

Reprinted from

FAUNA AND FLORA OF NEPAL HIMALAYA

Scientific Results of the Japanese Expeditions to Nepal Himalaya

1952—1953

Vol. I.

Drosophila

Toyohi OKADA

Edited by

H. KIHARA

FAUNA AND FLORA RESEARCH SOCIETY
KYOTO UNIVERSITY, KYOTO, JAPAN

Drosophila

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An opportunity was given the author to examine many drosophilid flies collected in fruit-traps in Nepal by Mr. Sasuke Nakao of Naniwa University in 1953. The author received the specimens two or three weeks after the collection and found them still alive, even raising offsprings, in glass bottles containing fragments of fruits. The specimens are composed of six species of the genus *Drosophila*: three are cosmopolitans, two are widely distributed in the Oriental regions, and the remaining one is a new species, probably endemic to Nepal and the adjacent countries.

The collection data cited from Nakao's records are as follows:

Kakani: Aug. 12, 1953. 2000 m in alt. On fallen pear fruits in a forest of ever-green broad-leaved trees, dominated by oak, on a mountain-ridge about 20 m away from a house.

Patan: Aug. 17, 1953. 1300 m in alt. On pear fruits in a fruit shop in front of a cathedral.

Katmandu: Aug. 18, 1953. 1300 m in alt. On banana fruits in an upstairs room of a mansion.

Some accounts with respects to the separate species are given below.

✓ *Drosophila bipectinata* Duda, 1923

Ann. Mus. Nat. Hung., 20: 52.

Habitats: Several males and females in Patan and Katmandu. Nakao leg.

Distribution: Nepal (new record), East India, Formosa, Ishigakijima.

✓ *Drosophila kikkawai* Burla, 1954¹⁾

Rev. Brasil. Biol. 14: 47.

Habitats: Many males and females in Kakani and Katmandu. Nakao leg.

Distribution: Nepal (new record), India, Java?, Formosa, China, Japan, Saipan, Samoa?, South America.

✓ *Drosophila melanogaster* Meigen, 1830

Syst. Besch., 6: 85.

Habitats: A few males and females in Kakani and Patan. Nakao leg.

Distribution: Cosmopolitan.

1) Identical with *D. montium* of other authors (nec de Meijere, 1916 Tijd. Entom. 59: 205). Metaphase plate in meiosis shows 3 pairs of V-chromosomes and one pair of rods. Thus the present strain belongs to the race A. (Determined by H. Kurokawa; Kikkawa, H. 1936. Japan. Journ. Genet. 12: 137.).

✓ *Drosophila takahashii* Sturtevant, 1927 (Figs. 7, 10)

Philip. Journ. Sci., 32: 371.

Habitats: Many males and females in Kakani, Patan and Katmandu. Nakao leg.

Distribution: Nepal (new record), China, Formosa, Manchuria, Okinawa (new record), Japan (new record).

Remarks: The author collected several males of this species in Sagawa and Susaki, Kochi Pref., Shikoku, Japan, Nov. 5, 1953, and he also found several specimens of the same species in the materials collected by Mr. M. Jinnouchi in Okinawa, May 10, 1951. As indicated by Kikkawa and Peng (1938)¹⁾, this species closely resembles *D. lutea* Kikkawa and Peng, which is endemic to Japan, and according to them the latter species differs from the former in having a small blackish spot in a groove at the base of fore coxa. The present author²⁾ recognized further conspicuous differences in their phallic organs (Figs. 6, 7, 9, 10).

✓ *Drosophila nepalensis*, sp. nov. (Figs. 1-5, 8)

Drosophila sp. from Kakani, Nepal, Okada 1954, Kontyû, 22: 38.

Male: Body yellowish brown, about 2.5 mm in length. Characteristic in having a large black patch on an apex of a wing (Fig. 1). Eyes comparatively large, deep red and covered with reddish piles. The third antennal joint dark and broad. Palpus with only one prominent apical bristle. Front yellowish gray, about half as broad as head, having a few minute frontal hairs. Carina dark, short, narrow and wider below. Cheek about 1/6 as broad as the diameter of eye. Second orbital 1/3 length of proclinate. Clypeus dark. Second oral weak, half the length of vibrissa. Mesonotum and scutellum yellowish brown, somewhat glossy. Thoracic pleuron dark brown. Humerals 2, in equal size. Acrostichals in 8 rows. Length-distance of dorsocentrals about half the crossdistance. Anterior scutellar convergent. Sterno-index 0.6. Legs yellowish gray. Each of proximal two tarsal joints of fore leg has 2 or 3 transverse sex-combs of 1-4 black teeth (Fig. 2). Fore metatarsus as long as the succeeding two tarsal joints taken together. Preapicals on all tibiae. Apicals on fore and middle tibiae. Wing (Fig. 1) hyaline, with a large black apical patch which extends from the tip of cell R_1 to r_{4+5} . Costa reaching the tip of r_{4+5} . The first costal section apically with two prominent bristles of equal lengths. The third costal section has heavy bristles on its basal 2/5. C-index about 2.4; 4V-index about 2.3; 4C-index about 1.3; 5X-index about 2.2. Haltere yellowish gray. Abdomen yellowish brown, each tergite with narrow uninterrupted black

1) Kikkawa H. & F.T. Peng. 1938. Japan. Journ. of Zool., 7: 534.

