

## SCIENTIFIC NOTE

***Alcaeorrhynchus grandis* (Dallas): An Eventual Predator of *Chlosyne lacinia saundersii* Doubleday & Hewitson on Sunflower in Northern Paraná State**ANDRÉA B. MALAGUIDO<sup>1</sup> AND ANTÔNIO R. PANIZZI<sup>2</sup><sup>1</sup>Departamento de Zoologia, Universidade Federal do Paraná,  
Caixa postal 19.020, 81531-990, Curitiba, PR.<sup>2</sup>Centro Nacional de Pesquisa de Soja, Embrapa, Caixa postal 231,  
86001-970, Londrina, PR.

---

An. Soc. Entomol. Brasil 27(4): 671-674 (1998)*Alcaeorrhynchus grandis* (Dallas): Predador Eventual de *Chlosyne lacinia saundersii* Doubleday & Hewitson em Girassol no Norte do Estado do Paraná

RESUMO - Observou-se a ocorrência de *Alcaeorrhynchus grandis* (Dallas) (Hemiptera: Pentatomidae: Asopinae) predando larvas da lagarta do girassol *Chlosyne lacinia saundersii* Doubleday & Hewitson em girassol (*Helianthus annuus* L.) na Fazenda Experimental da Embrapa Soja, no norte do Paraná, durante janeiro-fevereiro de 1998. De ovos coletados em campo, ninfas do percevejo foram criadas em laboratório alimentadas com larvas de *C. l. saundersii* obtidas no campo. As ninfas também foram criadas com larvas da lagarta da soja *Anticarsia gemmatalis* Hübner obtidas em laboratório, para comparação. Nenhuma ninfa de *A. grandis* sobreviveu até a idade adulta, atingindo 100% de mortalidade já no 3º instar, quando alimentadas com larvas de *C. l. saundersii*. Quando alimentadas com larvas de *A. gemmatalis*, 32,5% das ninfas atingiram a idade adulta. Trata-se do primeiro registro deste predador associado a lagarta do girassol no Norte do Estado do Paraná.

PALAVRAS-CHAVE: Insecta, Hemiptera, Lepidoptera, *Helianthus annuus*, predador.

---

Sunflower (*Helianthus annuus* L.) is a relatively new crop in the Northern area of Paraná state. It has been introduced and cultivated in several areas of Brazil with potential to become an important crop (Castro *et al.* 1996). Among the many insects that attack this crop, the sunflower caterpillar *Chlosyne lacinia saundersii* Doubleday & Hewitson (Lepidoptera: Nymphalidae) is a key pest in Brazil (Gallo *et al.* 1988). Surveys of insects

damaging sunflower and their natural enemies have been carried out in some states, such as São Paulo (Campos-Farinha & Pinto 1996), Paraná (Villas Bôas & Moscardi 1984, 1985), and Mato Grosso do Sul (A.L. Boiça Jr. & A.C. Bolonhezi, unpublished). Not much is known about the predators of this pest, except for the references to five species of wasps, two species of ants, and four species of birds preying on larvae or pupae (Campos-Farinha

& Pinto 1996).

Recently, we observed the occurrence of nymphs and adults of a predator pentatomid, *Alcaeorrhynchus grandis* (Dallas), on sunflower plants in the Londrina area, northern Paraná state (latitude 23° 11' S, longitude 51°, 11' W) feeding on larvae of *C. lacinia saundersii*. This asopine stink bug is poliphagous and has been reported to feed on insect pests of many crops, including soybean [*Glycine max* (L.) Merr.] in southeastern US (Whitcomb 1974) and in southern Brazil (Corrêa-Ferreira & Pollato 1985).

During January of 1998 eggs of *A. grandis* were collected in the field on sunflower plants, taken to the laboratory and placed in 9.0 x 1.5 cm petri dishes with moistened filter paper. On the 1st day of the 2nd instar (1st instars do not feed), nymphs were removed and placed individually in petri dishes. Forty nymphs were fed (*ad libitum*) with small (1st and 2nd instars) larvae of the sunflower cat-

erpillar (SC) captured in the field. Other 40 nymphs were fed with larvae (1st and 2nd instars) of the velvetbean caterpillar, *Anticarsia gemmatilis* Hübner (VBC), obtained from a colony maintained in the laboratory. The VBC larvae were used as comparison because this predator eventually feed on them. Petri dishes were placed in an environmental chamber kept at 25° ± 1° C, 65 ± 5% RH, and photoperiod of 14:10 (L:D) h. During January-February 1998 daily observations were made on molting and mortality. Nymphal developmental time and percentage of mortality of each instar (except the 1st), and from 2nd instar to adult, were calculated. Data on nymph developmental time were analyzed using *t*-test ( $P < 0.05$ ).

No nymphs of *A. grandis* reached adulthood when fed on SC larvae, with 85% of nymphs dying during the 2nd instar, and the remaining 15% dying during the 3rd instar. However, when nymphs were fed VBC lar-

Table 1. Performance of *Alcaeorrhynchus grandis* nymphs fed on different preys in the laboratory (initial number of larvae = 40).

