UMBELLATUS: Tall; lvs lanceolate, whiter beneath; infl flat-topped; rays white.
- BAHIA OPPOSITIFOLIA: 4, rhiz; lvs opp, 1-2 times tripartite; heads yellow, radiate.

- BIDENS BECKII: Aquatic, opp. lvs finely divided; heads w rays, yellow.
- BIDENS CERNUA: Lvs opp, simple; rays yellow.
- BIDENS VULGATA: Lvs opp, pinnately compound; no rays.
- BOLTONIA ASTEROIDES: Just like ASTER HESPERIUS but pappus 0 or of small awns.
- CARDUUS NUTANS: Huge ② 1-3 m high; lvs decurrent on stem; purple heads 4-6 cm ϕ .
- CENTAUREA REPENS: Rhiz 4, lvs oblong; florets pink, all tubular; involucre bracts papery.
- CHRYSANTHEMUM LEUCANTHEMUM: Rhiz 4, disk yellow; rays white, 2-3 cm; lvs simple.
- CHRYSOPSIS VILLOSA: As ASTER but disk & rays yellow; lvs  to , entire, hairy.
- CHRYSOTHAMNUS NAUSEOSUS: Shrub, + silvery; heads yellow, showy, discoid, cylindrical.
- CHRYSOTHAMNUS NAUSEOSUS GLABRATUS: As var. NAUSEOSUS but green & hairless.
- CICHORIUM INTYBUS: Heads sessile, ligulate, blue.
- CIRSIUM ARVENSE: Canada Thistle. Rhiz 4, heads 1-1½ cm ϕ
- CIRSIUM DRUMMONDII: ②; stem 0 or short; head 5-8 cm ϕ ; inner bracts crinkly.
- CIRSIUM FLODMANII: Creeping-rooted 4, heads 2-4 cm ϕ , all involucre bracts spiny.
- CIRSIUM MUTICUM: ②, involucre bracts w/o spines.
- CIRSIUM UNDULATUM: As FLODMANII, but tap-rooted ②, leaf-lobes not coplanar.
- CIRSIUM VULGARE: Lvs decurrent on stem like CARDUUS, but bracts not reflexed.
- COREOPSIS TINCTORIA: ①, lvs opp; heads many, 3-4 cm ϕ ; ligules yellow, red at base; pappus 0.
- CREPIS OCCIDENTALIS s.l.: Spreading-hairy 4, lvs runcinate.
- CREPIS RUNCINATA: Lvs all basal, but scape branched & bracted; involucre glandular.
- CREPIS RUNCINATA GLAUCA: As above, involucre glabrous.
- CREPIS TECTORUM: ①, seeds red or orange; some stem lvs.
- ECHINACEA ANGUSTIFOLIA: Disk dark, , spiny between fls; rays pink, 2-4 cm.
- ERIGERON ACRIS: ① or ②, ligules inconspicuous; involucre glandular; infl ± flat-topped.

- ERIGERON ASPER: Stems erect, their lvs reduced, 2-4 dm high; 1-headed; ligules white; June.
- ERIGERON CAESPITOSUS: 4 from woody tap-root; stems many, 1-headed, 1-2 dm high; grey pubescent.
- ERIGERON CANADENSIS: ⊙ ; heads rayless, small, 2-3 mm ϕ by 4-5 mm long.
- ERIGERON COMPOSITUS: Lvs finely divided; scapose & 1-headed; ligules mostly none.
- ERIGERON ELATUS: As ACRIS, but involucre not glandular, infl \pm racemose.
- ERIGERON GLABELLUS: Stems many, decumbent at base, 2-4 dm high; ligules pink. July.
- ERIGERON HYSSOPIFOLIUS: Lvs linear 1-2 mm X 1-2 cm, all cauline; mid lvs w lf-tufts in axils.
- ERIGERON LONCHOPHYLLUS: As ELATUS, but lvs long-linear, lvs = racemose inflorescence.
- ERIGERON PHILADELPHICUS: \pm ② ; heads many; ligules pink; stem lvs clasping.
- ERIGERON PUMILUS: As CAESPITOSUS, but lf & stem hairs spreading.
- ERIGERON RADICATUS: As CAESPITOSUS, but the 1-2 stem lvs rudimentary; stem < 1 dm; yellow-green, subglabrous.
- ERIGERON STRIGOSUS: \pm ② ; infl flat-topped, heads many; ligules conspicuous.
- EUPATORIUM PURPUREUM/MACULATUM: Tall, 1 m \pm ; lvs whorled; heads discoid, purple.
- FRANSERIA ACANTHICARPA: ⊙, as AMBROSIA, but ♀ heads spiny, 5-6 mm long.
- GAILLARDIA ARISTATA: Disk , red-brown; ligules yellow, red at base; lvs toothed.
- GNAPHALIUM PALUSTRE: Mud ⊙, heads sunken in white wool; lvs alternate 
- GNAPHALIUM ULIGINOSUM: ⊙, not so woolly, heads brownish; lvs 
- GRINDELIA SQUARROSA: Involucral bracts hooked, sticky & gummy.
- GUTIERREZIA SAROTHRAE: Tufted 4, infl flat-topped, heads as a goldenrod but no pappus.
- HAPLOPAPPUS ARMERIOIDES: Stemless, woody caudex; lvs bracts green at tip , elsewhere yellow-scarious.
- HAPLOPAPPUS LANCEOLATUS: Tap-rooted 2 ; stems ; basal lvs 4-8 cm, stem lvs 2 cm 

