

The Nymph of *Isonychia formosana* (Ulmer, 1912)  
(Ephemeroptera: Oligoneuriidae)

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摘要

康世昌·楊仲圖 *Isonychia formosana* (Ulmer, 1912)的稚蟲(蜉蝣目:寡脈蜉科) 臺灣  
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本文為*Isonychia formosana* (Ulmer, 1912)的稚蟲首次描述。

關鍵詞: 寡脈蜉科, *Isonychia formosana*, 稚蟲, 臺灣。

Abstract

This paper is the first description of the nymph of *Isonychia formosana* (Ulmer, 1912).

**Key words:** Oligoneuriidae, *Isonychia formosana*, nymph, Taiwan.

The only one Taiwanese representative of the family Oligoneuridae is *Isonychia formosana* (Ulmer, 1912) which was described on the imaginal specimens, the nymph remained unknown. Many nymphal specimens of this species were obtained in our collection from the southern and northern parts of Taiwan. Their nymphal characteristics have been described herein.

*Isonychia formosana* (Ulmer)

*Chironetes formosana* Ulmer, 1912. Entomol. Mitt. Zool. Stinst. Zool. Mus. Hamburg, 1(12): 369-375.

*Isonychia formosana* Uéno, 1931. Trans. Nat. Hist. Soc. Formosa, 21: 210-216; Imanishi, 1933, Ins. Mats., 8(2): 64-69.

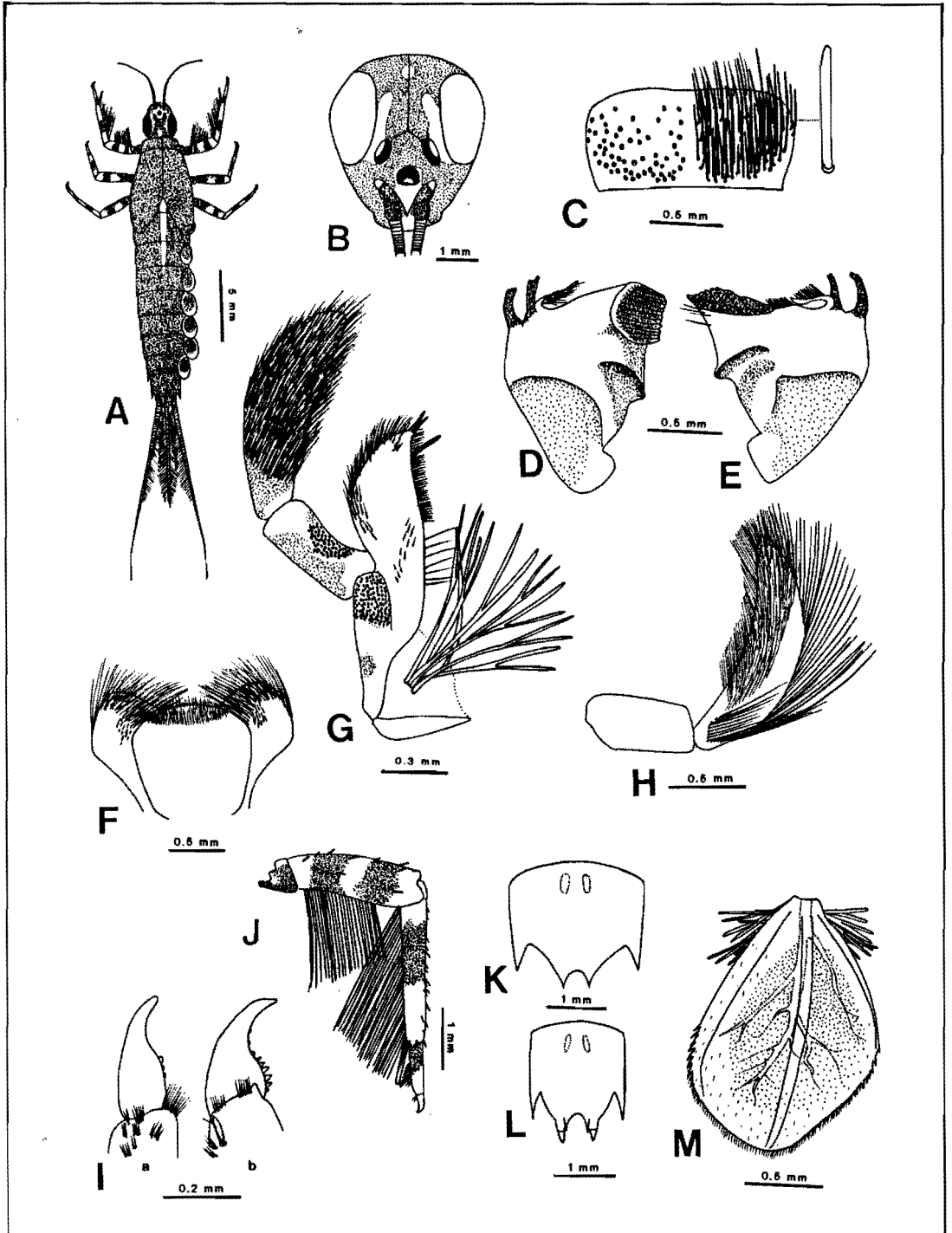
Mature nymphs:

Body length, female 18.3-21.1 mm, male 14.2-17.4 mm; cerci length of female 11.4-

12.3 mm. general color dark brown, somewhat red.

