

Quail Hollow Ranch County Park Ferns and Their Spore-Bearing Allies

Key to QH Ferns, Brakes and Horsetails

1.	Found on surface of pond December - February, often looking reddish	<i>Azolla filiculoides</i>
1 [1']	Tubular stems	Horsetail Family
1 [2']	Leaflets roundish, not noticeably longer than wide	<i>Adiantum jordanii</i>
1 [3']	Tiny leaflets green to purplish, edges curled under; all other plant parts brown	<i>Pellaea mucronata</i> var. <i>mucronata</i>
1 [4']	Leaf shape +/- triangular; ventral leaflet surface may appear gold	<i>Pentagramma triangularis</i> ssp. <i>triangularis</i>
1 [5']	Leaves 1-pinnate, deeply lobed or not	
1 [6']	Leaflet attachments generally appear +/- perpendicular at base, especially lower	
1 [7']	Leaflet attachments generally appear angled at base	<i>Dryopteris arguta</i>
2.	Deeply lobed 1-pinnate leaves; sori oblong	<i>Woodwardia fimbriata</i>
2 [1']	Unlobed leaflets attached across entire base; sori round to generally ovate	<i>Polypodium californicum</i>
2 [2']	Unlobed leaflets narrowly attached via "petiole"; sori round, indusia peltate	<i>Polystichum munitum</i>
3.	Sporangia at leaflet margin; leaves generally 3-pinnate, unlobed	<i>Pteridium aquilinum</i> var. <i>pubescens</i>
3'	Oblong sporangia between leaflet margin and axis; leaves generally 1-2-pinnate, deeply lobed	<i>Athyrium filix-femina</i>
4.	Stems annual; sterile stems branched	<i>Equisetum telmateia</i> ssp. <i>braunii</i>
4'	Stems annual to perennial, usually unbranched	<i>Equisetum X ferrissii</i>



1 [3'] *Pellaea mucronata* var. *mucronata*, birdfoot cliffbrake - Leaves 2-3(4)-pinnate; tiny greenish to purplish leaflets 2-6(8) mm long by 0.5-2(4) mm wide, with edges folded under. Other than the leaflets, every other visible part of the plant is brown. Rocky or dry areas.

1. *Azolla filiculoides*, mosquito fern
Common in ponds, slow streams, wet ditches.
Tiny green to reddish leaves, 0.5 - 1.5 mm.



1 [4'] *Pentagramma triangularis* ssp. *triangularis*, goldback fern
Small triangular or 5-sided 2-3-pinnate leaves 3-10(18) cm [1 1/4"-4"(7")], lower surface gold-colored at maturity. Sporangia along veins. Generally shaded, rocky or wooded area.

1 [2'] *Adiantum jordanii*, California maidenhair
Leaf blades 2-3-pinnate, petioles reddish brown to blackish. Small (~10 mm) roundish leaflets with sporangia along margins. Shaded hillsides, moist woods.



2. *Woodwardia fimbriata*, giant chain fern

Large (gen. 1 - 3 m), deeply lobed 1-pinnate leaves. Sori oblong, end-to-end on lobes. Near streams, springs.

1 [7'] *Dryopteris arguta*, coastal wood fern

Leaves 1-2-pinnate, segments deeply lobed or not. Leaflet attachments generally angled at base, not perpendicular. Sori round, indusia round-reniform. Open wooded slopes.



3. *Pteridium aquilinum* ssp. *pubescens*, bracken fern

Leaves generally 3-pinnate below; leaflets appear +/- perpendicular to attachment at base. Sporangia at or near leaflet margins. Pastures, woods, meadows, hillsides, partial to full sun.



3' *Athyrium filix-femina*, western lady fern

Leaves generally 1-2-pinnate, deeply lobed. Leaflets generally appear +/- perpendicular to attachment at base, especially lower. Oblong sporangia between leaflet margin and axis. Woods, along streams, seepage areas.



2 [2'] *Polystichum munitum*, western sword fern

Leaves 1-pinnate, not lobed; leaflets narrowly attached at base. Sori round, indusium peltate. Wooded hillsides, shaded slopes, rarely cliffs, outcrops.



2 [1'] *Polypodium californicum*, California polypody

Leaves 1-pinnate, not lobed; leaflets attached across entire base. Sori round to generally ovate. Shaded canyons, streambanks, north-facing slopes, road-cuts, cliffs, coastal bluffs, rocks (often granitic or volcanic), humus, not on plants.



4. *Equisetum telmateia* ssp. *braunii*, giant horsetail

Stems annual, generally erect and hollow, except at nodes. Sterile stems (*above right*) green and branched; fertile stems (*above left*) unbranched, fleshy brown, ephemeral. Stream banks, roadside ditches, seepage areas.

4' *Equisetum x ferrissii*, Ferriss' horsetail

Stems annual to perennial, of one kind, generally erect and unbranched. This plant is a sterile cross between *Equisetum hyemale* (scouringrush horsetail) and *E. laevigatum* (smooth horsetail). Reproduces vegetatively from fragmented stems; sometimes forms large populations at great distance from parents.

