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NEW BIOLOGICAL AND TAXONOMICAL RECORDS IN
XENOMERUS SPP. (HYMENOPTERA, SCELIONIDAE)

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NEW BIOLOGICAL AND TAXONOMICAL RECORDS IN
XENOMERUS SPP. (HYMENOPTERA, SCELIONIDAE)(**)

During observations on Gypsy Moth egg-parasitoids carried out in Central Italy (Perugia, Monte Peglia, 500-600 m a.s.l.) egg-masses were collected and parasitoids sampled with Malaise trap in oak tree woods where severe outbreaks have occurred recently and in past years (NIZI & PROSPERI, 1973). These observations had provided the opportunity of gathering some new information on the two described species of *Xenomerus* Walker which, although described in the 1830's and recorded (MASNER, 1976) over the whole world except in the Nearctic Region is very little known.

Larvae of *Xenomonus ergenna* Walk. are egg parasitoids of a carabid, a possible predator of Gypsy Moth. The male of *X. canariensis* Huggert (HUGGERT, 1974) is described and the geographic distribution of both species is updated.

Host record of *Xenomerus ergenna* Walker

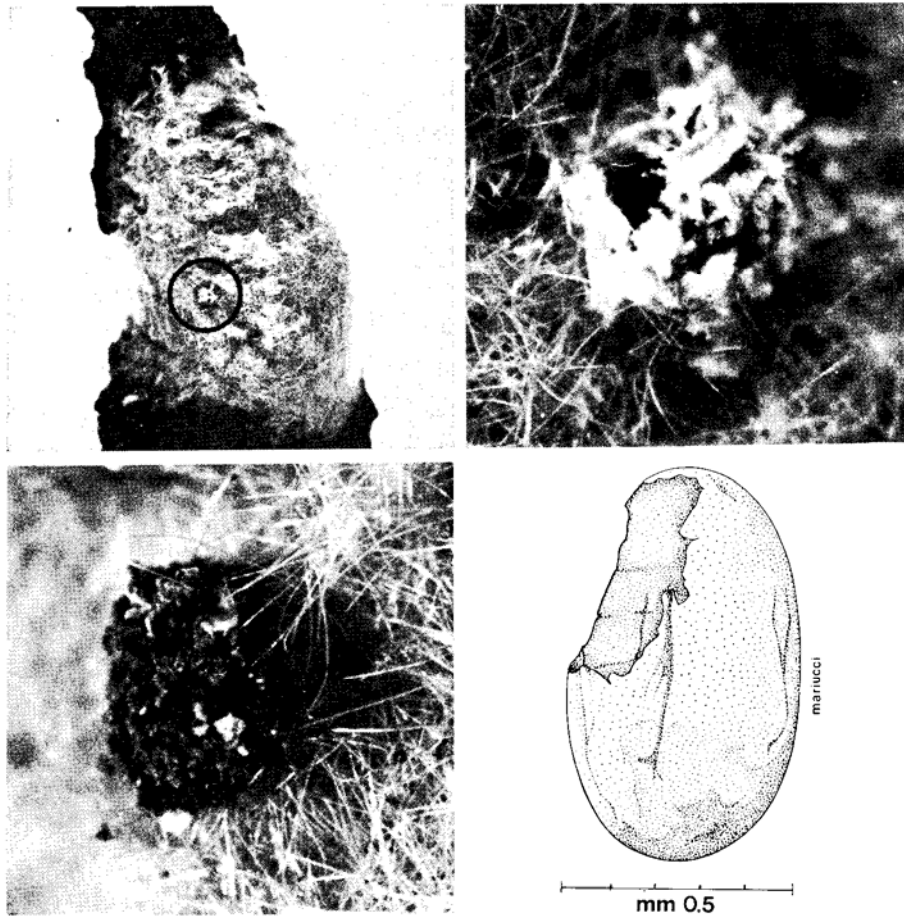
Curious objects (Fig. 1) were observed on two eggs masses of Gypsy Moth, collected from oak trees in late autumn; objects have since been kept isolated. Under laboratory conditions, two females of *Xenomerus ergenna* Walk. emerged, so it was clear that the two unknown objects were egg-cases. The emergence hole was on the upper (Fig. 2) or the lower side (Fig. 3). The egg cases were strongly glued to the Gypsy Moth egg-mass but were easily detached after a weak treatment with KOH (10%). These egg-cases seem to be of a waxy material completely wrapping the egg, thinner on the ventral than the dorsal side. The egg (Fig. 4) is about 1 mm long and 0.5 mm wide, with a thin, virtually smooth chorion.

