

## A YEAR OF MIXED FORTUNES

2009 was a year when we had expectations of perhaps a better year, weather-wise, which would lead to a better year for some species groups which have undoubtedly suffered from the vagaries of the weather in the last few years. However, it wasn't to be though we were given a promise of a better summer, courtesy of the Met Office (which turned out to be wrong!) and a few glimpses, in June, of what might have been!

In addition, it is unfortunate that the level of recording has declined in the last two years, despite the efforts of a number of regular recorders (around 1,800 records in 2009 compared with nearly 5,000 records a few years ago). Some of this reduction, however, is undoubtedly due to the decline in numbers of some species groups, particularly butterflies and to some extent dragonflies – you



Water Vole © M. Richardson (for report on status in 2009, please see page 12)

can't record what isn't there!

It has, however, been possible to continue the Water Vole survey and the butterfly transect, and work has continued on endeavouring to extend the knowledge of other groups, particularly invertebrates. This continued recording work regularly turns up species new to the site to add to the impressive list of species already known to be present.

As well as the contributors to Recorder, I would like to thank all those specialist groups and individuals whose expertise and skills contribute to furthering the knowledge of the wildlife of the Reserve. JOHN HANCOX

## THE WEATHER IN 2009

The weather in **January** was predominantly cold with winds often in the northerly quarter and pressure relatively high. This pattern was punctuated occasionally as Atlantic fronts brushed across bringing small amounts of rain.

The first half of **February** was predominantly cold with wind from the easterly/northerly quarter bringing sometimes clear skies and overnight frosts together with some small accumulations of snow. From mid-month, the high pressure over Scandinavia that had controlled the weather slipped east allowing depressions from the west to bring somewhat milder and often windy weather.

This theme continued in early **March** with some heavy rain on 3rd. The rest of the month though was mainly dry with variable temperatures and windy at times.

**April** was another mainly dry month, with less than half the normal rainfall, and temperatures above the long term average.

**May** began with windy weather. There was a spell of heavy rain mid-month and the monthly rainfall was above average. The Met Office predicted a hot summer which everyone was looking forward to after the indifferent weather for the last two years.

When **June** commenced, it looked as if the Met Office had been right with warm, sunny weather which continued for much of the

month and into early July. Rainfall was about 60% of average and the mean temperature was above the average, though there were no really hot spells.

The first few days of **July** continued this theme with the highest temperatures of the year reaching 31°C on 1st and 29°C on 2nd. Temperatures remained relatively high for a few more days but then it all changed with a mainly wet and sometimes windy period of weather to the month end. Rainfall was about 80% above average. Despite the hot few days at the beginning of the month, temperatures were below average for the month as a whole.

Temperatures picked up during **August** and were above average for the month. Whilst it was often fairly cloudy, it was relatively dry with rainfall about 2/3rds normal.

In many ways, **September** was a repeat of August with temperatures above average and rainfall about a quarter of normal, though it was often cloudy while the pressure remained high.

Early **October** was wet and windy though most of the rain was to the west of the area. The rest of the month was mainly settled with high pressure dominating though this occasionally brought in cloud from the east coast. Temperatures were around 2.5°C above average and rainfall about 2/3rds of normal.

The Met Office was predicting a mild winter and the portents from **November** were good in that it was a predominantly mild month with south-westerly winds bringing rain to many parts and flooding in the west. Temperatures were around 3°C above the long term average. At the end of the month, temperatures started to fall.

**December** was a cold month with overnight frosts and temperatures around 1°C below the long term average. Precipitation was mainly of light snow showers. Under the influence of a high to the north west, feeding in cold winds from the easterly/northerly quarter, many days were sunny and cold with little fog. The Met Office once again had to amend their predictions of a mild winter to one with below average temperatures, as January was to show! JOHN HANCOX

The weather statistics have been obtained from [www.johnholmes-weather.co.uk](http://www.johnholmes-weather.co.uk).

### Editor's Note

This is the 13th issue of Recorder which has, for the last 12 years, reported on the volunteer recording work on the Reserve (other than birds). In previous years, Recorder has been published as a paper copy as well as on the web but, for various reasons, this year's issue, covering the work in 2009, is published only on the web as a PDF. It can be downloaded free from the Friends of Potteric Carr website. Having been downloaded, Recorder can be read on screen, or printed out in full or as individual pages.

# BUTTERFLY TRANSECT

For the 13th year, a transect was carried out along Loversall Bank from mid June to end September. All the walks were carried out by the author assisted at times by wife Maureen.

The transect uses a route which embraces the whole of Loversall Bank from St. Catherine's Curve to the A6182. This is divided into 12 arbitrary sections for consistency of recording. Whilst the official scheme recommends recording on the basis of a 5 m spread, on this census we have recorded within the confines of the bank, even though this may exceed 5 m slightly. However, because this is carried out on the same basis each year, it provides consistent results which can be compared year-on-year and indeed with earlier years.

The last three years have been somewhat troublesome years for butterfly numbers not only at Potteric Carr but also more widely in the country. The graph gives some indication of a slight improvement in fortunes.

It shows the cumulative totals of the weekly counts on the transect comparing the average for the period 2000/2006 with separate lines for the last three years. This shows 2009 being higher than the last two years but lower than the average for 2000-2006 up to week 18 but then matching the longer-term average to the end of the survey. However, the last 8 weeks or so have much lower counts after the peaks of Gatekeepers and Ringlets during July and are dependent often on Speckled Wood (third brood) and

migrants of which there were very few in 2009.

Whilst all species encountered are included in the transect, only four species – Ringlet, Gatekeeper, Meadow Brown and Speckled Wood normally produce significant numbers for meaningful study. The remainder



Newly emerged Ringlet © J. Hancox

tend to be species passing through, within the Reserve or on migration.

Table 1 illustrates the general change in numbers of these four key species on the

transect. Whilst Ringlet and Gatekeeper show a reduction (15% and 40% respectively), Meadow Brown and Speckled Wood show increases (75% and 66% respectively) though these latter are on relatively low counts. Gatekeeper appeared to be reduced partly due to the lack of suitable food plants along the bank and partly due to rain in their peak season in July.

