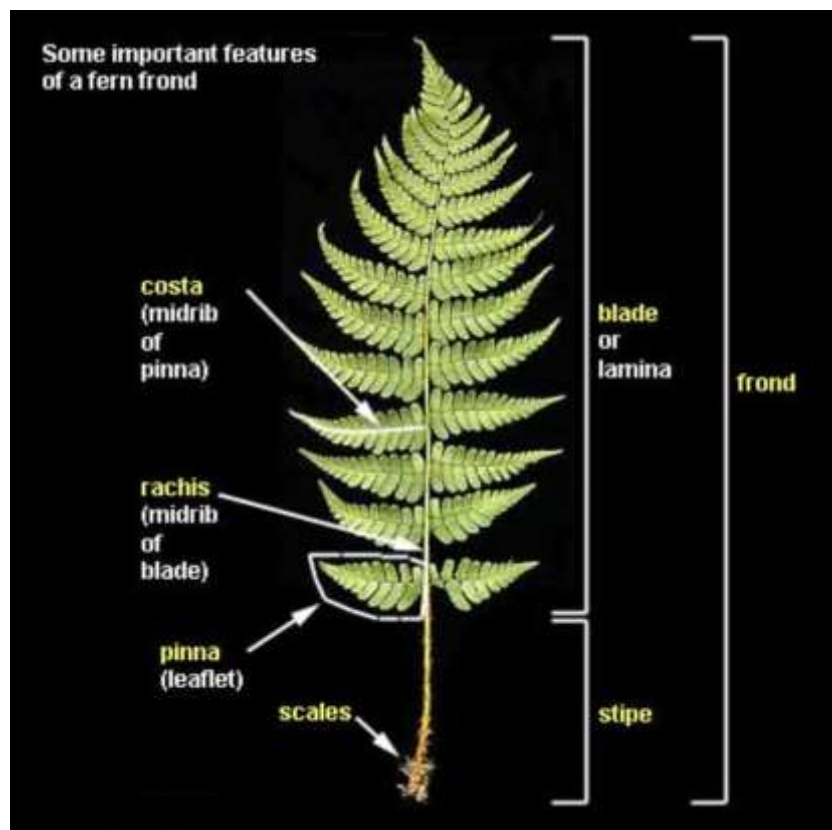


KBG Fern Training Day
Kirkbean Glen 19th July 2023

We were lucky enough to have two members of the British Pteridological Society join us for the day: Alison Evans and Roger Golding. Alison is studying the *Dryopteris affinis* group for a PhD and both she and Roger had been on a trip around Scotland locating specimens.

This account includes my own notes and photos from the day. Those wishing to check the features of these ferns are recommended to consult James Merryweather's excellent book 'Britain's Ferns', Wildguides, Princeton University Press, 2020.

The diagram below shows the names of the parts of a fern as used in this account.



The group gathered at Kirkbean Village Hall and walked the short distance to the Glen, pausing on the way to look at several species of *Asplenium*. Both Maidenhair Spleenwort *A. trichomanes* and Wall-rue *A. ruta-muraria* were found on the roadside walls as well as Hart's-tongue *A. scolopendrium*. Our first challenge was a Shield-fern *Polystichum* sp. The pinnules of this example were

shaped like a mitten with a prominent and separate 'thumb' and a distinct stalk linking them to the costa (midrib of the pinna). The two sides of the base of the pinnule made an obtuse angle and so this was Soft Shield-fern *P. setiferum*. The base of the overall frond is broad and the fern has a soft texture.



