ODONATA (INSECTA) FROM DIFFERENT STATES OF NORTH EASTERN INDIA

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ABSTRACT. A list of 33 Odonate species and subspecies collected in either, or all the states of Assam, Arunachal Pradesh, Manipur and Mizoram in North-East India is given including descriptions of *Megalestes lieftincki*, sp. nov. and the isochrome female of *Neurothemis tullia tullia* (Drury).

This paper incorporates the results of a study carried out on the Odonate collections accumulated in the Eastern Regional Station, Zoological Survey of India, Shillong, from a number of surveys conducted between 1972 to 1976, in the states of Assam, Arunachal Pradesh, Manipur and Mizoram of North Eastern India. A total of 33 odonate species and subspecies are listed, including taxonomic notes on some of them and descriptions of *Megalestes lieftincki*, sp. nov., and the hitherto unknown isochromatic female of *Neurothemis tullia tullia* (Drury). The present account incorporates new collection localities for all the species in different parts of North Eastern India, and those reported here from Arunachal Pradesh and Mizoram are also new records from those two states.

Type material of the new species and the isochromatic female of *Neurothemis tullia tullia* (Drury) have been deposited in the National Zoological Collection, Zoological Survey of India, Calcutta.

Superfamily COENAGRIONOIDEA

Family PLATYCNEMIDIDAE

1. *Calicnemia* spec. indet.

Specimen examined : INDIA : MIZORAM : Bank of Darnam stream, Serchip, 1 ♀, 5.ix.1975, K. R. Rao.

The single female has the vertex marked with a yellowish transverse stripe passing through the interocellar space and extending from one antenna to the other. This marking agrees with the description of *C. pulverulans* Selys, as provided by Fraser (1933) and is readily distinguishable from that of the closely allied *C. imitans* Lieftinck (1948). The vertex of latter is marked by yellowish triangular spots one on either side of the median ocellus. Specific identification, however, is not possible by in absence of a male and also because this female is considerably smaller in size (abdomen 24.0 mm. hind wing 23.0 mm).

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Family COENAGRIONIDAE

2. *Ceriagrion coromandellum* (Fabricius)

Agrion coromandellum Fabricius, 1798, *Suppl. Ent. Syst.* : 287.

Ceragrion coromandellum (Fabricius) : Selys, 1876, *Bull. Acad. Belg.*, (2) 42 : 528; Fraser, 1933, *Fauna British India, Odonata*, 1 : 315; Asahina, 1967, *Jap. J. Zool.*, 15 (3) : 279.

Specimens examined : INDIA : ASSAM : Guijan, Dibru Reserve Forest, 1 ♀, 20.xi.1974, S. K. Chanda. MIZORAM : Lalehuana damside, Kolosib, 1 ♂, 1.xi.1976, K. R. Rao.

Distribution : India; Ceylon; Nepal; also Burma; Thailand; Hainan and Indochina (Asahina, 1967).

3. *Ceriagrion olivaceum olivaceum* Laidlaw

Ceriagrion olivaceum Laidlaw, 1914, *Rec. Indian Mus.*, 8 (4) : 345; Fraser, 1933, *Fauna British India, Odonata*, 1 : 324 (pars).

Ceragrion olivaceum olivaceum Laidlaw : Asahina, 1967, *Jap. J. Zool.*, 15 (3) : 305

Specimens examined : INDIA : ASSAM : On west bank of Manas river, Manas sanctuary, 2 ♂, 16.i.1974, A. K. Ghosh; Manas, Manas sanctuary, 2 ♂, 2 ♀, 10.xii.1974, K. R. Rao; 3 Kms off Mothonguri towards Bansbari, 1 ♂, 1 ♀, 12.xii.1974, K. R. Rao; Madangoalpara, 1 ♂, 1 ♀, 13.i.1972, S. Biswas; Shaikhoa Reserve Forest, 1 ♀, 12.xi.1974, S. K. Chanda; Upper Dihing Reserve Forest, 2 ♀, 14.xi.1974, S. K. Chanda.

Distribution : India to Vietnam and Malaysia in the east.

4. *Pseudagrion rubriceps rubriceps* Selys

Pseudagrion rubriceps Selys, 1876, *Bull. Acad. Belg.*, (2) 42 : 510; Fraser, 1933, *Fauna British India, Odonata*, 1 : 296

Specimens examined : INDIA : ASSAM : Mikumukh, Kaziranga National Park, 1 ♀, 25.ii.1974, M. Dutta; Shaikhoa Reserve Forest, 1 ♂, 1 ♀, 6.xi.1974, S. K. Chanda; Kumsung Reserve Forest, 1 ♂, 11.xi.1974, S. K. Chanda; Upper Dihing Reserve Forest, 1 ♀, 15.xi.1974, S. K. Chanda; Guijan, Dibru Reserve Forest, 1 ♂, 1 ♀, 18.xi.1974, S. K. Chanda.

Distribution : India; Nepal to Taiwan and Malaysia in the east.

5. *Pseudagrion microcephalum* (Rambur)

Agrion microcephalum Rambur, 1842, *Hist. Nat. Ins. Neuropteres* : 259.

