

**ANTICHAETA ATRISETA (LOEW) (DIPTERA: SCIOMYZIDAE)
IN BRITAIN, AND ITS OCCURRENCE WITH OTHER SCARCE
MALACOPHAGOUS FLIES**

A.P. FOSTER

23 The Dawneys, Crudwell, Malmesbury, Wiltshire SN16 9HE

AND D. A. PROCTER

Joint Nature Conservation Committee, Monkstone House, City Road, Peterborough PE1 1JY.

A single female *Antichaeta atriseta* (Loew) was captured in a pitfall trap between 10 and 24.vi.1988 at Botany Bay, West Suffolk (VC 26), grid ref. TL675854, and constitutes the first British record for this rare Palaearctic species.

Botany Bay was one of many sites sampled within an East Anglian Fenland Invertebrate Survey funded by the former Nature Conservancy Council between 1988 and 1991. Despite the examination of many samples from 72 trapping stations located in the Norfolk, Suffolk and Cambridgeshire fens during this period, no other specimens of *A. atriseta* have been discovered. However, in addition to the discovery of *A. atriseta*, an outstanding assemblage of other scarce Sciomyzidae was recorded from Botany Bay.

BOTANY BAY SITE AND SAMPLE METHODS

Botany Bay, located within the Stallode Wash SSSI on the eastern margins of the fens near to the western edge of the Breckland, is an area of washland which is seasonally flooded from the Little Ouse River. Thus it is often inundated during the winter though much of the site is prone to drying out in summer—there may be some similarity to the vernal swamps in Denmark described by Knutson (1966) as a habitat for *A. atriseta*. Two trapping stations were operated during the summer of 1988, each consisted of five pitfall traps placed in a line at 1-metre intervals, and two water traps (one at ground level, the other on a 0.5 m tall stake)—one located at each end of the line of pitfalls. The traps contained preservative (30% ethylene glycol = dilution of commercial antifreeze) and were left *in situ* for three sampling periods each of 14 days: 10–24.vi.1988, 24.vi–8.vii.1988 and 30.viii–13.ix.1988.

Sample station 1 was situated in an almost pure stand of *Glyceria maxima* (Hartm.), and sample station 2, where *A. atriseta* occurred, located approximately 100 metres away, in a sward dominated by *Carex riparia* Curt., with *G. maxima* and *Polygonum lapathifolia* (L.) both frequent. At each sample station the vegetation was rank and unmanaged and a dense layer of vegetation litter covered the ground. Though flooded during the winter of 1987/88 prior to sampling, both sample stations lacked surface water in the summer of 1988, apart from a few small puddles during the first sample period.

IDENTIFICATION, DISTRIBUTION AND ECOLOGY OF *A. ATRISETA*

A. atriseta is distinctive and can be readily identified using Rozkošný (1984), one of its most striking features being the markedly thickened and velvety black basal third to the arista. The insect is predominantly black, immediately distinguishing it from the reddish-brown *A. analis* (Meig.), and it is structurally different from the

similarly black *A. brevipennis* (Zett.) by having larger wings and possessing two pairs of dorsocentral and postalar setae. *A. obliviosa* Enderlein, another mainly black species, was added to the British list by Cole (1988) but *A. atriseta* differs in only having one orbital seta on each side. Rozkošný (1984) provides figures of the male genitalia for *A. analis*, *A. brevipennis* and *A. atriseta*, though males of the latter have yet to be found in Britain.

Rozkošný (*in litt.* 1990) notes that *A. atriseta* seems to be an exceptionally rare member of the Sciomyzidae and is usually found only as one or a few individuals. Nevertheless he reports that it has been widely recorded: Scandinavia (Denmark, Finland and Sweden), Germany, Poland, Italy, Estonia, Latvia, Lithuania and Russia (in the vicinity of Moscow, and as far east as Zeya in the Amur area and Ussuriysk in the southern Maritime Province—confirming the species from Asia). Knutson (1966) also reports that *A. atriseta* has been recorded from Austria, and has observed it by sweeping adults from two localities only 1.5 kilometres apart in Denmark during the early 1960s. Both sites were vernal swamps, one with sparse vegetation shaded by a dense canopy, the other a dense stand of sedges and rushes. The life history of *A. atriseta* is unknown, though it may be similar to other species of the genus. Studies by Knutson (1966) show the related *A. analis* and *A. brevipennis* to have larvae that feed solely on the eggs of snails. In the case of *A. analis*, eggs and larvae were found in the wild only on and in the egg capsules of the snail *Lymnaea truncatula* (Müll.), though in the laboratory female *A. analis* would also oviposit on the egg capsules of *L. stagnalis* (Müll.) and egg masses of *Succinea* sp. Eggs and larvae of *A. brevipennis* were only found on the egg masses of *Succinea* sp. in the wild, though a few eggs were laid on the capsules of *L. truncatula* in the laboratory. Larvae of neither *Antichaeta*, however, would attack newly hatched or mature snails.

Even though our sampling techniques are not the most effective for recording Mollusca, four species were present in the Botany Bay samples: *Lymnaea palustris* Müll. (Lymnaeidae), *Succinea putris* (L.) (Succineidae) and *Oxyloma Pfeifferi* Rozsmässler (Succineidae) at both sample stations; and *Carychium minimum* Müll. agg. (Ellobiidae) at sample station 2 only. In view of the association with lymnaeid and succineid snails demonstrated by Knutson (1966), the first three of these species would appear probable hosts for the various *Antichaeta* larvae at Botany Bay.

THE SCIOMYZID ASSEMBLAGE AT BOTANY BAY

Thirteen species of Sciomyzidae were recorded. Table 1 shows the total numbers captured at both trapping stations during each sample period.

