WILTSHIRE (Leader: Nick Hards) – 9-10 June **Paul Ripley (Saturday) & Pat Acock (Sunday)**

This meeting was centred at Upavon near the Vale of Pewsey, an area new to me and, I'm sure, to many of us.

Seventeen members assembled about ten miles north-east of Upavon at St Katharine's Church (41/252649). We found *Asplenium ruta-muraria*, *A. scolopendrium* and *A. adiantum-nigrum* growing on the walls of the church and adjacent ha-ha, before moving off to explore woodland near London Ride, Bedwyn Common, an outlier of Savernake Forest. Here we found *Dryopteris filix-mas*, *D. dilatata*, *D. carthusiana*, *D. affinis* and *D. borreri* (there was some discussion on whether this was morphotype 'insolens'), *Athyrium filix-femina*, *Blechnum spicant*, *Polypodium interjectum*, *Polystichum setiferum* and of course *Pteridium aquilinum*. London Ride is one of the last places in Wiltshire that *Oreopteris limbosperma* was seen, but sadly we did not re-find it.

Our leader had organised a sandwich lunch at the Royal Oak, Wootton Rivers, close to the Kennet and Avon canal, which here runs near to the embryonic River Avon. On the canal bank we found *Equisetum arvense* and *E. palustre*, and there was *Asplenium ruta-muraria* on the walls of a lock. In the marshy woodland by the river (41/185621 to 190623), *Dryopteris filix-mas*, *D. dilatata*, *D. carthusiana*, *D. borreri*, *D. affinis*, *Athyrium filix-femina*, *Polypodium interjectum*, *Polystichum setiferum*, *Pteridium aquilinum* and *Asplenium scolopendrium* (by an old sluice) were seen.

photo: A.M. Paul

Paul Ripley, Pat Acock & Roger Golding looking for *Equisetum* hybrids at Jones's Mill NR

photo: B.D. Smith

Alison Paul, Eleanor Hards, Howard Matthews, Alison Evans, Brian Dockerill & Pat Acock admire *Dryopteris cambrensis* in West Woods

We then moved to Jones's Mill Nature Reserve (Wiltshire Wildlife Trust; 41/165610 to 175615), which comprises hay meadows, alder carr and water meadows. The water level is controlled and vegetation managed principally by cattle grazing (Belted Galloways). In the water meadows we saw *Dryopteris filix-mas*, *D. dilatata*, *D. borreri*, *Polystichum setiferum* (by the track bank), *Equisetum arvense*, *E. telmateia*, *E. fluviatile* and *E. palustre*; unfortunately no hybrid horsetails were found. In the alder carr *E. telmateia* was extremely abundant, but also present were *D. dilatata*, *D. carthusiana* and *D. filix-mas* (the latter two sparse) and a lovely plant of *D. borreri*. *Asplenium scolopendrium* was growing in the mortar of a sluice on the River Avon.

We ended the evening in traditional fashion with a meal at the Antelope in Upavon, where we raised a glass to the memory of Jimmy Dyce, and to Graham Ackers, so sadly and recently departed. Apart from his herculean work for the Society, Graham was a regular attender of BPS meetings and his presence is sadly missed.

Sunday morning was bright but overcast as 16 of us met up four miles north of Pewsey at Clatford Park Farm (41/1647.6609), where on a wall we found the three spleenworts *A. trichomanes* subsp. *quadrivalens*, *A. adiantum-nigrum* and *A. ceterach* – surprisingly the crenate form. Slightly further north of Clatford Bottom we entered the north-east corner of West Woods (41/1618.6666), one of those glorious beech woods noted for is bluebells; it is also noted for its ancient barrows, including one long barrow. We found large areas covered in ferns and these varied immensely from location to location. Rising on to a plateau we found large quantities of *Dryopteris carthusiana* but despite much *D. dilatata* only one possible hybrid was seen. A strange lady fern caught a few out – it had very little cutting in the pinnules, making it look rather like *Dryopteris cristata*. Not much further on, eagle-eyed Roger Golding spotted from a hundred yards distance a rarity for this part of the country, *Dryopteris cambrensis* with a few crowns; one other plant was found on the banks of the Wansdyke. Besides the more common woodland ferns we were able to add *Blechnum spicant*, *Polystichum aculeatum* and *Polypodium interjectum*. After three hours in the woods we made our way to *The Bell on the Common* at Broughton Gifford, where our leader had laid on sandwiches.

photo: B.D. Smith

Great Chalfield Manor

Gill Smith, Tina Matthews, Sharon Pilkington (*at back*), Nick Hards, Brian & Sue Dockerill & Roger Golding looking at ferns in the well

After lunch we visited the nearby National Trust property Great Chalfield Manor (31/860632). Later in the afternoon we met the resident of the house and president of the Wiltshire Wildlife Trust, Robert Floyd, whose father was the renowned botanist Charles Floyd FLS. The Wiltshire vice-county recorder, Sharon Pilkington, joined us to explore the grounds. We saw *Polypodium interjectum* on a roof and also on the bridge below the gardens. A few ferns had been planted near the lake, including two different *Polystichum setiferum* cultivars and *Matteuccia struthiopteris*. Of greater interest was the collection of ferns down the well. Predictably there was *Asplenium scolopendrium* and *A. trichomanes* subsp. *quadrivalens*, but there was also *Cystopteris fragilis* and *Gymnocarpium robertianum*. *C. fragilis* is now very rare in the vice-county whilst there are no other recent records for *G. robertianum*. On the church wall we found more *Asplenium trichomanes* subsp. *quadrivalens*, and *A. ceterach*, once again the crenate variety.

