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STAGES IN THE LIFE CYCLE OF A PREDATORY STINK BUG, ALCAEORRHYNCHUS GRANDIS (DALLAS) (HEMIPTERA: PENTATOMIDAE)[1,2]

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INTRODUCTION: Alcaeorrhynchus grandis (Dallas) (fig. 1-2) is a very large (20 mm) predatory stink bug which occurs in several row crops and preys on other insects, especially lepidopterous larvae. The stages in the life cycle have never been illustrated and are presented here (fig. 1-8), so that they can be identified in the field.

ECONOMIC IMPORTANCE: Although little has been written on this species, it has been reported to be an important predator of soybean pests in Florida (Watson 1916, Whitcomb 1973). It has also been reported to be a pest on eggplant (Watson 1922), but damage to any crops from this species is probably exceptional.

DISTRIBUTION: It has been reported from Colombia, Mexico, Florida, and Texas. The Florida State Collection of Arthropods has several specimens collected in 1973-75 at Edgard and Prairieville, Louisiana by Vernon Brou. Florida records are from the entire peninsula and at least as far west and north as Jackson County.

LIFE CYCLE: A. grandis was reared in the laboratory by Richman and Whitcomb (1978). At variable temperatures averaging 26 C and at a constant temperature of 27 C (both at 14:10 photoperiod) the time from egg to adult lasted 59-60 days, with the egg stage taking 15-16 days.

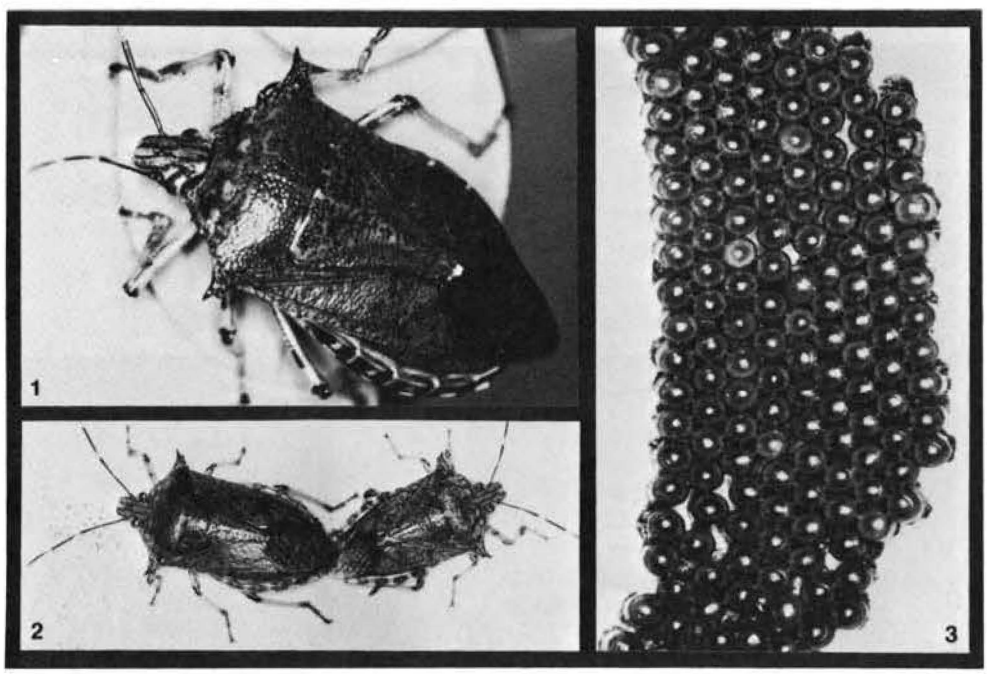

Fig. 1-3. Alcaeorrhynchus grandis (Dallas): 1) Adult female 4X; 2) Mating pair (male on right) 2X; 3) Egg mass 6X. Photographs by D. B. Richman.

IDENTIFICATION: EGGS (fig. 3): approximately 1 mm in diameter, with short projections around operculum; laid 100-200 at a time in multiple row masses. (On soybean stems these masses are usually 4-5 rows wide, but may be as much as 10 rows wide on paper toweling in the laboratory.)

FIRST INSTAR (fig. 4): Length approximately 1.5 mm; humeral width 0.9 mm. These are difficult to distinguish from the first instar nymphs of Euthyrhynchus floridanus (Linnaeus): both have a blue-black head and thorax and red abdomen with dark central and lateral "stripes" composed of dorsal and lateral dark colored plates. Nymphs of this age do not stray far from the egg mass and may be distinguished by the form of the mass and numbers of eggs; E. floridanus masses are loosely oval and contain 20-90 eggs.

