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Edited  
by  
R. Merritt



affiliated to the Societas Internationalis Odonatologica



The British Dragonfly Society was formed in April 1983. It evolved from an extensive list of dragonfly enthusiasts compiled by David Chelmeick and Bob Merritt — past and present organisers of the Odonata Recording Scheme.

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## Dragonfly Survey Reports — 1. Gloucestershire

— Sonia Holland (County Recorder)

Prior to the publication in 1977 of Cyril Hammond's identification book, "The Dragonflies of Great Britain and Ireland", with its excellent colour illustrations, little study has been given to the distribution of dragonflies in Gloucestershire, and there was no published check-list for the county.

Gloucestershire possesses much diverse wetland habitat suitable for dragonflies, with its two major rivers, the Wye and the Severn, the acid ponds of the Forest of Dean, the derelict canals and disused clay and gravel pits of the Severn Vale, and the extensive area of marl lakes formed by gravel extraction in the Upper Thames Valley known as the Cotswold Water Park. The surprising dearth of records for Gloucestershire in the distribution maps published in Hammond's book (henceforth referred to as the Atlas) could only be attributed to a lack of recorders.

The Gloucestershire Naturalists' Society was quick to take up this challenge and the dragonfly survey initiated in 1978 soon showed the county to be rich in this group of insects, with 23 breeding species as listed below:-

### ZYGOPTERA

*Calopteryx virgo*

*C. splendens*

*Leestes sponsa*

*Platynemis pennipes*

*Pyrhoxenna nymphula*

*Ischnura elegans*

*I. punctata*

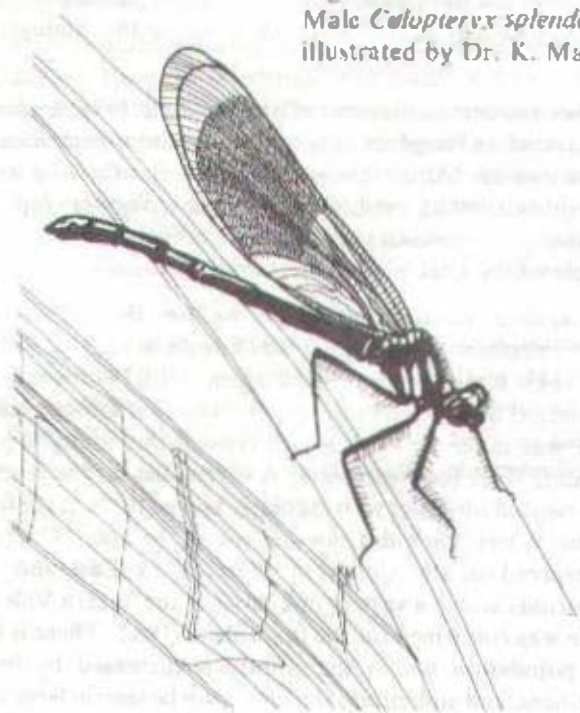
*Enallagma cyathigerum*

*Coenagrion puella*

*Erythemis najas*

Fig. 1

Male *Calopteryx splendens*  
illustrated by Dr. K. Mash



### ANISOPTERA

*Aeschna juncea*

*A. grandis*

*A. cyanea*

*A. mixta*

*Anax imperator*

*Cordulegaster boltonii*

*Cordulia aenea*

*Libellula depressa*

*L. quadrimaculata*

*Orithetrum cancellatum*

*Sympetrum libellulatum*

*S. sanguineum*

*S. danum*



Three other species can be added to the county list, namely, *Gomphus vulgatissimus*, *Brachytron pratense* and *Sympetrum fonscolombi*.

*Gomphus vulgatissimus* may be seen in early summer on the river Wye in the Symond's Yat area, but breeding has not yet been confirmed Gloucestershire side of the river, where it forms the county boundary with Herefordshire. A small breeding population, up to twelve adults seen flying at any one time, was studied in the summer of 1982 on the Herefordshire side of the Wye and females were seen ovipositing in shallow water over a gravelly bottom. The Gloucestershire Naturalists' Society also holds a single record of a newly-emerged specimen seen at Whelford, near Fairford, on the 16th May 1953.

