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A Contribution to Lasioderma spp. and Other Coleoptera Collected from Thistles in Southern Greece

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ABSTRACT

Coleoptera adults belonging to at least 64 species were collected in a 2-year survey held in 5 regions of southeastern Greece on different plants, members of the subfamily Cynaroideae: Compositae, commonly known as thistles. In the cited list is depicted the presence of each species according to its host, the plant part of the host, the season and the region it was collected. Species which are considered to be stored product insects are noticed while a special reference is made to Lasioderma spp. found on thistles.

Introduction

Thistles are members of the subfamily Cynaroideae (tribe Cardueae s. lat.) which form a well defined group of the family Compositae (Asteraceae). These plants invade crops and uncultivated areas as weeds and despite their spines, support a rich fauna of herbivorous insects together with their predators, parasites and commensals; especially their flower heads with their appearence, structure and the food they offer (seeds, receptacle), are extremely attractive to insects. The insects found on thistles are either monophagous or show varying degrees of specialization, being found on a large number of Compositae as well (Zwölfer 1965). The plants themselves provide a succession of microenvironments. Communities associated with the flower heads develop during summer, detrital feeders colonise the brown dead heads during late autumn and winter and more enter when the heads and stems have fallen to the ground (Redfern 1983). Among them, there is a considerable number of species such as Tribolium, Rhizoperta, Lasioderma, Enichmus etc. considered to be stored product insects as they find in this environment a “wooden warehouse” with perfect insulation and lots of food.

The study of species richness in combination with their interdependence and interaction together with the large ecological information and subsequent biocontrol possibilities, make insect-thistle complexes a fascinating subject for community ecology (Zwölfer 1987, 1988).

Materials and Methods

This study has been realized in 5 regions of Greece, namely Attica, Evia, Corinthia, Argolis, and Arcadia (Fig. 1) in a 2-year period and concerns the adult Coleoptera found on the following thistles: Carlina (C. acanthifolia Allioni, C. corymbosa L., C. graeca Heldreich et Sartorelli, C. lanata L.), Cirsium (C. arvense Scopoli, C. candelabrum Grisbach, C. criticum Urville, C. italicum De Candolle, C. fruticosum Petrak, C. lanceolatum Scopoli), Carduus (C. armatus Boissier et Heldreich, C. pyrnocephalus L.), Carthamus (C. dentatus Vahl, C. lannatus L., C. ruber Link), Cynara (C. cardunculus L., C. scolymus L.), Notobasis syriaca Cassini, Onopordum (O. acaanthium L., O. caulescens Urville, O. illyricum L., O. laconicum Heldreich et Sartorelli, O. meseniacum Halacy), Picnomon acarna Cassinini, Silybum marianum Gaertner (Diapoulis 1949).

Samples were collected and trap setting together with in situ observations had taken place all over the

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FIG. 1. Regions of Greece where the insect collection took place: 1. Attica, 2. Evia, 3. Corinthia, 4. Argolis, and 5. Arcadia.

year. Sticky traps consisting of white paper strips 30×8 cm, adhesive on both sides ("Lasiotrap" B.A.T., West Germany) were hanged firmly in upright position at about 1 m height from the ground level, preferably in places protected from sun and rain, in or next to sites occupied by thistles. To lure Lasioderma adults, a pheromone (2,6-diethyl-3,5 dimethyl-3,4-dihydro-2H-pyran = anhydro ericomin) in pervious dispenser (capsule) has been used. A capsule containing 10 mg of the pheromone was attached to a number of traps for about 3 weeks. When the traps were replaced with new ones, a new capsule was supplied. The old traps were wrapped in transparent cellophan paper and taken to the laboratory for the examination and identification of insects captured. Foreign laboratories and museums have contributed to the identification or verification of several insect species.
Results and Discussion

The insects collected from thistles are listed in Table 1 according to their families cited in alphabetical order. Among them, 16 species are also found in stores of agricultural products and foodstuffs and most of them are considered to be exclusive stored product insects (Aitken 1975).

