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THREE NEW SPECIES OF *MEONEURA* RONDANI (DIPTERA:MILICHIDAE) FROM NORTHERN NIGERIA

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ABSTRACT

Three new species of *Meoneura* are described, the male terminalia of two known spe-ies are described and figured and a check list of the known species of this genus and the distribution is given.

INTRODUCTION

The genus *Meoneura* is essentially holarctic in distribution, seven species being know from the nearctic region, twenty-three from the palaearctic and six from both nearctin and palaearctic. Elsewhere the genus has only been recorded from single females that could not be identified from Peru (Sabrosky 1959:17). and Gough Island in the south Atlantic (Oldroyd 1958:79). Though five species have been recorded from Africa north of the Sahara, none has yet been recorded from the ethiopian region.

TAXONOMY

The most important diagnostic structures of species of *Meoneura* lie in the male terminalia. In only three described species have the male terminalia not been figured and so before describing further species it has been necessary to examine these. Due to the kindness of Mr. B.H. Cogan of the British Museum (Natural History), London I have been able to examine male terminalia from type material of two of these species: the third, unfortunately, is only known from the female.

MEONEURA Rondani,1856:128. Type species *AGROMYZA OBSCURELLA* Fallen (orig. des.) *MEONEURA BALUCHISTANI* Duda (fig.1)
936: 337.

The male terminalia of this species is unlike any other in the combination of the chaetotaxy, the shape of the genital forceps and the apically dilated penis.

MEONEURA ELONGELLA (Zetterstedt)
1838: 790 (*AGROMYZA*

Described from the female from Lappland, a female was collected at Aurland, Norway in the summer of 1967 by Mr.M. W.Joyce. The male remains unknown.

This is a large species having a single pair of dorsocentral bristles and the halteres dark.

MEONEURA NITIDIUSCULA Collin (fig.2)
1949:224.

This species was described from a series of nine syntypes of both sexes and to the best of my knowledge has not since been recorded. The syntypes are all in rather poor condition and are wrongly labelled as type and paratypes. A male and several female abodmens are preserved in a balsam mount with the series, but as one cannot tell from which

individual specimens the abdomens were taken a lectotype cannot be designated.

I have figured the terminalia of the single male abdomen as it appears to be (fig. 2,) but in its present mount the structures are not easily seen.

MEONEURA BISETA sp. n. ♂ (fig.3)

Closely related to *M. grana densis* Lyneborg, like it having the haltere white, the postvertical bristles parallel, a single pair of dorsocentral bristles, the mesonotum undusted and with only very sparse and fine setae and the male terminalia rather similar, the hypopygium bearing three pairs of long bristles, differing from it in that the orbital bristles are as long as the ocellars, the hypopygium has only a few short hairs in addition to the bristles and the genital forceps are more pointed when viewed in profile and bear several minute hairs apically on the inner surface.

Head black with face, jowls and antenna brown, the frons brownish orange on anterior point of ocellar triangle and on anterior two thirds on either side of it; ocellar triangle slightly rugose, extending to anterior one fifth of frons, strongly demarked and dusted only between ocelli; postvertical bristles small, weak and parallel; orbital bristles much longer and stronger than postverticals, as in most species of this genus. Thorax black, undusted and minutely punctured to rugose; one pair dorsocentral bristles; only an irregular double row of mesonotal setae between the dorsocentral lines; pteropleuron lacking bristle. Legs black, faintly dusted, with knee of fore leg,tips of tibiae and all tarsi dirty yellow and fore tibia brownish; fore femur with a distinct anteroventral bristle at three quarters of its length; hind femur with two similar bristles on the apical two fifths. Wing pale greyish hyaline with pale greyish brown veins and venationand chaetotaxy typical of species of this genus; haltere white with stem pale grey.
Abdomen shining, the tergites minutely rugose; terminalia (fig.3). Length about 1mm.
♀ unknown

Holotype ♂ N. Nigeria, Zaria, Samaru, 14. iii 1972, (J.C.Deeming).

Holotype deposited in Brit. Mus. (Nat. Hist.), London.

MEONEURA NIGERIENSIS sp. n. ♂♀(fig. 4)

♂differs from the description of the previous species (M. *biseta)*, to which it is closely related, in the following respects:

Face, frons (which exception of the ocellar triangle), a long triangle at lower anterior eye margin and antennae orange;fore coxa and trochanter yellow; apical tarsal segments slightly infuscate; hind femur with a single anteroventral bristle; hypopygium (fig.4) with only two pairs of bristles; genital forceps narrower and more curved, anteriorly on basal half with a pair of hairs.

♀ resembling male except for sexual differences in abdomen. Holotype ♂ N. Nigeria, Zaria, Samaru, 13.iii.1972, (J. C. Deeming). Paratypes 3♂8♀ ditto, 5. iii-7.v.1966-72. Holotype and paratypes deposited in Brit. Mus. (Nat. Hist.), some paratypes in coll. Inst. Agric. Research, Samaru.