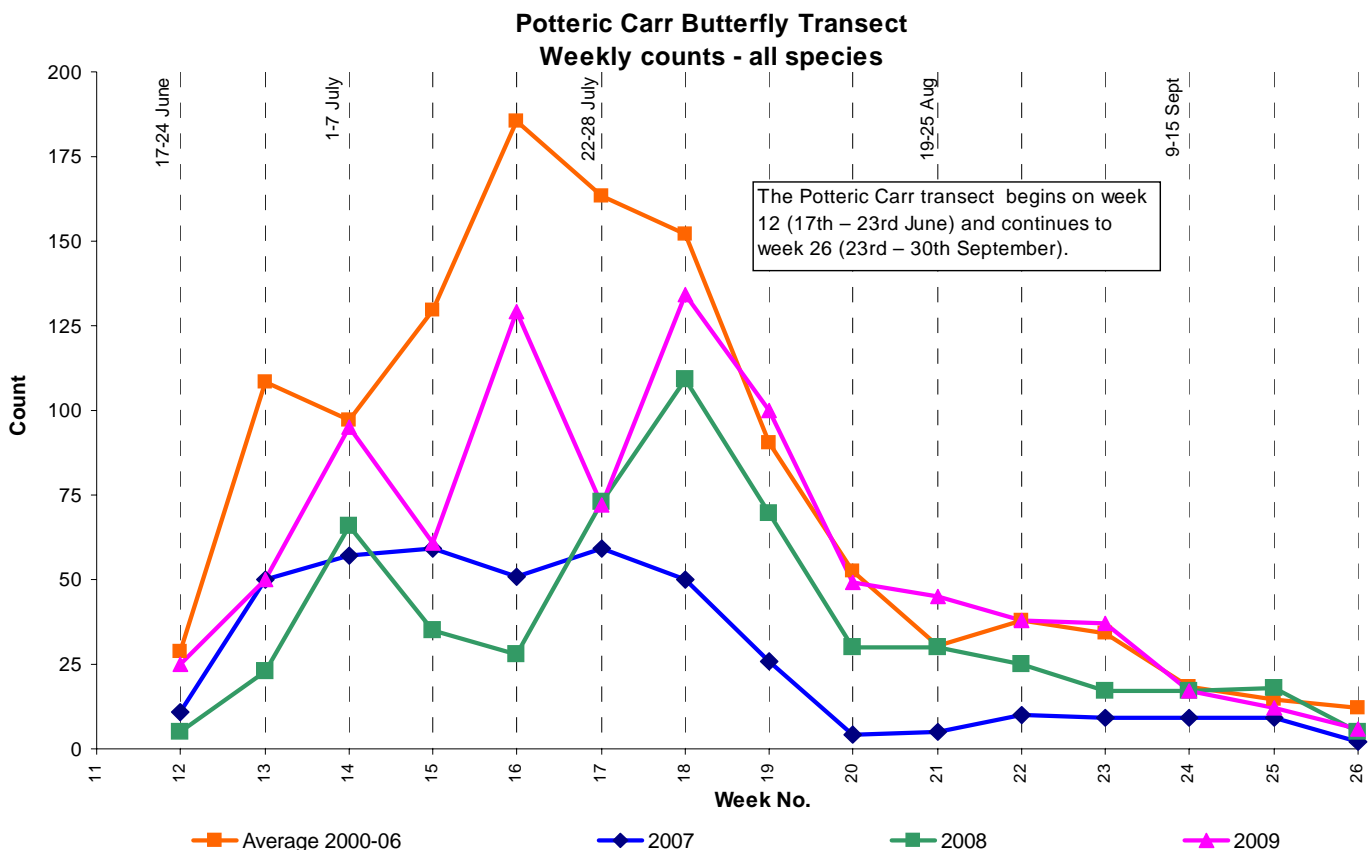
As a comparison, the numbers recorded on the transect in 2009 are broadly comparable to those recorded in 1998/99.

It should be pointed out that it isn't possible to extrapolate the results of the transect to the whole Reserve and it may be that elsewhere on the Reserve, and for species that aren't swept up by the transect, e.g. Common Blues, and transitory species, such as the whites, Brimstone, Vanessa's, etc., numbers may vary from those found on the transect. Subjectively, it did feel as though butterflies were still not so numerous – a discussion on individual species is given in the report on page 3.

JOHN HANCOX

Species	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Ringlet	18	60	106	100	118	160	124	62	60	47	65	55
Gatekeeper	42	67	99	73	122	245	124	43	59	28	62	38
Meadow Brown	28	49	83	54	28	41	15	6	9	14	8	14
Speckled Wood	12	13	63	61	33	36	53	16	22	10	21	35

Table 1 : Key Species – Peak Counts



# BUTTERFLY YEAR

Butterflies have now suffered three years of poor weather and consequently the numbers of some species continue to be depressed, though there was evidence of a slight increase with some species, but nowhere near the numbers of only a few years ago. Whilst weather is obviously a major factor in the life of butterflies, the suitability of their breeding habitats and availability of food plants is also a key factor and there is some evidence that this may be a particular factor at Potteric Carr. However, the reduced recording activity as reported elsewhere could also be a factor in fewer records being received.

The massive immigration of Painted Ladies in late spring augured well for numbers in July/August, but that never happened either, at least not at Potteric Carr. Also, there were hardly any records of Red Admirals. On the plus side, the summer months were relatively dry if often cloudy in this region – the wrong sort of anticyclone! Whilst numbers overall appear to be up slightly on 2008, they are still somewhat disappointing.

## SYSTEMATIC LIST

The following is a summary of the records.

The +, = or – in brackets, is a comparison with 2008.

**Small Skipper:** Another poor year at Potteric Carr though a slight improvement on 2008. Peak count 25 on 4/7. (2008 peak: 12) (+). Whilst they appeared somewhat later than usual, there was a slight increase in numbers. They prefer fairly rough grassland such as in Loversall Field.

**Large Skipper:** Another poor year for this species with a max. count of only 6 on 23/6 (2008 peak: 5)(=). This species has never been particularly numerous on the Reserve with peak counts generally being below 20.

**Clouded Yellow:** No sightings in 2009.

**Brimstone:** A below average year for this species with a peak count of 8 of overwintered butterflies on 19/4 (2008 peak: 6)(+) and 7 on 6/8 – this year's brood. This extremely brightly coloured butterfly, especially the male, brightens up even the duller day.

**Large White:** A better year for this species with a max. count of 142 on 6/8 (2008 peak: 4) (+) There was a large influx of this species from the continent at the end of July and this is probably why the large count occurred in early August as the butterflies moved inland.

**Small White:** The comments for Large White above generally apply to this species. The peak was of 64 on 6/8 (2008 peak: 11) (+).

**Green-veined White:** As usual, this species was seen regularly in small numbers throughout the period April to September. The maximum counts were 1st brood: 19 on 26/4; 2nd brood: 96 on 6/8, the latter figure maybe indicating an influx from the continent. (2008 peaks: 23/41) (+ +).

**Orange Tip:** This attractive butterfly has a relatively short flight period from early April to early June. The peak was 11 on 26/4. (2008 peak: 11)(=). The male butterfly – the one with



Brimstone male © J. Hancox

Continued on page 4

# DRAGONFLY YEAR

Since there were very few actual counts of damselflies and dragonflies in 2009, it isn't possible to produce a detailed account of the year. However, first and last dates were recorded (page 11) and it was at least possible to make subjective assessments of the numbers present.

The first to emerge, as usual, were the **Large Red Damselflies**, closely followed by **Azure** and **Blue-tailed Damselflies**, both before end April, slightly earlier than usual. The Large Red Damselflies were not so numerous as in previous years and the last sighting was 13/6 five weeks earlier than the mean. Azure and Blue-tailed damselflies were also not so numerous as in other years, though they were still fairly ubiquitous, and once again the *rufescens* form of the female Blue-tailed was the one most frequently seen.