Research at Gloucester City Museum into the Dr. O. H. Wild collection revealed that *Brachytron pratense* had bred at an old clay pit near Gloucester between 1928 and 1942, and that the rare migrant *Sympetrum fonscolombi* had appeared in good numbers at the same locality in July 1941.

One species, *Coenagrion pulchellum*, has had to be removed from the county check-list because the only record has been withdrawn by the observer after consultations with the national recording scheme organiser.

Three Gloucestershire species for which no records were shown in the Atlas are *Erythronia najas*, *Aeshna mixta* and *Orthetrum cancellatum*. All three species had been recorded in various years prior to the publication of these maps, but clearly the few records had never been submitted to the Biological Record's Centre, Monks Wood.

Since the commencement of our survey in 1978, ten breeding sites for *E. najas* have been found on the edges of lakes, ponds and a disused canal in widely separated parts of the county. Aquatic vegetation with flat floating leaves, such as white water lily (*Nymphaea alba*), yellow water lily (*Nuphar lutea*), broad-leaved pondweed (*Potamogeton natans*) and an amphibious bistort (*Polygonum amphibium*) is a common feature of the sites where this damselfly is found.

*Aeshna mixta* appears to be on the increase as a breeding species in Gloucestershire. Although it was known at one site in the Severn Vale between 1940 and 1943, it was not recorded again until 1973 when a small breeding colony was discovered at a neighbouring site. The first definite record for the Cotswold Water Park was made in 1978, but in view of the numbers present, it had probably been breeding there for some years. A species list for the years 1952 to 1967 compiled by an experienced observer who regularly visited three of the first gravel pits to be excavated in the Water Park did not include *A. mixta*. This species is now known to be widespread in the Cotswold Water Park East and West, at other lakes in the Cotswolds and in a variety of habitat in the Severn Vale. Its presence in the Forest of Dean was confirmed for the first time in 1982. There is little doubt that in some years the population within the county is increased by immigrants arriving from the continent, and sometimes the insect can be seen in large numbers. Well over a hundred were counted along a mile stretch of the Stroudwater Canal in September 1982.

*Orthetrum cancellatum*, a dragonfly with a strong preference for flooded gravel pits with bare edges, started colonising the Cotswold Water Park as early as 1950 and is now a familiar sight in summer. In 1982 breeding pairs appeared in several new localities, mainly in the Severn Vale, and a few wandering males were noted in the Forest of Dean. Now known from fourteen sites in the county.

One of the most exciting discoveries made during the course of our survey occurred in 1982 when a small breeding colony of *Isonura pumilio* — a shallow pool in the Forest of Dean. This scarce damselfly with a south-western distribution in Britain had not been recorded previously in Gloucestershire or from any neighbouring counties.

Two other nationally scarce species found in the county, and for which we have recently discovered a number of new breeding sites, are *Corithalia aenea* — now known from four sites; two in the Forest of Dean and two in the Cotswolds, where it chooses the larger sheltered lakes and ponds — and *Sympetrum sanguineum*. This latter species has now been found at nine confirmed breeding sites throughout the county: on gravel pits, lakes, ponds and canals.

In Gloucestershire as in other parts of southern England, *Platynemis pennipes* is a very local damselfly. It is confined to the rivers Wye and Severn, and is often very numerous, as it was in 1982. It is seldom seen far from the river banks. In the 1930s and 1940s it was recorded from the Gloucester - Berkeley Canal south of Gloucester, and it would be very interesting if we could rediscover it there in 1983.

The very large number of records obtained during the course of the county survey have been forwarded to the Odonata Recording Scheme, and many of them have already been incorporated into the July 1982 edition of the national distribution maps compiled by R. Merritt. The records were submitted on BRC dragonfly site record cards, with duplicates kept for local use, and are now being plotted on dot-map individual species cards. As well as contributing a great deal to our knowledge of the distribution and behaviour of these fascinating insects, the survey has been most useful in supplying the factual information needed for assessing key sites and aiding dragonfly conservation in the county.

