

## Fair Isle Wildlife Club: flora and fauna of the Vaadal and Gilsetter

Thursday, 10<sup>th</sup> August 2006: three adults and eight bairns joined me for a Fair Isle Wildlife Club investigation of the flora and fauna of Gilsetter this evening. We started in the Vaadal gully. The vegetation of the two banks could not be more contrasting. The dry south-facing bank is dominated by ling (common heather). Various degrees of dampness and very little exposure to sun makes the north-facing bank a rich complex of flowering plants, mosses, liverworts, lichens and ferns. Here and there along this bank, nestled in amongst mosses and liverworts on the cusp of peat overhangs, are small colonies of Wilson's filmy fern *Hymenophyllum wilsonii*. This aberrant fern could easily be mistaken for a moss, but for the strong black central vein to each frond and the dark brown egg-shaped spore-bearing capsules at their tips. Wilson's filmy fern has long been known from the Funniequoy gully; and I have found it in Wirvie and, in copious quantities, on bare ground on the gravely north slope of Ward Hill immediately below the summit. All these sites require an athleticism to reach. The joy of the Vaadal site, which I discovered about 15 years ago, is its ease of accessibility. The approach from the road is flat and dry, and many of the plants are at eye level. Wilson's filmy fern is one of the most sought-after treasures for botanists visiting the isle, and the Vaadal site permits people of all ages and athletic abilities to enjoy it.

The bank also qualifies as an island treasure for its bryophytes (i.e. mosses and liverworts). Even without knowing their names, one can still enjoy the patchwork of colours and the intricate variations in patterns and textures which provide colour to the bank at all times of year. We did not dwell long on individual species but I did point out two of the commoner mosses, and indicated which of the "mosses" were in fact liverworts. The two mosses were *Mnium hornum*, which dominated some of the vertical, otherwise bare peat exposures, and the more luxuriant *Polytrichum juniperinum*. Mosses are not an easy group although the commoner species can be easily learned if an initial determined effort is made, supported by hand lens and photographic guides – of which there are a few now. For many the biggest stumbling block is the use of scientific names. A debate has been raging for some time on whether bryophytes (and other smaller or less popular groups) should be given English names. Having struggled to learn the scientific names, I joined the ranks of the purists in wishing to retain that monopoly – partly because learning another set of names seems rather more challenging as my brain slips every closer to senility. My more rational reasoning was that it enabled me to communicate with other enthusiasts both at home and abroad. The debate has become louder in parallel with the gradual acceptance that protection of our biodiversity was much more achievable if the interest and support of the general public was engaged. There was an image problem. People were likely to respond well to protecting corncrakes but would they feel the same about *Sanionia orthothecioides*? To counter this the British Bryological Society has devised a series of vernacular names. Quite by chance, I had with me a booklet which included some of these names. *Polytrichum juniperinum* was not in the book but a close relative was, with the name of Marsh Hair-moss. I am guessing that our moss will be Juniper Hair-moss. I must find out. We found that *Mnium hornum* is called Forest Star. Admittedly, it was alongside The Plantation, but occurs throughout the isle in peaty soils, often in dense regimented rows – a forest for any passing bug.

*Sanionia orthothecioides* is one of Britain's rarest mosses. It is known from a very few localities in Shetland, north Scotland and St Kilda. A visit by moss expert Gordon Rothero a few years ago confirmed the occurrence of the species on Fair Isle – a small scattered colony on the ridge between Lerness and Mire o Vatnagaard, and the UK's largest known colony on Vaasetter. The British Bryological Society has given it the vernacular name St Kilda Hook-moss.

We paid less attention to the less diverse south facing slope of the Vaadal. We did however pause to look at the solitary western gorse *Ulex gallii* just beyond the Plantation. Unlike the common gorse, this species delays its flowering to the late summer and autumn, and sure enough our plant had just produced its first flowers. The occurrence of two species in Britain with different flowering times contributes to the country saying: "kissing's out of season when gorse is out of bloom".

The western gorse was planted by the bird observatory in the early 1950s, along with a common gorse *Ulex europaeus* at the entrance to the Vaadal trap which was lost during reservoir repairs in the 1990s. The western gorse is less than a metre across and hugs the ground – not at all the structure one would predict for an elderly statesman of the species in its natural habitat. Fortunately, the extreme conditions which plants must endure on Fair Isle have prevented introduced species from spreading and damaging the local ecology – at least until now. Another example is the Japanese knotweed *Reynoutria japonica* at the Haa, planted at the beginning of the bird observatory era which continues, every year, to struggle up only for its above ground vegetation to be wiped out by the first of the autumn gales. The story is very different in other parts of the UK where the species invades, smothers everything and is virtually impossible to eradicate. Islands are extremely vulnerable to introductions. From Hawaii to New Zealand, and even the Galapagos, come series after series of horror tales about loss of biodiversity. The speed and extent of environmental change happening at the moment, undoubtedly driven by current climatic trends (dare I say “climate change?”), is awesome. So far, the only introductions which are becoming well established on the isle are garden pests – including several species of slug which I believe to be recent arrivals on horticultural produce, probably arriving as eggs; and they seem happy to stay within the confines of the gardens (which I am sure will not thrill my various green-fingered neighbours!). However, we should not be complacent. Fair Isle’s rich environmental quality is at risk from unconsidered introductions, which should be discouraged outside gardens.

