Plant Identification of Younger Lagoon Reserve

A guide written by

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Introduction to Plant Identification

For any environmental studies or ecology student having some basic natural history knowledge of the ecosystem on which one is working is key in applying a management plan, performing research, or doing restoration work. At the base of all ecosystems, are plants. Plants support all other life forms and are used to define the community type (e.g. grassland and chaparral).

Terminology

Younger Lagoon Reserve (YLR) is actively being restored as the reserve is dominated by exotic plants. It is important to differentiate between the following terms: native, non-native/exotic, and invasive.

Native is a term that describes a plant endemic (indigenous) to a given area. In California, the term, native usually includes pants that were present in an area prior to European Colonization. *Native* usually includes plants that were present in an area before human colonization (NRCS, 2009).

A non-native/exotic/introduced plant is a specimen that was not found naturally in a given habitat prior to European colonization. Exotic plants were usually introduced for agriculture, as an ornamental plant in gardens or landscapes, or by accident; such as, seeds being brought in soil or humans carrying seeds and burs on their clothes. Naturalized is another common term. A naturalized plant is a plant that is non-native and has spread via rapid reproduction into a new environment. A naturalized plant does not mean it is considered native; instead, it is a plant that has become widespread and makes up a significant part of the given community (NRCS, 2009)

An invasive species is an exotic plant that adversely affects a given biome by spreading and outcompeting native plants. Invasive plants can reduce the biological diversity of a region because they often spread rapidly and can lead to a monoculture of one species. Most invasive species are non-native such as: *Genista monspessulana* (French broom) and *Festuca perennis* (Italian rye grass). A few native species can be considered invasive when they spread rapidly and reduce biodiversity. *Baccharis pilularis (*coyote brush) is a good example. *Baccharis pilularis* is a native Californian plant found in chaparral and scrub ecosystems. It is widespread at YLR, but is much less common in an undisturbed coastal prairie, particularly where fires are allowed to burn. At YLR, the community is out of balance because of reduced regimes such as fire and grazing that aid the viability of a coastal prairie; thus *Baccharis pilularis* has become a dominant species and it may be necessary to reduce its cover to restore the area to a diverse coastal scrub or prairie (NRCS, 2009).

Whether invasive, native, or endemic, the identification of plants is an overwhelming task; however, with practice one will begin to notice patterns. These patterns can be described by looking at plant families. The breakdown of phylogeny is domain, kingdom, phylum, class, order, family, genus, and species. There are multiple genera in a family but they usually share common characteristics. For example, *Eschscholzia californica* (California poppy) is in the Papaveraceae family. Unique characteristics of this family are: four petals, many stamens, two or more fused carpels forming one ovary chamber, alternate leaves, and a capsule fruit. When one begins to identify a plant, it can be helpful to notice patterns among genera to see if the plants are in the same family. In the additional resources section, you will find a list of all the plants at YLR and their associated families.

Identifying plants can be tricky. It would be much too difficult to remember every plant by sight; thus, botanists use keys which lead them to the correct identification. A key is a set of questions that can guide one to a family, genus, and species. In California, botanists use the Jepson Manual (Baldwin et al. 2012) which is a dichotomous key this means that there are two options at every step. In general, the key leads you to a group, then a family, then a genus, then a species. To work through a key, it is essential to understand botanical terms and the morphology of plants. In the additional resources portion of this chapter, you will find a list of helpful guides to start you out on your plant identification journey.

When you get to a genus and species, you often see a bunch of text that looks like gibberish. This is, in fact, Latin, which is presumed to be a dead language but is, indeed, very alive in science. Latin is used to name plants because it is standardized. No matter what language you speak or where you are in the world, a given genus or species can be understood by all. Plants are only given one Latin name and plants closely related to each other share the same genus but all plants are unique in their species name. The genus is the first word you see in a binomial (bi meaning two and nomial meaning name) and the second word is the species. You will occasionally see a subspecies or variety. These classifications are further delineations between two plants that might be undergoing speciation or have not yet had significant study to determine how closely they are related.

Every discipline has a terminology which enables one to be able to talk with others about their discoveries and challenges in the given field. Botany has its own language where names are given to plant structures and morphologies. Being able to recognize these definitions in nature is the first step to becoming a botanist and observer of natural history. While there are volumes describing the many names of all possible morphological traits and intricate parts of

plants, this resource guide will provide the basics for beginning botanists. Understanding these basic terms will aid you when reading through the descriptions of plants below and can be used as a reference.

Plant Index

Botanical Terminology

All terminology definitions were adapted from the *Jepson* "Glossary" (Baldwin et al., 2012 pp. 17-34) and *Plant identification terminology: An illustrated glossary* (Harris and Harris, 1994).

Habits

Annual: living one year or less, the plant grows, blooms, spreads its seed/pollen, then dies within one year.

Perennial: living three years or more, with a repeated life cycle of blooming and spreading seed/pollen. Perennials often "die back" at given times such as winter and reemerge with new growth in the spring.

Biennial: a plant lasting for two years or occurring every two years

Herb: a plant with little to no above ground perennial woody tissue.

Shrub: a woody perennial plant of low stature typically with one to many relativity slender trunks near the base.

Sub-shrub: a plant having the stature of a shrub but that is not completely woody. The lower stems are woody, upper portions are herbaceous and often die at the end of each season.

Stem conditions:

Decumbent: stems lie on ground but with their ends turned up

Erect: upright stem

Ascendant: erect except near base

Prostrate: lying on the ground

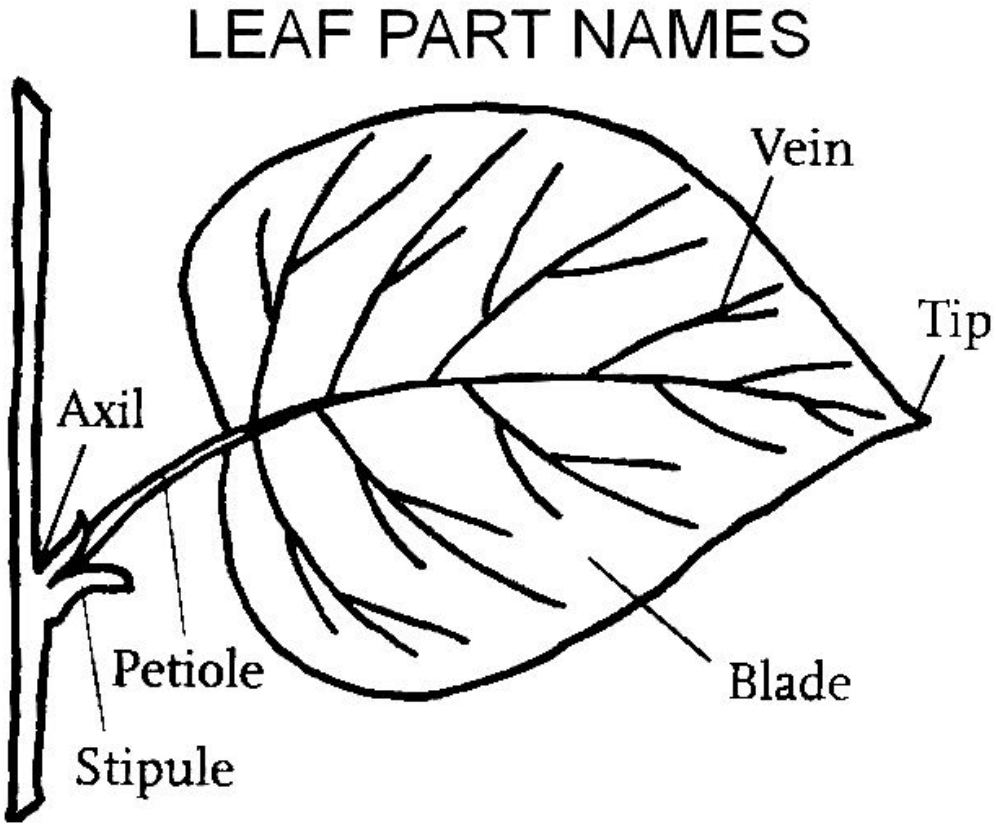
Root types:

Fibrous roots: roots are all about the same size, none is clearly dominant

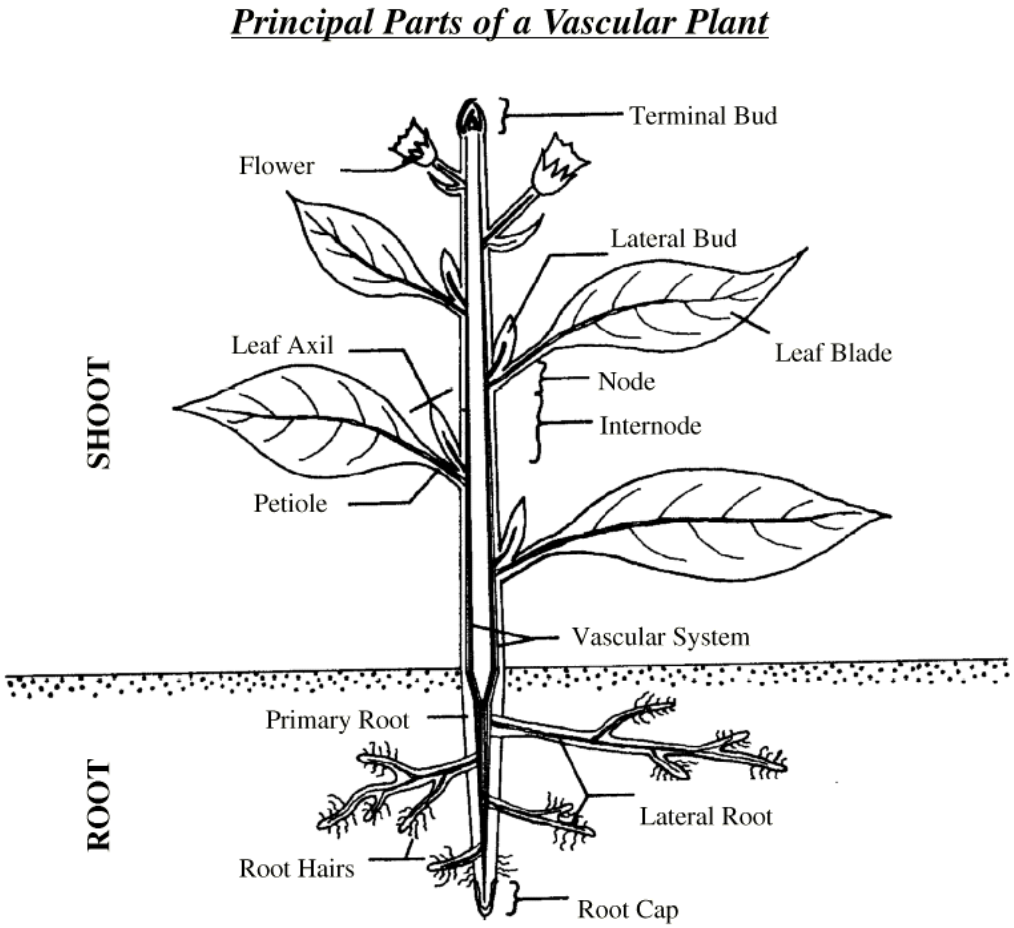
Tap root: one root is clearly dominant over all other roots

Rhizome: horizontal perennial underground stem such that new shoots are borne underground and emerge above ground.

