

TEPHRITIDAE (DIPTERA : INSECTA) OF NAMDAPHA

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(With 2 Plates)

INTRODUCTION

The material on which this report is based has been collected from Namdaha- the proposed biosphere reserve—in Tirap district of Arunachal Pradesh, during a faunistic survey tour conducted from the Eastern Regional Station of the Zoological survey of India by the author in the month of February 1982. In all, the author has examined 50 specimens which yielded 22 species under 13 genera and 4 sub families, of which 4 species and one genus are being recorded for the first time from India.

LIST OF SPECIES

The following sub families, genera and species are represented in the material studied.

Subfamily DACINAE

Genus **Dacus** Fabricius

1. *Dacus (Zeugodacus) scutellaris* (Bezzi)
2. *D. (Z) tau* (Walker)
3. *D. (Z) atrifacies* (Perkins)\*
4. *D. (Hemigymnodacus diversus* Coquillett

Subfamily SCHISTOPTERINAE

Genus **Rhabdochaeta** de Meijere

5. *Rhabdochaeta bakeri* Bezzi

Subfamily TRYPETINAE

Genus **Hexacinia** Hendel

6. *Hexacinia radiosa* (Rondani)\*\*

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\* Species New Record for India

\*\* Genus New Record for India.

Genus **Acanthonevra** Macquart

7. *Acanthonevra hemileina* Hering
8. *A. formosana* Enderlein
9. *A. dunlopi* (van der Wulp)

Genus **Rioxa** Walker

10. *Rioxa parvipunctata* de Meijere\*
11. *R. sexmaculata* (van der Wulp)

Genus **Anoplomus** Bezzi

12. *Anoplomus flexuosus* Bezzi

Genus **Xanthorrhachis** Bezzi

13. *Xanthorrhachis annandalei* Bezzi
14. *X. assamensis* Hardy

Genus **Gastrozona** Bezzi

15. *Gastrozona fasciventris* (Macquart)
16. *G. balioptera* Hardy\*

Genus **Acrotaeniostola** Hendel

17. *Acrotaeniostola apiventris* Munro

Genus **Chaetellipsis** Bezzi

18. *Chaetellipsis paradoxa* Bezzi
19. *C. atrata* Hardy.\*

Genus **Myoleja** Rondani

20. *Myoleja fossata* (Fabricius)

## Subfamily TEPHRITINAE

Genus **Spathulina** Rondani

21. *Spathulina acroleuca* (Schiner)

Genus **Dioxyne** Frey

22. *Dioxyne sorrorcaula* (Wiedemann)

*Key to Subfamilies*

1. Chaetotaxy greatly reduced, lacking ocellars, postocellars, dorsocentrals, presuturals, sternopleurals and usually humerals. Cell M broad, 2 X wider than Cell Cu and usually about 2 X longer than wide. A row of prominent long hairs present on each side of third abdominal tergum of males and a patch of dense microtrichia over the cubital cell and lower margin of cell M<sub>4</sub>. Third antennal segment 3 or more times longer than wide. Typically yellow and black flies with wings mostly hyaline except for a brown band and streak through Costal margin and cubital area respectively. ... Dacinae
  
- Not as above, chaetotaxy complete or nearly so, with cell M narrow equal in width to Cu and usually over 4 X longer than wide. 3rd antennal segment typically short, wings usually with elaborate markings ... 2
  
- 2 (1). Costa of wing without a deep cleft and a lobe at the end of subcostal vein ... 3
  
- Costa of with a deep cleft at the apex of subcostal vein and a prominent lobe at apex of 2nd costal; wing with distinctive markings Schistopterinae
  
- 3 (2) Occipitals thin, pointed, black or dark brown; 6th tergum of female generally shorter than fifth. Dorsocentral bristles usually behind supraalars. Wings variously marked but rarely spotted. Mesonotum rarely tomentose, never with scalelike, white, recumbent setae. ... Trypetinae
  
- Occipitals thick, flat, scale-like, mostly white or yellow white. 6th tergum equal or longer than 5th. Dorsocentral bristles before or near supraalars. Wings typically spotted. Mesonotum generally tomentose and covered with scale-like, white, recumbent setae ... Tephritinae

*Key to the genera of Tephritidae from Namdapha*

1. Chaetotaxy of head and thorax reduced (ocellar, postocellar, dorsocentral, presutural, sternopleural and usually humeral bristles absent); 3rd antennal segment 3 or more times longer than wide; wings hyaline, having brown band along costal margin and a brown streak through cubital area ... *Dacus* Fabricius