Almost all thistle species (expect Notobasis and Picnomon) were found to support 4 or 5 different Lasioderma species. The highly polyphagous L. serricorne adults were numerous in flower heads and stems of Carduus, Cynara, Onopordum and Silybun but also on the same parts of Crysanthemum segetum L., in all regions from March to November; its larvae seem to feed on all dry plant parts being phytophagus as well as predators of other insect inhabitants (Sobhian and Zwölfer 1985). The same seems to happen with all Lasioderma species. The existence of thistles near or around tobacco fields and stores helps in breeding this species which is the main and most dangerous pest of stored tobacco. L. haemorrhoidale is very common on Onopordum in Attica and Evia and less on Silybun and other thistles on which it has been observed. L. redtenbacheri showed a high preference in Cynara spp. (mainly C. scolytmus) and Carduus (mainly C. pyrnocephalus) flower heads from spring to autumn. It is worthwhile to note that 68 larvae and 24 adults of L. redtenbacheri were counted in and on a single large dry C. scolytmus head in September 1987 at Candia (Argolis).

A considerable number of specimens resembling to L. serricorne could not be identified.

| Insect species | Host (genus) | Plant part | Season | Region |
|----------------|--------------|------------|--------|--------|
| Alleculidae     | Carduus      | Flowers    | +      | +      |
| Podonta sp. Mulsant | Carduus      | Flowers    | +      | +      |
| Anobiidae      | Notobasis    | Flowers    | +      | +      |
| Lasioderma serricorne F.* | Carduus      | Flowers    | +      | +      |
| Lasioderma haemorrhoidale Illiger | Notobasis | Flowers    | +      | +      |
| Lasioderma redtenbacheri Bach | Oenoporum | Flowers    | +      | +      |
| Lasioderma spp. (2) Stephens | Oenoporum | Flowers    | +      | +      |
| Anthicidae     | Cynara       | Flowers    | +      | +      |
| Anthicus floralis L.* | Carduus      | Flowers    | +      | +      |
| Bostrichidae   | Rhyzopertha dominica Stephens* | Carduus | Flowers | +      |
| Brachidae      | Spermophagus sericeus (Fourcroy)* | Carduus | Flowers | +      |
| Spermophagus spp. Steven (2) | Carduus | Flowers    | +      | +      |
| Chrysomelidae  | Chrysomela gypsophilae Küster | Carduus | Flowers | +      |
| Cyraea affinis Illiger | Carduus | Flowers    | +      | +      |
| Cryptocephalus bilineatus L. | Carduus | Flowers    | +      | +      |
| Cryptocephalus sp. Geoffroy | Carduus | Flowers    | +      | +      |
| Longitarsus succineus Foudras | Carduus | Flowers    | +      | +      |
| Cleridae       | Denops albofasciatus Charpentier | Carduus | Flowers | +      |
| Necrobia violaceae L.* | Carduus | Flowers    | +      | +      |
| Tarsoteres univittatus Rossi | Carduus | Flowers    | +      | +      |
| Trichodes apiarius L. | Carduus | Flowers    | +      | +      |
| Trichodes favarius Illiger | Carduus | Flowers    | +      | +      |
| Trichodes quadriguttatus Adams | Carduus | Flowers    | +      | +      |
| Family                  | Species Name                          | Presence |
|------------------------|---------------------------------------|----------|
| Coccinellidae          | Coccinella septempunctata L.          | +        |
|                        | Hippodamia variegata (Goze)           | +        |
|                        | Neophus redtenbacheri (Mulsant)       | +        |
|                        | Scymnus apetzi Mulsant                | +        |
| Cryptophagidae         | Cryptodrurus saginatus Sturm*         | +        |
|                        | Micranthe aubrooki Donisthorpe         | +        |
| Curculionidae          | Acmaes hypopioida Boheman             | +        |
|                        | Apion carduorum Kirby                 | +        |
|                        | Apion longirostre Olivier             | +        |
|                        | Apion rufrostre F.                    | +        |
|                        | Brachytesmaris porquatus Germar*      | +        |
|                        | Cyclopetra conescens Rossi             | +        |
|                        | Hypera passerinae Rossi                | +        |
|                        | Gymnacron melolatum Reitter            | +        |
|                        | Gymnacron plagionum Gyllenhal         | +        |
|                        | Gymnacron tetram F.                   | +        |
|                        | Lermus latus Herbst                    | +        |
|                        | Loxus elegansus Boheman               | +        |
|                        | Otiorrhynchus anatolica Boheman       | +        |
|                        | Otiorrhynchus crubricollis Gyllenhal  | +        |
|                        | Rhinocyllus conicus Fröhlich           | +        |
|                        | Tanytarsus pallidus F.                | +        |
| Histeridae             | Carcinops punctulatus Ericson*        | +        |
| Lathridiidae           | Corticaria sp. Marshall*              | +        |
|                        | Echynus rufus L.*                     | +        |
| Malachitidae (Melyridae)| Malachis bipustulatus F.*              | +        |
|                        | Psilobrix cyanus Olivier              | +        |
| Meloidae               | Mylabris quadriptenta L.              | +        |
|                        | Mylabris variabilis Pallas            | +        |
| Mordellidae            | Mordellistena spp. (2) Costa          | +        |
|                        | Stenidia bisecta Baudi                | +        |
| Mycetophagidae         | Typhaea stercorea (L.)*               | +        |
| Nitidulidae            | Brachypinus glaber Stephens*           | +        |
|                        | Carphophilus lineatus Murray*          | +        |
|                        | Carphophilus pilosellus Motschulsky*   | +        |
|                        | Nitidula carnaria Schaller*            | +        |
| Phalacridae            | Olibrus affinis Sturm                 | +        |
| Scarabaeidae           | Anomoeus elevatus F.                  | +        |
|                        | Cetonia aurata L.                     | +        |
|                        | Epicometra hirta Poda                 | +        |
|                        | Oxysyphora funesta Poda               | +        |
| Scolytidae             | Anaspis sp. Geoffroy                  | +        |
| Scolytidae             | Scolytus rugosus (Müller)              | +        |
| Tenebrionidae          | Tribolium castaneum (Herbst)*         | +        |

