

*Elaine Mills, presenter of Common Native Ferns of the Mid-Atlantic*

In response to questions on **planting and landscape use** of ferns:

- Most ferns do best in **acidic to neutral soil** with a pH from 4.0 to 7.0. Maidenhair Fern (*Adiantum pedatum*) and Ebony Spleenwort (*Asplenium platyneuron*) prefer a more **alkaline soil** with a pH of 7.0 to 8.0.
- Ferns, such as Ebony Spleenwort, which can grow in thin soil, can also be planted in **rocky ground, a rock garden, or vertical crevices in walls** with a mixture of [leaf mold](#) and a little loam. The fern crowns can be wedged into position with small stones to hold them firmly so they can bind with the soil and not have their rhizomes exposed. Be aware that walls made of limestone or with lime mortar will be alkaline and may be unsuitable for the acid-loving ferns.
- Shorter ferns, such as Maidenhair Fern (*Adiantum pedatum*) or Christmas Fern (*Polystichum acrostichoides*) could make a nice, neat **ground cover beneath shrubs** in shady garden beds. Ebony Spleenwort is even shorter, but it grows in loose clusters that would not serve well as a ground cover in municipal garden beds.
- Ferns recommended for **riparian habitat** are listed in [“Virginia Riparian Buffer Zones”](#) based on their use in zones 1 (emergent) to 4 (well-drained forest). Cinnamon Fern (*Osmundastrum cinnamomeum*) and Royal Fern (*Osmunda spectabilis*) are slow-spreading, and Marsh Fern (*Thelypteris palustris*) can also spread. Sensitive Fern (*Onoclea sensibilis*) and Virginia Chain Fern (*Woodwardia virginica*) are flagged as being the most aggressive; the former will be most affected by drought.

In response to questions on **dividing, transplanting, and cutting back** ferns:

- As described in the video, ferns that have been established for a year or two can be **divided** in early spring before their fronds unfurl.
- Ferns may need to be divided **every three to five years**, especially if the leaves are smaller than usual or the center of the clump is hollow or dead.
- Newly divided plants should be **transplanted** promptly and watered well to avoid shock.

- The **foliage** of evergreen ferns (Ebony Spleenwort, Marginal Wood Fern, and Christmas Fern) should be **retained** through the winter and only cut back in the spring when new fiddleheads emerge. The **dried fertile fronds** of Ostrich Fern and Sensitive Fern should be **kept** both for winter interest and to allow the spores to be released in the spring. Dead fronds of all other ferns can be cut back in the fall.

In answer to a question on a fern with a **damaged fiddlehead**:

- The fern should still be able to regrow as long as the rhizome and roots are healthy.

On the question of **when ferns would produce sori** (e.g., make spores):

- Our local naturalist believes it would probably depend on the species and the health of the individual plant. He thinks a fern would only produce sori or fertile fronds only when it was mature enough to expend resources on reproduction.

In response to the question regarding **deer resistance** of ferns:

- According to Rutgers University's "[Landscape Plants Rated by Deer Resistance](#)," ferns, as a group, are rarely damaged by deer.

Regarding the **support provided to wildlife** by ferns:

- As mentioned in the video, many of the ferns provide **cover** for small animals such as birds, frogs, toads, lizards, and salamanders.
- Plant parts of Christmas Fern (*Polystichum acrostichoides*) and the soft fuzz from the woolly fiddleheads of Cinnamon Fern (*Osmundastrum cinnamomeum*) are used by birds in **nest construction**.
- A participant shared the information that some species of moths use ferns as **larval host plants**. Further research provides the following examples: (1) The Florida Fern Moth caterpillar feeds on 14 species of ferns including Maidenhair Fern (*Adiantum pedatum*). (2) Sensitive Fern Borer feeds on Sensitive Fern (*Onoclea sensibilis*). (3) Regal Fern Borer uses Royal Fern (*Osmunda spectabilis*) and Cinnamon Fern (*Osmundastrum cinnamomeum*) as host plants.