Early May saw the emergence of **Common Blue Damselflies** and **Four-spot Chasers**. Again, these were not so numerous as in previous years and, in particular, the activity of the Four-spot Chasers at the small ponds in Loversall Field was much lower compared with previous years.

The colourful **Broad-bodied Chasers** were next to appear on 21/5 and the number of sightings was certainly lower than in previous years – in fact there were very few records up to the last sighting on 21/6 over one month earlier than the mean date. **Black-tailed Skimmers** continue to be something of an enigma. They seem mainly to be seen as immatures/newly emerged and then very few

records are received of mature insects until the last sighting which, in 2009, was early August.

Records of **Banded Demoiselle** held up reasonably well, mainly centred on Mother Drain and Cottage Drain. There was a count of 16 on 21/6. **Emerald Damselfly** appeared on 23/6 after which there were just a few



Four-spot Chaser © J. Hancox

records and a count of 37 on 8/8, the last sighting being 6/9.

We were quite encouraged when, in early June, the exuviae of 17 emerged **Emperor** dragonflies were found in one of the ponds in Loversall Field – but then no adult dragonflies were seen for some days and even then only 1s and 2s were recorded. The level of activity – patrolling, ovipositing – in the ponds in Loversall Field was much lower than usual.

There was just a single record of **Hairy Dragonfly** in June. Early July saw the emergence of **Brown Hawkers** and **Southern**

**Hawkers** with just one record of **Common Hawker**. These were joined by **Migrant Hawker** at the end July. None of these were seen in the usual numbers though Migrant Hawkings were on the wing to the end of October.

The one bright spark in an otherwise indifferent year for dragonflies was the **Common Darter**. They appeared as usual in mid June and numbers continued to build until throughout August they were quite numerous, mainly of rather olivaceous old individuals. They continued on the wing until mid-November. Sadly, the same cannot be said of the other two darters. The first **Ruddy Darter** was not seen until mid August, after which there were only ten sightings until the last on 10/9. There was a single unconfirmed report of a **Black Darter** in Loversall Field.

Overall then, a disappointing year. To what extent this is due to weather – many species may have been affected by the wet summer of 2007, since they are on a two-year breeding cycle – is not known, and the poor weather during 2009, particularly July and August, may have been a further factor.

The above report is based largely on the sightings of the author who mainly covered the western end of the Reserve.

Despite the fact that there were few records from other parts of the Reserve with water bodies such as Piper Marsh and Huxter Well, for most species it is felt that the results may be indicative of the whole Reserve.

JOHN HANCOX

**Butterflies (continued from page 3)**

the orange tips to the wings, is the one most often reported. The female is not very often reported – it tends to keep a low profile and the underside of its wings are cryptically coloured making it more difficult to locate.

**Purple Hairstreak:** There were only two sightings of this species, both of individuals on 8th August on Loversall Bank and Willow Bank. The usual July sightings were probably reduced by the mainly cloudy, windy and often wet weather.

**White-letter Hairstreak:** There was only one record of this species of 4 individuals in the usual tree along Loversall Bank. The note about weather for the previous species also applies.

**Small Copper:** Seen in 1s and 2s on only 7 dates from late May to early September. (=). This species now appears to have limited distribution on the Reserve, its former stronghold, Black Carr Field, no longer being suitable. However, it was never numerous and is easily overlooked.

**Brown Argus:** Although there were only four sightings, there was evidence of two broods with two sightings at end May/early June and two sightings in early August. The comments about the previous species also apply to this species.

**Common Blue:** Two broods were recorded with a first brood peak of 26 on 14/6 and a second brood peak of 36 on 6/8 (2008: 101)(-). Again the peak counts were in the overspill car park which would indicate that the habitats on the Reserve itself are unsuitable for this species. Numbers elsewhere in Yorkshire continue to be reported as being very low.

**Holly Blue:** Only two records of singles one

in May and one in August. This species is almost certainly a visitor to the Reserve.

**Red Admiral:** For the second year, there were only a few records of this species with 1s and 2s being seen from early July to October. The origin of these butterflies is not clear (per British Wildlife October 2009), which would indicate that they may not be migrants!

**Painted Lady:** After the dearth of this species in 2008, massive numbers (reported as maybe billions!) were seen entering the country from the continent around late May/early June promising a "Painted Lady year". There were counts on the Reserve of 35, 24, 25 on 29/5, 30/5, 1/6 respectively, mostly of butterflies flying through with great purpose and very few being reported as settling. However, the expected large numbers of progeny from these butterflies never materialised, the weather during July and August being considered a factor, though very large numbers of larvae were reported in some parts of the country, as were an unusual number of aberrant adults. The peak count on the Reserve was of 105 on 6/8, somewhat less than the totals reported in 2006, but other counts were mostly in single figures.

**Small Tortoiseshell:** This species continues to be at a low level with counts on only 36 days of 1-3 individuals. There were, however, encouraging reports of increases in the south of the country but not in the north!

**Peacock:** A number of large broods of caterpillars were discovered along Cottage Drain in early July (see below for a sequence of the life cycle of this species). The maximum counts were: overwintered, 12

on 21/4 and summer brood, 161 on 6/8 (2008 peak: 14) (+).

**Comma:** Small numbers of overwintered butterflies were seen during April and May. Up to 4 individuals of the summer *Hutchinsoni* brood were seen in late June/early July. The late summer brood again produced relatively small numbers except during late September when there was a peak count of 30 on 20/9. (2008 peak: 35) (-)

**Speckled Wood:** This butterfly is a common sight and can be seen most days from April to October, being fairly tolerant of damp, dull weather. There are normally three broods, the apparent peaks being 1st brood: 13, second brood: 40 and third brood: 66 (2008 peaks: 17/38/31) (- + +).

**Gatekeeper:** Once again, the indifferent weather during this butterfly's peak emergence/flight period reduced numbers. After an encouraging recovery in 2008, numbers were once again down with a peak of only 69 on 6/8 (2008 peak: 183) (-) It seems unbelievable that we recorded over 1,000 butterflies on the site in one day only a few years ago!

**Meadow Brown:** Once again, this butterfly seemed more common than in recent years. The peak count was of 105 on 6/8. (2008 peak: 91 on 27/7) (+). However, this is still some way short of the over 1,000 recorded in the early 1970s.

**Ringlet:** Another of the "browns" which has a relatively short flight period, those newly emerged having a rich dark brown colouring with a silvery edge to the wings. Numbers were slightly up in 2009 with a peak of 118 on 4/7 (2008 peak: 92) (+).

