

SOMERSET RARE PLANTS GROUP

Recording all plants growing wild in Somerset, not just the rarities



Meeting Report



A hybrid fern new to Priddy Mineries: *Dryopteris x deweveri*. Photo: Helena Crouch

Sunday 5th September 2021 Fern Workshop at Priddy Mineries and Stockhill (VC6)

Leaders: Helena Crouch and Fred Rumsey

Report: Helena Crouch and Fred Rumsey

On a misty Mendip morning, twelve members assembled by the car park at Stockhill for the SRPG Fern Workshop. After running through the plan for the day and the likely risks, the leaders began by explaining the difficulties of fern identification. In the absence of flowers, identification relies heavily on vegetative characters, so time was spent explaining terminology and useful features, in particular the different degrees of frond division. With the aid of specimens from Helena's garden, common pitfalls in fern identification were discussed: particularly the importance of studying a mature specimen, and the incredible variation which some species exhibit, which makes them such

interesting garden plants yet maddeningly difficult to identify! We also looked at available field guides, and distributed handouts listing ferns of Somerset and those species to be seen on the day.



SRPG pteridologists assembling at Stockhill for the Fern Workshop. Photo: Graham Lavender

We set off to spend the morning at Priddy Mineries. Our first stop was the site of Moonwort (*Botrychium lunaria*), sadly no longer visible in September. This rare plant, Vulnerable on the England Red List, grows here on a large tump of mining spoil, evidence of the site's past industrial importance for the mining of lead. Two lead-tolerant plants were flowering on the tump: Spring Sandwort (*Sabulina verna*) and Sea Campion (*Silene uniflora*), both species with very interesting distributions in Somerset. Walking out along the Monarch's Way, we began to see Male Fern (*Dryopteris filix-mas*) and Lady Fern (*Athyrium filix-femina*), although we were distracted by a short visit to a linear slag heap to see another lead tolerant species, Alpine Penny-cress (*Noccaea caerulescens*). Nearby, we stopped to study the differences between Broad Buckler-fern (*Dryopteris dilatata*) and Narrow Buckler-fern (*D. carthusiana*).

Continuing along the Monarch's Way, reinforcing identification of these four ferns, we paused by the pool to admire vast swathes of Water Horsetail (*Equisetum fluviatile*) and to study the Broad-leaved Pondweed (*Potamogeton natans*), with its brown "hinge" between petiole and leaf lamina. Our destination was the derelict buildings of St Cuthbert's Leadworks, where six species of fern grow on walls: three in the photo below and also Wall-rue (*Asplenium ruta-muraria*), the common



Three species of *Asplenium* together on a wall: Rustyback (*A. ceterach*), Maidenhair Spleenwort (*A. trichomanes* subsp. *quadrivalens*) and Black Spleenwort (*A. adiantum-nigrum*). Photo: Helena Crouch.

Intermediate Polypody (*Polypodium interjectum*), and many plants of Brittle Bladder-fern (*Cystopteris fragilis*), which in VC6 is almost restricted to the Mendips.



Brittle Bladder-fern on a derelict wall at Priddy Mineries. Photo: Will Eden.

Two members had to leave, but the remaining group had lunch beside Harebells amongst the ruins of the leadworks, then viewed the piles of slag, now mostly colonised by plants, before heading back towards Stockhill. A unanimous decision was made to detour up the hillside, through treacherous Purple Moor-grass (*Molinia caerulea*) to see Limestone Fern (*Gymnocarpium robertianum*) on the remaining stonework of a flue of the Chewton Minery.



Limestone Fern at Priddy Mineries. Photo: Helena Crouch

Returning carefully down the hillside, looking at the many Buckler-ferns on the way, Fred and others spotted plants with broad, relatively flat fronds, yet with pale scales on the rachis. A frond was collected: later microscopic examination revealed that the spores were mis-shapen, confirming it as *Dryopteris x deweveri*, the hybrid between Broad Buckler-fern and Narrow Buckler-fern (see photo above), new to the hectad.

The day had turned hot and sunny, so we were glad to return to the woods of Stockhill for the afternoon session. Following a small path through the plantation, Broad Buckler-fern and Lady Fern were the dominant species, along with Bracken (*Pteridium aquilinum*) in places, but we soon found Hart's-tongue (*Asplenium scolopendrium*) and Soft Shield-fern (*Polystichum setiferum*). Bravely, we began to look closely at species in the *Dryopteris affinis* Complex – the Scaly Male-ferns.

