


TURNER, C. L. 1925. The Psychodidae (moth-like flies) as subjects for studies in breeding and heredity. Amer. Nat. 57: 545-549.

---

EUDERUS PURPUREAS (HYMENOPTERA: EULOPIIDAE):
A PARASITOID OF SWEETPOTATO WEEVIL
(COLEOPTERA: APIONIDAE) IN SOUTHERN FLORIDA

RICHARD K. JANSSON AND SCOTT H. LECRONE
Institute of Food and Agricultural Sciences
Tropical Research and Education Center
18905 S.W. 280 Street
Homestead, Florida 33031

The sweetpotato weevil, Cylas formicarius (Fabricius) is one of the most important insect pests of sweet potato, Ipomoea batatas (L.) Lam., world-wide (Sutherland 1986, Chalfant et al. 1990, Jansson & Raman 1991). Wolfe (1991) recently reported that both C. f. elegantulus (Summers) and C. f. formicarius (Fabricius) are junior synonyms for the species. The distribution of this weevil is circumglobal; it occurs in most tropical regions where sweet potato is grown and where it is the most important constraint to sweet potato production (Horton & Ewell 1991). Even low weevil densities can reduce marketable yield due to terpenoid production in roots in response to weevil feeding which makes roots unpalatable (Akazawa et al. 1960, Uritani et al. 1975, Sato et al. 1981). Yield losses from weevil damage of up to 60-97% have been reported (Chalfant et al. 1990 and references therein).

Little information is available on natural enemies of C. formicarius. Jansson (1991) reviewed biological control programs for this weevil world-wide. Fifteen wasp parasitoids of C. formicarius have been reported (Jansson 1991). Parasitoids of this weevil have been reported from only three countries, India, the Philippines, and the U.S. These
parasitoids are members of either the Braconidae, Encyrtidae, Eurytomidae, or Pteromalidae families. Only four parasitoid species (Bracon spp., B. mellitor Say, B. punctatus [Muesebeck], and Metapenta spectabilis [Westwood] [Cockerham 1944]) were reported from Louisiana in the U.S. This note is the first report of a eulophid wasp parasitoid attacking C. formicarius.

On 21 December 1989, while dissecting Jewel sweet potato plants in a research plot (0.4 ha) at the Tropical Research and Education Center in Homestead, Florida, three cream-colored, eulophid parasitoid pupae were found in the vines. A larva of C. formicarius, from which the parasitoid exited, was adjacent to each parasitoid. One parasitoid pupa was isolated from the same field on 2 January 1990. Percentage parasitism of C. formicarius was approximately 0.3% ($n = 1,252$). Two more parasitoid pupae were found on 18 February 1990. All six parasitoids were found inside vines of sweet potato. Five of the pupae were kept in the vines in which they were found and reared in a Petri dish (9 cm diam.) at room temperature in the laboratory until adult development. Two groups of adults (21 December and 18 February samples), which were metallic green, were held in the laboratory and offered weevil immatures daily. No mating nor parasitism was observed. Three adult specimens were sent to the USDA, ARS, Systematic Entomology Laboratory, Beltsville, Maryland for identification. Adults were identified as Euderus spp. (Hymenoptera: Eulophidae).

One Euderus sp. pupa was found in the vines of three-month-old ‘Jewel’ sweet potato plants in another research plot (0.4 ha) in Homestead on 20 September 1990. Percentage parasitism was approximately 0.4% ($n = 245$). One parasitoid pupa was found in the vines of four-month-old sweet potato plants on each of three dates, 24 September 1 and 2 October 1990, and two additional pupae were found in the same field on 11 October. The level of parasitism in this field (1.4%, $n = 440$) was slightly higher than that found previously. All but two of these wasp pupae were reared through to adulthood in the laboratory, and two specimens were sent to the USDA, ARS, Systematic Entomology Laboratory to confirm the identification. Adults were identified as Euderus sp., probably purpureas Yoshimoto. The only known host for this wasp is Grapholita molesta (Busck) (Lepidoptera: Tortricidae) (M. E. Schauff, personal communication), which is also cryptic like C. formicarius, and tunnels and feeds within the fruit and twigs of several fruit trees (Davidson & Lyon 1979). Considering that these wasps were found in a different sweet potato field four months since any known sweet potato plantings were present in the local vicinity, it appears that this wasp is established in the area and achieves very low levels of parasitization of C. formicarius. Because of the very low levels of parasitism found, it is doubtful that such a parasitoid will have potential to regulate C. formicarius populations.

We thank M. E. Schauff for identifying the specimens. This research was supported, in part, by the U.S. Department of Agriculture under CRSP Special Grant No. 88-34135-3564 (to R.K.J.) managed by the Caribbean Basin Advisory Group (CBAG). This is Florida Agricultural Experiment Station Journal Series No. R-01240. Voucher specimens of Euderus purpureas are located at the University of Florida, Institute of Food and Agricultural Sciences, Tropical Research and Education Center, Homestead.

References Cited


NEW FLORIDA LADYBEETLE (COLEOPTERA: COCCINELLIDAE)

Fred D. Bennett
Entomology and Nematology Department
IFAS, University of Florida
Gainesville, FL 32611-0740

Robert D. Gordon
Systematic Entomology Laboratory, PSI
Agricultural Research Service, USDA,
c/o U.S. National Museum of Natural History
Washington, D.C. 20560

Gordon (1985) provided records of 78 species and 2 subspecies of ladybeetles known to occur in Florida. This note places on record an additional, probably adventive species not previously recorded from the state.

More than 20 adults of a small coccinellid emerged from a collection of Bidens pilosa L. and Chromalaena odorata (L.) foliage infested with Orthezia insignis (Brown) (Homoptera: Ortheziidae) made by one of us (FDB) in Miami on 22.VII.1991. A similar collection of O. insignis on B. pilosa from the same locality on 30.VIII.1991 was held for several days and yielded five additional adults of the same species. No larvae or adult coccinellids were noted when the material was placed in rearing containers, but subsequent examination confirmed that the adults developed from larvae present in the ovisacs of Orthezia at the time of collection. The small size of this species makes it probable that the eggs contained in a single ovisac of O. insignis provide adequate food reserves for the complete development of one larva.