

Armyworms in west Scotland

– a spectacular entomological discovery



Adult female.

Moving column of larvae of *Sciara militaris*.

Clive Craik and colleagues report on a rare phenomenon, uncountable numbers of fly larvae trekking in columns across the forest floor.

On 30 and 31 July 2004, Jane Eaton and Tom Webster found long moving columns of insect larvae on a footpath in coniferous forest near Oban in west Scotland. They mistook them for 'discarded strands of twisted plastic' or 'numerous moulted snakeskins'. Jane picked up the end of one strand to investigate and was 'horrified' to find that it consisted of vast numbers of maggot-like larvae. There were about ten columns, varying in width, height and length, containing uncountable thousands of constantly writhing larvae, each a few millimetres long, pressed closely together.

One of the biggest columns was about 3m long. Others were curved or forked. The larvae's unceasing movement forced the columns forward at 1-2cm per hour. We reared some larvae in captivity and the flies that emerged from pupae in mid-August were identified by Frank Menzel as *Sciara militaris* Nowicki, 1868.

The long columns are known as armyworms. We believe this is the first report of armyworms in the British Isles. It is also the first record in the British Isles of *S. militaris*.

The name armyworms has also been applied to marching columns of processionary caterpillars, or to plagues of some noctuid moth larvae that destroy crops. But our armyworms were formed by larvae of two-winged flies (Diptera), usually of the family Sciaridae (black fungus gnats). These belong to the suborder Nematocera, the most primitive of the three Dipteran suborders.

Armyworms like these have been reported from many sites in continental Europe and North America, but they are rare. In a German paper, Menzel and Mohrig list 166 records from continental Europe over several centuries. Most came from Germany, particularly from deciduous woodland in its central mountain ranges.

How did this continental species arrive in west Scotland? Such large numbers in a small space show that they must have bred locally. Sciarids are small weakly-flying insects, and adult *S. militaris* are only 3-4mm long. They probably couldn't fly across the North Sea, and even if windblown, we'd expect first reports from eastern Britain, not the far west. It is more likely that eggs, larvae or pupae were transported here in soil around the roots of young trees growing in forest compost, such as conifer saplings, which are sometimes imported from continental Europe.

Sciarid larvae often occur in large numbers in rotting vegetation or fungi. Some are pests of protected crops and others of stored food products. We don't know why, on rare occasions, larvae of a few species form long moving columns. One theory is that it's a way to avoid overcrowding. We also don't know if the species most famous for the habit, *S. militaris*, always includes an armyworm phase in its larval development.

Whatever the explanation, this was a truly extraordinary spectacle, one of the more memorable wildlife events most of us had seen. Please keep an eye open for armyworms, particularly in July and August, the months when most reports have occurred.

We returned to the site on 1 and 3 August, but the columns were nowhere to be seen. Digging revealed a small number of larvae in two pockets just below the litter layer on the forest floor but, by 6 August, these too had disappeared. Of the many hundreds of thousands of larvae, not one could be found.

A fuller report is in preparation and will appear elsewhere.

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