- HAPLOPAPPUS NUTTALLII: Lvs  ; heads yellow, no rays.
- HAPLOPAPPUS SPINULOSUS: Tufted 2 ; lvs greyish, finely dissected; heads yellow, radiate.
- HELENIUM AUTUMNALE: Disk , heads yellow; lvs all cauline, decurrent on stem.
- HELIANTHUS ANNUUS: , involucre bracts 
- HELIANTHUS MAXIMILIANI: 2 , disk yellow; lvs alternate, folded, arched 
- HELIANTHUS NUTTALLII/SUBTUBEROSUS: 2 , disk yellow; lvs \pm opposite, \pm plane.
- HELIANTHUS PETIOLARIS: , involucre bracts 
- HELIANTHUS SUBRHOMBOIDEUS: 2 , disk brown; lvs all opp.
- HELIANTHUS TUBEROSUS: 2 by cigar-shaped tubers; lvs 
- HELIOPSIS HELIANTHOIDES: Like a sunflower, but disk conic, bracts round-tipped, lvs ovate.
- HIERACIUM ALBIFLORUM: Heads ligulate, white; lvs all basal, but scape branched.
- HIERACIUM UMBELLATUM: Rhiz 2 , dandelion heads, lvs all cauline 
- HYMENOPAPPUS FILIFOLIUS: Lvs in threadlike divisions, \pm basal; heads yellow, rayless.
- HYMENOXYIS ACAULIS: Lvs , all basal; 1 yellow head per scape; bracts , appressed-hairy.
- HYMENOXYIS RICHARDSONII: Lvs in rubbery threadlike divisions; heads yellow, \sim 3 cm ϕ .
- IVA AXILLARIS: Rhiz 2 , lvs  ; heads green, small, axillary 
- IVA XANTHIFOLIA: Huge , lvs sunflowerlike; heads green, in term. panicle.
- LACTUCA BIENNIS: ② 1-2 m high; lvs  ; heads ligulate; pappus clay-colored.
- LACTUCA PULCHELLA: Rhiz 2 ; fls blue, ligulate, 2-3 cm ϕ
- LACTUCA SCARIOLA: , fls yellow, ligulate, \sim 1 cm ϕ ; lvs \pm in vertical plane.
- LIATRIS LIGULISTYLIS: Heads purple, showy, discoid, globular, 1-few; bracts purple-edged.
- LIATRIS PUNCTATA: Heads purple, discoid, narrowly cylindrical, \pm 5-flowered, numerous.
- LYGODESMIA JUNCEA: Rhiz 2 ; juice yellow-green; ligules 5, mauve; lvs mere scales.

