

Jacob Ashton – Pembrokeshire, Orielton Field Trip Report, March 2015

I and several dozen other students headed to Orielton Field Centre, Pembrokeshire for a week, with the aim of investigating the variety of ecosystems found in the area.

On the first day we spent the morning exploring the surrounding woodland, finding a variety of plant species which exhibited various interesting traits. For example, we found ferns with sporangia, the spore-producing component of the large sporophyte, present on the undersides of the leaves. We also found examples of both 'pin' primrose variants where the style is taller than the stamens, and 'thrum' variants where the opposite is true. This is to minimise self-fertilisation and promotes genetic variance as the two variants are rarely found in close proximity. In the afternoon we did pond dipping at sites of both running and standing water, finding considerably more organisms in the latter. Notable creatures included a large number of caddis fly larvae with self-assembled camouflage intact, great diving beetles and newts. We were able to identify adaptations that indicated whether organisms' ancestors had made the transition from land or from salt water.

We had a good view of the solar eclipse the next morning, before visiting a sandy shore when the tide was at its lowest, exposing a lot of organisms that would usually be submerged. Armed with many collecting jars, spades and buckets, we discovered a wide variety of organisms such as sea potatoes, sea hares, burrowing anemones and several crab species, most interestingly the burrowing *Corystes* crab. We took many specimens back to the lab where we set up oxygenated aquariums to keep them alive. In the evening we silently approached a sett to look for badgers, but with no luck, although camera traps later revealed that they were at large.

The next morning we visited a more rocky and exposed shore, which revealed a collection of organisms very different from those we had collected the day before. These included long-armed crabs, squat lobsters, and the egg sacs of dogfish (one detached one containing a live embryo), as well as sea slugs and sea cucumbers. We also discovered several adult dogfish on a peninsula that had become stranded at low tide, which we returned to the sea.

On the following day we took a trip to some clifftops for a spot of birdwatching, identifying guillemots, kittiwakes and even a peregrine falcon. We then took a walk through a country park to a dramatic coastline, where we performed a transect up a cliff face to investigate whether the frequency of submersion affected the species we found. We discovered that mussels and barnacles were more prevalent at lower heights, whereas lichens were more dominant higher up. We then explored some caves in the surrounding rocks.

After that, it was time to decide a project for the next couple of days. I and a partner decided to investigate whether the shell colour of rough periwinkles was correlated to the rocks they were found on, and extended this to see whether they had a preference for rock colour if left in a tank overnight with a variety of rocks. To collect our samples we returned to the beach we had visited the day before, and collected periwinkles from a variety of different rock colours and relative exposures. We then took these back to the lab and analysed the colour morph frequencies. We found absolutely no correlation between rock colour and shell colour, nor shell colour and rock preference. We did however find a correlation between larger size and paler shells, leading us to hypothesise that pigment was lost as the periwinkles grew. The following day we presented our findings and watched the presentations of the other groups, before our specimens were returned to their respective locations. We left Pembrokeshire feeling that we had benefitted from the experience and expertise on hand.