	Chaetotaxy complete or nearly so ; 3rd antennal segment typically short ; cell M narrow equal in width to Cu and 4 X longer than wide ; wings usually with elaborate markings. ...	...	2
2 (1)	Costa without a deep cleft and lobe at the end of subcostal vein. ...	...	3
	Costa with a deep cleft at the end of subcostal vein and forming a lobe at anterior side of the cleft which bears two bristles at its apex ; wing markings distinctive. ...	<i>Rhabdochaeta</i> de Meijere	
3 (2)	Occipital setae thin, pointed, black or dark brown ; 6th tergum of female typically shorter than 5th ; dorsocentral bristles usually behind supraalars ; wings variously marked but rarely spotted. ...	...	4
	occipitals thick, flat, rather scale-like, white or yellow-white ; 6th tergum of female equal or longer than 5th ; dorsocentrals situated in front of anterior supraalars. ...	...	12
4 (3)	Mesopleuron not with a bristle on lower median portion ; wings normal in shape. ...	...	5
	Mesopleuron with a prominent bristle near lower edge centrally ; wings broad, about 2 X longer than wide. ...	<i>Hexacinia</i> Hendel	
5 (4)	Two or more pairs of inferior fronto-orbital bristles. ...	...	6
	One pair of inferior fronto-orbitals ; subcostal cell as long as 2nd costal ; mesonotum sometimes with brownish vittae but not with isolated black spots. ...	<i>Acanthonevra</i> Macquart	
6 (5)	Subcostal vein not arched upwards (not convex) ; arista with dorsal and ventral rays or totally bare. ...	...	7
	Subcostal vein arched upwards (convex) ; subcostal cell longer than 2nd costal cell ; wings brown with hyaline spots mostly in margin ; arista with dorsal rays only but bare ventrally. ...	<i>Rioxa</i> Walker	
7 (6)	Humeral bristles strong. ...	...	8
	Humeral bristles absent ; mesonotum polished black ; scutellum mostly yellow. ...	<i>Anoplomus</i> Bezzi	
8 (7)	Wings with three yellow longitudinal bands, one on costa, one on vein $M_{1+2}$ and one on vein $M_{3+4}$ . ...	<i>Xanthorrhachis</i> Bezzi	
	Wings not as above. ...	...	9

- 9 (8) Arista plumose; ocellars well developed at least as long as lower inferior fronto orbitals... .. 10
- Arista pectinate or bare; ocellars tiny, rudimentary, seta-like. ... .. 11
- 10 (9) Third antennal segment rounded. ... *Gastrozona* Bezzi
- Third antennal segment sharply pointed. ... *Acrotaeniostola* Hendel
- 11 (9) Arista pectinate; with 4-7 inferior fronto-orbitals in females and no inferior fronto-orbitals in males. ... *Chaetellipsis* Bezzi
- Arista bare; with 3 pairs of inferior fronto-orbital bristles. ... *Myoleja* Rondani
- 12 (3) Body shining black, rather light grey pollinose, especially in abdomen, usually not obscuring the ground colour except on thorax; wings dark brown with base and apex hyaline and with large hyaline wedges from anterior and posterior margins, but few hyaline spots in the middle of wing. ... *Spathulina* Rondani
- Body black in ground colour, very densely yellow-grey tomentose and covered with white scale-like setae; wings hyaline, with numerous somewhat diffused brown spots. ... *Dioxyna* Frey

SYSTEMATIC ACCOUNT

Subfamily : DACINAE

Genus *Dacus* Fabricius

*Dacus* Fabricius, 1805, *Syst. Antl.*, 272. Type species : *armatus* Fabricius, by subsequent designation (Hendel, 1927 : 24).

*Dacus (Tridacus)* Bezzi, 1915, *Bull. Ent. Res.* 6 : 88. Type species : *Dacus armatus* Fabricius, by subsequent designation (Collart 1935 : 9).

*Key to the subgenera of Dacus from Namdapha*

1. Posterior lobe of male surstylus elongate, about 6 X longer than anterior lobe; 5th sternum of male with a slight concavity on hind margin... .. 2
- Posterior lobe of male surstylus short, 5th sternum with a deep V-shaped concavity on hind margin extending about half length of the segment. ... *Bactrocera* Macquart
- 2 (1) Pecten present on third tergum of male. ... *Zeugodacus* Hendel
- Pecten absent on third tergum of male. ... *Hemigymnodacus* Hardy

**Dacus (Zeugodacus) scutellaris (Bezzi)**

*Bactrocera scutellaris* Bezzi, 1913, *Mem. Indian Mus.* 3 : 98. Type localities : India : Shillong, Assam ; Siliguri, N. Bengal ; Kurseong, E. Himalayas ; and Bhowali, Kumaon.

*Material examined* : 7 examples, E. R. S/Z. S. I. Reg. No.  $\frac{A1}{5874}$ , 36 th Mile, Namdapha ; 21-ii-1982.

*Distribution* : India, Nepal, Burma, Thailand.

*Distinguishing characters* : A pair of black spots on face ; mesonotum with 3 post sutural yellow vittae ; apex of scutellum black ; costal band greatly narrowed, almost interrupted in cell  $R_3$  and expanded in to a small spot at apex ; apices of all femora broadly blackened ; abdomen predominantly black.

**Dacus (Zeugodacus) tau (Walker)**

(Pl. II, fig. 1)

*Dasyneura tau* Walker, 1849, *List Spec. Dipt. Ins. Brit. Mus.* 4 : 1074. Type locality : Foochow, China.

*Dacus hageni* de Meijere, 1911, *Tijdschr. Ent.* 54 : 375. Type locality : Tandjong Morawa, Serdang, Sumatra.

*Zeugodacus nubilis heinrichi* Hering, 1941, *Siruna Seva* 3 : 11 Type locality : Celebes.

*Zeugodacus bezzianus* Hering, 1941, *Arb. Morph. Taxon. Ent.* 8 (1) : 26. Type locality : Mou-pin, Szechwan, China.

*Material examined* : 3 examples, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5875}$  ; 36th Mile, Namdapha and 1 example, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5876}$  , 37 th Mile, Namdapha on 21-ii-1982 and 23-ii-1982 respectively.

*Distribution* : Oriental (Widespread).

