

## DROSOPHILID FLIES (DIPTERA) IN THE MAHALE MOUNTAINS NATIONAL PARK, TANZANIA: A PRELIMINARY REPORT

Haruo TAKADA and Shigeo UEHARA  
*Faculty of General Education, Sapporo University*

**ABSTRACT** Eight species of drosophilids were collected at Kasoje in the Mahale Mountains National Park, western Tanzania, during the wet season of 1983–1984; one circumtropical species and seven Afrotropical species, all of which are new records from Tanzania. The distributions of respective species known so far suggest some affinities in the drosophilid fauna between the Mahale Mountains and central and western Africa.

**Key Words:** Drosophilid fly; Mahale Mountains; Circumtropical species; Afrotropical species.

### INTRODUCTION

This paper describes drosophilid flies (Diptera) collected in the Mahale Mountains, western Tanzania. Since the specimens are represented only by samples collected non-systematically, many other species will be found in the future. Although the present report is not comprehensive, its brief descriptions would contribute to the accumulation of faunal data of the Mahale Mountains, which just became a national park in 1985.

For the drosophilid fly fauna in Tanzania, see Bächli (1971), Tsacas et al. (1981), and Lachaise and Tsacas (1983). These reports, however, include information on only two genera, *Leucophenga* and *Paraleucophenga*. All species reported in the present study are new records from Tanzania.

### SAMPLING METHOD

The specimens were collected at Kansyana Camp of the Mahale Mountains Wildlife Research Centre in the Kasoje area at the western foot of the Mahale Mountains on the eastern shore of Lake Tanganyika (6°S, 30°E) [see maps in Uehara (1982)]. The camp (ca. 800 m above sea level) is situated at the boundary zone between semi-deciduous gallery forest and various types of secondary vegetation such as *Pennisetum* grassland and *Acacia* savannah. For the vegetation and rainfall data at Kasoje, see Nishida (1972), Nishida and Uehara (1981), and Uehara (1982).

During the wet season of 1983–1984, drosophilid flies were captured three times by the junior author (S.U.) by means of sweeping a butterfly net over garbage or fermented bananas: on 11th of December, 1983 over garbage, on 8th of January, 1984 over fermented bananas, and on 5th of February, 1984 over garbage (including many used tea leaves). Samples were stored in ethanol (ca. 30%), and later identified by the senior author (H.T.).

## RESULTS

The following eight species of drosophilid flies, all of which belong to the subfamily Drosophilinae, are identified among the specimens.

Genus *Drosophila* Fallén

*Drosophila* Fallén, 1823. *Geomyzides Sveciae* 2: 4 (Type: *Musca funebris* Fabricus in Sweden).

This is one of the largest genera of Drosophilidae, with about 1,580 described species in the world. Three of the approximately 15 subgenera are represented by six species of the present material.

Subgenus *Drosophila* Fallén

1. *Drosophila nasuta* Lamb, 1914. *Linn. Soc. London, Trans.* 16: 346 (Type in British Museum: Seychelles).

Specimen examined: One male, Jan. 8, 1984, on fermented bananas.

Distribution: Benin, Congo, Zaire, Tanzania (new record), Madagascar, and Seychelles.

Feeding habitat: Plantation and second growth vegetation (Lachaise and Tsacas, 1983).

Host-plant species: *Mangifera indica*, *Spondias cytherea*, *Artocarpus* sp., *Musa sapientum*, *Psidium guajava*, *Citrus grandis*, *Manihot esculentus*, etc. (Lachaise and Tsacas, 1983).

Subgenus *Scaptodrosophila* Duda

2. *Drosophila dibi* Burla, 1954. *Rev. Suisse Zool.* 61 (Suppl.): 126 (Type in Zoologisches Museum der Univ. Zürich; Ivory Coast).

Specimens examined: Two males, Feb. 5, 1984, on garbage and used tea leaves.

Distribution: Ivory Coast, Kenya, and Tanzania (new record).

Feeding habitat and host-plant species: Unknown.

Subgenus *Sophophora* Sturtevant

3. *Drosophila ananassae* Doleschall, 1858. *Tijd. Ned. Ind.* 17: 128 (Type unknown; Indonesia).

Specimens examined: Many males and females, Dec. 11, 1983, Jan. 8, 1984, and Feb. 5, 1984, on garbage, used tea leaves and fermented bananas.

Distribution: Ivory Coast, Benin, Cameroon, Gabon, Congo, Uganda, Tanzania (new record), South Africa, and widespread in Oriental, Australasian, and Neotropical regions. Feeding habitat: Plantation, second growth vegetation, and forest/savannah mosaic (Lachaise and Tsacas, 1983).

