TEPHRITIDAE (DIPTERA : INSECTA) OF NAMDAPHA

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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)**

* Species New Record for India
** Genus New Record for India.
Records of the Zoological Survey of 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 Xanthorrachis Bezzi

13. *Xanthorrachis 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 sorrorcula* (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 M₄. 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.

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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 (1). Costa of wing without a deep cleft and a lobe at the end of subcostal vein

Costa of with a deep cleft at the apex of subcostal vein and a prominant lobe at apex of 2nd costal; wing with distinctive markings

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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.

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

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Trypetinae

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

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Dacus Fabricius
Chactotaxy 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 (1) Costa without a deep cleft and lobe at the end of subcostal vein.

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.

Rhabdochaeta de Meijere

2 (2) Occipital setae thin, pointed, black or dark brown; 6th tergum of female typically shorter than 5th; dorsoentral bristles usually behind supraalars; wings variously marked but rarely spotted.

Occipitals thick, flat, rather scale-like, white or yellow-white; 6th tergum of female equal or longer than 5th; dorsocentral situate in front of anterior supraalars.

Hexacimia Hendel

4 (3) Mesopleuron not with a bristle on lower median portion; wings normal in shape.

Mesopleuron with a prominent bristle near lower edge centrally; wings broad, about 2 X longer than wide.

Acanthoneura Macquart

5 (4) Two or more pairs of inferior frontoorbital bristles.

One pair of inferior fronto orbitals; subcostal cell as long as 2nd costal; mesonotum sometimes with brownish vittae but not with isolated black spots.

6 (5) Subcostal vein not arched upwards (not convex); arista with dorsal and ventral rays or totally bare.

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.

Rioza Walker

7 (6) Humeral bristles strong.

Humeral bristles absent; mesonotum polished black; scutellum mostly yellow.

Anoplomus Bezzi

8 (7) Wings with three yellow longitudinal bands, one on costa, one on vein M1+2 and one on vein M2+4.

Wings not as above.

Xanthorrachis Bezzi
9 (8) Arista plumose; ocellars well developed at least as long as lower inferior fronto orbitals...

Arista pectinate or bare; ocellars tiny, rudimentary, seta-like.

10 (9) Third antennal segment rounded. Third antennal segment sharply pointed.

11 (9) Arista pectinate; with 4-7 inferior fronto-orbitals in females and no inferior fronto-orbitals in males.

Arista bare; with 3 pairs of inferior fronto-orbital bristles.

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.

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.

SYSTEMATIC ACCOUNT

Subfamily: DACINAE

Genus Dacus Fabricius


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...

Posterior lobe of male surstylus short, 5th sternum with a deep V-shaped concavity on hind margin extending about half length of the segment.

2 (1) Pecten present on third tergum of male.

Pecten absent on third tergum of male.

Bactrocera Macquart

Spathulina Rondani

Dioszyna Frey
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.


_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 R₆ 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)_


_Zeugodacus nubilus_ heinrichi Hering, 1941, _Siruna Seva_ 3: 11 Type locality: Celebes.


_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 R₆.

Dacus (Zeugodacus) atrificies (Perkins)

_(Pl. II, fig. 2)_


Distribution: Malaysia. 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 Coquillet


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 bakeri Bezzi

(Pl. II, fig. 3)

_Rhabdochaeta bakeri_ Bezzi, 1913, _Philipp. J. Sci._ (D) 8: 328; 1926, _spolia_ zeylanica 13: 311. Type locality: Los Banos, Laguna, Philippine islands.


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.
Subfamily: Trypetinæ

Genus Hexacinia Hendel


Hexacinia radiosa (Rondani)

(Pl. II, fig. 4)


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


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 Rs not filling the cell.

Genus Acanthonevra Macquart

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


Acanthonevra hemileina Hering

(Pl. II, fig. 5)


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)


**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 dunlop** (van der Wulp)

(Pl. I, fig. 7)


**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_{4} 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 parvipunctata** de Meijere

*Pl. I, fig. 8*


**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 R₁ or Sc; 4th costal section of male very short about ⅓ as long as 5th; lower lateral margins of the face yellow.

**Rioxa sexmaculata** (van der Wulp)

*Pl. I, fig. 9*


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

Distinguishing Characters: Wing margin with 5 or 6 hyaline spots; 4th costal section of male almost equal in length to 5th; 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).


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: 188. Type locality: Dawna Hills, Lower Burma.


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.
Xanthorrachis assamensis Hardy
(Pl. II, fig. 12)


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 fasciventris** (Macquat)
(Pl. II, fig. 13)


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 nd *M* 2 connected with the broad brown band at the wing margin, and a small indistinct hyaline spot present at apex of vein *M* 2+4.
Gastrozona balioptera Hardy


**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$_2$+5, R$_4$+6 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 apiventris** Munro

_(Pl. II, fig. 15)_

_Acrotaeniostola apiventris_ Munro, 1935, _Rec. Ind. Mus._ 37: 19. Type locality: Pashok, Darjeeling, India.


**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 paradoxa** Bezzi

_(Pl. II, fig. 16)_

_Chaetellipsis paradoxa_ Bezzi, 1913, _Mem. Ind. Mus._ 3: 127. Type locality: W. Bengal, India.


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)


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 dorsocentraals and prescutellar bristles and by the scutellum entirely yellow except for a very narrow black line along base.

Genus Myoleja Rondani


Myoleja, Myoleia, Myolia, 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)


**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 M2 to vein R4+5, and a narrow longitudinal hyaline streak through entire length of Cell M4 of the wing.

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**Subfamily TEPHRITINAE**

**Genus Spathulina Rondani**


*Spathulina acroleuca* (Schiner)

(Pl. II, fig. 19)


**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 R₈ and with only 2 or 3 isolated hyaline spots in the wing field.

Genus Dioxyna Frey


Dioxyna sorrorcula (Wiedemann)

(Pl. II, fig. 20)


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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REFERENCES

