Chronological observations on the larval development of some Cantharidae (Coleoptera)

Note 13 (Cantharoidea), released by Luigi De Marzo on December 2012 - New observations show the occurrence of a great interspecific variability in this family. l.demarzo@alice.it www.luigidemarzo.eu

SUBJECTS

- A previous study on the very common species, *Rhagonycha fulva* (Scopoli), did report some particular outlines for the larval development in this cantharid beetle (De Marzo, 2010).
- This study on the early phases of the larval development in the same family refers to further three species.

MATERIAL AND METHODS

- Examined species in agreement with the checklist of Audisio *et al.* (1995): *Cratosilis sicula* (Marseul), *Malthinus deceptor* Baudi, *Malthodes parthenias* Kiesenwetter.
- Specific identification is due to the courtesy of Dr. Gianfranco Liberti (Uboldo, Varese, Italy).
- Adults were collected at spring in the years 2010 and 2011 by squashing the foliage of *Phillyrea angustifolia* L., *Pistacia lentiscus* L., *Quercus ilex* L. and *Q. coccifera* L. in forests of Bari province (Apulia, Italy);
- as long as collecting did proceed, they were stored in terrariums of the figured type (Fig. 1) and fed with honey drops distributed on the walls.
- Terrariums were taken at the room temperature (20±2°C) and inspected twice a day (at both morning and evening) until all larvae died
- for recording the following events: (a) oviposition; (b) eclosion; (c) occurrence of moults, (d) beginning of the larval dispersion.
- Egg groups released on the terrarium floor were isolated by transferring adults in another terrarium.
- When groups were released on the covering, they were pencilled with the oviposition date.
- Samples of larvae preserved in ethanol 70% provided the material for the morphological observations.
- Drawings were made on specimens temporarily mounted on slides in water.

RESULTS

----- *Cratosilis sicula*

- Adults were found within the second-mid of April.
- Females released eggs in tridimensional groups (n=12) on the terrarium floor.
- Each egg group included some 30 ellipsoid units 0,4x0,3 mm large.
- Eclosion lasted 12 days.
- Larvae moulted twice without leaving from the eclosion place (Fig. 2.A); they made the first moult 24 hours after the eclosion and begin to moult again after further 3-4 days.
- According to the egg group, third-instar larvae started in their dispersion phase at the days 5-6 after the eclosion.
- Third-instar larvae did show a cannibalistic behaviour.
- Morphological outlines (Fig. 3): larvae of *Cratosilis sicula* lack ocular spots in every instar; mandibles are well developed in the third-instar, whereas they exhibit a rudimentary aspect in the instars I-II.

----- *Malthinus deceptor*

- Adults were collected from the second mid of April up to entire May.
- Females released single-layered egg groups (n=14) on the terrarium covering (Fig. 1).
- Each egg group included from 20 to 60 spherical units 0,3 mm-large in diameter.
- Eclosion lasted 9-11 days.
- Larvae rested on the eclosion place without moulting for about 48 hours (Fig. 2.B); then they fell on the floor;
- they made their first moult without synchronism as long as dispersed.
- No further moult was observed.
- Morphological outlines (Fig. 4.A-B): larvae of *Malthinus deceptor* are provided with a pair of ocular spots in both their first- and second-instar; mandibles are well developed in the second-instar, whereas they exhibit a rudimentary aspect in the first instar.

----- *Malthodes parthenias*

- Adults were collected from the second mid of April up to entire May.
- Females released eggs in tridimensional groups (n=10) on the terrarium floors.
- Each egg group included 20-40 elliptical units 0,20x0,23 mm large.
- Eclosion lasted 11-13 days.
- Larvae rested on the eclosion place for 24 hours at least; then, progressively dispersed.
- No moult was made.

• Morphological outlines (Fig. 4.C-D): first-instar larvae of *Malthodes parthenias* lack ocular spots and are provided with well developed mandibles.

CONCLUDING REMARKS

• The new examined species differ to each other for number of moults made in the laboratory and chronological beginning of the dispersion phase;
• they show diversity also in the oviposition behaviour, as *Malthinus deceptor* is used to release eggs in a single layer.
• A comparison with *Rhagonycha fulva* (Fig. 5) allows to underline that only *Cratosilis sicula* made as many as three moults
• and that no species shares with *Rhagonycha fulva* the very quick development of the instars I and II.
• Because of the absence of the third instar, larvae of both *Malthinus deceptor* and *Malthodes parthenias* do manage their dispersion phase either in the second- or the first-instar respectively.