JOHN HANCOX

## Peacock Butterfly, Caterpillar to Adult

This year, as frequently happens, there was an abundance of Peacock butterfly caterpillars in the summer and the pictures below portray their growth cycle from 2 days up to adulthood. Unfortunately, it is often difficult to find this butterfly's pale cream eggs which are laid in haphazard clusters near the tips of nettle leaves in a sunny location. The eggs hatch after 10 days and the tiny caterpillars grow rapidly congregating in a mass of silk threads. After 2 days they are up to 10 mm long, covered in tiny hair-like processes

which eventually become spines as in the adult larva, which was photographed 12 days later. The caterpillars find a suitable stem or leaf and hang upside down. They are then shaped like a fish-hook, at which stage the skin splits to reveal the bright green chrysalis, here shown alongside another caterpillar which has not quite reached this stage. The new chrysalis contains a liquefied mass from which the butterfly develops. The changes can be seen through the thin skin of the chrysalis after 10 to 13 days, with emergence tak-

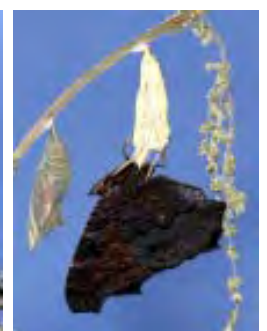
ing place usually after around 15 days; quite a fascinating lifecycle! The butterflies overwinter as adults appearing early in spring to start the breeding cycle all over again.

TEXT AND PHOTOGRAPHS © D. BATESON



Peacock Butterfly:

Below L-R: Caterpillars – two days old; about to pupate; chrysalis – just pupated; at 14 days; butterfly emergence. Above: caterpillar @ 12 days



# ABOVE & BELOW THE WATERLINE

Following on from the publication of my book 'Gems of Potteric Carr' in 2009, I have been approached to illustrate two forthcoming books in specific invertebrate areas, one of which is for the wide diversity of water beetles which occur in the Yorkshire area.

Using a special tank, I had previously photographed slow-moving species such as newts which are relatively easy to photograph. However, rapidly moving and small beetles present a different problem, so I decided that more practice was needed. Accordingly, I then photographed several species of underwater, and terrestrial invertebrates using a number of techniques in order to capture the sometimes rapid movements of some of these interesting creatures.

Last year, I carried out a small survey on the waters of Huxter Well Marsh, and one of the species found was Horse Leech *Haemopsis sanguisuga* which made an ideal starting point as it was relatively sluggish and easy to photograph.

Other slow-moving species are two water snails which appear in all the waterbodies at Potteric Carr in some abundance. The first of these is the Great Pond Snail, *Lymnaea stagnalis*, plus the Great Ramshorn Snail, *Planorbis corneus*, which again were easy to photograph (page 6). I then moved on to some of the species regularly found on surveys. Caddis Fly larval cases in their wide variety of types occur across the Reserve and this example shows the larva half out of its case, looking to devour some toad spawn.

Damselfly larvae are numerous, easy to distinguish with their three tail-like breathing appendages called lamellae. They differ in size and appearance from their much larger and more fearsome cousins, the dragonfly larvae.

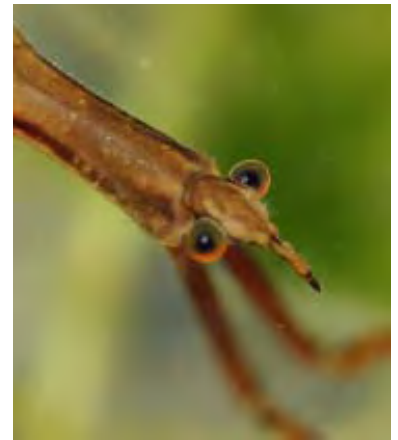
Moving on to water beetles, we have in excess of 70 species recorded, comprising diving and scavenger type water beetles, many quite tiny and difficult to separate. The largest, and for that reason the most well

*continued on page 6*

Horse Leech *Haemopsis sanguisuga*



Above: Larva of a caddis fly about to eat toad spawn  
Below: Female Great Diving Beetle (left) and Water Stick Insect (right)



Larva of a dragonfly (above) and a damselfly below showing the breathing appendages (lamellae) at the tail end



*Above and Below the Waterline (continued from page 5)*

known, is the carnivorous Great Diving Beetle, *Dytiscus marginalis*, and the illustration (page 5) shows a female with an extensively ribbed pair of elytra. The second of these large species found at Loversall Delph is *D. semisulcatus*, which is superficially similar to the first species, but with a darker ventral surface. The larvae are predacious, feeding on smaller beetles, caddis nymphs, tadpoles etc., and may be separated by the shape of the head, *semisulcatus* having a somewhat square

head. Breathing is through the tail appendages as in the damselflies.

Backswimmers, or Greater Waterboatmen are water bugs, not beetles, and are common in all waters around the Reserve. These are in the family Notonectidae, which swim vigorously on their backs using their hair-fringed hind legs as paddles. We also see Lesser Waterboatmen, in the family Corixidae, which is a very large family of water bugs with short forelegs and oar-like hind legs.

Perhaps the two most interesting water bugs are not so often seen although they have been recorded many times here, particularly in Loversall Delph and the adjacent water bodies. The first of these is easily overlooked as it is a sluggish species hanging on to waterweed. It is the Water Scorpion, *Nepa cinerea*, some 50 mm (2") long with a flattened body including the breathing tube and has specially adapted forelegs for grasping prey and to bring this to its beaklike mouth. The image shows a view of these appendages. Another Water Scorpion is more generally known as the Water Stick Insect, *Ranatra linearis*, up to 75 mm (3") long, very slender, but with similar raptorial forelegs for gripping prey. The image on page 5 is a close-up shot to demonstrate its green and orange eyes and beak-like mouth.

The Saucer Bug, *Ilyocoris cimicoides*, is a fierce, broad-bodied, flattened bug whose bite can be extremely painful. I was unlucky

not to find any specimens in 2009.

Moving now to the water surface and around the margins of pools, we can expect to find Water Measurers, *Hydrometra* sp., which are generally wingless, very slender bugs with a long head, and are dark brown or blackish in colour. These feed on water fleas, mosquito larvae, etc., which they spear with the rostrum or beak.

Common too are the smooth, shiny Whirligig Beetles, probably *Gyrinus* sp., which zoom around like miniature motorboats disturbing the water surface with tiny ripples, making them readily visible. They are extremely fast and wary, and difficult to photograph. Another surface dweller is the Pond Skater, *Gerris* sp., of which two species appear on the Reserve. Their first pair of legs is well separated from the two rear pairs which are very long, but all the tips of which rely on the surface tension of the water to support this 15 mm long slender bug.

From time to time, small invasions of Water Cricket, *Velia caprai* occur. They may be found living on the surface of slack water areas, often in water control enclosures. They are a dark brown or blackish colour with two bright orange stripes along the sides, and may be winged or wingless as can be seen from the two illustrations.

The fauna to be found in and above the waters of Potteric Carr are fascinating in their variety and I am looking forward to 2010 in order to continue recording them.

TEXT AND PHOTOGRAPHS © D. BATESON



Top to bottom:  
Water Scorpion, Water Cricket and Great Pond Snail



Above: Water Measurer  
Below: Great Ramshorn Snail



# MORE FUNGAL FINDS IN 2009

Although the season started relatively late due to the very dry autumn, the odd rain shower in October and November brought on several flushes of fungi in different parts of the Reserve.