*Distinguishing Characters* : Face with a pair of black spots ; mesonotum with 3 post sutural yellow vittae ; scutellum yellow except for a narrow black band at base ; costal band expanded distally forming a large brown spot occupying upper apical portion of cell  $R_5$ .

**Dacus (Zeugodacus) atrifacies (Perkins)**

(Pl. II, fig. 2)

*Zeugodacus atrifacies* Perkins, 1938, *Proc. R. Soc. Qld* 49 (11) : 140.

*Material examined* : 2 examples E. R. S/Z. S. I Regd. No.  $\frac{A1}{5877}$ , 36th Mile, Namdapha, 21-ii-1982.

*Distribution* : Malayasia. This species is being recorded for the first time from India.

*Distinguishing Characters* : Lower half of the face black ; mesonotum with 3 postsutural yellow vittae ; front femora entirely dark brown to black and the middle and hind femora black on their apical half to two fifth ; abdomen predominantly black ; costal band very slightly enlarged at the wing apex.

### **Dacus (Hemigymnodacus) diversus** Coquillett

*Dacus diversus* Coquillett, 1904, *Proc. Ent. Soc. Wash.* 6 : 139. Type localities : Colombo, Ceylon and Bangalore, India.

*Asiadacus diversa*. Perkins, 1937; *Proc. R. Soc. Qld* 48 (9) : 57 ; 1938, *Proc. R. Soc. Qld* 49 (11) : 134 (as *diversus*).

*Dacus (Gymnodacus) diversus*. Hardy, 1954, *Proc. Ent. Soc. Wash.* 56 (1) : 18.

*Material examined* : 2 examples, E. R. S/Z. S. I Regd. No.  $\frac{A1}{5878}$ , 36th mile, Namdapha, 21-ii-1982.

*Distribution* : Sri Lanka, India, Nepal, Burma and Thailand.

*Distinguishing Characters* : Male face entirely pale yellow, female face with a transverse black band over face ; mesonotum with three yellow vittae ; pecten absent on third tergum of male ; prescutellars present ; only 2 scutellar bristles present.

### Sub Family : Schistopterinae

#### Genus : *Rhabdochaeta* de Meijere

*Rhabdochaeta* de Meijere, 1904, *Bijdr. Dierk.* 17 : 109. Type species : *pulchella* de Meijere, by monotypy.

### **Rhabdochaeta bakeri** Bezzi

(Pl. II, fig. 3)

*Rhabdochaeta bakeri* Bezzi, 1913, *Philipp. J. Sci.* (D) 8 : 328 ; 1926, *spolia zeylanica* 13 : 311. Type locality : Los Baños, Laguna, Philippine islands.

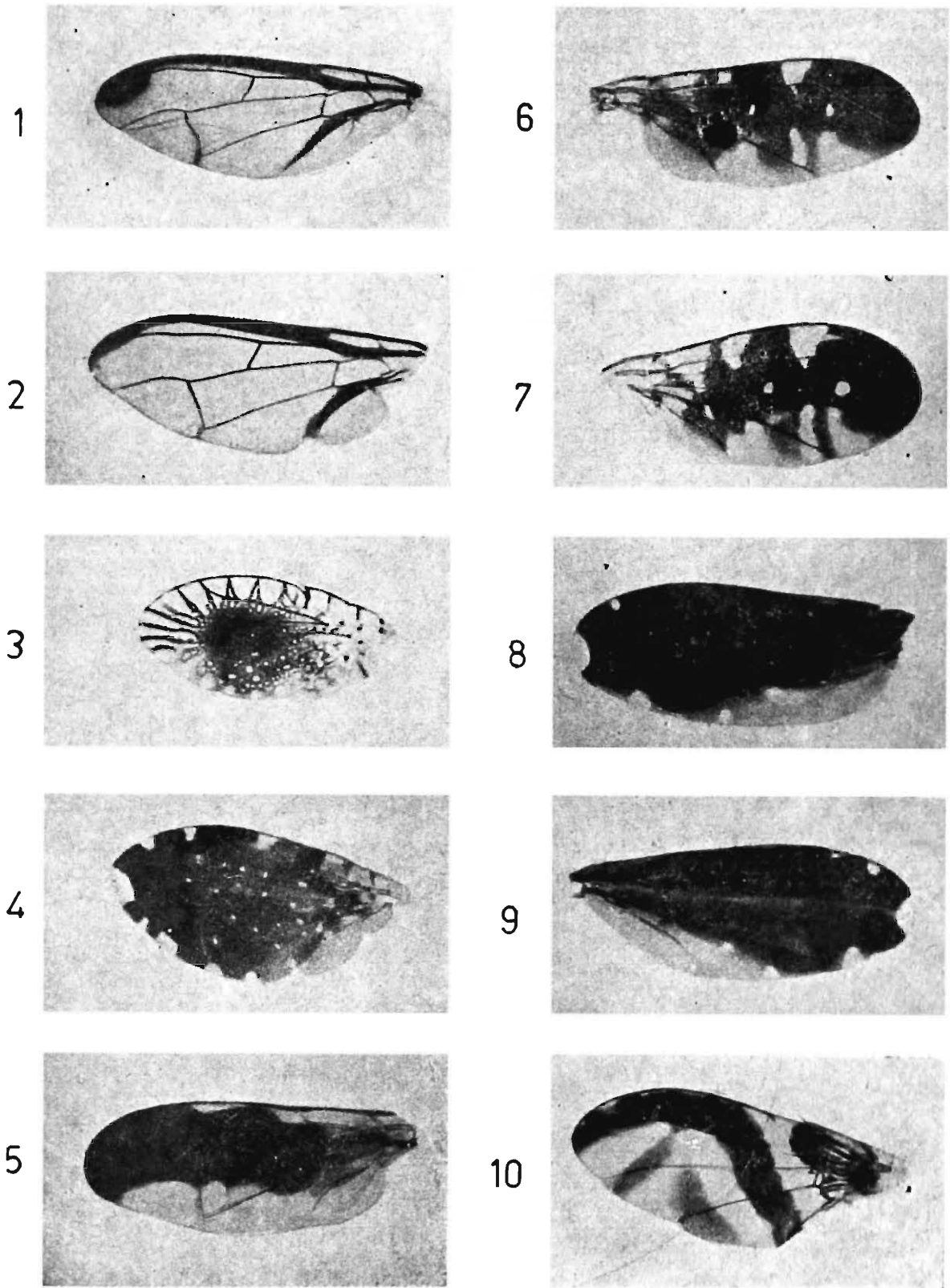
*Material examined* : 1 example, E.R.S/Z.S.I. Regd. No.  $\frac{A1}{5879}$ , 40 th Mile, Namdapha, 20-ii-1982.