Pseudagrion microcephalum (Rambur) : Selys, 1876, *Bull. Acad. Belg.*, (2) 42 : 504; Fraser, 1933, *Fauna British India, Odonata*, 1 : 278; Lieftinck, 1949, *Treubia*, 20 : 338.

Specimen examined : INDIA : ASSAM : Guijan, Dibru Reserve Forest, 1 ♂, 18.xi.1974, S. K. Chanda.

Distribution : India; Ceylon to Pacific islands in the east.

6. *Aciagrion pallidum* Selys

Aciagrion pallidum Selys, 1891, *Ann. Mus. Civ. Genova*, 30 : 512; Fraser, 1933, *Fauna British India, Odonata*, 1 : 344.

Specimens examined : INDIA : ASSAM : Upper Dihing Reserve Forest, 1 ♀ 14.xi.1974, S. K. Chanda; Sonai Rupai Forest, 2 ♂, 1 ♀, 7.xi.1975, K. R. Rao. ARUNACHAL PRADESH : Bank of Ranga river, Hawa camp, 1 ♂, 11.xi.1975, K. R. Rao. MANIPUR : Keithenmanbi, 1050 m, 3 ♀, 14.i.1976, A. R. Lahiri. Imphal roadside, 4 Kms off Moreh, 1 ♂, 19.i.1976, A. R. Lahiri; 1 ♂ 1 ♀, same except 8 Kms off, Moreh, 20.i.1976.

Distribution : India ; Burma.

7. *Aciagrion tillyardi* Laidlaw

Aciagrion tillyardi Laidlaw, 1919, *Rec. Indian Mus.*, 26 (2) : 172.

Specimens examined : INDIA : ASSAM : Manas sanctuary, 1 ♂, 10.xii.1974, K. R. Rao; on east bank of Manas river, Manas santuary, 1 ♂, 1 ♀, 11.ii.1974, K. R. Rao. Madangoalpara, 1 ♂, 13.i.1972, S. Biswas. ARUNACHAL PRADESH : Tahlia, 2 ♂, 20.xi.1975, K. R. Rao.

Distribution : Eastern India, Assam : Meghalaya, Arunachal Pradesh to Malaysia in the east.

8. *Isehnura aurora aurora* (Brauer)

Agrion delicatum Hagen, 1858, *Verh. Zool.-Bot. Ges. Wien.*, 8 : 479.

Agrion aurora Brauer, 1865, *Verh. Zool.-Bot. Ges. Wien.*, 15 : 510.

Isehnura delicata (Hagen) : Selys, 1876, *Bull. Acad. Belg.*, (2) 41 : 281; Fraser, 1933, *Fauna British India, Odonata*, 1 : 360.

Isehnura aurora (Brauer) : Ris, 1915, *Nova Caledonia, Zool.*, 2 (4) 67.

Isehnura aurora aurora (Brauer) : Lieftinck, 1949, *Nova Guinea, (N.S.)* 5 : 220.

Specimens examined : INDIA : ASSAM : Garampani, 1 ♂, 27.xi.1973, S. K. Chanda. ARUNACHAL PRADESH : Daporizo, 4 ♂, 2 ♀, 18.xi.1975, K. R. Rao.

Distribution : India; Ceylon; Nepal to Polynesia in the east.

9. *Agriocnemis lacteola* Selys

Agriocnemis lacteola Selys, 1877, *Bull. Acad. Belg.*, (2) 43 : 144; Fraser, 1933, *Fauna British India, Odonata*, 1 : 381.

Specimens examined : INDIA : ASSAM : Upper Dihing Reserve Forest, 1 ♂, 14.xi.1974, S. K. Chanda; Kohora, Kaziranga National Park, 2 ♂, 1 ♀, 22.ii.1972, G. M. Yazdani. Barbari, 5 ♂, 7.ii.1972, A. C. Sukla. Ratibari. 1 ♂, 5.vi.1973, A. C. Sukla.

Distribution : Eastern India : Bihar, Sikkim; Assam; ["Bengal" (terr. typ.)].

10. *Agriocnemis pygmaea pygmaea* (Rambur)

Agriocnemis pygmaea Rambur, 1842, *Hist. Nat. Ins. Neuropteres* : 278.

Agriocnemis pygmaea (Rambur) : Selys, 1877, *Synopsis des Agriocnemines. 5 me Legion : Agriocnemis (suite et fin)*, : 52; Fraser, 1933, *Fauna British India, Odonata*, 1 : 398.

Agriocnemis pygmaea pygmaea (Rambur) : Pinhey, 1974, *Occ. Pap. Nat. Mus. Rhodesia* 85 (4) : 319.

