

**The Marchen T. Skinner Fern
Collection at the
UVM Horticultural Research Center**

(Located at the south end of
'The Woodland Walk')



The Marchen T. Skinner Fern Collection was transported from Dorset Hollow, Vermont to the UVM Horticultural Research Center in South Burlington, Vermont by Dr. David Barrington in 1997. Single specimens of these woodland fern varieties were installed in their appropriate habitat and labeled by Dr. Barrington. Starting five years later, in 2002, Dr. Barrington; Nancy Simson, fern curator of the "Friends of the Horticulture Farm"; and Mary Mazur, perennial curator, organized a group to develop the collection for display and teaching.

A large limestone rock was moved into place at the site in early May 2004 for the purpose of growing ferns such as maidenhair spleenwort, walking fern and wall rue. The rock is also home to a memorial plaque remembering Marchen T. Skinner, donated by her family.

All the ferns in our flora have underground stems called rhizomes, from which leaves are produced above ground. All of these ferns produce minute spores in spore capsules, some underneath the

leaves and some in clusters away from the flat leaf tissue.

The Skinner garden is unusual in having a number of woodfern hybrids, which were of particular interest to Marchen. These are sterile plants originating through breeding between different species. If you are new to ferns, you may want to concentrate on the non-hybrids to try to get an idea of the basic species, then come back to the hybrids.

1. ***Onoclea sensibilis* – the sensitive fern**

Sensitive fern is our weed: we have removed hundreds of rhizomes from the Skinner garden. It has distinctive spore-producing leaves that look like beads on a stalk, which last through the winter and open to release spores in early spring. The leaves are not even once-cut, and their veins form a network (contrast with the osmundas, which have forking veins).

2. ***Dryopteris goldiana* – Goldies' woodfern**

Goldie's fern is a great favorite, because it is so big and graceful. It is the first of the many woodferns in the collection—this was Marchen Skinner's favorite group. All woodferns have leaves arranged in a circle with chaffy scales common on the stipe (leafstalk). This wood fern is distinctive because its leaftips are so blunt-tipped and its scales are dark-centered. It's the largest of the woodferns.

3. *Osmunda claytoniana* -
interrupted fern

All three Vermont osmundas are in the Skinner garden. They are the most primitive ferns in our flora—their lineage is known to be at least 250 million years old, older than the oldest dinosaurs. They are true living fossils, unlike all the rest of the ferns in the collection, which are relative new comers.

All osmundas have leaves growing in rings and stipes with golden hairs. Their spore capsules are borne in clusters, not under leaves. In the Skinner Garden, which is shady, the osmundas often do not produce spores at all. The interrupted fern has spore clusters in place of the central leaflets of the frond.

4. *Osmunda cinnamomea* – the
cinnamon fern

The cinnamon fern has its clusters of spore capsules all over a completely separate leaf. Telling cinnamon fern from interrupted fern is tough – but the cinnamon fern has “hairy armpits” – little tufts of white hair at the base of each leaflet underneath.

5. *Dryopteris filix-mas* – male fern
(horticultural variant)

The male fern is one of the woodferns. This is the first of a large array of male ferns in the Skinner collection—this species was Marchen's special favorite. The male fern is quite rare in the wild in Vermont, perhaps growing at six places. A large and handsome fern with blue-green foliage, it is popular as a cultivated fern. The

horticultural variants are oddities first found in nature that maintain their unique features in the garden.

6. **HYBRID: *Dryopteris filix-mas*
× *D. marginalis* – the Vermont
fern**

7. *Athyrium filix-femina* – the lady
fern

The ladyfern is one of our most common ferns; new plants appear spontaneously here in the Skinner garden. The ladyfern has a short-creeping rhizome and leaves that tend to cluster. The scales are often black, and the frond is very lacy (thrice-cut).