*Distribution* : Laos, Philippines, Vietnam, Thailand, India.

*Distinguishing Characters* : Characterised by a strong carinate projection in middle of face just below antennae and a black median spot below the projection ; six scutellar bristles and a pair of prominent apical cruciate setae ; subcostal cell with an incomplete brown streak through middle.

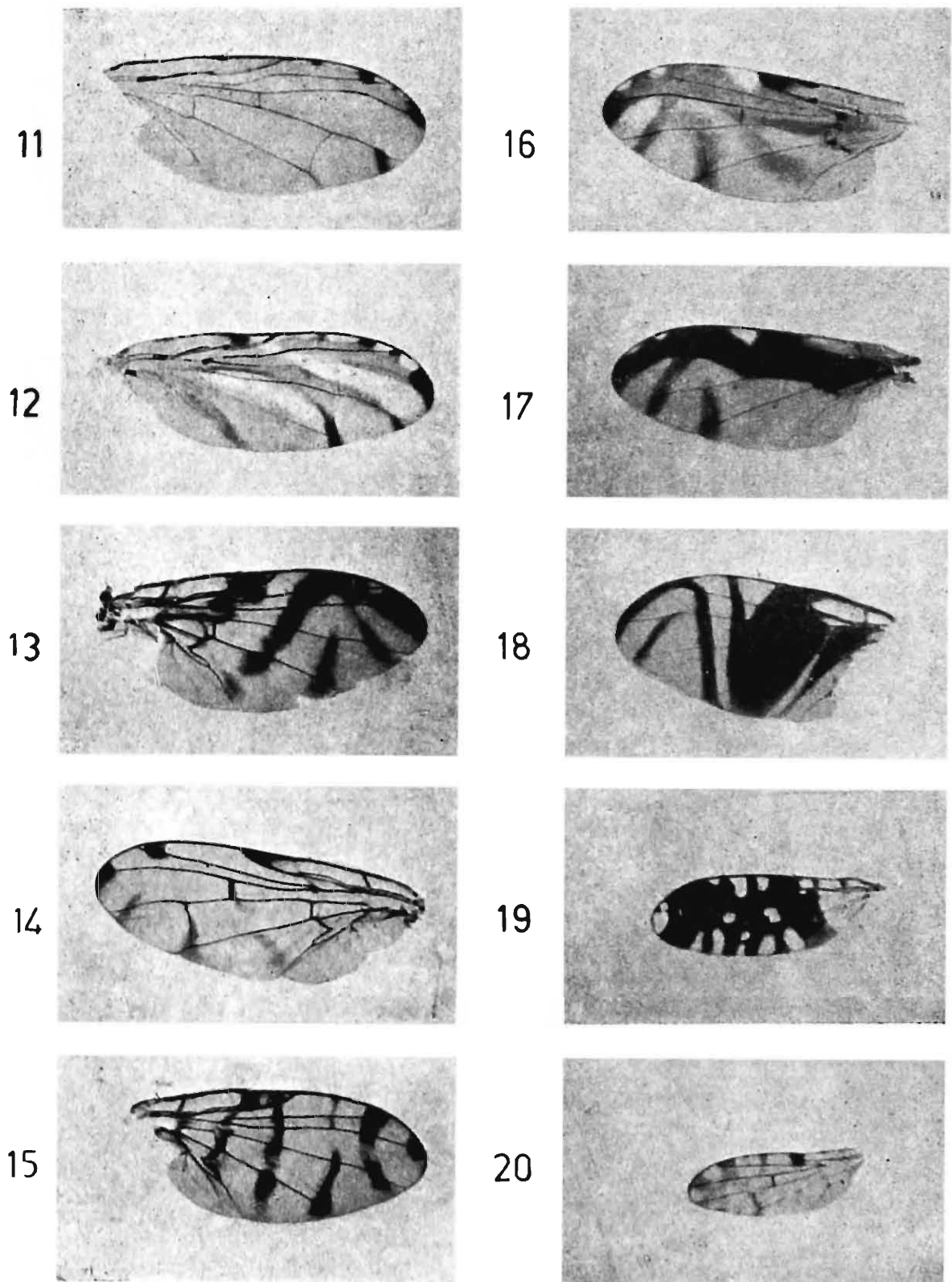
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PLATE I