Specimens examined : INDIA : ASSAM : Madangalpara, 1 ♂, 12.i.1972, S. Biswas. Sonai Rupai Forest, 1 ♂, 2 ♀, 7.xi.1975, K. R. Rao, Kumsung Reserve Forest, 1 ♀, 11.xi.1974, S. K. Chanda. Maiki Village, 1 ♀, 15.xi.1974, S. K. Chanda. ARUNACHAL PRADESH : bank of Soro river, Hapoli, 2 ♂, 13.xi.1975, K. R. Rao. Daborijo, 5 ♂, 5 ♀, 18.xi.1975, K. R. Rao. MIZORAM : Bank of Bangla stream, Kolosib, 1 ♀, 30.x.1976, K. R. Rao; 3 ♂, same except Lalchuana damside, 1.xi.1976.

Distribution : Ranging from Seychelles across entire Oriental Region to Australia and the Pacific islands in the east.

Superfamily LESTIDOIDEA

Family CHLOROLESTIDAE

Subfamily MEGALESTINAE

11. *Megalestes lieftincki*, sp. nov. (Figs. 1-4, 6)

(Male adult) : Head brilliant metallic green on dorsum, black beneath. Labium, but for the black palpi, bases of mandibles and lateral edges of clypeus yellow.

Prothorax blackish with lower lateral edges yellow. Hind margin of posterior lobe prothorax shallowly tripartite.

Synthorax dull metallic green on dorsum, still more so on sides below humeral suture. A yellow stripe narrowed above, running below the 1st lateral suture and above the spiracle, beyond which point it is broadened. Metepimeron and beneath synthorax, also yellow. Legs black.

Wings entirely suffused with brown. Discoidal cells narrow, with costal margin a little less than hind margin. Pterostigma dark brown, braced, covering 3-4 cells, 2.5 mm in length. Postnodal cross veins 24 in fore wing, 22-24 in hind wing, Ab arising a little proximal to Ac in either wing. 5 post-quad-rangular antenodal cells in fore wing, 4 in hind wing.

Abdomen dark bronze brown, almost black on segments 7-9, segment 10 glossy black. Sides of segment 1 and lower half of sides of segment 2 except a narrow apical annule yellow.

Anal appendages glossy black. Superiors subequal to segment 10 of abdomen, forcipate, cylindrical and well separated at base, narrowing thereafter to a point less than half the length of the organ from base, then again dilated and flattened, obtusely rounded at apex; a basal expansion on inner border, with its outer margin broadly oval as seen from dorsum, subquad-

Figs. 1-4. *Megalestes liefinckii*, sp. nov. ♂, Holotype : 1-2, Anal appendages; 1, dorsal view; 2, right lateral view; 3-4, Penis : 3, lateral view; 4, apex, dorsal view;
 Fig. 5. *Crocothemis servilla servilla* (Drury) ♀ : Synthorax, lateral view.

Figs. 6-7. 6, *Megalestes lieftincki*, sp. nov., ♂ holotype; 7, *Neurothemis tullia tullia* (Drury), isochrome ♀.

rate and shallowly notched, as seen from side. Inferiors a little less than half the length of Superiors, its tip just overlapping the basal expansion of the superiors, broad at base, curving upwards and rapidly narrowing to an acute apex; closely apposed and overlapping at apex as seen from dorsum; a robust spine, arising from nearer base than the tip of the organ, directed straight upwards as seen from sides; shorter and less acutely pointed than the remaining distal portion of the appendage and giving the same a bifurcate appearance.

Penis shaft without hairs, external and internal folds well developed, the latter with a short spine springing up from the outer angle on either side.

Measurements : Abdomen+anal appendages 58.0 mm, hind wing 35.5 mm

Holotype ♂, INDIA : ARUNACHAL PRADESH : Tahlia, 20.xi.1975, K. R. Rao (Redg. No. E.R.S./Z.S.I.A1/2925).

This species comes close to *Megalestes irma* Fraser 1920, on account of large size and general shape of the anal appendages, but differs from same in the following : relatively smaller; beneath synthorax yellow (vs black, pruinose); wings enfumed (vs hyaline); 22-24 (vs 17-18) postnodal cross veins in hind wing; details in the shape of the anal appendages, specially that of the basal expansion of the Superiors.

The new species is dedicated to the celebrated Odonatologist, Dr. M.A. Lieftinck.

Superfamily CALOPTERYGOIDEA

Family CHLOROCYPHIDAE

12. *Rhinocypha biforata delimbata* Selys

Rhinocypha biforata var. *delimbata* Selys, 1879, *Bull. Acad. Belg.*, (2) 47 : 392.

Rhinocypha biforata delimbata Selys : Fraser, 1928, *J. Bombay Nat. Hist. Soc.*, 32 (3) : 453; Fraser, 1934, *Fauna British India, Odonata*, 2 : 45.

Specimens examined : INDIA : MANIPUR : Bank of Khuigairok river, Moreh, 2 ♂, 18.i.1976, A. R. Lahiri.

Distribution : Eastern India : Assam, Manipur; Burma.

13. *Rhinocypha cuneata* Selys

Rhinocypha cuneata Selys, 1853, *Synopsis des Calopterygines* : 60; Fraser, 1934, *Fauna British India, Odonata*, 2 : 9.

Specimens examined : INDIA : ARUNACHAL PRADESH : Tahlia, 5 ♂, 1 ♀, 20.xi.1975, K. R. Rao.