Fungi, having symbiotic mycorrhizal associations with some tree roots, are susceptible to habitat change and a good example is Black Carr Field, where one large birch tree and many saplings have been removed. For years this has been an excellent area for one of our best known fungi, the colourful Fly Agaric, *Amanita muscaria*, producing 30 or more specimens annually – but this year there were only a handful which may be due to the removal of the trees. Specimens do occasionally occur in several other areas, and the illustration shows a typical, mature specimen.

The Blusher, *A. rubescens*, produced a fine specimen beneath one of the remaining birches in Black Carr Field, and a few days later a total of five fruiting bodies had emerged. This clearly shows the pinkish colour, from which the name derives, which appears when this fungus is cut or damaged; also the warty growths on the cap, typical of *Amanita*, plus the large striated 'veil' which remains on the stalk.

Black Carr Field, being grassy, is also a good place to find waxcaps, *Hygrocybe* sp., mostly red or bright yellow and this yellow example is probably *H. ceracea*. Another yellow fungus, spreading rapidly in this location is *Clavulinopsis lutea-alba*, producing spindle-like fruiting bodies, which virtually disappear overnight when touched by the first frost of the season. Several *Boletus* sp. can be found here, and an individual of the well-known Cep, *B. edulis*, measuring some 250 mm (10") across, grew under the bench early in November. Bay Bolete, *B. badius* also produced a few specimens. For some reason, *Russula* species, of which there are many, are often found broken or eaten by animals, so it was a bonus when two reasonable specimens are found together, as the examples of Fragile *Russula*, *Russula fragilis* shown here.

Both Corbett Wood and Childers Wood produce interesting fungi from time to time, and this year there have been some nice young specimens of Jew's Ear, *Auricularia auricula-judae*. Our commonest Earthstar, *Gaeastrum triplex* is found here as well as spreading into many other areas. Last year a visiting fungus found another Earthstar, *G. pectinatum*, new to the Reserve, and this year I found a group of twelve which I thought was this species, but on closer examination these turned out to be *G. fimbriatum* or *sessile*. *G. triplex* is larger with a whitish ring surrounding the peristome<sup>1</sup> on the spore sac, whereas *G. fimbriatum* has a pointed and striated

1: A fringe of small projections around the mouth of a capsule in certain fungi. OED



peristome.

Blushing Bracket, the Birch Polypore, Turkeytail and Horses' Hoof Fungus are to be found everywhere, as are Common Earthballs, several *Coprinus* sp., and a very wide variety of small *Mycena* sp., which are very difficult to determine in the field.

Near the lighted crossing, two bluish capped fungi were found which puzzled me until I got down to ground level (with some difficulty) to smell them. From the strong smell of aniseed it was obvious then that they were the Aniseed Toadstool, *Clitocybe odora*, which occurs infrequently here, although it is not a rarity. Also in this area and elsewhere, there were large circles of Clouded Agaric and, close to Decoy Marsh, a group of what I provisionally believe to be *Agaricus langei*.

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Top, Fly Agaric; centre left, The Blusher; centre right, Fragile *Russula*; bottom left, Waxcap, *Hygrocybe ceracea* plus *Mycena* sp.; bottom right, Aniseed Toadstool (all © D. Bateson)

## Refer to article on Moths on page 8



Sycamore Moth showing above, the caterpillar ready to pupate and, below, the mound of rotten wood in which the caterpillar has pupated



The Peppery moth in its various forms – normal (top), intermediate (centre) and melanistic (bottom)

# MOTH RECORDING IN 2009

2009 has been another profitable year for moth recording at Potteric Carr. Some 40 new species have been identified and the total recorded, updated and corrected, since recording began way back in 1973, now stands at an impressive 690 species.

Most of the new records have resulted from the frequent moth trapping sessions that were held in the Compound between April and October. Despite the rather unpromising surroundings, trapping here can be excellent. Particularly high numbers were trapped in the peak emergence period in late June and July, and on 1st July, 128 species were recorded, an excellent total.

The rarest species newly recorded was the micromoth, *Parachronistis albiceps*, a small black and white Gelechid trapped on 1st July. This was the first record of this species in Yorkshire since the 19th Century, and only the third example recorded. So this is a significant find. The larva feeds on hazel, so is perhaps an unlikely species to be found at Potteric Carr.

Also interesting were the two examples of another Gelechid, *Gelechia muscosella*, trapped on 14th June and 1st July. This species was first recorded last year, and its presence in two successive years and the fact that two were recorded this year, provides strong evidence that the species is breeding on the Reserve. This is important because, not only is this a rare moth in Yorkshire, it is extremely scarce nationally. It is primarily a fenland species, associated with willow (*Salix*) and poplar (*Populus*) and is otherwise largely restricted to classic fenland localities such as Wicken Fen (Cambridgeshire).

Not as rare but at least as exciting, the next species was not found by trapping or any other usual recording method but was more in the nature of a happy accident. This was a caterpillar of the Sycamore moth *Acrionicta aceris*, that dropped from a tree along Lovells Bank and attached itself to Derek Bateson! This was on 20th September. The caterpillar was full grown and would have been looking to drop to the ground to seek out a pupation site. As can be seen from the photograph on page 7, it is one of the most attractive of moth caterpillars. After being photographed, the caterpillar was given some rotten wood and it immediately began constructing a cocoon within which it would pupate. The cocoon was retained and will be kept over the winter and spring and, hopefully, will successfully breed out in the early summer. The adult, however, is grey and not nearly as handsome as the caterpillar.

Of the remaining species that were newly recorded this year, it is worth mentioning *Monopis weaverella*, *Coleophora inulae*, *Oegoconia deauratella*, *Hellinsia lienigianus*, *Batrachedra pinicolella* and Treble Lines *Charanyca trigrammica*. These are all species that are relatively scarce or local in Yorkshire.

Noteworthy species recorded again in 2009 included *Epermenia falciformis*, *Phalonidia manniana*, Maiden's Blush, *Cyclophora punctaria*, Scarce Footman, *Eilema complana*, Marbled White Spot, *Protodeltote pygarga* and Old Lady, *Mormo maura*.

Of course, the bulk of the 2009 records comprise the more common and widespread species. However, their very familiarity can hide worrying declines in some of these species. The revised BAP List of Invertebrates includes, in addition to the rarest species, a separate list of these nationally widespread but declining species, with the intention of highlighting their declines and stimulating research into these declines. Potteric Carr records tend to reflect these national trends. There are a number of BAP listed species that were established on the Reserve in the 1970s and 1980s but now appear to be extinct at Potteric Carr. These include, for example, Garden Tiger *Arctia caja* (last record 1977), Double Dart *Graphiphora augur* (formerly common, last in 1982), Knot Grass *Acrionicta rumicis* (1982) and, perhaps, Feathered Gothic *Tholera decimalis* (1997). Two current Potteric Carr species that have declined significantly in line with national trends are Mottled Rustic *Caradrina morpheus* (up to 30 per night in the 1970s cf. 4 max. per night in 2009) and Dusky Brocade *Apamea remissa* (up to 10 per night in the 1970s cf. 2 max. per night in 2009). Latticed Heath *Chiasmia clathrata*, Powdered Quaker, *Orthosia gracilis*, Oak Hook-tip, *Watsonalla binaria* and Sallow, *Xanthia ictertia* are other BAP listed species that are similarly much reduced at Potteric Carr.

