

THE NYMPHS OF ITALIAN SPECIES OF THE
ECDYONURUS LATERALIS GROUP, WITH A DESCRIPTION
OF THE NYMPH OF *E. GRIDELLII* (GRANDI, 1953)
(Ephemeroptera, Heptageniidae)

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The Italian species of the *Ecdyonurus lateralis* group were recently reviewed (Belfiore, 1981), with special account to adult stages: in that paper I named *E. grandiae* n. sp. the species recognized as *Heptagenia lateralis* by Grandi (1953; 1960), and I synonymized *Heptagenia concii* Grandi, 1953 with *Ecdyonurus lateralis* (Curtis, 1834). I shortly discussed also some taxonomic characters of the nymphs of *E. lateralis* and *E. grandiae*, and of a male imago of *E. gridellii* (Grandi, 1953); the nymph of the latter species was till now unknown.

During a collection trip in Northern Italy I have collected several nymphs of *Ecdyonurus* near the type-locality of *E. gridellii* (Trieste, Muggia: see Belfiore, 1981) and from some other biotopes of Friuli-Venezia Giulia: by rearing, I obtained some adults easily referable to *E. gridellii*. I take the opportunity of describing now the unknown nymphal stage of this species and of pointing out some morphological characters for a discrimination of the nymphs of all Italian species of the *E. lateralis* group.

Ecdyonurus gridellii (Grandi, 1953)

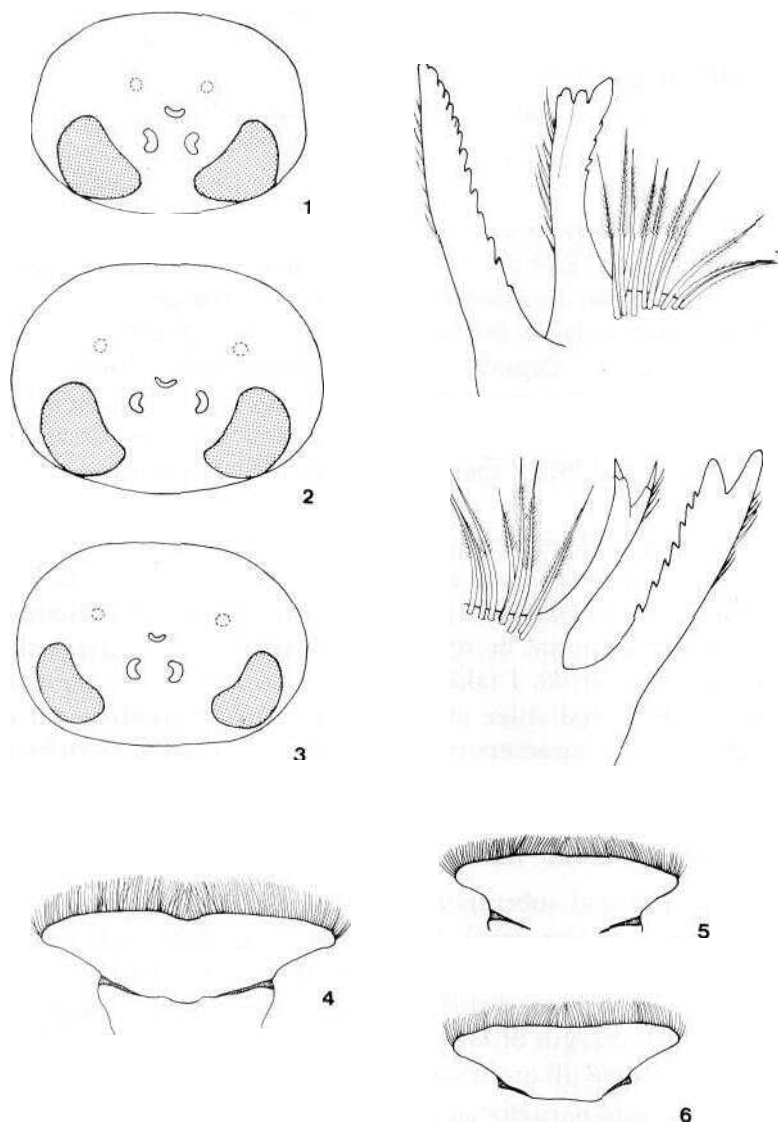
Nymph. Head subtrapezoidal with round angles (fig. 1), maximum width at eyes level. Labrum slender, with well developed lateral projections (fig. 4). Incisors of mandibles as in fig. 7. 14-18 comb-shaped hairs on distal end of maxillae. A dense fringe of long hairs on fore margin of lateral lobes of hypopharynx (fig. 8): some long hairs extend all around the lobes, to lateral and hind margin.

