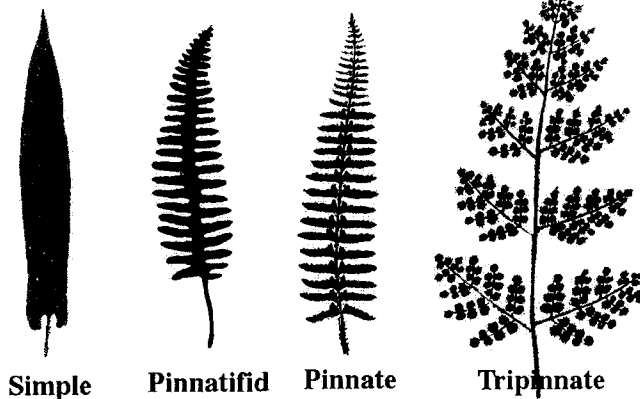
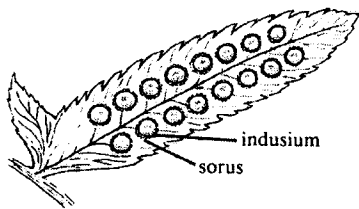


## Key to fern species at Jasper Ridge

- ◇ Plants small, free floating, leaves small and partially overlapping one another . . . Azollaceae  
At JRBP, this family is represented only by *Azolla filiculoides*, the American water fern.
- ◇ Plants not small and free floating; if aquatic, then rooted into substrate
  - ♣ Plants rooted near lake margins or in seasonal pools; leaves with four clover-like leaflets, sporangia in hard sporocarps . . . . . Marsiliaceae, including the Clover fern
  - ♣ Plants terrestrial, with sporangia on fertile leaves, not in sporocarps
    - ◁ Fertile and sterile leaflets strongly dimorphic; plants fleshy; leaves not circinate in veneration (not developing in a coiled manner, creating “fiddleheads” = croziers); eusporangiate and lacking an annulus . . . . . Ophioglossaceae  
This family not known from JRBP.
    - ◁ Fertile and sterile leaflets somewhat dimorphic or identical; plants not fleshy; leaves circinate in veneration (having fiddleheads = croziers); leptosporangia with annulus . . . . . **Leptosporangiate homosporous ferns**  
These include the majority of terrestrial ferns  
*See key on next page*



## Key to the terrestrial ferns at Jasper Ridge

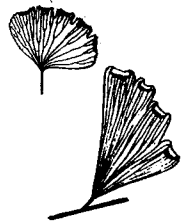
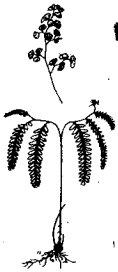
- ◇ Sporangia not along leaf margin, but rather scattered or in clusters (“sori”) on the abaxial surface of the frond.
  - No indusium
    - Fronds once pinnate or pinnatifid (very deeply lobed, but with wings of blade running along rachis between lobes), not golden yellow on abaxial surface, range from flat to folded (but not coiled) when dry .....  
..... California polypody, *Polypodium californicum*, Polypodiaceae
    - Fronds yellow on abaxial surface; when dry, fronds strongly coiled inwards on themselves; blade triangular or diamond-shaped when fresh .....  
..... goldback fern, *Pentagramma triangularis*, Pteridaceae
  - Indusium present
    - Sori linear (each sorus is long and narrow) end-to-end in 2 parallel rows, one on either side of the midvein; fronds 1-3 meters tall .....  
..... giant chain fern, *Woodwardia fimbriata*, Blechnaceae
    - Sori not linear; fronds usually under 1.5 meters tall (Dryopteridaceae)
      - ⊕ Indusium peltate (shaped like a flat-topped umbrella); in mature sori, indusium may be shrunken and not always apparent. .... (see key to *Polystichum* spp.)
      - ⊕ Indusium not peltate
        - ★ Stipe scaly but rachis not scaly; fronds annual and 1-2 pinnate; indusium attached at base but usually inconspicuous when sporangia are mature .....  
..... fragile fern, *Cystopteris fragilis*
        - ★ Stipe scaly and rachis somewhat less scaly; fronds usually perennial; indusium conspicuous and kidney shaped .....  
..... coastal wood fern, *Dryopteris arguta*
- ◇ Sporangia along leaf margins, which are often rolled over to form a kind of indusium
  - Fronds very large (up to 2 meters) and 3-times pinnate (sometimes lowermost pinnae are themselves deeply lobed); on fertile leaves, sori with indusium along entire margin .....  
..... bracken, *Pteridium aquilinum* var. *pubescens*, Dennstaedtiaceae
  - Fronds small, usually under 25 cm tall, with a dark and wiry stipe (petiole) (Pteridaceae)
    - Pinnae very thin and finely veined; leaflets fan shaped, with the wide flat or curved tip of the leaflet folded over to form an indusium .... (see key to *Adiantum* spp.)
    - Pinnae thick or brittle with small (less than 15mm long) oval shaped pinnae .....  
..... (see key to *Pellaea* spp.)