The scanty data available suggest that such egg-cases are characteristic of the genus *Dromius* Bon. (Coleoptera, Carabidae) (GOULET and BRANDMAYR, in litt.). As the adults of *Dromius* spp. are known to be tree and shrub dwellers (THIELE, 1977 and GOULET, pers. comm.), several collections were made during winter from under barks and mosses of the same oaks where Gypsy Moth egg masses were found. *Dromius meridionalis* Dej. was the most common species found, but *D. quadrimaculatus* L. was also present. Laboratory attempts to rear the first species with Gypsy Moth eggs and/or first instar larvae failed and no other outbreaks of the pest have occurred so far.

This information indicates that the egg-cases could belong to *Dromius meridionalis* Dej. It has not been possible to determine whether the connec-

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Figs. 1-4 - Gypsy Moth egg-mass with an egg-case (circled) of *Dromius* sp. (1); detail of egg-case in which the emergence hole made by *Xenomerus ergenna* Walk. is visible (2); another egg-case, whose emergence hole is located ventrally (3), with the corresponding egg, which hosted *Xenomerus ergenna* Walk., showing emergence hole and meconium (4).

tion between *Dromius* sp. and Gypsy Moth egg-masses is casual or not. The oviposition of *Dromius* sp. on egg-masses could be casual but the formation of egg-case, regarded as a form of parental care (BRANDMAYR, 1977 and in litt.), and possibly also the place chosen for egg laying could be closely related to the diet of larvae. Therefore, larvae of *Dromius* sp. could be predators of the Gypsy Moth eggs, or newly hatched larvae. Further research is necessary to prove this hypothesis.

Hoy (1976) stressed the importance of egg-predators in biological control of Gypsy Moth and has suggested introduction into North America. The advantage of introducing them is twofold, since they destroy eggs and make lower layers of egg-masses accessible for egg-parasitoids. The potential of a possible predator such as *Dromius*, if introduced and established in North

America, would not be limited by its egg-parasitoid belonging to the genus *Xenomerus* Walk., as this genus is totally absent in the New World (MASNER, in litt.).

Lastly, this host record should draw attention to some « rare » parasitoid « reared » from Gypsy Moth egg-masses which may not be associated with eggs of this moth, but those of another species.

The presence of *Xenomerus ergenna* Walk. was previously recorded in Italy (MINEO, 1979) and is now updated with the following data: Perugia (Monte Peglia), oak tree wood, leg. Bin, Malaise trap, 1 ♀ 4-14/VII/78, 1 ♂ 1-17/X/78; Sardinia, Tempio Pausania, *Quercus suber* wood, leg. Luciano, Malaise trap, 1 ♂ 8-15/V/78; 1 ♀ 15-22/V/78, 1 ♀ 5-12/VI/78.

Description of the new male of
Xenomerus canariensis Huggert

Several specimens of both sexes of *Xenomerus canariensis* Huggert, were collected in the same area that *Xenomerus ergenna* Walker was reared. Till now only females of the first species have been known (HUGGERT, 1974), and so males are described for the first time. The females of the two species have already been compared (HUGGERT, 1974) therefore, only the most distinctive characters of the males are described here.

The male of *Xenomerus canariensis* Huggert (Figs 5-10) exhibits the following characters: 5th antennomere (sex-segment) with well developed tyloid placed in the middle; antennomeres 6-10 knotted in the basal half, bottle shaped, the neck being about a half the total length of the antennomere; fore wing narrow, width/length ratio about 1:4, slightly infumate, with long marginal cilia (longest marginal cilia about 0.5 of maximum fore wing width); hind wing narrow (maximum width equal to longest marginal cilia).

The corresponding characters in the male of *Xenomerus ergenna* Walker (Figs. 11-16) are: 5th antennomere (sex-segment) with weakly developed tyloid placed in the apical half; antennomere 6-10 knotted in the basal two-thirds, the neck is about one third of the total length; fore wings large, width/length ratio about 1:2.4, clear, marginal fringe short (longest marginal cilia slightly more than 1/5 of maximum fore wing width); hind wing large (maximum width slightly more than twice the longest marginal cilia).