Glossae and paraglossae as in fig. 11.

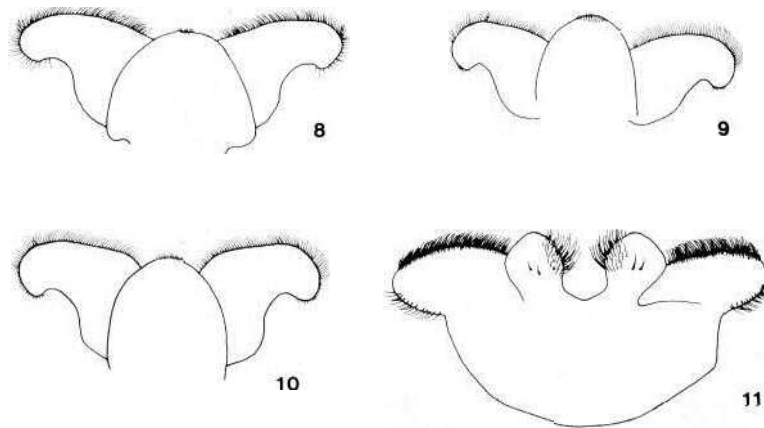
Femora wide and short (figs. 12-14), with sinuous fore margin.

Spines on upper surface of femora narrow and pointed (fig. 24).

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Figgs. 1-7 - Head of nymphs. Fig. 1: *E. gridellii*; Fig. 2: *E. lateralis*; Fig. 3: *E. grandiae*; Fig. 4: *E. gridellii*; Fig. 5: *E. lateralis*; Fig. 6: *E. grandiae*; Fig. 7: Incisors of mandibles of *E. gridellii*.



Figg. 8-11 - Hypopharynx. Fig. 8: *E. gridellii*; Fig. 9: *E. lateralis*; Fig. 10: *E. grandiae*; Fig. 11: Glossae and paraglossae of *E. gridellii*.

Tarsal claws with two well developed teeth (fig. 21). Markings on legs: four dark stripes on femora, as in other species of the group, a dark band on the middle of tibiae, tarsia darker at apex, in some specimens at basis too.

