

CONTRIBUTIONS TO THE TERRESTRIAL ARTHROPOD FAUNA OF THE CORVO ISLAND (AZORES)

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VIEIRA, VIRGÍLIO 1994. Contributions to the terrestrial Arthropod fauna of the Corvo island (Azores). *Arquipélago*. Life and Marine Sciences 12A:51-56. Ponta Delgada. ISSN 0870-6581.

This paper presents a summary of the Arthropods from Corvo island. Collections and/or observations were made in July and October 1993. The insects, which comprised most of the material, were found associated with their hosts. The list of records includes 44 species, belonging to 13 orders and 31 families. Some species of the orders Homoptera (3), Coleoptera (6), Lepidoptera (16) and Hymenoptera (3) are new confirmed records for this island.

VIEIRA, VIRGÍLIO 1994. Contribuição para o conhecimento da fauna terrestre de Artrópodes da ilha do Corvo (Açores). *Arquipélago*. Ciências Biológicas e Marinhas 12A:51-56. Ponta Delgada. ISSN 0870-6581.

Uma lista das espécies de Artropodos recolhidos e/ou observados na ilha do Corvo, em Julho e Outubro de 1993, é apresentada. Esta inclui fundamentalmente a entomofauna que se encontrava associada com o seu hospedeiro. As 44 espécies encontradas estão distribuídas por 13 ordens e 31 famílias. Algumas espécies de Homópteros (3), Coleópteros (6), Lepidópteros (16) e Himenópteros (3) constituem primeiras citações para esta ilha.

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INTRODUCTION

The Arthropod fauna of the Corvo island (the smallest of the Azorean Archipelago (17 km², maximum altitude 718 m, situated at 36°40'N; 31°40'W) has been poorly studied. Bibliographical record are for the most part old and appear mainly in the form of general faunistical lists or single records.(e.g. DROUËT 1861; GODMAN 1870; FERNANDES 1982; GAMA 1982; GOMES 1982; QUARTAU 1982; SOUSA 1985; BORGES 1990; SOUSA 1991; VIEIRA & TAVARES in press). Still fewer papers have been published on vascular flora and vegetation of the Corvo (SJÖGREN 1979; HANSEN 1988). The plants are, however, much better known than their Arthropod enemies. The parasites and

predators of phytophagous Arthropods have not been studied previously.

The field work was carried out during four days (3 July and 18-20 October 1993). The general objectives were to contribute to the understanding of the ecology of the biotopes of this island and describe qualitatively and, whenever possible, quantitatively, their communities. This paper lists the material collected by the author, as well as the observations made. Some ecological notes are presented.

METHODS

Several techniques were used to collect Arthropod specimens at Corvo island (VIEIRA & TAVARES in press). Moreover, noctuid

Lepidoptera in pasture lands, specially *Noctua pronuba* (L.), *Peridroma saucia* (Hübner), *Xestia c-nigrum* (L.), *Mythimna unipuncta* (Haworth) and *Phlogophora meticulosa* (L.), were studied altogether using 20 sample plots (size 0,25 m²) per locality.

The list of records only includes the entomological fauna that was found associated with their hosts (plants or other Insects). Twenty eight species and subspecies of Lepidoptera from Corvo island were listed by VIEIRA & TAVARES (in press). From these, only the species where larval instars were observed attacking hostplants directly (in pastures, maize-fields, tomato-fields, other vegetable crops and endemic plants) are presented. The nomenclature and sequence used for the listing of the Hexapoda taxa are that of QUARTAU (1984). The families and species are listed following the order used namely by LERAUT (1980), DELVARE & ABERLENC (1989), BORGES (1990). The nomenclature of the families and species of plants and vegetation is that of SJÖGREN (1979) and HANSEN (1988).

The species marked (*) were not collected, but only observed during field work. From species listed, those marked with (#) are recorded for the first time from Corvo. Data given under each species entry conform to the format: locality, date, number of specimens (=spec./specs.), cultural area, hostplant and/or habitat, natural enemy (NE) - parasite or predator.

RESULTS

LIST OF SPECIES AND MATERIAL EXAMINED

ISOPODA

Family PORCELLIONIDAE

Porcellio sp.