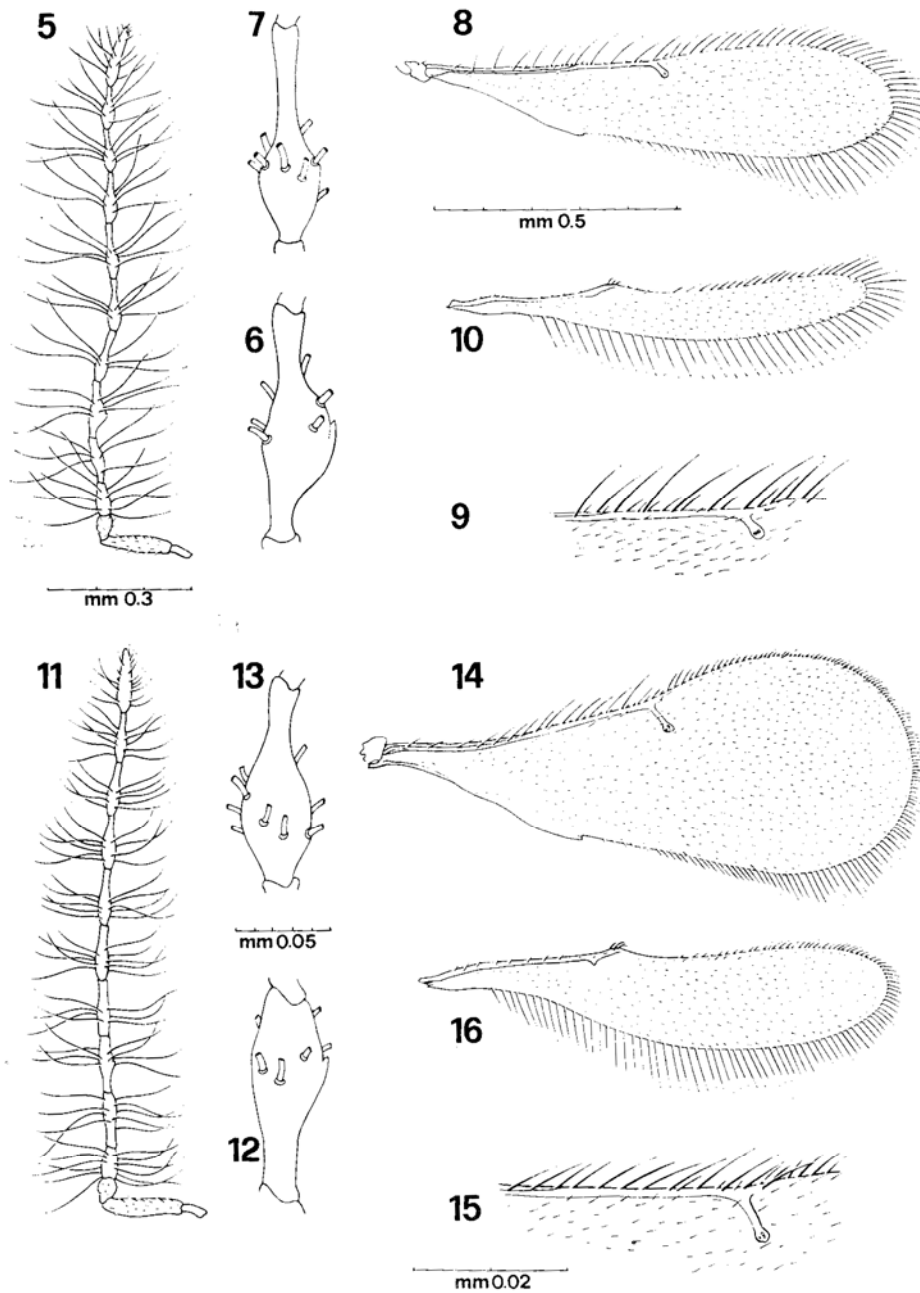
In the macro habitus *Xenomerus canariensis* Hugg. differs from *X. ergenna* Walk. being smaller with slightly longer antennal bristles.

Other male characters in both species, such as sculpture, wing venation, colour, etc. are virtually the same as for the respective females.

The first known male was collected in Italy (Perugia, Monte Peglia, 550 m a.s.l., oak wood, Malaise trap) and is preserved in my collection.

Although the biology of *Xenomerus canariensis* Hug. unknown because of the host record of *Xenomerus ergenna* Walk. published in this paper, it is likely to be a parasitoid of some arboreal *Coleoptera Carabidae*. The host should not be rare since *Xenomerus canariensis* Huggert is rather common in comparison with the relatively few specimens of *Xenomerus ergenna* Walk. captured in the same locality using the same method (Malaise trap).