REFERENCES

Audisio P., Liberti G., Nardi G., Poggi R., 1995 - Coleoptera Polyphaga VIII. Cantharoidea, Dermestoidea. In: Minelli A., Ruffo S., La Posta S. (eds.), Checklist delle specie della fauna italiana, Calderini Bologna, 53, 17 pp.

De Marzo L., 2010 - Un particolare comportamento nelle giovani larve di *Rhagonycha fulva* (Scopoli) (Coleoptera Cantharidae). *Boll. Zoologia agr. Bachicoltura*, Milano, 41: 229-324.

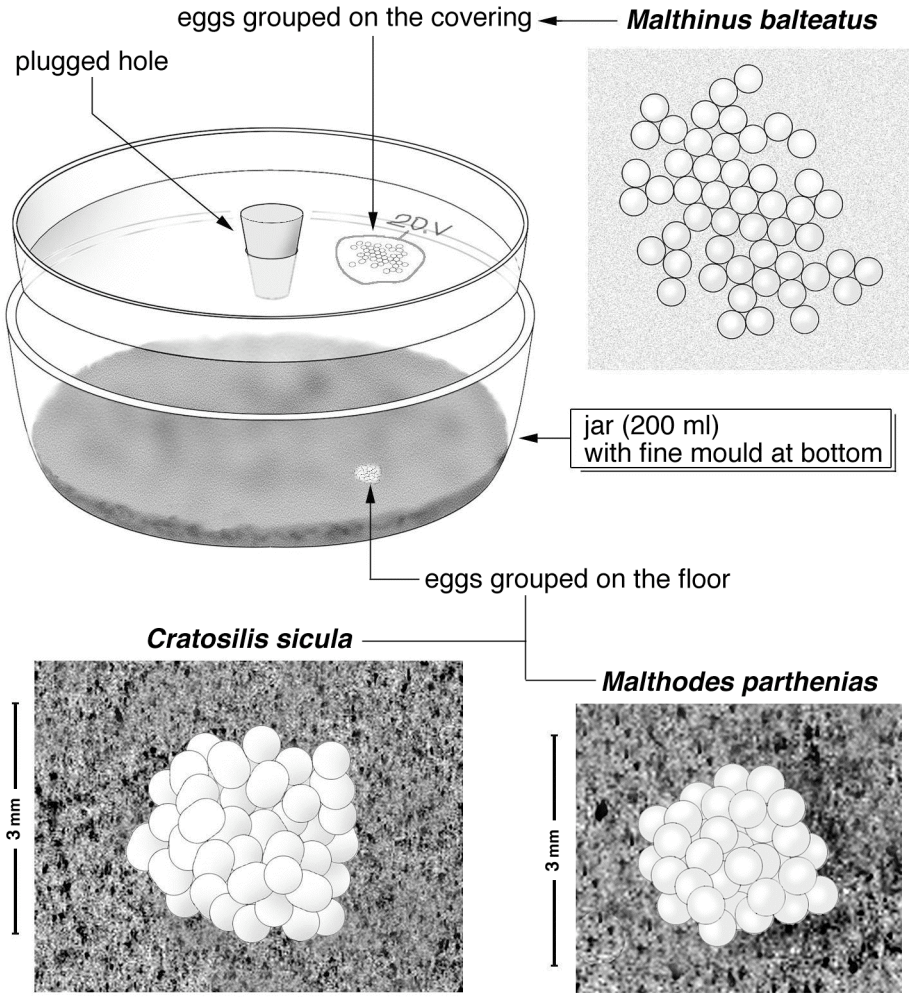

Fig. 1 - Type of terrarium used to obtain oviposition of the reported species of Cantharidae.