In contrast, it is pleasing to record significant increases in some of the Reserve's species in recent years. These include, for example, Blotched Emerald, *Comibaena bajularia*, Large Twin-spot Carpet, *Xanthorhoe quadrifasciata*, Scallop Shell, *Rheumaptera undulata*, Dingy Footman, *Eilema griseola*, Southern Wainscot, *Mythimna straminea*, Treble Lines *Charanyca trigrammica* and Marbled White Spot, *Protodeltote pygarga*. Several of these appear to be recent arrivals, having been unrecorded in the earlier years.

A full list of all the species of moths recorded in 2009 is being produced. Similarly, an updated list of all the moths recorded at Potteric Carr since recording began in 1973 is also being prepared and I hope that both of these lists can be made available to anyone via the FOPC website later this year.

I should, once again, like to thank the reserve staff for their help, cooperation and interest in allowing me to use the Compound for trapping, often at very short notice. Thanks are also due to the photographers, principally Derek Bateson, John Hancox and Allan Parker for their photographs of moths taken at the trap emptying sessions and at other times. Their efforts have helped to bring

moths to the attention of many people who otherwise would not have appreciated what splendid creatures these are, all via the medium of the FOPC website, so ably managed by David Carroll. Derek Bateson's photographs of Canary-shouldered Thorn, *Ennomos alniaria* and, on page 7, the different forms, normal, intermediate and melanistic, of Peppered Moth, *Biston betularia*, all taken at the Reserve, amply illustrate the splendour and variety that moths possess.

I shall, of course, continue regular moth trapping sessions again this year. If anyone would like to attend the trap emptying sessions, I will try to accommodate them but do bear in mind that the main purpose of these sessions is recording.

TEXT © IAN HEPPENSTALL; PHOTOS © D. BATESON



Top – Bottom: *Parachronistis albiceps*; Scarce Footman, *Eilema complana*; Dingy Footman, *E. griseola* and Canary-shouldered Thorn, *Ennomos alniaria*

# INVERTEBRATES

Butterflies, moths, dragonflies and damselflies, and species related to water, are covered elsewhere in this issue of Recorder, so this article describes other invertebrate species found during the year.

## Beetles

As usual, there was a steady stream of sightings from May through the summer and there was a noticeable increase in the number of bright red Cardinal Beetles at the start of the season in various areas around the Reserve. By mid-year, all the umbellifer flowerheads were populated by mating pairs of another slimmer red beetle, this time the Soldier Beetle, *Rhagonycha fulva*.

We now have quite a choice in Longhorn Beetles, notably *Leptura maculata*, *Strangalia quadrifasciata* and *Agapanthia villosoviridescens*, all of which are now seen more frequently, together with several other less striking species which have been noted.

Some eight species of ladybird are seen regularly but in small numbers. Even the Harlequin Ladybird, *Harmonia axyridis* has not really proliferated as expected, but 20 miles away in Sheffield, conglomerations of 200 or more have appeared. Another ladybird, the Fourteen-spot, *Propylea 14-punctata*, has several forms, with black spots on yellow, or yellow spots on black, and then geometric designs of either, where the dots have merged. The one we see most often has a black design on the yellow elytra.

A Sexton Beetle, *Silpha tristis* was found and photographed outside the Field Centre in July – not a particularly striking species, because of its black colour.

Several species of Leaf Beetle were to be seen at different times including the rather attractive, metallic green Leaf Beetle *Chrysolina fastuosa*, pictured on page 10, not too dissimilar to the more frequently seen *C. polita*.

Another interesting species this year has been the Nettle Weevil, *Phyllobius pomaceus*, quite a colourful beast with its

metallic scales.

## Bugs

This year was a bumper one for many shield bugs with the Common Green Shield Bug being particularly numerous. Birch and Hawthorn Shield Bugs also appeared regularly. One bug that is often difficult to find is *Picromerus bidens*, a carnivorous species that preys on caterpillars and other soft-bodied invertebrates, but it turned up twice at least this year.

Early in the season, Allan Parker turned up a new species for the Reserve, the rather distinctive Sloe Bug, *Dolycoris baccarum* with purple-brown forewings and black and white markings to the lateral edges of the abdomen. Searching a few days later produced two more specimens.

Summer favourites are the Mirid or Capsid bugs with their wide diversity of shape and coloration. One type is shown on page 10, namely, Mirid Bug *Deraeocoris ruber*. *Miris striatus*, Common Green Capsid, *Lygocoris pabulinus*, and many other species may be swept from grasses and low herbage on surveys in mid-year.

## Bees, Ants, Wasps and relatives

From about March onwards, on sunny days, queen bumblebees of several species, but mostly *Bombus terrestris*, could be seen prospecting for suitable nest sites. Then, early in April several tiny mounds of fine earth appeared, surrounding 9 mm holes in Black Carr Field. By patiently sitting for a while, it was possible to observe the female Tawny Mining bee, *Andrena fulva*, excavating her underground nest. This is a very attractive bee as can be seen by the image.

Several individuals of another brightly coloured bee were seen early in April along Cottage Drain. This is the 'cuckoo' bee *Nomada flava*, which is highly likely to parasitise the previous species.

Sawflies of several species are numerous, none more so than the Figwort Sawfly,

*Tenthredo schrophulariae*, which has proliferated over the past three years. A new sawfly, attracted to a variety of flowers, is *Abia sericea*; this is an attractive species with the adults exhibiting metallic bronze or green coloration.

The Birch Sawfly, *Cimbex femoratus*, is fairly common here, but we only occasionally see the larvae and the image on page 10 shows a well-grown specimen.

Of the ants, the more usual species to be found are the ubiquitous red and black ants but, on lifting one of the reptile refugia, a different species was found and this was determined as *Formica fusca*, quite a large species with a hairy and banded abdomen.

## Caddis Flies

Because of their mainly night-flying habit, this is a very under-recorded group on the Reserve with no records prior to 2007. However, thanks to Ian Heppenstall's moth-trapping (which also attracts caddis flies), and Stuart Crofts' expertise in identification by counting the leg spines, we now have a list of 34 species of which 14 were new in 2009. In order to see some of the characteristics, an image of one of the 'Cinnamon' species, *Limnephilus marmoratus* is included.

## Diptera, or True Flies

Last year's Recorder carried an article on hoverflies found at Potteric Carr, so suffice it to say that it has been a reasonable year for many species which regularly feature, but it is worth noting that three which are less common: *Tropidia scita* (pictured on page 10), *Scaeva pyrastris* and *Metasyrphus corollae*, were found on several occasions.

Several species of Snipe Fly appeared regularly, notably *Chrysopilus cristatus*. The image on page 10 shows a mated pair. In 2009, however, there was a new species *Rhagio lineola*, kindly determined by YNU Recorder Andrew Grayson. Other species

*continued on page 10*



Left to right:: Sexton Beetle, *Silpha tristis*; Nettle Weevil, *Phyllobius pomaceus*; Tawny Mining Bee, *Andrena fulva*

**Invertebrates (continued from page 9)**

were seen by other observers, but not identified.