Leaf parts



Stem features

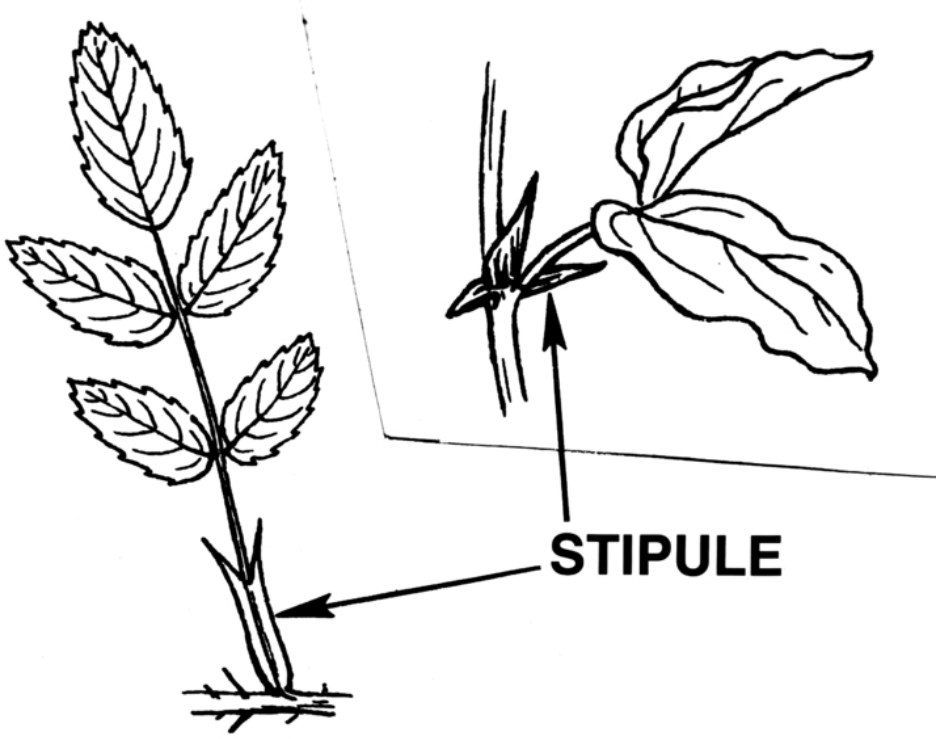


Node: the position on the stem where a leaf is or was attached

Internode: the space between two nodes (growth)

Leaf axil: the angle between a node and the stem

Axillary bud: a lateral bud that forms in a leaf axil that will give rise to new growth such as a flower.

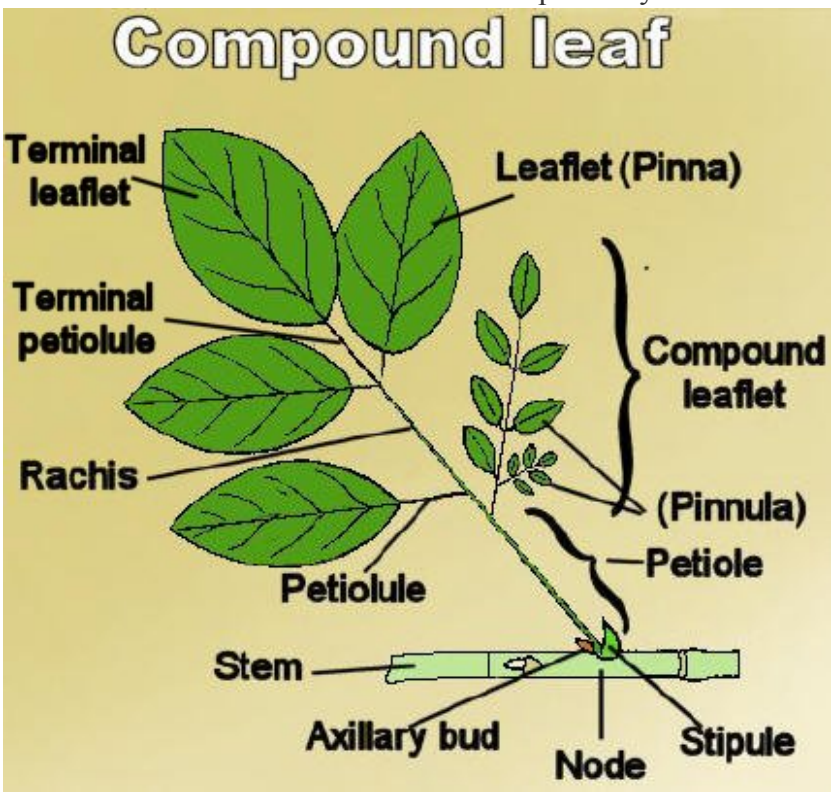


Stipule: a small leaf like appendage to a leaf, typically borne in pairs at the base of the leaf stalk.

Leaf arrangements

Simple: not divided or branched.

Compound: leaf is divided into two or more leaflets
A good way to tell if you are seeing leaves or leaflets is to look for an axillary bud at the base of the leaf near the stem or rachis is a bud is present you have a leaf if not you have a leaflet.



Petiolule: the attachment of a leaflet to a branch and branch to stem

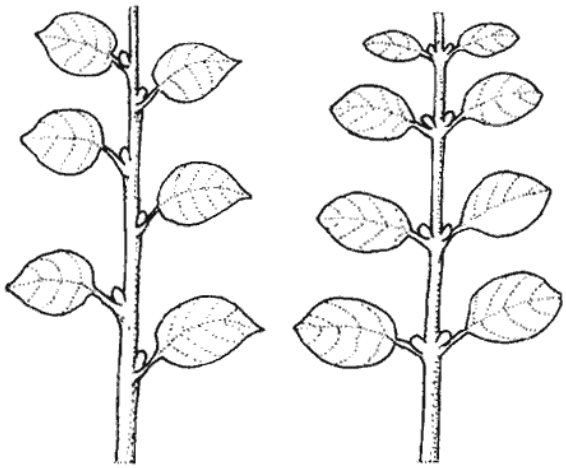
Pinna/leaflet: the little leaf that makes up the larger leaf

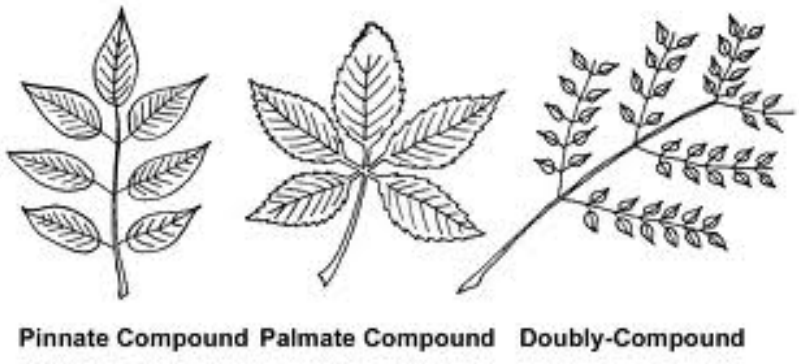
Pinnula: the leaflet of a leaflet (in doubly compound leaves)

Rachis: central axis where leaflets are borne from

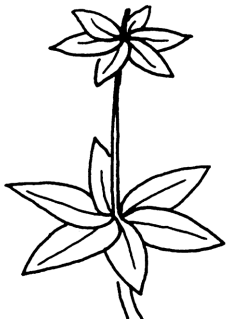
Alternate: placed alternately on the two sides of the stem, only one leaf per node

Opposite: arising in opposed pairs, two leafs borne from the same node





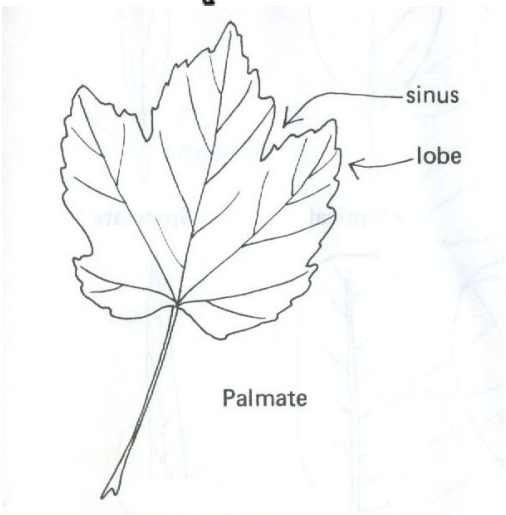
Whorled: a set of leaves, flowers, or branches springing from the stem at the same level and encircling it.



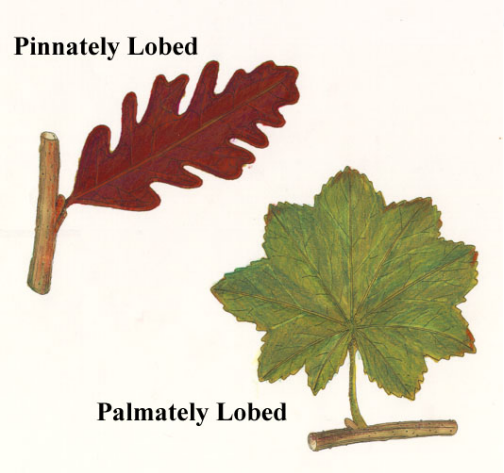
Leaf shape

Ternate/trifoliate:

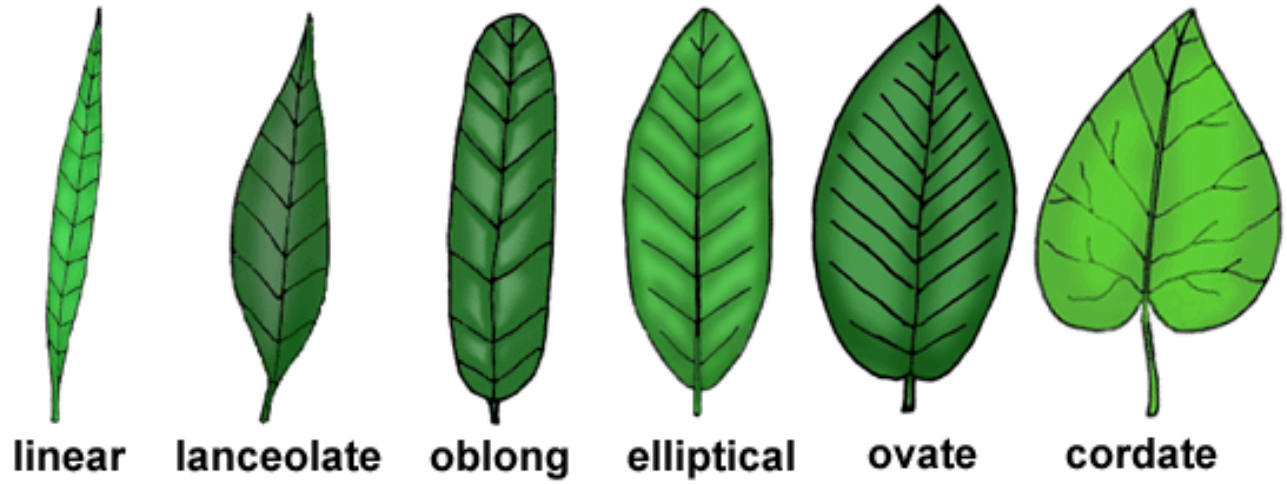
Palmate:



Lobed:



Divided:



Leaf margins:

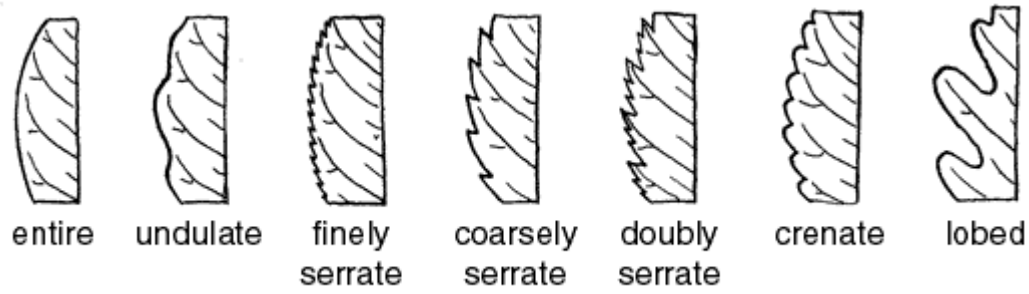
-the sides of the leaf

Entire: smooth

Dentate: with teeth directed at right angles to the margin

Lobed: large rounded projections

Serrate: with teeth pointing forward

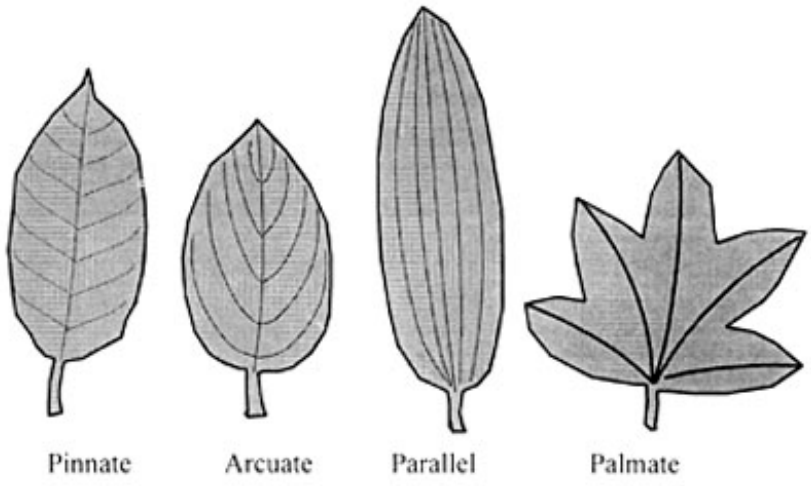


Venation of leaves

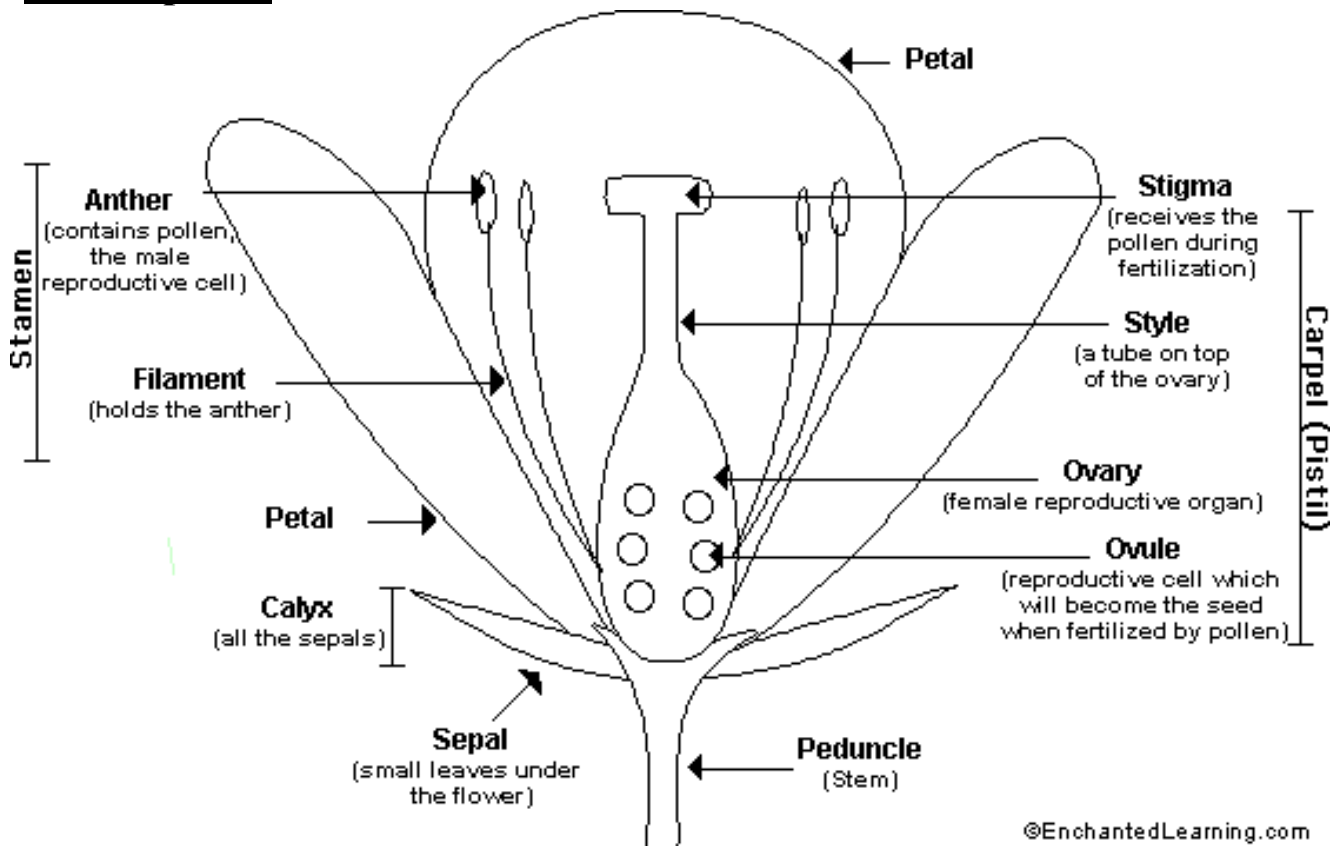
Pinnate: prominent midvein with parallel or primary veins arising from the midvein

Palmate: major veins radiate from a common point, no obvious midvein

Parallel: several to many veins extend side by side (characteristic of many monocots)



Flower parts:



Corolla: comprises all the petals, often colored: may be fused into a ring or tube

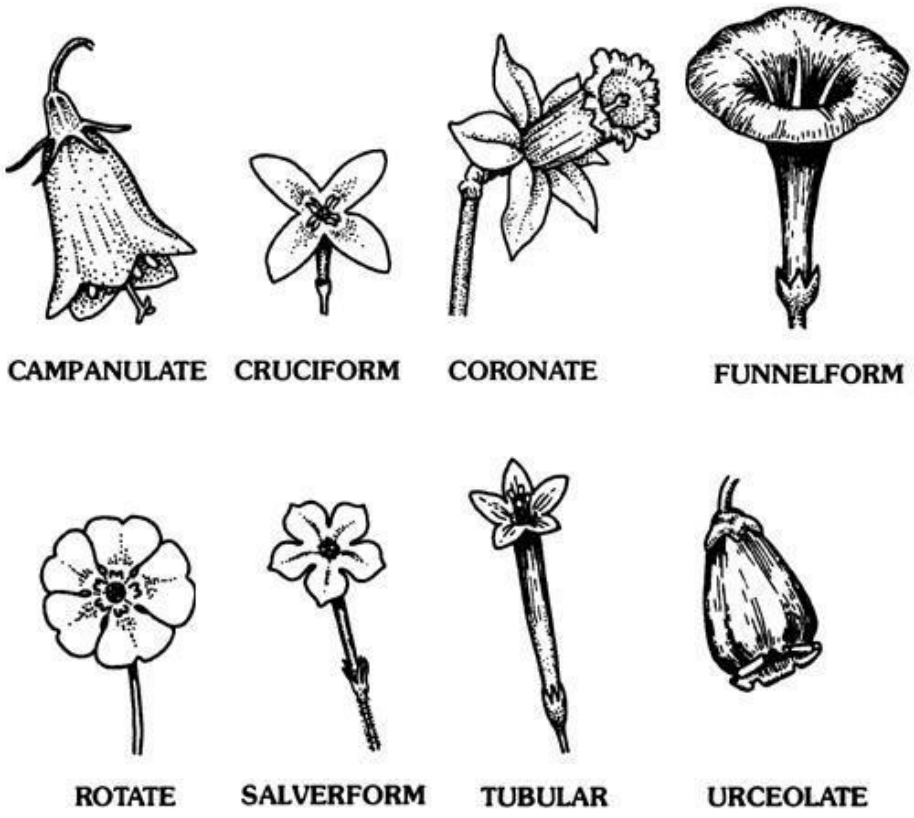
Calyx: comprises all the sepals of a flower, sepals form the outermost whorl of a flower, sepals are often green and may be separate or fused into a cup

Flowers typically have four whorls: calyx, corolla, androecium, and gynoecium

Androecium: comprises all the stamens (pollen producing structures) of a flower

Gynoecium: comprises all the pistils (pollen receiving and ovule producing) parts of a flower

Corolla Shape:



modified from Swink, F. and G. Willhelm. 1994. *Plants of the Chicago region*. 4th ed. Indianapolis: Indiana Academy of Science.

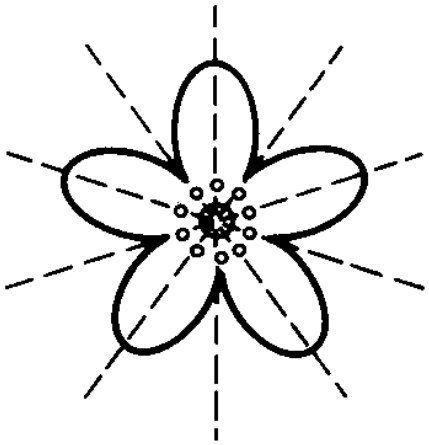
Symmetry

Radial: petals of all equal size and shape and are equally spaced around axis of flower. Corolla will produce a mirror image by drawing a line from the tip of any petal though the middle of the flower.

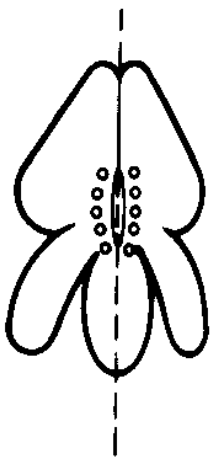
Bilateral symmetry: petals are not all equal in size or distribution around floral axis. Only a line drawn vertically through the center can produce a mirror image.