photo: A.M. Paul

***Gymnocarpium robertianum* in well at Great Chalfield Manor**

Moving rapidly onwards we drove a short distance to The Courts Garden in Holt village, also National Trust. The onset of rain encouraged a few of us to go straight to the tearooms for a sumptuous cream tea. In the delightful gardens there were very interesting fruit and nut trees with other areas of the garden containing really unusual trees including *Fagus sylvatica* 'Asplenifolia' (fern-leaved beech). The fern border was a little disappointing, having mainly *Dryopteris filix-mas* and *Polystichum setiferum*, but by the tearooms there was *Blechnum chilense*, *Dryopteris erythrosora* and *Polystichum munitum*. Further over around the far side of a small lake there was *Matteuccia struthiopteris*, a few British fern cultivars and *Equisetum arvense*. Also present nearby were *Osmunda regalis*, *Onoclea sensibilis* and *Polypodium vulgare*, plus various cultivars including the Cornish polypody (probably *P.* × *mantoniae* 'Cornubiense') and several crested male and lady ferns.

With the onset of further rain, people dispersed before we could gather together to congratulate and thank Nick and Eleanor Hards for a most splendid and well researched weekend during which 23 native taxa were seen in the wild. It was enjoyed by all and had such a variety of habitats, with ferns growing in the most ideal conditions, possibly because of the very wet spring; I have seldom seen such large perfect specimens. Combined with the excellent company, this made it another fern weekend to remember.

GERMANY & AUSTRIA – 5-14 July

Introduction **Pat Acock**

Six of us arrived in Berchtesgaden, Bavaria, on the 4th July and spent the afternoon exploring the wooded slopes above Ramsau. The coolness of the forest was in stark relief to the heat within our holiday village. Later on, awaiting dinner on the sunny terrace, we met up with our leader for the next eleven days, Rolf Thiemann. Rolf had been a little disappointed that I had not been able to accompany him on the GEP Austrian meeting a few years before and kindly offered to run a BPS trip to include Germany and Austria. He had arrived a few days earlier to work out the best arrangement of the days, visiting places he has walked throughout his life.

The next day, while waiting for the rest of the party to arrive, we decided to go with Rolf up into the mountains by cable-car. This turned out to be a most profitable day and also familiarised us with the weather pattern – the day started sunny and hot but later on a thunderstorm developed. Up in the alpine meadows the flowers were simply stunning, with many rare orchids. We soon saw relative rarities for us, such as *Polystichum lonchitis* and *Gymnocarpium robertianum*, and then one for Rolf to get excited about, a patch of *Botrychium lunaria*. On our way down, Martin Rickard found a cultivar, a very choice *Polystichum lonchitis.* Whilst Roger and I were trying to photograph sweeps of *Cystopteris montana* interlaced with *C. alpina*, the others were rushing to descend the mountain as thunder could be heard. We eventually found them sheltering in the cowshed discussing the next few days' weather with the farmer. Back at the hotel we met up with the rest of the party, who had travelled from Britain, Austria, France and Switzerland.

Friday 6th – Ramsau & Taubensee, Germany **Barry Colville**

After breakfast we went in five cars to the car park (47°36´24.5˝N, 12°53´15.8˝E) at the west edge of Ramsau and joined the Mühlsteinweg. We walked on a good level track to the west, mainly through pine forest with a variable width of mixed forest alongside the path. Birch, oak, sycamore and hazel were the most common trees. The more open parts had a rich understorey, which was the best place to see ferns, orchids and very many other plants.

Around 11a.m. we moved a short distance to Taubensee and were starting another walk when Rolf rightly judged that the weather was going to become decidedly wetter and suggested an early lunch. We waited for the weather to clear before setting off again along a trail, firstly in forest and then in Alpine meadow, terminating at a waterfall (47°38´02.5˝N, 12°51´20.0˝E). It was difficult to approach the steep sides where the ferns looked decidedly interesting, as it meant either a steep climb over and above the waterfall or wading waist

deep through the plunge pool, so we were reduced to the use of binoculars or speculation to wonder what gems would have greeted us.

Ferns noted along the two trails included *Polypodium vulgare*, *Polystichum lonchitis*, *Asplenium viride*, *Athyrium filix-femina*, *Asplenium adiantum-nigrum*, *Gymnocarpium dryopteris*, *G. robertianum*, *Cystopteris fragilis*, *Asplenium scolopendrium*, *A. trichomanes*, *Dryopteris filix-mas*, *D. dilatata*, *D. remota*, *D. affinis*, *Selaginella selaginoides*, *Lycopodium annotinum*, *Polystichum aculeatum* and *Cystopteris montana.*

Saturday 7th – Eagle's Nest above Berchtesgaden, Germany Martin Rickard

Low cloud cover with rain in the air – perfect for our highest site visit of the trip! The Eagle's Nest above Berchtesgaden (47°36´46.2˝N, 13°02´28.7˝E) at 1,837 metres is famous as one of Hitler's idyllic hideaways. No views for us but we had a wonderful day amongst alpine flowers – and ferns! The plan was to catch a bus to the top and then walk down an old road on the north side of the mountain.