Everyone is familiar with the biting 'mosquitoes', which occur regularly in this wetland area, but some non-biting species can be easily confused as they are superficially similar in shape and size. One of these is *Chironomus plumosus*, a very important member of the food chain as its larva is more commonly known as a bloodworm, living in the mud of all our ponds. Many waters contain Mayfly larvae, notably *Baetis* sp. but not many adults are seen. Numerous craneflies have been noted throughout the summer period, particularly *Tipula* sp. In addition some of the more uncommon and smaller species, which appear at first glance to be 'flies', were seen; however, on closer inspection these might be *Ptychoptera minuta*

**Harvestmen, Spiders and other Arthropods**

Attending the Sorby Workshop on

Harvestmen last year aroused an interest in this unusual group of invertebrates, often confused with spiders because of their four pairs of long legs, the second pair being very long indeed. To date some seven species have been recorded here, but probably the most distinctive and now one of our commoner species is the 'Tuning Fork' Harvestman, *Dicranopalpus ramosus*, first found by the author some four years ago. The close-up image clearly shows the forked pedipalps from which its name derives.

Turning over rotting logs can be quite interesting and a variety of centipedes, millipedes and woodlice remain to be discovered. One new species this year was the Spotted Snake Millipede, *Blaniulus guttulatus*, very pale, but with bright red dots on the segments.

Spiders are quite fascinating too, and under-recorded on the Reserve, largely because of lack of expertise. Images of several species have been taken during 2009, one of

these being *Metellina segmentata*, which is extremely variable in appearance. The same applies to Garden Spider, *Araneus diadematus*, which this year has provided specimens from pale yellow to virtually black.

However, by far the most important find was the very attractive Fen or Bog Spider, *Araneus marmoreus* var. *pyramidatus* (Indet), the females of which have a large yellow and rich brown abdomen. As far as the writer was aware, there were no records of this species previously, but when Richard Wilson was asked for a determination, an exchange of correspondence ensued and it seems that a staff member had found a specimen two years ago, didn't enter it in our recording books but instead put the record in to the YNU Recorder. Richard is currently finishing off a Spider Survey of the Reserve, so we await this with interest – his pitfall traps have already produced fourteen more beetle species here (ID's courtesy of Bob Marsh).

TEXT AND PHOTOGRAPHS © DEREK BATESON



Top to bottom: Birch Sawfly larva; Caddis Fly, *Limnephilus marmoratus*; Spotted Snake Millipede, *Blaniulus guttulatus*

Top to bottom: *Araneus marmoreus* var. *pyramidatus*; Hoverfly, *Tropidia scita*; Mirid Bug, *Deraeocoris ruber*

Top to bottom: Snipe flies, *Chrysopilus cristatus*, mated pair; Harvestman, *Dicranopalpus ramosus*; Leaf Beetle, *Chrysolina fastuosa*

# EARLY AND LATE SIGHTINGS 1998 – 2009

The collation of early and late dates continued in 2009. The table alongside, gives the early and late dates for butterflies and dragonflies at Potteric Carr for 2009 together with the very earliest and latest dates recorded since 1998. The list also shows the mean earliest and latest dates for butterflies and dragonflies at Potteric Carr for the previous 11 years (1998-2008) – please note that those butterflies that winter as imagines and migratory butterflies are excluded.

This list can be used to judge the performance in the study year and provide an indication of expectations for the coming year.

The key dates, however, are the mean dates. Many species appeared before the mean early dates but none before the absolute early dates. For the early emergers, no doubt the somewhat milder weather in April may have helped, and for those emerging later in the season, the warm June could be a factor.

However, when it comes to the latest dates, most species disappeared earlier than the mean dates, in some cases very much earlier, e.g. Common Blue Damselfly (8 weeks early), Large Red Damselfly (5 weeks early) and Emerald Damselfly and Broad-bodied Chaser (4 weeks early). The ones that hung on longer were only a few days after the mean, despite the mild autumn.

Of course, this information is dependent on observations made. In this respect, the reduced observer activity may be a factor but the fact that so many were close to the mean gives some confidence in the data.

JOHN HANCOX

	First Sightings			Last Sightings		
	2009	Earliest	Mean	2009	Latest	Mean
<b>Butterflies</b>						
Small Skipper	23/06	05-Jun-07	19-June	06-August	29-Aug-00	14-August
Large Skipper	01/06	29-May-05	05-June	14-July	06-Aug-00	21-July
Large White	19/04	05-Apr-07	29-April	01-September	12-Oct-98	15-September
Small White	19/04	14-Mar-98	14-April	15-September	16-Oct-04	18-September
Green-veined White	05/04	02-Apr-02	12-April	15-September	08-Oct-00	22-September
Orange Tip	04/04	07-Apr-02	15-April	13-June	26-Jun-00	13-June
Purple Hairstreak	08/08	28-Jun-98	07-July	–	25-Aug-02	08-August
White-letter H'streak	23/06	13-Jun-04	21-June	–	02-Aug-08	27-July
Small Copper	30/05	07-Apr-02	08-May	05-September	18-Oct-98	02-October
Brown Argus	31/05	19-May-02	05-June	16-August	17-Sep-06	03-September
Common Blue	30/05	16-May-02	25-May	30-August	21-Sep-00	05-September
Holly Blue	23/05	11-Apr-99	13-May	–	05-Sep-04	15-August
Speckled Wood	05/04	04-Apr-07	12-April	12-October	14-Nov-04	15-October
Wall Brown	–	09-Apr-99	11-May	–	26-Sep-99	25-August
Gatekeeper	04/07	30-Jun-06	03-July	27-August	23-Sep-02	25-August
Meadow Brown	14/06	16-May-99	14-June	05-September	08-Sep-02	30-August
Small Heath	–	22-May-98	05-June	–	01-Sep-01	14-August
Ringlet	16/06	10-Jun-03	17-June	06-August	08-Sep-98	10-August
<b>Damselflies</b>						
Banded Demoiselle	30/05	10-May-07	04-June	23-August	10-Sep-07	09-August
Emerald	23/06	10-Jun-08	21-June	06-September	07-Oct-06	10-September
Large Red	25/04	15-Apr-07	26-April	13-June	22-Jul-07	29-June
Azure Blue	26/04	26-Apr-09	07-May	08-August	25-Aug-07	30-July
Common Blue	03/05	01-May-07	13-May	08-August	07-Oct-06	05-September
Blue-tailed	26/04	26-Apr-09	08-May	25-August	13-Sep-05	26-August
<b>Dragonflies</b>						
Hairy Dragonfly	–	24-May-07	31-May	–	24-Jun-03	14-June
Southern Hawker	05/07	21-Jun-03	12-July	20-September	30-Oct-05	28-September
Common Hawker	–	01-Jul-07	31-July	–	25-Oct-98	12-September
Brown Hawker	04/07	01-Jul-06	09-July	01-September	06-Oct-02	15-September
Migrant Hawker	31/07	19-Jul-03	02-August	31-October	12-Nov-06	27-October
Emperor	11/06	07-Jun-03	18-June	18-August	11-Sep-07	12-August
Black-tailed Skimmer	24/05	22-May-07	03-June	08-August	01-Sep-07	12-August
Broad-bodied Chaser	21/05	30-Apr-07	21-May	21-June	26-Aug-03	27-July
Four-spot Chaser	03/05	28-Apr-07	09-May	20-July	11-Aug-07	26-July
Common Darter	16/06	13-Jun-06	21-June	17-November	20-Nov-05	09-November
Ruddy Darter	16/08	21-Jun-98	09-July	10-September	24-Oct-06	01-October