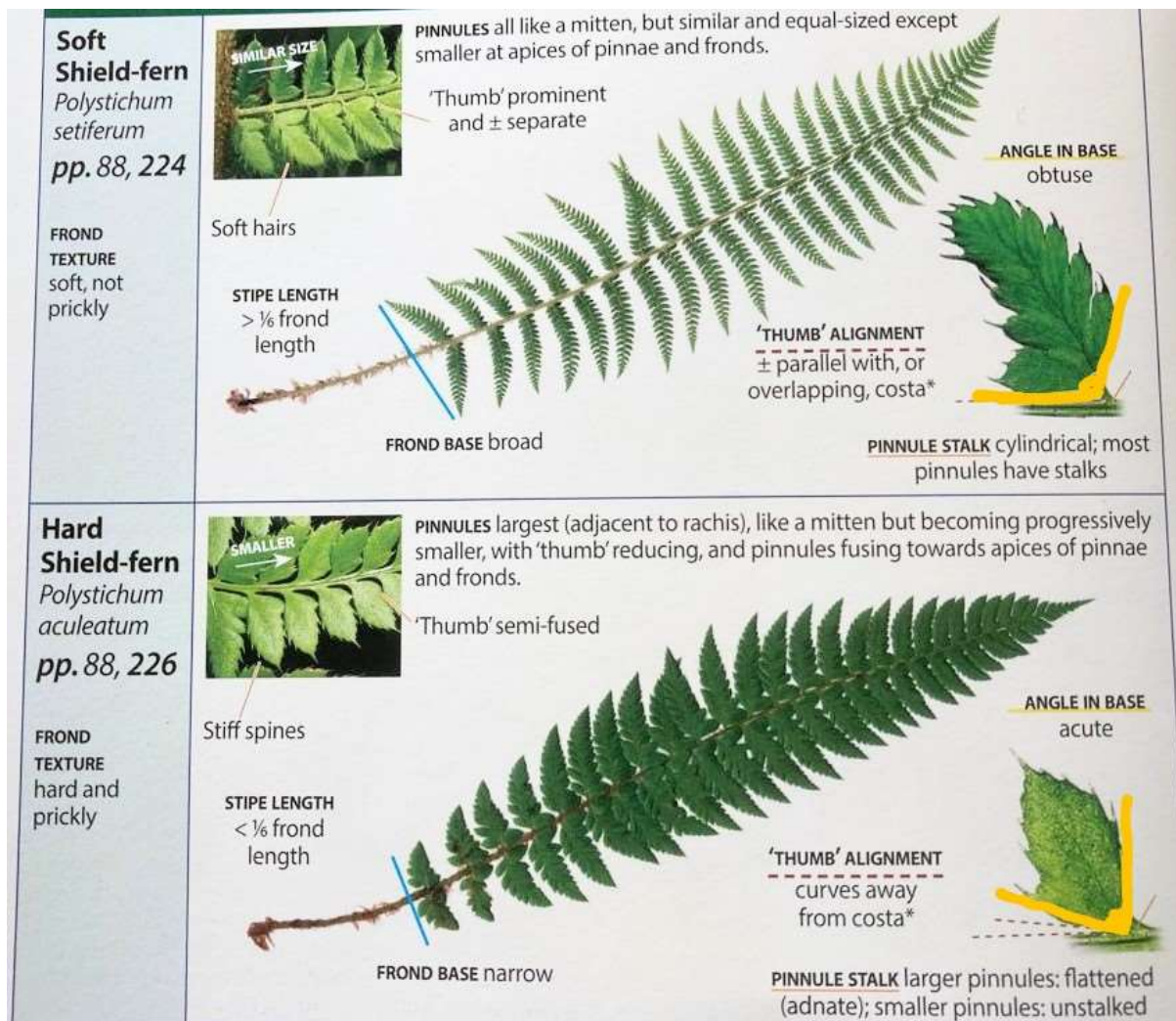
The confusion species is Hard Shield-fern *P. aculeatum*, the pinnules of which become less mitten-shaped towards the apices of the pinna and frond, and the angle of the base of the pinnule is acute. The frond overall has a narrow base, a shorter stipe and a harder, more prickly texture. We didn't find *P. aculeatum* at this meeting – possibly because it prefers a more calcareous substrate.

Ken has suggested a very useful way of remembering the difference between the two Shield-ferns:

Soft = S.O. = Soft Obtuse

Hard = H.A.= Hard Acute

NB Watch out for an error in Merryweather p.88 where the labelling of the species is reversed in the first printing of the book; in the more recent printing, the same illustration is on p.86 and the labelling has been corrected! There is, however, a particularly useful illustration on p.42 of both editions which is reproduced below.



The hybrid between the two Shield-ferns, *x bicknellii*, is especially large and has intermediate characters.

We then saw Lady Fern *Athyrium filix-femina*, out of reach in a garden, but recognizable even at a distance from its frilly, delicate-looking fronds which have serrated pinnules. Later, when we were able to look more closely, the sori underneath the leaf are J-shaped.