Stadium duration (d)(X ± SE)		Prey	
		VBC larvae	SC larvae
Mortality (%)			
Second		6.5 ± 0.16 b (28)	8.5 ± 0.22 a (6)
M %		30.0	85.0
Third		4.7 ± 0.17 (23)	—
M %		12.5	15.0
Fourth		6.2 ± 0.40 (19)	—
M %		10.0	—
Fifth		10.5 ± 0.47 (13)	—
M %		15.0	—
Second-Fifth	Female	29.2 ± 0.37 (5)	—
	Male	26.2 ± 0.41 (8)	—
Total mortality		67.5	100.0

Means in the row followed by the same letter are not significantly different ( $P < 0.05$ ; *t*-test). VBC = velvetbean caterpillar; SC = sunflower caterpillar.

vae, 32.5% reached the adult stage (Table 1). The total mortality (2nd to 5th instar) of 67.5 % found is similar to the nymph mortality of 56.0 % found in another study using VBC larvae as food (Corrêa-Ferreira & Pollato 1985). These differences in survivorship of *A. grandis* may be attributed to the spines on the surface body of SC larvae, that might have prevented young nymphs of feeding on the larvae, as these nymphs could not reach the body of the prey with their short stylets. This did not happen with the VBC larvae, which have a smooth body surface.

Nymph developmental time was significantly longer when nymphs fed on SC than on VBC larvae, during the 2nd stadium (Table 1). The total developmental time on VBC larvae (from 2nd to 5th stadia) of 29.2 d for females and 26.2 d for males is shorter than the 38.4 d recorded for nymphs fed on the same prey in similar conditions (Corrêa-Ferreira & Pollato 1985). Because nymphs fed SC larvae died from the 3rd instar on, this parameter could not be compared for the remaining stadia. These data demonstrate that SC larvae is a less suitable food to *A. grandis* than VBC larvae, either because of abnormal feeding activity of nymphs on these larvae or because of their lower nutritional value.

Outbreaks of this predator have been observed to eventually occur in soybean fields in Paraná state associated with outbreaks of VBC (Corrêa-Ferreira & Pollato 1985, A. R. Panizzi, unpublished). Apparently, this is the first record of *A. grandis* associated with larvae of the sunflower caterpillar *C. lacinia saundersii*. In addition to this predator, a species of bird - the long-tailed *Tyrannus savanna* L. - was also observed preying on larvae. This adds a new species of bird to the former four species previously recorded feeding on SC larvae (Campos-Farinha & Pinto 1996). Apparently, the typical gregarious behavior of SC larvae that might protect them against small predators make them more conspicuous and, therefore, more susceptible to be intercepted by avian predators.

### Acknowledgements

We thank Dr. Beatriz S. Corrêa-Ferreira for revising this note.

### Literature Cited

- Campos-Farinha, A.E.C. & N.P.O. Pinto. 1996.** Natural enemies of *Chlosyne lacinia saundersii* Doubl. & Hew. (Lepidoptera: Nymphalidae) in the state of São Paulo. An. Soc. Entomol. Brasil 25: 165-168.
- Castro, C., V.B.R. Castiglioni, A. Balla, R.M.V.B.C. Leite, D. Karam, H.C. Mello, L.C.A. Guedes & J.R.B. Farias. 1996.** A cultura do girassol. EMBRAPA-CNPSO. Londrina, PR. Circ. Téc. 13, 38p.
- Corrêa-Ferreira, B.S. & S.L.B. Pollato. 1985.** Biologia do percevejo predador *Alcaeorrhynchus grandis* (Dallas). Embrapa CNPSO, Documentos 15: 85-87.
- Gallo, D., O. Nakano, S. Silveira Neto, R.P.L. Carvalho, G.C. Batista, E. Berti F°, J.R.P. Parra, R.A. Zucchi, S.B. Alves & J.D. Vendramim. 1988.** Manual de entomologia agrícola, 2ª ed., São Paulo, Ed. Agronômica Ceres, 649 p.
- Villas Bôas, G.L. & F. Moscardi. 1984.** Levantamento de insetos-pragas do girassol e seus inimigos naturais. EMBRAPA-CNPSO. Res. Pesq. Girassol, p. 44-45.
- Villas Bôas, G.L. & F. Moscardi. 1985.** Levantamento dos insetos-pragas do girassol e seus inimigos naturais. EMBRAPA-CNPSO. Res. Pesq. Girassol, p. 9-12.
- Whitcomb, W.H. 1974.** Natural populations of entomophagous arthropods and their

effect on the agroecosystem, p. 150-169. In F. G. Maxwell and F. A. Harris (eds.), Proc. Miss. Symp. Biol. Control, Univ. Press

Miss., Jackson, 647 p.

*Received 05/V/98. Accepted 23/IX/98.*

---