

ON THE SPAWNING OF A CANTHARID, CANTHARIDUS CALLICHROA JESSOENSIS (SCHRENCK)

著者	Kojima Yoshio
journal or publication title	The bulletin of the Marine Biological Station of Asamushi, Tohoku University
volume	11
number	1
page range	37-40
year	1962-03-30
URL	http://hdl.handle.net/10097/00131138

ON THE SPAWNING OF A CANTHARID, *CANTHARIDUS*
CALLICHROA JESSOENSIS (SCHRENCK)*

By

YOSHIO KOJIMA

小島芳男

*Department of Obstetrics and Gynecology, Tôhoku University School of
Medicine, Sendai, Japan*

Cantharidus callichroa jessoensis (Schrenck) is a common marine snail cantharid species on the rocky coasts in northern Japan and also in the neighborhood of the Marine Biological Station at Asamushi, Aomori Prefecture, Japan. Observations on the reproduction and breeding habits of cantharids have been done by Jeffreys (1865), Robert (1902), Lebour (1937), Habe (1960) and others. The writer observed the spawning of *Cantharidus callichroa jessoensis* (Schrenck) in the laboratory and field at Asamushi, and the results are reported in this paper.

Here the writer thanks Dr. Eturô Hirai, Director of the Marine Biological Station of the Tôhoku University at Asamushi, Aomori Prefecture, Japan, for his supervision during the course of this investigation. Acknowledgement are due to Dr. Tadashige Habe of the Amakusa Marine Biological Laboratory of the Kyushu University at Tomioka, Kumamoto Prefecture, Japan, for his identification of this species.

MATERIAL AND METHOD

From March to May in 1957, specimens of *Cantharidus callichroa jessoensis* (Schrenck) were collected from the zone of *Mytilus edulis* and *Zostera marina* on the rocky coast of Hadakajima near the Station. The materials were cleaned carefully by a brush and two to six animals were placed in glass bottles containing about 50 cc of normal sea water, and later the egg capsules or egg masses were liberated in these bottles. On the other hand, the liberated egg masses of this species were observed on the rocky coast and on sea weed of both Hadakajima and Oshima near the Station. The breeding season of this species was observed mainly on the ovary and testes condition.

* Contributions from the Marine Biological Station of Asamushi, Aomori Ken, No. 290.

OBSERVATION

On March 22nd a pair of copulating animals were collected from the zone of *Mytilus edulis* and *Zostera marina* on the rocky coast of Hadakajima, and placed in a bottle. On March 23rd and 24th, four isolated egg capsules were found on the bottom of the bottle. The egg has transparent, colorless and elongated oval shaped capsule surrounded with adhesive semi-transparent, slightly brownish gelatinous substance. The capsule is about 450μ in long axis, about 360μ in short axis, and about 230μ in diameter, it was covered by a thin egg membrane of about 300μ in diameter (Fig. 1). On the 25th and 26th, slightly brownish gelatinous egg masses were liberated and deposited on the side of the male shell (Fig. 2).

From April to May in 1957, the writer observed in the bottle the same kind of slightly brownish gelatinous egg masses as observed previously, on the rocky coast of both Hada-

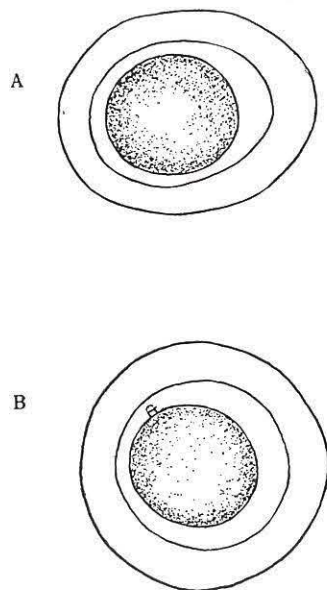


Fig. 1. The liberated egg capsule of *Cantharidus callichroa jessoensis* (Schrenck). $\times 100$.

A. View from lateral side.
B. View from bottom.

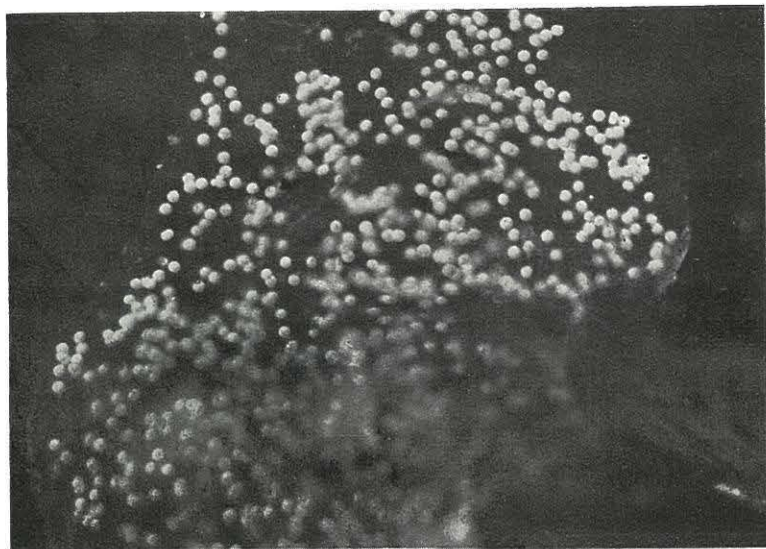


Fig. 2. The liberated egg mass of *Cantharidus callichroa jessoensis* (Schrenck) in the laboratory. The many eggs are visible in the ootheca.

kajima and Ōshima coast. The liberated egg masses were found on the rock and sea weed *Zostera marina* on the rocky coast of both Hadakajima and Ōshima, and many eggs were laid in a small slightly brownish gelatinous mass attached by the whole of one surfaces. An ootheca is about 10–20 mm in diameter, and includes about 400–450 egg capsules, and several oothecae cluster to form large masses of about 50×20 mm on the rock (Fig. 3).



