

✓ A *Drosophila* Survey of  
Iriomote Island, Okinawa, Japan

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Reprinted from the Journal of the Faculty  
of General Education, Sapporo University  
No. 19:27-35.

Sapporo, Japan  
September, 1981

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# A *Drosophila* Survey of Iriomote Island, Okinawa, Japan<sup>1)</sup>

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During from October 1 to October 7, 1980, the junior author had an opportunity to make drosophilid flies collection in Nakama-river, Iriomote Is., Okinawa, Japan.

A total of 1280 specimens were collected by yeasted banana baits of the Makino's Retainer Traps(Fig. 1 & 2,A). And they represent three genera and fourteen species, including one new species. A new bait trap which can retain trapped flies for several days. The designs were modified the Toda's Retainer trap(Toda, 1977, D.I.S.52).

## **Drosophilidae of Iriomote Island**

Genus *Liodrosophila* Duda

1. *Liodrosophila globosa* Okada, 1965.

*Liodrosophila globosa* Okada, 1965, Iriomote, Kontyû 33 : 334-335.

Specimens examined : Nakama-river, Iriomote. Oct. 1-7, 1980 : 6 males and 15 females (Makino).

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- 1) This work was supported in part by a grant from the Scientific Research Fund of the Ministry of Education, Japan, 1980.
  - 2) Present address : Sapporo Hachijo Junior High School.

**Genus *Drosophila* Fallén**  
**Subgenus *Sophophora* Sturtevant**

2. *Drosophila bipectinata* Duda, 1923.  
*Drosophila bipectinata* Duda, 1923. Ann. Mus. nat. Hung. 20 : 52.  
Kikkawa & Peng, 1938. Ishigaki, Jap. J. Zool. 7 : 520. Okada,  
1965. Ishigaki, Okinawa, kontyû 33 : 347. Takada & Wakahama,  
1967. 1967. Izumi, Okinawa Main Is., Annot. Zool. Japon. 40 : 58.  
Specimens examined : Iriomote, Oct. 1-7, 1980 ; 215 males and 321  
females (Makino).
3. *Drosophila lacteicornis* Okada, 1965.  
*Drosophila lacteicornis* Okada, 1965. Iriomote, Ishigaki and  
Okinawa Main Is., Kontyû 33 : 347-349. Takada & Wakahama,  
1967. Izumi, Annot. Zool. Japon. 40 : 58. Okada, 1968. Ishigaki and  
Iriomote, Kontyû 36 : 338.  
Specimens examined : Nakama-river, Oct. 1-7, 1980 ; 45 males and  
43 females (Makino).
4. *Drosophila takahashii* Sturtevant, 1927.  
*Drosophila takahashii* Sturtevant, 1927. Philip. J. Sci. 32 : 371.  
Okada, 1965. Iriomote, Kontyû 33 : 346. Takada & Wakahama,  
1967. Izumi, Annot. Zool. Japon. 40 : 58.  
Specimens examined : Iriomote, Oct. 1-7, 1980 ; 37 males and 32  
females (Makino).
5. *Drosophila ficusphila* Kikkawa & Peng, 1938.  
*Drosophila ficusphila* Kikkawa & Peng, 1938. Jap. J. Zool. 7 : 531-  
532. Okada, 1965. Izumi, Kontyû 33 : 347. Takada & Wakahama,  
1967. Izumi, Annot. Zool. Japon. 40 : 58.  
Specimens examined : Iriomote, Oct. 1-7, 1980 ; 18 males and 24

females (Makino).

6. *Drosophila ananassae* Doleschall, 1858.

*Drosophila ananassae* Doleschall, 1858. Nat. Tijd. Ned. Ind. 17 : 128.  
Kikkawa & Peng, 1938. Naha, Okinawa Main Is. and Ishigaki, Jap.  
J. Zool. 7 : 520.

Specimens examined : Iriomote, Oct. 1-7, 1980 ; 16 males and 8  
females (Makino).