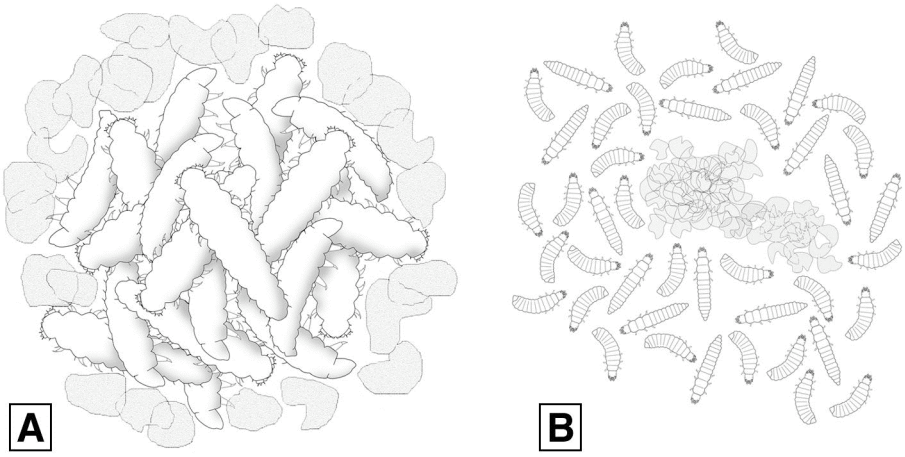

Fig. 2 – First-instar larvae still resting on eclosion place: A, *Cratosilis sicula* (Marseul); B, *Malthinus deceptor* Baudi.