Asymmetric: petals have no symmetry

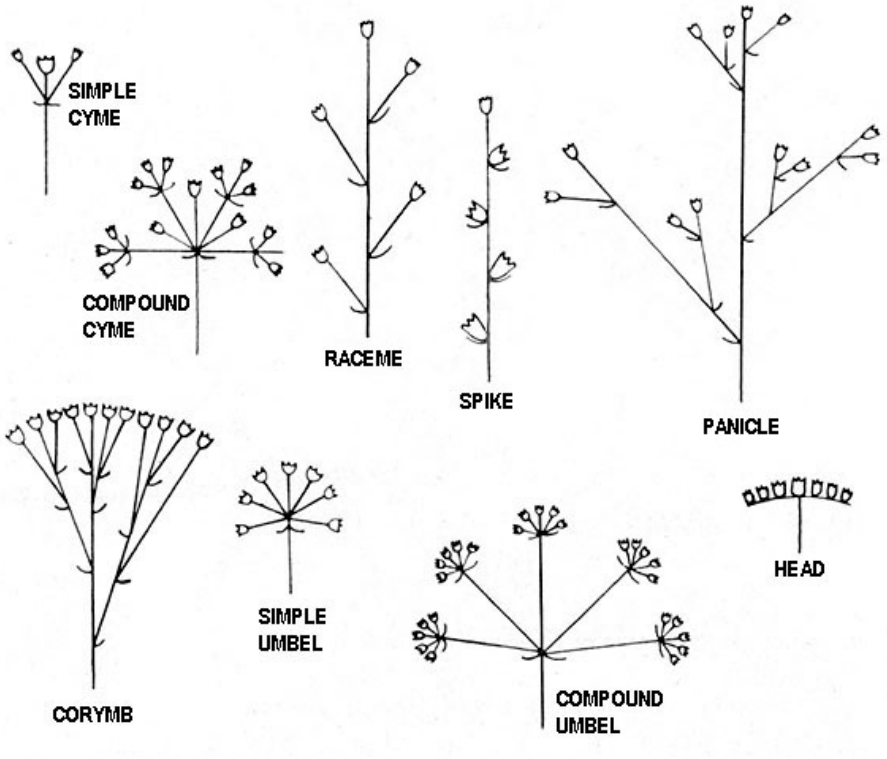
A Actinomorphic flower (**radially** symmetrical)



B Zygomorphic flower (bilaterally symmetrical)



Inflorescence: describes how flowers are arranged on a given plant



Cyme: a determinate inflorescence with the oldest flower at the apex (center).

Raceme: elongate indeterminate (no definite end) of flowers attached by pedicle on an unbranched rachis (axis), the flowers come directly off the main axis, no additional branching

Compound raceme: the flowers are formed on shoots that extend from a central axis much like a compound leaf

Corymb: a flat topped or rounded inflorescence in which pedicels (flower attachment to stem) arise from different points along the stalk

Umbel: a flat topped or rounded inflorescence in which all pedicels arise from a single point on stem.

Compound umbel: a group of flowers arise from multiple secondary stems arising from a main point on the stem

Spike: elongate inflorescence with no pedicles

Panicle: an elongate inflorescence with branched stalks arising from the main stem

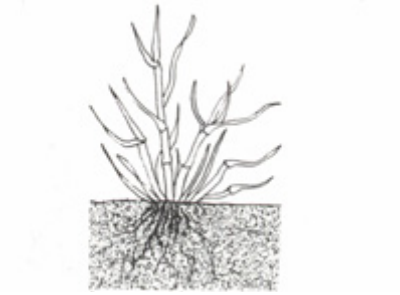
Head: a dense rounded inflorescence of flowers (sunflower)

Grasses

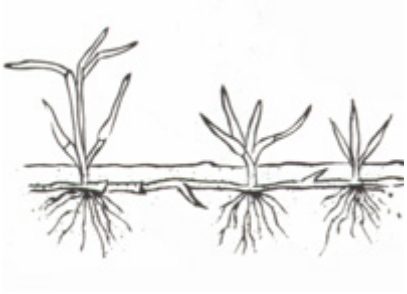
All grasses are in the family Poaceae. It is a diverse and widely distributed group of plants. Grasses are primary species in many ecosystems and compose nearly half of the earth's land surface.

Growth Habit:

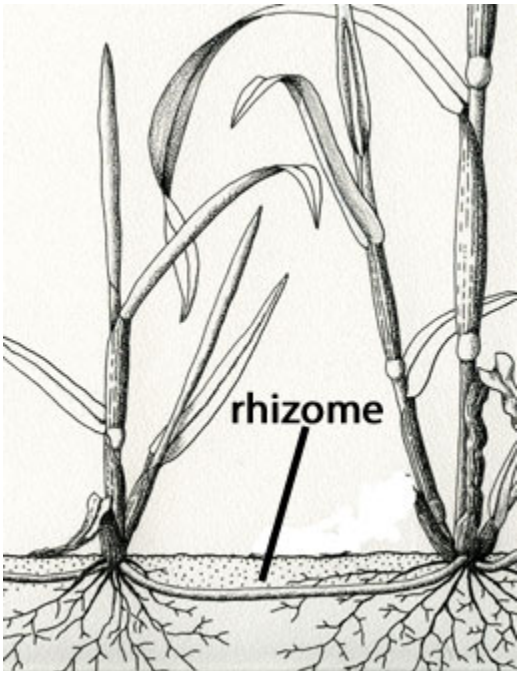
Bunchy

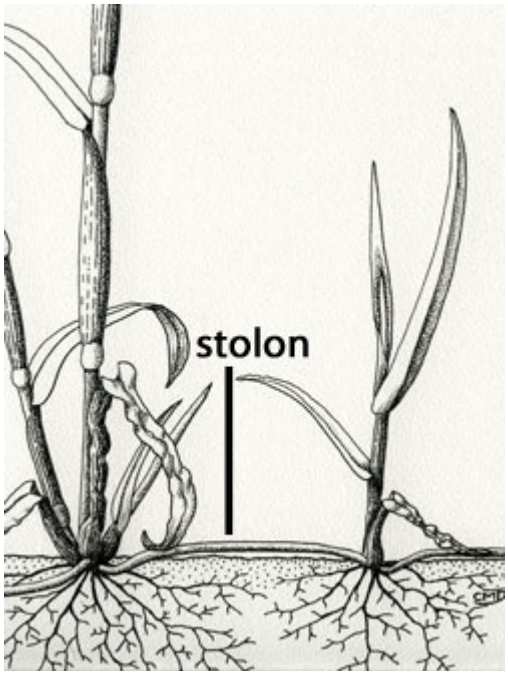


Creeping/Spreading



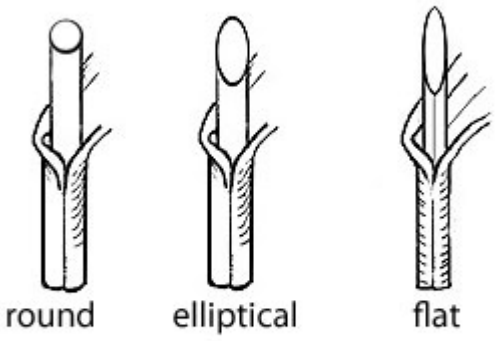
Stems: Terminology of stem types depends on whether the stem is erect or repent (growing horizontal to the ground). Erect stems are termed **culms**. The stem may not elongate until late in seasonal development or not at all. The culm is jointed with elongated sections, termed stolons and rhizomes, which are specialized stems that send out roots and shoots from their nodes. Rhizomes are usually found under the ground, and stolons, along the soil surface.



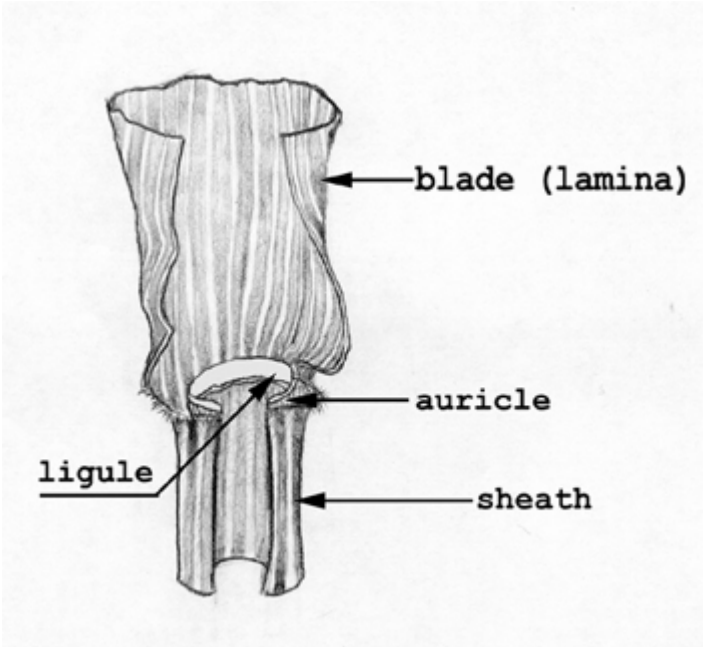


Internodes: Culms can have three basic shapes; flat, elliptical, or round. Internodes join at the nodes which manifest as a swollen junction. In most grass species, stems are hollow, except where leaves attach to the stem (joints or nodes).

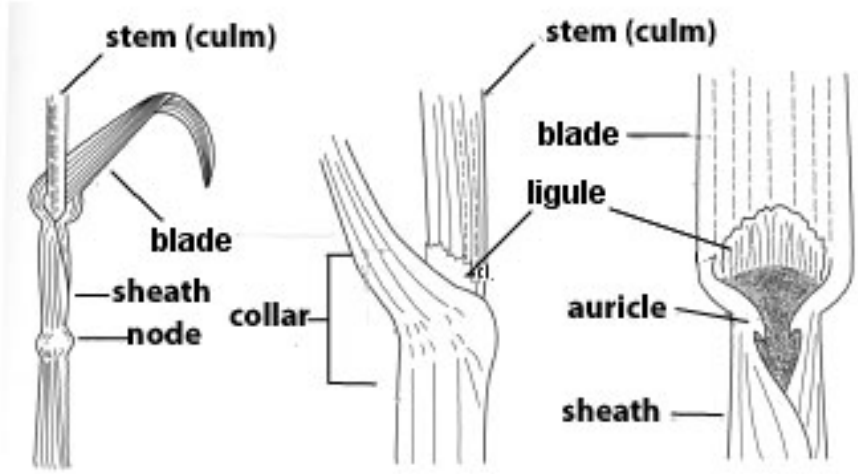
Overall stem shapes



Leaves: The grass leaf is made up of two basic parts, the **blade** and the **sheath**. Blades arise alternately on the culm and the sheath wraps around the culm allowing for leaf attachment. They are 2-ranked, arising alternately on the culm and blades while normally linear, vary in shape. The **collar** region is the juncture of the sheath and the blade. **Auricles** are projections that may extend from the lower edge of the leaf blade. The **ligule** is a collar-like projection of the sheath at the base of the blade; ligules vary and are thus an excellent tool for identification especially before the grass has bloomed.



Collar: The collar marks the junction between the blade and the outer sheath on the outside of the leaf. It consists of the leaf blade, sheath, ligule, and auricles. These parts vary in appearance according to plant species, and therefore are used in identification.

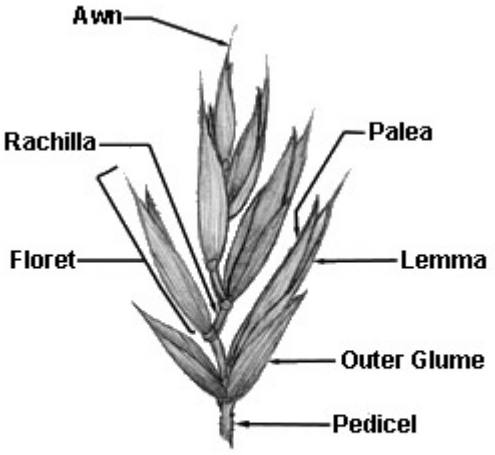


Roots: Grasses typically have a fibrous root system. The primary root is usually short-lived, and the secondary roots arising from the lower portion of the culm (grass stem) form most of the root system.

Grass flower heads: Above the uppermost leaf on the culm is the inflorescence. While flower parts such as stamens and pistils exist they are often too small to see without dissection and a microscope thus spikelet arrangement becomes more useful for identification.

Spikelets: The central axis of the spikelet is the **rachilla** to which spikelet parts are attached. Attached to the lower most portion of the spikelet are two sterile bracts called **glumes.** Above the glumes on the rachilla may be one or more florets. A floret consists of two bracts, the **lemma** and the **palea**, which enclose the grass flower.