- LYGODESMIA ROSTRATA: \odot , juice white; heads as JUNCEA;
lvs linear, long.
- MADIA GLOMERATA: \odot , coal-tar smell; sticky; involucrel
bracts enfolding achenes; rays yellow.
- MATRICARIA CHAMOMILLA: $\pm \odot$, lvs finely divided; disk
yellow, ≤ 1 cm ϕ ; ligules white, < 1 cm.
- MATRICARIA MARITIMA/INODORA: As CHAMOMILLA, but no smell;
disk > 1 cm ϕ , ligules > 1 cm.
- MATRICARIA MATRICARIOIDES: \odot heads ; \pm pineapple odor.
- PETASITES PALMATUS: Lvs 
- PETASITES SAGITTATUS: Lvs 
- PETASITES VITIFOLIUS: Lvs 
- PRENANTHES ALBA: Heads cylindrical, in a panicle, \pm pale
lavender; lvs ; pappus rust.
- PRENANTHES RACEMOSA: As ALBA, but lvs 
- PSILOCARPHUS ELATIOR: Like GNAPHALIUM PALUSTRE, but lvs
opp & involucrel bracts lfy.
- RATIBIDA COLUMNIFERA: Disk cylindrical , 2-4 cm
long; ligules yellow; lvs pinnate.
- RUBECKIA HIRTA: Disk , brown-black; ligules
yellow; lvs entire.
- SENECIO CANUS: Silvery-grey; basal lvs , stem lvs
reduced, pinnatifid.
- SENECIO CONGESTUS/PALUSTRIS: \odot or $\textcircled{2}$; stem hollow; lvs
crinkly-edged, sessile.
- SENECIO EREMOPHILUS: All lvs alike & cauline, deeply
incised.
- SENECIO INDECORUS: Basal lvs ; upper lvs reduced,
pinnatifid; ligules sometimes \odot
- SENECIO INTEGERRIMUS: Wispily woolly; stem lvs reduced
and entire.
- SENECIO PAUPERCULUS: Basal lvs ; upper lvs reduced,
pinnatifid.
- SENECIO STREPTANTHIFOLIUS: Basal lvs ; stem lvs
reduced, pinnatifid.
- SENECIO VULGARIS: \odot , heads discoid; lvs uniform,
coarsely lobed.
- SOLIDAGO CANADENSIS CANADENSIS: Rhiz; lvs all cauline &
 \pm alike, ; only stem hairy.

- SOLIDAGO C. GILVOCANESCENS: As var. CANADENSIS, but grey-pubescent all over.
- SOLIDAGO GIGANTEA/SEROTINA: Rhiz; lvs all cauline & \pm alike, ; stem hairless.
- SOLIDAGO GRAMINIFOLIA: Rhiz; lvs all cauline ; infl flat-topped.
- SOLIDAGO HISPIDA: Lvs reduced upward, hairy; heads on both sides of infl branches.
- SOLIDAGO MISSOURIENSIS: Rhiz; glabrous; lvs reduced upward from base.
- SOLIDAGO MOLLIS: Rhiz; lvs all cauline, slightly reduced upward, grey-hairy,  to .
- SOLIDAGO MULTIRADIATA: Heads larger, 6-8 mm high; glabrous except lf-stalks hairy on edge.
- SOLIDAGO MEMORALIS: Tufted; grey-puberulent; lvs reduced upwards; infl of 1-sided racemes.
- SOLIDAGO RIGIDA: Basal lvs ; stem lvs ; velvety; infl flat-topped.
- SOLIDAGO SPATHULATA: As MISSOURIENSIS, but tufted, no rhizomes; bracts \pm sticky.
- SONCHUS ARVENSIS s.l.: Perennial Sow Thistle. Rhiz; lvs mainly basal; dandelion flower.
- SONCHUS ASPER: , lfy-stemmed; lvs ; leaf-bases .
- SONCHUS OLERACEUS: , lfy-stemmed; lvs ; leaf bases .
- STEPHANOMERIA RUNCINATA: Like LYGOESMIA JUNCEA, but juice white, lower lvs runcinate.
- TANACETUM HURONENSE: Rhiz , lvs woolly, finely divided; heads few, > 1 cm ϕ , radiate.
- TANACETUM VULGARE: Rhiz , lvs bipinnatifid, glabrous; heads many, < 1 cm ϕ , discoid.
- TARAXACUM CERATOPHORUM: No involucre bracts reflexed.
- TARAXACUM LAEVIGATUM: As OFFICINALE, but seeds red or red-brown.
- TARAXACUM OFFICINALE: Common Dandelion; outer bracts reflexed.
- TOWNSENDIA EXSCAPA/SERICEA: Linear lvs & white-rayed heads sessile on the crown.
- TRAGOPOGON DUBIUS: Goat's-beard. Lvs grassy; bracts  ligules; seed-head ~ 1 dm ϕ .
- XANTHIUM STRUMARIUM: ; ♀ head a 2-seeded bur $1\frac{1}{2}$ -2 cm long.