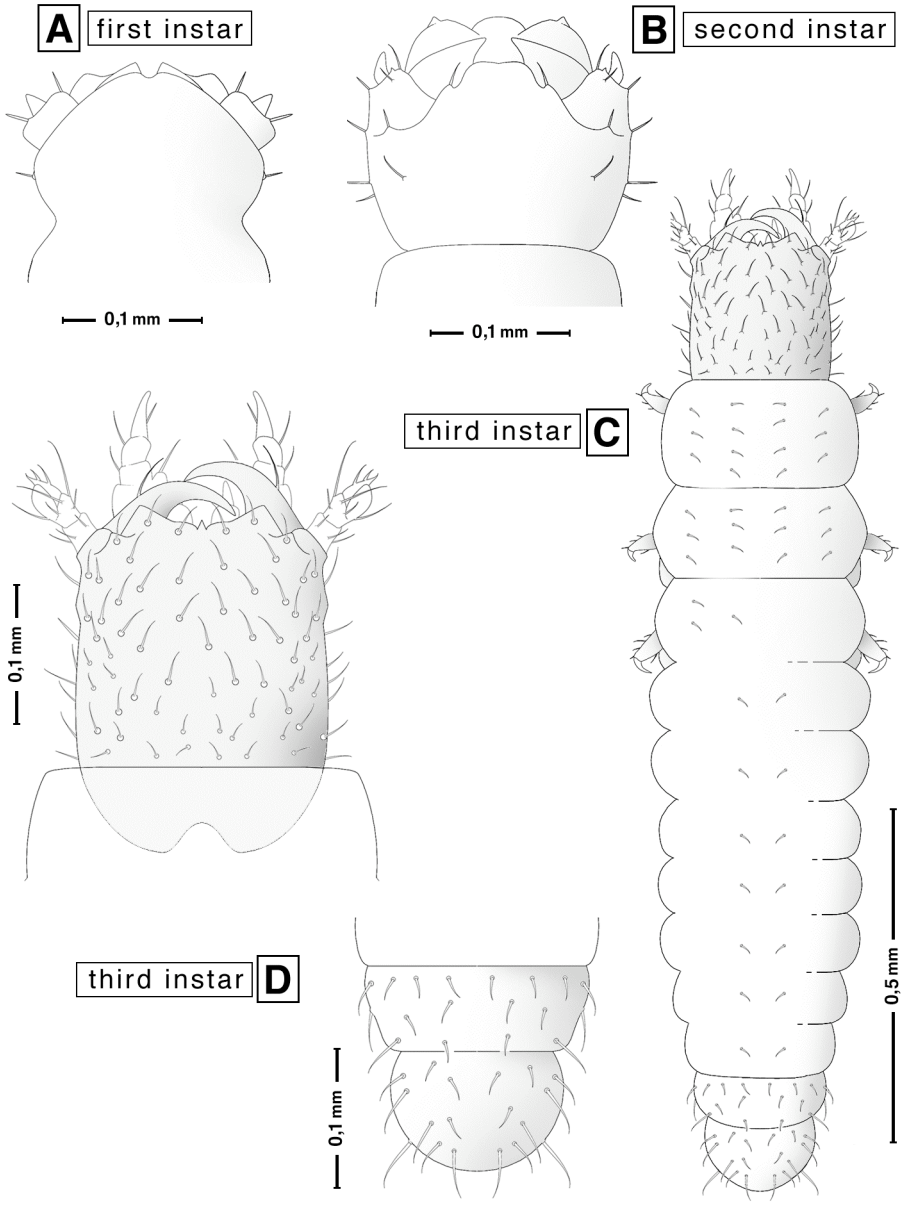

Fig. 3 – Larval outlines of *Cratosilis sicula* (Marseul): head, entire body and abdomen tip in the reported instars.

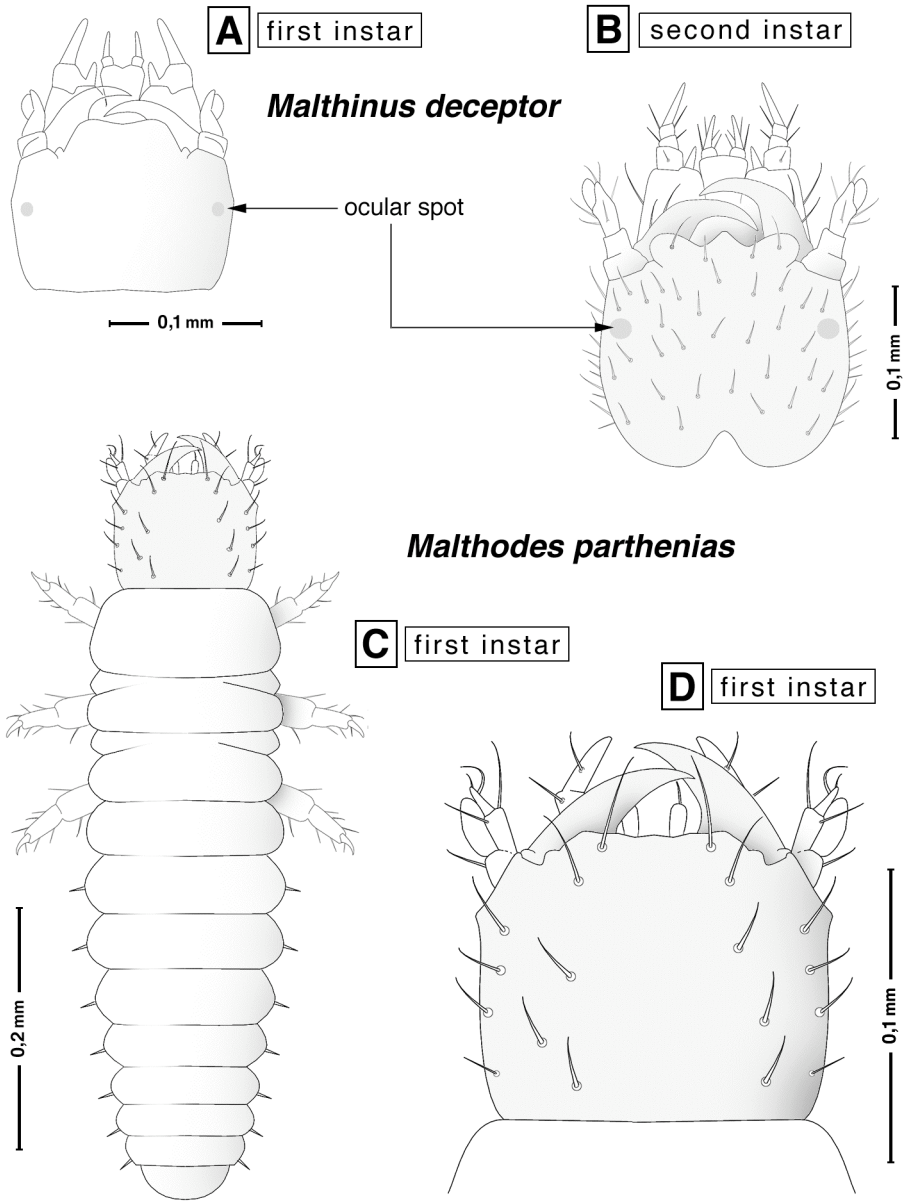

Fig. 4 - Larval outlines of Cantharidae of the reported species/instars.