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by the author or by Mr R. G. Adams of the Slough Laboratory of the M.A.F.F., the British Museum (N. H.), Dr White of the U.S.D.A. and the Bayerische Staatsammlung München. So far we can say that some of these specimens could possibly be *Lasioderma torquatum* Chevrolat or that all these belong to a polymorphic species (Halperin and Español 1978, Porta 1929, Portevin 1931).

The use of adhesive traps with Anhydrosericorcin revealed that all *Lasioderma* species are more or less lured by the pheromone. The mean number of each *Lasioderma* species counted per trap with or without (control) pheromone in the 2-year period is shown in Table 2. Traps with Anhydrosericorcin lured 2.57 times more *L. serricorne*, 1.67 times more *L. haemorrhoidale*, 1.86 times more *L. redtenbacheri*, and 2.29 times more adults of the unidentified *Lasioderma* species than traps without pheromone.

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**KEY WORDS:** Coleoptera, Thistles, Cynaroidae: Compositae, *Lasiodera* spp., *Lasiodera* pheromone

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**TABLE 2.** Mean number per trap of each *Lasioderma* species adults, counted on 10 traps with and 10 without the pheromone Anhydrosericorcin, during the 2-year period in the regions studied.

| Kind of trap | *L. serricorne* | *L. haemorrhoidale* | *L. redtenbacheri* | *Lasioderma* spp. |
|--------------|-----------------|---------------------|--------------------|-------------------|
|               | Mean no./trap   | %                   | Mean no./trap      | %                 |
| Pheromone     | 108             | 72.0                | 52                 | 62.6              |
| Control       | 42              | 28.0                | 31                 | 37.4              |
|               | 80              | 65.1                | 43                 | 34.9              |
|               | 94              | 69.6                | 41                 | 30.4              |
Συμβολή στην Πανίδα των Lasioderma spp. και Άλλων Κολεοπτέρων που Βρέθηκαν σε «Αγκάθια» (Cynaroideae: Compositae) στη Νοτιοδυτική Ελλάδα

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ΠΕΡΙΛΗΨΗ
Με δειγματοληψίες και παγιδοθετήσεις που έγιναν επί διετία σε είδη της υποοικ. Cynaroideae των Compositae στις περιοχές Αττική, Εύβοια, Κορινθία, Αργολίδα και Αρκαδία (Νοτιοδυτική Ελλάδα), βρέθηκαν τουλάχιστον 64 διαφορετικά είδη ακμαίων κολεοπτέρων. Τα ονόματα των ειδών εντόμων κατά οικογένεια, η παρουσία του καθενός από αυτά σε κάθε ξενιστή, η εποχή και η περιοχή όπου έγινε η συλλογή τους εμφανίζονται σε λεπτομερή κατάλογο. Επίσης σημειώνονται όσα είδη είναι ή συνήθως θεωρούνται έντομα αποθηκών ενώ γίνεται ειδική αναφορά στα είδη του γένους Lasioderma που βρέθηκαν και στην κατανομή τους στα διάφορα είδη «αγκαθιών». 

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