- Ferns will not provide ecosystem services to pollinators because they are non-flowering and **don't offer nectar or pollen.**

### In response to a question on the **edibility of fiddleheads:**

- Ostrich Fern (*Matteuccia struthiopteris*) is the fern whose fiddleheads are considered the safest to eat. See the bulletin [“Facts on Fiddleheads”](#) for details on preparation and a [blog from the University of Washington](#) Botanic Gardens on possible health risks.
- Fiddleheads of other ferns have been eaten in the past, but they are at least mildly toxic and can cause nausea, dizziness, and headache. Bracken Fern has carcinogenic properties and is toxic to many animals and humans.

### For **identification of ferns:**

- The American Fern Society sponsors the [AFS Fern Forum](#) on Facebook to assist with fern identification. Photos and questions can be posted for the community to consider.
- For use in the field, consider using the [Flora of Virginia app](#) for either Android or iOS devices, which provides both graphic and dichotomous keys.
- **iNaturalist** has a guide to [Ferns of North America](#).
- One participant has found that the **Picture This app** has high accuracy with identifying ferns. Another recommends the paperback guide titled *Fern Finder* by Anne and Barbara Hallowell.

### In response to questions on specific ferns:

- **Ostrich Fern** (*Matteuccia struthiopteris*) is indigenous to Arlington and Fairfax Counties in Northern Virginia and Craig and Wythe Counties in the southwest mountain region of the state.
- **Hay-scented Fern** (*Dennstaedtia punctilobula*), a fast-spreading fern, is considered by some native plant enthusiasts to be a good fern species to compete with invasive plants such as Japanese Stilt Grass, Garlic Mustard, or Smartweed. Foresters, however, express concern that this fern acts as a “native invasive,” spreading aggressively into a monoculture with adverse

effects on the woodland understory. See an [article in \*Biological Invasions\*](#) for details.

- **Bracken Fern** (*Pteridium aquilinum*) is a very aggressive fern species that gardeners might consider planting to compete with invasive plants such as bamboo, kudzu, or porcelainberry. The problem is that the fern itself could become very hard to control. Consider referring to helpful information on direct control options for the invasive plants from [fact sheets](#) compiled by Blue Ridge PRISM and the USDA's [Management Guide for Invasive Plants in Southern Forests](#).

A participant from Charlottesville commented that some volunteer ferns in her garden might be **Maidenhair Spleenwort** (*Asplenium trichomanes*).

- The [North Carolina Extension Plant Toolbox](#) describes this as a dainty but easy-care fern that naturally occurs in shady rock crevices.
- According to the [Digital Atlas of Virginia Flora](#), the *trichomanes* subspecies of this fern is found indigenously in the Mountains and Piedmont of Virginia and favors calcareous (limestone or dolomite) rock outcrops. The *quadrivalens* subspecies is found in seven western Virginia counties on both carbonate and calcareous rock.
- The [Minnesota Wildflowers website](#) has good photos which should help in confirming the identification of the plant.

Gardeners who would like to **grow ferns from spores** can consult:

- [“How to Grow Ferns from Spores,”](#) a blog post from the Brooklyn Botanic Garden.
- [“Growing Ferns from Spores: A Basic Practical Guide”](#) from the British Pteridological Society.
- [“Growing Ferns from Spores”](#) by William Cullina, a recognized authority of native plants and a former propagator at the New England Wild Flower Society.

On the question regarding **invasive ferns**:

- **Japanese Painted Fern** (*Athyrium niponicum* 'Pictum') does not appear on any local (Northern Virginia), state, or national invasive species lists.
- The only official listing for **Autumn Fern** (*Dryopteris erythrosora*) in the [Invasive Plant Atlas of the United States](#) is for the City of Alexandria, Virginia. Jennifer Possley of the Fairchild Tropical Botanical Garden in Florida [reports](#) that “dense stands have been found to be naturalizing in north Georgia, and ... spreading in other states.”
- The [Management Guide for Invasive Plants in Southern Forests](#) states that **Japanese Climbing Fern** (*Lygodium japonicum*), a severe invasive in Florida, “is presently the only widespread nonnative invasive in the temperate parts of the South.”
- According to the USDA, **Feathered Mosquito Fern** (*Azolla pinnata*) is listed as either a noxious weed, prohibited species, an invasive aquatic plant, or a plant pest in Massachusetts, Vermont, Alabama, and North and South Carolina.