Chart 1 : Table of Earliest/Latest Dates with Mean Dates

## BRYOPHYTES

Bryophytes comprise mosses and liverworts. These reproduce by spores. They have stems and leaves but no roots, only modified stems forming root-like structures known as rhizoids. Bryophytes are a little covered group. A survey was carried out over 20 years ago by Colin Wall, with a further report in 2007. Some work was carried out by the writer in 2009 when moss capsules, *Funaria hygrometrica*, were found. These are very attractive when viewed close-up.

Perhaps more significant, however, is the discovery of a liverwort (only four liverworts have been recorded previously) in Childers Wood in November. Two small growths of the liverwort, *Marchantia polymorpha*, clearly demonstrate the distinctive nine-lobed female receptacles, rising well above the prostrate thallus.

DEREK BATESON



Marchantia polymorpha © D. BATESON

## MAMMALS

The excellent survey on Water Voles, carried out by Siggy is reported on page 12 (but note comment re mink below!). In the early part of the year, she reported some tracks she found in the mud alongside Mother Drain in Hawthorn Field, which at the time she/we couldn't identify. She now believes that these were the pawmarks of ferrets. Why they should be there is not known unless someone was on site after rabbits.

Unfortunately, we continue to get occasional sightings of American Mink, which are a noted predator of Water Voles. What their status is, is not known but they obviously present a threat to the Water Voles.

Reports continued throughout the year of sightings of Roe Deer in many parts of the Reserve, mainly by people visiting in the early hours. It would appear that there is a good population of this mammal on the Reserve.

Since Huxter Well Marsh was completed, there has been an increase in the number of sightings of Brown Hare in that area. As hares



Stoat © A. Andruchiw

were known to be present in that area in the past, maybe it is simply that, since more people are watching the area, more are being seen!

One mammal that entertains visitors with its sometime spectacular antics is the Stoat. They are sometimes seen singly, perhaps chasing a rabbit (or dragging a dead one), or occasionally as a group, running around each other (displaying?); they have even been seen swimming across to islands where they will be prospecting for prey such as, dare I say it, young birds!

Not so often recorded is the Weasel. It isn't known what the status of this mammal is on the Reserve – whether it is not so common or whether it is more secretive, it is difficult to say.

JOHN HANCOX

# WATER VOLE SURVEY

The Water Vole survey was carried out at the end of April 2009. All the drains were surveyed, along with the filtration ponds, Basin Pond, Square Pond, Loversall Delph and parts of Willow Marsh and Piper Marsh. Mother Drain was surveyed as far as the new fencing on Huxter Well Marsh. The Marsh itself wasn't surveyed as birds were nesting. In future, it is proposed that this part of the Reserve should be surveyed in the autumn once the herbage has died back and the banks can be seen easily. A conflict with the bird populations here is always going to be a problem!

In 2008 there was a lot of activity on Piper Marsh with signs of breeding and this was also the case in 2009, which was most encouraging. On Mother Drain there were plentiful signs of water voles around the bridge close to the entrance, which were comparable to 2008. There were further signs as far as the pumping station, and at the bridge leading to the Field Centre there were latrines; there were no latrines here last year. It would appear that Mother Drain is, in places, a good place for water voles and there were several sightings on this watercourse.

The filtration ponds were disappointing; latrines were found in only two places rather than the four that were recorded in 2008. However, results were better for Division Drain, which is near enough for the water voles to have moved to if they have found the habitat more suitable. On Division Drain in 2008 there were 3 latrines, 3 runs and 6 burrows while in 2009 there were 2 latrines, and 10 burrows; the latter were more widespread over the whole drain; in 2008, activity was concentrated at the Field Centre end

of the drain with no signs at all closer to the western boundary of the Reserve.

Cottage Drain was very disappointing with no Water Vole signs recorded in 2009. For several years there was a very good latrine in the pipe bridge showing activity of several voles, but there were no signs at all in 2009. In 2008 the drain leading from Cottage Drain to Cottage Drain hide showed vole activity, but there was none at all in 2009. There were, however, good signs close to Cottage Drain hide, which suggests the voles may have moved from Cottage Drain to nearby Willow Marsh. As there were several runs on the other side of Willow Marsh close to Willow Pool Hide, this tends to support this theory. There were no vole signs at either site on Willow Marsh in 2008.

In 2008 there was 1 latrine and 1 run on Basin Pond; in 2009, while latrine signs were not evident, there were 3 runs and 1 feeding station, which suggests the voles are thriving on this site. In addition, nearby Loversall Delph had 2 extensive runs and several sightings of the voles themselves. There appeared to be burrows, but they were difficult to confirm and have therefore been left out of the 2009 survey. In 2009, this site had 1 latrine, 1 feeding station, 1 run and 1 burrow. This site is plainly a favourite with water voles and it is possible that some members from this population have helped colonise Basin Pond.

Close to Basin Pond is Square Pond where there was 1 run and 1 latrine. There was 1 extensive run on Loversall Field Pond close by which was very surprising as most of the new pond is very exposed. It was fantastic to find signs on this pond and Square Pond as none were found there in 2008.

For the section of Mother Drain that runs alongside the Huxter Well Marsh, there was a drop in field signs this year. As there have been several sightings on Huxter Well Marsh, it may well be that they have moved away from Mother Drain and onto this area; the habitat is perhaps more suitable for keeping vulnerable mammals such as water voles safe. In 2008 there were 3 latrines and 6 burrows compared with 1 latrine and 1 burrow in 2009. Further possible latrines were spotted but they were difficult to identify so have not been included in this year's survey.

A summary of results is shown as a table. The chart shows the breakdown of results for the two years by area surveyed using the standard recording codes.

	Burrows	Runs	Feeding Stations	Latrines
2008	25	9	19	24
2009	21	19	5	16

Comparison of numbers recorded in 2008/9

### Conclusion

While the survey was being carried out, subjectively, it was felt that the water voles on Potteric Carr were maintaining the status quo, but the results once collated suggests they are not. It is encouraging that the voles have taken up residence in places where they were not present in 2008, but the concentration of the populations has become more pronounced. This could leave them more vulnerable. It would be interesting to know what the water vole numbers are like on Huxter Well Marsh; perhaps they may be at a level that would give hope for a steady, if not expanding, population of water voles at Potteric Carr.

SIGGY PARRETT-HALBERT

Comparison of Water Voles Recorded in 2008/9

