

MOTH FLIES & SAND FLIES (DIPTERA: PSYCHODIDAE) OF INDIA

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The family Psychodidae includes moth flies and sand flies, some of which are archaic Diptera originated in the super-continent Gondwana during Permian period and their extant taxa are now distributed in tropical and sub tropical countries. Aquatic habits of moth flies are vulnerable to ecological changes; hence some species are indicator species. Sand flies are moisture-loving, found in the microhabitats such as mud holes and rock crevices. The genus *Phlebotomus* contains vectors of human leishmaniasis. Dr Nelson Annandale, the founder Director of Zoological Survey of India had a special interest on psychodids and laid a strong foundation on the taxonomy of Indian moth flies and sand flies (Ilango, 2004a). The early studies of Annandale (1908-11) together with that of Brunetti (1912) provided tantalizing glimpses of psychodid taxonomy which was subsequently updated by Quate (1962) with fragmentary re-descriptions and figures. However, the discovery of *Phlebotomus argentipes* Annandale & Brunetti – the proven vector of visceral leishmaniasis (Kala-azar) in India, and its intra-specific variation were considered to be a monumental contribution to public health research in India. Because of their cryptic biology and behavior, the systematics of Indian psychodids is only partial with less than 100 species out the 2900 species known from the world (Duckhose 1973; Seccombe et al. 1993). However, the taxonomy of Phlebotomine sand flies, the genus *Neotelmatoscopus* (Psychodinae) and its biogeography from Tamil Nadu were studied in detail (Ilango et al. 1994; Ilango, 1994, 2004b, 2006).

A taxonomic list of moth flies and sand flies (Diptera: Psychodidae) from India

Family PSYCHODIDAE (Moth flies)

I. Subfamily HORAIELLINAE

Genus *HORAIELLA* Tonnoir 1933

1. *Horaiella consimilis* Tonnoir 1933
2. *Horaiella prodigiosa* Tonnoir 1933

II. Subfamily PSYCHODINAE

Genus *PERICOMA* Walker 1856

3. *Pericoma margininotata* Brunetti 1908
4. *Pericoma metatarsalis* Brunetti 1911
5. *Pericoma metatarsalis* var. *khasiensis* Senior-White 1922
6. *Pericoma solangensis* Kaul 1971

Genus *Thornburghiella* Vaillant 1976

7. *Thornburghiella alaeoensis* (Kaul) 1971
8. *Thornburghiella hamtensis* (Kaul) 1971
9. *Thornburghiella longipenis* (Kaul) 1971
10. *Thornburghiella mixta* (Brunetti) 1911
11. *Thornburghiella singularis* (Quate) 1962
12. *Thornburghiella spinicornis* (Brunetti) 1908

Genus *TELMATOSCOPUS* Eaton 1904

Subgenus *GLOGMIA* Enderlein 1937

13. *Telmatoscopus (Glogmia) albipunctatus* (Williston) 1893

Unplaced species of *Telmatoscopus*

14. *Telmatoscopus lacteitarsis* (Brunetti) 1908
15. *Telmatoscopus squaminervis* Brunetti 1911
16. *Telmatoscopus longichaetus* (Brunetti) 1911

Genus *NEOTELMATOSCOPUS* Tonnoir 1933

17. *Neotelmatoscopus horai* (Tonnoir) 1933
18. *Neotelmatoscopus ctenophorus* Ilango 1994

Genus *BRUNETTIA* Annandale 1910

19. *Brunettia annandalei* (Brunetti) 1908
20. *Brunettia argenteopunctata* (Brunetti) 1908
21. *Brunettia indiensis* Quate 1962
22. *Brunettia novemnotata* (Brunetti) 1911
23. *Brunettia squamipennis* (Brunetti) 1908
24. *Brunettia superstes* (Annandale) 1908
25. *Brunettia travancorica* Annandale

Genus *PHILOSEPEDON* Eaton 1904

26. *Philosepedon decora* (Brunetti) 1911
27. *Philosepedon distans* (Brunetti) 1911

Genus *TRICHOPSYCHODA* Tonnoir 1922

28. *Trichopsychoda hirtipennis* (Brunetti) 1911

Genus *PSYCHODA* Latreille 1796

29. *Psychoda acanthostyla* Tokunaga 1957
30. *Psychoda alabangensis* del Rosario 1936
31. *Psychoda bengalensis* Brunetti 1908
32. *Psychoda harrisi* Satchell 1950
33. *Psychoda makati* del Rosario 1936
34. *Psychoda nigripennis* Brunetti 1908

35. *Psychoda parthenogenetica* Tonnoir 1940
36. *Psychoda vittata* Brunetti 1908

Unrecognized species of Psychodinae

37. *Psychoda albopicta* Brunetti 1911
38. *Psychoda apicalis* Brunetti 1911
39. *Psychoda fulvohirta* Brunetti 1911
40. *Psychoda gilvipes* Brunetti 1908
41. *Psychoda impunctata* Brunetti 1911
42. *Psychoda orbicularis* Brunetti 1911
43. *Psychoda transversa* Brunetti 1911