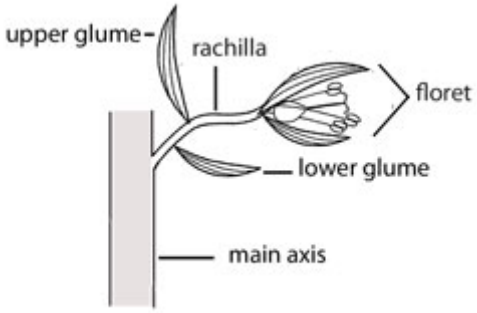
Characteristics of the glumes, lemma, and palea are used for identification. On the lemma usually exists an extended thin growth called the awn



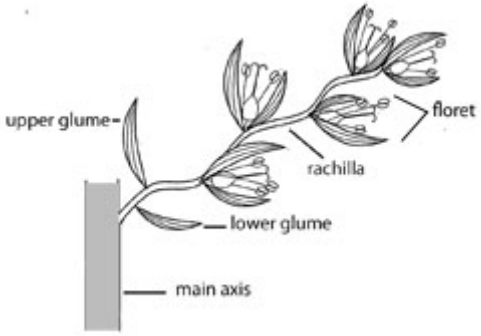
Spikelet

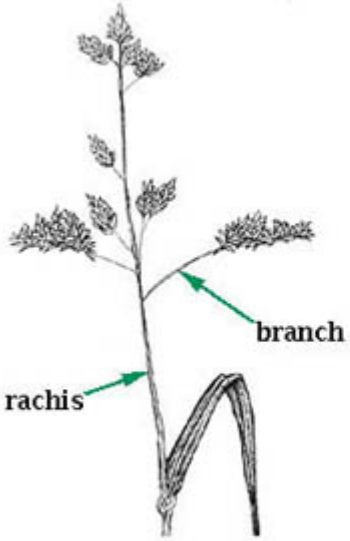
Different flowering head structures can be distinguished by the presence or absence of branching along the flower stem (main axis) and the presence or absence of stalks beneath the spikelets. The three basic arrangements in grasses are spike, raceme, and panicle flower heads.

Spikelet with one floret



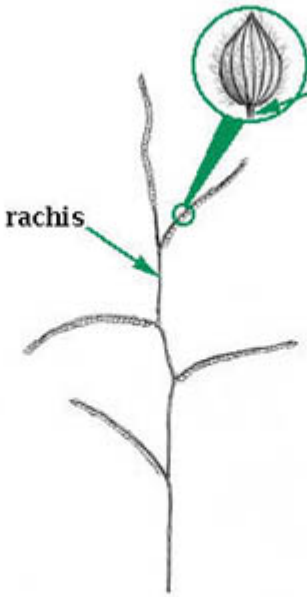
Spikelet with several florets





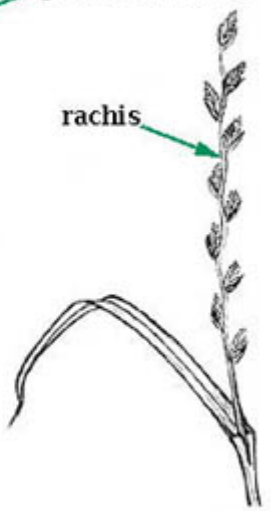
Panicle
(with branches)

Main axis does not branch.
Spikelets are stalk-less.



Raceme
(with pedicels)

Main axis does not branch.
Spikelets are stalked.



Spike
(attached directly
to rachis)

Main axis branches.
Spikelets are stalked.

Plant Descriptions by Habitat

There are five main habitat types at YLR: grasslands, scrub, wetlands, beach, and bluff scrub. Each habitat is defined by the plant species living there. Naomi Stern describes the plant habitats in detail in "Habitat Types of Younger Lagoon" (Stern, 2012). To familiarize oneself with plant genera and species it can be helpful to recognize the common habitats where a given plant is found. The following guide has a list of all the plants found in each habitat (Brown, 2013). After the list of plants are more detailed descriptions and photos of the most common plants you will encounter. The last section, Exotics of YLR, lists the exotic grasses, forbs, and trees found at YLR. Exotics are not restricted to one habitat but are often more prevalent in some over others. After each name you will see the common places where the exotic plant is found. All the descriptions have been adapted from "The Jepson manual: vascular plants of California, second edition" (Baldwin et al., 2012) and "The Plants of the San Francisco Bay Region" (Beidleman and Kozloff, 2003).

Grassland

Common name	Scientific Name
seashore bent grass	*Agrostis pallens*
California brome	*Bromus carinatus* var. *carinatus*
California oatgrass	*Danthonia californica*
saltgrass	*Distichlis spicata*
blue wild rye	*Elymus glaucus*
beardless wild rye	*Elymus triticoides*
California fescue	*Festuca californica*
red fescue	*Festuca rubra*
meadow barley	*Hordeum brachyantherum*
Torrey's melica	*Melica torreyana*
foothill needle grass	*Stipa lepida*
purple needlegrass	*Stipa pulchra*
checkerbloom	*Sidalcea malviflora*

Picture	Description (family)
Bromus carinatus  © 2005 Steve Matson  © 2005 Steve Matson  © 2010 Neal Kramer	*Bromus carinatus* (Poaceae) is an annual bunchgrass growing in clumps 0.5 to 1.5 meters tall. The inflorescence is a spreading or drooping array of flat spikelets longer than they are wide. The roots of *Bromus carinatus* are fibrous. Young plants are erect, but older stems grow along the ground (decumbent). Stems are robust with fused hairy sheaths. The ligules are truncated. Leaf blades are 0.5 to 1 cm wide, 15 to 30 cm long, and pointed. <u>Can be confused with</u>: *Bromus catharticus* to differentiate note that the spikelets in B. *carinatus* come off of the central axis in a bunch, like an umbel. The spikelets in *B. catharticus* are attached to long stems coming off of the main axis and have a distinct branching pattern, like a tree branches (longer branches on "bottom" of inflorescence and shorter branches on the "top" of the inflorescence).

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Danthonia californica (Poaceae)

is a perennial bunch grass. Its stems (culms) grow 30-100 cm tall and separate at the lower-nodes (joints). The leaf sheaths are smooth to densely hairy. There are basal leaves and leaves attached to the stem. The upper blades are about 8-25 cm long. The ligule is less than 1 mm and fringed with small straight hairs. The inflorescence is 2-6 cm long at the top of the stem. The spikelets are broadly spreading like a tree. Here are two main awns that protrude from the outermost glumes of the spikelet.

Can be confused with: *Avena barbata* to differentiate notice that the awns of *Avena barbata* are much longer that *Danthonia californica* and the spikelets of *Danthonia californica* are much smaller. Also the ligules of *Danthonia californica* are hairy where as the ligules of *Avena barbata* are not.

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Distichlis spicata (Poaceae)

is an annual low-growing sodgrass (sod or turf is grass and the part of the soil beneath it held together by the roots). The stems grow 10-40 cm tall, with tough, scaly rhizomes and rigid stems. It starts growth in the early summer, and has a slow growth rate. It remains green until fall and reproduction is mostly from rhizomes.

Seedhead: contracted, dense panicle, yellowish at maturity; spikelets flattened, awnless, produces 8 to 15 florets.

The leaves are stiff blades, flattened at base, sharp pointed, and coarse. The leaves are spread alternately all the way up the stem. The collar is hairy and the ligule has a fringe of short hairs

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Elymus glaucus (Poaceae)

is a perennial bunch grass growing in small, narrow tufts of several erect stems which grow from 50-150 cm tall. It has a thick fibrous root system, sometimes with rhizomes Stems are erect and the leaf sheath is smooth. The leaf blades are 1-2 cm wide and linear with pointed tips. Leaf blade margins are slightly folded and glabrous (no hair). The ligule is un-fringed (no hair) auricles are present (see picture) and clasp the stem on both sides but do not meet. The inflorescence is a dense spike.

Can be confused with: *Elymus triticoides* which has shorter awns than *Elymus glaucus*. It can also be confused with *Festuca perennis* at maturity because they both have a "zipper" like look due to the spikelets alternating on each side of the rachis. However, in *E. glaucus* the node where the leaf attaches to the stem has a unique purplish base (see picture).

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Elymus triticoides (Poaceae)

is a perennial, growing 45-130 cm tall and has dense rhizomes. Stems are usually smooth, but are occasionally hairy. Leaf blades are green to blue-green, stiff and flat early in the growth season, becoming rolled later in the year. Leaf blades are 2.5-4 mm wide and the spike of spikelets is 5-20 mm long at the top of the stem, there are usually 2 spikelets per node.

Can be confused with: *Elymus glaucus* which has longer awns. It can also be confused with *Festuca perennis* at maturity because they both have a "zipper" like look due to the spikelets alternating on each side of the central inflorescence axis. However, in *E. triticoides* the spikelets themselves the florets are not as tightly packed.

© 2004 Steve Matson

Hordeum brachyantherum (Poaceae)

is a perennial grass with erect hairless stems that are usually 30-60 mm tall. The leaves are pointed and are harsh to the touch. The leaves are about 15 cm long and 2-5 mm wide

The inflorescence is a soft, slender spike ranging in color from green to a brownish-purple it is usually 4-7 cm long

The roots of *Hordeum brachyantherum* are usually fibrous and reproduction does not occur through rhizomes

© 2013 Clint Scheuerman

Stipa pulchra (Poaceae)

is a densely tufted perennial bunch grass and is easily recognized by its long-awned spikelets. The stems are smooth and upright growing. *Stipa pulchra* has smooth, upright stems growing from 30-60 cm tall.

The narrow leaf blades are flat and smooth below, but slightly hairy with rolled in margins above. The spikelets first appear in a dense, narrow, dark purple-brown panicle (branched)

In *Stipa pulchra* there are three long (3-5 cm) awns.

As the inflorescence matures the awns spread open so that they are widely and equally separated the color also changes from purple to a pale straw color.

Coastal Scrub

Common name	Scientific Name
yarrow	*Achillea millefolium*
pearly everlasting	*Anaphalis margaritacea*
mugwort	*Artemisia douglasiana*
coyote brush	*Baccharis pilularis*
brownie thistle	*Cirsium quercetorum*
yerba buena	*Clinopodium douglasii*
common sandaster	*Corethrogyne filaginifolia* var. *filaginifolia*
California buttercup	*Ranunculus californicus*
California fuchsia	*Epilobium canum*
coast buckwheat	*Eriogonum latifolium*
California horkelia	*Horkelia californica* var. *californica*
yellow bush lupine	*Lupinus arboreus*
miniature lupine	*Lupinus bicolor*
seep monkey flower	*Mimulus guttatus*
selfheal	*Prunella vulgaris**
ladies' tobacco	*Pseudognaphalium californicum*
flowering currant	*Ribes sanguineum*
footsteps of spring	*Sanicula arctopoides*
Pacific sanicle	*Sanicula crassicaulis**
black elderberry	*Sambucus nigra*
bee plant	*Scrophularia californica****
western blue-eyed grass	*Sisyrinchium bellum****
sticky sand spurry	*Spergularia macrotheca*****
California hedge nettle	*Stachys bullata*
bush seepweed	*Suaeda nigra****
California aster	*Symphyotrichum chilense*****
suncups	*Taraxia ovata*
poison oak	*Toxicodendron diversilobum**
Fremont's star lily	*Toxicoscordion fremontii*

*also occurs in grassland
** also occurs in coastal scrub
***also occurs in wetland
****also occurs in bluff
*****also occurs in bluff scrub

Picture	Description (Family)
 © 2001 Steven Thorsted	*Achillea millefolium* (Asteraceae) it grows up to 7-12cm tall and has no branches except near the top. The leaves are alternate with many leaflets on each side of the midrib and these are further divided into smaller leaflets, giving them a delicate, fernlike, and lacy appearance. Flower heads are arranged in large, compact clusters at the top of the stem, each cluster consisting of 1 or more flower heads. The flower head has 20-25 yellowish-white flowers. *Achillea millefolium* is a widespread plant in the temperate and boreal regions of the northern hemisphere.
 © 1995 Saint Mary's College of California  © 2010 Michael O'Brien	*Baccharis pilularis (*Asteraceae) The *Baccharis pilularis* shrub is generally smaller than 3 meters in height. The stems are prostrate to erect with branches spreading or ascending. The leaves are 8–55 millimeters long and are entire to toothed and oblanceolate to obovate, with three principal veins. The lower stems are often leafless. Flowers are not prominent.