Distribution : Eastern India : West Bengal, Assam, Arunachal Pradesh; Tibet.

Family CALOPTERYGIDAE

Subfamily CALOPTERYGINAE

14. *Neurobasis chinensis chinensis* (Linnaeus)

Libellula chinensis Linnaeus, 1758, *Systema Naturae*, 1 : 545.

Neurobasis chinensis (Linnaeus) : Kirby, 1890, *A synonymic catalogue of Neuroptera Odonata* : 102.

Neurobasis chinensis chinensis (Linnaeus) : Ris, 1915, *Tijdschr. Ent.*, 58 : 6; Fraser, 1934, *Fauna British India, Odonata*, 2 : 121.

Specimens examined : INDIA : MIZORAM : Bank of Bengla stream, 1 ♀, 30.x.1976, K. R. Rao. Chamdur Valley, Serchip, 1 ♀, 7.xi.1976, K. R. Rao. Chhiahthang, 925 m, 1 ♀, 8.xi.1976, K. R. Rao.

Distribution : India; Ceylon; Nepal; to Indochina, Malaysia and Sumatra in the east.

Suborder ANISOPTERA
Superfamily² LIBELLULOIDEA
Family LIBELLULIDAE

15. Potamarcha congener (Rambur)

Libellula obscura Rambur, 1842, *Hist. Nat. Ins. Névroptères* : 64 (nom. preocc.).

Libellula congener Rambur, 1842, *Hist. Nat. Ins. Névroptères* : 70.

Potamarcha obscura (Rambur) : Karsch, 1890, *Berlin Ent. Zeit.*, 33 : 371; Fraser, 1936, *Fauna British India, Odonata*, 3 : 289.

Potamarcha congener (Rambur) : Selys, 1891, *Anal. Soc. Esp. Hist. Nat.*, 20 : 221; Lefstijnck, 1971, *Ent. Scand. Suppl.*, 1 : 202.

Specimen examined : INDIA : MANIPUR : Imphal roadside, 4 km off Moreh, 1200 m, 1 ♂, 19.i.1976, A. R. Lahiri.

Distribution : India; Ceylon; Nepal; Malaysia and parts of Indonesia.

16. Orthetrum glaucum (Brauer)

Libellula glauca Brauer, 1863, *Verh. Zool.-Bot. Ges., Wien.*, 15 : 1022.

Orthetrum glaucum (Brauer) : Kirby, 1890, *A synonymic catalogue of Neuroptera Odonata*, : 39; Fraser, 1936, *Fauna British India, Odonata*, 3 : 307.

Specimens examined : INDIA : ARUNACHAL PRADESH : Saparguri, Kimmins, 2 ♂, 9.xi.1975, K. R. Rao; Bank of Ranga river, Hawa camp, 2 ♂, 11.xi.1975, K. R. Rao. Tahlia, 1 ♂, 20.xi.1975, K. R. Rao. MIZORAM : Bank of Bangla stream, Kolosib, 3 ♂, 30.x.1976, K. R. Rao. 1 ♂, same except Lalchuana damside, 1.xi.1976; Bank of Darnam stream, Serchip, 1 ♂, 5.xi.1976, K. R. Rao; Bank of Tlawng river, Zobawk, 3 ♂, 12.xi.1976, K. R. Rao.

Distribution : India; Ceylon; Nepal to Papua in the east.

17. Orthetrum pruinorum neglectum (Rambur).

Libellula neglecta Rambur, 1842, *Hist. Nat. Ins. Névroptères* : 86.

Libellula pruinosa Brauer, 1868, *Verh. Zool.-Bot. Ges. Wien.*, 15 : 1013.

Orthetrum pruinorum (Brauer) : Kirby, 1886, *Proc. Zool. Soc. London*, 1886 : 327.

Orthetrum pruinorum neglectum (Rambur) : Ris, 1909, *Collections zool. du Baron E. de Selys-Longchamps*, 9 : 181; Fraser, 1936, *Fauna British India, Odonata*, 3 : 311.

Specimens examined : INDIA : ASSAM : Dibru Reserve Forest, 1 ♂, 21.xi.1974, S. K. Chanda. Garampani, 1 ♂, 26.xi.1972, S. K. Chanda. ARUNACHAL PRADESH : Bank of Ranga river, Hawa camp. 1 ♂, 11.xi.1975, K. R. Rao. MANIPUR : Kongpokpi, 3990 m, 1 ♂, 13.i.1976, A. R. Lahiri, Keithenmanbi. 1050 m, 1 ♂, 14.i.1976, A. R. Lahiri; Imphal roadside, 4 km off Moreh, 1200 m, 1 ♂, 1 ♀, 19.i.1976, A. R. Lahiri. MIZORAM : Bank of Bangla stream, Kolosib, 500 m, 7 ♂, 30.xi.1976, K. R. Rao; 7 ♂, same except Lalchuana damside, 1.xi.1976; Aizawl, 1 ♂, 3.xi.1976, K. R. Rao; Bank of Darnam stream, Serchip, 1 ♂, 5.xi.1976, K. R. Rao; 1 ♂, same except bank of Mat stream,

6.xi.1976. Chhiahttang, 925 m, 1 ♀, 8.xi.1976, K. R. Rao. Lungsan, 1 ♂, 11.xi.1976, K. R. Rao; Bank of Tlawng river, Zobawk, 1 ♂, 12.xi.1976, K. R. Rao.

