

Afrotropical Asilidae (Diptera) 7. The genus *Astochia* Becker, 1913 (Asilinae : Asilini)

by

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SYNOPSIS

The five known species of *Astochia* are redescribed, illustrated and keyed. The grounds for allocating the species to this genus and not to *Neoitamus* are discussed.

INTRODUCTION

The allocation of Afrotropical species between the genera *Astochia* Becker, 1913 and *Neoitamus* Osten-Sacken, 1879 has been problematic (Oldroyd 1974). As Oldroyd (1974) points out, 'these are not synonymous, but two abundantly distinct genera'. Hull (1962) listed five Afrotropical species of *Neoitamus* (two of which have since been transferred to other genera). Oldroyd (1970) raised doubts concerning this allocation and provisionally placed *armata* (Becker) and his new species, *strachani*, in *Astochia* while leaving *africanus* Ricardo in *Neoitamus*. These doubts still prevailed at the time Oldroyd prepared his manuscript on the Afrotropical Asilidae for the Afrotropical Diptera Catalogue, destined to be published after his death. In his manuscript (a fair amount of which was not

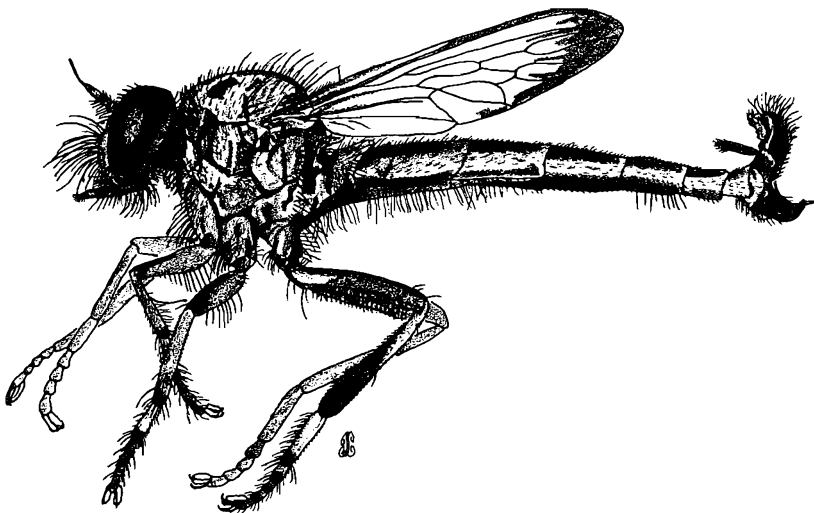


Fig. 1. *Astochia armata* (Becker), entire male (Malawi).

published) he wrote: 'Hull placed all the Ethiopian species in *Neoitamus*, but I am sure that some, if not most, of them are really *Astochia*, which is a tropical genus. *Neoitamus* seems to be a genus of cooler countries, only extending sporadically into the tropics.' Oldroyd (1980) finally decided to reverse Hull's allocation and listed all the Afrotropical species as *Astochia*. After examining specimens of all five species, I am, reservedly, in support of Oldroyd's action. In his key, Oldroyd (1974) separated the two genera in question (couplet 6, page 17) on the basis of the development of the occipital bristles and basitarsi. In *Neoitamus* the occipital bristles are 'proclinate' and the basitarsi 'normal'. As far as my assessment goes, I would not describe any of the Afrotropical species as having proclinate occipital bristles. On the other hand I would say that the basitarsi do not look in any way abnormal. According to Oldroyd (1974) *Astochia* has 'basitarsi stout, and unusually bristly, especially those of the fore legs'. I would say that the basitarsi of all five species are not particularly stout, nor unusually bristly, and that those of the forelegs are almost indistinguishable from those of the other legs. As Oldroyd lists the characteristic pertaining to the occipital bristles first, I assume he placed greater value in the importance of this feature in the separation of the genera. If this is true then I would support the placing of all five species in *Astochia*.

In this paper, which was prompted by the availability of new material collected in Malaŵi, I offer redescriptions of the five *Astochia* species and a key for their separation. While I have seen the types of three of the species (*africana*, *neavensis* and *strachani*) the descriptions and illustrations of the other two (*armata* and *sodalis*) were prepared almost entirely from material identified by Oldroyd and housed in the British Museum (Natural History).

