

Kirk-Spriggs 2001

Biological observations of *Meoneura prima* (Becker) (Diptera: Carnidae) in Namibia

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Meoneura prima (Becker, 1903), is recorded from Namibia, this being the first record of the acaulprate family Carnidae for Namibia. Observations reveal that this species is attracted to the droppings of the Namaqua Rock Mouse (*Aethomys namaquensis* (A. Smith)) in communal runs and burrows. Flies were observed copulating on and in the vicinity of fresh droppings and were also shown to be active at dusk, coinciding with the peak periods of activity of the Namaqua Rock Mouse.

INTRODUCTION

The taxonomy of the African species of Carnidae is poorly known and the biology even less so. A number of publications have recently appeared, however, which help to rectify this situation. Barraclough (1994) provided an introduction to the southern African fauna, including keys to the genera known to occur there, namely: *Hemeromyia* Coquillett, 1902, *Meoneura* Rondani, 1856, and *Carnus* Nitzsch, 1818. More recently Deeming (1998) gave a short review of the known biology and described a further species of *Meoneura* from the Western Cape (South Africa). Ferrar (1987: 101-102) has reviewed the known biology of the family, and Grimaldi (1997) notes that species of *Carnus* are primarily associated with tree nesting birds in Europe and North America. Species of *Meoneura* have a very diverse biology and have been reared from a damaged *Sarcophaga* Meigen, 1826 (Diptera: Sarcophagidae) puparium; an Umbelliferae stem; freshly harvested and unthreshed wheat; stored snuff tobacco; salted fish; birds' nests; cattle, chicken, and pig dung and fungi (Deeming 1998: 133; Ferrar 1987: 101). Grimaldi (1997) states, however, "Like most carnids, *Meoneura* is closely associated with feces of mammals and birds" indicating the faecal association to be the main one.

In September 1997, whilst sampling in the Lüderitz District of Namibia, I observed a large

communal nest of a small rodent at the margin of an ephemeral riverbed. The nest was constructed at the base of a shrubby bush from grass, twigs and other debris. The nest was intersected with 12 or more entrances and a network of permanent runs linking entrances. Each run and exit hole was furnished with a thick layer of faecal droppings in different stages of desiccation. Often droppings were in such quantities that they were spilling from the sides of the runs and forming pockets of concentrated droppings.

The writer was able to identify the rodent species following sightings of adults and on the communal nature of the species, as the Namaqua Rock Mouse (*Aethomys namaquensis* (A. Smith, 1834)). This species is widely distributed in the Southern African Subregion, except in sections of the central and northern Cape Province and coastal Natal (Skinner & Smithers 1990: 278).

OBSERVATIONS

At dusk on the evening of the 20th September 1997, I observed a number of small dark cyclorrhaphous flies alighting on piles of concentrated droppings and along permanent runs. Two pairs, which had alighted on fresh droppings, were seen to be copulating, and a further pair were observed in *copula* after capture. A quantity of droppings was later collected for rearing purposes but after moistening the dung, no adult flies were found to emerge.

The material was identified using the key in Sabrosky (1959) as *Meoneura prima* (Becker, 1903) (as *M. seducta* Collin, 1937). The Namibian specimens compare well with South African specimens I examined in the Natal Museum. Although the South African specimen I examined had the cuticle brownish rather than black, this is acceptable within the range of variation stated by Sabrosky (1959: 18) as "Mesonotum dark grey or brownish-grey pollinose".

Although rearing experiments were unsuccessful in this case. It seems likely that *M. prima* is capable of completing its larval development on droppings of the Namaqua Rock Mouse, but it is unlikely that this is exclusively the case. I believe these species to be very much opportunist in their feeding and breeding habits. At the very least they are able to complete their larval development on a variety of small rodent droppings. Ferrar (1987: 101) has noted that in the USA, adults of some species of *Meoneura* are attracted to other dung types, but have not been reared from them. Hicks (1959) lists a range of different species of birds' nests from which *Meoneura lamellata*, Collin, 1930, *M. neottiophila*, Collin, 1930, and *M. obscurella* (Fallén 1823), have been reared; so as with other species of *Meoneura*, there appears to be a preference for a nest environment, but little host specificity.

It can not be ruled out that adult females are attracted to dung as a protein source for egg production, and that as females congregate, so males are also attracted for copulation. This aside, rearings of other species of *Meoneura* from bird droppings in similar environments and the fact that specimens of *M. prima* were observed in copula whilst resting on fresh Namaqua Rock Mouse droppings strongly suggests that these droppings are utilised for larval development.

MATERIAL

1 ♂ SOUTH AFRICA: Natal #45, Royal Natal Nat. Park, 28°41'S, 28°57'E, 1400 m, 03.ix.1992,

Rock scree at main office area, [D.A.] Barraclough, [A.] Whittington (in Natal Museum); 6 NAMIBIA: Lüderitz [District], Obib waters, 28°00'S, 16°38'E, 20.ix.1997, A.H. Kirk-Spriggs, ex dung of Namaqua Rock Mouse (*Aethomys namaquensis*) (5 deposited National Museum of Namibia (NMNW), 1 deposited Natal Museum).

ACKNOWLEDGEMENTS

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Cover illustration: The 'Medfly' *Ceratitidis capitata* (Wiedemann) on coffee in Kenya.
This major pest species is newly recorded from Namibia (*vide* Hancock *et al.* this volume) (photo-
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