In the coming season efforts will be made to try to rediscover *Brachytron pratense* near Gloucester and to establish whether *Gomphus vulgarissimus* breeds on the river Severn above Fewkesbury. It is hoped also that a more comprehensive survey can be made of the Cotswold Water Park where about a hundred lakes of differing sizes, shapes and depths cover a huge area and support tens of thousands of dragonflies.



## Notes on finding larvae of *Somatochlora arctica* (Zetterstedt) in N.W. Scotland

— Stephen Butler

During the last week of July 1980 I visited Wester Ross to survey an area from which *Somatochlora arctica* had been reported in previous years. This area possesses a number of lochs and smaller lochans, those in the valley bottoms being at altitudes as low as 100 metres, from which partially forested, gentle moorland slopes rise in places to plateaux, approximately 250 metres in altitude, before rising again to peak at nearly 800 metres.

The weather during this period was atrocious, and few dragonflies were seen flying. Flooding had caused many boggy areas to become almost inaccessible.

From both advice and literature I expected to find larvae of *S. arctica* in small boggy holes and seepages, and so I began my search in the wettest parts. However, I found only *Pyrhosoma nymphula* and *Libellula quadrimaculata*.

I was using my favourite implement — a 5mm mesh garden sieve which proved to be extremely useful in such conditions. The main advantage of using it in areas containing a lot of detritus is that it gets rid of the water quickly, leaving behind most of the detritus in which the dragonfly larvae, after a short pause, usually betray their presence by their movements.

On the second day I searched a boggy area, measuring 6 metres by 3 metres, fringed with *Juncus* rush and covered entirely with *Sphagnum* moss. After 20 minutes I discovered a larva of *S. arctica*, exactly 1cm in length, at a depth of 15 cms in the semi-liquid conditions.

During the following three days I excavated eleven more *S. arctica* larvae from various sites, and always in the same soupy brown mix of rotting *Sphagnum* and mud. The low population density could have been attributable to the lateness of the date of visit, or to my searching the wrong places, and I resolved to revisit the area the following year in May, a time just prior to the expected emergence period of this species.

This second visit took place during May 26th-29th 1981. The conditions were very much drier than the previous year owing to a drought of almost one month duration. The trip coincided with a spell of very hot weather and seven species of dragonfly were seen flying: *Pyrhosoma nymphula*, *Enallagma cyathigerum*, *Aeshna ruerlea*, *Cordulegaster boltonii*, *Somatochlora arctica*, *Libellula quadrimaculata* and *Leucorrhinia dubia*.

Although I found many more larvae of *S. arctica* than the previous year, the population density was still quite low; seldom did I find them in more than ones and twos, unlike *L. quadrimaculata* for which a single scoop with the sieve would sometimes produce a dozen larvae or more.

*Somatochlora arctica* larvae were found on moorland slopes with scattered clumps of Scots pine (*Pinus sylvestris*) and birch (*Betula spp*) at altitudes up to 200 metres. The slopes were dissected vertically by runnels which had seepages running into them at right angles. These small swamps, scattered amongst heather and rock outcrops, held *Sphagnum* which gave way after 10 cms or so to the rotting brown mixture in which larvae of *S. arctica*, *P. nymphula*, *L. quadrimaculata* and, more rarely, *C. boltonii* were present.

I also found larvae of *S. arctica* in lower, flatter areas of moorland bog adjacent to lochs and streams; again with scattered trees or conifer plantations in close proximity. On no occasion were *S. arctica* larvae found where there was more than 7 cms of standing water. Indeed many were found in areas that had a semi-dry *Sphagnum* crust, and it was necessary

Typical plants of these boggy areas included sundew (*Drosera spp.*), white beak sedge (*Rhynchospora alba*), bog asphodel (*Narthecium ossifragum*) and small amounts of reed (*Phragmites communis*).

Nowhere did I find *S. arctica* larvae further than 200 metres from the presence of trees, unlike the larvae of *Lestes sponsa*, *Pyrhosoma nymphula*, *Aeshna juncea*, *Cordulegaster boltonii*, *Libellula quadrimaculata* and *Sympetrum danae* which were also found up to 1000 metres from trees on the higher more exposed plateaux.