Dryopteris villarii, not known in Britain, was added to our list. It was very common in the limestone pavements and crags at higher altitudes, including right at the summit. Until relatively recently it had been confused with *D. submontana*. Perhaps fortunately, *D. submontana* does not grow in the region so there was no risk of any confusion for our group! *Cystopteris alpina*, recently added to the British flora based on Victorian specimens, was relatively common. It was also a pleasure to see several species rare to us in the UK that were common here, most notably *Cystopteris montana*, *Polystichum lonchitis* and *Lycopodium annotinum*. As we descended, *Polystichum aculeatum* became quite frequent, and Rolf was very pleased to be able to show us several plants of *P.* × *illyricum*, its hybrid with *P. lonchitis*. Many other typical lime lovers common on some of our UK hills were abundant, particularly *Asplenium viride*, *Gymnocarpium robertianum* and *Cystopteris fragilis*. Surprisingly, some species that I think of as calcifuges were recorded on this very limey mountain – most notably *Huperzia selago*, *Gymnocarpium dryopteris* (no potential hybrids with *G. robertianum* were seen), *Oreopteris limbosperma*, *Phegopteris connectilis* and one plant of *Athyrium distentifolium*, found by Paul Ripley. *Dryopteris expansa* was recorded but not confirmed.

The alpine flowers here were in some ways the stars of the day. Many could only be identified to generic level but my favourites were *Polygonatum verticillatum*, *Clematis alpina*, the charming, yellow *Viola biflora* and the delicate pink-flowered *Rhododendron hirsutum*, which was everywhere. In the late snow patches a *Soldanella* species was still in flower, as was a *Gentiana clusii*. I saw one plant of *Silene acaulis* and a stunning patch of *Trollius europaeus*; the almost equally beautiful *Anemone narcissiflora* was common.

Sunday 8th – Lake Königssee & near Obersalzberg, Germany Roger Golding

After breakfast we embarked on a boat down Lake Königssee. The lake is eight kilometres long and 200 metres at its deepest point, set in a dramatic glacial valley. As we set off, mist obscured the mountains, gradually dispersing over the next half hour. The captain entertained us to a running commentary in German, at one point stopping to demonstrate the echo by playing a flugelhorn. After letting off passengers at the old pilgrimage chapel of St Bartholomew, we carried on to the south end of the lake (47°30´42.8˝N, 12°59´37.7˝E) and walked to the end of the valley, past the small lower lake (Obersee) where the water was a beautiful turquoise green. On the way there and back we saw most of the local lime-loving ferns including ever-popular *Cystopteris montana*, surprisingly uncommon *Asplenium scolopendrium* and one or two more acid-loving species such as *Oreopteris limbosperma*. Although we didn't see any new ferns, it was a very beautiful lake trip and walk. We stopped for the obligatory coffee and kuchen, then made our way back via the boat.

Late in the afternoon Rolf took us to a wood not far from the Eagle's Nest, where he showed us *Cystopteris sudetica* at one of only two sites in Germany. Only a single plant could be found – apparently the population varies from year to year but is always small. It was quite a feat to find it as the woodland floor was covered with other small triangular-fronded ferns – both species of *Gymnocarpium* and *Cystopteris montana*.

photo: R. Thiemann

Lake Obersee, Germany

Peter Kreis, Martin Rickard, Avril Walkinshaw, Lindsey Holleworth, Paul Ripley, Bryan & Gill Smith, Heidi Kreis, Roland Ennos, Barry Colville, Roger Golding, Pat Acock, Yvonne Golding, David Walkinshaw, Rémy & Annie Prelli, Bridget Laue, Paul Sharp

Monday 9th – Karlstein, Weiβbach & Rauschberg, Germany **Paul Ripley**

Our first site was at Karlstein (near Bad Reichenfall), parking near the footpath to St Pankraz church (47°43´11.4˝N, 12°50´30.3˝E). The Catholics in this part of the world could not resist placing a chapel on top of every available crag, and it was the limestone cliffs below this that we searched for (and found!) *Asplenium seelosii*. This small but distinctive fern grew with *Polystichum aculeatum*, *Cystopteris fragilis*, *Asplenium viride*, *A. scolopendrium*, and *A. trichomanes* subspp. *hastatum* and *quadrivalens*. We were assured that subsp. *pachyrachis* did not occur here.

Our next stop took us 500 metres beyond the church in the small village of Weiβbach (47°43´32.6˝N, 12°45´44.3˝E). By a path on the banks of a river was the largest stand of *Equisetum variegatum* in Germany, although the colony was much reduced as a result of tree clearance. Also here were *E. arvense*, *Dryopteris carthusiana*, *D. dilatata* and *Athyrium filix-femina*.

We parked for our main site in a car park below the road to the foot of the Rauschberg chair-lift (47°44´28.8˝N, 12°40´03.8˝E). The name of the mountain (Rauschberg) signifies a connection with the extraction of lead ore. As we walked up to the foot of the chair-lift we noted *Dryopteris carthusiana*, *D. filix-mas*, *D. dilatata*, *D. borreri*, *Athyrium filix-femina*, *Polystichum aculeatum*, *Lycopodium annotinum* and *Gymnocarpium robertianum*. It is one of the pleasures of this part of the world that one is never very far from refreshment and we duly took some at the nearby café. Returning to the car park, we then took one of the more difficult paths to the summit of the Rauschberg, passing the ferns already mentioned with, in addition, *Huperzia selago* and one small *Polystichum lonchitis*. We eventually found *Pteridium aquilinum*, which is uncommon here. Our target, however, was *Asplenium fissum* and we searched for it on the treacherous limestone scree. Just where Rolf had expected, we saw with delight many crowns of *A. fissum*, spreading out on loose limestone scree from

areas stabilised by moss. I have to confess that we were unable to resist a further refreshment stop on the way home.