2ND INSTAR (fig. 5): Length approximately 3 mm; humeral width 1.3 mm. A. grandis begins to capture insect prey in the 2nd instar. At this stage the nymph has differentiated somewhat from the color of the 2nd instar nymph of E. floridanus and has become more uniformly brownish with faint markings on the abdomen.

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3RD INSTAR (fig. 6): Length 4-5 mm; humeral width 2.3 mm. At this stage the nymph has acquired red lateral keels on the pronotum and is generally bluish black with a brownish abdomen.

4TH INSTAR (fig. 7): Length 7-8 mm; humeral width 3.8 mm. The 4th instar nymph has larger red lateral keels on the pronotum. The general color of the nymph is bluish black. The wing pads are visible, but not prominent.

5TH INSTAR (fig. 8): Length 10-14 mm; humeral width 6.5 mm. The 5th instar nymph has distinct wing pads and very large red lateral keels on the pronotum.

ADULTS (fig. 1-2): Male length 16-21 mm; humeral width 9-12 mm (including spines). Female length 18-25 mm; humeral width 11-14 mm (including spines). The adults have double spines on the humeral angles. The adults of A. grandis are variegated brown in color, with dark bands on the legs and dark maculations along the dorsolateral margins of the abdomen. They are the largest predatory stink bugs in Florida and generally resemble Podisus maculiventris (Say), from which they can be distinguished by their larger size and double, rather than single, humeral spines.

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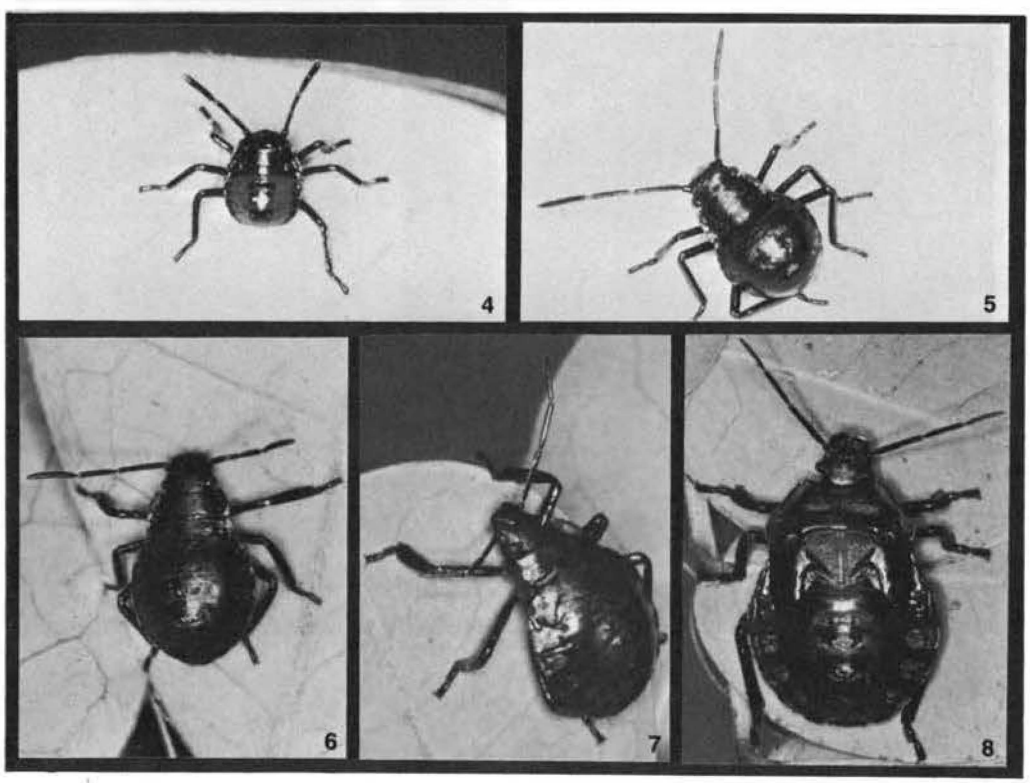

Fig. 4-8. Alcaeorrynchus grandis (Dallas) nymphal stages: 4) 1st instar 11X; 5) 2nd instar 9X; 6) 3rd instar 9X; 7) 4th instar 6X; 8) 5th instar 3X. Photographs by D. B. Richman.