### Subgenus *Scaptodrosophila* Duda

7. *Drosophila brunnea* de Meijere, 1911.

*Drosophila brunnea* de Meijere, 1911. Tijd. Ent. 54 : 401. Okada.  
Iriomote, Kontyû 36 : 336.

Specimens examined : Nakama-river, Iriomote, Oct. 1-7, 1980 ; 3  
males and 4 females (Makino).

8. *Drosophila dorsocentralis* Okada, 1965.

*Drosophila dorsocentralis* Okada, 1965. Kontyû 33 : 343. Takada &  
Wakahama, 1967, Yona, Okinawa Main Is. ; Annot. Zool. Japon. 40 :  
60.

Specimens examined : Iriomote, Oct. 1-7, 1980 ; 12 males and 7  
females (Makino).

9. *Drosophila bryani* Malloch, 1934.

*Drosophila bryani* Malloch, 1934. Insect of Samoa, 6 (8) : 310.  
Okada, 1965, Yona, Ishigaki, Kontyû 33 : 342.

Specimens examined : Nakama-river, Iriomote, Oct. 1-7, 1980 ; 3  
males (Makino).

**Subgenus *Drosophila* Fallén**

- ✓ 10. *Drosophila albomicans* Duda, 1924.  
*Drosophila albomicans* Duda, 1924. Archiv Naturgesch. A, 90 : 209.  
*Drosophila nasuta* Lamb, 1914. Okada, 1965, Iriomote, Kontyû 33 : 349. Takada & Wakahama, 1967, Izumi, Annot, Zool. Japon. 40 : 59.  
Specimens examined : Iriomote, Oct. 1-7, 1980, 126 males and 96 females (Makino).
- ✓ 11. *Drosophila unispina* Okada, 1956.  
*Drosophila unispina* Okada, 1956. Systematic study of Drosophilidae and allied families of Japan. Gihodo Co. : 129-131.  
Specimens examined : Iriomote, Oct. 1-7, 1980, 15 males and 8 females, new record (Makino).
- ✓ 12. *Drosophila daruma* Okada, 1956.  
*Drosophila daruma* Okada, 1956. Systematic study of Drosophilidae and allied families of Japan. Gihodo Co. : 155-159. Okada, 1968, Iriomote, Kontyû 36 : 338.  
Specimens examined : Iriomote, Oct. 1-7, 1980, 27 males and 18 females (Makino).
- ✓ 13. *Drosophila quadrilineata* de Meijere, 1911.  
*Drosophila quadrilineata* de Meijere, 1911, Tijdschr. Ent. 54 : 396.  
*D. (Chaetodrosophilella) quadrilineata* de Meijere, Okada, 1968, Komi, Iriomote, Kontyû 36 : 339.  
Specimens examined : Iriomote, Oct. 1-7, 1980, 48 males and 62 females (Makino).

Genus *Phorticella* Duda

14. *Phorticella carinata* Takada sp. nov. (Fig. 2 B,C ; 3) = *P. flavipennis*  
Japanese name : Shirosuji-shojobae. (Duda) 1923

Male & female : Body about 3.0 mm, wings about 3.2 mm in length. Arista with five upper and four lower branches including a terminal fork. Periorbits silvery white, forming white stripes which extended over the outer surfaces of second antennal segments. Front yellowish red. Face greyish yellow. *Carina large and high*, greyish yellow. Cheeks yellow ; their greatest width  $1/8$  greatest diameter of eye. Middle orbital nearly  $4/7$  anterior and  $4/9$  posterior. Only one prominent oral bristle. Ocellar triangle with about eight fine hairs, ocellar bristles long.

black

Mesonotum reddish brown, four white longitudinal stripes, two on each side as follows ; one just outside dorsocentrals row continuous to orbital stripes and less prominent one just above the notopleural suture bordered by white stripes. Scutellum reddish brown with two lateral white stripes continuous to dorsocentral stripes. Acrostichal hairs in six rows ; prescutellars present, four bristles. Sterno-index about 0.8.

