# FERNS and friends

There is an easy system for telling various fern species apart. Look at the fern fronds and check the divisions of the leaflets. Then, is the entire cluster shaped like a vase or not? Do single fronds grow in colonies?

These simple questions will get you well on your way to learning the ferns on our preserves.



#### Once cut

#### Twice cut

#### **Thrice cut**



**Once cut** - the blade or frond is divided into leaflets the margins of which are entire, not further subdivided



Sensitive Ferns Onoclea sensibilis are quite common in moist habitats. The leaflet edges are wavy, not quite cut a second time.



### **Once cut**



Sensitive ferns have quite distinctive spore stalks. These fertile fronds are left standing after frost has decimated the leafy fronds. In spring the fiddleheads are wiry stalks.



## Once cut

Rock polypody, *Polypodium virginianum*, grows in clumps on boulders. The white spore cases are found on the underside of the leaflets



One of our most common ferns is cinnamon fern, Osmunda cinnamomeum. Find it at the edge of our wet woodlands. The leaflets are cut into rows of sub-leaflets, hence twice cut. The fronds grow from a single point to form vase-like groups. The cinnamoncolored fuzz at the base of the stems gives its common name. The fertile frond is a separate stalk.



#### **Twice cut**



Interrupted fern, Osmunda *claytoniana* on the right, looks almost like Cinnamon fern, on left, except they have dark spore-bearing leaflets interrupting the green sterile fronds. Both line the wooded edge of the field at Scott's Landing.



### **Twice cut**



#### Fiddleheads of cinnamon ferns - do not eat these!





(Ostrich or fiddlehead ferns, *Matteuccia* Sturthiopteris are the tasty ones but they are found only in our grocery stores.

Twice cut, vase-shaped, it grows along river banks on the mainland.)



## **Twice cut - vase**

Marginal Wood Fern, Dryopteris marginalis, is one of a large group of many species of dryopteris, many difficult to identify. Leathery blue-green foliage is evergreen in all seasons. Look for these on rocky wooded slopes.

#### **Twice cut - vase**



Marginal wood fern spore cases are found along the edge of the subleaflets.



#### **Twice cut - vase**



The elegant Royal fern Osmunda regalis, is considered **twice cut**, once from the main stem and sub-leaflets so completely separated as to form what look like leaflets.



The basal leaflets of Long Beech fern, Phegopteris connectilis, point down towards the ground. They are found in the woods possibly along with their namesake. Their species name tells you that their upper frond subleaflets are connected to each other, attached to central stalk by a **wing** -like structure

Beech fern with its wing-like leaflets attached to the central stalk. The fruit dots line the edges.





Marsh fern, *Thelypteris palustris*, grows abundantly in wet places. Delicate Leaflet pairs are perpendicular and **generously spaced** out along the **dark stem** axis. The veins on outer leaflets are forked and fertile leaflets curve over the fruiting dots.

Massachusetts fern is very similar but the veins are not forked and the leaflets do not fold over the fruiting dots.



Fertile leaflet of the Marsh fern showing the outer edges of the leaflets folding over the fruit dots.



## Twice cut - not vase

New York fern, *Parathelipteris novaborecensis* is found in sunny woodland edges.

Recognize this fern by the fact that the leaflets become smaller and smaller as they go down the stem - as if they are trying to fit in the **letter Y.** 



New York fern fruit dots line the edges but the subleaftlets do not have wing-like bases

## Three times cut



### Thrice cut - not vase



Hayscented fern, Dennstaedtia punctilobula grows in dense patches, 1-3 feet tall, in open woodlands. Stalk is brown or black towards the base.



## Thrice cut - not vase

Hayscented fern's leaflets are **not quite opposite** each other on the central stem.



# Thrice cut - not vase

Hayscented undersides when ripe have what look like tiny cups full of spores. Call them fruit dots or sori or spore cases.



Lady fern, Atrium angustum. This shade lover is usually found in damp places. Quite lacy with a curvy form, it is tapered at top and bottom. The stalk is slightly grooved and has dark scales near the ground.

The Lady fern leaflets are clearly **alternate on the main stem** in contrast to the Hayscented and Wood fern's almost alternate pattern.



# Three times cut - vase

# The fruit dots are crescent shaped.





Spinulose wood fern, Dryopteris carthusiana, and Evergreen Wood fern, D. intermedia, are found in shady damp woodlands. Their stalks are covered with large light brown scales. They look alike except for the subleaflets on the lowest pair of leaflets. The longest subleaflet on **Evergreen is second from** the bottom. On Spinulose it is the very **basal one**.



The longest subleaflet on **Evergreen Wood** fern is second from the bottom. **On Spinulose** Wood fern it is the very basal one. The photo on the left shows the bottom leaflet longest making it Spinulose Wood fern.



Spinulose Wood fern fruit dots





Both Spinulose and Evergreen Wood ferns have their spore clusters running in a row on either side of the midline of the leaflet.



Frost has browned most other ferns but the Evergreen Wood ferns stay green longer.



## **Three parts**

Bracken, *Pteridium aquilinum*, is broadly **triangular, leaflets on separate stems, nearly parallel to the ground.** Fertile sub-subleaflets curl their margin edges over the spore case clusters.



# Three parts

# Bracken fiddleheads are quite distinctive!



## **Three parts**

Oak fern, *Gymnopcarpium dryopteris* is also triangular with the separate stems of the leaflets almost parallel to the ground but it is small, **only half a foot tall** or so. Leaf-tier moth caterpillar, *Herpetogramma,* on the left, sewed up these little balls of fern fronds to make itself a shelter.





And here are two species of fern moth. Guess what their caterpillars eat? Yep, ferns.



The Horse Tails (Equisetum) and Lycopods or clubmosses comprise the Fern Allies. They are not closely related to each other or to ferns but they all have several characters in common: they have chlorophyll, are vascular, and reproduce asexually by spores. The leaves of horsetails lack chlorophyl and are arranged in whorls.

Both groups are very ancient. Their ancestors evolved with the earliest land plants in the Silurian period of the early Paleozoic era; later they comprised the forests of the Carboniferous period.

The genus Equisetum is a true living fossil, originating in the early Mesozoic 250 million years ago and long before the dinosaurs.

Horsetails, *Equisetum*, are not ferns. Instead of flat fronds they have round stringy leaves.







Lycopodium

Princess pine, left, or Club moss, right, both have wiry but not flat fronds - not a fern.



Sweet fern, aka Myrica gale, is not a fern! Rub it between your fingers and the distinctive fragrance will tell you that.







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