Abbreviations used in this paper are:

BM—British Museum (Natural History)

DMAG—Durban Museum and Art Gallery, Durban

NM—Natal Museum, Pietermaritzburg

KMT—Koninklijk Museum voor Midden-Africa, Tervuren

ZSM—Zoologische Staatssammlung, München.

Genus *Astochia* Becker, 1913

Astochia Becker, 1913: 538. Type-species: *Astochia metatarsata* Becker, 1913 by monotypy.

Key to the Afrotropical species of *Astochia*

- 1 Large dark species (wing length > 10 mm; ♂ genitalia as Figs 4–6) ***africana*** (Ricardo)
 - Smaller paler species (wing length < 10 mm) 2
- 2 Two or more scutellar bristles; mystax usually with a few black setae 3
 - Scutellum without bristles; mystax entirely white 4
- 3 Wing membrane extensively covered with microtrichia (fourth posterior cell with a group of microtrichia); ♂ genitalia as Figs 18–20, clasper without a dorsal process ***strachani*** Oldroyd
 - Wing membrane largely lacking microtrichia (fourth posterior cell entirely bare); ♂ genitalia as Figs 8–10, clasper with a dorsal process ***armata*** (Becker)

- 4 Presutural, supra-alar and postalar bristles black; ♀ with T1–5 pruinose (♂ not yet known) **neavensis** (Ricardo)
 – Mesonotal bristles pale yellow-white; ♀ with T1–7 pruinose; ♂ genitalia as Figs 14–16 **sodalis** (Wulp)

Astochia africana (Ricardo, 1919) figs 2–6

Neoitamus africanus Ricardo, 1919: 73; Oldroyd 1939: 38–9; Hull, 1962: 557; Oldroyd 1970: 313.
Astochia africana; Oldroyd, 1980: 336.

Redescription: Based on lectotype ♀, unless otherwise stated.

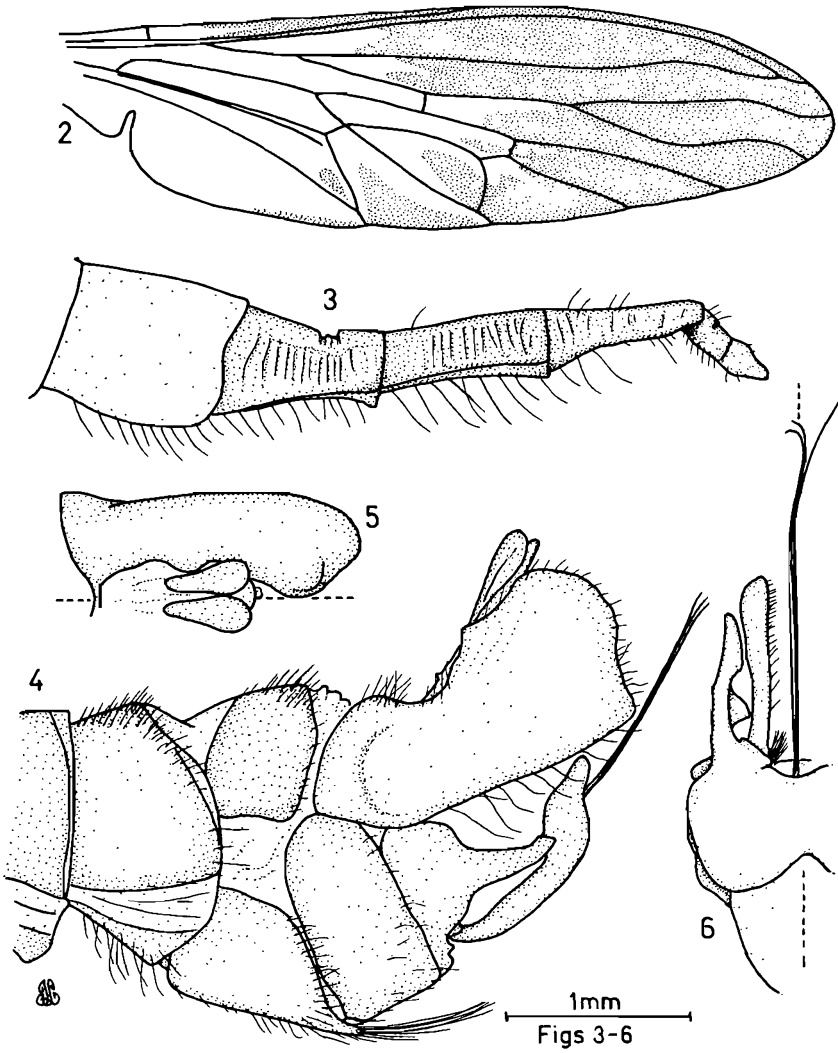
Head: Antennae black with black bristles and setae (Uganda ♂); lectotype has both antennae broken off beyond segment 2. Mystax entirely black (other material including specimens from Ruwenzori and Malawi have a number of yellowish bristles just above epistomal margin). Occipital bristles (behind ocellarium) short, black and not proclinate. Proboscis black with white setae ventrally. Palpi black with black setae.