© 2002 Julie Kierstead Nelson

© 1995 Saint Mary's College of California

Ranunculus californicus (Ranunculaceae)

is a perennial growing up to 70 cm in height. The bright yellow flower has multiple petals and stamens and is roughly 1–2cm in diameter. Each flower grows on a long, green, leafless stem. The leaves are formed in a basal rosette with lobed leaves suggesting parts in threes.

© 1983 Gary A. Monroe

Eriogonum latifolium (Polygonaceae)

is a perennial herb. Its height is variable in size and is dependent in part on its degree of exposure to the maritime winds of its habitat. It may be quite small or sprawl to a maximum height of 70 cm. Its pale white-green leaves are oval, woolly, and sometimes waxy, and are mostly basal but extend a ways up the erect stem if there is one. At the end of each branch is a cluster of pinkish flowers

© 1995 Saint Mary's College of California

Prunella vulgaris (Lamiaceae)

Is a perennial herb and grows 5 to 30 cm tall. It has creeping, self-rooting, tough, and square, reddish stems branching at the leaf axis.

The leaves are lance shaped, serrated, and reddish at tip. The leaves are about 2.5 cm long and 1.5 cm wide, and grow in opposite pairs down the square stem. The stalks of the leaves are generally short, but can be up to 5 cm.

The flowers grow from whorled cluster; The flowers are two lipped and tubular. The top lip is a purple hood, and the bottom lip is often white.

© 1995 Saint Mary's College of California

© 2002 Lynn Watson

Scrophularia californica (Scrophulariaceae)

is a 0.5-1.5-m foot shrub with spikes of red flowers. The leaves are triangular with dentate edges. The leaves are mostly in a basal rosette. The flowers are small and red and branch off the main inflorescence stalk in a raceme.

© 2003 Steve Matson

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Sisyrinchium bellum (Iridaceae)

is a perennial herb. The flowers form at the ends of branching stalks which are about the same height as the leaves. Each flower is up to 3 cm in diameter, with petals ranging from deep blue to light purple to white in color. The center of the flower is yellow. The leaves are thin and grass-like, the leaves are green to blue-green in color and mostly found at the base of the plant.

© 2009 Neal Kramer

© 2009 Neal Kramer

Symphyotrichum chilense (Asteraceae)

is a perennial herb. The stems are 1-5 cm tall and erect with small hairs. The leaves are thin and entire. The leaf faces are slightly hairy and are lanceolate shaped. The flowers resemble a large daisy with white to purple ray florets (petals). The flowers are borne off the main stem in cyme branches.

© 2002 Charles E. Jones

© 1995 Saint Mary's College of California

Toxicodendron diversilobum (Anacardiaceae)

can range from a small vine to a bush. It has clusters of three, alternating, oval-shaped, pointed leaflets. The full grown leaves are dark green and usually hairy, but vary in size and shape they are shiny above and pale underneath. They can be 3-8cm long with lobes or coarse-teeth on the edges. They first come out of a bud and are orange colored and downy; they turn yellow or orange in fall. Poison oak flowers in June & July with yellow/ green flowers.

Wetland

Common name	Scientific Name
alkali bulrush	*Bolboschoenus maritimus* */**
seacoast bulrush	*Bolboschoenus robustus*
slough sedge	*Carex obnupta*
tall cyperus	*Cyperus eragrostis*
creeping spike rush	*Eleocharis macrostachya*
low bulrush	*Isolepis cernua*(scrub)
baltic rush	*Juncus balticus* */**
bog rush	*Juncus effuses* **
Mexican rush	*Juncus mexicanus* **
common rush	*Juncus patens* **
brown-headed rush	*Juncus phaeocephalus* **
square bulrush	*Schoenoplectus americanus*
southern bulrush	*Schoenoplectus californicus*
fathen saltweed	*Atriplex patula*
marsh baccharis	*Baccharis glutinosa*(scrub)
Watson's willowherb	*Epilobium ciliatum* ssp. *watsonii***
horseweed	*Erigeron canadensis*
alkali heath	*Frankenia salina* *****
western marsh cudweed	*Gnaphalium palustre* */**
seaside heliotrope	*Heliotropium curassavicum* var.*oculatum* **

*also occurs in grassland
** also occurs in coastal scrub
***also occurs in wetland
****also occurs in bluff
*****also occurs in bluff scrub

Common name	Scientific name
marsh jaumea	*Jaumea carnosa**
California man-root	*Marah fabaceus***
California wax myrtle	*Myrica californica***/****
water parsley	*Oenanthe sarmentosa*
Pacific seaside plantain	*Plantago maritime***
Pacific silverweed	*Potentilla anserina* ssp. *pacifica*
spreading gooseberry	*Ribes divaricatum***
California wild rose	*Rosa californica***
California blackberry	*Rubus ursinus***
willow-leaved dock	*Rumex crassus*
pickleweed	*Salicornia pacifica*
Pacific red elderberry	*Sambucus racemosa* var. *racemosa***
common cattail	*Typha latifolia*
California nettle	*Urtica dioica* ssp. *gracilis*
hoary nettle	*Urtica dioica* ssp. *Holosericea**/**

*also occurs in grassland
** also occurs in coastal scrub
***also occurs in wetland
****also occurs in bluff
*****also occurs in bluff scrub

Picture	Description (family)
 © 2006 Luigi Rignanese  © 2006 Luigi Rignanese	*Bolboschoenus maritimus* (Cyperaceae) is a rhizomatous (with horizontal stems below ground) perennial reaching 1.2 m in height. It has triangular stems that are sheathed by emerald green, serrated leaves. Each individual plant grows from a corm and then puts out a horizontal rhizome from which the next plant grows. In this way the plant can quickly form dense stands. Flower stems rise above the leaves with golden brown, spikelets clustered just below their tips.

© 2003 Steve Matson

© 2003 Steve Matson

Eleocharis macrostachya (Cyperaceae)

is a rhizomatous perennial generally reaching a height between 0.5 and 1 meter. It has bright green erect stems and straw-colored basal leaves.

The top of each stem is occupied by a narrow, lance-shaped, or cylindrical inflorescence. The spikelet is one or two centimeters long and has at least ten flowers, each covered with a purplish-brown bract.

© 2012 Vernon Smith

© 2010 Aaron Arthur

Isolepis cernua (Cyperaceae)

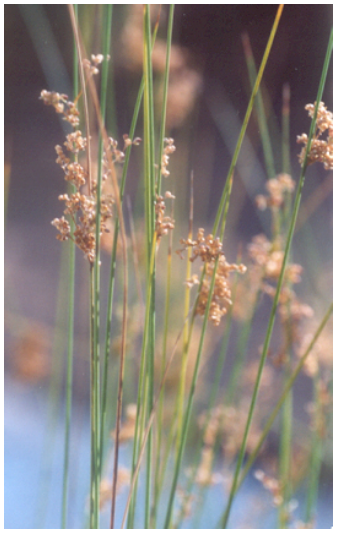
is a rhizomatous perennial with stems generally reaching a height between 20-200mm. It forms a dense, billowing, fountain-like mound of finely textured, green stems. New leaves emerge upright from the center of the clump, then spill down the mound as they elongate. The inflorescence is a ball like cone of white flowers which turn brown with age.

© 2007 Jason E. Willand

Juncus mexicanus (Juncaceae)

is a rhizomatous perennial. The thin erect stems reach a height anywhere from 10 to 80 centimeters. The leaves grow from the base of the stem and can exceed 20 centimeters in length. The inflorescence usually sprouts from the side of the stem rather than the tip.

© 2007 Neal Kramer



© 2003 Brent Miller

Juncus patens (Juncaceae)

is a rhizomatous perennial. The stems are thin, gray-green, often somewhat waxy, and grooved, and grow 30 to 90 centimeters in maximum height. The inflorescence sprouts from the side of the stem rather than its tip. It holds many flowers, each of which has short, narrow, pointed tepals (indistinguishable petal and sepals). The fruit is a spherical red or brown capsule which fills and bulges from the dried flower remnants when mature.

Juncus patens can be distinguished from *Juncus mexicanus* because *J. patens* has green-grey stems and *J. mexicanus* has dark green stems.

© 2011 Hattie Brown

© 2011 Eric Wrubel/NPS

Juncus phaeocephalus (Juncaceae)

is a rhizomatous perennial. Leaves go all the way up the stem and are 2-4 mm wide. The inflorescence is made up of 1–4 many-flowered heads each 11–15 mm in diameter. The heads have a reddish hue and look spiky.

© 2005 David A. Tharp

© 2011 Zoya Akulova

Baccharis douglasii (Asteraceae)

is a rhizomatous perennial. Growing 60–210 cm in tall bunches. The stems are erect and without hairs. The leaf blades are lanceolate and 50–130mm long and 8–30 mm wide, the leaf bases taper to the stem. The leaves extend up the stem and droop after attaching to the stem. The inflorescence is a terminal head made up of multiple flowers to resemble spiky/hairy white balls.

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© 2001 Tony Morosco

Rubus ursinus (Rosaceae)

is a trailing and climbing berry bush. The leaves are alternate and pinnately compound (usually in 3 leaflets). The leaflets are ovate and have serrated edges they range from 3-8cm long. The stems have prickles. The stems are round and green to red.

The flowers have 5 petals and are white to pink. The berries are about 1.3 cm long. Young stems are erect, but arch as they lengthen, rapidly touching the ground and rooting at the nodes.

To distinguish from *Rubus armeniacus*…

In *Rubus armeniacus* the flower petals are bigger and have a crinkled look. The berries and thorns are also bigger. It grows like a bush.

In *Rubus ursinus* the petals are not crinkled, are smaller, and taper toward the base, you can see the sepals easily when looking at the flower top down. The berries and thorns are small (berries about the size of a dime) and it trails on the ground or grows like a vine and less like a bush.

© 2012 Robert Sikora

Salicornia pacifica (Chenopodiaceae)

is an annual small shrub. It has multiple branches and appears jointed. The stems are green to red and fleshy. The inflorescence is a terminal spike with flowers generally sunken into the fleshy bracts of the stem.

Take a taste! It is very salty!

© 2004 Steve Matson

Typha latifolia (Typhaceae)

is a perennial, 1-3 m tall and un-branched, consisting of six or more leaves and a flowering stalk. This stalk is light green to green, hairless, and stiff. The leaves are up to 17-20cm long and 3 cm wide. They are linear and bluish grey, hairless and, flat. Some leaves have a tendency to flop downward toward their tips. Leaf venation is parallel. There is a sheath at the base of each leaf.

The flowering stalk terminates in a spike of dense flowers. It is narrowly cylindrical in shape and light yellow to light brown.