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Legs yellow, no femoral tubercles. Fore legs with golden hairs of tibial transverse rows at inner side. Tibiae of middle legs with three apically hooked scaly bristles on the mid-dorsal line.

Wings clear, veins brown and *cross-veins clouded* ; costal index about 1.7 ; 4V-index about 1.6 ; 4C-index about 1.3 ; 5x-index about 2.0 ; AC-index about 3.3 and C3-fringe ratio  $4/5$ . C-1 bristle only one.

Abdominal tergites brownish yellow, each <sup>2</sup>hairs and bristles arising from a dark brown spot.

Periphallalic organs : Epandrium with about ten bristles on middle portion, seven on upper portion ; heel present ; under margin undulate ; toe high, roundish with about four short bristles on lower portion. Cercus large and oval, fusion at middle of epandrium ; tip present, with about ten short spines. Surstylus one, primary teeth about ten, occupying the lower  $2/3$  of outer margin, the first tooth about twice as long as last one ; secondary teeth about four. Lower portion of cercus bare.

Phallic organs : Aedeagus banana shaped, bifid at apically. Anterior paramere nearly as long as lateral arm of hypandrium, apically with four long sensilla. Hypandrium broader than long, with a median notch and two lateral notches ; Novasternum with two long submedian spines of the tips of each lateral arms.

Spermatheca : Yellowish brown, bell-shaped, slender and with small warts chitinized at upper  $1/3$ .

Egg-guide : Lobe sclerotized, broad and truncate at tip, with about thirteen marginal teeth including posterior black three teeth, ultimate one yellow and isolated from the succeeding black one.

Holotype : Male, Nakama-river, Iriomote Is., Okinawa, Japan ; Oct. 5-6, 1980 (Makino).

Allotype : Female, collected together with holotype.

Habitat : A side of mountain stream and a canopy of tree (*Castanopsis cuspidata* var. *sieboldii* Nakai), about ten meters high by the Makino's Retainer trap. Temperature was 24°C.

Distribution : Okinawa, Japan.

Relationships : Closely allied to *Phorticella bakeri* (Sturtevant), 1927, in having two silvery white longitudinal stripes from second antennal segments through periorbits to the outer edges of scutellum but differs in having high carina and cross-veins were clouded (carina low

and cross-veins clear in *P. bakeri*).

Two type specimens are being placed in the collection of the Biological Laboratory, Sapporo University, Sapporo, Japan.