Of all the species which I had observed flying, *Aeshna caerulea* was the only one of which I was unable to find any larvae.

A full report of these observations was sent to Ray Collier of the Nature Conservancy Council, North-West Highland region.

## Some observations of *Erythronia najas* (Hansemann)

— David Winsland

On May 31st 1982 I was fortunate to discover a small colony of *Erythronia najas*, some 25-30 adult males and females, at a pond near my home. They were flying in a small bay of this clay-bottomed pond where the water was shallow and in which plenty of dead foliage from the previous years' reedmace (*Typha latifolia*) and a few new water-lily pads were to be found.

I was particularly pleased with this find because I wanted a photograph of a female *E. najas* and they were easily accessible here. Soon a pair, in tandem, alighted on a dead stem of *Typha*. I waded out to them and was just about to take the photograph when, still in tandem and climbing down the stem, they entered the water and after a few seconds disappeared from view. In the brief glimpse I had of her, I saw the female commence to lay her eggs into the plant tissue, though whether oviposition actually started above the water surface or not I could not say because at that time I was hurriedly sorting out my camera.

Undaunted, I decided to await their re-appearance. I remembered reading in "Dragonflies" (New Naturalist series) that *Leucosticte sponsa* (Hansemann) can remain submerged for up to 26 minutes, so I decided to time them on my stopwatch. I did not move from the spot, over my knees in water, nor take my eyes from that stem of *Typha* for the entire period of my wait. (Clearly, my intentions were puzzling to a gentleman and his young daughter because on the third occasion that they walked past along the pond's edge I heard him whisper irritably to her . . . "you ask him!")

It was over 28 minutes before they re-appeared still in tandem, immediately parting company and flying off. I thought it strangely coincident that on the only occasion that I decided to time such an event, it was in excess of the maximum time I have seen published.

A few days later I returned to this same site and was disappointed to find very few specimens of *E. najas* in evidence though, unlike the first visit, there were plenty of *Enallagma cyathigerum* (Charpentier). An inspection with binoculars of the *Typha* and water lilies near a small island in the centre of the pond revealed what were possibly *E. najas* there. Indeed, occasionally a male *E. najas* would leave this central weedbed and fly in to the bay where I was standing, and land on a lily pad. Almost immediately four or five male *E. cyathigerum* would converge on the unfortunate intruder and hover in a loose side formation a few inches above and behind him. There was no physical contact, but invariably within a couple of minutes the solitary male *E. najas* would retreat to the weedbed in the centre of the pond.

Could this be the reason for the tendency of *E. najas* to use the more inaccessible weedbeds: that they cannot stand the fierce competition at the water margins?



## Is *Sympetrum nigrescens* Lucas a good species?

— R. Merritt and G. S. Vick

Many recorders will have seen the illustrations of *Sympetrum nigrescens* and *Sympetrum striolatum* (Charpentier) in C. O. Hammond's book "The Dragonflies of Great Britain and Ireland" (1977) and may have assumed that correctly identifying the species in the field is a reasonably straightforward matter. Hammond indicates that the most important characteristics of *S. nigrescens*, compared with *S. striolatum*, are:

- 1) darker markings on the sides of the thorax
- 2) more heavily marked abdomen
- 3) legs black striped with yellow
- 4) The black line at the base of the frons is continued a little way down the sides of the eyes — i.e. it is intermediate in this respect between *S. striolatum* and *S. vulgatum* (Linnaeus).

However, the evidence available to us at present suggests that separating *S. nigrescens* from *S. striolatum* is not so straightforward. In Ireland (Cotton 1982) and Scotland (Gardner 1955) there is some variation where these species overlap in range with respect to all four points mentioned above.

We believe, further, that it is reasonable to doubt that *S. nigrescens* is a separate species from *S. striolatum*, and suggest that *S. nigrescens* may be a melanic race of *S. striolatum* associated with cool maritime climates, especially in coastal localities.