Vila Nova do Corvo (Cascalho), 18-20.X.93, common. Dry to moderately damp biotopes, e.g. leaf litter, young organs of plants.

SYMPHYLA

Family SCUTIGERELLIDAE

Scutigera *immaculata* Newport

Vila Nova do Corvo, 19.X.93, 3 specs. *Zea mays* L. (Poaceae), *Solanum tuberosum* L. (Solanaceae), *Beta vulgaris* L. (Chenopodiaceae).

DIPLOPODA

Family BLANIULIDAE

Blaniulus *guttulatus* Bosc.

Vila Nova do Corvo (Cascalho), 18-20.X.93, common. *Solanum tuberosum* L. (Solanaceae), *Beta vulgaris* L. (Chenopodiaceae) and cultivated plants in areas of horticulture.

COLLEMBOLA

Family ENTOMOBRYIDAE

* *Entomobrya multifasciata* (Tullberg)

Vila Nova do Corvo, 18-20.X.93. On house walls.

DERMAPTERA

Family FORFICULIDAE

Forficula *auricularia* L.

Vila Nova do Corvo and Rebentão, 18-20.X.93, common. *Zea mays* L. (Poaceae), bulbs, and beet (*Beta vulgaris* L. (Chenopodiaceae)).

ORTHOPTERA

Family GRYLLIDAE

Gryllus *bimaculatus* (De Geer).

Vila Nova do Corvo (Cascalho), 19.X.93, 1 spec. In cultivated lands and pastures.

Family ACRIDIDAE

Locusta *danica* (L.)

Vila Nova do Corvo, 18-20.X.93, common. Cereal crops (*Zea mays* L., *Avena* sp. (Poaceae)), potato (*Solanum tuberosum* L. (Solanaceae)), beet (*Beta vulgaris* L. (Chenopodiaceae)) and

flowers in marginal areas of cultivated lands and pastures.

HOMOPTERA

Family MARGARODIDAE

Icerya purchasi (Maskell)

Vila Nova do Corvo, 18-20.X.93, common. Adults in shadow zones of branches of *Pittosporum tobira* (Thunb.) Ait. (Pittosporaceae) and *Ficus carica* L. (Moraceae). NE: *Rodolia (Vedalia) cardinalis* Muls (Coleoptera, Coccinellidae).

Family DIASPIDIDAE

Aspidiotus nerii Bouché

Vila Nova do Corvo, 18-20.X.93, common (males and females). Branches and leaves of *Pittosporum tobira* (Thunb.) Ait. (Pittosporaceae).

Family COCCIDAE

Coccus aff. *hesperidum* L.

Vila Nova do Corvo, 18-20.X.93, common. Branches, leaves and fruits of *Pittosporum tobira* (Thunb.) Ait. (Pittosporaceae).

HETEROPTERA

Family MIRIDAE

Ligus apicalis Fieb.

Vila Nova do Corvo, 18-20.X.93, 4 specs. In pasture lands.

Family PENTATOMIDAE

Nezara viridula (L.)

Vila Nova do Corvo, 18-20.X.93, common. *Trifolium* sp. (Leguminosae) and *Licopersicon esculentum* Mill. (Solanaceae) in cultivated lands and pastures.

NEUROPTERA

Family CHRYSOPIDAE

Chrysoperla sp.

Zimbral, 19.X.93, 1 spec. *Erica scoparia* L. ssp. *azorica* (Hochst.) D. A. Webb (Ericaceae).

COLEOPTERA

Family CARABIDAE

Pseudophonus rufipes (De Geer)

Vila Nova do Corvo, 19.X.93, 4 specs.

Family COCCINELLIDAE

Scymnus interruptus (Goeze)

Vila Nova do Corvo, 19.X.93, 3 specs. *Pittosporum tobira* (Thunb.) Ait. (Pittosporaceae).

Scymnus sp.

Vila Nova do Corvo, 19.X.93, 2 specs. The *Scymnus* sp. larva was observed to be cannibal. *Pittosporum tobira* (Thunb.) Ait. (Pittosporaceae).

Rodolia (Vedalia) cardinalis (Mulsant)

Vila Nova do Corvo, 18-20.X.93, 1 pupa. Predator of *I. purchasi*.