2) Okada, T. 1954. Kontyû, 22: 38.

band on caudal margin. Posterior tergites largely black. Abdominal sternum pale gray.

Periphallalic organs (Fig. 3) mainly black. Genital arch (g) strongly sinuated at the proximal margin; ventral end abruptly narrowing to form finger-like projection, with about 25 hairs; caudal margin with about 5 upper and 10 lower hairs. Anal lobe (an) small, slightly narrowing in the middle, having about 35 hairs. Primary clasper (c) triangular, having about 10 black primary teeth arranged in a slightly convex row along its ventral margin, about 3-6 black secondary teeth arranged in a straight line along its dorsal margin, and with about 10 minute discal hairs. Decasternum, or ventral isthmus of claspers (d), with broad and truncate median piece. No secondary clasper. Phallic organs (Fig. 4) dark reddish brown. Aedeagus (a) slightly pointed at tip. Anterior paramere (ap) black, abruptly narrowing at tip with a few apical sensilla. Posterior paramere (pp) with a long dorsal branch of blackish color (r) which is serrate on a lateral side along its entire length. Between this branch (r) and the main lobe (pp), there is a minute basal conical process (o) which looks like a pine-cone. Ventral fragma (f) nearly quadrate, narrowing anteriorly. Novasternum (n) pubescent with a pair of long submedian spines (sp). Basal apodeme (b) of aedeagus elongate, strongly dilated apically, and 1.5 times as long as aedeagus. Phallosomal index (PI)¹⁾, which is a ratio of the length of aedeagus to that of apodeme, is about 0.7.

Posterior Malpighian tubules ending free; posterior common duct somewhat shorter than the anterior one. Testis pale cream yellow, with about 2 inner and 3.5 outer coils. Accessory glands elongate and twice folded. Ejaculatory duct proximally much dilated.

Relationships: Belongs to the subgroup²⁾ *takahashii* of the species-group *melanogaster* of the subgenus *Sophophora*. Distinctly differs from *D. takahashii* Sturtevant and *D. lutea* Kikkawa & Peng, which are all members hitherto known of the subgroup, in the wing being much rounded and having a large black apical patch; in the latter two species the wings are much narrower and without such black patches. The decasternum is broad and truncate in the present species (Fig. 5), narrow and pointed in *D. takahashii* (Fig. 7), and intermediate—narrow and truncate—in *D. lutea* (Fig. 6). The basal branch of the posterior paramere is long, tapering, and serrates along entire length of a lateral margin in the present species (Fig. 8, r); long, but apically blunt and serrate around the distal portion in *D. lutea* (Fig. 9, r); while in *D. takahashii* it is very short like a conical process (Fig. 10, r) and the true conical process (o) seems to be reduced to a single cone.

1) Okada, T. 1953. Zool. Mag. 62: 278.

2) Hsu, T. C. 1949. Univ. Texas Publ. 4920: 122.

Posterior common duct of Malpighian tubules is shorter than the anterior one in the present species, while subequal to the latter in the other two species.

Holotype: Male, Kakani, Nepal, Aug. 12, 1953; collected by Nakao; deposited in the National Science Museum, Tokyo.

Paratopotypes: 2 males, collected together with the holotype; deposited in the Department of Biology, Tokyo Metropolitan University.

Distribution: Nepal.

✓ *Drosophila immigrans* Sturtevant, 1921

Carn. Inst. Wash. Publ., 301: 83.

Habitats: Many males and females in Kakani and Patan.

Distribution: Cosmopolitan.

The author wishes to thank Dr. D. Moriwaki of Tokyo Metropolitan University and Dr. H. Kikkawa of Osaka University for their valuable advises in carrying out the present work. His heartfelt thanks are also due to Mr. S. Nakao of Naniwa University, who was generous enough in giving him the opportunity to investigate the materials.

