

PROCEEDINGS OF THE FIRST MEETING OF BRITISH DRAGONFLY RECORDERS,
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The status and distribution of the British Odonata published in 1978 and included all records received up to May 1977. By the end of 1978
The Provisional Atlas for Odonata was so much additional information had been

received that it was felt necessary to update the maps. This was carried out during the winter and early spring of 1979 and it was these maps that formed the basis of this session. I would like to express my sincere thanks to Bill and Bob Merritt who carried out the majority of the updating work and also to David Parker from whose notes much of this summary derives.

The British list Current published information on what constitutes a British species is unclear and considerable discussion took place. It was generally agreed that all species recorded from the British Isles should be included but that vagrants should be classified as such. The Provisional Atlas for Odonata (Heath, 1978) includes 44 species. Three of these are migrants only; *Sympetrum flavolum* (L.), *S. fonscolombei* (Sel.), and *S. vulgatum* (L.). Three further species have not been seen for many years and are, in all probability, extinct; they are *Coenagrion armatum* (Charp.), *C. scitulum* (Ramb.) and *Oxygastra curtisii* (Dale). Additional vagrant species, which must be added to the list, are as follows: 5 species with isolated records from mainland Britain namely, *Gomphus flavipes* (Charp.), *Aeshna affinis* (Vander L.), *Hemianax ephippiger* (Burm.), *Somatochlora alpestris* (Sel.) and *Lestes viridis* (Vander L.); 3 further species recorded only from the Channel Islands namely *Sympetma fusca* (Vander L.), *Lestes barbarus* (Fabr.) and *Crocothemis erythraea* (Brullé).

In conclusion the British List comprises 52 species, 38 currently breeding (*Lestes dryas* Kirby probably only in Ireland), 3 former breeding species now extinct and 11 vagrants.

The status of the British Odonata — In the Provisional Atlas (HEATH, 1978) there are a total of 4977 species 10 km square post 1961 records for Great Britain (excluding Ireland and the Channel Islands). This total is produced by counting all black dots for each species. The latest maps (produced February 1979) have added a further 2115 records which represents an increase of 43% in under two years.

The total number of 10 km squares in the

British Isles (excluding Ireland and the Channel Islands) is 2660. Records have now been received from 1161 of these. Expressing the squares recorded for each species as a percentage of the total recorded squares,

Table I

Cat. No.	No. of spp.	Recorded squares as % of total
1	5	> 38%
2	11	18-30%
3	5	8-14%
4	6	4- 7%
5	11	<2.5%
38 total post 1961 breeding spp.		

the status of the British fauna can be categorised as shown in Table I. Unfortunately it is impractical to produce such a table for pre-1960 data. We can, therefore, draw no conclusion as to whether the pattern of our fauna is changing. However, with the latest data, we can look at individual species and consider their status.

Of the 21 species recorded in categories 1-3 all but 4 showed an increase in recorded squares of between 34 and 50%. This compares with an overall increase of 43%. In categories 4 and 5, 10 species increased

Table II

Species	Cat. No.	% increase in recorded squares (1977-1979)
<i>Brachytrion pratense</i>	4	27%
<i>Ceriagrion tenellum</i>	4	26%
<i>Sympetrum sanguineum</i>	4	23%
<i>Coenagrion pulchellum</i>	4	12%
<i>Libellula fulva</i>	5	8%
<i>Aeshna isosceles</i>	5	nil
<i>Lestes dryas</i>	5	nil

by between 47 and 133%, which probably indicates under-recording in the past. The remaining 7 species, however, increased by between 0 and 27% only. It is these species that must be considered vulnerable and they are listed in Table II. It is encouraging that none of these has shown a real decline. Mention, however, must be made of the situation regarding *Lestes dryas*. This insect has not been recorded in the mainland of Britain since 1972, and it is generally felt that a combination of climatic conditions and major drainage schemes in Eastern England have brought about its extinction. It remains a British breeding species from Irish colonies alone.

Finally, we must consider those species which, even though they appear to be stable, occur in such a small number of squares that they are still vulnerable. PERRING & FARRELL (1977) considered species occurring in 15 or less 10 km squares to be rare enough for inclusion in the British Red Data Book for vascular plants. Four species of dragonfly fall into this category (with number of recorded squares), viz. *Coenagrion mercuriale* (14), *Aeshna coerulea* (12), *Somatochlora arctica* (11), and *Coenagrion hastulatum* (4). In conclusion, of the 38 breeding species, 11 can be considered vulnerable and warrant more intensive recording and study in future.

The distribution and ecology of the British Odonata — This discussion session opened with consideration of the possible relationship between distribution and environmental factors, particularly temperature. Overlays of environmental factors for use with distribution maps (I.T.E., 1978) were used to illustrate the discussion. The most interesting factors appeared to be the February Minimum and July Mean Temperature isotherms (FMT and JMT). For example, *Ischnura pumilio* (Charp.) and *Coenagrion mercuriale* (Charp.) do not occur where FMT is less than 2.2° C, whilst *C. hastulatum* (Charp.) breeds only in that part of Scotland where FMT remains below 0.6° C. Turning to our more widespread species, *C. puella* (L.) and *Calopteryx splendens* (Harr.) become rare as JMT drops below 15° C, and *Ischnura elegans* (Vander L.) is

scarce only where FMT is less than 0.6° C. Finally, for those of us who have always wondered why *Leucorrhinia dubia* (Vander L.) has never been recorded from the splendid bogs of Dorset and the New Forest, it may simply be that the winters are not cold enough.