Distribution : India; Ceylon; Nepal to China and Taiwan in the east.

18. *Orthetrum sabina* (Drury)

Libellula sabina Drury, 1770, *Illustrations of Natural History*, 1 : 114.

Orthetrum sabina (Drury) : Kirby, 1889, *Trans. Zool. Soc., London*, 12 : 302; Fraser 1936, *Fauna British India, Odonata*, 3 : 300.

Specimens examined : INDIA : ASSAM : Saikhoa Reserve Forest, 1 ♀, 6.xi.1974. S. K. Chanda; 2 ♀, same except 11.xi.1974; 2 ♂, 7 ♀, same except 12.xi.1974. Kumsung Reserve Forest, 1 ♂, 1 ♀, 10.xi.1974, S. K. Chanda; 3 ♀, same except 11.xi.1974. Upper Dihing Reserve Forest, 1 ♀, 14.xi.1974, S. K. Chanda; 2 ♂, 2 ♀, same except 15.xi.1974. Guijan, Dibru Reserve Forest, 1 ♂, 16.xi.1974, S. K. Chanda; 2 ♂, same except 19.xi.1974; 3 ♀, same except 20.xi.1974; 2 ♂, 1 ♀, same except 22.xi.1974. Sonai Rupai Forest, 3 ♀, 7.xi.1975, K. R. Rao; Garampani, 1 ♂, 3 ♀, 26.x.1972, S. K. Chanda; 1 ♀, same except 27.xi.1972; Haflong, 6 ♂, 1 ♀, 22.xi.1972, S. K. Chanda; 4 ♂, same except 23.xi.1972; Dehngi, 2 ♂, 3 ♀, 24.xi.1972, S. K. Chanda. Barbari, 2 ♂, 10.xi.1972, A. C. Sukla. ARUNACHAL PRADESH : Saparguri, Kimmins, 1 ♂, 1 ♀, 9.xi.1975, K. R. Rao; 4 ♂, same except Fruit Garden, 10.xi.1975; Bank of Ranga river, Hawa camp, 10 ♂, 11.xi.1975, K. R. Rao.

Distribution : Ranging from Africa across tropical Asia and Australia to the Pacific islands.

19. *Orthetrum triangulare triangulare* (Selys)

Libella triangularis Selys, 1878, *Mitt. Zool. Mus. Dresden* : 314.

Orthetrum triangulare (Selys) : Kirby, 1886, *Proc. Zool. Soc. London* : 327.

Orthetrum triangulare triangulare (Selys) : Ris, 1909, *Collections Zool. du Baron E. de Selys-Longchamps*, 9 : 181; Fraser, 1936, *Fauna British India, Odonata*, 3 : 305.

Specimens examined : INDIA : ARUNACHAL PRADESH : Saparguri, Kimmins, 3 ♂, 9.xi.1975, K. R. Rao. Tahlia, 1 ♂, 20.xi.1975, K. R. Rao. MIZORAM : Bank of Darnam stream, 1 ♂, 5.xi.1976, K. R. Rao; Chamdur Valley, 1 ♂, 7.xi.1976, K. R. Rao. Chhiahttang, 925 m, 3 ♂, 8.xi.1976, K. R. Rao; Bank of Tlawng river, Zobawk, 1 ♂, 12.xi.1976, K. R. Rao.

Distribution : India : Ceylon; Nepal to Vietnam in the east.

20. *Diplacodes nebulosa* (Fabricius)

Libellula nebulosa Fabricius, 1793, *Ent. Syst.*, 2 : 379.

Diplacodes nebulosa (Fabricius) : Kirby, 1889, *Trans. Zool. Soc. London*, 12 : 308; Fraser, 1936, *Fauna British India, Odonata*, 3 : 335.

Specimen examined : INDIA : ASSAM : Maiki village, 1 ♂, 15.xi.1974, S. K. Chanda.

Distribution : India; Ceylon to Papua in the east.

21. *Diplacodes trivialis* (Rambur)

Libellula trivialis Rambur, 1842, *Hist. Nat. Ins. Névroptères* : 115.

Diplacodes trivialis (Rambur), Karsh, 1891, *Ent. Nachr.*, 17 : 246; Fraser, 1936, *Fauna British India, Odonata*, 3 : 337.

Specimens examined : INDIA : ASSAM : Sonai Rupai Forest, 1 ♂, 7.xi.1975, K. R. Rao. Saikhoa Reserve Forest, 1 ♀, 7.xi.1974, S. K. Chanda. Kumsung Reserve Forest, 1 ♀, 11.xi.1974, S. K. Chanda. Garampani, 1 ♂, 1 ♀, 27.xi.1972, S. K. Chanda. MANIPUR : Imphal roadside, 1 km off Moreh, 1000 m, 1 ♂, 18.i.1976, A. R. Lahiri; 1 ♂, same except 4 kms off Moreh, 1200 m, 19.i.1976. MIZORAM : Tuilut, Kolosib, 650 m, 1 ♀, 31.x.1976, K. R. Rao.