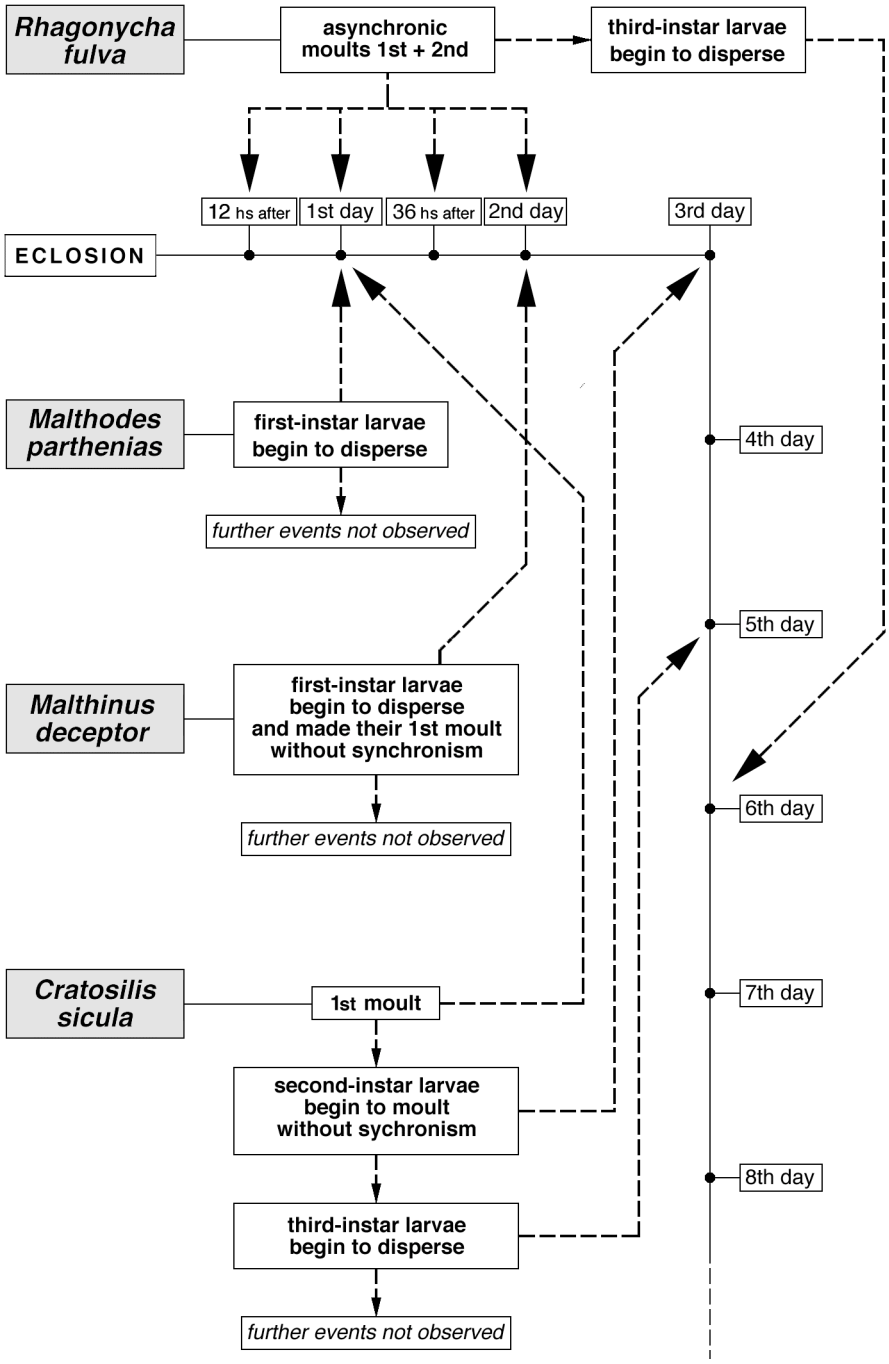

Fig. 5 – Chronological occurrence of moults and dispersion phase in the new examined species of Cantharidae in comparison with that previously recorded for *Rhagonycha fulva* (Scopoli).