Host-plant species: Fruit, flower and fungus breeders; e.g., *Mangifera indica*, *Annona senegalensis*, *Landolphia dulcis*, *Crescentia cujete*, *Ananas comosus*, *Rhipsalis* sp., *Carica papaya*, *Artocarpus utilis*, *Ficus sur*, *Staudtia gabonensis*, *Psidium guajava*, *Averrhoa carambola*, *Borassus aethiopum*, *Pandanus candelabrum*, *Parinari* sp., *Rubus steudneri*, *Nauclea pobeguini*, *Rothmannia whitfieldii*, *Cyphomandra betacea*, *Aframomum sanguineum*, *Favolus* sp., and *Polyporus* sp. (Lachaise and Tsacas, 1983).

4. *Drosophila burlai* Tsacas & Lachaise, 1974. *Ann. Univ. Abidjan, Ser. E (Ecol.)* 7: 200 (Type in British Museum; Ivory Coast).

Specimens examined: Seven males, Jan. 8, 1984, on fermented bananas.

- Distribution: Ivory Coast, Cameroon, Central Africa, Gabon, Congo, and Tanzania (new record).  
 Feeding habitat: Plantation, evergreen rainforest, swamp forest, and semi-deciduous riparian forest gallery (Lachaise and Tsacas, 1983).  
 Host-plant species: *Dacryodes* sp., *Detarium senegalense*, *Hugonia macrophylla*, *Ficus lyrata*, *Treculia africana*, *Hirtella* sp., *Parinari* sp., *Nauclea pobeguinii*, *Citrus grandis*, *Pancovia bijuga*, *Gambeya taiensis*, and *Tieghemella heckelii* (Lachaise and Tsacas, 1983).
5. *Drosophila bocqueti* Tsacas & Lachaise. 1974. *Ann. Univ. Abidjan, Ser. E (Ecol.)* 7: 204 (Type in British Museum; Ivory Coast).  
 Specimens examined: Six males, Jan. 8, 1984, on fermented bananas.  
 Distribution: Ivory Coast, Cameroon, Central Africa, Gabon, Congo, and Tanzania (new record).  
 Feeding habitat: Plantation, evergreen rainforest, swamp forest, and semi-deciduous riparian forest gallery (Lachaise and Tsacas, 1983).  
 Host-plant species: *Mangifera indica*, *Spondias mombin*, *Dacryodes* sp., *Hugonia* sp., *Artocarpus* sp., *Ficus sur*, and *Cissus dinklagei* (Lachaise and Tsacas, 1983).
6. *Drosophila tsacasi* Bock & Wheeler, 1972. *Univ. Texas Publ.* 7213: 79 (Type in Texas stock 2371.4; Ivory Coast).  
 Specimen examined: One male, Jan. 8, 1984, on fermented bananas.  
 Distribution: Ivory Coast, Cameroon, Central Africa, Congo, and Tanzania (new record).  
 Feeding habitat: Evergreen rainforest and second growth vegetation (Lachaise and Tsacas, 1983).  
 Host-plant species: *Guarea cedrata*, *Psidium guajava*, and *Chytranthus* sp. (Lachaise and Tsacas, 1983).

#### Genus *Zaprionus* Coquillett

*Zaprionus* Coquillett, 1901. *Proc. U.S. Nat. Mus.* 24: 31 (Type species: *vittiger* Coquillett, by original designation).

This is one of the drosophilid genera which have silvery or chalky white longitudinal stripes on the frons and mesoscutum, with 31 described species recorded from Afrotropical, Oriental, and Australian regions.

7. *Zaprionus vittiger* Coquillett, 1901. *Proc. U.S. Nat. Mus.* 24: 31.  
 Specimens examined: Two females, Jan. 8, 1984, on fermented bananas.  
 Distribution: Widespread in Afrotropical region including Ivory Coast, Uganda, and Tanzania (new record).  
 Feeding habitat: Plantation, second growth vegetation, savannah, and forest gallery of temporary tributaries (Lachaise and Tsacas, 1983).  
 Host-plant species: Papaya, orange, banana, and coffee (Burla, 1954).
8. *Zaprionus collarti* Tsacas, 1980. nom. n., *inermis* Séguy, 1938. *Mém. Mus. Nat. Hist. Natur.*, N.S. 8: 343 (Type unknown; Madagascar). Syn., In: *Catalogue of Diptera of the Afrotropical Region*. R. W. Crosskey (ed.), British Museum. p. 684.  
 Specimen examined: One male, Jan. 8, 1984, on fermented bananas.  
 Distribution: Widespread in Afrotropical region including Ivory Coast, Benin, Nigeria, Cameroon, Central Africa, Gabon, Congo, Zaire, Tanzania (new record), Zimbabwe (Rhodesia), and Madagascar.  
 Feeding habitat: Botanical garden, plantation, second growth vegetation, evergreen

rainforest, semi-deciduous riparian forest gallery, secondary forest, non-characterized forest, and forest/savannah mosaic (Lachaise and Tsacas, 1983).