MEONEURA SCUTELLATA sp. n. ♀♂ (fig. 5)

This species is very distinctive in having the mesonotum undusted in contrast to the densely dusted scutellum. Only two other species of this genus are similar in this respert these being*M. neglecta* Collin and *nigrifrons* Malloch. *M. neglecta* differs from this species inhaving three pairs of dorsocentral bristles, the face dark and the ocellar

triangle extending to the front of the frons, and *M. nigrifrons* has black halerest and the male genital forceps rather tomohawk-shaped. *M. baluchistani* Duda is described as having "Schildcher. . dorsal matter glanzendals das Mesonotum," but this species has three pairs of dorsocentral bristles and very different male genitalia (fig.1). The male terminalia of the new species is very similar to that of *freta* Col l n and *nitidiuscula* Collin (fig.2), but these two species have the thorax lightly dusted and completely undusted respectively.

♂ Head black, yellow on antenna, face jowls or at least a triangular wedge-shape on lower anterior eye margin, and anterior third of frons, the posterior two thirds of frons becoming brownish and the ocellar triangle black, sometimes paler anteriorly, dusted between ocelli; all head bristles well developed, but the postverticals short and subparallel as is usual for species of this genus. Thorax black, shining and microscopically punctured, but scutellum heavily dusted on all but extreme base, the humerus, notopleuron, pteropleuron and hypopleuron less heavily dusted than the scutellum; one pair dorsocentral bristles; mesonotal setae dense, between dorsocentral lines in about six rows; pteropleuron lacking bristle. Legs lightly dusted, predominantly yellow, with apical tarsal segments infuscate; fore leg infuscate on dorsal edge of femur, mid leg on femur and hind leg on femur and basal two thirds of tibia; forefemur with four posteroventral bristles, the middle two of which are longer and stronger; hind femur with an anteroventral bristle at nearly three quarters of its length. Wing rather whitish hyaline with yellowish grey veins and venation and chaetotaxy in no way unusual for species of this genus; haltere white with a greyish stem. Abdomen black, shining, minutely; rugose on tergites; hypopygium (fig.5) with only very short hairs;genital forceps oval penis dirty white.
Length about 1 mm.

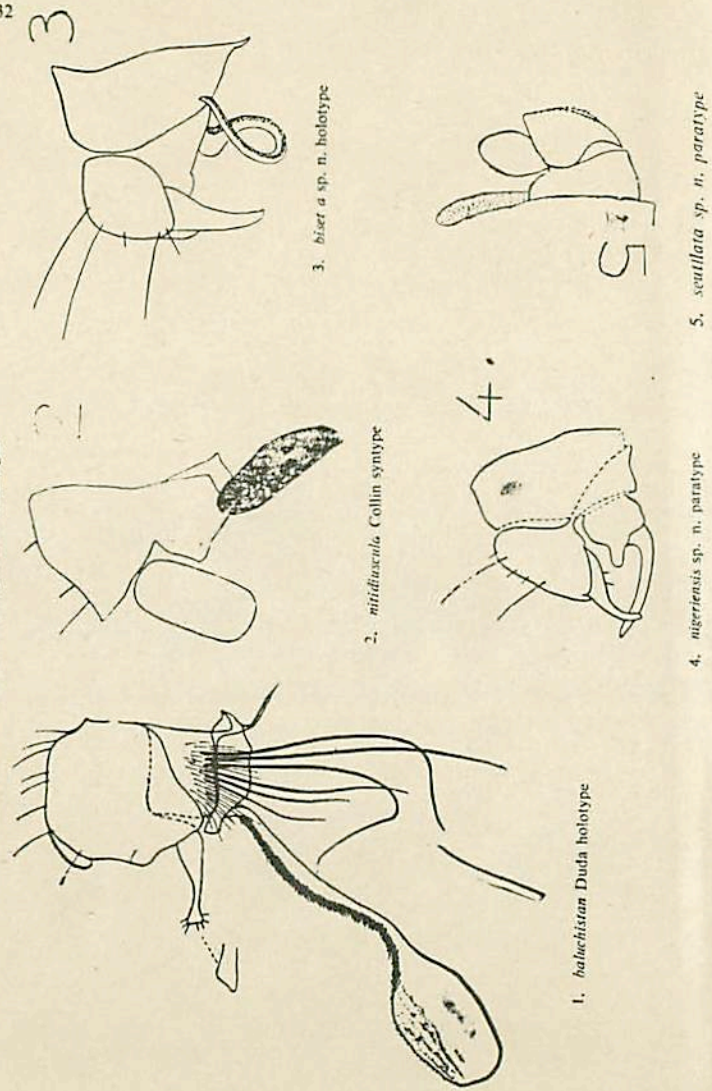
♀ resembling male except in characters of postabdomen.
Hoolotype ♂ N. Nigeria, Zaria, Samaru, 10.v.1966, (J.C. Deeming).
Paratypes 4♂9♀ ditto, 9.iii.-10. v.1966-72. Holotype and paratypes deposited in Brit. Mus. (Nat. Hist.,) London, some paratypes in coll. Inst. Agric. Research Samaru

Meoneura sp.