**Head:** brown, vertex with a round paler marking medially; with a pair of pale markings at inner sides of eyes; antennae close at base; with a pale acute frontal ridge below median ocellus (Fig. B). **Labrum:** anterior margin slightly concave; dorsum with large, long clavate setae except for middle line, apical half with closely set long fine setae (Fig. C). **Hypopharynx:** lingua subquadrate, anterior margin convex, apical 1/4 of venter with closely set fine setae; superlinguae short, apical 1/3 of venter with closely set long fine setae (Fig. F). **Mandibles:** (Figs. D, E) outer and inner incisors of left mandible triforked; outer incisor of right mandible triforked, inner incisor biforked; prosthecae flex strongly. **Maxillae:** (Fig. G) with 2 acute processes on apex and with a long process on mesal margin near apex; mesal margin fringes with acute setae; base with several long fine setae on mesal margin; lateral margin and median area

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Figs. A—M. Nymph of *Isonychia formosana* (Ulmer). A. female nymph; B. head, anterior view; C. labrum, dorsal; D. left mandible; E. right mandible; F. hypopharynx, ventral; G. right maxilla, dorsal; H. labial palpus, ventral; I. claw, (a. fore leg; b. middle leg); J. left fore leg, dorsal; K. sternum IX, female; L. sternum IX, male; M. gill VII.

with closely set long fine setae; maxillary palpus 2 segments; segment II very large, dorsum with long acute setae, venter with closely set long fine setae; near maxillae with a tuft of fibrilliform gills. **Labium:** glossa and paraglossa oval, with closely set long fine setae; labial palpus 2 segments, segment I without any setae but with numerous pores; segment II lunate, with extremely long fine setae on lateral margin and with closely set long fine setae on mesal half (Fig. H).

**Thorax:** uniform brown; sterna with 2 tufts of fibrilliform gills near coxae of fore legs. **Fore leg:** (Fig. J) trochanter uniform dark brown, without any setae; femur pale, with 2 broad brown markings, with several large acute setae on median and near posterior margin, with 2 rows of extreme long setae on anterior margin; tibia slightly longer than femur, with a dark brown band medially, with 2 rows of extremely long setae on mesal margin; tip of tibia with large spurs, about 2/3 as long as fore tarsus; tarsus dark brown on apical half, with a row of long fine setae on mesal margin; claw with 3–4 blunt denticles (Fig. 1a). **Middle and Hind leg:** same as in fore leg but without extreme long setae and without large spurs on tip of tibia, number of denticles of claws more than in fore leg and distinct (Fig. 1b), distal of tibia with a blunt process; central area of hind femur without any distinct setae.

**Abdomen:** uniform brown, somewhat red; tergites I–IV with a distinct stripe medially (Fig. A); tergites II–X with a pair of vague, oblique stripes medially; posterolateral projections on anterior segments of abdomen blunt and small, acute on segments VIII and IX, largest on segment IX; posterior margin of sternum IX of female with 2 acute processes (Fig. K), male with a pair of large blunt processes and a pair small acute processes posteromedially (Fig. L). **Gills:** gills I and II small, oval; gills III–VII oval, subequal in size; gills thick on middle line and lateral margins, darkish color in middle, tracheas bright, apical margin with spines and fringe with short fine setae (Fig. M). **Caudal filaments:** terminal filament slightly shorter than 1/2 length of

cerci; distal segments of cerci darkish; basal 3/4 of mesal margins of cerci and the whole of lateral margins of terminal filament fringe with long fine setae (Fig. A); cerci with whorls of acute spines and setae on each articulation.

#### Mature nymphal specimens examined:

1♀, Fushan, Yuanshan, Ilan Hsien, (480 m), 18-XI-1990, S. C. Kang & H. C. Chang; 2♂♂, 1♀, Pingsi, Shuangchi, Taipei Hsien, 31-V-1991, S. C. Kang & H. C. Chang; 4♂♂ (1 mature, 3 young instar), 8♀♀ (2 mature, 6 young instar), middle of Kuolai to Kanchiao, Pinglin, Taipei Hsien, (365 m), 30-III-1992, S. C. Kang; 2♂♂, 3♀♀, Shuicheliao, Sanhsia, Taipei Hsien, (420 m), 31-III-1992, S. C. Kang.

#### Distribution:

Taiwan.

#### Note:

The nymphs of this species live in a rapid current. When an emergency arises, they scramble up a large rock from the water and leave their ecdysis on the rocky surface.

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