

THE LIFE HISTORY OF *CRASPEDUCHUS PULCHELLUS*,
A LYGAEID NEW TO THE UNITED STATES
(HEMIPTERA:LYGAEIDAE)^{1,2}

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ABSTRACT

Craspeduchus pulchellus (F.), a widespread neotropical species is first reported from the United States. In this country it is known only from Key Largo, Florida where it is found on *Corchorus siliquosus* L. Eggs are deposited on the ground in loose clusters. The nymphs and adults are found on plants of *C. siliquosus* feeding on the seedpods or they may be found beneath the plants feeding on fallen seeds.

The immature stages are described and figured.

Craspeduchus pulchellus (F.) is a widespread neotropical species previously known from the West Indies, Central and South America (Slater 1964). Although, as noted below, there is a previous erroneous report from Canada and several quarantine interceptions, the species has not previously been known to be present as a breeding species in the United States.

On 3 December 1969, Mrs. Perrie Krieter (formerly laboratory technician, AREC, Homestead) collected several specimens from Key Largo, Florida. Subsequently we have, over a period of several years, collected additional material at several locations on Key Largo, always on the seedpods or at the base of *Corchorus siliquosus* L. A breeding population is definitely present.

Provancher (1871) reported this species from Quebec, but this is certainly in error. It has been intercepted at ports of entry in California, Texas, Louisiana, and Florida on 7 occasions since 1951 (Wheeler 1951; Hunt 1956, 1958; Mumford 1965, 1966). Included in these was a single specimen intercepted in a shipment of copra from the Philippines! None of these records, of course, established the species as a member of the fauna of the United States.

Pulchellus was placed in the genus *Ochrostomus* Stal in the 1964 Slater Catalogue. Most of the literature records place it in the old omnibus genus *Lygaeus* and it has been cited in 2 subgenera of *Lygaeus*, *Ochrostomus* Stal and *Craspeduchus* Stal. Both of these latter were described by Stal in the same work. Slater (1964) has elevated both *Craspeduchus* and *Ochrostomus* to generic status. Van Duzee (1916) fixed *pulchellus* (F.) as type species of *Ochrostomus* and *xanthostaurus* H.S. as type species of *Craspeduchus*. Ashlock (1975) has discussed the matter, pointed out that *pulchellus* and *xanthostaurus* are congeneric and since both generic names appear first in the same paper either can be selected by the first revisor. Ash-

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lock (1975) in the capacity of first revisor has selected *Craspeduchus* Stal as the senior synonym and reduced *Ochrostomus* Stal to junior synonymy. *Pulchellus* (F.) therefore becomes properly *Craspeduchus pulchellus* (F.) as indicated in the title.

Pulchellus will key in Torre Bueno (1946) to *Lygaeus* sg. *Craspeduchus* and poorly to the species *uhleri* Stal, to which *pulchellus* is closely related. From *uhleri*, *pulchellus* is readily distinguishable by the longer labium which extends to the posterior margin of the metacoxae or onto the first visible abdominal sternum, whereas in *uhleri* the labium extends posteriorly only between the mesocoxae. The abdominal sternum in *uhleri* is nearly uniformly orange-red with the seventh and succeeding segments a strongly contrasting dark brown to black. In *pulchellus* the abdominal sternum is predominately dark chocolate brown to black with the connexival area broadly flavescent and the posterior margins of sterna 4 to 7 pale margined. These pale areas usually are suffused with reddish coloration.

The only previous biological information of which we are aware are records by Wolcott (1936, 1941, 1950) of mating pairs on *Corchorus hirsutus* in Puerto Rico. Wolcott's 1936 paper indicates a tentative identification of the plant, although his 2 subsequent citations do not have a qualifying statement. In view of our host findings we feel that Wolcott's host identify requires verification. Gibson and Carrillo (1959) report *pulchellus* "en maiz" in Mexico.

We have taken *C. pulchellus* only upon or below specimens of *Corchorus siliquosus* L. and only on Key Largo. There *C. siliquosus* occurs in open roadside sites in full sunlight, growing on an overdrained limestone substrate together with a variety of roadside weeds. We also have found *pulchellus* associated with the above host in Jamaica.

Graptostethus servus (F.) a widespread species of lygaeine in the eastern hemisphere, is reported by Golding (1947) as breeding upon *Corchorus capsularis* L. and *C. oltorius* L. in Africa. This species is known to breed upon a variety of other plants (see Slater & Sperry 1973 for summary).

Three species of *Corchorus* are found in Florida, *aestuans* L., *orinocensis* HBK, *Jutes* and *siliquosus* L. All of the plants that we recognized as *Corchorus* proved to be *siliquosus*. We therefore assume that the other species are relatively rare. Long and Lakela (1971) state *C. siliquosus* is found in hammocks and disturbed sites in south Florida. We do not believe it to be a true hammock plant, but on occasion it may occur along the edges of hammocks if the area is open. It is quite common along roadsides and in cleared fields where plant growth has been unchecked for a few years.