Reaching the main road, Roger took us a short way along to a lay-by where he had previously found some Polypody ferns. Under the watchful eye of a group of rather frisky cattle, we inspected Common Polypody *Polypodium vulgare* with a narrow, lanceolate outline to the frond and round sori. A little further along was Intermediate Polypody *P. interjectum* with a broader more triangular frond, more pointed pinnae and oval sori. We didn't find the third species, Southern Polypody *P. cambricum*, which prefers a more calcareous substrate and occurs on the coast locally. The hybrid *x mantoniae* is a common hybrid

between *interjectum* and *vulgare* and can apparently be detected by looking for 'bad' spores.



Also on the roadside we saw Common Male-fern *Dryopteris filix-mas* with its kidney-shaped indusia. When growing in the light like this, the fronds are more upright and leathery.

As we entered the Glen, we began to find specimens of the rather tricky Scaly Male-fern group *Dryopteris affinis* agg. This group is apomictic like *Taraxacum* and *Rubus* (they reproduce asexually due to their polyploidy, leading to the production of microspecies). As a result, their taxonomy is still under investigation. There are however only three common species: *D. affinis*, *D. borrieri* and *D. cambrensis*. All of these Scaly Male-ferns are bipinnate and have a dark spot underneath the frond where each pinna joins the rachis. (See Merryweather p.234 or 238 for comparative ID features.) The first species we found was *Dryopteris affinis*, the Golden Scaly Male-fern. This has a glossy surface and the rachis has dense golden-brown scales. The teeth on the rounded tip of the pinnule are inconspicuous and blunt, and when held up to the light the veins in the pinnule are clear and distinct from underneath. The lowest basicopic pinnule is attached to the costa in the majority of specimens and the basal pinnules are about the same length as the others on the pinna.



To compare with it, the next specimen was *Dropteris borrieri*, Borrer's Scaly Male-fern. This is usually less glossy, more delicate and less scaly than *affinis* with pinnules truncated at the tip and prominent teeth at the corners of the pinnules. Extreme forms are called 'Cat's Ears'. When a pinna is held up against the light, the veins are much less distinct and the lowest basiscopic pinnule is detached and stalked. Forma '*foliosum*' has very uneven foliage and can get very big.

The third type of Scaly Male-fern is Narrow Scaly Male-fern *Dryopteris cambrensis* which has rather crispy turned-up pinnules, which tend to be crinkly and uneven, with the pinnules adjacent to the rachis usually markedly longer than the others.

The indusia of the three species are usually a good guide: in *affinis* they lift and split and are turned under; in *borrieri* they look like tiny chanterelle mushrooms while those of *cambrensis* are somewhat in between. By comparison, the indusia of *felix-mas* are big and flat like soup plates, often overlapping.



Other ferns we encountered were a few fronds of Oak Fern *Gymnocarpium dryopteris* and Hard Fern *Blechnum spicant*. (*Blechnum spicant* is called *Struthiopteris spicant* in Merryweather.)

At the top of the Glen, on the south side where the ground begins to flatten out, we found our first rarity: *Dryopteris pseudocomplexa*, a fertile tetraploid which has also been found on Arran, Islay and in Eskdale, Cumbria. (In the books it is sometimes called *D.cambrensis* subsp. *pseudocomplexa*.) However, recognizing it is something of a challenge as apparently it is distinguished by its lack of any particularly striking feature! It's not very glossy, not very scaly, not very toothed, with long narrow pinnules and somewhat untidy-looking.



Just a little further on is the colony of *D. pseudodisjuncta* with about a dozen plants in all. This has more distinctive characteristics, notably a wedge-shaped, conical pinnule nearest to the rachis, which looks somewhat lop-sided. Underneath, the indusia appear to have a dark centre where they are hollowed and shaded.





Indusia of *D. pseudodisjuncta*

Another species, *D. lacunosa*, rather resembles *borreri* and has big rectangular lobes with lots of double teeth. The dark spot where the pinna meets the rachis 'bleeds' along the costa.



Dryopteris lacunosa



Dryopteris lacunosa

We finished by walking into the bottom of the gorge upstream of the lower bridge, where we found two other specimens of *D. pseudocomplexa* which had not been previously recorded.

This was a fascinating day and we were extremely lucky to have the guidance and expertise of our two guests. Alison expressed the view that Kirkbean Glen is an exceptional place in having two such very rare ferns which have not been found elsewhere locally. The challenge will now be to look more carefully at ferns in the future and see what we can find ourselves!



Sarah White 25th July 2023