Figs. 1-10. 1. Wing of *Dacus (Zeugodacus) tau* (Walker). 2. Wing of *Dacus (Zeugodacus) atrifacies* (Perkins). 3. Wing of *Rhabdochaeta bakeri* Bezzi. 4. Wings of *Hexacinia radiosa* (Rondani). 5. Wing of *Acanthonevra hemileina* Hering. 6. Wing of *Acanthonevra formosana* Enderlein. 7. Wing of *Acanthonevra dunlopi* (van der Wulp). 8. Wing of *Rioxa parvipunctata* de Meijere. 9. Wing of *Rioxa sexmaculata* (van der Wulp). 10. Wing of *Anoplomus flexuosus* Bezzi.





Figs. 11-20. 11. Wing of *Nanthorrhachis annandali* Bezzi. 12. Wing of *Nanthorrhachis assamensis* Hardy. 13. Wing of *Gastrozona fasciventris* (Macquart). 14. Wing of *Gastrozona balioptera* Hardy. 15. Wing of *Acrotaeniostola apiventris* Munro. 16. Wing of *Chaetellipsis paradoxa* Bezzi. 17. Wing of *Chaetellipsis atrata* Hardy. 18. Wing of *Myoleja fossata* (Fabricius). 19. Wing of *Spathulina acroleuca* (Schiner. 20. Wing of *Diozyna sorrorcula* (Wiedemann).

## Subfamily : TRYPETINAE

Genus **Hexacinia** Hendel

*Hexacinia* Hendel, 1914, *Wien. Ent. Zeit.* **33** : 82 ; 1915, *Ann. Mus. Nat. Hung.* **13** : 459. Type species : *Acinia stellata* Macquart (1851), by original designation.

**Hexacinia radiosa** (Rondani)

(Pl. II, fig. 4)

*Acinia radiosa* Rondani, 1868, *Ann. Soc. Nat. Hist. Modena* **3** : 31. Replacement name for *stellata* Macquart, 1851. nec 1843.

*Acinia stellata* Macquart, 1851, *Mem. Soc. Lille* **1851** : 266. Type locality : Manila.

*Hexacinia nigroantennata* Hering, 1956, *Verh. Naturf. Ges. Basel* **67** (1) : 70. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* **31** : 104.

*Material Examined* : 1 example, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5880}$ ,

Deban, Namdapha, 16-ii-1982.

*Distribution* : Sri Lanka, Philippines, Thailand, and S. Vietnam. This genus is being recorded for the first time from India.

*Distinguishing Characters* : Apical half of the antenna brown to black ; prominent brown to black spot on each side of posterior margin of mesonotum, immediately in line with dorsocentral bristles ; marginal wing spots enlarged, rather quadrate and the spot at apex of cell  $R_5$  not filling the cell.

Genus **Acanthonevra** Macquart

*Acanthonevra* Macquart, 1843, *Dipt. Exot.* **3** : 317. Type species : *A. fuscipennis* Macquart, by monotypy.

*Acanthonevra* Schiner, 1868, *Reise Novara, Zool.* **2**. Abt. 1, Dipt., p. 288. Invalid emendation of *Acanthonevra*.

*Rioxoptilona* Hendel, 1914, *Wien. Ent. Zeit.* **33** : 78. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* **31** : 81. Type species : *Trypeta vaga* Wiedemann by original designation.

**Acanthonevra hemileina** Hering

(Pl. II, fig. 5)

*Acanthonevra hemileina* Hering, 1939, *Verh. VII Intern. Kongr. Ent.* 1938, **1** : 173. Type locality : Trichinopoly, India.

*Material examined* : 2 examples, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5881}$ ,

40 th Mile, Namdapha, 20-ii-1982.

*Distribution* : India, Vietnam.

*Distinguishing Characters* : Anterior two third of wing predominantly dark brown and the entire posterior margin broadly hyaline ; thorax predominantly yellow, with 4 faint brown vittae extending down mesonotum ; scutellum yellow ; legs entirely pale yellow.

***Acanthonevra formosana* Enderlein**

(Pl. I, fig. 6)

*Acanthonevra formosana* Enderlein, 1911, *Zool. Jahrb. (Syst.)* 31 : 419. Type locality : Kosempo, S. Formosa.

*Acanthonevra pteropleuralis* Hendel, 1927, In Lindner, *Die Flieg. Pal. Reg.* 49 : 58.,  
Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 85. Type locality : Amur China.

*Material examined* : 1 example, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5882}$ ,  
36th mile, Namdapha, 21-ii-1982.

*Distribution* : Formosa, China, Thailand, Burma, S. Vietnam, Laos, Japan, Korea, India.

*Distinguishing Characters* : Thorax largely yellow to rufous and mesonotum with 5 longitudinal brown to black stripes in male and 4 in female ; the lateral stripes are interrupted at the suture and the three median brown vittae in the males are joined together posteriorly between the dorsocentral bristles. Front femur of male with an abundance of black bristles on antero ventral and postero ventral surfaces ; front tibia densely black setose ventrally ; vein  $R_{2+3}$  distinctly curved and basal portion of wing largely dark brown.