Tuesday 10th – Near Kraubath, Austria **Gill Smith**

After breakfast we packed our cars and headed towards Kraubath in Austria – a small town close to the border with Slovenia. The journey took about 3.5 hours and we arrived at Gasthof Neumann just before 1p.m. It took a while for us all to be checked into our rooms and we reassembled over an hour later equipped for a hike up the northern side of a mountain about 2.5 miles south-west of Kraubath. We parked on the roadside (47°17´00.5˝N, 14°50´54.1˝E).

The terrain here is between the African and European plates so is largely serpentine with nickel, chromium and platinum deposits, although only chrome was extracted here. *Erica carnea* was growing all over the area. We followed a well trodden steep path upwards, finding along the way *Equisetum arvense*, *Selaginella helvetica*, *Dryopteris filix-mas*, *D. dilatata*, *Athyrium filix-femina*, *Asplenium ruta-muraria*, *A. viride*, *Pteridium aquilinum*, *Gymnocarpium robertianum*, *G. dryopteris*, *Dryopteris carthusiana* and *D. borreri*. Amongst the rocks were *Asplenium* × *poscharskyanum*, *A. adulterinum* and *A. cuneifolium.* At the top of the mountain we searched amongst the scree for *Notholaena marantae* without success. We took the same path back but it came on to rain heavily so we were all very wet by the time we arrived back at the cars. We decided that we would have to try the south side of the mountain the next day for the elusive *Notholaena*!

Wednesday 11th – Near Kraubath & Vorlobming, Austria **Bryan Smith**

Our plan was to cover the other side of the mountain that we had visited the previous day, climbing up and over the mountain and ferrying drivers back to their cars afterwards. Thus some cars were left at our last location and the rest were parked at 47°16´51.9˝N, 14°55´34.9˝E.

We scrambled over scree up a 60 degree slope through the woods and quickly found some excellent colonies of *Asplenium cuneifolium*, and continuing upwards came across more *Dryopteris filix-mas*, *Asplenium trichomanes* subsp. *quadrivalens* and *A. adulterinum.* About two-thirds of the way up the slope, rocky outcrops gave us our goal of *Notholaena marantae* and also the extremely rare *Sempervivum pittonii* – growing at one of its only two worldwide mountain locations. Unfortunately, it was here that a boulder upon which one of our group, Barry Colville, was standing gave way, resulting in him tumbling an horrific 30 to 40 metres down the steep, rocky slope. Miraculously, he was not seriously injured, but it did require a helicopter rescue and a week's hospital stay (the benefits of insurance certainly paid off). Some of our party came back down the way we had come, but others carried on over the mountain and an unplanned detour resulted in them seeing very large plants of *Equisetum sylvaticum.*

photo: R. Golding

***Notholaena marantae* near Kraubath**

Although still very shaken, we regrouped, and in the afternoon went to Vorlobming (47°17´42.0˝N, 14°59´47.0˝E). Here we walked up a track alongside a stream and tried our hand at distinguishing *Asplenium adulterinum* from *A.* × *poscharskyanum* (not always very successfully!) More readily identifiable ferns were noted, including *A. viride*, *A. trichomanes* subsp. *trichomanes*, *A. ruta-muraria*, *Athyrium filix-femina*, *Dryopteris carthusiana*, *Gymnocarpium dryopteris*, *Phegopteris connectilis*, *Polypodium vulgare*, *Equisetum arvense*, *E. pratense* and *Selaginella helvetica.* The find of the day by Rémy was a hybrid, which, following later examination of a specimen at BM collected by T. Reichstein, was thought could be *Asplenium* × *lobmingense*.

Thursday 12th – Deutschlandsberg & Mixnitz, Austria **Bridget Laue**

In the morning we visited the Lassnitz Nature Reserve (46°48´38.3˝N, 15°12´08.4˝E), near Deutschlandsberg, not far from the Slovenian border. This site, at a lower altitude (about 375 metres), on granitic schist and gneiss, presented a very different habitat from those we had seen recently. There had been heavy rainfall the previous night and it was still cool and damp. These mild, wet conditions were clearly conducive to *Polystichum* ferns. Walking alongside the river, we saw large numbers of *P. setiferum* (probably the largest colony in Central Europe) and *P. braunii*. This setting provided ample opportunity for generation of the hybrid between the two, *P.* × *wirtgenii*. There were also a few *P. aculeatum* and its hybrid with *P. setiferum*, *P.* × *bicknellii*. The other outstanding feature of the area was a large swathe of *Equisetum hyemale*. Other species near the trail included *Dryopteris filix-mas*, *D. borreri*, *D. dilatata*, *Gymnocarpium dryopteris*, *Phegopteris connectilis*, *Polypodium vulgare*, *Blechnum spicant*, *Athyrium filix-femina*, *Cystopteris fragilis*, *Asplenium trichomanes* (subspp. *trichomanes* and *quadrivalens*), *A. viride* and – a large colony in one spot only – *A. scolopendrium*.

photo: R. Golding

Polystichum braunii
at Lassnitz Nature Reserve

In the afternoon we drove north to Mixnitz (47°20´10.6˝N, 15°22´23.9˝E), to walk through the Nature Reserve along a tributary of the Mur River. Here the highlight was a 30-metre-high limestone cliff, with scattered examples of *Asplenium lepidum* growing in cracks where there was some, but not too much, moisture. We also saw *A. ruta-muraria* and *A. trichomanes* (subspp. *quadrivalens* and *inexpectans*), and a variety of probable *Asplenium* hybrids. Our list for this location also featured *A. viride*, *Dryopteris filix-mas*, *D. affinis* agg., *Polypodium vulgare*, *Cystopteris fragilis* and *Selaginella helvetica*.