Family CHRYSOMELIDAE

Chrysolina (Chrysomela) banksi (Fabricius)

Vila Nova do Corvo, 20.X.93, 3 specs. In pastures.

Family RHYNCHOPHORIDAE

Sitophilus zeamais Motschoulsky

Vila Nova do Corvo, 18.X.93, Zimbral, 19.X.93, and Rebentão, 19.X.93, common. Adults on maize cobs (*Zea mays* L., Poaceae).

Family CURCULIONIDAE

Otiorhynchus sp.

Vila Nova do Corvo, 18.X.93, 1 spec. On field stone walls.

DIPTERA

Family SYRPHIDAE

Metasyrphus corollae (Fabricius)

Vila Nova do Corvo, 19.X.93, 1 spec. *Tripholium* sp. (Leguminosae) and *Lavatera cretica* L. (Malvaceae).

Sphaerophoria scripta (L.)

Vila Nova do Corvo, 18.X.93, 1 spec. flying.

Family MUSCIDAE

Haematobia (Lyperosia) irritans L.

Roças, 19.X.93, common. The cows became sick caused by hor-fly in pastures. *H. irritans* larvae develop in cow dung.

Family TILUPIDAE

* *Tipula oleracea* L.

Rebentão, 18.X.93. In pasture grass.

LEPIDOPTERA

Family GRACILLARIIDAE

* # *Caloptilia* aff. *bistrigella* (Rebel)

Calçadas, 18.X.93. *Caloptilia* sp. larvae mine in *Myrica faya* Aiton (Myricaceae).

Family HYPONOMEUTIDAE

Argyresthia atlanticella Rebel

Zimbral, 19.X.93, 1 spec. *Erica scoparia* L. ssp. *azorica* (Hochst.) D. A. Webb (Ericaceae).

Plutella xylostella L.

Vila Nova do Corvo (Matriz), 03.VII.93, 3 adults were observed on leaves of *Brassicae oleracea* L. (Brassicaceae).

Family CHOREUTIDAE

* # *Tebenna bjerkandrella* (Thunberg)

Fojo, 19.X.93. Larval damages were observed in *Mentha suaveolens* Ehrh. (Lamiaceae). From a biological control viewpoint, this infester of the Azorean pasture could be controlled eventually by *T. bjerkandrella*.

Family TORTRICIDAE

* # *Selania lepiastriana* Curtis

Vila Nova do Corvo (Matriz), 03.VII.93, one larva was observed on leaves of *Brassicae oleracea* L. (Brassicaceae).

Cydia molesta (Busck)

Rebentão, 18.X.93, 3 larvae mining in apple fruit (Rosaceae).

Family PYRALIDAE

Udea ferrugalis Hübner

Vila Nova do Corvo (Matriz), 03.VII.93, 18-20.X.93, common. Several adults of this species were seen flying all over the island. *U. ferrugalis* larvae feed on various Poaceae.

Family PIERIDAE

Colias crocea (Geoffroy in Fourcroy)

Vila Nova do Corvo (Airport), 03.VII.93., 1 spec.; Airport, Rebentão and Entre Paredes, 19.X.93, 10 specs. During our stay the range of this species was confined to 400 m above sea level. In the pasture and cultivated lands - *Trifolium* sp., *Vicia* sp. and *Lotus* sp. (Leguminosae).

Pieris brassicae azorensis Rebel

Vila Nova do Corvo, 03.VII and 18-20.X.93, common. *P. b. azorensis* adults are common below 150 m, fairly frequent between 150-250 m, only accidentally or absent above 350 m. The larvae attack preferably *Brassicae oleracea* L., *Raphanus raphanistrum* L. ssp. *raphanistrum* (Brassicaceae) and *Reseda luteola* L. (Resedaceae). It should be noted that *Helix aspersa* Müller (Mollusca) is also a very important phytophagous which feeds on Brassicaceae species.

NE: *Apanteles glomeratus* L. (Hymenoptera, Braconidae) - a common larva parasitoid; *Pteromalus puparum* L. (Hymenoptera, Chalcididae) - a common endoparasitoid of *P. b. azorensis* pupae; one species of Araneae were observed sucking a *P. b. azorensis* larva.

Family SPHINGIDAE

Agrius convolvuli L.

