

Ferns, a Hardy Alternative to Flowering Plants

John Neorr, Native Plant Steward

Starting this article was rather intimidating because there is a ton of information about ferns available on the web. On the other hand, most people don't have time to sift through all the information so I'll try to hit the highlights – at least from my perspective. The reason I decided to write this article was that as a native plant steward, I became more aware of the many types of ferns we have in our fields and forests and I wanted to learn more about them. What better way than to write an article.

Where ferns fit in the scheme of things

Ferns are an ancient plant family. They have been on the earth for more than 360 million years. Ferns were on earth for 130 million years before dinosaurs showed up and they both had to wait another 100 million years for flowering plants. Ferns are vascular plants (water and other nutrients flow through their veins); but, unlike other vascular plants such as flowers and trees, ferns reproduce via spores. Ferns comprise the phylum pterophyta which is made up of 10,000 to 20,000 (references differ) different species. This number of species is a distant second to flowering plants which consist of over 250,000 different species.

A fern's sex life

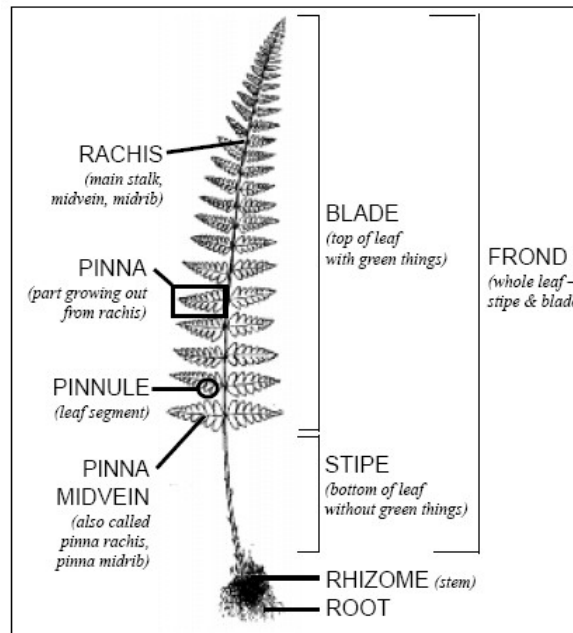
... and you thought this was a family article ... Anyway, now that I have your attention, let me bore you with the complicated reproductive cycle of ferns. Typically ferns live in moist areas because the moisture enables them to reproduce. Unlike higher plants which have evolved to a robust propagation process (male pollen --> female flower --> fertilized cell --> seed --> plant), ferns reproduce via a complicated 2-step process. First, spores upon falling on the ground grow into a very small (about 1/2" across) plant called a *gametophyte*. Literally millions of spores will fall to the ground before one is lucky enough to grow into a gametophyte. The gametophyte grows both male and female organs resulting in a fertilized egg which then grows into a *sporophyte*, or what we know as a fern. In their lifetime, ferns can drop billions of spores, but very few find the right conditions to become gametophytes and then sporophytes.

Parts of a fern

When it comes to identification of a fern, it helps to be familiar with the terms applied to different parts of a fern. There are many parts to a fern and a corresponding plethora of bewildering terms. Fortunately, I found a very good picture showing the parts of ferns. This picture comes compliments of the Audubon Corkscrew Swamp Sanctuary (<http://www.corkscrew.audubon.org/>).

In addition to the front of a fern, the back also can be used to help identify the fern. Although we talk a lot about a ferns spores, what you see on the back of *fertile* pinna are not spores, but

sori, which contain the spores which are the size of dust particles. The shape, size, and location of *sori*, can help you identify a particular species of fern.



Pacific Northwest ferns



Deer Ferns lining a path.

Ferns have been used in the Pacific Northwest by native groups for many things, including food, medicine, scouring pads, decorations, and diaper lining. There are over 40 species native to the Pacific Northwest, but in our locale, the most common ferns are Sword Fern (*Polystichum munitum*), Bracken Fern (*Pteridium aquilinum*), Lady Fern (*Athyrium filix-femina*), Licorice Fern (*Polypodium glycyrrhiza*), and Deer Fern (*Blechnum spicant*). Sword ferns are our most common ferns and are found in abundance in the Lake Wilderness