8. *Dryopteris filix-mas* – the male
fern

9. *Dryopteris filix-mas* – male fern
cultivar

10. *Dryopteris filix-mas* – male fern
cultivar

11. *Dryopteris campyloptera* -
mountain woodfern

The mountain woodfern grows commonly above 2500 feet on the slopes of Vermont mountains, so the habitat here at the Horticultural Farm is too warm for this species. It is a typical woodfern with leaves in circles and many papery scales on the stipes. It is very lacy, and has a broader leaf than any of the other woodferns except for Goldie's woodfern.

12. ***Polystichum braunii* – Braun’s hollyfern**

The hollyferns are much like woodferns, except that they have “ears” – one side of the leaflet base is much wider than the other. The Braun’s hollyfern is fairly common above about 2000 feet in Vermont on talus in the forest. This species grows through the northern forests of the world.

13. **HYBRID: *Dryopteris carthusiana* × *D. cristata***

14. **HYBRID: *Dryopteris clintoniana* × *D. intermedia***

15. ***Dryopteris clintoniana* – Clinton’s woodfern**

Clinton’s woodfern is a common woodfern in the swamps of the Champlain Valley; it is a tall, narrow fern, but not very lacy (it’s twice-cut, not thrice-cut like intermediate woodfern). It is actually a fertile hybrid, having originated in a cross between crested woodfern and Goldie’s fern; it has inherited the dark stipe scales of Goldie’s fern, but crested fern’s influence makes it a fairly narrow species.

16. ***Diplazium pycnocarpon*-narrow-leaved glade fern**

This fern is one of the most delicate-leaved in the flora, and it is very fussy about habitat, occurring in the soil deposits that collect on hillsides in rich woods in the western part of the state. Like all the glade ferns it has elongate sori with a flap-like indusium.

17. **HYBRID: *Dryopteris carthusiana* × *D. intermedia***

18. **HYBRID: *Dryopteris cristata* × *D. marginalis* – Slosson’s woodfern**

19. ***Dryopteris marginalis* forma *elegans* – marginal woodfern variant**

Marginal woodfern is the commonest twice-cut woodfern in our flora. It grows at most elevations and enjoys various soil chemistries. It prefers to grow on rocks, and it is rarely found in swamps. Marginal woodfern is distinctive in having its sori (collections of spore capsules) near the edge of the leaf segments underneath.

20. ***Dryopteris intermedia*-intermediate woodfern**

This is probably the most common of the woodferns; it grows throughout the state in various forest types at every elevation up to about 2500 feet. One of the smaller woodferns, it is the laciest in the flora, being thrice-cut, and it is evergreen. Found naturally at the Horticultural Farm, it makes a great shade ornamental.

21. ***Polystichum acrostichoides* – Christmas fern**

Christmas fern is well-known to gardeners, being easy to find (it’s quite common) and a handsome addition to shady parts of the perennial garden. It is distinctive in having once-cut leaves that are of two kinds, upright fertile leaves and spreading non-fertile leaves.

22. *Osmunda cinnamomea* -
cinnamon fern

23. *Polystichum acrostichoides* –
Christmas fern, crested form

Christmas fern is unusually good at producing odd leaf variants of various sorts. Marchen was interested in these variants, so we have several different ones from her garden.

24. *Thelypteris noveboracensis* -
New York fern

This fern has a leaf shaped like a canoe, and its color tends towards yellow green. It's quite common, especially in open woodlands, throughout Vermont. Its closest relative is the marsh fern, followed by the beech ferns.

25. *Equisetum arvense* – **the field horsetail**

The horsetails, though they look so different, are the closest allies of the ferns. This is the most common species in Vermont; it especially loves road edges, river banks, and railroad gravel. First thing in the spring, it produces a separate brown stem that makes green spores in a cone at the top. These peculiar plants depend mostly on stems to gather sunlight; the leaves are tiny blackish things in whorls. The plants are also famous for being full of silica, which makes them very difficult for anything to eat.

26. *Osmunda regalis* – **the royal fern**

This large beautiful fern is adapted to very wet habitats; it usually grows standing in water. The leaf design is

big, bold, and unmistakable. The royal fern is also distinctive because its unfolding leaves are a beautiful wine color. Like the cinnamon fern and interrupted fern, it is part of a very ancient alliance of ferns.