Distribution : Ranging from Seychelles across tropical Asia and Australia to the Western Pacific islands.

22. *Palpopleura sexmaculata sexmaculata* (Fabricius)

Libellula sexmaculata Fabricius, 1787, *Mantissa Insectorum*, 1 : 338.

Palpopleura sexmaculata (Fabricius) : Brauer, 1868, *Verh. Zool.-Bot. Ges. Wien.*, 18 : 716.

Palpopleura sexmaculata sexmaculata (Fabricius) : Fraser, 1936, *Fauna British India, Odonata*, 3 : 318.

Specimens examined : INDIA : MANIPUR : Keithenmanbi, 1050 m, 1 ♂, 14.i.1976, A. R. Lahiri. Kongpokpi, 3990 m, 1 ♂, 16.i.1976, A. R. Lahiri. MIZORAM : Bank of Bangla Stream, 500 m, 1 ♂, 1 ♀, 30.x.1976, K. R. Rao; 1 ♀, same except Tuilut, 650 m, 31.x.1976.

Distribution : India; Nepal to China in the east.

23. *Acisoma panorpoides panorpoides* Rambur

Acisoma panorpoides Rambur, 1842, *Hist. Nat. Ins. Névroptères*, : 28.

Acisoma panorpoides panorpoides Rambur : Ris, 1911, *Collections zool. du Baron E. de Selys-Longchamps*, 12 : 456; Fraser, 1936, *Fauna British India, Odonata*, 3 : 330.

Specimens examined : INDIA : ASSAM : Kumsung Reserve Forest, 1 ♂, 11.x.1974, S. K. Chanda. Upper Dihing Reserve Forest, 1 ♀, 15.xi.1974, S. K. Chanda. ARUNACHAL PRADESH : Saparguri, Kimmins, 1 ♀, 9.xi.1975, K. R. Rao.

Distribution : India; Ceylon; Nepal to Japan; Malaysia and parts of Indonesia in the east.

24. *Crocothemis servilla servilla* (Drury) (Fig.5)

Libellula servilla Drury, 1770, *Illustrations of Natural Hist.* 1 : 112.

Crocothemis servilla (Drury) : Brauer, 1868, *Verh. Zool.-Bot. Ges. Wien.*, 18 : 737.

Crocothemis servilla servilla (Drury) : Ris, 1911, *Collections zool. du Baron E. de Selys Longchamps*, 12 : 533; Fraser 1936, *Fauna British India, Odonata*, 3 : 345.

Specimens examined : INDIA : ASSAM : Shaikho Reserve Forest, 1 ♀, 6.xi.1974, S. K. Chanda; 1 ♂, same except 7.xi.1974; 1 ♂, 1 ♀, same except 12.xi.1974. Kumsung Reserve Forest, 1 ♀, 9.xi.1974, S. K. Chanda; 3 ♂, 1 ♀, same except 11.xi.1974. Upper Dihing Reserve Forest, 1 ♂, 2 ♀, 14.xi.1974, S. K. Chanda; 2 ♀, same except 15.xi.1974. Guijan, Dibru Reserve Forest, 1 ♂, 1 ♀, 16.xi.1974; 1 ♂, same except 17.xi.1974; 3 ♂, same except 18.xi.1974; 1 ♂, 4 ♀, same except 20.xi.1974; 1 ♂, 1 ♀, same except 22.xi.1974. Sonai Rupai Forest, 150 m, 1 ♂, 7.xi.1975, K. R. Rao; Jatinga, 2 ♀, 21.xi.1972, S. K. Chanda; Haslong, 1 ♂, 22.xi.1972, S. K. Chanda. Garampani, 1 ♀, 26.xi.1972, S. K. Chanda; 3 ♂, 2 ♀, same except 27.xi.1973. ARUNACHAL PRADESH : Fruit Garden, Kimmins, 1 ♀, 10.xi.1975, K. R. Rao. Daforizo, 1 ♀, 19.xi.1975, K. R. Rao. MANIPUR : Imphal roadside, 1-9 kms off Mao, 1 ♂, 3 ♀, 10.xi.1976, A. R. Lahiri, Kongpokpi, 3990 m, 1 ♀, 13.i.1976, A. R. Lahiri; 1 ♀, same except 16.i.1976. Keithenmanbi, 1050 m, 1 ♂, 14.i.1976, A. R. Lahiri; Imphal roadside, 5-9 kms off Moreh, 1 ♂, 3 ♀, 20.i.1976, A. R. Lahiri. MIZORAM : Bank of Bangla stream, 500 m, 1 ♂, 30.x.1976, K. R. Rao. Aizawl, 1 ♀, 3.xi.1976, K. R. Rao. Lungsan, 1 ♂, 1 ♀, 11.xi.1976, K. R. Rao.