A comparable situation could be said to occur with the humble-bee *Bombus muscarius* (Linnaeus) in which dark forms occur in Scotland and Ireland (relative to their English counterparts) and even darker forms occur in the Shetlands, the Hebrides, the Aran Islands (Ire) and the Scilly Isles, similar examples from other insect orders could be cited.

*Sympetrum nigrescens* was first described as a new species by W. J. Lucas in 1912 through K. J. Morton (1914) does not appear to accept this view and indeed, according to Gardner (1955) Lucas himself appeared to have abandoned his claim when in 1929 he wrote that the "race" name *nigrescens* has been bestowed upon this insect.

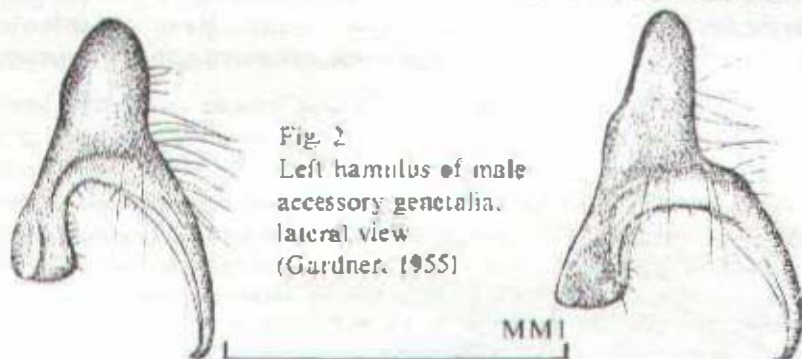
In 1955 Gardner published his study on *S. nigrescens*. After examining specimens from many localities in the British Isles and Norway he concluded that although dark forms of *S. striolatum* occur which are similar in appearance to *S. nigrescens*, the two species are structurally distinct with regard to the hamuli (of the male genitalia), noted *S. nigrescens* from N. W. Scotland, Ireland, and Norway — plus one specimen from Newcastle, England which he assumed to be a migrant.

We have examined a small number of specimens from Ireland and N. W. Scotland, and, comparing paper, we found that it was not possible to ascribe the specimens to either *nigrescens* or *striolatum*, since they possessed features of both.

Cotton (1982) has examined specimens from Ireland, with similar results to our own. He and Dr. J. P. O'Connor of the Irish National Museum, Dublin, examined together the hamuli from a large series of specimens and they could not agree among themselves which were *nigrescens* and which were *striolatum*.

#### SYMPETRUM STRIOLATUM

#### SYMPETRUM NIGRESCENS



Recently, a Finnish dragonfly worker, Dr. Matti Hänniläinen, discovered specimens with the appearance of *S. nigrescens* in the Åland Islands of the Baltic. Some of these were sent to me (G.S.V.) for comparison with British material. Although the hamuli were closer in appearance to Gardner's illustration of *nigrescens* than to *striolatum*, no firm conclusion could be drawn.

Gardner (1955) also found slight differences in the vulvar scale of female specimens, and although we found similar differences we also found forms intermediate between the two types illustrated by Gardner.

The differences in the larvae which Gardner describes are based, in the case of *S. nigrescens*, on the examination of only five specimens collected from one pond, and so no firm conclusions can be drawn.

Unfortunately our recent request for larvae and exuviae of *S. nigrescens* failed to produce any. The only specimen we examined — a single male's exuviae from N.W. Scotland — was very similar to the description given by Gardner for his specimens.

We leave the question posed in the title of this article unanswered for the moment. What we need is more material for critical examination and we would be very pleased to hear from anyone visiting Ireland or Scotland (please contact me — R.M.). Your help would be greatly appreciated.

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# SCARCE SPECIES STATUS REPORT

## 1. *Coenagrion mercuriale* (Charpentier) with notes on habitat

— R. Merritt

*Coenagrion mercuriale* was first added to the British list in 1846 by Baron de Selys Longchamps who, the previous year, had visited this country and examined many of the national and private collections in addition to doing some fieldwork of his own.

