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HYPSELOECUS VISCI (PUT.) IN CZECHOSLOVAKIA
(HETEROPTERA: MIRIDAE)

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Abstract: *Hypseloecus visci* (PUTON, 1889) (Heteroptera: Miridae: Orthotylinae: Pilophorini) is recorded for the second time from Czechoslovakia. Its biotic associations are noted, and the distribution of the European species of Heteroptera associated with Loranthaceae is discussed.

While studying the occurrence of Curculionidae on Loranthaceae in Southern Moravia Dr. J. Strejček (Regional Centre of Nature (Conservancy, Prague) collected an interesting material of Heteroptera on which the present study is based. My thanks are due to him for putting the material at my disposal and for providing information on the habitat.

European Heteroptera associated with Loranthaceae

There are four species of European Heteroptera associated with the parasitic plant family Loranthaceae, as follows:

a) On *Viscum album* L. (only on the biological race parasitizing on broad-leaved trees, never on the one living on conifers):

1. *Anthocoris visci* DOUGLAS, 1889 (Anthocoridae)

A predatory species feeding on larvae of *Psylla visci* CURTIS, 1835 (see SOUTHWOOD & LESTON, 1959, PÉRICART, 1972).

Distribution (KIRIČENKO, 1951, STICHEL, 1956—62, WAGNER, 1967, COBBEN & ARNAUD, 1969, PÉRICART, 1972): Spain, France, England, Nederland, Belgium, W. and E. Germany. Czechoslovakia (S. Moravia: Uherčice — STEHLÍK, 1945), Yugoslavia (?), Crimea and N. Caucasus.

2. *Orthops viscicola* (PUTON, 1888) (Miridae: Mirinae)

A phytophagous species.

Distribution (ŠTYS, 1970): Morocco, France, S. England, Nederland (COBBEN & ARNAUD, 1969), Switzerland, W. and E. Germany, Czechoslovakia (C. Moravia: Čechy pod Kosířem nr. Prostějov — STEHLÍK, 1971), Transcarpathia, Crimea and N. Caucasus.

3. *Hypseloecus visci* (PUTON, 1888) (Miridae: Orthotylinae: Pilophorini)

Food relations unknown; it has been regarded by COBBEN & ARNAUD (1969) as "probably exclusively phytophagous", but since all the species of *Pilophorus* HAHN, 1826 which is the only other European genus of Pilophorini, are exclusively or predominantly predatory, this might be true for *Hypseloecus* REUTER, 1891 as well.

Distribution (COBBEN & ARNAUD, 1969, KIRIČENKO, 1951, WAGNER, 1962, WAGNER & WEBER, 1964): France, Nederland, W. and E. Germany, Czechoslovakia (S. Moravia: Lednice — new record; Žerůvky-STEHLÍK, 1971), Crimea and Caucasus.

b) On *Loranthus europaeus* L.:

4. *Orthops coccineus* (HORVATH, 1889) (Miridae: Mirinae)

A phytophagous species originally described as *Lygus cervinus* var. *coccineus* and then forgotten for eighty years. Its specific status has been recognized only by ŠTYS (1970).

Distribution (ŠTYS, 1970): Serbia, Hungary, Czechoslovakia (E. Slovakia: various localities in the Slovakian Karst*), S. Moravia: Lednice).

The distribution of all the species mentioned above is incompletely known owing to obvious difficulties in collecting on Loranthaceae growing often high in the crowns of trees. Nevertheless, the presently known ranges of the three species living on *Viscum album* may be characterized as essentially West-Mediterranean with a northern extension into Western and Central Europe (i. e., with more or less Atlantic type of distribution) and with an isolated part of the range along the northern and eastern coasts of the Black Sea (the record of *Anthocoris visci* from Yugoslavia is doubtful — see PÉRICART, 1972). The absence of any records of these species from S. E. Europe is striking, since the range of *Viscum album* is continuous. This gap in distribution is due not only to insufficient knowledge of the fauna — a good evidence of it is provided by *Orthops coccineus*. This species which lives on *Loranthus europaeus* may be characterized as a

*) The regular occurrence of this species on *Loranthus europaeus* growing on *Quercus cerris* between Hrhov and Zadiel was verified on 3. 6. 1971 (lgt. P. Štys and V. Straka whose help is much appreciated).

Pannonian element (ŠTYS, 1970), and its range fills the gap in the distribution of its sister-species, *Orthops viscicola*. These kinds of disjunctive distribution of the species associated with *Viscum album* were probably caused by postglacial migration routes of their host plant from its glacial refuges, the bugs dispersing probably at much slower rate than the plant, and, moreover, probably avoiding the regions under influence of a more continental climate. Since all the mentioned Heteroptera associated with Lorantheae are confined exclusively to their host-plant species, they could be — after elucidation of their present distribution — used as models for biogeographical studies concerning the evolution of the distributional patterns of interesting chains of intimately associated parasitic plant and insect species (as e. g. host-trees of mistletoe — *Viscum album* — *Psylla visci* — *Anthocoris visci*). Any new data on the distribution and habitats of these species are, therefore, of a general biological interest.

Hypseloecus visci (PUT.) in Southern Moravia: Lednice

Material examined: 19 ♂♂ and 55 ♀♀, 8. 7. 1971; 13 ♀♀, 26. 8. 1971. All lgt. Strejček, coll. Štys and coll. Ent. Dept., Nat. Mus., Praha.

Habitat: Found on *Viscum album* L. growing on *Juglans nigra* L. and on a non-indigenous species of *Acer* sp. in a castle park, and on *Viscum album* L. on *Tilia* sp. in a lowland inundation forest. Collected with a light beating net attached to a long stick.

Associated species of Heteroptera: 8. 7. 1971: *Anthocoris nemoralis* (F.) — 7 ♂♂; 26. 8. 1971: *Anthocoris nemoralis* (F.) — 1 ♂, 2 ♀♀, *Orius* (*Heterorius*) *minutus* (L.) — 2 ♀♀, *Deraeocoris* (*Knightcapsus*) *lutescens* (SCHILL.) — 3 ♂♂, 6 ♀♀. On both occasions *Psylla* sp. has also been collected. The associated species of Heteroptera are predatory, and none of them has any special affinity to the mistletoe. All specimens of *Anthocoris nemoralis* (F.) agree with biometrical data recorded by COBBEN & ARNAUD (1969); this species occurs on a variety of broad-leaved trees, and it is probably attracted to the mistletoe by the presence of Psyllids — the same species was collected on *Loranthus europaeus* growing on oaks at localities of *Orthops coccineus* (see ŠTYS, 1970). Strangely enough, I have never encountered the species *Anthocoris visci* during the study of Heteroptera associated with Lorantheae in Czechoslovakia.

The present record of *Hypseloecus visci* is the second one from Czechoslovakia. The Czechoslovakian localities bridge the wide gap between the western and eastern ranges of this species, but, nevertheless, the nearest locality of its eastern range in the Crimea remains some 850 km distant from southern Moravia; in a lesser degree the same applies to the recent STEHLÍK's (1971) find of *Orthops viscicola* in C. Moravia.

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