Friday 13th – Adlitzgraben Gorge, Austria **Rémy Prelli**

This last day began in rain, but promised much interest. The morning was devoted to the limestone rocks of the Adlitzgraben, a gorge near Schottwien (47°39´33.6˝N, 15°52´22.8˝E), about 80 kilometres north-east of Kraubath. At an altitude of about 600 metres, the vegetation of the slopes comprised a mixed forest of beech (*Fagus sylvatica*), fir (*Picea abies*) and sycamore (*Acer pseudoplatanus*). The rain having stopped, we were able to follow a good length of the gorge on foot, allowing us to note the presence of *Asplenium ruta-muraria*, *A. viride*, *Cystopteris fragilis*, *Gymnocarpium robertianum*, *Polystichum aculeatum*, *Selaginella helvetica*, and everywhere an abundance of *Asplenium trichomanes*. The latter species was the object of particular attention, leading to the recognition, apart from the common subspecies *quadrivalens*, of plants corresponding to the subspecies *hastatum*, *inexpectans* and *pachyrachis*, very probably associated with their intraspecific hybrids. But the biggest surprise was the observation of several beautiful plants of *Asplenium lepidum*, which delighted Rolf.

After a meal taken in a local ‘gasthaus’, we travelled about 30 kilometres south-eastwards, reaching a village where on two old walls were found two plants of *Asplenium* × *clermontae*. Much photographed in spite of the reappearance of the rain, this hybrid is the result of a cross between *A. ruta-muraria* and *A. trichomanes* (subsp. *quadrivalens*). It is extremely rare, in spite of the frequent coexistence of its parents. Rolf explained that this *Asplenium* had been known a long time from this site, that the plants had at times been more numerous, and that the individuals we saw were probably the descendants of the original

plants. The product of two autotetraploid parents, *A.* × *clermontae* actually produces viable spores, which gives it a weak but real chance of reproduction. However, this ability remains extremely limited, and the realisation that we were in the presence of half the known European population of this exceptional hybrid was quite moving. The other two plants are in England (Northumberland) and in France (in the north of the Alps).

In the evening around the dinner table we said our goodbyes, as many were leaving early the next morning. More especially, Rolf, our illustrious host who had conceived and planned the trip with help from his wife Angelika, was presented with a few gifts and an official and many informal votes of thanks for a most excellently planned trip.

photo: Y.C. Golding

Rolf Thiemann opening his presents on the last night

Saturday 14th – Conclusion **Pat Acock**

On the way to the airport some of us went back to Vorlobming so those that had missed this valley could see the interesting aspleniums.

We owe Rolf a huge debt of gratitude; he had spent many days over a number of years planning this excursion, and the whole affair was beautifully balanced, with very varied terrain as well as different subsets of ferns each day so that you never knew what extra little gem Rolf had in store. I doubt that a better arranged tour could have been thought out. When Rolf and I were discussing it a few years back he told me that he believed this was the most beautiful part of Germany and I can certainly concur.

HEXHAM, NORTHUMBERLAND – 21-23 September

Friday 21st – Cawfields & Walltown **Pat Acock**

Twenty members and friends assembled north of Haltwhistle at Cawfields car park (35/713665). Our leader, Rob Cooke, introduced us to John Richards, BSBI vice-county recorder for South Northumberland, who had helped with the planning of the meeting. We headed eastwards under Cawfield Crags and the north face of Hadrian's Wall. Here the Dolerite rock that had shattered from the Whin Sill escarpment lay treacherously around our feet. This site had probably not been botanised before and John had sought permission from the land-owner. We were pleased to record 12 fern taxa: *Cryptogramma crispa, Gymnocarpium dryopteris, Huperzia selago, Athyrium filix-femina, Blechnum spicant, Polypodium vulgare, Pteridium aquilinum, Dryopteris dilatata, D. filix-mas, D. borreri* and a *D. cambrensis* that was confirmed by Roger Golding. Of note was *Polypodium* × *mantoniae* at 35/7199.6684, which was subsequently confirmed by Bruce Brown.

After lunch back at the car park we walked around the old quarry and eastwards along the south side of the Wall to Thorny Doors, adding *Asplenium ruta-muraria, A. scolopendrium, A. adiantum-nigrum, A. trichomanes* subsp. *quadrivalens* and possibly *Dryopteris oreades* to the ferns of the morning.

Mid-afternoon we headed three miles westwards to the Hard Rock Trail at Walltown Quarry (35/668658), where John showed us an *Ophioglossum vulgatum* site. We found seven patches on the old quarry floor that were unusual in having a small basal frond, long stipes and normal fertile spikes, many of which were just reaching maturity. Ten per cent of the plants were paired, with the tongues facing each other, more like *O. azoricum*. On a slope just above the quarry floor was a more normal-looking patch. The group split

at this stage, the majority going to see a nearby site for wild chives, *Allium schoenoprasum*, while a few people drove along the military road, admiring the Wall and the Vallum (an earlier pre-Wall double ditch defence earthwork).