Explanation of Plate

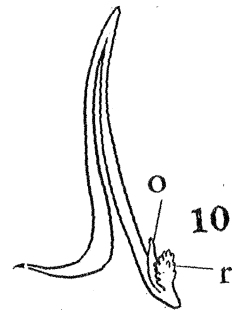
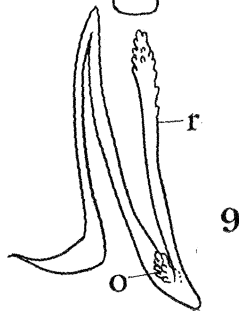
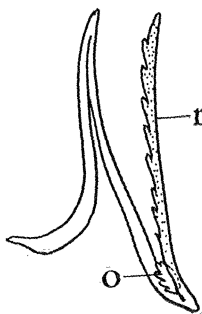
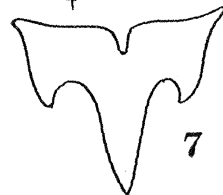
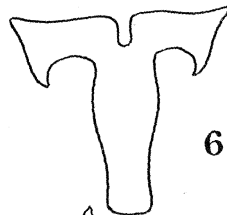
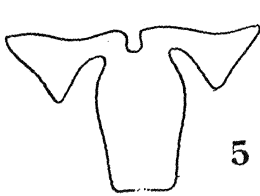
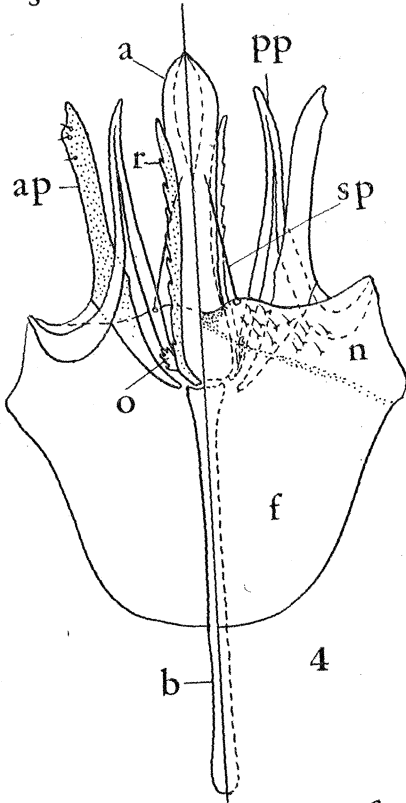
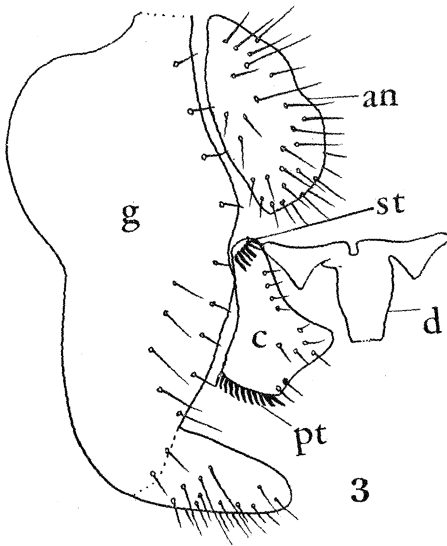
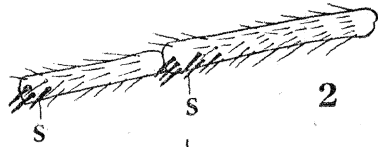
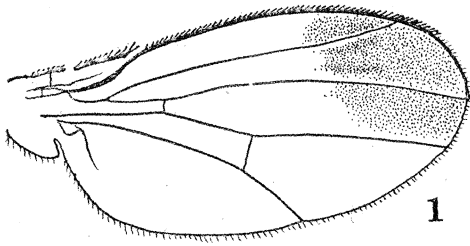
Figs. 1-4. *Drosophila nepalensis*, male. Fig. 1. Wing; Fig. 2. Proximal two tarsal joints of a fore-leg; Fig. 3. Periphallic organs; Fig. 4. Phallic organs: left half dorsal and right half ventral aspects.

Figs. 5-7. Decasternum of male periphallic organs. Fig. 5. *D. nepalensis*; Fig. 6. *D. lutea*; Fig. 7. *D. takahashii*.

Figs. 8-10. Posterior paramere of male phallic organs, dorsal aspects.; Fig. 8. *D. nepalensis*; Fig. 9. *D. lutea*; Fig. 10. *D. takahashii*.

a. aedeagus, an. anal lobe (novatergum), ap. anterior paramere, b. basal apodeme of aedeagus, c. primary clasper, d. decasternum, f. ventral fragma, g. genital arch (octatergum), n. novasternum, o. basal conical process of novasternum, pp. posterior paramere, pt. primary teeth, r. basal branch of posterior paramere, s. sex combs, sp. submedian spine of novasternum, st. secondary teeth.

post paramere?



rep

distal

late

pre-distal