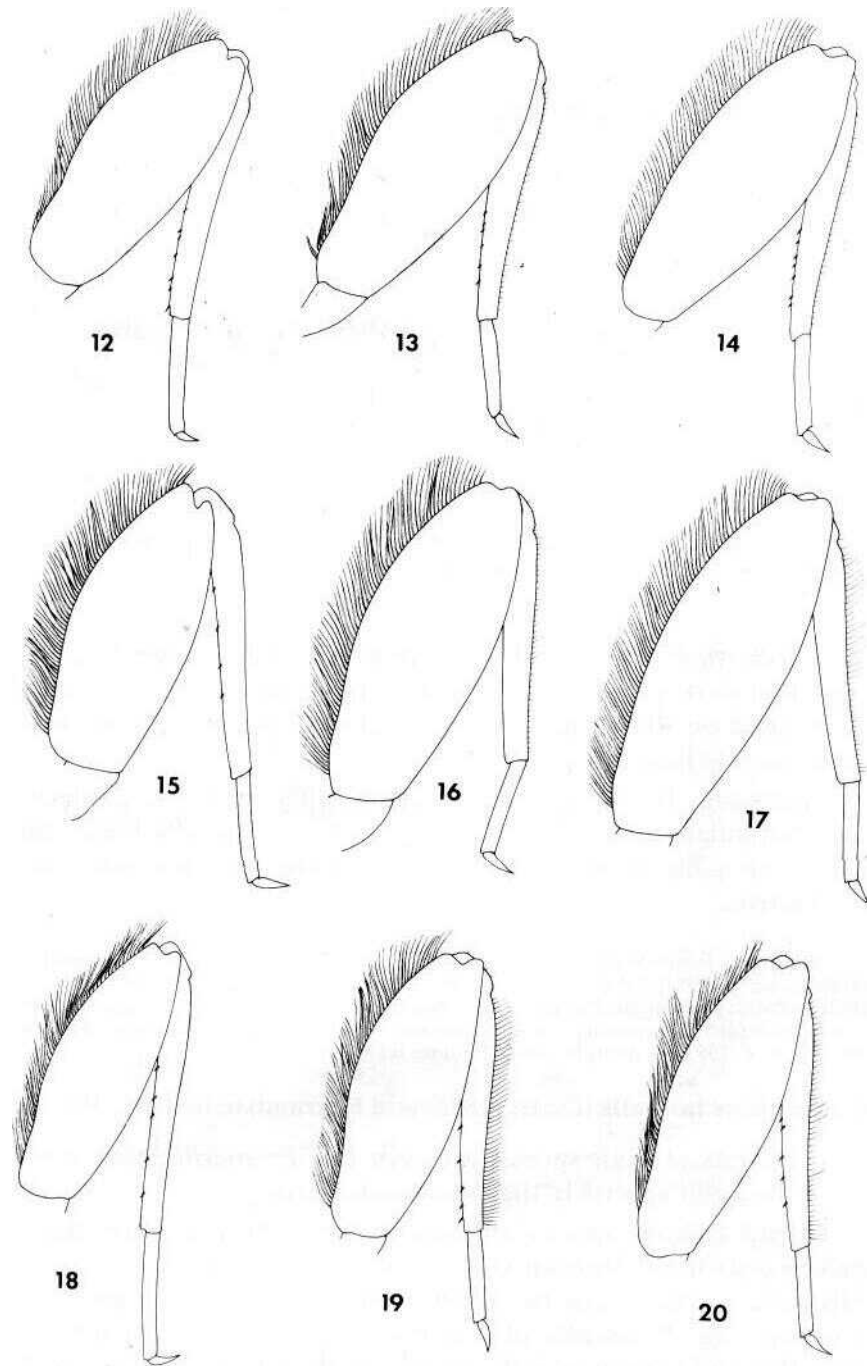
Gills (fig. 27): 1st gill rather narrow, gills 2nd-6th of a somewhat triangular shape with round angles, 7th gill usually broad; the shape of gills is however variable. Abdominal markings not distinctive.

MATERIAL. Friuli-Venezia Giulia: Bagnoli della Rosandra (Trieste), Rosandra stream, 4-5. V. 1981, 2 >> (from reared nymphs), 35 nymphs; Castelmonte (Udine), a little tributary of Iudrio stream, 3. V. 1981, 3 >>, 1 <, 5 male subimagines (from reared nymphs), 18 subimagines of both sexes, 32 nymphs; Stregna (Udine), Erbezzo stream, 3. V. 1981, 24 nymphs. All C. Belfiore leg.

***Ecdyonurus lateralis* (Curtis, 1834) and *E. grandiae* Belfiore, 1981**

Nymphs of both species are very like *E. gridellii*; they differ from the latter species in the following features:

Head of both species ellipsoidal (figs. 2-3), maximum width before eyes level. Labrum of *E. lateralis* (fig. 5) with short lateral projections which may be slightly bent backwards. Labrum of *E. grandiae* (fig. 6) usually of intermediate slenderness. Mandibles, maxillae and labium as in *E. gridellii*. Both in *E. lateralis* and in *E. grandiae*, long hairs on lateral lobes of hypopharynx don't get over the apex of lobes (figs. 9-10): around the apex there is sometimes a



Figg. 12-14 - Legs of a nymph of *E. gridellii*. Fig. 12: fore leg; Fig. 13: mid leg; Fig. 14: hind leg. Figg. 15-17: Legs of a nymph of *E. lateralis*. Fig. 15: fore leg; Fig. 16: mid leg; Fig. 17: hind leg. Figg. 18-20: Legs of a nymph of *E. grandiae*. Fig. 18: fore leg; Fig. 19: mid leg; Fig. 20: hind leg.

beard of short hairs. Femora of both species (figs. 15-20) narrower than *E. gridellii*, with less evident sinuosity of fore margin. Spines on upper surface of femora always tapering in *E. lateralis* (fig. 25); on fore femur of *E. grandiae* there are many spines parallel sided (fig. 26). Also if detached, fore legs of all three species are easily recognizable by the lack of the fringe on outer margin of tibia. Tarsal claws of *E. grandiae* (fig. 23) with two teeth, as in *E. gridellii*. Claws of *E. lateralis* with one large tooth (fig. 22), sometimes lacking. Markings on legs and on abdomen of immature nymphs of *E. lateralis* and *E. grandiae* like *E. gridellii*; mature nymphs are distinguishable by the adult pattern (Belfiore, 1981: fig. 2 a and b; Grandi, 1953: fig. XXIII). Gills (figs. 28-29) variable; 1st gill of *E. lateralis* usually broader than *E. gridellii*; 1st gill of *E. grandiae* narrower, 5th and 6th more slender.