Key to *Polystichum*

- ◊Blades simply (once) pinnate with a single shallow lobe at the base of each pinna (like the thumb of a mitten), common ..... western sword fern, *P. munitum*
- ◊Blades more than simply pinnate, pinnae deeply lobed or divided to the base
  - ◁ Pinnae divided to near the base, but not clearly pinnate ..... California shield fern, *P. californicum*
  - ◁ Pinnae are themselves clearly pinnate ..... Dudley's shield fern, *P. dudleyi*

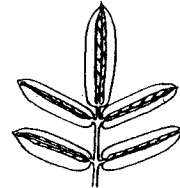
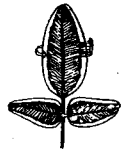
Key to *Adiantum*

- ♥Rachis linear and continuous; pinnae fairly symmetrical and attached near their center; pinnae are fan shaped, but overall shape of blade is loosely triangular ..... California maidenhair, *A. jordanii*
- ♥Rachis divided into two near base of blade; pinnae clearly asymmetrical and attached laterally; overall shape of **blade** is fan-shaped to semi-circular ..... five-finger fern, *A. aleuticum*



Key to *Pellaea*

- ⊙Pinnae lacking sharply pointed tips, 6-15 mm long, 3-10mm wide; petiole light brown or cinnamon colored ..... coffee fern, *P. andromedifolia*
- ⊙Pinnae with pointed tips, 6-8 mm long, 3-4 mm wide; petiole dark brown to blackish..... bird's-foot fern, *P. mucronata*



**Abaxial** The side away from the apex (the underside of the leaf). Think “*b*”.

**Adaxial** The side towards the apex (the upperside of the leaf). Think “*d*”.

**Annulus** The ring of cells around the sporangium that contract when the annulus dries out, thereby tearing open the sporangium and flinging its spores to disperse them.

**Blade** The wide flat part of a leaf (as contrasted with the petiole). In fern leaves, as with other compound leaves, the blade may be highly divided, yet it is all part of a single blade.

**Circinate vernation** A form of leaf development (“vernation”) in which the young leaf is coiled (“circinate”). As a consequence, young expanding fern leaves are shaped like fiddleheads (“croziers”).

**Eusporangiate** Having relatively large, thick-walled sporangia with a variable and indefinite number of spores. This is the primitive sporangial condition, and eusporangiate taxa include Lycopods, horsetails, Psilotum, and one subgroup of ferns. Contrast with leptosporangiate.

**Fertile leaves or leaflets** The leaves or leaflets (pinnae) that bear sporangia. These leaves very often look like the sterile leaves, and in virtually all cases they function in photosynthesis just like the sterile leaves.

**Frond** Fern leaf.

**Indusium** The specialized covering of a sorus (cluster of sporangia). Indusia come in a variety of shapes. In some cases, the margin of the leaf is rolled over the sori, acting as an indusium. This is sometimes referred to as a “false indusium.”

**Leptosporangiate** Having relatively small, very thin-walled sporangia which produce a definite number (usually 32 or 64) of spores each. This is a derived condition which evolved within the ferns, and the largest group of ferns is leptosporangiate. Contrast with eusporangiate.

**Marginal** Along the leaf margin.

**Midvein** The central vascular strand (vein) of the smallest level of pinnae.

**Peltate** Shaped like a flat-topped umbrella, or a table with a single central leg.

**Pinna** (*plural* pinnae) A leaflet. In highly divided leaves, pinnae will themselves be subdivided at least once. The pinnae at the smallest level of division are called "ultimate" pinnae or "pinnules."

**Pinnate** Divided into pinnae.

**Pinnule** A pinna at the smallest, final level of division; an ultimate pinna.

**Pinnatifid** Nearly pinnate, but with divisions between would-be pinnae not cutting all the way to the rachis (midrib) of the frond. In other words, very very deeply lobed.

**Rachis** The central axis of the entire blade or of any pinnae that are themselves subdivided.

**Scaly** Having epidermal outgrowths that are very thin and flat but wide. These are often triangular and occur most frequently on the rhizome, stipe, and rachis.

**Sporocarp** Found in some aquatic groups, a leaflet which has become extremely hard and that encloses the sori. It looks much like a seed.

**Sterile leaves or leaflets** The leaves or leaflets (pinnae) that do not bear sporangia. Contrast with fertile leaves.

**Stipe** Equivalent to the petiole of the leaf (leaf stalk).

**Submarginal** Just barely in from the margin of the leaf.

KATHRYN PRESTON