Fig. 3. The largest mass of capsules of *Cantharidus callichroa jessoensis* (Schrenck) on a rock at Ōshima, Hiranai-machi, Aomori Prefecture, Japan. The mass is about 50×20 mm, and deposited by one of its surfaces.

The breeding season of this species continued from March to May on the Asamushi coast. From March to early June in 1957, this species is common and widely distributed on the rocky coast extending from high tide level to low tide level and all of the specimens were adults, but in the other seasons this species is not found on the rocky coast and migrates from the tidal zone to deeper sea water. In the breeding season, this species is an upward type or autogenetic type, and migrates from the deep sea water to the mean tide level on the Asamushi coast.

CONSIDERATION

Robert (1902) described that *Cantharidus (Jujubinus) exasperatus* (Pennant) and *Cantharidus (Jujubinus) striata* (Linné) spawned small gelatinous egg masses attached by the whole of one surface on the sea weed and stone, and that the young are hatched in the crawling stage. Habe (1960) stated that *Cantharidus japonicus* (A. Adams) spawned gelatinous egg masses of about 10 mm in diameter on the leaves of *Zostera marina* in April to June at Tomioka, Kumamoto Prefecture, Japan.

Cantharidus callichroa jessoensis (Schrenck) liberated the deposited slightly brownish gelatinous egg masses of about 10–20 mm in diameter on the rock and sea weed at Asamushi.

Habe (1958) described that *Cantharidus callichroa yessoensis* (Schrenck) is nothing but a local or individual form of the south Japan cantharid *Cantharidus callichroa* (Philippi) and *Cantharidus callichroa basbalteata* (Pilsbry) based mainly on the morphological characters as follows, the radula formula of *Cantharidus callichroa yessoensis* (Schrenck) quite resembles that *Cantharidus japonicus* (A. Adams), *Cantharidus callichroa* (Philippi) and *Cantharidus callichroa basbalteata* (Pilsbry) and the shell features of *Cantharidus callichroa yessoensis* (Schrenck) closely resembles that of *Cantharidus callichroa* (Philippi) and *Cantharidus callichroa basbalteata* (Pilsbry). The reproduction of *Cantharidus callichroa jessoensis* (Schrenck) resembles that of *Cantharidus (Jujubinus) exasperatus* (Pennant), *Cantharidus (Jujubinus) striata* (Linné) (Robert, 1902), and *Cantharidus japonicus* (A. Adams) (Habe, 1960).

The breeding season of the species of cantharid is as follows, *Cantharidus (Jujubinus) exasperatus* (Pennant) (Robert, 1902) is from spring to summer at Roscoff, *Cantharidus (Jujubinus) striata* (Linné) (Robert, 1902) is almost throughout the year at Banyules and Roscoff, and *Cantharidus japonicus* (A. Adams) (Habe, 1960) is from April to June at Tomioka, Japan. According to the present investigation the breeding season of *Cantharidus callichroa jessoensis* (Schrenck) is from March to May at Asamushi.

Kira (1954) described that the inhabiting zone of *Cantharidus jessoensis* (Schrenck) is from below the low tide level to five fathoms depth. But, from March to early June, the matured species of *Cantharidus callichroa jessoensis* (Schrenck) is inhabits from the high to low tide level on the rocky coast, and migrates from the tidal zone to deep sea water in the other seasons at Asamushi. In the breeding season, *Cantharidus callichroa jessoensis* (Schrenck) is of the upward type or auto-genetic type as *Monodonta labio* Linné, *Monodonta neritoides* (Philippi), *Tegula (Omphalius) rustice* (Gmelin) and *Tegula (Chlorostoma) turbinata* (A. Adams) at Asamushi.

LITERATURE CITED

- JEFFREYS, J.G. 1865. British Conchology, III.
 HABA, T. 1958. On the radulae of Japanese marine Gastropods. 4. *Venus* 20: 43–60.
 (in Japanese with English summary)
 ———, 1960. Egg masses and egg capsules of some Japanese marine Prosobranchiate Gastropod. *Mar. Biol. Stat. Asamushi, Bull.* 10: 59–62.
 KIRA, T. 1954. Coloured Illustrations of the shells of Japan. (in Japanese). Hoikusha, Osaka, Japan.
 LEBOUR, M.V., 1937. The egg and larvae of the British Prosobranchs with special references to those living in the plankton. *Mar. Biol. Assoc. U.K., Jour.* 22: 105–166.
 ROBERT, A. 1902. Recherches sur la developpement des Troques. *Arch. Zool. exp. et gén.* 3 ser. 10: 269–538. (cited from Lebour 1937).