***Acanthonevra dunlopi* (van der Wulp)**

(Pl. I, fig. 7)

*Ptilona dunlopi* van der Wulp, 1880, *Tijdschr. Ent.* 23 : 186. Type Locality : Padang, Sumatra.

*Rioxa dunlopi*. Bezzi, 1913, *Mem. Indian Mus.* 3 : 113.

*Acanthonevra dunlopi*. Hering, 1941, *Ark. Zool.* 33.B (11) : 4.

*Material examined* : 1 example, E.R.S/Z.S.I Regd. No.  $\frac{A1}{5883}$ , 40 th  
Mile, Namdapha, 20-ii-1982.

*Distribution* : Indonesia, India, Burma, Thailand and Pakistan.

*Distinguishing Characters* : Vein  $R_{2+3}$ , straight or nearly so ; the 4th costal section between tips of vein  $R_1$  and  $R_{2+3}$ , nearly 2 X longer than 5th, between tips of  $R_{2+3}$  and  $R_{4+5}$  ; a prominent hyaline spot present in cell  $R_5$  before the r-m cross vein ; basal portion of wing

largely hyaline ; thorax typically with a narrow pale brown vitta on each side of mesonotum from humerus to wing base and a faint streak of brown on each side over upper pleura ; front femur with 2 irregularly placed posteroventral rows of black bristles ; front tibia with 2 or more closely placed bristly ventral seta.

### Genus *Rioxa* Walker

*Rioxa* Walker, 1857, *J. Linn. Soc. Lond.*, Zool. **1** : 35. Type species : *lanceolata* Walker by monotypy.

*Ptilonina* Enderlein, 1911, *Zool. Jahrb. (syst.)* **31** : 447. Type species : *Ptilonina sexmaculata* van der Wulp, by original designation.

### *Rioxa parvipunctata* de Meijere

(Pl. I, fig. 8)

*Rioxa sexmaculata* Var. *parvipunctata* de Meijere, 1911, *Tijdschr. Ent.* **54** : 381. Type locality : Java.

*Rioxa infirma* Hering, 1941, *Siruna Seva* **3** : 21. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr* **31** : 109. Type locality : Ceylon.

*Material examined* : 2 examples, E.R.S/Z.S.I. Regd. No.  $\frac{A1}{5884}$ , Deban Namdapha, 18-ii-1982.

*Distribution* : Java, Sri Lanka, Thailand.

This species is being recorded for the first time from India.

*Distinguishing Characters* : Having only 4 marginal hyaline spots on the wing ; no spots present in cell  $R_1$  or Sc ; 4 th costal section of male very short about  $\frac{1}{2}$  as long as 5th ; lower lateral margins of the face yellow.

### *Rioxa sexmaculata* (van der Wulp)

(Pl. I, fig. 9)

*Ptilonina sexmaculata* van der Wulp, 1880, *Tijdschr. Ent.* **23** : 185 ; 1886, Dipt. Sumatra. Type locality : Sumatra.

*Rioxa sexmaculata* van der Wulp, 1899, *Tijdschr. Ent.* **42** : 56.

*Rioxa sumatrana* Enderlein, 1911, *Zool. Jahrb. (Syst)* **31** : 449. Type locality : Sumatra.

*Rioxa quinque maculata* Bezzi, 1913, *Mem. Ind. Mus.* **3** : 115. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* **31** : 109. Type locality : Tenasserim, Burma.

*Material examined* : 5 examples, E.R.S/Z.S.I Regd. No.  $\frac{A1}{5885}$ , Deban Namdapha, 18-ii-1982.

*Distribution* : Burma, India, Indonesia, Philippines, Thailand, Sumatra, S. Vietnam.

*Distinguishing Characters* : Wing margin with 5 or 6 hyaline spots ; 4 th costal section of male almost equal in length to 5 th ; each lower lateral margins of the face with a shining dark brown to black spot.

### Genus *Anoplomus* Bezzi

*Anoplomus* Bezzi, 1913, *Mem. Ind. Mus.* 3 : 100. Type species : *flexuosus* Bezzi by original designation.

### *Anoplomus flexuosus* Bezzi

(Pl. I, fig. 10)

*Tephritid fasciventris*, Macquart, *Dipt. Exot. Suppl.* 3, 225 (65) ; not of Macquart, 1843.

*Anoplomus flexuosus* Bezzi, 1913, *Mem. Ind. Mus.* 3 : 100. Type localities : Sikkim ; Paresnath, W. Bengal & Karmatar, Bengal. As the species name *fasciventris* is preoccupied by Macquart himself, Bezzi has adopted the manuscript name of Bigot (*Tephritis flexuosa*, Bigot).

*Material examined* : 1 example, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5886}$ ,

36th mile, Namdapha, 21-ii-1982.

*Distribution* : India, Java, Philippines.

*Distinguishing Characters* : Wing apex rounded ; middle and hind femora broadly brown to black at apices ; 2nd costal cell all dark brown except for a small hyaline spot towards the basal portion.

### Genus *Xanthorrhachis* Bezzi

*Xanthorrhachis* Bezzi, 1913, *Mem. Ind. Musm.* 3 : 137. Type species *annandalei*, Bezzi, by original designation.

### *Xanthorrhachis annandalei* Bezzi

(Pl. II, fig. 11)

*Xanthorrhachis annandalei* Bezzi, 1913, *Mem. Ind. Mus.* 3 : 138. Type locality : Dawna Hills, Lower Burma.