One of the female specimens under study (Lungsan, 11.xi.1976), has a lateral black patch on synthorax, on ferruginous background. The mark is more evident along the humeral suture and around the spiracle but becomes more distinct when the surface is moistened with benzene. Dr. M.A. Liefstinck kindly confirmed its identity as *C. s. servilia* (Drury), so that the presence of such a mark appears to be an individual variation, although not mentioned in the description of this subspecies by Fraser (1936). It may be noted that the presence of a V-shaped lateral black mark on synthorax has been considered as one of the distinguishing characters for *Crocothemis indica Sahni* (Sahni, 1965, Lahiri et. al, 1972).

Distribution : Ranging from Mesopotamia to Japan, Philippines, Malaysia and Indonesia.

25. *Neurothemis fulvia* (Drury)

Libellula fulvia Drury, 1773, *Illustrations of Natural History*, 2 : 84.

Neurothemis fulvia (Drury) : Kirby, 1889, *Trans. Zool. Soc. London*, 12 : 271; 1936, *Fauna British India, Odonata*, 3 : 353.

Specimens examined : INDIA : ASSAM : Blodhmari, 1 ♂, 16.i.1972, S. Biswas. Kumsung Reserve Forest, 3 ♂, 9 ♀, 10.xi.1974, S. K. Chanda. Shaikho Reserve Forest, 2 ♂, 5 ♀, 12.xi.1974, S. K. Chanda. MANIPUR : Bank of Khui-gairok river, Moreh, 1000 m, 1 ♀, 18.i.1976, A. R. Lahiri.

Distribution : India; Nepal to Indochina; and Malay peninsula up to Sumatra.

26. *Neurothemis intermedia intermedia* (Rambur)

Libellula intermedia Rambur, 1842, *Hist. Nat. Ins. Neuropters* : 91.

Neurothemis intermedia (Rambur) : Selys, 1889, *Ann. Mus. Clv. Genova*, 27 : 454.

Neurothemis intermedia intermedia (Rambur) : Ris, 1911, *Collections Zool. du Baron E. de Selys Longchamps*, 13 : 551; Fraser, 1936, *Fauna British India, Odonata*, 3 : 357.

Specimens examined: INDIA : ASSAM : Blodhmari, 1 ♂, 1 ♀, 16.i.1972, S. Biswas. Flaten Kenda Pahar, 3 ♀, 16.i.1972, S. Biswas; Balukdubi, 2 ♂, 6 ♀, 17.i.1972. S. Biswas. Nidanpur, 1 ♂, 8 ♀, 14.i.1972, S. Biswas; Uchila, Manas sanctuary, 2 ♂, 3 ♀, 10.i.1974, A. K. Ghosh; Bank of Manas river, 1 ♂, 13.xii.1974, A. K. Ghosh; Kumsung Reserve Forest, 1 ♂, 10.xi.1974, S. K. Chanda; Shaikhoa Reserve Forest, 1 ♂, 12.xi.1974, S. K. Chanda. ARUNACHAL PRADESH : Saparguri, Kimmins, 1 ♂, 9.xi.1975, K. R. Rao; 1 ♂, same except Fruit Garden, 10.xi.1975. [MANIPUR : Bank of Khuigairok river, Moreh. 1000 m, 1 ♀, 18.i.1976, A. R. Lahiri; Imphal roadside, 4 kms off Moreh, 100 m, 5 ♂, 2 ♀, 1976, A. R. Lahiri; 4 ♂, 2 ♀, same except 8 kms off Moreh, 1200 m, 20.i.1976, A. R. Lahiri. MIZORAM : Tuilut, Kolosib, 650 m, 1 ♀, 31.x.1976, K. R. Rao. BIHUTAN : Bank of Manas river, Nr. Manas sanctuary, 1 ♂, 11.i.1974, A. K. Ghosh.

Distribution : India; Ceylon; Nepal; Burma

27. *Neurothemis tullia tullia* (Drury) (Fig. 7)

Libellula tullia Drury, 1773, *Illustrations of Natural History*, 2 : 85.

Neurothemis tullia (Drury) : Kirby, 1890 *A synonymic catalogue of Neuroptera Odonata* : 8.

Neurothemis tullia tullia (Drury) : Ris, 1911, *Collections Zool. du Baron E. de Selys-Longchamps*, 13 : 531; Fraser, 1936, *Fauna British India, Odonata*, 3 : 360.

Specimens examined: INDIA : ASSAM : Upper Dihing Reserve Forest, 1 ♂, 1 ♀, (isochrome, Regd. No. E.R.S./Z.S.I. A1/4040), 15.xi.1976, S. K. Chanda.

Isochrome female : Body and wing markings similar to those of male, as described by Fraser (1936). The black basal half of wings has its outer border rather markedly convex, ending at hind margin of wings at the level of node, but, beginning at the costal border 2-3 cells distal to that level. The cells at the costal and hind border of the black basal area are partly hyaline, and some of the cell middles within the black body are paler, dark brown.

So far the female of this species was known only from the commonly occurring heterochromatic form.

Measurements (in mm) and nodal index of the isochromatic female : length of abdomen=20.0; hind wing=24.5; antenodals : fore wing=11½-12½; hind wing=9-10; postnodals : fore wing=7-8; hind wing=7.