W. J. Lucas (1900) stated that this species was known from three sites in the New Forest, and that a Mr. C. W. Dale had specimens in his collection from a site in Dorset, and from near Winchester, Hampshire.

*C. mercuriale* was first discovered in Devon in 1921, in Pembrokeshire in 1938, and in Glamorgan in 1949. So far, it has not been reliably recorded from any other counties.

From information currently available to me, the status of *C. mercuriale* in Britain may be summarised as follows:-

Table 1	Total No. of sites from which <i>C. mercuriale</i> has been reported	No. of sites at which <i>C. mercuriale</i> was present in 1982
HAMPSHIRE	19	13 (11)
DORSET	8	3 (3)
DEVON	7	2 (1)
PEMBROKE	16	12 (11)
GLAMORGAN	2	1 (1)
TOTAL:	52	31 (27)

The figures in brackets refer to confirmed breeding populations.

N.B. — rates of decline of *C. mercuriale* cannot be obtained from these data.

County surveys are well advanced in all five counties mentioned above. By the end of 1984 the few remaining unchecked former sites will have been examined and, it is hoped, all other potentially suitable sites will have been surveyed. A short note giving details of any additional data obtained will be given in a future newsletter.

The habitat in which *Coenagrion mercuriale* is found in Britain can be described, briefly, as heathland streams and runnels, and associated marshy areas. The water flow often occurs over a gravelly or sandy bed, overlaid in places with organic detritus.