We have examined *C. siliquosus* in many areas on the mainland in south Dade County especially in the Homestead area and also in the Everglades National Park from the entrance to the Flamingo Prairie area without finding *C. pulchellus*. *C. siliquosus* is rare in the lower Florida Keys; however, 1 plant was observed on Key West, but *C. pulchellus* was not present. We have been able to collect *C. pulchellus* along the entire length of Key Largo and are sure that, at present, it is limited to this area.

In view of the limited distribution of the insect, and despite the widespread occurrence of the host plant, it seems likely that *pulchellus* has only recently established itself in North America. There is a single specimen of *pulchellus* in the Division of Plant Industry, Florida Dep. of Agriculture and Consumer Services Collection at Gainesville taken on Key Largo 2 May 1961 (B. K. Dozier). It should be noted that in the years immediately

prior to 1961, severe hurricanes had struck the southern Florida area. It seems likely to us that *pulchellus* could have been introduced at that time.

Eggs are deposited on the ground in loose clusters. When the host plants are growing vigorously, nymphs and adults will be found up on the plants feeding on the seedpods and occasionally early instars will be found in open, partially dried pods still remaining on the plants. When plants are not actively growing, breeding populations can often be found in the debris directly under the plants; however, they do not move very far from the host plants.

Craspeduchus pulchellus

Fifth instar nymph: Key Largo (in alcohol), Fig. 1

Head, central area of pronotum, scutellum, wing pads a rich reddish brown; suture between tylus and juga, a broad anteriorly diverging irregular stripe within epicranial arms on either side of midline, area immediately behind eye, pronotal calli and antero-lateral region of scutellum contrastingly black; pronotum broadly margined anteriorly and posteriorly with white, darkened central area suffused with rose-red; scutellum with a pale white, posteriorly broadening median longitudinal stripe; abdomen pale testaceous with a wide median and a pair of very broad vivid sublateral red longitudinal stripes extending from base to tergum 8; eighth and ninth terga mesally black, scent gland sclerites dark brown, small, with SGA on both segments 4-5 and 5-6 rounded and larger than SGP (Slater & Wilcox 1973); legs and antennae nearly uniformly dark brown, distal ends of femora and 1st antennal segment paler, femora irregularly spotted with black; head below with a large pale yellow blotch below eye; pleura reddish brown with broad white or pale yellow margins, abdomen pale yellow to testaceous with a broad longitudinal red vitta sub-laterally, sterna 8 and 9 black mesally.

Head convex dorsally, moderately declivent anteriorly, tylus not quite attaining distal end of first antennal segment, epicranial stem present but very short; length head 1.0³, width 1.25, interocular space 0.75; pronotum short, broadly transverse, anterior margin conspicuously concave, posterior margin nearly straight, length pronotum 0.75, width 1.45; wing pads extending midway on abdominal terga 3, length wing pads 1.75; length abdomen 2.75; labium reaching well between or slightly beyond mesocoxae, length labial segments I 0.60, II 0.60, III 0.65, IV 0.55; antennae slender, terete, 4th segment narrowly fusiform, length antennal segments I 0.30, II 0.75, III 0.65, IV 1.05, total length 4.70.

NOTE: There is some variation in color. In some individuals the dark areas including the appendages are nearly uniformly black rather than reddish brown, and the rose-red pronotal coloration is confined to the lateral margin centrally beyond the dark central quadrate marking.

Fourth Instar: (as above) Fig. 2

General form and color as in preceding; pronotal central coloration predominately red and contrasting markedly with a dark calli "bar"; mesothoracic wing pads small and lobate, not extending caudad of distal end of metathoracic pads; length head 0.95, width 1.10, interocular space 0.70; length pronotum 0.55, width 1.20; length wing pads 0.85; length abdomen

³All measurements are in millimeters.