Later on, most of us gathered for a meal at The Hadrian Hotel in Wall, which proved more convenient for most than the Hexham venue of the previous evening.

photo: A.M. Paul

***Ophioglossum vulgatum* site at Walltown Quarry**
Paul Ripley, Martin Rickard, Katherine Tonge, Dawn Isaac, Pat Acock, Bruce Brown, Rob Cooke

Saturday 22nd – Bellingham: Hareshaw Linn & Roughside Moor **Bryan Smith**

A bright morning saw us gather at Hareshaw Linn car park (35/839834) in Bellingham, where we were joined by around 15 members of the Natural History Society of Northumbria. The BPS had previously visited this site in 2000, so it was an opportunity for us to note any changes. In the mid-1800s the site had raged with the noise and smoke of iron production including two blast furnaces, but now it is an SSSI with a pleasant one and a half mile walk up a wooded gorge to a waterfall. Ferns were in abundance, and we soon found *Athyrium filix-femina*, *Blechnum spicant*, *Dryopteris dilatata*, *D. filix-mas*, *D. borreri* and *Polypodium vulgare*. Carrying on up towards the waterfall, we added *Asplenium scolopendrium*, *Gymnocarpium dryopteris*, *Phegopteris connectilis*, *Polypodium interjectum*, *Oreopteris limbosperma*, *Pteridium aquilinum*, *Equisetum arvense*, *E. sylvaticum* and a very foliose form of *D. borreri* with some cresting. Opposite an oak tree laden with *Polypodium vulgare*, torches revealed patches of *Trichomanes speciosum* gametophyte in recesses of a small cave. However, the real treat awaited us at the magnificent waterfall (Linn). The rocks leading up to the Linn were covered with *Cystopteris fragilis*, *Polystichum aculeatum* and *Asplenium trichomanes* subsp. *pachyrachis* – indeed, this was the only form of *A. trichomanes* to be seen. Compared with the 2000 visit, we didn't see any *A. trichomanes* subsp. *quadrivalens*, but *E. arvense*, *P. interjectum* and *T. speciosum* gametophyte were all new records.

In the afternoon, we searched for a *Hymenophyllum* hybrid to the west of Bellingham in Kielder Forest. After driving to the edge of the wood at 35/750829 (passing a magnificent stand of *Equisetum telmateia* on route), we walked about two miles along a forest road to rocky outcrops on Roughside Moor (35/734838). Time was short and a hurried search revealed no filmy ferns, not even *H. tunbrigense*, which had been previously recorded here. However, we did see *Blechnum spicant*, *Dryopteris carthusiana*, *D. dilatata*, *D. cambrensis*, *Equisetum arvense*, *E. palustre* and *Oreopteris limbosperma*. So, all in all then, a magnificent day's fern tally in this lovely countryside. [Megs Rogers subsequently reported that in November the NHSN Botany group found patches of *Hymenophyllum tunbrigense* on Roughside Moor on the bottom of crags near a small patch of conifers. Were we looking at the same crags?!]

Sunday 23rd – Allenheads **Sue Dockerill**

We assembled by a side road near Allenheads (35/850464). The hills all around were a good example of northern upland heath, part of the extensive Allendale Estate and used mainly for grouse shooting and sheep grazing. Looking around the immediate vicinity, an extensive colony of *Equisetum palustre* mixed with some *E. arvense* was found near the East Allen River and we were shown by John Richards a good patch of *Lycopodium*

clavatum on a nearby heathery bank. Other examples of upland flora were the mountain pansy (*Viola lutea*) and grass of Parnassus (*Parnassia palustris*), both showing some welcome flowers despite the lateness of the season.

We then set off up the well made path in a south-westerly direction. A steady climb for 45 minutes through apparently pteridophyte-free terrain brought us to a site with a wealth of clubmosses (35/827446). This was close to the top of the ridge where the ground flattened out and the heather was shorter and the ground stony and therefore fairly well drained. Here were many colonies of *Lycopodium clavatum* and *Diphasiastrum alpinum* growing in the barer areas, amongst the heather and regenerating in the burnt patches. *Huperzia selago* was also found, though in more isolated groups. But the main delight of the site was two potential plants of the rare *Diphasiastrum* × *issleri* (at 35/8276.4462). A sample of one of these plants had previously been sent to Fred Rumsey for identification, and he had agreed that it was not *D. alpinum*, but could not positively identify it as the hybrid. A further sample, ideally fertile, had been requested, and a suitable small piece was taken for analysis. In the meantime, this should be recorded as *D. cf.* × *issleri*.

photo: A.M. Paul

John Richards & Bryan Smith near the East Allen River

After a picnic lunch, our final visit was to a roadside verge (35/794444) about three miles south-west of our original meeting spot. Again, this was close to the top of the ridge, but in a small saddle and straddling the border between Northumberland and Cumberland. Large patches of *Gentianella amarella* that were still in flower caught our attention first, but we soon spotted masses of *Selaginella selaginoides* coning on the east side of the road, and a few small plants of *Huperzia selago*. In this bank *Botrychium lunaria* had been reported and one fast-fading stem was found amongst other upland heath plants such as *Vaccinium vitis-idaea* and *Rubus chamaemorus*, while further along several patches of *Minuartia verna* flourished. Here was Northumberland heath in miniature and abundance, a very suitable end to our visit. After thanking John Richards for sharing his knowledge and guiding us to such interesting sites, and Rob Cooke for organising the meeting, we made our way home.

photo: B.D. Smith

Looking for *Botrychium*

Roger Golding, Sue & Brian Dockerill, Dawn Isaac, Alison Paul, Megs Rogers

LECTURE MEETINGS AND DAY VISITS

AGM & SPRING MEETING, NATURAL HISTORY MUSEUM, LONDON – 14 April

Barrie Stevenson

Within many clubs and societies the AGM is a lacklustre, lumbering occasion, almost inevitably poorly attended by members. The BPS has wisely avoided this situation, however, and the necessary business of the AGM has become an increasingly streamlined affair, so that the rest of the day can be devoted to a carefully chosen and varied programme. The Spring Meeting began in the comfortable surroundings of the Department of Palaeontology. After coffee, members dispersed in three groups to various areas of the Museum, avoiding the crowded public galleries. Our route took us through a seeming maze of corridors, staircases and lifts, with occasional glimpses of roof-scapes or sudden views of Cromwell Road.