Discussion of habitat requirements and ecology of individual species proved to be lively and informed and only a brief summary of salient points can be given here. A number of observers noted the occurrence of *Platycnemis pennipes* (Pall.), generally a riparian species, in large colonies on lakes. Dr M.J. Parr gave an explanation of the female colour varieties of both *Ischnura elegans* and *Ceragrion tenellum* (de Vill.) explaining that he was interested in hearing from any observers about colonies of the latter which possessed a high proportion of the rare all red female form, *erythrogastrum*.

Dr N.W. Moore explained the attempts he had made reintroducing *C. tenellum* at Wood Walton Fen N.N.R. in Cambridgeshire. Pools were created in the remnant acid peat and adults introduced from a threatened site in Dorset. The next generation of adults appeared two years later, but the colony was wiped out in 1976, possibly as a result of the drought. Dr Moore then went on to explain his discovery of three new colonies for *Lestes dryas* in Ireland, noting that the habitat, heavily vegetated lowland dykes, was very similar to that where he had known the insect in Sussex in the 1940's.

Moving to the Anisoptera, it was felt that colonies of *Brachytron pratense* (Müll.) on acid pools were the exception and that the preferred habitat was lowland dykes. Details were given of surveys carried out on one of our most local species, *Aeshna isosceles* (Müll.), whose breeding colonies are threatened by drainage schemes.

Graham Vick gave details of his Scottish survey carried out in 1978 which indicated that *A. coerulea* (Ström) was fairly widespread in Wester Ross, breeding in sheltered boggy pools often with *Somatochlora arctica* (Zett.) and *Leucorrhinia dubia*. The indicator plant species for this habitat was the sundew, *Drosera anglica*. The survey also showed that *Somatochlora metallica* (Vander L.) and *Cor-*

dulia aenea (L.) were still present in Scotland and Harry Eve reported on a colony of *Aeshna cyanea* (Müll.) near Inverness, about 150 miles north of its usual range.

The collection and study of *Odonata exuviae* (contributed by G.S. VICK)

The study of exuviae offers four advantages to the field odonatologist. Firstly, it allows him to work in all weathers, secondly it enables him to determine the precise breeding localities of particular species, an extensive collection can be made without affecting populations and finally, a number of species can be found which are often difficult to observe as adults.

It is important, when searching for exuviae, to examine vegetation very closely; casual observation at a distance is rarely successful. The stems of emergent plants such as Reed-mace (*Typha* spp.) Bur Reed (*Spartanium* spp.) and Yellow Flag (*Iris pseudacorus*) are usually very productive. In boggy areas shucks can often be found on heather and particularly on stems of bog asphodel (*Narthecium ossifragum*). For riparian species, particularly gomphids, tree trunks and overhanging branches are much favoured and it is often worthwhile searching in bushes well above water level as some species move a considerable distance from water to find a safe emergence point.

Exuviae can be collected and stored loosely in tobacco tins or pill boxes for later identification. If they are dry then, with the addition of a few grains of naphthalene, they will keep indefinitely. For identification purposes it may be necessary to detach the labium or lamellae for closer examination. This is best achieved by brushing relaxing fluid or water on the organ and then removing it with fine tweezers. Lamellae are best examined by floating them in water and transferring them to plain glass microscope slides or even glass 35 mm photographic slide mounts. The latter can then be used with a slide projector and the lamellae examined easily.

These techniques were used extensively in 1978 during survey work in both Norfolk and Scotland. On both occasions they proved in-

valuable in pinpointing exact breeding localities of rare and local species.

The Mapping Scheme

The final session took the form of an open forum, the discussion ranged from such subjects as the inclusion of the Channel Islands in the scheme, vagrant species and how they should best be indicated on the maps and finally whether more detailed habitat information should be requested on the recording card. It was generally agreed that habitat data would be desirable and that ultimately there should be some more quantified approach to recording rather than simple presence or absence, possibly on the lines of SCHMIDT (1979).

Finally the master species map produced by Bill and Bob Merritt was examined. This map indicated every species recorded from each 10 km square. Of the 1161 recorded squares only 395 had records of 7 species or more. On the other hand, a total of 29 squares had 20 or more species recorded; the maximum currently standing at 27 species from a square in Surrey. This county must be considered the best recorded in Britain, with no fewer than 7 squares possessing 20 or more species. All remaining above 20 species squares are to be found in southern England, the most northerly being Berkshire.

References — BELLE, J., 1978, *Notul. odonatol.* 1 (2): 31-32; — HEATH, J., [Ed.], 1978, *Provisional atlas of the insects of the British Isles, Pt. 7, Odonata Dragonflies*, Inst. Terrestrial Ecol., Huntingdon; — I.T.E., 1978, *Overlays of environmental and other factors for use with Biological Records Centre Distribution Maps*, Inst. Terrestrial Ecol., Huntingdon; — LONGFIELD, C., 1960, in: P.S. Corbet, C. Longfield & N.W. Moore, *Dragonflies*, pp. 33-54, Collins, London; — PERRING & FARRELL, 1977, *British Red Data Books, Pt. 1, Vascular plants*, Soc. Prom. Nat. Conserv.; — SCHMIDT, E., 1979, *Odonatologica* 8 (1): 63-76.

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