Thorax: Mesepimeral setae black; hypopleural setae mostly black but a few white ventrally. Mesonotal setae: dorsocentrals black, weak (especially those anterior of the transverse suture); humerals—fine, longish black setae only; presuturals—2 black; supra-alars—2 black; postalars—2 black; scutellars—7 black marginal bristles (other specimens may have as few as 2). Metanotal callosities with black setae. Wings: 13.2 × 4.0 mm (length measured from humeral crossvein to tip; breadth through the fork of the radial sector); venation and microtrichial distribution as in Fig. 2. Legs: forecoxa with white (and a few black) setae anteriorly; hind-coxa with a single yellow or black bristle laterally. Femora dark red-brown to black with red-brown tips. Tibiae orange-brown. Tarsi darker than tibiae and with terminal tarsomeres dark red-brown. Setation of hind-femur: bristles black; longer setae black or white; minor setae yellowish (dorsal and proximal) or black (ventral and distal).

Abdomen: T1–5 pruinose as thorax, T6 (and more distally) shiny black; sterna as terga. Ovipositor (Fig. 3) long and narrow. Terga with longish black setae anterolaterally, other setae shortish yellow. Sterna with longish, black and yellow setae. ♂ genitalia (Uganda specimen drawn) as in Figs 4–6.

Material examined: KENYA: 3 ♀, lectotype and paralectotypes, Edge of forest on S. & E. slopes of Mt Kenya, 6 000–7 000 ft, 3–12.ii.1911, S.A. Neave (BM); 1 ♂ 2 ♀, 5–7 miles into Kenia Forest, near Luche R. 9–10.ii.1911, T. J. Anderson (BM). UGANDA: 1 ♂ 1 ♀, Ruwenzori range, Namwamba Valley, 6 500 ft, xii.1934–i.1935, B.M. E. Afr. Exp., F. W. Edwards (BM). MALAWI: 1 ♀, Mulanje Mnt., Likabula River Valley, riverine *Brachystegia* woodland, 28–30.xi.1980, Stuckenberg & Londt (NM); 2 ♂ 4 ♀, Ntchisi forest reserve, 1 500 m, montane forest and woodland, 3–4.xii.1980, Londt & Stuckenberg (NM).

Other recorded material: Oldroyd (1970) records the following. ZAÏRE: 1 ♀, Stanleyville, Mahagi–Niarembe, x.1935, Ch. Scops; 1 ♀; Kivu, Kisenyi, ii.1928, Ch. Seydel; 1 ♀, Muturak, 3.ii.1933, Van Sacaghem. RUANDA: 1 ♂, Kisenyi, 1 800 m, 18.xi.1961, A. Bertrand. These specimens are apparently housed in KMT.



Figs 2-6. *Astochia africana* (Ricardo). 2. Wing (Ruwendzori ♂) ca. 15 mm. 3. Female ovipositor (Lectotype—Mt. Kenya). 4-6. Male genitalia (Ruwendzori). 4. Lateral. 5. Dorsal aspect of clasper. 6. Ventral aspect, with claspers excluded.

TABLE 1
The seasonal incidence of species of *Astochia* as determined from existing label data.

Species	Months (starting with July)											
	J	A	S	O	N	D	J	F	M	A	M	J
<i>africana</i>				•	•	•	•	•				
<i>armata</i>						•		•	•			
<i>neavensis</i>				•								
<i>sodalis</i>	•											
<i>strachani</i>		•	•			•			•	•		

Remarks: Ricardo examined three female specimens and while she referred to one as the type it is uncertain which of the three she was referring to. I hereby designate and label one of the three specimens as lectotype. The other two are to be considered as paralectotypes. This large species, active from October–February (Table 1), is easily distinguished from the other four species. Adults are found in forests and along their margins.