In addition to the discovery of *A. atriseta*, an outstanding assemblage of other scarce Sciomyzidae were represented in the samples, including five species which have qualified for Red Data Book status (Shirt, 1987): *A. analis*, *A. brevipennis*, *Colobaea bifasciella* (Fall.), *Pteroniera pectorosa* (Mendel) and *Sciomyza simplex* Fall. In a more recent review, Falk (1991) has reassessed the status of *C. bifasciella* and *S. simplex* and assigned them to the nationally scarce* category—supported by our studies in the East Anglian fens where both species were widely recorded, though predominantly from ancient wetland sites of recognized nature conservation value. *Psacadina verbekei* Rozkošný, a further nationally scarce species, was also present at Botany Bay. Falk (1991) reviews the known occurrence of these scarce species in Great Britain, all of which have been previously reported from East Anglia.

*Species which are estimated to occur within the range of 16 to 100 10-km squares in Great Britain.

Table 1. Numbers of Sciomyzidae captured during 1988 at Botany Bay, Suffolk

	Station 1			Station 2		
	10-24 June	24 June- 10 July	30 Aug.- 13 Sept.	10-24 June	24 June- 10 July	30 Aug.- 13 Sept.
<i>Antichaeta analis</i>	0	0	0	7	12	1
<i>A. atriseta</i>	0	0	0	1	0	0
<i>A. brevipennis</i>	1	0	1	0	0	0
<i>Colobaea bifasciella</i>	0	0	1	0	0	0
<i>Ilione albiseta</i>	0	0	0	0	0	4
<i>Pherbina coryleti</i>	3	0	3	0	0	13
<i>Psacadina verbeckei</i>	0	0	0	0	1	0
<i>Pteromicra angustipennis</i>	0	0	1	0	0	2
<i>P. pectorosa</i>	95	18	62	34	12	74
<i>Sciomyza simplex</i>	0	3	52	3	6	63
<i>Tetanocera arrogans</i>	0	0	1	0	1	1
<i>T. ferruginea</i>	1	0	5	2	4	5
<i>T. robusta</i>	6	8	1	6	46	1

Recording three species of *Antichaeta* at a single wetland system is certainly unusual, though not altogether unexpected if their life histories are broadly similar. Both *A. analis* and *A. brevipennis* have been reported from East Anglia in the past; Falk (1991) reports the former from Chippenham Fen, Cambridgeshire, and the latter from various sites in Suffolk and Whitwell Common, Norfolk. In our study *A. analis* occurred in 15 of 72 trapping stations operated in East Anglia with most occurrences in the Norfolk Broadland, though it was also present at Chippenham Fen, Cambridgeshire, and Walberswick on the Suffolk coast. *A. brevipennis* was present at six sample stations in Norfolk and Suffolk and was predominantly associated with sites dominated by tall, dense fen vegetation that were subjected to periodic flooding. The two species occurred together at Sutton Broad Marshes, Norfolk.

The abundance of *P. pectorosa* at both Botany Bay stations is somewhat remarkable, particularly as it has not occurred in samples examined from the 70 stations operated elsewhere in the East Anglian fens. This is a very rare species in Great Britain—both Shirt (1987) and Falk (1991) afford it RDB2 (vulnerable) status. Falk (1991) reports two confirmed records in recent years: Wicken Fen, Cambridgeshire, and a site in Essex; with other records from dune slack pools at Branton Burrows, Devon (1989), and Pembury, Carmarthenshire, south Wales (1986). More recent studies by Holmes *et al.* (1995a,b,c), which used pitfall and water trapping techniques similar to those at Botany Bay, provide modern records for *P. pectorosa* in Wales: Carmarthenshire in 1987, Anglesey in 1988 and Pembrokeshire in 1989. Other published records are: Rozkošný & Knutson (1970), providing two old records, from Clifford's Castle, Hereford, and Port Talbot, Glamorgan, both collected by Yerbury in vii-viii.1908; and Collin (1966) who reports 'I have taken it freely at Barton Mills (Suffolk) in May'—this Breckland locality is only a few miles away from Botany Bay. It has also been taken at Mungell's Pond, Dinton Pastures, Berkshire (1993, P. J. Chandler).

Rozkošný & Knutson (1970) describe the life history of *P. pectorosa* and record that larvae actively search for, and kill, a variety of aquatic snails. Non-aquatic *Succinea* spp. have also been killed and eaten. Puparia, in which the species is

thought to over-winter, have been found in the wild floating in vernal pools and in the laboratory have been formed within snail shells. The adults are not long-lived and Rozkošný & Knutson (1970) have bred several generations in a year under laboratory conditions—the large numbers of individuals occurring in our traps in both June and September would suggest that there are at least two generations in England during the summer months.

The nationally scarce *C. bifasciella*, *P. verbekei* and *S. simplex* all occurred widely in our east Anglian survey—in 32, 29 and 33 sample stations respectively of the 72 operated. Although the majority of sites included within the study were of high nature conservation value, it may be significant that all the rare species discussed above were absent, albeit from a low number, of the drier and more degraded sites.

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SHORT COMMUNICATION

Red admiral in February.—I would like to report the discovery of the eaten-out cadaver of a newly-emerged red admiral (*Vanessa atalanta*) with wings not yet fully-inflated, found in my kitchen garden on 9 February 1997 following bouts of warm weather. This adds credence to the idea of a home grown supply of red admirals though their survival through the winter and spring may be problematical.—JOHN FELTWELL, Marlham, Henley's Down, Battle, East Sussex TN33 9BN.