Fred explained that many of our commonest ferns have evolved through a two-step process. Firstly, hybridisation may occur, resulting in a vigorous but typically sterile plant. In time, errors during the processes of cell division may then result in the production of plants which have double the number of chromosomes, and are fertile. As the parents of a hybrid are often closely related and similar, it is not surprising that the new **polyploid** species may be difficult to separate from the parents of the original hybrid. Some of the ferns which cause the most difficulties in identification have, however, arisen through a different method. Following initial hybridisation, they have developed a different non-sexual means to reproduce which still involves the production of spores. The Scaly Male-ferns exemplify this strategy, known as **apogamy**, a form of **apomixis**. These plants, unusually, produce spores which have the same number of chromosomes as the plant which shed them, instead of having only half the number, as is typical in sexual species. On germination these develop into gametophytes in the normal way, but although they bear the sexual organs the female parts are non-functional. The surrounding cells still give rise to a mature sporophyte fern plant. The fact that they have functional male parts means that they can still hybridise with sexual species and any such hybrids are then also able to reproduce apogamously. In this way the *Dryopteris affinis* complex has developed, with further forms arising through mutations also being perpetuated by this strategy.

We stopped to examine Borrer's Scaly Male-fern (*D. borrieri*), the commonest Scaly Male-fern in many areas. It is similar to Male-fern in stature, with thin stipes bearing pale scales, and fronds with the lowest pinnae being relatively long. The pinnules are typically square topped with acute teeth. We examined the indusia, which flare up as they ripen, to look like small Chanterelle mushrooms, or inside-out umbrellas! Next we found the relatively rare Narrow Scaly Male-fern (*D. cambrensis*), distinguished by its boat-shaped pinnae, dense dark, cinnamon-coloured scales on the rachis and indusia like mushrooms (or umbrellas) with thin edges.



Studying a Narrow Scaly Male-fern. Photo: Helena Crouch

In Somerset, the most frequent of this group is Golden Scaly Male-fern (*D. affinis*), but at Stockhill these are uncommon and usually stunted by the toxic lead-rich soils. We did eventually find some splendid specimens, with glossy sword-shaped fronds, thick stipes with dense golden scales, and indusia which look like sturdy umbrellas.

The exhausting heat caused another member to turn back, but others were retained with the promise of Lemon-scented Fern (*Oreopteris limbosperma*), and were not disappointed. We found several beautiful plants beside a broad ride. The rachis of this species is strikingly yellow; the whole frond is a pale yellow-green. The pinnae are distinctively much reduced in size towards the base of the frond, a feature distinguishing this from all other native species, and shared with Ostrich Fern (*Matteuccia struthiopteris*, later seen by some in Helena's garden.



Sori of Lemon-scented Fern. Photo: Will Eden

The sori of Lemon-scented Fern are distinctively arranged around the edges of the pinnules and the indusia shrivel early. The young fronds bear yellow stalked glands, which produce the lemon scent, and the unfurling fronds are covered with silvery scales and have a spiky appearance. This is a fern of damp acidic soils, and although not uncommon on Exmoor, the Quantocks or the Blackdowns, in VC6 it has a very restricted distribution and is Scarce, found on the acidic parts of the Mendips and on the Lower Greensand of the far eastern edge.



The yellow rhachis of Lemon-scented Fern. Photo: Karen Andrews

Two more members turned back, but the remaining seven had more ferns to see, although for a while we were completely distracted by some young lizards! Under trees we finally saw Hard-fern (*Blechnum spicant*) growing splendidly on the edges of ditches. A large patch of Bog Pondweed (*Potamogeton polygonifolius*) was growing in a ditch: we were able to compare this with the Broad-leaved Pondweed seen earlier. Beside ditches, we saw Lesser Skullcap (*Scutellaria minor*) in flower and we admired carpets of Fringed Bog-moss (*Sphagnum fimbriatum*). The final fern of the day was another Scaly Male-fern. On the pre-walk, the leaders had found some very beautiful examples of *Dryopteris paleaceolobata*. This is an extremely neat fern with glossy fronds and pinnules with distinctively crimped edges, neatly twisted and curving away from the rachis.



The neat, crimped, twisted pinnules of *Dryopteris paleaceolobata*. Photo: Helena Crouch

During the day, we had seen twenty species of fern and found a hybrid new to the hectad. The remaining hot weary participants made their way back to the car park, and three members joined the leaders for tea and cake in Helena's garden.