Astochia armata (Becker, 1909) Figs 1, 7–10.

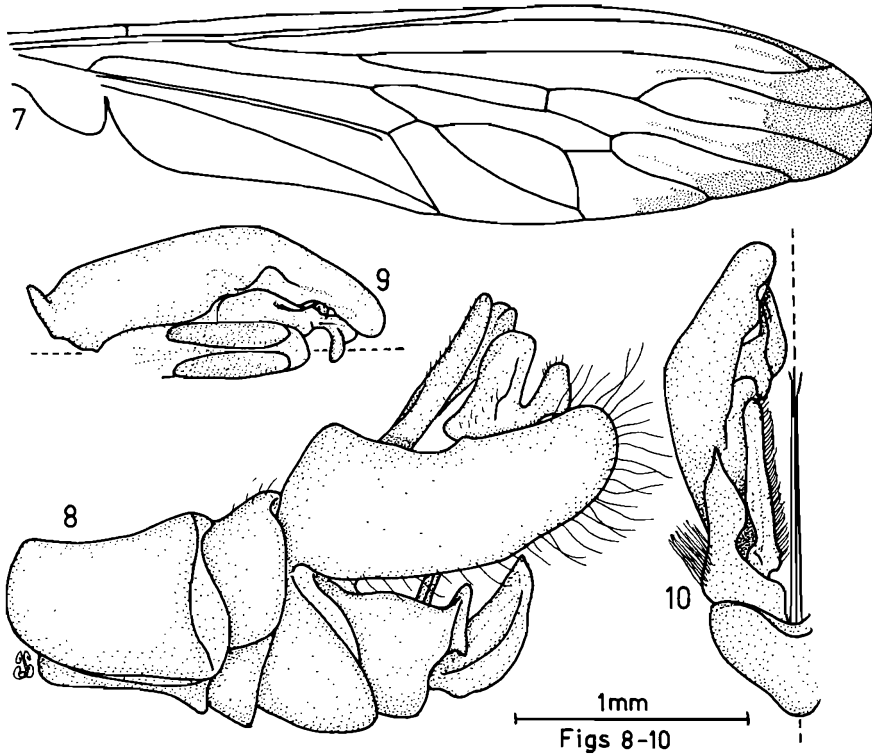
Neoitamus armatus Becker, 1909: 114; Becker, 1910: 22; Hull, 1962: 557.

Astochia armata; Lindner, 1955: 41; Oldroyd, 1970: 312, Oldroyd, 1980: 336.

Redescription: Based on all the material examined.

Head: Antennae dark red-brown to black with mostly black setae (there are a few yellow setae on ventral aspect of segment one). Mystax mostly yellow but there are a few black setae in upper part. Occipital bristles pale yellow (may be the odd black one), short and not proclinate. Proboscis and palpi dark red-brown to black with shiny yellow-white setae.

Thorax: Mesepimeral and hypopleural setae whitish. Mesonotal setae: dorsocentrals—about 5 pairs thin black setae mostly posterior of transverse suture; humerals—longish white setae; presuturals—2 black; supra-alars—2 black (one



Figs 7–10. *Astochia armata* (Becker), male (Kenya). 7. Wing ca. 7 mm. 8–10. Male genitalia. 8. Lateral. 9. Dorsal. 10. Ventral.

is poorly developed); postalars—1 black; scutellars—2 yellow. Metanotal callosities with yellow setae. Wings: $7,2 \times 2,1$ mm; venation and microtrichial distribution as in Fig. 7. Legs: Forecoxa with white setae anteriorly; hindcoxa with 1 white bristle laterally. Femora orange-brown with anterior faces dark red-brown. Tibiae and tarsomeres yellow-brown with dark red-brown distal tips. Midtibia of ♂ equipped with a single, large, black bristle ventrally. Setation of hindfemur: bristles yellow (2 in number usually—1 may be black); longer setae yellowish; minor setae fine yellow-white, a well-developed strip of white closely-packed setae along ventral side in ♂.

Abdomen: In ♀ segments 1–5 pruinose, rest shiny black. Ovipositor long and narrow. Terga and sterna covered with fine, yellow setae except along dorsal midline where they are black. T5 of ♂ has a row of strong, ventrally directed, yellow bristles. ♂ genitalia as Figs 8–10.