27. *Pteridium aquilinum* – **bracken**

This is a fern everyone seems to know. It is very successful, often becoming a weed in perennial gardens, but it almost never produces spores – so its success is largely through the spreading of its deeply buried rhizome.

28. *Matteucia struthiopteris* – **ostrich fern**

The ostrich fern grows naturally in the inundated woodlands along our rivers, under the shade of trees like silver maple. It is the largest Vermont fern, and its circle of large, twice-cut fronds is covered with large chaffy scales before the leaves unroll. Like sensitive fern, ostrich fern has two kinds of leaves; the fertile leaves are smaller and produced later in the summer. These fertile leaves persist through the winter and release spores in the early spring. Well-known as the source of fiddleheads, it is harvested in large quantities from natural populations each April. This fern is an unusually good addition as backdrop to a shady perennial garden.

29. *Dryopteris marginalis* – marginal woodfern

Like all the woodferns, this is a big, handsome species with plenty of brown scales on the petioles. This one has a distinctive blue-green color, and it is not as lacy as the most common of the woodferns, intermediate woodfern. The sori on this fern are near the edge of the leaf underneath, hence the name.

30. *Dennstaedtia punctilobula* – hayscented fern.

The hayscented fern smells very pleasant when rubbed, perhaps not like hay, but nice. It is a real weed in places, taking over gardens and forest edges. It is distinctive for its long-pointed very lacy leaves with no scales at all.

31. *Phegopteris connectilis* - long beech fern

This attractive fern has distinctive bottom leaflets that point away from the rest of the leaf to make a double tail. It's especially common at higher elevations in Vermont, where it loves the wet mossy rocks in the upper forests. Its closest ally in our collection is the New York fern.

32. *Adiantum pedatum*

The maidenhair fern is a great favorite because of its graceful form and distinctive chestnut stalks. More at home on the thin soils of limy talus slopes, it nevertheless does well here in cultivation.

33. *Dryopteris filix-mas*

34. **HYBRID:** *Dryopteris goldiana* × *D. marginalis*

35. **HYBRID:** *Dryopteris clintoniana* × *D. Goldiana*

36. **HYBRID:** *Dryopteris clintoniana* × *D. Goldiana*

37. *Dryopteris goldiana*

38. *Osmunda regalis* – the royal fern

The royal fern is the third of the osmundas in the Skinner collection. It is distinctive in being fully twice-cut with long subleaflets, unlike cinnamon fern and interrupted fern. In the spring, this species has a handsome reddish tinge to its young foliage.

39. *Mitchella repens* – the partridge berry

Just in case you want to know the name of the commonest herb in the garden, here it is. Partridge berry is a member of the coffee family; it flowers in early summer, then produces red fruits, each produced from a pair of flowers and so having the scars of both flowers on one fruit. These berries are toxic; they act on smooth muscle, causing contractions. Hence the other common name, *squawvine*.

40. *Thelypteris palustris* – marsh fern

The marsh fern is happiest in full sun at the edges of ponds and slow moving waterways—it has a distinctive yellow-green color and the pinnules of its fertile leaves are strongly rolled up. This species in its various forms is found throughout the world.

41. **HYBRID:** *Dryopteris intermedia* *D. cristata* — Boott's fern

This is the most common hybrid wood fern in Vermont, and the most variable. It may be partially fertile, unlike most hybrids.

42. West side of stone: **Polypodium virginianum** — common polypody

The polypodies are the most common ferns found on rocks in Vermont – there are two species, each specializing in different climate and rock chemistry. This one is commoner on lime-containing rocks from lower elevations.

43. East side of stone: *Asplenium platyneuron* — ebony spleenwort

This is the largest of the spleenworts, all of which are small rock lovers. This one is distinctive in having erect fertile leaves and spreading sterile leaves.

44. South side of stone: *Asplenium trichomanes* — maidenhair spleenwort

The maidenhair spleenwort is among the smallest ferns in our flora. Most of the populations are to be found on limy rocks in shade in the Champlain valley – it is common near Burlington.