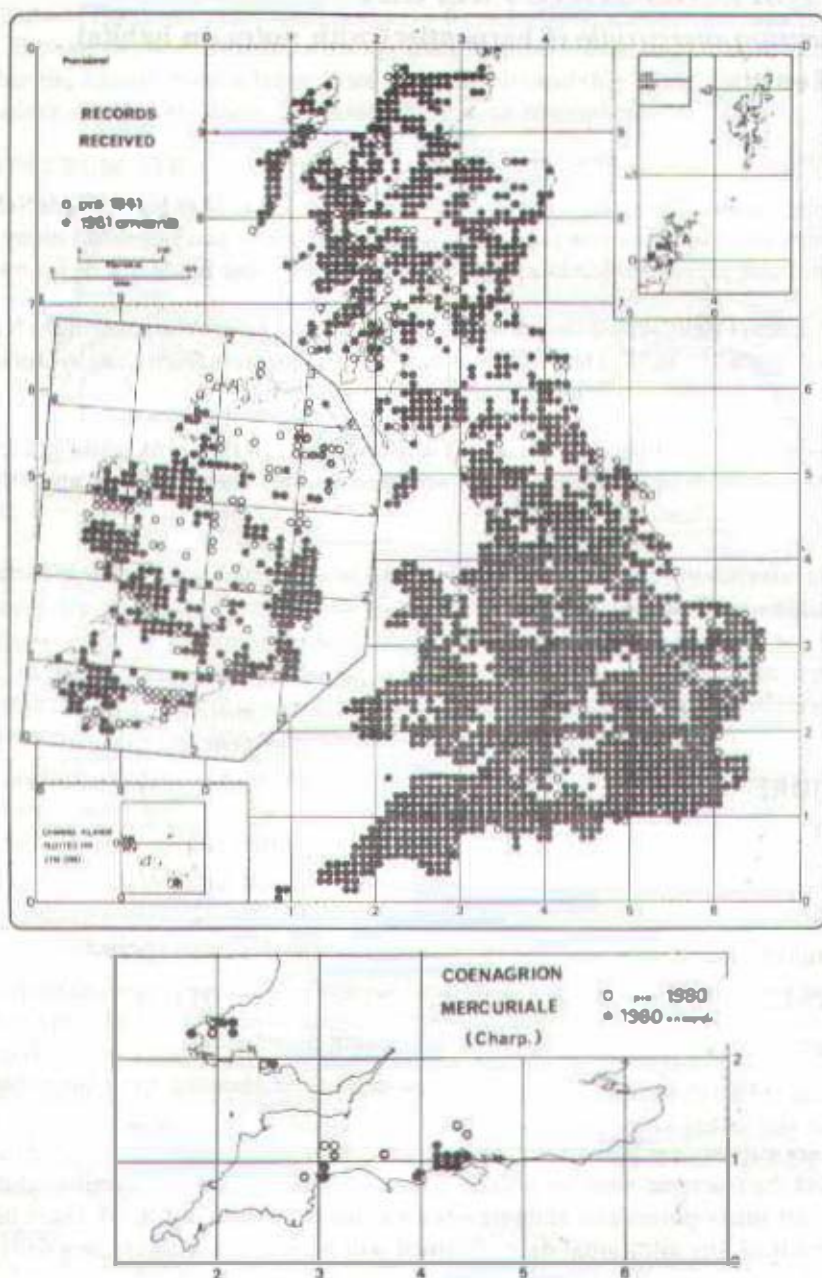


Fig. 3

Distribution maps, based on 10Km.

dragonfly species (top), and for *C. mercuriale* (bottom). Kindly supplied B.R.C., Monks Wood Exp. Station.

In common with other *Coenagrion*s, *C. mercuriale* lays its eggs in the submerged tissues of aquatic and emergent vegetation. Oviposition has been observed taking place in the following plants: bog pondweed (*Potamogeton polygonifolius*), jointed rush (*Juncus articulatus*), bog rush (*Schoenus nigricans*), marsh St. John's wort (*Hypericum elodes*) and fool's watercress (*Apium nudiflorum*). No doubt many other available plant species are also used.

In Brittany (Keraulzel — 1966) *C. mercuriale* is found in similar habitats to those in Britain. Robert (1958), however, referring to continental habitat, states that this species has a preference for calcareous streams or rivers. This is in accord with Jarry and Vidal (1960) who, in their study of dragonflies in the Montpellier region of S. France, mention the presence of *C. mercuriale* at the source of a limestone stream.

Kemp (1983) describing a recent trip across France found *C. mercuriale* at three widely separated sites: a small spring-fed farm pond with bare limestone in places around the edge; a small pool in a deep depression in the limestone bed of a temporary river; a disused canal (no geological details available) passing through an area of intensively cultivated arable land.

An investigation of some of the British sites has revealed some interesting facts: pH readings obtained from over a dozen breeding sites in Pembrokeshire, the New Forest and Devon resulted in an average value of  $6.7 \pm 0.4$ . These neutral-alkaline figures contrast strongly with pH values of  $4.5 \pm 0.5$  obtained from various nearby still-water bogs in the New Forest and Devon (no details available from Pembrokeshire).

These figures can be explained by the geological structure of the respective areas. The New Forest streams investigated arise as springs from calcareous clay marls which underlay the acidic gravel deposits that cover much of the New Forest.

In Devon the streams and flushes originate from calcareous sandstone which underlays the acidic pebblebeds of the E. Devon commons.

In Pembrokeshire, the majority of the *C. mercuriale* sites are found on Mynydd Preseli: an area of Ordovician slate with igneous intrusions of dolerite 'dykes'. These intrusions are relatively base-rich and weather readily, and this may explain the relatively high pH readings obtained from the spring flushes there.

In Dorset and the Gower peninsular, Glamorgan, the geology suggests there is a possibility of base-enrichment where *C. mercuriale* occurs, and this view is enhanced by the presence of hog-rush (*Schoenus nigricans*) at several of the Dorset sites. This plant, incidentally, is a common feature of the Devon sites. The situation in Gower is less clear, though the area within which *C. mercuriale* is found does possess the moss *Aeroladium cuspidatum* which favours wet calcareous soils.

Several very interesting old records have recently come to light which refer to the presence of *C. mercuriale* on two chalk rivers in Hampshire — at one site on the river Test in 1927 and at least two sites on the river Itchen between 1920 and 1951. Specimens from the river Itchen form part of the A. W. Richards collection at Haslemere museum.

An attempt to rediscover *Coenagrion mercuriale* on these two rivers will be made during 1983 and '84.

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Front cover illustration of *Orthetrum coerulescens* by Dr. Kathleen Mash

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