

FERNS AND FERN ALLIES OF THE SANTA CRUZ MOUNTAINS

(After J. H. Thomas, Flora of the Santa Cruz Mountains)

Plants herbaceous, reproducing by spores; sporangia borne adaxially (in Selaginella borne on very small sporophylls arranged in a 4-ranked strobilus; in Isoetes borne at the base of long, linear-subulate sporophylls); plants small, the stems not longitudinally grooved; plants not producing flowers or seeds. Division Lepidophyta.

Stems elongate, densely clothed with leaves; leaves ovate, under 1 cm long.

Selaginellaceae. Selaginella bigelovii

Stems very short, corm-like; leaves appearing basal, linear, over 5 cm long.

Isoetaceae.

Plants terrestrial; velum complete; corm 3-lobed. Isoetes nuttallii

Plants amphibious; velum incomplete; corm 2-lobed.

Isoetes howellii

Plants herbaceous, reproducing by spores; sporangia borne on sporangiophores, the sporangiophores aggregated into a terminal strobilus; plants small or to 1.5 m tall, the stems longitudinally grooved and often with verticillate branches; plants not producing flowers or seeds. Division Calamophyta.

Equisetaceae.

Strobili blunt or slightly acute; stems annual.

Stems dimorphic, the fertile ones brown or pinkish, lacking chlorophyll, usually unbranched; stomata not in regular rows.

Sterile stems very slender, usually 4 mm or less in diameter, often with the lateral branches asymmetrically arranged; strobili 0.5-3.5 cm long, rarely found locally. Equisetum arvense

Sterile stems stout, usually over 5 mm in diameter, usually with the lateral branches symmetrically arranged; strobili 4-9.5 cm long, usually present. Equisetum telmateia braunii

Stems not dimorphic, the fertile ones green; stomata in regular rows.

Equisetum laevigatum

Strobili distinctly apiculate.

Sheaths longer than broad, the lower ones sometimes with a dark band.

Equisetum X ferrissii

Sheaths about as long as broad, all with two dark bands.

Equisetum hyemale affine

Plants herbaceous or woody, reproducing by spores or seeds (if by spores, the spores in sporangia on the abaxial surfaces of frond-like sporophylla or in sporocarps in Azolla, Marsilea and Pilularia); plants small or very large, leaves or fronds usually present. Division Lepidophyta. Class Filicinae.

Plants small, free-floating, aquatic; leaves small, imbricate. Salviniaceae.

Azolla filiculoides

Plants not small, free-floating and aquatic, if aquatic then rooting on the bottom.

Leaves filiform or quadrifoliolate; sori borne in sporocarps; plants of shallow water or muddy banks. Marsiliaceae.

Leaves with a 4-foliolate blade. Marsilea vestita

Leaves filiform. Pilularia americana

Leaves neither filiform or quadrifoliolate; sori not borne in sporocarps; plants of moist or dry situations.

Fertile and sterile leaves seemingly dimorphic; plants fleshy; leaves not circinate in veneration; sporangia lacking an annulus. Ophioglossaceae.

Botrychium silaifolium var. californicum

Fertile and sterile leaves not dimorphic (except in Blechnum); plants not fleshy; leaves circinate in veneration; sporangia with an annulus.

Polypodiaceae.

(* known from Jasper Ridge.)

Sori not marginal, but rather on the abaxial surface of the frond.

Indusium lacking.

Fronds not golden-yellow on the abaxial surface; fronds once-pinnate.

Fronds very coriaceous, segments rounded at the tips.

Polypodium scouleri

Fronds not coriaceous, segments rounded to acute.

Segments acute to obtuse or rounded. Common.

*Polypodium californicum

Segments attenuate, acute. Rare. Polypodium glycyrrhiza

Fronds golden-yellow on the abaxial surface; at least the basal pinnae 2-pinnate.

*Pityrogramma triangularis

Indusium present.

Sori linear, in two parallel rows, one on either side of the midvein; fronds

1-3 m tall. Woodwardia fimbriata

Sori not linear, not in definite rows; fronds usually under 1.5 m tall.

Indusium peltate, orbicular.

Blades simply pinnate, the pinnae not pinnately lobed or pinnatifid.

Common. *Polystichum munifidum

Blades more than simply pinnate, the pinnae lobed or divided to near the base. Rare.

Pinnae divided to near the base, but not pinnate.

*Polystichum californicum

Pinnae pinnate. Polystichum dudleyi

Indusium not peltate.

Stipe scaly below the blade, occasionally above; fronds annual; indusium inconspicuous when sporangia are mature.

Fronds commonly under 2.5 dm long, 1-2 pinnate, indusium attached at the base. Cystopteris fragilis

Fronds commonly over 5 dm long, 2-3 pinnate; indusium attached along one side. Athyrium filix-femina

Stipe scaly both above and below the blade; fronds usually perennial; indusium conspicuous.

Fronds 2-pinnate. Common. *Dryopteris arguta

Fronds 3-pinnate. Rare. Dryopteris dilatata

Sori marginal or submarginal.

Fronds dimorphic, segments of fertile fronds narrowly linear.

Blechnum spicanta

Fronds not dimorphic.

Pinnae very thin, fragile, finely veined; sporangia partly hidden by the reflexed lobes.

Rachis of the frond continuous; ultimate pinnules symmetrical, attached at the center. *Adiantum jordani

Rachis of the frond dichotomous; ultimate pinnules asymmetrical, attached laterally. *Adiantum pedatum aleuticum

Pinnae thick, often dry and brittle.

Large coarse ferns, often to 2 m tall; fronds arising singly.

*Pteridium aquilinum pubescens

Small ferns, usually under 2.5 dm tall; fronds clustered.

Abaxial surface of blade densely hairy and scaly, glandular-pubescent, or glabrous; indusium present.

Plants not glandular-pubescent.

Blades with scales. Cheilanthes intertexta

Blades glabrous. Cheilanthes californica

Plants glandular-pubescent. Cheilanthes cooperae

Abaxial surface of blade glabrous; indusium lacking.

Ultimate pinnae obtuse to retuse; stipes flesh-colored.

Pellaea andromedifolia

Ultimate pinnae acute, apiculate; stipes purplish brown.

*Pellaea mucronata