*Material examined* : 2 examples, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5887}$ ,

36th mile, Namdapha, 21-ii-1982.

*Distribution* : Burma, Thailand, Laos, Vietnam, India.

*Distinguishing Characters* : Entirely yellow to pale green species except for an opaque, densely black pubescent, small, black spot on each hind corner of the mesonotum, directly behind inner post alar bristles ; a tiny black spot behind each wing base and a shining black spot at base of each scutellar bristle.

**Xanthorrhachis assamensis** Hardy

(Pl. II, fig. 12)

*Xanthorrhachis assamensis* Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 283. Type locality : Assam, India.

*Material examined* : 1 example, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5888}$ , 36 th mile, Namdapha, 21-ii-1982.

*Distribution* : India.

*Distinguishing Characters* : Entirely yellow to rufous species, having 3 black spots on margin of scutellum, a black spot on each humerus and 3 black spots on each side of mesonotum.

**Genus Gastrozona** Bezzi

*Gastrozona* Bezzi, 1913, *Mem. Ind. mus.* 3 : 105. Type species : *Tephritis fasciventris* Macquart, by original designation.

**Gastrozona fasciventris** (Macquart)

(Pl. II, fig. 13)

*Tephritis fasciventris* Macquart, 1843, *Dipt. Exot.* 3 : 382. Type locality : India.

*Tephritis vittata* Macquart, 1851, *Dipt. Exot.*, Suppl. 4 : 263. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 190. Type locality : Asia.

*Gastrozona macquarti* Hendel, 1913, *Ent. Mitteil* 2 (2) : 38. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 190. Type locality : Formosa.

*Gastrozona melanistra* Bezzi, 1913, *Mem. Ind. Mus.* 3 (3) : 107. Type locality : Calicut, Malabar Coast, India.

*Gastrozona appendiculata* Zia, 1938, *Sinensia* 9 (1-2) : 22. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 190. Type Locality : SE Kansu, China.

*Gastrozona melanophila* Hering, 1940, *Siruna Seva* 1 : 3. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 190. Type locality : Formosa.

*Material examined* : 1 example, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5889}$ , 36 th mile, Namdapha, 21-ii-1982.

*Distribution* : Widespread from Formosa through China, India, Laos and Thailand.

*Distinguishing Characters* : The species is readily distinguished by the oblique band extending through upper portions of cell 2<sup>nd</sup> M<sub>2</sub> connected with the broad brown band at the wing margin, and a small indistinct hyaline spot present at apex of vein M<sub>3+4</sub>.

**Gastrozona balioptera** Hardy

(Pl. II, fig. 14)

*Gastrozona balioptera* Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 188. Type locality : Thailand.

*Material examined* : 2 examples, E. R. S./Z. S. I. Regd. No.  $\frac{A1}{5890}$ , Deban, Namdapha, 16-ii-1982 and 1 example, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5891}$ , 36 th mile, Namdapha, 21-ii-1982.

*Distribution* : Thailand and Burma. This species is being recorded for the first time from India.

*Distinguishing characters* : Readily distinguished by the greatly reduced wing markings represented by spots at apices of veins  $R_{2+3}$ ,  $R_{4+5}$  and  $M_{1+2}$  and lack of a continuous oblique band from margin over wing at level with r-m cross vein.

**Genus Acrotaeniostola** Hendel

*Acrotaeniostola* Hendel, 1914, *Wien. Ent. Zeit.* 33 : 80, 88. Type species : *sexvittata* Hendel, by original designation.

**Acrotaeniostola apiventris** Munro

(Pl. II, fig. 15)

*Acrotaeniostola apiventris* Munro, 1935, *Rec. Ind. Mus.* 37 : 19. Type locality : Pashok, Darjeeling, India.

*Material examined* : 1 example, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5892}$ , 37th mile, Namdapha, 23-ii-1982.

*Distribution* : India, Darjeeling.

*Distinguishing characters* : Characterised by the brown thorax with a yellowish bar from humeri along side of dorsum above wing base to scutellum expanding to pleura including the mesopleura ; wing with a series of disconnected brownish transverse bands ; 2nd segment of the abdomen greatly developed.

**Genus Chaetellipsis** Bezzi

*Chaetellipsis* Bezzi, 1913, *Mem. Ind. Mus.* 3 : 126. Type species : *paradoxa* Bezzi.

**Chaetellipsis paradoxa** Bezzi

(Pl. II, fig. 16)

*Chaetellipsis paradoxa* Bezzi, 1913, *Mem. Ind. Mus.* 3 : 127. Type locality : W. Bengal, India.

*Poecillia judicanda* Bezzi, 1913, *Mem. Ind. Mus.* 3 : 128. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 182. Type locality : W. Bengal, India.

*Gastrozona flavostriata* Hering, 1938, *Ark. Zool.* 30 A (25) : 12. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 182. Type locality : Kambaiti, Burma.

*Material examined* : 1 example, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5893}$ ,

Miao, Namdapha, 15-ii-1982.

*Distribution* : Common over the Indian sub continent.

*Distinguishing characters* : Characterised by its all yellow scutellum and by having the abdomen yellow except for a narrow black band across 4th tergum, a small black spot on each side of 3rd and a large black spot on each side of 5th, also the 6th tergum of male with a brown spot on each side.

### ***Chaetellipsis atrata* Hardy**

(Pl. II, fig. 17)

*Chaetellipsis atrata* Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 179. Type locality : Laos.