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Urtica dioica ssp. *holosericea* (Urticaceae)

is an erect, herbaceous plant. Young leaves and stems are covered with hairs. Stems are mostly unbranched, and grow 1-2 meters tall. Stems are slender and approximately square in cross section. The leaves are opposite, with saw-toothed margins. Leaves are broadly to narrowly egg-shaped with a rounded or heart-shaped base and a pointed tip. Pointed stipules (small leaf-like appendages) occur at the base of the leaf, but senesce (fall off) early. Flowers are arranged in clusters on slender, branched spikes formed in the leaf axils

Bluff Scrub

Common name	Scientific Name
sea pink	*Armeria maritima*
California sagebrush	*Artemisia californica*
beach sagewort	*Artemisia pycnocephala*
morning glory	*Calystegia purpurata*
soap plant	*Chlorogalum pomeridianum**/**
bluff lettuce	*Dudleya farinosa*
lizard tail	*Eriophyllum staechadifolium*
seaside daisy	*Erigeron glaucus*
beach strawberry	*Fragaria chiloensis*
coast gumweed	*Grindelia stricta***
sticky monkey flower	*Mimulus aurantiacus*

*also occurs in grassland
** also occurs in coastal scrub
***also occurs in wetland
****also occurs in bluff
*****also occurs in bluff scrub

Picture	Description (family)
 © 2002 Lynn Watson  © 2003 Margo Bors	*Artemisia californica* (Asteraceae) is a perennial bush. The plant branches from the base and grows out from there, becoming rounded; it grows 1.5 to 2.5 meters tall. The stems of the plant are slender, flexible. The leaves range from one to 10 centimeters long and are pinnately divided with 2–4 lobes less than five centimeters long. Their leaves are hairy and light green to gray in color; the margins of the leaves curl under. You can often distinguish it by smelling it. It smells like the sage you cook with.
 ©2008 Keir Morse  © 2003 Vince Scheidt	*Chlorogalum pomeridianum* (Asparagaceae) is a perennial that grows from a bulb, which is brown. The leaves grow from the base of the plant, and can be 20 to 70 cm long and 6 to 25 mm wide. The leaf edges are generally wavy, though this is not always particularly noticeable. The flowers are borne on a long stem, normally longer than the leaves, and are 15 to 30 mm long. The six petals (actually only three of them are petals in the technical sense; the other three are sepals) are up to 35 mm long and curving. They are typically white but have a noticeable mid-vein which can be purple or green in color. They open only in the late afternoon or evening, remaining open during the night but closing by the morning.

© 2005 George W. Hartwell

© 2009 Larry Beckerman

Eriophyllum staechadifolium (Asteraceae)

is a perennial sub-shrub. The stems are erect and the leaves are usually pinnately lobed with edges curling under slightly. The leaves are whitish green and wooly. The flowers are yellow and clustered on an umbel heads

© 1998 California Academy of Sciences

Fragaria chiloensis (Rosaceae)

is a perennial herb. It spreads low across the ground with runners that can send out roots on their own. It grows to a maximum height of 25 cm.
The leaves are basal with 3 thick, strongly veined, and toothed leaflets. The leaflets are whitish gray on the bottom and dark green on top. Each leaflet is 3-6 cm wide. The leaflets form an overall shamrock shape The flowers have 5-7 white petals on leafless stalks.

This is a strawberry plant!

© 2003 BonTerra Consulting

© 2002 George Jackson

Mimulus aurantiacus (Phrymaceae)

is a perennial sub-shrub that grows up to 1.2 meters feet tall. It has deep green sticky leaves 3 to 7 cm long and up to a centimeter across. The leaves are alternate up the stem, lanceolate in shape and glossy on top. The flowering stems grow vertically. The flowers are tubular at the base and about 2 centimeters long with five broad lobes; they occur in a variety of shades from white to red, the most common color being a light orange.

Beach

Common name	Scientific Name
yellow sand verbena	*Abronia latifolia*
pink sand verbena	*Abronia umbellate***
California sheepburr	*Acaena pinnatifida var. californica*
beach bur	*Ambrosia chamissonis* **
beach morning glory	*Calystegia soldanella*

*also occurs in grassland
** also occurs in coastal scrub
***also occurs in wetland
****also occurs in bluff
*****also occurs in bluff scrub

Picture	Description (family)
 © 1995 Saint Mary's College of California	*Abronia latifolia* (Nyctaginaceae) is a perennial herb. It grows prostrate (lying on the ground). It forms dense mats extending 8 cm across. The leaves are thick, rounded, and 3-5cm across. The flowers are yellow and clustered. The flower has 5 petals and forms a long slender tube 0.6-1.2 cm long with tips folded wide open.
 © 1995 Saint Mary's College of California	*Abronia umbellate (*Nyctaginaceae) is a prostrate perennial with thick, succulent leaves. The leaves are diamond-shaped. The flowers are to purple with white centers. Flowers occur in clusters subtended by 5-8 lanceolate bracts (little leaf like extensions on each flower).
 © 2004 Laura Ann Eliassen	*Ambrosia chamissonis* (Asteraceae) is a large, sprawling perennial herb growing up to 3 meters in width. The stems are roughly or softly hairy and ridged. The plentiful leaves are a few centimeters long, woolly and silver-green, and variable in shape, they extend up the stem opposite each other. Flower heads occur at the tip of the inflorescence.

EXOTIC Grasses:

Common name	**Scientific Name**
slender oat	*Avena barbata**
rescue grass	*Bromus catharticus**
ripgut brome	*Bromus diandrus**
soft chess	*Bromus hordeaceus**
jubata grass	*Cortaderia jubata**
panic veldtgrass	*Ehrharta erecta**
rattail sixweek grass	*Festuca myuros**
Italian rye grass	*Festuca perennis**
velvet grass	*Holcus lanatus**
foxtail barley	*Hordeum murinum* ssp. *leporinum**
rabbit's foot grass	*Polypogon monspeliensis**

*occurs in grassland
** occurs in coastal scrub
***occurs in wetland
****occurs in bluff
*****occurs in bluff scrub

Picture	Name (Family)
 © 2001 Steven Thorsted  © 2008 Zoya Akulova	*Avena barbata* (Poaceae) is an erect, annual grass. The mature plant grows to about 1.2 m tall. Stems are hairless and leaves are flat, rolled in the bud, and about 20 cm in length. The leaf sheath is open and usually has a hairless edge. It has a tall, membranous ligule with a rounded, jagged top.

© 2009 Barry Rice

Bromus catharticus (Poaceae)

is an annual bunch grass. Stems are usually ≤ 1 m tall. The leaf sheath is mostly closed, and smooth but can be prickly. Leaf blades are linear, and 2-10 mm wide. The ligule is unfringed. The inflorescence is terminal and spreads like a branching tree there are about 2-10 inflorescences per branch.

2004 Carol W. Witham

© 2000 University of California

Bromus diandrus (Poaceae)

is an annual grass. Soft hairs cover the blades and sheaths. There is a scalloped ligule.

The open branching flower head resembles that of oats. There are large spikelets with needlelike awns that are 2.5–5 cm long and hang down off a main branch.

Can be confused with: *Stipa pulchra*, *B. diandrus* is very rough and spiky to the touch while *S. pulchra* is softer, it also only has one floret per spikelet where as *B. diandrus* has multiple. *S. pulchra* has very long purplish awns.

© 2001 Julie Kierstead Nelson

Bromus hordeaceus (Poaceae)

is a widely distributed annual in California.

Plants are 10-60 cm tall and are distinguished by dense, soft hairs on sheaths. Ligules are membranous. There are no auricles.

The inflorescence is made up of soft compact spikelets forming dense flowering heads.

© 2012 Robert Steers/NPS

© 2013 Al Keuter

Festuca myuros (Poaceae)

is an annual bunch grass, the stems are usually <1m tall. Leaves are mostly cauline. The leaf sheath is mostly open and smooth. The leaf blades are 2-10 mm wide and slightly hairy. The ligule has a fringed membrane. The inflorescence is terminal, and is a slender spike with thin individual spikes coming off of a main axis.

To differentiate *Festuca myuros* from *Festuca perennis* note that the spikelets on *Festuca myuros* are thinner and more delicate and while they do have the alternate "zipper" like look they are closer to the central axis than in *Festuca perennis* .

Festuca perennis (Poaceae)

is an upright annual grass.
It grows erect to about 0.9 m tall. Stems grow singly or in clumps. Leaf blades are flat, glossy, generally hairless, and range from 6–25 cm long. Leaves range from (3–10 mm) wide.

Ligules are membranous and can grow to 3 mm in length.

The inflorescence consists of small, stalk less spikelets that are alternate to one another along the main flowering stem (like a zipper).

© 2008 Keir Morse

Holcus lanatus (Poaceae)

is a perennial grass with has velvety grey-green leaves. The shoots are round. The bases of the shoots are white with pink stripes or veins. The inflorescence is robust and often tinged purple. The ligule is 1–4 millimeters long, blunt, and hairy.

It spreads by developing new shoots and roots at its nodes. Plants form a blanket of runners on the soil surface.

Touch the stem it feels like velvet!

©2009 Keir Morse

©2001 Julie Kierstead Nelson

Hordeum murinum ssp. *leporinum* (Poaceae)

is an annual invasive weed. The mature plant can reach up to 1 m tall in height. The stems are round, erect, and can reach 20 cm long.
The leaves are flat and covered with short hairs. The spikelets are tightly arranged in a large spike at the top of the stem. The awns envelop the spikelets giving the overall spike a hairy/spiky appearance. The spike itself can range from 10-15cm in height.

© 2001 Steven Thorsted

Polypogon monspeliensis (Poaceae)

is an annual; culms solitary or bunched ranging from 6–80 cm long. There is a membranous ligule. The leaf blades are 5–20 cm long and 2–8 mm wide. The leaf blade is rough to the touch on the back side and occasionally on the top as well.

The inflorescence is a dense panicle of hairy spikelets and the entire panicle is soft to the touch like a rabbit's foot.

EXOTIC Herbs and Shrubs:

Common name	**Scientific Name**
scarlet pimpernel	*Anagallis arvensis**/**
fat-hen	*Atriplex prostrate***
common mustard	*Brassica rapa***
black mustard	*Brassica nigra***
Italian thistle	*Carduus pycnocephalus**/**
iceplant	*Carpobrotus edulis******
bull thistle	*Cirsium* vulgare*/**
largeseed goosefoot	*Chenopodium macrospermum****
poison hemlock	*Conium maculatum****
brass buttons	*Cotula coronopifolia****
cape ivy	*Delairea odorata****
Fuller's teasel	*Dipsacus fullonum****
big heron's bill	*Erodium botrys**/**
fennel	*Foeniculum vulgare***/***
French broom	*Genista monspessulana***
bristly ox-tongue	*Helminthotheca echioides**/**
bull mallow	*Malva nicaeensis**/**
pineapple weed	*Matricaria discoidea****
bur clover	*Medicago polymorpha**/**
sourgrass	*Oxalis pes-caprae**/**
cut leaf plantain	*Plantago coronopus***/***
English plantain	*Plantago lanceolate***/***
Jersey cudweed	*Pseudognaphalium luteoalbum**/**
wild radish	*Raphanus sativus**/**
Himalayan blackberry	*Rubus armeniacus****
clustered dock	*Rumex conglomerates***/***
curly-leaved dock	*Rumex crispus***/***
sow thistle	*Sonchus asper* ssp. *Asper***/***

*occurs in grassland
** occurs in coastal scrub
***occurs in wetland
****occurs in bluff
*****occurs in bluff scrub

Picture	Name (Family)
 © 1995 Saint Mary's College of California  © 1999 California Academy of Sciences	*Anagallis arvensis* (Myrsinaceae) is a low-growing and spreading annual. It roots at one main root and spreads out prostrate (flat on the ground surface). The stems are square. Leaves are oval to football shaped with triangular tips, and sometimes dotted with dark or purplish glands on the lower surface. The leaves are fleshy somewhat like a succulent. Leaves are usually opposite to one another along the stem. Flowers have five salmon-orange colored petals and grow singly.

