Stonedge Cupola pond
by Alec Rapkin

On Saturday 8th September, 2007 the DNHS morning trip to this site was to see dragonflies. The weather was too cool and overcast for them to be flying, although we saw a few specimens of one of the acid bog-pool's specialities, the emerald damselfly, both male and female: the male has pruinescent blue at the top and bottom of its green abdomen.

The other specialities of this pool are the common hawker (not at all common in Derbyshire) and the black darter. I had visited here a fortnight ago and seen plenty of common hawkers and emerald damselflies, but no black darters. It has not been a good year generally for dragonflies (or butterflies) due to the cold wet weather. The exception has been the golden-ringed dragonflies at Bar Brook, near Baslow. In August I followed the brook north from the bridge for an hour or two and saw nine of these spectacular dragonflies.

David Gibbons - dipping at Cupola Pond

Dragonfly eggs usually hatch out 2-5 weeks after laying, but some overwinter and hatch in the spring, as is the case with the common hawker, the black darter and the emerald damselfly. Whether this has to do with shared conditions and habitat, or is coincidental, I don't know. The darter and damselfly larvae usually develop and emerge within a year; with the common hawker the whole process takes 2-3 years (with the golden-ringed 5 years). There are 8-9 larval stages. Dragonflies can live up to 2-3 months.

When they are at rest dragonflies differ as to how they hold their wings. The damselflies have wings back parallel along the body, apart from the emerald damselfly that holds them out at an angle, below halfway. The larger dragonflies (in Derbyshire the emperor, and brown, southern and migrant hawkers) spread their wings out at right angles, while the darters, skimmers and chasers sprawl theirs forward of the body. In Derbyshire we have common and ruddy darters, black-tailed skimmers and four-spot and broad-bodied chasers.

In the absence of flying dragonflies, we were lucky to have David Gibbons to pond-dip for us and discover a number of creatures, including dragonfly larvae. The most striking was a fearsome, well-developed black darter larva, like a large beetle, which fed in the jar on an emerald damselfly larva. We also saw a small, early common hawker larva and that of a large red damselfly. Other creatures were a great water boatman, with its hypodermic bite, several newt larvae and a green caddis-fly larva (of the *Phryganea* species) crawling in and out of its self-rolled tube. There were numerous small fry: lesser water boatmen, phantom midge larvae and waterfleas.

The main vegetation of the acid-soiled site is the mauve heather, although there was also cross-leaved heath, some of it in pink flower. Around the pool was common cottongrass, and deep moss and sphagnum, (*Polytrichum commune* and *Sphagnum palustre*). Plants included marsh willow-herb, with very narrow leaves, marsh bedstraw, slender St. John's wort and dried stems of southern marsh orchid, plus gipsywort and lesser spearwort. We saw a few birds: swallows, kestrel, goldfinches, willow warblers and, on a telegraph pole, a great spotted woodpecker.

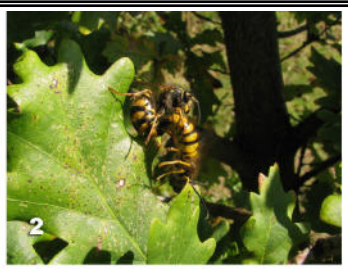
The site is dominated by the industrial chimney, the oldest in Britain, square-built in gritstone, around 1770. The acid bog-pool was its millpond. It was in use for over a hundred years as part of a lead smelting works from which the site takes its name. The type of furnace used was the 'cupola' or reverberatory furnace, coal-fired, reflecting the heat, connected by longer and longer flues to the chimney, which created draught and drew off the poisonous fumes. The lane leading here is Belland Lane, named after the lethal sickness cattle contracted from eating contaminated grass.

We visited the several further pools, which are much less acid, since they contain some fish for local fishermen, and a different set of dragonflies. We only saw common blue damselflies here today, but I have seen emperors, common darters, brown and migrant hawkers in the past. Also in this area we found the purple-tinged viviparous fescue grass, that puts out plantlets rather than seeds.

By way of postscript: on the following day and for the next week, it was sunny. I revisited on the Tuesday and saw at the acid bog-pool 4 or 5 black darters, a brown hawker, common darters and half a dozen or so common hawkers. Two pairs were mating and did a manoeuvre that I have never seen before: when in tandem (rather than fully joined in the wheel shape), they did a twirling tumble or somersault in mid-air.

Cupola Pond: The party and some animals found:
Above: Caddis Larva and its tube, *Phryganea sp.*
Top Right: Emerald Damselfly, *Lestes sponsa*
Far Right: Blue Damselfly, *Enallagma cyathigerum*
Centre: Smooth Newt Larva

Insect Photos by Marion Bryce, Others by David Holmes



Sequence of photographs of the mating wasps, taken at New Lount. Notice the blur of the whirring wings of the larger female in No. 4.

by Bill Grange

Mating Wasps
by Bill Grange

At New Lount Local Nature Reserve in Leicestershire, on the annual fungus foray of Derby Natural History Society on 20th October 2007, a small group of us watched a pair of common wasps mating. As the mating progressed, the female looped over and proceeded to rhythmically scrape the rear of the abdomen of the smaller male with her mandibles. All the time the male's wings were vibrating at high speed, while those of the female were immobile. Eventually, after about 10 minutes, the pair separated and flew off in different directions, not before I managed to take some photos.

This is the first time any of us had observed mating in social wasps - and it was a fascinating experience. I gather not many other people have seen it either.

We were surprised, not only by the behaviour of the wasps, but at the fact that the time of year would seem rather late for mating. Another consequence of climate change, I wonder?