Three displays had been organised on our behalf, and in turn each group visited all of these. I happened to be a member of the group ably led by Alison Paul, and can only assume that my impressions of all I saw were similar to those of other groups. We began at the NHM Botany Library where a display of books with printed illustrations was shown by Special Collections Librarian, Paul Cooper. On display was a group of volumes that had been selected from the library by Andrea Hart, Special Collections Librarian responsible for the Botany Library, as fine examples of printing techniques used in botanical illustration. Included were such treasures as one of the earliest books in the Collection, the three-volume Herbarium of Otto Brunfels, published in 1536-1540, the artist drawing from nature rather than from the drawings of his predecessors. Several fine volumes pertained to ferns, the earliest English example being James Bolton's *Filices Britannicae*, 1785. An amateur artist, he made careful drawings and engraved his designs on copper plates that were printed as illustrations for his book. On show were one of his original drawings and the resultant copper plate. Victorian volumes included the lavishly illustrated *Book of Choice Ferns for the Garden, Conservatory and Stove* by George Schneider, three volumes, 1892-1894. However, the finest printed illustrations in a Victorian fern book appeared in Thomas Moore's *Ferns of Great Britain and Ireland*, 1855-56. The 51 plates were nature-prints by Henry Bradbury and the copy on show was the sumptuous folio edition.

Our next visit was to the Angela Marmont Centre in the Darwin Centre, where Michael Hayward had arranged a vast and highly specialised display demonstrating the history of nature-printing. Having discovered the Thomas Moore volume illustrated by Bradbury, Michael had decided to research the earlier history of nature-printing. He was amazed to discover that early experiments were taking place in the late 18th century, and by the early 19th century nature-prints were made to decorate the margins of floras. A lightly inked leaf and flower was chosen to illustrate a specific description, the specimen placed inked face down on the page and gentle finger-tip pressure applied to a sheet of paper placed upon the specimen. This relief-printing method was ultimately used in Germany to produce large pages of garden flowers, the prints enhanced with water-colour washes and the bound pages sold commercially. However, it was impossible to use a specimen more than once by this method, and a further sophistication, invented in Vienna by M. Auer and introduced in this country by Henry Bradbury, was to make a mould of the plant specimen from which an electrotype printing plate was produced. Fern fronds proved to be ideal subjects, and plates were prepared for printing with coloured inks. Thomas Moore's *Ferns of Great Britain and Ireland*, with Bradbury's nature prints, is therefore illustrated with exact replicas of fern fronds, not only in colour but also in texture, with details such as sporangia and even scales clearly visible.

Our final visit was to the Historical Collections Room, also in the Darwin Centre. Mark Spencer, a Senior Curator in the NHM Botany Department, explained that the internal atmosphere was at a constant level of 17 degrees C and 40% relative humidity to protect the contents, including herbarium albums of Sir Hans Sloane (1660-1753). Sloane bequeathed his entire collection of plants, animals, antiquities, coins and other curios to become the Founding Core of the British Museum, the natural history items being moved to South

Kensington in 1881. The herbarium is contained in thirty-three-and-a-half albums, which are individually housed in transparent-fronted cases along one wall in the manner of Roman catacombs. Several albums were at least a foot thick with the contents running into hundreds of dried specimens of plants. The pages of the albums were turned and while discussion took place about the correct labelling and naming of the ferns, I was so amazed to see such survivors that I began to wonder how the specimens were fixed to the pages; in one album they were, in fact, laboriously sewn onto the pages with tiny stitches, the thread knotted carefully on the reverse of the pages. The Rev. Adam Buddle's herbarium (1692-1708) is one of the earliest British collections to give localities and I noted that some plants had been collected on Hounslow Heath, an area that has now largely disappeared under Heathrow Airport.

We returned to the Department of Palaeontology to eat lunch, chat with friends, look at the extensive display of BPS merchandise, hunt through the vast selection of ferny books, both old and new, all at competitive prices on the BPS Booksales tables, select free packs of fern spores and queue up to buy a signed copy of Sarah Whittingham's splendid book, *Fern Fever*.

Then followed the AGM (reported separately) and a refreshment break before Martin Rickard talked about 'Fern Nurseries and their Catalogues'. Though often considered mere ephemera, they offer an amazing insight into the stocks of ferns available in the late Victorian period. Many were tender specimens aimed at the Head Gardeners of the landed gentry, whose underlings stoked the stoves that kept their tropical glasshouses frost-free, but also offered were cultivars of every description, many of which have now disappeared without trace.

Martin also showed photos taken in the High Andes in Ecuador. The rest of his party were looking for wild birds. Not surprisingly, Martin managed to slip away in order to photograph ferns, and his Cloud Forest studies of lush filmy ferns and the tallest trunked blechnums I have ever seen must have made his trip worthwhile.