*Material examined* : 1 example, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5894}$ ,  
40th mile, Namdapha, 20-ii-1982.

*Distribution* : Laos. This species is being recorded for the first time from India.

*Distinguishing Characters* : Characterised by the prominently shining black thorax with a pair of sub median yellow vittae on mesonotum in line with dorsocentral bristles extending posteriorly about two third the distance between dorsocentrals and prescutellar bristles and by the scutellum entirely yellow except for a very narrow black line along base.

### **Genus *Myoleja* Rondani**

*Myoleja* Rondani, 1856, *Dipt. Ital. Prodr.* 1 : 112. Type species : *Tephritis lucida* Fallen, by original designation.

*Myoleja*, *Myioleia*, *Myiolia*, and *Myolia*, errors or emendations.

*Philophylla* Rondani, 1870, *Bull. Soc. Ent. Ital.* 2 ; 9 ; 1871, op. cit. 3 : 175. Type species : *Musca caesio* Harris, by original designation.

*Euleia*, of authors, not Walker.

*Pseudospheniscus*, of authors.

*Hendelina* Hardy, 1951, *Pacif. Sci.* 5 (2) : 179. Invalid replacement name for *Pseudospheniscus* Hendel, 1914.



**Myoleja fossata** (Fabricius)

(Pl. II, fig. 18)

*Tephritis fossata* Fabricius, 1805, *Syst. Antl.* p. 320. Type locality : "Tranquebariae".*Trypeta elimia* Walker, 1849, *List spec. Dipt. Ins. Coll. Brit. Mus.* 4 : 1033. Type locality : Philippines.*Ortalis regularis* Doleschall, 1859, *Nat. Tijdschr. Ned. Ind.* 17 : 119. Type locality : Amboina.*Myoleja fossata* (Fabricius). Combination by Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 255.

*Material examined* : 2 examples, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5895}$ ,  
40th mile, Namdapha, 20-ii-1982.

*Distribution* : Japan, Formosa, Burma, India, New Ireland, Singapore, Philippines, Indonesia, Thailand, S. Vietnam, Laos.

*Distinguishing Characters* : A moderately small subshining black species characterised by an oblique pre-apical streak of brown extending from upper apex of cell 2nd  $M_2$  to vein  $R_{4+5}$ , and a narrow longitudinal hyaline streak through entire length of Cell  $M_4$  of the wing.

## Subfamily TEPHRITINAE

Genus **Spathulina** Rondani

*Spathulina* Rondani, 1856, *Dipt. Ital. Prodr.* 1 : 113. Type species : *sicula* Rondani (nom. nud.), by original designation. Synonymy by Hendel (1927 : 117) as *Tephritis tristis* Loew

**Spathulina acroleuca** (Schiner)

(Pl. II, fig. 19)

*Tephritis acroleuca* Schiner, 1868, *Reise Novara, Dipt.* p. 268. Type locality : Sydney, Australia.*Trypeta undecimguttata* Thomson, 1869, *Eugen. Resa, Dipt.* p. 581. Synonymy by Hardy, 1973, *Pacif. Ins. Monogr.* 31 : 314. Type locality : Sydney, Australia.*Oxya parca* Bezzi, 1913, *Mem. Ind. Mus.* 3 : 159. Type locality : Calcutta, India.*Oxya nigrifemorata* de Meijere, 1914, *Tijdschr. Ent.* 57 : 220. Type locality : Java.

*Material examined* : 5 examples, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5896}$ ,  
40th mile, Namdapha, 20-ii-1982.

*Distribution* : Widespread throughout Africa and Asia extending to Australia through Pacific, Indonesia, Bonin islands, Japan, Formosa, Ryukyu islands, Solomon islands, New Guinea, New Caledonia, Philippines, Fiji and Micronesia.

*Distinguishing Characters* : A small dark coloured species with largely dark brown to black wings, containing hyaline spots along margin, with the apical portion of wing completely hyaline or with just a tiny dark brown spot at extreme apex of cell  $R_3$  and with only 2 or 3 isolated hyaline spots in the wing field.

### Genus *Dioxyna* Frey

*Dioxyna* Frey, 1944, *Comm. Biol. Soc. Fenn.* 8 (10) : 62. Type species : *Trypeta sorrorcula* Wiedemann, by original designation.

### *Dioxyna sorrorcula* (Wiedemann)

(Pl. II, fig. 20)

*Trypeta sorrorcula* Wiedemann, 1830, *Aussereur. Zweifl. Ins.* 2 : 509. Type locality : Teneriffe.

*Dioxyna sorrorcula*. Frey, 1944, *Comm. Biol. Soc. Fenn.* 8 : 62.

*Material examined* : 3 examples, E. R. S/Z. S. I. Regd. No.  $\frac{A1}{5897}$ , 40th mile, Namdapha, 20-ii-1982.

*Distribution* : Widespread throughout the tropics and subtropics of the world.

*Distinguishing characters* : Characterised by having only 2 scutellar bristles and the head longer than high, longest on the lower margin, with the epistoma and sides of face protruded ; wings hyaline with numerous somewhat diffused brown spots.

### SUMMARY

The paper deals with the systematic account of 22 species of Tephritidae (Diptera : Insecta) under 13 genera and 4 sub-families from Namdapha-the proposed biosphere reserve-in Tirap district of Arunachal Pradesh, collected by the author, of which 4 species and 1 genus is being recorded for the first time from India.

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