Material examined: KENYA: 1 ♂, ? Livingippe (or Lorengippe) Turkana (illegible), 30.iii.1967, E. S. Brown (BM). MALAWI: 4 ♂ 3 ♀, Senga Hills ca. 500 m, *Brachystegia* woodland near lake, 1–2.xii.1980, Stuckenberg & Londt (NM). ZIMBABWE: 1 ♀, by Sanyati R., nr. Kariba Camp, Tsetse Fly Ops., 8.i.1956. R. Goodier, found in sandy area by river bank (BM). SOUTH AFRICA: *Natal:* 3 ♂ 4 ♀, Junction of Blaauw Krantz and Tugela R., x.1896, G. A. K. Marshall (BM); 1 ♂, Insuzi River nr Qudeni, 25.ii.1962, A. L. Bevis (DMAG).

Other recorded material: KENYA: 1 ♂ 1 ♀ types (? syntypes), Voi, 1906 (recorded by Becker 1909—repository not known). TANZANIA: 2 ♂, Dar-es-Salaam, Mburumfluss, 21 bis 24.xii.1951 (recorded by Lindner, 1955—repository probably ZSM). ZAIRE: 2 ♀, Garamba National Park, 28.ii.1951; 1 ♀, same locality, 20.iii.1950 (recorded by Oldroyd, 1970—repository probably KMT).

Remarks: Becker (1909) did not designate a holotype and so his specimens must be considered as syntypes. While I have not studied his material I hereby designate the male as lectotype. I collected species near the shore of Lake Malawi about 100 m north of the Grand Beach Hotel. The habitat was very dry at the time. Individuals were often seen perched at the tips of long dried-out grass stems. A copulating pair was captured in just such a situation. The species occupies a habitat quite different from that of *A. africana*. The adults are apparently active from December to March (Table 1).

Astochia neavensis (Ricardo, 1919) Figs 11–12

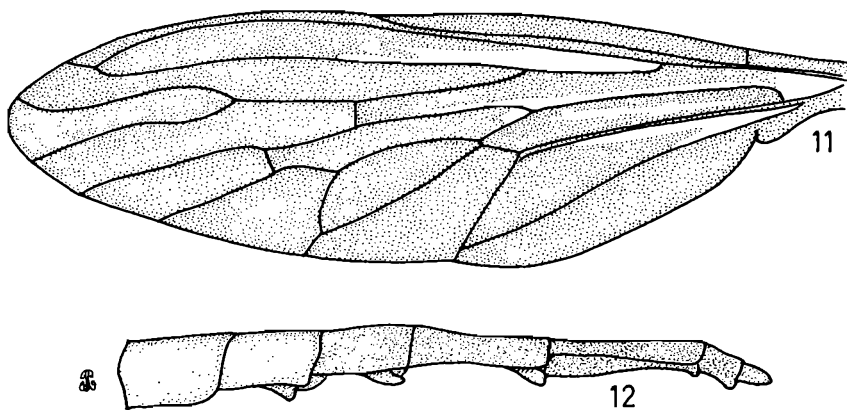
Neotamus neavensis Ricardo, 1919: 72; Hull, 1962: 557.

Astochia neavensis; Oldroyd, 1980: 336.

Redescription: based on lectotype ♀, unless otherwise stated.

Head: Antennae (broken off beyond segment 2) black with black bristles and setae (there are some yellow setae ventrally on segment 1). Mystax yellowish. Occipital bristles short, yellow and not proclinate. Proboscis and palpi blackish with yellow-white setae.

Thorax: Mesepimeral and hypopleural setae yellow-white. Mesonotal setae: dorsocentrals—3 or 4 pairs fine black tiny setae anterior of suture; humerals—longish yellow-white setae only; presutulars—2 black; supra-alars—2 black; post-



Figs 11–12. *Astochia neavensis* (Ricardo), female (Lectotype—Zaire). 11. Wing ca. 7,5 mm. 12. Ovipositor.

alars—2 black; scutellars—none. Metanotal callosities with yellow setae. Wings: 8,6 × 2,9 mm; venation and microtrichial distribution as in Fig. 11. Legs: forecoxa with yellow-white setae anteriorly; hindcoxa with a single, yellow bristle laterally. Femora largely dark red-brown but with tips yellow-brown. Tibiae yellow-brown with dark red-brown distal tips. Tarsi dark red-brown but basitarsi mostly yellow-brown. Setation of hindfemur: bristles (only 3) short black; longer setae (only 2–3 basally) white; minor setae numerous, fine yellow-white.