Slipping out of the Vaadal, we made our way to the wet habitats between the Plantation and the road. This is another very rich area. Earthworks - the area is part of an archaeological complex which is a national scheduled monument – create an undulating surface and a range of wetness levels, increasing the diversity of plants. The richest zone of all is on the northern flanks where a constant trickle of water over a shallow gravelled surface creates opportunities for some very special plants. Some of the specialities had flowered and gone, but we found few-flowered spike-rush *Eleocharis quinqueflora* and Triona quickly located a bog pimpernel *Anagallis tenella* in flower. Some years ago, British Wildlife published a paper about *rare and declining plants of muddy places*. It listed nearly 30 species of this special habitat which had shown alarming downward trends. Five of these species occur on Fair Isle and they are all doing very well. These two species are on that list.

Not satisfied with our bog pimpernel we made our way the short step to the Sheep Crü to see another of the rare and declining species: all-seed *Radiola linioides*. This tiny species has declined dramatically in Britain, including in Shetland. However, in a survey a few years ago my daughter Naomi and I estimated over a million plants on the isle – and probably many more. The species loves damp bare ground and responds well to disturbance. The communal sheep-shearing alongside the crü is ideal for maintaining open patches in the vegetation and the species is numerous there – as it is wherever similar habitats occur throughout the isle. Why has it disappeared from elsewhere? Intensive drainage is one major factor, but agricultural fertilisers, other chemicals and pollution all take their toll. Thankfully, Fair Isle remains blissfully free of these problems.

It was only another short walk to our fourth rare and declining plant: lesser marshwort *Apium inundatum*. The ditch alongside the road which heads south after the Plantation is current the best place to find it. We managed to find some amongst dense vegetation at the south-eastern end of the ditch, admiring the tiny flowers and narrow finger-like leaves. One of our group pointed out the similarity in shape, if not size, of the leaves to those of celery – appropriate, because celery is a very close relation. The lesser marshwort population is still strong, and has spread recently to Sukka Mire – presumably through seeds attaching themselves to the wool of sheep or possibly the boots or legs of humans or birds.

Continuing the ditch theme we headed north along the east Gilsetter burn towards Funniequoy. I was looking for Fair Isle’s only stonewort *Nitella flexilis* var. *flexilis* but the burn was too choked with vegetation and in the poor light I was unable to find it.

In parallel with seaweeds, stoneworts belong to the algae. They are called stoneworts because spicules of silica are incorporated into the stems, giving them a gritty feel. Most stoneworts prefer calcium-rich waters so the group is scarce in the mainly acidic waters of the north. Many stoneworts are also sensitive to water pollution and are thus good indicators of water quality. *Nitella flexilis* was first found on Fair Isle in 1957, in Gilsetter. I rediscovered it 30 years later in the same place. It appeared after a ditch had been dug out. It has since transpired that both it and the lesser marshwort benefit from dug ditches. *Nitella* is an early colonist and dominates the vegetation during the first couple of years after the digging. Both species thrive for some years but eventually get shaded out by other vegetation. The best management for these species is for ditches in Gilsetter to be dug out as a 5 to 10 year rolling programme.

Despite some unseasonal cold weather the entire group appeared to enjoying the walk, but I had a contingency plan in case the bairns got bored – two pond-dipping nets. The middle section of the Gilsetter east burn had some open water so I encouraged the bairns to see what they could catch. They set to with gusto and even one of the adults wielded the net in an enthusiastic return to childhood (I'd better not say who that was, should I Linda?). Freshwater shrimps were the commonest capture - probably *Gammarus duebeni*, but I did not take any away for an identity check. The bairns also dredged up a bloodworm, several wandering snails *Lymnaea peregra* and a couple of a tiny flat snail looking like a miniature piece of whorled liquorice which I later determined as Smooth Ram's-horn *Planorbis laevis*.

Bloodworms are the larval stage of Chironomids – midges. The larvae are well named: worm-like and bright red, the red denotes haemoglobin carried in their bodies. Haemoglobin carries oxygen and it is this that allows them to live in mud where oxygen levels are generally very low. Before we have a downer on the bloodworm it is worth remembering that it has a role: no-one wants to be knee-deep in mud. In further defence of the bloodworm, not all midges bite and I believe the bloodworm is one of the non-biting species.

We gradually reached the northern part of Gilsetter. This is the most interesting part of the marsh because of its high plant diversity and because it includes a zone which is as near to quaking bog as we have on the isle. Air bubbles rose in a patch of open water, as the combined weight of the group depressed the soil, and further proof of the substrate over water situation was gathered as the ground under our feet quaked and shuddered with the pressure of our movements.

The marsh ends where the Gilsetter burns merge and run over rocky substrate into the Funniequoy gully. Here, the rocks are clothed with the aquatic moss *Fontinalis antipyretica*. Antipyretica means “against fire” and relates to its fire-proofing qualities. By all accounts the moss was gathered up for draping over wooden buildings in Scandinavia at times of forest fires. With this background, it is rather disappointing to find that has been given the unimaginative English name of Greater Water-moss.

After splashing about in water, some of the bairns were getting cold so after some 90 minutes of wildlife exploration, and with the light fading, we decided to call in a day. Even then, the discoveries were not finished as Tom Best managed to catch a “moth” with his water net (!) which turned out to be a tiny adult caddis. I tentatively identified it as *Beraeodes minutus*. If correct, this will be a first Fair Isle record but I must get it checked by a specialist before this can be confirmed.

**Finally, a footnote:** sharp eyed naturalists who read about our low tide visit to Kirki Geo and Sompal will have noticed an error in my description of *Alcyonidium diaphanum*. It is of course a bryozoan (=sea mat) and not at all closely related to the dead man's fingers as I erroneously claimed!

Nick Riddiford, 13<sup>th</sup> August 2006