Classification of Ferns and Fern-allies (spore-bearers)

DIVISION EQUISETOPHYTA - Horsetails

Order Equisetales

Family Equisetaceae - Horsetails

Equisetum x ferrissii

Equisetum telmateia ssp. *braunii*

Ferriss' Horsetail, Ferriss' Scouring Rush

Giant Horsetail

DIVISION PTEROPHYTA - Ferns

Order Polypodiales

SUBCLASS SCHIZAEIDAE

Family Pteridaceae - Brakes

Adiantum jordanii

Pellaea mucronata var. *mucronata*

Pentagramma triangularis ssp. *triangularis*

California Maidenhair

Birdfoot Cliffbrake, Bird's Foot Fern

Goldback Fern

SUBCLASS GLEICHENIIDAE

Family Polypodiaceae - Polypodys

Polypodium californicum

California Polypody

SUBCLASS HYMENOPHYLLIDAE

Family Dennstaedtiaceae - Brackens

Pteridium aquilinum var. *pubescens*

Bracken Fern

Family Dryopteridaceae - Wood Ferns

Athyrium filix-femina

Western Lady Fern, Common Lady Fern

Dryopteris arguta

Coastal Wood Fern

Polystichum munitum

Western Sword Fern

Family Blechnaceae - Deer Ferns

Woodwardia fimbriata

Giant Chain Fern, Giant Chainfern, Western Chain Fern

SUBCLASS SALVINIIDAE

Family Azollaceae - Mosquito Ferns

Azolla filiculoides

Azolla, Fern Azolla, Pacific Azolla, Pacific Mosquitofern

DEFINITIONS (courtesy of Jepson)

1-pinnate, 2-3(4)-pinnate, etc. - the numbers specify the level of "compoundness" of a plant's compound leaves (1 = primary, 2 = secondary, 3 = tertiary, 4 = quaternary, etc.). The second expression specifies a minimum, maximum and maximum-outlyer (rarely encountered level of compoundness, respectively). See below for a definition of "pinnate."

2-6(8) mm - a notation for specifying a size range with outlyer; the first and second numbers (2 mm and 6 mm) represent the normally-encountered minimum and maximum size, respectively. Because a parenthetical number is directly associated with the maximum size (8), items of greater than maximum size (up to 8 mm) might rarely be encountered.

compound leaf - a leaf divided into distinct parts. In a *1-compound leaf*, the blade is divided into primary leaflets connected by an axis but no blade material (if there is connecting blade material, the leaf is called "lobed" or "dissected"); in a *2-compound leaf*, the primary leaflets are subdivided into secondary leaflets (if there is connecting blade material, primary leaflets are called "lobed"); etc.

indusium (singular), **indusia** (plural) - in many ferns, a veil- or scale-like outgrowth of the leaf surface or margin that covers a sorus (cluster of sporangia).

leaf - connected to a stem and composed of a stalk (petiole) and a flat, expanded, photosynthetic area (blade); in the case of compound leaves, the blade can be subdivided into leaflets.

leaflet - one leaf-like unit of a compound leaf, which may be primary (1°), secondary (2°), tertiary (3°) etc.

lobe - a major expansion or bulge, such as on the margin of a leaf or leaflet.

palmate - radiating from a common point; generally said of veins, lobes, or leaflets of a leaf.

petiole - leaf stalk connecting the leaf blade to the stem; not used to refer to the stalks of leaflets.

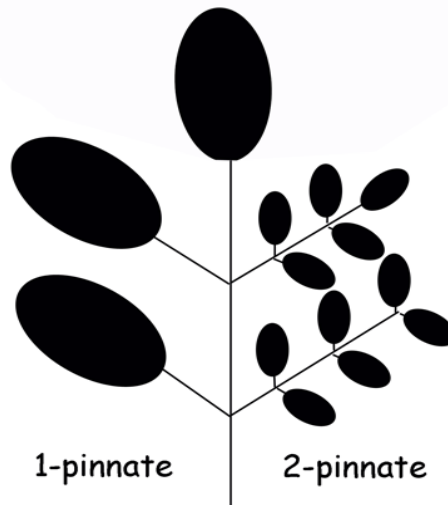
pinnate - feather-like, with two rows of structures on opposite sides of an axis; generally said of veins, lobes, or leaflets arranged in two dimensions along either side of an axis. A leaf is odd-pinnate if there is a terminal leaflet, even-pinnate if there is not, and either may be 1-pinnate (blade divided into primary leaflets), 2-pinnate (primary leaflets further subdivided into secondary leaflets), etc.

reniform - kidney-shaped.

sorus (singular), **sori** (plural) - cluster of sporangia.

sporangium (singular), **sporangia** (plural) - a spore-producing organ.

ventral - underside, abaxial.



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