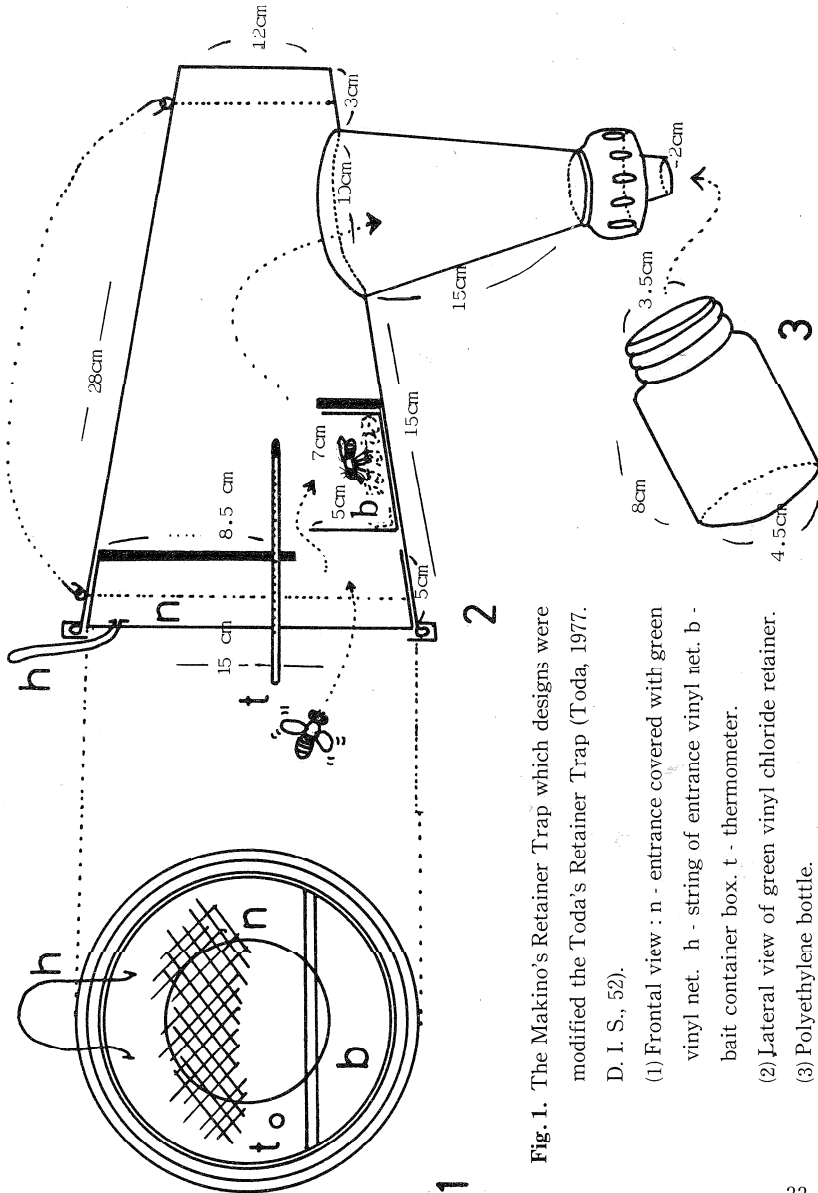


Fig. 1. The Makino's Retainer Trap which designs were modified the Toda's Retainer Trap (Toda, 1977. D. I. S., 52).

- (1) Frontal view : n - entrance covered with green vinyl net. h - string of entrance vinyl net. b - bait container box. t - thermomometer.
- (2) Lateral view of green vinyl chloride retainer.
- (3) Polyethylene bottle.



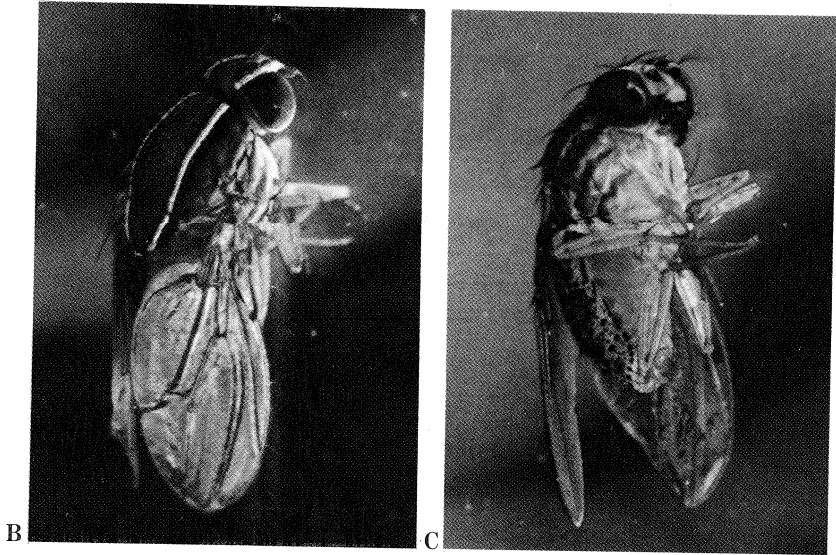
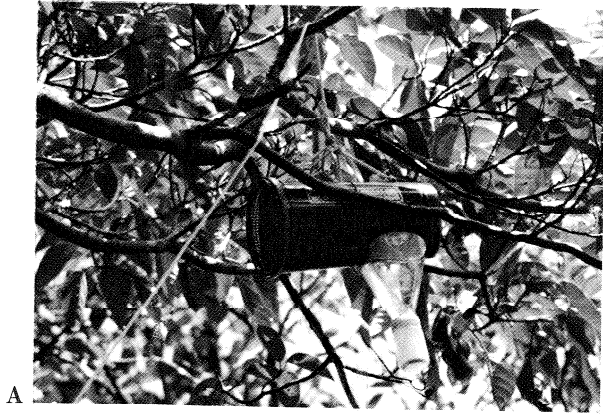