Distribution : India; Ceylon; Nepal to Indochina and Northern Thai in the east.

28. *Brachythemis contaminata* (Fabricius)

Libellula contaminata Fabricius, 1793, *Ent. Syst.*, 2 : 382

Brachythemis contaminata (Fabricius) : Brauer, 1868, *Verh. Zool.-Bot. Ges. Wien.*, 18 : 736; Fraser, 1936, *Fauna British India, Odonata*, 3 : 365.

Specimens examined : INDIA : ASSAM : Shaikhoa Reserve Forest, 3 ♂, 6.xi.1974, S. K. Chanda.

Distribution : India; Ceylon; Nepal to Taiwan and Malaysia in the east.

29. *Sympetrum hypomelas* (Selys)

Diplax hypomelas Selys, 1884, *Ann. Ent. Soc. Belg.*, 28 : 37.

Sympetrum hypomelas (Selys) : Kirby, 1890, *A synonymic catalogue of Neuroptera Odonata* : 16; Fraser, 1936, *Fauna British India, Odonata*, 3 : 373.

Specimen examined : INDIA : ARUNACHAL PRADESH : Bank of Soro river, Hapoli, 1 ♂, 13.xi.1975, K. R. Rao.

Distribution : Eastern India : West Bengal, Sikkim; Assam, Meghalaya and Arunachal Pradesh; Tibet; Nepal to China in the east.

30. *Trithemis aurora* (Burmeister)

Libellula aurora Burmeister, 1839, *Handbuch der Entomologie*, 2 : 859.

Trithemis aurora (Burmeister) : Brauer, 1868, *Verh. Zool.-Bot. Ges. Wien.*, 18 : 177; Fraser, 1936, *Fauna British India, Odonata*, 3 : 383.

Specimens examined : INDIA : ARUNACHAL PRADESH : Saparguri, Kimmins, 1 ♂, 9.xi.1975, K. R. Rao. Tahlia, 4 ♂, 20.xi.1975, K. R. Rao. MANIPUR : Kongpoki, 3990 m, 1 ♂, 16.i.1976, A. R. Lahiri; Bank of Khuigairok river, Moreh, 1000 M, 4 ♂, 18.i.1976, A. R. Lahiri. Imphal roadside, 4 km. off Moreh, 1200 m, 1 ♂, 19.i.1976, A. R. Lahiri. MIZORAM : Chamdur valley, Serchip, 500 m, 1 ♂, 7.xi.1976, K. R. Rao.

Distribution : India; Ceylon; Tibet; Nepal to Philippines; Malaysia and Indonesia in the east.

31. *Trithemis festiva* (Rambur)

Libellula festiva Rambur, 1842, *Hist. Nat. Ins. Névropteres* : 92.

Trithemis festiva (Rambur) : Brauer, 1868, *Verh. Zool.-Bot. Ges. Wien.*, 18 : 736; Fraser 1936, *Fauna British India, Odonata*, 3 : 387.

Specimens examined : INDIA : ARUNACHAL PRADESH : Bank of Ranga river, Hawa camp, 1 ♂, 11.xi.1975, K. R. Rao. MANIPUR : Kongpokpi, 3990 m, 3 ♂, 16.i.1976, A. R. Lahiri; Bank of Khuigairok river, Moreh, 1000 m, 3 ♂, 18.i.1976, A. R. Lahiri. MIZORAM : Bank of Darnam stream, Serchip, 1 ♂, 5.xi.1976, K. R. Rao; Bank of Tlawng river, Zobawk, 1 ♂, 12.xi.1976, K. R. Rao.

Distribution : Ranging from West Pakistan across Ceylon and India to New Guinea in the east.

32. *Trithemis pallidinervis* (Kirby)

Sympetrum pallidinervis Kirby, 1889, *Trans. Zool. Soc. London*, 12 : 327.

Trithemis pallidinervis (Kirby) : Morton, 1907, *Trans. Ent. Soc. London* : 304;
Fraser, 1936, *Fauna British India, Odonata*, 3 : 389.

Specimen examined : INDIA : ASSAM : Rangjuli, 1 ♂, 4.iv.1973, A. R. Lahiri.

Distribution : India; Ceylon to Taiwan and Philippines in the east and Malaya in the south.

33. *Pantala flavescens* (Fabricius)

Libellula flavescens Fabricius, 1798, *Suppl. Ent. Syst.* : 285.

Pantala flavescens (Fabricius) : Hagen, 1861, *Synopsis of the Neuroptera of North America* : 142; Fraser, 1936, *Fauna British India Odonata*, 3 : 414.

Specimens examined : INDIA : ASSAM : Rangjuli, 3 ♂, 4 ♀, 4.iv.1973, A. R. Lahiri. Kadam Teela, 6 ♂, 4 ♀, 11.xi.1972, A. C. Sukla. ARUNACHAL PRADESH : Fruit Garden, Kimmins, 1 ♀, 10.xi.1975, K. R. Rao.

Distribution : Cosmopolitan.

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