Host-plant species: *Mangifera indica*, *Spondias dulcis*, *Annona* sp., *Polyalthia suaveolens*, *Rollinia sieberi*, *Landolphia dulcis*, *Rauvolfia* sp., *Crescentia cujete*, *Ananas comosus*, *Dacryodes* sp., *Detarium senegalense*, *Carica papaya*, *Uapaca* sp., *Pentadesma butyracea*, *Persea americana*, *Hugonia* sp., *Turraeanthus africanus*, *Bellutia* sp., *Artocarpus communis*, *Dorstenia* sp., *Ficus* sp., *Treculia africana*, *Coffea canephora*, *Citrus sinensis*, etc. (Lachaise and Tsacas, 1983).

## DISCUSSION

The eight species of drosophilid flies reported in the present study consist of one circum-tropical species (*Drosophila ananassae*) and seven Afrotropical species (*D. nasuta*, *D. dibi*, *D. burlai*, *D. bocqueti*, *D. tsacasi*, *Zaprionus vittiger*, and *Z. collarti*), all of which are new records from Tanzania. The distribution patterns of respective species known so far suggest some affinities in the drosophilid fauna between the Mahale Mountains and central and western Africa. It is difficult, however, to know accurately the biogeographical position of the drosophilid fauna of Mahale at this stage of knowledge, because the Mahale samples are still incomplete and East African drosophilid flies have not been systematically studied yet.

Sampling method clearly affects the species composition obtained. Seven species were seen on fermented bananas (Jan. 8, 1984), while only one or two species were collected on garbage (Dec. 11, 1983 and Feb. 5, 1984). Moreover, females were represented only in two species of the present material. Further collection in the Mahale Mountains is necessary. Sampling in forest, especially high up in the canopy and along the stream, and in other different types of vegetation would provide more fruitful information.

**ACKNOWLEDGEMENTS** This report is a by-product of the research on wild chimpanzees supported by the 1983 Grant-in-Aid for Overseas Scientific Research (No. 58041025 to Dr. T. Nishida: The University of Tokyo) under the Ministry of Education, Science, and Culture, Japan. The Tanzania National Scientific Research Council and Serengeti Wildlife Research Institute permitted the junior author to work in the Mahale Mountains. Dr. T. Nishida provided the junior author with the opportunity to work in the Mahale Mountains. The staff at the Mahale Mountains Wildlife Research Centre, especially Mr. E. Tarimo and Dr. and Mrs. Y. Takahata, facilitated the junior author's research. Mr. H. Takasaki kindly commented on an earlier version of this paper. The preparation of this paper was financed in part by a 1986-Research Grant from Sapporo University to the junior author. To these people and institutions, we make grateful acknowledgement.

## REFERENCES

- Bächli, G. 1971. *Leucophenga* und *Paraleucophenga* (Diptera Brachycera) Fam. Drosophilidae. *Exploration du Parc National de l'Upemba*, Bruxelles, Fascicule 71: 7-192.
- Burla, H. 1954. Zur Kenntnis der Drosophiliden der Elfenbeinküste (Französisch West Africa). *Rev. Suisse Zool.* 61 (Suppl.): 1-128.
- Lachaise, D. and L. Tsacas 1983. Breeding sites in tropical African drosophilids. In (M. Ashburner, H. L. Carson and J. N. Thompson, eds.) *Genetics and Biology of Drosophila*, Vol. 3d, pp. 221-324, Academic Press, New York and London.
- Nishida, T. 1972. A note on the ecology of the red-colobus monkeys (*Colobus badius tephrosceles*) living in the Mahale Mountains. *Primates* 13: 57-64.
- and S. Uehara 1981. Kitongwe names of plants: A preliminary listing. *Afr. Stud. Monogr.* 1: 108-131.

- Tsacas, L., D. Lachaise and J. R. David 1981. Composition and biogeography of the Afrotropical drosophilid fauna. In (M. Ashburner, H. L. Carson and J. N. Thompson, eds.) *Genetics and Biology of Drosophila*, Vol. 3a, pp. 197-259, Academic Press, New York and London.
- Uehara, S. 1982. Seasonal changes in the techniques employed by wild chimpanzees in the Mahale Mountains, Tanzania, to feed on termites (*Pseudacanthotermes spiniger*). *Folia Primatol.* 37: 44-76.

—Received January 18, 1986

Authors' Names and Address: Haruo TAKADA and Shigeo UEHARA, *Faculty of General Education, Sapporo University, 3-1, 3-7, Nishioka, Toyohira-ku, Sapporo, Hokkaido 062, Japan.*