Fig. 2. A. Collecting spot of a canopy of tree by the Makino's Retainer Trap, about 10 m. high.

B & C. Dry male specimen of *Phorticella carinata* Takada n. sp.

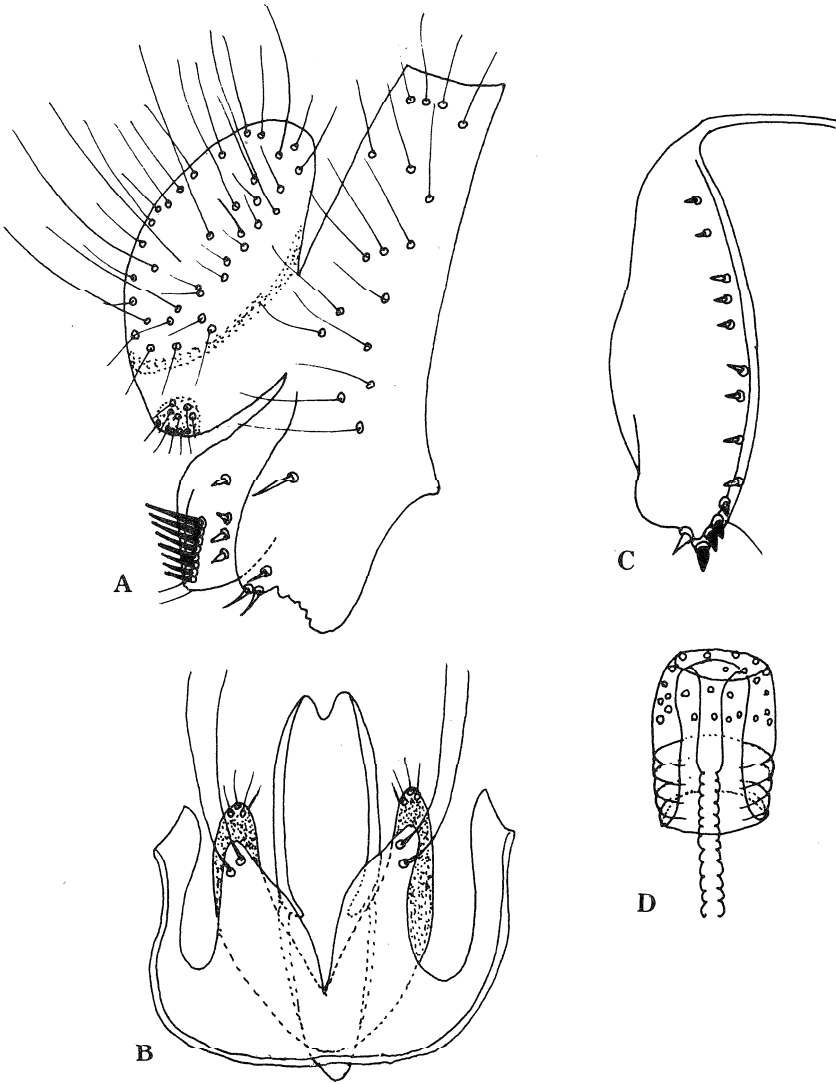


Fig. 3. *Phorticella carinata* Takada n. sp.

- A. Periphallial organs of male (ventral aspect).
- B. Phallic organs of male (ventral aspect).
- C. Egg-guide of female (lateral aspect).
- D. Spermatheca of female.