Vila Nova do Corvo (Matriz and Cascalho), 03.VII.93, 3 specs. *A. convolvuli* larvae were observed attacking *Ipomoea batatas* (L.) (Convolvulaceae).

Family NOCTUIDAE

Noctua pronuba (L.)

Vila Nova do Corvo, Rebentão, 18.X.93, 5 specs.; Lóur, 19.X.93, 3 specs. *N. pronuba* attacks many plants, mainly from the areas of pasture and horticulture, and also weeds, e.g. *Convolvulus arvensis* L. (Convolvulaceae).

Peridroma saucia (Hübner)

Vila Nova do Corvo, Rebentão, 18.X.93, 4 specs.; Lóur, 19.X.93, 3 specs. The larvae attack some varieties of Poaceae and Favaceae in pastures, and also *Brassica oleracea* L. (vars e cvs) (Brassicaceae).

Xestia c-nigrum (L.)

Vila Nova do Corvo, Rebentão, 18.X.93, 15 specs.; Lóur, 19.X.93, 20 specs. *X. c-nigrum* larva may be found on a great variety of plants in cultivated lands [*Solanum tuberosum* L. (Solanaceae), *Allium* sp. (Liliaceae), *Brassica oleracea* L. (Brassicaceae)] and pastures [*Trifolium* sp. (Leguminosae), and in a big variety of Poaceae and Favaceae].

Mythimna unipuncta (Haworth)

Vila Nova do Corvo (03.VII.93), Rebentão (18.X.93), Roças and Lóur (19.X.93) - an average of 3 specs. per sample plot. *M. unipuncta* larvae attack many plants, mainly from cereal crops areas, pastures and forages. It is considered the most serious pest of pasture grass in the Azores archipelago and consequently, is an important subject of research in the Department of Biology of the University of the Azores.

NE: *Apanteles militaris* Walsh. (Hymenoptera, Braconidae).

Phlogophora meticulosa (L.)

Vila Nova do Corvo, Rebentão and Fojo, 18.X.93, 5 specs. It shows a large polyphagy, damaging many vegetables (*Solanum tuberosum* L., *Lycopersicon esculentum* Mill. (Solanaceae)), industrial crops (*Beta vulgaris* L. (Chenopodiaceae)) and pasture (*Avena* sp. (Poaceae), *Rumex* sp. (Polygonaceae)).

Autographa gamma (L.)

Vila Nova do Corvo (Casalho), 19.X.93, 1 spec. One larva eating a leaf of *Brassica oleracea* L.

Trichoplusia orichalcea (Fabricius)

Vila Nova do Corvo (Casalho), 20.X.93, 2 spec. Two *T. orichalcea* pupae were observed on the *Ipomea batatas* (L.) (Convolvulaceae).

HYMENOPTERA

Family CHALCIDIDAE

Pteromalus puparum L.

Vila Nova do Corvo, 18-20.X.93, a common endoparasitoid of *P. b. azorensis* pupae. About five hundred individuals were collected in fourteen *P. b. azorensis* pupae.

Family BRACONIDAE

Apanteles militaris Walsh.

Vila Nova do Corvo, Rebentão and Zimbral, 18-20.X.93, common. A very important larva parasitoid of *M. unipuncta*. We also saw several emerged pupae of *A. militaris* together with their cadaver hosts in the fields. From a biological control viewpoint, this parasitoid is now a subject of various research works in the Department of Biology of the University of the Azores.

Apanteles glomeratus L.

Vila Nova do Corvo, 18-20.X.93, common on leaves of *B. oleracea* and on roadsides stone walls and houses, and frequently found side by side with its dead host (larva of *P. b. azorensis*).

ACKNOWLEDGEMENTS

We would like to express our thanks to Dr. João Cardigos (Câmara Municipal do Corvo) and his collaborators, specially Mr. Óscar and José Mendonça, who helped in different practical ways in the realization of our investigation plans on Corvo island in 1993.

We are grateful to Dr. A. Onofre who identified Homoptera specimens from Corvo and Dr. L. Falp for revising the English version of the manuscript.

The entomological investigations in Corvo island in October of 1993 were supported economically by the University of Azores. STRIDE Program. FEDER and JNICT.

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Accepted 21 July 1994.