A single female of a new species was taken from the stomach of a ruff (*Philomachus pugnax* (Linnaeus) (Scolopacidae) caught at Malamfatori on the western shore of Lake Chad on 28.iii.1967 byDr. C.H. Fry. This specimen agrees with the description of M. *netadensis* Lyneborg, except that the ocellar triangle is longer and the fore femur has posteroventral rather than anteroventral bristles.

CHECK LIST OF *MEONEURA* SPECIES AND THEIR DISTRIBUTION

algerica Hennig1937	Algeria
alpina Hennig1948	Austria
anceps Frey 1935	Finnland, Russia
baluchistani Duda1936	Pakistan
bicuspidata Collin 1930	England
biseta sp. n.	Nigeria
californica Sabrosky 1961	California
compacta Gregor 1971	Pakistan
digitata Sabrosky 1959	Nebraska



1-5 Male terminalia of *Meoneura* spp viewed from right

1. *baluchistan* Duda holotype
2. *nitidiuscula* Collin syntype
3. *biseta* sp. n. holotype
4. *nigeriensis* sp. n. paratype
5. *scutillata* sp. n. paratype

elongelia Zetterstedt 1838	Sweden, Norway
ezigua Collin 1930	France
elavifacies Collin 1930	Europe, N. America
forcipata Sabrosky1959	British Columbia
freta Collin 1937	England, Spain
furcata Hennig 1937	Algeria
glaberrima Becker 1910	Corsica
graeca Hennig 1972	Greece
granadensis Lyneborg 1969	Spain
hennigi Gregor 1971	Pakistan, Afghanistan
lacteipennis Fallen 1823	Europe
lamellata Collin 1930	Europe, Algeria,Alaska
minutissima Zetterstedt 1860	Sweden, England
neglecta Collin 1930	Europe
neottiophila Collin 1930	Europe
nevadensis Lyneborg 1969	Spain
nigeriensis sp. n.	Nigeria
nigrifrons Malloch 1915	N. America
nitidiuscula Collin 1949	Egypt
obscurella Fallen 1823	Europe, the Azores, Madiera, N. Africa Iceland,
psynpitici Fitch 1856	N. America
palaestinensis Hennig 1937	Israel
perlamellata Hennig 1937	Israel
polita Sabrosky 1959	U. S. A., Canada, Mexico
teropleuralis Sabrosky 1959	Nebraska
scutellaris sp. n.	Nigeria
seducta Collin 1937	Europe, Jordan, N. America
subnivalis Gregor1971	Afghanistan
triangularis Collin1930	Europe, N. America
vagans Fallen 1823	Europe,N. America
wirthi Sabrosky 1959	N. America

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OBSERVATIONS ON *EUZOPHERODES VAPIDELLA* MANN (LEPIDOPTERA PYRALLIDAE) INFESTING YAM TUBERS IN IBADAN, NIGERIA

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ABSTRACT

Laboratory observations were carried out on the development of *Euzopherotdes rapidella* Mann attacking stored yam tubers (*Dioscorea* spp) in Ibadan. This was he first record of the species from West Africa. The mean developmental period of the insect was 24.30 ± 1.88 days in *D. alata* L. at a mean temperture of 31.2±3.5°C and mean relative humidity of 49.4±2.7%. Development in *D. rotundata* Poir was unsatis factory. Only mechanically damaged tubers were attacked and the storage of only physically undamaged tubers is recommended in order to reduce infestation by the pest.

INTRODUCTION

Yam, *Dioscorea* spp., constitutes one of the staple food crops in Nigeria. The area of cultivation extends from the rain forest zone in the south through the derived savanna to the Guinea savanna in the north (approximately lat 5°-11°N). Coursey (1965) quoted 9,493, 000 tons as the annual production figure in the Federation in 1951 when the combined figure for sweet potatoes and yam was 9,972,000 tons. In 1963/64, combined production figure for sweet potatoes and yams was 15,400,000 tons (F. A. O. 1965). The production of yam is, therefore, on the increase.

Most of the yams harvested early (June-August) are put on the market for immediate sale. However, some proportion is processed into dried yams which is subsequently turned into yam flour ('elubo') in some parts of the country. Yam tubers harvested late (October-December) and required for early planting (November-February) are temporarily stored in the ground or covered by dry yam vines by some farmers. Storage for longer periods is in yam barns, various types of which are described by Coursey (1967) who also gave further literature on the subject. In the Federal Department of Agricultural Research, Ibadan, harvested yams, are stored in a yam barn. Shortly after the 1971/72 season's harvest was stored, it was observed that there was infestation by *Euzopherodes rapidella* Mann, to which the common name of yam moth is proposed.

MATERIALS AND METHODS

An infested tuber of *D. alata* L. served as the original culture. Infested tubers are easily observed through larval frass thrown out to the surface at various spots (Plate 1). Adults which emerged from the culture were allowed to breed in tubers of *D. alata* kept in Kilner jars so that continuous source of experimental adults was ensured. One adult of each sex was introduced into each Kilner jar containing a tuber of either *D. alata* or *D. rotundata* Poir to determine the duration of the life cycle of the insect species.

To determine the number of larval instars, a gravid female was allowed to oviposit on cut pieces of yam. One egg was left to develop on each piece. The piece

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