Abdomen: Segments 1–5 pruinose, rest shiny black. Ovipositor long and narrow (Fig. 12). Terga covered with short black setae (except for a few yellow ones laterally). Sterna with fewer setae, all yellowish. The ♂ is at present unknown.

Material examined: ZAÏRE: 6 ♀, Lectotype and paralectotypes, 150–200 miles W. of Kambove, 3 500–4 500 ft, 25.x.1907, S.A. Neave (BM).

Remarks: As Ricardo's specimens must all be considered as syntypes I here designate one of the females in the BM as lectotype (and have labelled it as such). The other specimens are all to be considered as paralectotypes.

Astochia sodalis (Wulp, 1899). Figs 13–16

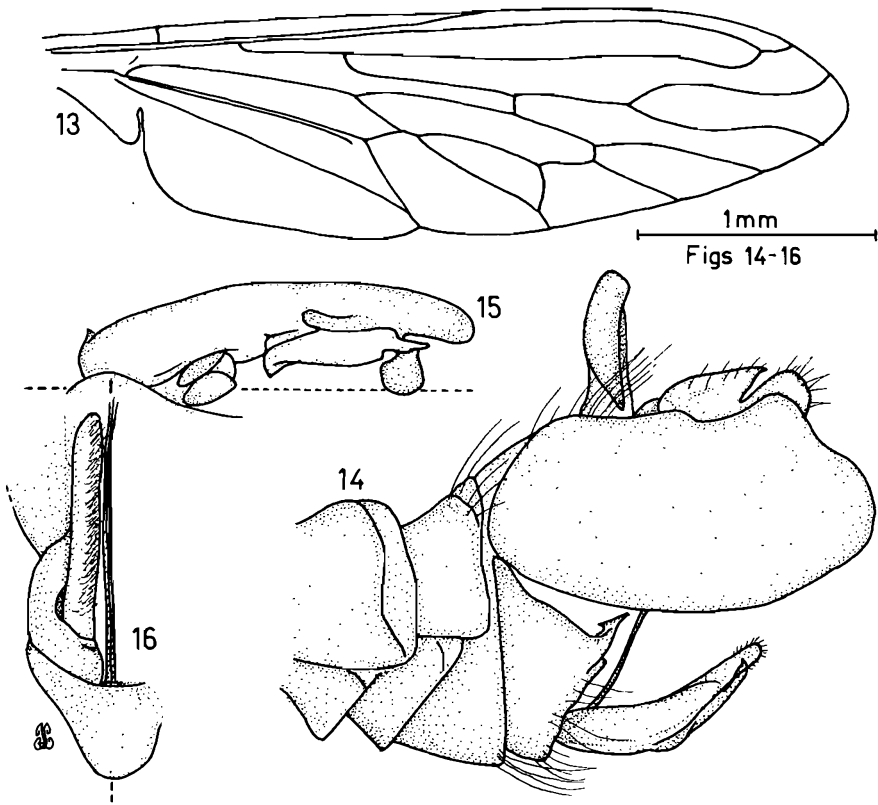
Itamus sodalis Wulp, 1899: 96–7.

Astochia sodalis; Hull, 1962: 549; Oldroyd, 1980: 336.

Redescription: Based on 1 ♂ 1 ♀ specimens determined by Oldroyd and housed in the BM.

Head: Antennae dark red-brown with black bristles and setae (are some yellow setae on ventral aspects of segments 1 and 2). Mystax composed of short, thickish white bristles and setae. Occipital bristles short, white and not proclinate. Proboscis and palpi dark red-brown with white setae.

Thorax: Mesepimeral and hypopleural setae fine white. Mesonotal setae: dorso-centrals—tiny black (considered as absent); humerals—few short fine white setae only; presuturals—2 white; supra-alars—1 white; post-alars—1 white; scutellars—none. Metanotal callosities with white setae. Wings: 8,4 × 2,8 mm;



Figs 13-16. *Astochia sodalis* (Wulp), male (Iran). 13. Wing (no microtrichia present). 14-16. Genitalia. 14. Lateral. 15. Dorsal. 16. Ventral.

venation as in Fig. 13, microtrichia completely absent. Legs: forecoxa with white setae and bristles anteriorly; hindcoxa with a single white bristle laterally. Femora yellow-brown with dark red-brown tips. Tibiae as femora. Tarsi generally dark-brown but basitarsi and following two tarsomeres paler yellow-brown. Setation of hindfemur: bristles white (1 black one apically); longer setae (few) white; minor setae numerous, tiny and white.

