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SOME TRUE FLIES (INSECTA: DIPTERA) REARED FROM A NEST OF THE SPANISH SPARROW (*PASSER HISPANIOLENSIS*) IN MALTA

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ABSTRACT

There exist no previous records of true flies (Insecta, Diptera) reared from birds' nests in Malta. The following six species have recently been reared by the author from an old nest of the Spanish sparrow (*Passer hispaniolensis*): *Elachiptera bimaculata* (Loew), *Scaptomyza pallida* (Zetterstedt), *Scenopinus glabrifrons* Meigen, *Coproica vagans* (Haliday), *Coproica* sp. nov. and *Pullimosina heteroneura* (Haliday).

INTRODUCTION

Many species of true flies from more than fifty families have been reared from birds' nests (Hutson, 1978). A surprisingly rich dipterous fauna may be associated with these nests. Basden, in one of the most extensive studies of nest Diptera ever undertaken, obtained a total of 17,716 flies, representing 158 species in 34 families, from three quarters of 228 birds' nests he investigated (Rotheray, 1989).

Some species parasitize the occupants of the nest. Others feed on decaying debris (nesting material, decaying feathers, guano), or prey on other insect larvae inside the nest. Often, a succession of dipterous fauna will visit the nest, which may continue to be used after the nestlings have left.

There exist no previous records of diptera reared from birds' nests in Malta. It may therefore be of interest to give an account of six species, in four families, which have recently been reared by the author, from an old sparrow's nest.

MATERIALS AND METHODS

An old nest of the Spanish sparrow (*Passer hispaniolensis*) was discovered in a private garden in Rabat, Malta, on the 17th of October 2000. The empty nest had been pushed out of its original site in a ventilator, 6m up the west side of a house, by workmen who were decorating the house, two days previously. When discovered, the nest was lying upside down on bare soil and was moist, but not wet, from previous showers.

The nest, which measured 30cms in diameter, was lined with dry grasses (Poaceae) and bits and pieces of straw. It was immediately consigned to a large, transparent plastic bag to retain its moisture, and was inspected and ventilated for 5 minutes every day. All diptera that emerged between the 17th of October 2000 and the 15th of September 2001 were collected and identified. Voucher specimens were mounted on pins or preserved in alcohol, and are kept in the author's collection.

LIST OF SPECIES

Chloropidae

Elachiptera bimaculata (Loew, 1845)
Material examined: 12 ♂♂and 16 ♀♀, emerged from the nest between 15-25.xi.2000.

Drosophilidae

Scaptomyza (Parascaptomyza) pallida (Zetterstedt, 1847)
Material examined: 2 ♂♂, emerged on 26.x.2000.

Scenopinidae

Scenopinus glabrifrons Meigen, 1824
Material examined: 1 ♂, emerged on 19.x.2000.

Sphaeroceridae

Coproica vagans (Haliday, 1833)
Material examined: 1 ♂, emerged on 19.x.2000.

Coproica sp. nov.
Material examined: 20 ♂♂ and 14 ♀♀ emerged between 10.xi. and 7.xii.2000.

Pullimosina heteroneura (Haliday, 1836)
Material examined: 14 ♂ and 16 ♀♀, emerged between 3-10.xi.2000.

DISCUSSION

The species listed above, with the exception of *Coproica* sp. nov, are all common, very widespread or cosmopolitan species. *S. glabrifrons* has been reared from birds' nests before (Hicks, 1959; Narchuk, 1969), as has been *P. heteroneura* (Florén, 1989). I could find no breeding records of *E. bimaculata*, *S. pallida* or *C. vagans* from birds' nests. Indeed, no known species of *Coproica* Rondani seem to have previously been associated with birds' nests.

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The larvae of many species of chloropids are phytophagous, especially on Poaceae (Smith, 1989). *E. bimaculata*, which has not previously been recorded from Malta, has been reared from decaying vegetable matter, from the bases of turnips, barley and sorghum, and from the shoots of Poaceae (Ferrar, 1987). It is also associated with reeds. It would appear that the larvae or puparia of this species were developing in grasses, which were carried by the sparrows to their nest.

The larvae of all European species of *Scaptomyza*, except those of *S. pallida*, mine the stems and leaves of plants, especially crucifers and legumes (Bächli & Burla, 1985). Those of *S. pallida* feed on decaying plant matter, and have only once been discovered in a leaf mine. On this occasion, they may have been secondary invaders, living on the partially decaying mine remains (Bächli, pers. comm.). *S. pallida* is known to occur in Malta (Ebejer, 2001). This appears to be the first rearing record, for this species, from birds' nests. It seems probable that the larvae were living in decaying plant matter inside the nest (Bächli, pers. comm.). Less likely, larvae or pupae might have been carried in plant material used by the sparrows to build their nest.

The larvae of Scenopinidae are all predatory on other insects (Kelsey, 1969). Several species have been reared from birds' nests. *S. glabrifrons* has previously been reared from the nests of starlings (Hicks, 1959) and sparrows (Narchuk, 1969). This species is already known from Malta (Ebejer, 1995).

Flies in the genus *Coproica* Rondani are primarily coprophagous species. A good series of an undescribed species, allied to *C. hirtula* (Rondani) emerged from the nest. This species will be described elsewhere (Gatt, in prep.) *C. vagans* has been collected from dung, carrion, seaweed, refuse and compost heaps. It has not previously been recorded from birds' nests. *P. heteroneura* is a polysaprophagous, synanthropic species which develops mainly in decaying vegetable matter. It has previously been recorded from small animal burrows, and once from the nest of the hedge sparrow, *Prunella modularis* (Florén, 1989). Both *C. vagans* and *P. heteroneura* have previously been recorded from Malta (Gatt, 2000).

All flies emerged between 19.x and 7.xii.2000. Although the data collected is too scant to support definite conclusions, it may be that some species emerged sequentially from the nest. Thus, for instance, all specimens of *P. heteroneura* emerged between 3 and 10.xi.2000, and all specimens of *E. bimaculata* later, between 15 and 25.xi.2000. It was observed that individuals of *P. heteroneura* only emerged during the short period when the nest had acquired a distinct ammoniacal odour. It is speculated that this may have acted as a cue, triggering off mass emergence of this species from the nest. Adult sphaerocerids are well known to respond to olfactory cues (Rohácek, 1982) and many species are readily attracted to the odour of traps baited with decaying organic matter.

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