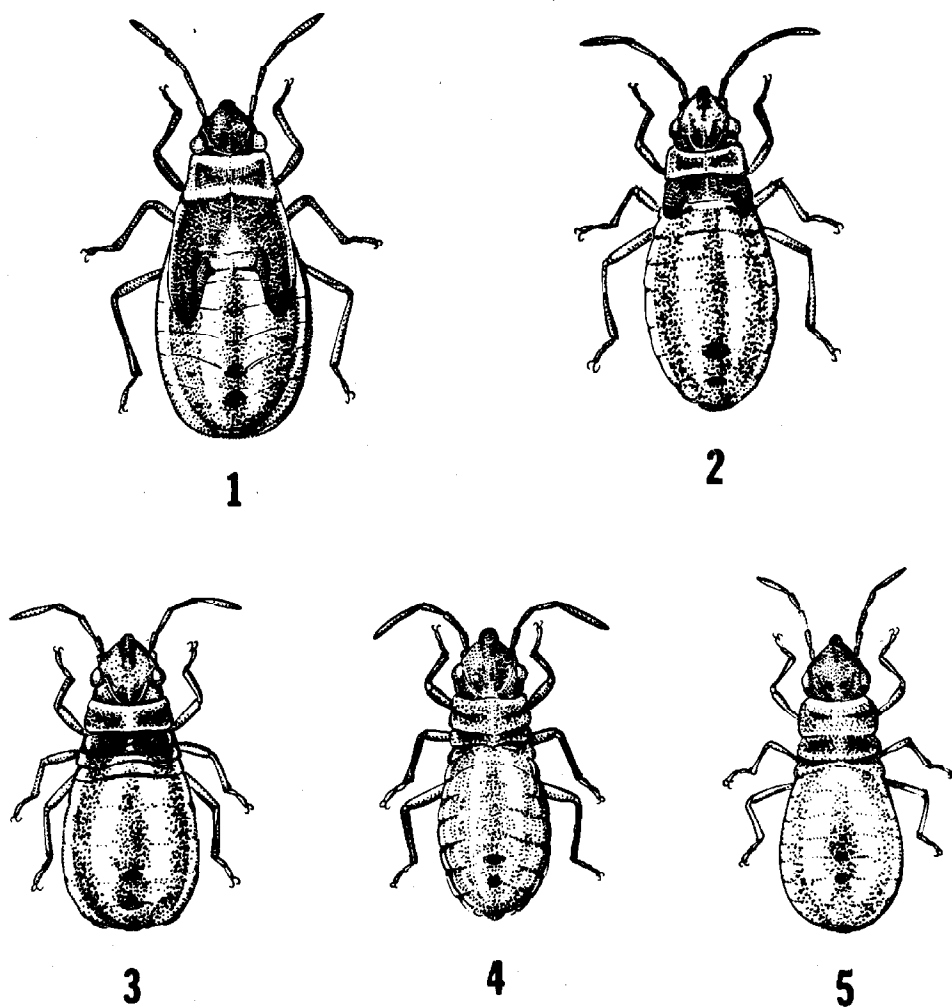


Fig. 1-5 *Craspeduchus pulchellus* nymphs. 1. Fifth instar. 2. Fourth instar. 3. Third instar. 4. Second instar. 5. First instar.

2.15; length labial segments I 0.50, II 0.55, III 0.55, IV 0.55; length antennal segments I 0.25, II 0.55, III 0.50, IV 0.85; total length 4.4.

Third Instar: (as above) Fig. 3

General form and color as in preceding; reddish central coloration of pronotum extending completely over lateral margin except for extreme anterior corner; mesonotum including wing pads dark brown with exception of a median reddish stripe that widens posteriorly and extends laterally along posterior margin to inner angle of wing pads; median and sub-lateral red longitudinal abdominal stripes strongly differentiated from orange ground color.

Length head 0.65, width head 0.90, interocular space 0.65; length pronotum 0.35; width 0.90; length abdomen 2.25; length labial segments I 0.40, II .40, III .45, IV .40; length antennal segments I .20, II .40, III .35, IV .60; total length 3.75.

Second Instar: (as above) Fig. 4

Very similar in form and color to instar 1; pronotum with pale anterior

marginal color much broader and more conspicuous than posterior; dark sclerotization of mesonotum covering greater part of notum; abdomen and thoracic nota chiefly red so that longitudinal red stripes are only obscurely differentiated from remainder of coloration, abdomen narrowly orange laterally; length head .60, width .70, interocular space .50; length pronotum .30, width .75; length abdomen 1.45; length labial segments I .30, II .35, III .35, IV .35; length antennal segments I .20, II .40, III .40, IV .65; total length 2.90.

First Instar: (as above) Fig. 5

Head reddish brown with dark markings very conspicuous, pronotum reddish slightly paler anteriorly and posteriorly with transverse calli "bar" nearly black and very strongly contrasting; mesonotum with a prominent brown transverse sclerite on either side of midline, covering anterior one-half of notum and extending nearly to lateral margins, a short transverse dark "bar" in middle of lateral one-half of above sclerite; metanotum with a similar but much smaller sclerite along anterior margin, strongly tapering to a point near meson; ground color of thoracic nota and abdomen orangish with a broad median and 2 sublateral longitudinal red stripes; appendages as in later instars.

Head relatively large, strongly convex, tylus exceeding distal end of antennal segment 1; length head .45, width .50, interocular space .40; all thoracic nota short and strongly transverse, length pronotum .25, width .55; no evidence of wing pads present; abdomen large ovoid, length abdomen 1.15; labium elongate, exceeding metacoxae and reaching visible abdominal sternum 2; length labial segments I .25, II .25, III .25, IV .25; length antennal segments I .15, II .20, III .20, IV .35; total length 1.95.

Egg

Oval in shape with 8-10 micropylar processes arranged in a circle 0.25 mm in diameter at the anterior end; length 1.1 mm, width 0.6 mm, pearl white in color.

Development

Under room temperatures varying from 23 to 26°C the average development time of the egg was 12 days; 1st instar 10; 2nd instar 8; 3rd instar 10; 4th instar 12; and 5th instar 13 days. Adults can be maintained several weeks in the laboratory on sunflower seeds.

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