Abdomen: Segments 1-6 of ♀ pruinose, rest shiny black. Terga and sterna covered with fine yellow setae only. T5 of ♂ with 4-6 lateral bristles. ♂ genitalia as Figs 14-16.

Material examined: IRAN: 1 ♂ 1 ♀, Multan, 5.vii.1963, G. Popov (BM).

Other recorded material: Wulp's types were from SOUTH YEMEN: 1 ♂ 1 ♀ from Haithalhim and Lehej. I have not seen these specimens.

Remarks: The BM specimens do not entirely conform with Wulp's description and the locality is some distance away from those of the type specimens. For the present I must have reservations about the true identity of *sodalis*. Hull (1962) lists *sodalis* as a Palearctic species and this may well be true as South Yemen is on the very edge of the Afrotropical Region. Unfortunately Wulp's drawing of

the male genitalia is not adequate for meaningful comparison with those here presented. Until I am able to study Wulp's types, I must accept, with reservation, Oldroyd's identification of the BM material as being correct.

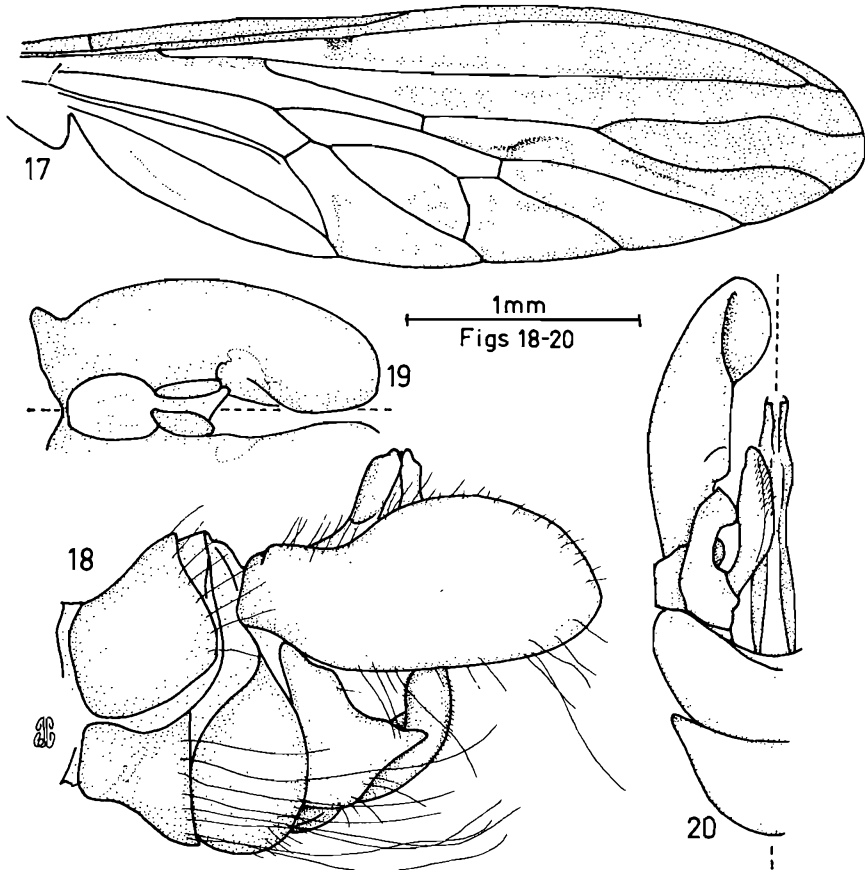
Astochia strachani Oldroyd, 1970 Figs 17–20

Astochia strachani Oldroyd, 1970: 312–13; 1980: 336.

Redescription: Based on ♂ holotype, unless otherwise stated.

Head: Antennae black with short black setae on segments 1 and 2. Mystax yellow with a few black setae (ca. 15) in upper part. Occipital bristles short, black and not proclinate. Proboscis and palpi dark red-brown with yellowish white setae.