MATERIAL, *Ecdyonurus lateralis*: Lazio: Licenza (Roma), Licenza river, Strada Statale 314 Km 26,200, 26.IV.1980, 20 nymphs, several nymphal exuviae; Orvinio (Rieti), 19.VI.1980, 20 nymphs, several nymphal exuviae, all C. Belfiore leg. Poland: Myslenice, Raba river, 19.IV.1980, 5 nymphs, R. Sowa and C. Belfiore leg. Great Britain: Hol Beck, VI. 1981, nymphal exuviae, T. T. Macan leg. et det.

E. grandiae: Lazio: Tolfa (Roma), Rio Fiume, Strada Provinciale 3b, km 7,5, 1.V.1980, 5 nymphs (paratypes); Tolfa (Roma), Mignone river, 17.V.1981, 47 nymphs. All C. Belfiore leg.

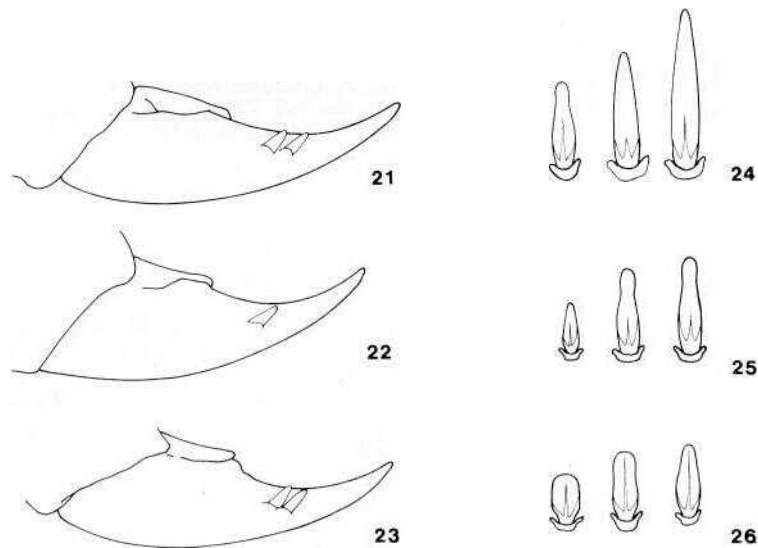
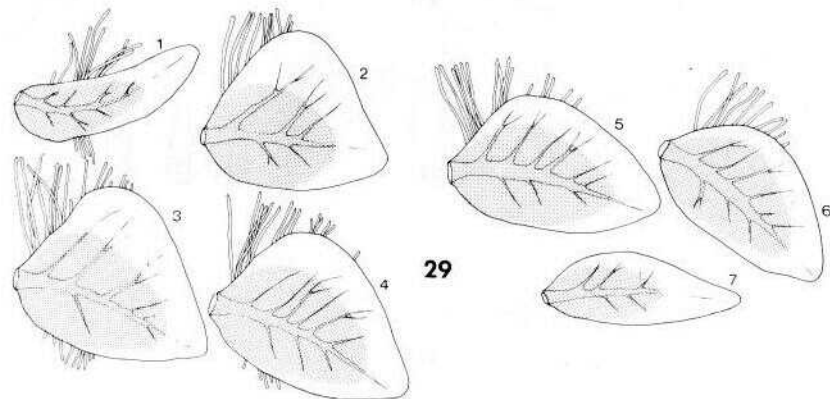
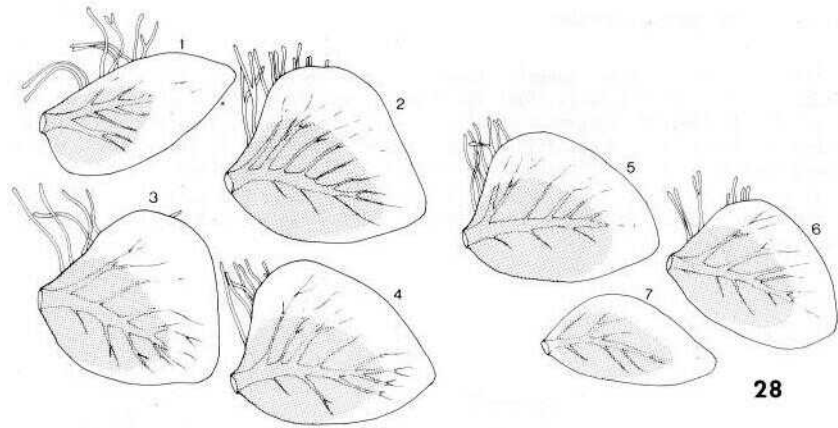
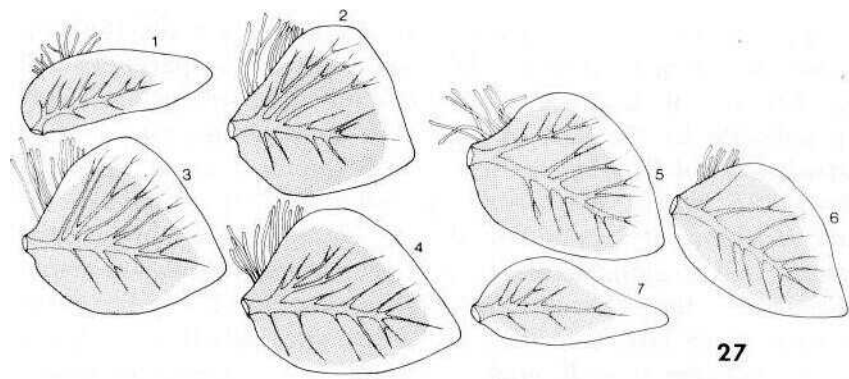