Brassica rapa

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Brassica rapa and *Brassica nigra*
(Brassicaceae)

are annual or biennial shrubs about 30-39 cm tall. Plants are branched. The stems are gray-green. Leaves are wavy on the edges and are grey-green or blue-green, glaucous (whitish thin layer on the top).

The upper stems terminate in racemes (bunches) of bright yellow flowers. Each flower has 4 petals and 4 green sepals.

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Carpobrotus edulis (Aizoaceae)

is a ground-hugging succulent perennial that roots at the nodes, has a creeping habit, and often forms deep mats covering large areas. The roots are hollow and fibrous. Roots are produced at every node that is in contact with the soil. The flowers are yellow or light pink with many thin petals.

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Conium maculatum (Apiaceae)

is a biennial herb with a smooth, purple-spotted or lined, hollow stem. The taproot is solid and looks like a parsnip. The leaves are large and pinnately divided with small leaflets. The leaves resemble edible parsley (they are in the same family, Apiaceae)!

The flowers are small and arranged in an umbel.

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Cotula coronopifolia (Asteraceae)

sprawls in a mat and is prostrate, rooting at nodes. The leaves are fleshy, sessile (attached directly to the stem), and clasping all the way around stem to form a sheath. The leaves are blade-shaped and coated with a shiny cuticle to retain moisture. The lower leaves are divided into linear lobes; upper leaves are undivided, sometimes toothed. The stems are reddish/green.

The flower heads look like yellow buttons and are about 0.6-0.8 cm in diameter.

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Delairea odorata (Asteraceae)

Luckily *Delairea odorata* is only in one part of the reserve and with monitoring we can stop its spread.

Delairea odorata is a non-woody vine with thin but slightly fleshy, glossy leaves with angular lobes (the leaves look like traditional garden ivy). The flowers are yellow and daisy-like, but lacking noticeable petals. It grows procumbent on the ground and also climbs trees and shrub trunks.

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Dipsacus fullonum (Dipsacaceae)

is an erect biennial with small prickles on the stem and distinctive spiny flower heads. Plants initially produce a basal rosette of leaves and then flowering stems are produced during the second year. Rosette leaves are oval, have a wrinkled appearance, and have margins with rounded or scalloped teeth. Leaves that occur on the flowering stems are opposite, without petioles (sessile), and are lanceolate. All leaf midveins have short prickles on them.

Flowers are egg-shaped but cut off squarely at the base. Flowers are approximately 3-10 cm long and consist of many individual white to lilac flowers that bloom in a circular pattern around the seedhead.

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Erodium botrys (Geraniaceae)

is an annual herb. The plant starts from a flat rosette of highly lobed green leaves. It grows to a height between 10 and 90 centimeters with somewhat hairy stems and foliage. It bears small flowers with hairy, pointed sepals surrounding five purple-streaked lavender petals. The fruit is long and pointed.

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Foeniculum vulgare (Apiaceae)

is a biennial or perennial, it sends up four or five smooth stalks which are hollow but contain white pith (tissue in the center of the stem). The stems bear feathery, finely divided linear foliage. The inflorescences are large and flat umbels of golden yellow flowers. Plants can reach 1.5 meters in height.

Genista monspessulana (Fabaceae)

is a woody perennial shrub growing up to 3 m tall. The green stems are covered with short soft hairs, but become hairless with age. The leaves are shortly stalked, consisting of 3 leaflets with rounded ends, the upper surface is virtually hairless but the lower surface varies from scattered to densely hairy with hairs often more common along the midrib. The fruit is a pod like in pea plants. Seeds are dark brown to black and there are usually 5–8 seeds per pod.

it can be distinguished by the ridged green stems; pea-like yellow flowers: 0.8–1.3 cm long, and mature pods that are densely hairy, 1.5–2.5 cm long, 3–5 mm wide.

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Helminthotheca echioides (Asteraceae)

is a stiff annual to biennial weed.
It may grow up to 90 cm tall, with a thick, furrowed stem. The leaves are 10–20 cm long and oblanceolate with a short petiole. The leaves, branches, and stem are all covered in thick bristles. The inflorescences are 2–3.5 cm wide and subtended by between 3 and 5 large bracts (like a dandelion).

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Malva nicaeensis (Malvaceae)

is an annual or biennial herb producing a hairy, upright stem up to 60 cm long. The leaves are up to 12 cm wide and have several slight lobes along the edges (they almost look like squash leaves).

Flowers appear in the leaf axils, each with pinkish to light purple petals and each around a centimeter long. A unique feature to *Malva nicaeensis* and all other plants in the Malvaceae family is that the stamens form a tube around the style.

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Matricaria discoidea (Asteraceae)

is an annual plant is about 7-30 cm tall, branching frequently and having the appearance of a miniature bush. The leaves are fern-like and up to 5 cm long and 2 cm across, they are alternate along the hairless stems. These simple, double, or triple compound leaves are pinnately divided into linear lobes. From the axils of the upper leaves, develops flower heads on stalks. Each flowerhead consists of numerous greenish yellow disk florets. The base of the flowerhead has several overlapping green bracts. The top of the flowerhead is shaped like a dome. Both the foliage and flowerheads have a pineapple-like odor when crushed.

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Medicago polymorpha (Fabaceae)

is an annual herb. Stems grow up to 60 cm long and tend to trail along the ground. Leaves divide into three round leaflets, resembling those of clover and usually have reddish-tinged midveins. Leaflets have serrated edges. The flowers are small, bright yellow, and cluster into flower heads at the stem tips. The fruit consists of a pod that usually covered in prickles ending in tiny hooks that easily get attached to your clothes.

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Oxalis pes-caprae (Oxalidaceae)

is a low growing perennial with shamrock-like leaves.

There is a loose basal rosette of leaves up to 35 cm tall. The leaves resemble clover leaves and are hairless to sparsely hairy, green, and often with brown or purplish spots.

Flowers cluster on the ends of slender leafless stalks and there are less than 20 flowers per cluster. Each flower has 5 bright yellow petals.

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Plantago coronopus (Plantaginaceae)

is an annual herb with a persistent taproot. It produces a basal rosette of narrowly lance-shaped leaves up to 25 cm long. The leaves are edged with small lance-shaped lobes. The inflorescences grow erect to about half a meter in maximum height. They have dense spikes of flowers which sometimes curve. Each flower has four whitish lobes each measuring about a mm long.

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Plantago lanceolata (Plantaginaceae)

is a perennial herb. There is a basal rosette of lanceolate leaves. There is a leafless, silky, hairy stem ending in an oblong inflorescence of many small flowers. When the flowers fall off a brown cone like structure remains.

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Pseudognaphalium luteoalbum (Asteraceae)

is an annual or biennial herb. The leaves are narrow to lance-shaped, 1-6.5cm long and 2-8mm wide with wavy margins. The leaves become smaller and narrower up the stem. The leaves are glaucous (have a milky white texture and color). It flowers in terminal clusters of 5-20 tiny flowerheads with shiny yellow-brown outer bracts. The flower itself is a white to cream color.

Raphanus sativus (Brassicaceae)

is an annual or biennial plant consisting of a rosette of leaves up to 17 cm long and 5 cm wide. It bolts and produces flowering stems up to 0.7m tall. The central stem is often reddish at the base, but light green elsewhere. The upper side stems are very similar, except that there is often a red ring where they branch from the central stem. The alternate leaves on the stems are similar in appearance to the basal leaves, except that they are smaller.

Each flower consists of 4 pink or light purple petals and several stamens with yellow anthers. Each flower is replaced by a silique (fruit that looks like a bean) that contains 2-3 seeds.

The root system consists of a stout taproot that is somewhat fleshy.

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Rubus armeniacus (Rosaceae)

is a perennial plant which bears biennial stems (canes) from the perennial root system. In its first year, a new stem grows vigorously to its full length of 4-10 m, trailing along the ground or arching up to 4 m high. The stem is green, or reddish-tinged if exposed to bright sun. The leaves are 7–20 cm long and palmately compound with five leaflets; flowers are not produced on first year shoots. The leaflets are oval-acute, dark green above and pale to whitish below, with a toothed margin, and thorns along the midrib on the underside. The flowers are produced in late spring and early summer on the tips of the second-year side shoots. There are five white or pale pink petals.

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Rumex conglomerates (Polygonaceae)

is a perennial herb. The stems are erect and branched in threes 30-80 cm. The leaves have ocrea which are slightly transparent sheaths at the base of where the main stem attaches to the branches. The leaves are oblong-lanceolate, and about 5-10 cm long and 2.5-6 cm wide.

The inflorescences are in a spike around the end of a branch and also in a whorl around the nodes of the stem.

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Rumex crispus (Polygonaceae)

is a biennial herb that can grow from 1-1.5m tall. The tiny green flowers grow in dense heads up a spire. Each flower has six sepals that are light green/white/pink in color (so it looks like the flowers are white/pink but if you look closer you will see the tiny green flower within).

The leaves have a coarse texture and wavy leaf margins with noticeably curled edges. Older leaves have a red primary vein. At the base of the stalk there is a basal rosette of leaves. Ocrea are present (papery sheath that covers leaf axil).

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Sonchus asper ssp. *asper* (Asteraceae)

is an annual weed growing 10–120cm tall. The leaves are oblong to lanceolate and are 6–30 cm long and 1–15 cm wide. The leaves are pinnately lobed and usually prickly. The flowers are born in a cyme and are yellow with bracts resembling a dandelion.

EXOTIC Trees:

Common name	**Scientific Name**
Monterey cypress	*Hesperocyparis macrocarpa***

*occurs in grassland
** occurs in coastal scrub
***occurs in wetland
****occurs in bluff
*****occurs in bluff scrub

Hesperocyparis macrocarpa (Cupressaceae)

is a tree that is non-native to coastal grasslands. The trees are about 25 m tall with a crown broadly spreading. The bark is rough and fibrous. The branches are 1.5-2 mm in diameter.

Works Cited/Additional Resources

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This book provides an easy dichotomous key to identify plants in the greater San Francisco Bay region.

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Younger Lagoon Plant List
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This is a detailed list of common and scientific names, family, group, bloom period, vegetative reproduction, status, and wetland indicator status.

Brown, Tim. "Younger Lagoon Plant List." Unpublished spreadsheet, 2013.

Plant identification terminology: An illustrated glossary written by: Harris, J. G. and M. W. Harris

Illustrated book with common plant identification terms, organized alphabetically.

Harris, J. G. and M. W. Harris. 1994. Plant identification terminology: An illustrated glossary. Spring Lake Publishing, Spring Lake, UT

Jepson Online Interchange
http://ucjeps.berkeley.edu/interchange.html

The Jepson Online Interchange provides information on identification, taxonomy, distribution, ecology, as well as links to photos.

Marine Science Campus Coastal Long Range Development Plan
http://ppc.ucsc.edu/cp/projects/11407/cp/projects/11407/planning/clrdp08

This is the complete Coastal Long Range Development Plan for the Marine Science Campus (CLRDP) located at YLR. Resource for definitions and lists of priority 1, 2, and 3 weeds as well as control methods. Also a good resource for a complete list and maps of all 11 habitat types.

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