Thorax: Mesepimeral setae mostly black but there are a few thin yellow ones as well. Hypopleural setae mostly yellow but 1 or 2 black ones may also be present. Mesonotal setae: dorsocentrals—short black, some found anterior of suture; presuturals—3 black; supra-alars—3 black (1 is much smaller than the others); postalars—2 black; scutellars—2 long black. Metanotal callosities with yellow



Figs 17–20. *Astochia strachani* Oldroyd, male (Paratype—Nigeria). 17. Wing ca. 9 mm. 18–20. Genitalia. 18. Lateral. 19. Dorsal. 20. Ventral.

setae. Wings: $9,2 \times 2,6$ mm; venation and microtrichial distribution as in Fig. 17. Legs: forecoxa with yellow-white setae anteriorly; hindcoxa with a single yellow bristle laterally. Femora with dorsal parts dark red-brown, ventral parts orange. Tibiae and tarsi orange-brown. Setation of hindfemur: bristles black; longer setae yellow; minor setae black in distal and outer parts, yellow in proximal and inner parts.

Abdomen: Segments 1–6 of ♀ pruinose, rest shiny black. Ovipositor long and narrow. Terga with yellow bristles laterally and fine longish setae over most of surface except for a few shorter black setae mid-dorsally. Sterna with longish yellow setae only. ♂ genitalia as Figs 18–20.

Material examined: NIGERIA: 4 ♂ 2 ♀, holotype and paratypes, Lagos, G. Strachan, (BM). MALAWI: 1 ♂, Chimaliro forest reserve, 1 200 m, *Brachystegia* woodland, 9.xii.1980, Stuckenberg & Londt (NM).

Other recorded material: Oldroyd (1970) also lists the following specimens as paratypes. SIERRA LEONE: 1 ♂, Nzala, 23.iii.1962, M. Rushton. ZAÏRE: 1 ♂ 3 ♀, Kasongo, viii–ix.1959, J. Claessens; 2 ♂ 1 ♀, Kapiti, iv.1912, Miss. Agric.; 1 ♂, Luputa, ix.1935, Dr Bomans; 1 ♂, Elisabethville, route Sakania, 21.viii.1952, L. Remy. These specimens are housed in the KMT.

Remarks: This is a widespread species which is active in the summer months. Table 1 shows that it has been recorded from August through to April but it should be remembered that its distribution spans the Equator and that it is unlikely to have this sort of seasonal incidence at any single locality.

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REFERENCES

- BECKER, T. 1909. Collections recueillies par M. Maurice de Rothschild dans l'Afrique orientale anglaise. Insectes: Diptères nouveaux. *Bull. Mus. Natn. Hist. Nat. Paris.* 15: 113–121.
- 1910. Voyage de M. Maurice de Rothschild en Ethiopie et dans l'Afrique orientale (1904–1906). Diptères nouveaux. *Annls. Soc. Ent. Fr.* 79: 22–30.
- 1913. Persische Dipteren von den Expeditionen des Heern N. Zarudny 1898 und 1901. *Ezheg. zool. Muz.* 17 (1912): 503–654.
- HULL, F. M. 1962. Robber flies of the world. The genera of the family Asilidae. *Bull. U.S. natn. Mus.* 224 (1): 1–430, (2): 431–907.
- LINDNER, E. 1955. Ostrafrikanische Asiliden (Dipt.) (Ergebnisse der Deutschen Zoologischen Ostafrika-Expedition 1951/52, Gruppe Lindner—Stuttgart, Nr. 16). *Jh. Ver. vaterl. Naturk. Württ.* 110: 24–46.
- OLDROYD, H. 1939. Rhagionidae, Tabanidae, Asilidae, Bombyliidae. *Ruwenzori Exped. 1934–34 2*: 13–47.
- 1970. Studies of African Asilidae (Diptera). I. Asilidae of the Congo Basin. *Bull. Br. Mus. nat. Hist. (Ent.)* 24: 207–334.

- OLDROYD, H. 1974. An introduction to the robber flies (Diptera: Asilidae) of southern Africa. *Ann. Natal Mus.* **22**: 1-171.
- 1980. Family Asilidae. *Catalogue of the Diptera of the Afrotropical Region*. R. W. Crosskey (ed.). British Museum (Natural History), London (Asilidae pp. 334-373, 1218).
- RICARDO, G. 1919. Notes on the Asilidae: sub-division Asilinae. *Ann. Mag. nat. Hist.* (9) **3**: 44-79.
- WULP, F. M. VAN DER, 1899. Asilidae from Aden and its neighbourhood. *Trans. ent. Soc. Lond.* **1899**: 81-98.

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