Fig. 21-23 - Tarsal claw of nymphs. Fig. 21: *E. gridellii*; Fig. 22: *E. lateralis*; Fig. 23: *E. grandiae*. Fig. 24-26: Spines on upper surface of fore femur. Fig. 24: *E. gridellii*; Fig. 25: *E. lateralis*; Fig. 26: *E. grandiae*.



Figg. 27-29 - Gills. Fig. 27: *E. gridellii*; Fig. 28: *E. lateralis*; Fig. 29: *E. grandiae*.

KEY TO THE NYMPHS OF ITALIAN SPECIES OF THE *Ecdyonurus lateralis* GROUP

1. One tooth on tarsal claws (fig. 22) ... *E. lateralis* (Curt.)
— Two teeth on tarsal claws (fig. 21) ... 2.
2. Spines on upper surface of fore femur pointed (fig. 24);
long hairs all around the lateral lobes of hypopharynx (fig. 8);
femora wide and with fore margin strongly sinuous (figs. 12-14) ... *E. gridellii* (Gmd.)
— Several spines on upper surface of fore femur parallel sided (fig. 25); long hairs on
lateral lobes of hypopharynx don't get over the apex of lobes (fig. 10); femora
more slender (figs. 18-20) ... *E. grandiae* Belfiore

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RIASSUNTO

La ninfa di *Ecdyonurus gridellii* (Grandi, 1953) viene descritta per la prima volta. I caratteri diagnostici di tale specie sono posti in rilievo mediante il confronto con le ninfe di *E. lateralis* (Curtis, 1834) ed *E. grandiae* Belfiore, 1981. Le ninfe di *E. gridellii* si distinguono da quelle delle suddette specie principalmente per il seguente insieme di caratteri: due denti sulle unghie tarsali; spine sui femori anteriori appuntite; frangia di lunghi peli sui lobi laterali dell'ipofaringe oltrepassante l'apice dei lobi stessi. Viene poi fornita una chiave per il riconoscimento delle ninfe delle tre specie italiane del gruppo *E. lateralis*.

SUMMARY

The A. describes the nymph of *Ecdyonurus gridellii* (Grandi, 1953), previously unknown; diagnostic features of this species, compared with the nymphs of *E. lateralis* (Curtis, 1834) and *E. grandiae* Belfiore, 1981, are briefly discussed and illustrated. A key to the nymphs of Italian species of *E. lateralis* group is given.

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