III. Subfamily PHLEBOTOMINAE (Sand flies)

Genus PHLEBOTOIELLA Solarzano Kraemer & Wagner 2009 (Fossil)

44. *Phlebotoiella eoindianensis* Solarzano Kraemer & Wagner 2009 (Fossil)

Genus SERGENTOMYIA Franca & Parrot 1920

Subgenus GRASSOMYIA Theodor 1958

45. *Sergentomyia (Grassomyia indica)* (Theodor) 1931

Subgenus NEOPHLEBOTOMUS Franca & Parrot 1920

46. *Sergentomyia (Neophlebotomus) arboris* (Sinton) 1931
47. *Sergentomyia (Neophlebotomus) charavarti* (Mitra & Roy) 1953
48. *Sergentomyia (Neophlebotomus) dhandai* Lewis 1978
49. *Sergentomyia (Neophlebotomus) iyengari* Sinton 1933
50. *Sergentomyia (Neophlebotomus) linearis* Lewis 1978
51. *Sergentomyia (Neophlebotomus) malabarica* (Annandale) 1910
52. *Sergentomyia (Neophlebotomus) nilamburensis* Kaul & Prabha 1993
53. *Sergentomyia (Neophlebotomus) purii* (Sinton) 1931
54. *Sergentomyia (Neophlebotomus) zeylanica* (Annandale) 1910

Subgenus PARROTOMYIA Theodor 1958

55. *Sergentomyia (Parrotomyia) babu* (Annandale) 1910
56. *Sergentomyia (Parrotomyia) baghdadis* (Adler & Theodor) 1910
57. *Sergentomyia (Parrotomyia) himalayensis* (Annandale) 1910
58. *Sergentomyia (Parrotomyia) insularis* (Theodor) 1938
59. *Sergentomyia (Parrotomyia) kauli* Lewis 1978
60. *Sergentomyia (Parrotomyia) modii* Lewis 1978
61. *Sergentomyia (Parrotomyia) shorttii* (Adler & Theodor) 1927
62. *Sergentomyia (Parrotomyia) yercaudensis* Ilango 2004
63. *Sergentomyia (Parrotomyia) sp. A* Kaul, Dhanda & Modi 1973
64. *Sergentomyia (Parrotomyia) sp. B* Kaul, Dhanda & Modi 1973

Subgenus SERGENTOMYIA Franca & Parrot 1919

65. *Sergentomyia* (*Sergentomyia*) *punjabensis* Sinton 1933

Subgenus Sintonius Nitzulescu 1931

66. *Sergentomyia* (*Sintonius*) *christophersi* Sinton 1927

67. *Sergentomyia* (*Sintonius*) *eadithae* Sinton 1932

68. *Sergentomyia* (*Sintonius*) *hospitii* Sinton 1924

69. *Sergentomyia* (*Sintonius*) *orissa* Kaul & Lewis 1977

70. *Sergentomyia* (*Sintonius*) *shirohi* Kaul, Dhanda & Modi 1973

Species Group Nicnic Theodor 1948

71. *Sergentomyia* *bailyi* (nicni Group) (Sinton) 1931

72. *Sergentomyia* *shettyi* (nicni Group) Ilango 1994

***Sergentomyia* Ungrouped**

73. *Sergentomyia* *koraputa* Lewis & Kaul 1987

74. *Sergentomyia* *montana* Sinton 1924

Genus Phlebotomus Rondani & Berte 1840

Subgenus Adlerius Nitzulescu 1931

75. *Phlebotomus* (*Adlerius*) *hindustanicus* Theodor 1958

76. *Phlebotomus* (*Adlerius*) *longiductus* Parrot 1928

Subgenus Anaphlebotomus Theodor 1948

77. *Phlebotomus* (*Anaphlebotomus*) *colabaensis* Young & Chalam 1927

78. *Phlebotomus* (*Anaphlebotomus*) *stantoni* Newstead 1914

79. *Phlebotomus* (*Anaphlebotomus*) *hoepplii* Tang & Maa 1945

Subgenus Euphlebotomus Theodor 1948

80. *Phlebotomus* (*Euphlebotomus*) *aragetipes* Annandale & Brunetti 1908

Subgenus Idiophlebotomus Quate & Fairchild 1961

81. *Phlebotomus* (*Idiophlebotomus*) *tubifer* Lewis & Lane 1976

Subgenus Kasaulius Lewis 1982

82. *Phlebotomus* (*Kasaulius*) *newsteadi* Sinton 1926

Subgenus Larroussius Notzulescu 1931

83. *Phlebotomus* (*Larroussius*) *major* Annandale 1910

Subgenus Paraphlebotomus Theodor 1948

84. *Phlebotomus* (*Paraphlebotomus*) *alexandri* Sinton 1928

85. *Phlebotomus* (*Paraphlebotomus*) *sergenti* Parrot 1917

Subgenus *Phlebotomus* Rondani & Berte 1840

86. *Phlebotomus (Phlebotomus) papatasi* Scopoli 1786

87. *Phlebotomus (Phlebotomus) salehi* Mesghali 1965

Subgenus *Synphlebotomus* Theodor 1948

88. *Phlebotomus (Synphlebotomus) eleanorae* Sinton 193

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