This was a splendid Spring Meeting, and our sincere thanks go to Patrick Acock for organising such a pleasing programme, and also to Alison Paul who, unobtrusively but highly efficiently, looked after our 'domestic arrangements' (her own phrase), including not only providing chocolate biscuits but also ferny paper napkins.

AUTUMN MEETING, NATURAL HISTORY MUSEUM, LONDON –

17 November **Fred Rumsey**

The idea for the theme of this meeting – 'Molecules, chromosomes and hybrids; de-mystifying current fern research' – had originally come from Andrew Leonard and it was good to see him and about 30 other members in the Darwin Centre of the Natural History Museum for what proved to be a very thought provoking and enjoyable day – many thanks to Alison Paul for her help in arranging and setting things up.

Mary Gibby started the meeting with a very personal account of her research to elucidate the role of hybridisation and polyploidy in the genus *Dryopteris*, with particular reference to her work in Macaronesia and the British Isles. She introduced us to the pioneering work of Irene Manton on fern cytology – the study of the plant's chromosomes, which led to the recognition that many ferns that we had considered to be single species, or minor forms of them, were actually more properly recognised as several distinct species because they had differing numbers of sets of chromosomes. By examining the behaviour of chromosomes when plants were artificially hybridised it became possible to speculate on these species' mode of origin and to identify their likely progenitors. She showed us that several of our commonest species, such as *Dryopteris dilatata*, had arisen following hybridisation and the subsequent duplication of their chromosomes, her work suggesting the parents in this case were likely to be the northern diploid *D. expansa* (then known as *D. assimilis*) and the Azorean endemic *D. azorica*, itself genomically indistinguishable from the North American *D. intermedia*. Several other cases were shown, and the interesting and at times apparently paradoxical current distributions of the Macaronesian taxa and their relatives were to find echoes and be the subject of discussion in later talks using more recent DNA-based approaches.

Mary was followed by Fred Rumsey with a talk on 'Understanding apogamy'. He presented a simplified account of this rather complex reproductive process, adopted by a small but significant number of ferns, in which plants still produce spores but not by a sexual process. Building on what Mary had described, hybridisation and chromosome behaviour being central to any explanation of apogamy, he looked at the two different mechanisms by which apogamy occurs, the Böpp-Manton and the Braithwaite schemes – named after their describers. Having looked at the mechanism by which these plants reproduce and which fern genera had adopted them, he went on to consider briefly the difficulties that such systems posed for those who have to produce workable taxonomies, floras and identification guides… – summed up as 'the *affinis* problem'! Again the evidence of this was to be picked up in later talks.

Mark Carine (a researcher at the NHM), immediately pandering to one member of the audience by referring to *Polypodium australe*, went on to describe the work he has been doing using chloroplast DNA sequences to investigate the relationships of the diploid polypodiums within Macaronesia and the adjacent continents. Plants from the different archipelagos have been variously treated at ranks from species to varieties – if recognised at all – and have often been sunk into the continental *P. cambricum*. Mark showed us that each archipelago supported genetically distinct plants and that far more variation existed there than in mainland Europe. The identity of a controversial specimen of '*P. macaronesicum*' from southern Spain was established, its affinities being with Azorean samples, and the interesting biogeographical implications this might have were discussed.

Fred then presented work that he had been doing on the back of a citizen science project teaching identification alongside molecular techniques to schoolchildren. The aim was to produce a DNA Barcode for each member of the UK fern flora, including hybrids and naturalised aliens. Comparatively recently specific DNA regions (loci) had been identified by an international consortium as markers of choice for this barcoding process. Our primary goal was to test the utility of these markers against a particular plant group (the British ferns) where we anticipated that there might be difficulties because of the preponderance of polyploidy, reticulate evolution, apogamy and the resulting critical taxa. We also hoped that DNA investigations might help to resolve some long-standing identification problems where morphology alone has struggled. It was particularly pleasing to be able to present results here as so many members of the audience had helped by sending material for sampling. One of the selected markers, MatK, failed to amplify for a significant proportion of the species and the other, rbcL, being more conserved, often failed to discriminate between species. As a taxonomist, Fred was relieved that he wouldn't be out of a job as a consequence of automated DNA readers any time soon! Although disappointing in many areas, it was pleasing to note that one or more marker(s) did discriminate between some difficult to separate taxa, e.g. *Ophioglossum vulgatum* and *O. azoricum*, and also supported the recognition of *Cystopteris dickieana* as distinct from *C. fragilis*.

John Edgington then updated us on fern finds in London, with all manner of treasures discovered since he spoke to the Society at the April 2011 AGM. Some members had been lucky enough to take part in a ramble to see some of these later that year and thus the revelation of such rarities as *Asplenium septentrionale* only elicited mild gasps. Amongst other natives found here for the first time were *A. obovatum* subsp. *lanceolatum* – on the damp brickwork of a warehouse by the canal just north of King's Cross, and an array of aliens including the thermophilous *Pteris tremula* surviving on the terrace of Somerset House.

We concluded in the lecture theatre with Pat Acock talking about *Equisetum*. He led us through the genus and outlined the more frequent hybrids and some of the pitfalls and difficulties in trying to identify them. This was to prove a good scene setter for our afternoon practical session held in the Angela Marmont Centre where we would look at herbarium and fresh material of a range of fern hybrids with the hope of familiarising more people with the sort of characters to look for when trying to identify them. Rob Cooke had kindly provided some *Polypodium* fronds of each of the known UK hybrids and Andrew Leonard provided other fresh material. The meeting concluded with beverages, biscuits and a lot of chatting, a nice end to what had been a very successful day.