Arboretum forest. They are distinguished by a "sword handle" at the base of each pinnule. I sometimes confuse Lady Fern and Bracken Fern. Lady fern, like Bracken Fern is deciduous. However, Lady Fern pinnae (plural of pinna) are more lacy and soft than those of the Bracken Fern, and Lady Fern stipes occur in clumps whereas Bracken Ferns typically occur as a lone stipe. The ferns you see

growing in Big Leaf Maples are Licorice Ferns. They get their name from the very top part of the rhizome which tastes like licorice. Native Americans used Licorice Fern as a snack and mouth freshener. Deer Fern are a hardy evergreen species. They look a little like a miniature sword ferns, but the pinnae do not have the “sword handle” and each pinna attaches to the rachis all along their base. Non-fertile fronds (no sori) typically lay along the ground and fertile fronds grow upright. Besides growing in the wild, Deer Fern, Sword Fern, and Lady Fern can provide attractive accents to your yard while requiring very little maintenance. Licorice Fern is very difficult to cultivate and Bracken Fern is not very attractive so their use in the garden is limited.

Ferns found in the Lake Wilderness Arboretum

Currently we have 23 different species of ferns growing in and around the arboretum. In the legacy gardens at the east end of the arboretum, you can find an unusual looking fern called a Male Crested Fern (*Dryopteris filix-mas* ‘Cristata’).



Maidenhair Fern

Its pinnae tend to curl up and look a little like little tassels. Also growing in the legacy garden is a Soft Shield Fern (*Polystichum setiferum*).



Soft Shield Fern

This fern, which reminds me a little of a Christmas tree, is also available in our nursery along with 7 other species of ferns. At the west end of the nursery growing in and around the

Rhododendrons is my personal favorite – the Maidenhair fern (*Adiantum pedatum*). Actually, Maidenhair is the common name given to all 200 different species comprising the *Adiantum* genus. The Maidenhair fern found in our Arboretum (*Adiantum pedatum*) is a native to the Pacific Northwest. It is also known as the Northern Maidenhair or the Five Finger fern, its fronds looking like the fingers of a hand. The black stems on most Maidenhair ferns have lacy pinnae and black stems which are especially striking on the Northern Maidenhair.

Using ferns in your landscape

Ferns, which were very popular in Victorian times, are once again regaining favor as attractive additions to local gardens. Rather than hiding them away in an obscure corner of your yard, think about how you can use their graceful shape to accent an existing plant area or serve as the centerpiece of another. You can mix both deciduous and evergreen species in your plantings, and you may also

want to plant some ferns in pots. Using pots allows you to move your plants around for varied looks in your yard and also allows you to bring less hardy ferns outdoors in the summer and then return them indoors in the winter. Ferns typically like some shade and moisture although some ("Sword fern, for example) can do well in sunny areas especially if you water them occasionally. Ferns like soil that is slightly acidic to neutral (pH 6-7).



Rock Polypody – Worth a try?

You don't need "rockwork" with your ferns, although rocks can add eye-catching variations in your garden area. Some ferns need rockwork or some other host (like a tree limb) to grow on. All *Polypodium* ferns are of this nature. As noted earlier, the Licorice fern likes to grow on Big Leaf Maples and large woody debris. Another native that likes to grow on rock outcroppings is the Leathery Polypody (*Polypodium scolopendri*). You can try a mixture of leaf duff and gravel as the growth medium for the Leathery Polypody. You also may want to plant a Rock Polypody fern (*Polypodium virginianum*) in this same

medium. This fern, which is an eastern US native, may present a challenge, but it seems to me to be a little more attractive than the Leathery Polypody. Another truly rock garden candidate is the American rock-brake or Parsley fern (*Cryptogramma acrostichoides*). This Washington native likes to grow in subalpine areas, but will grow at lower elevations.

Several online sites provide good information about ferns. [The Washington Native Plant Society](http://www.wnps.org/landscaping/plantselect.html) (<http://www.wnps.org/landscaping/plantselect.html>) has a list of native ferns and their characteristics, and [Pacific Northwest Native Wildlife Gardening](http://www.tardigrade.org/natives/nurseries.html) (<http://www.tardigrade.org/natives/nurseries.html>) provides a list of native plant nurseries including those that sell native ferns. Finally, Woodslore, a photography site (<http://www.woodslore.org/ferns.htm>), shows pictures of 14 different native ferns. When in doubt, you can't go wrong planting native ferns including those mentioned in this article. On the other hand, you may want to experiment as I noted with non-natives. Remember, you can always hide your mistakes in the compost pile.