Xenomerus canariensis Huggert known so far only from the Canary Island is now also recorded in Italian localities, other than those mentioned above, and some other European countries. Italy: Piacenza (Bobbio), leg. Bin,



Figs. 5-15 - *Xenomerus canariensis* Huggert, ♂: antenna (5), 5th antennomere (sex-segment) (6), 8th antennomere (7), fore wing (8) and detail of its venation (9), hind wing (10). *Xenomerus ergenna* Walker, ♂: antenna (11), 5th antennomere (sex-segment) (12), 8th antennomere (13), fore wing (14) and detail of its venation (15), hind wing (16).

sweeping, 1 ♀ 22/V/68; Piacenza (Velleia), leg. Bin, Malaise trap, 1 ♀ 4/IX/73; Perugia (Monte Peglia), oak tree wood, leg. Bin, Malaise trap, 2 ♂♂ 23-VI/4-VII/78, 3 ♀♀ 4-14/VII/78, 1 ♂ 23-VII/1-VIII/78, 1 ♂ 24-VIII/1-IX/78, 1 ♂ 8-15/IX/78, 1 ♂ 1-17/X/78, 1 ♂ 1-9/XI/78; Sardinia, Tempio Pausania, *Quercus suber* wood, leg. Luciano, Malaise trap, 1 ♂ 24-IV/1-V/78, 2 ♂♂ 1 ♀ 8-15/V/78, 1 ♂ 20-29/V/78, 4 ♂♂ 1 ♀ 29-V/5-VI/78, 1 ♂ 5-12/VI/78, 1 ♀ 12-17/VI/78, 1 ♀ 3-10/VII/78, 3 ♀♀ 4-14/VII/78, 2 ♂♂ 10-17/VII/78, 1 ♂ 17-24/VII/78, 1 ♀ 14-21/VIII/78, 1 ♀ 4-11/IX/78, 8 ♀♀ 11-18/IX/78, 5 ♀♀ 18-25/IX/78, 2 ♀♀ 25-IX/2-X/78, 7 ♀♀ 2-9/X/78, 5 ♀♀ 9-16/X/78, 1 ♂ 1 ♀ 30-X/6-XI/78, 1 ♂ 1 ♀ 6-13/XI/78. Belgium: Coxyde, leg. Dessart, 1 ♂ 2/VIII/73. France: Montpellier, leg. Huber, sweeping vegetation along a river, 2 ♂♂ 13/V/79; pan trap, 2 ♂♂ 25/IV/80, 1 ♀ 5-10/V/80, 1 ♀ 8-14/IX/79; Dept. Herault, Cournonsec, 1 ♂ 7/III/78. Holland: Rips, N. Brabant, leg. Vlug, Malaise trap, 1 ♂ 5/IX/78, 1 ♀ IX/78; Utrecht, Leersum, *Vinca*, 1 ♀ VI/75, 1 ♀ VII/75, 1 ♀ VIII/75, 6 ♀♀ X/75. England: Torquay, Devon, Vockeroth, 1 ♂ 19/VI/60.

DISCUSSION

The host relationship of *Xenomerus ergenna* Walk. indicates that members of *Xenomerini* Kozlov, the more specialized group in *Teleasinae* (MASNER, 1976), are associated with *Coleoptera Carabidae* and corroborates the hypothesis that the whole subfamily is strictly confined to the eggs of these beetles. The retention of *Teleasinae* as an independent subfamily is therefore further justified because of its host relationship (MASNER, 1976). However, judging from the scanty biological data, the two tribes, *Xenomerini* and *Teleasini*, differ in ecological preferences in that the first lives in an arboreal habitat whereas the second finds its host on the ground.

The recently discovered presence of the common *Xenomerus canariensis* Huggert and the very long record (since 1830's) of *Xenomerus ergenna* Walker as the only Palaearctic species (DEBAUCHE, 1947; MASNER, 1956; SZABO, 1966; HELLEN, 1971) leads to the suspicion that the former species has been overlooked and confused with the latter, for example the male recorded in Italy (MINEO, 1979). The subject therefore requires revision which, at present in the Palaearctic Region, should include the two above mentioned species, which fit perfectly the generic diagnosis (MASNER, 1976 and 1980), and others described in the genus *Niteogryon* Szabò (SZABO, 1966) but later regarded (HELLEN, 1971) as a subgenus of *Xenomerus*, so confirming the rather vague morphological limits of these two genera.

SUMMARY

Two females of *Xenomerus ergenna* Walk. were reared from two egg cases of presumed *Dromius* sp. (Col., *Carabidae*) in Central Italy. The *Dromius* eggs were protected by cases and both glued on Gypsy Moth egg masses, attached to an oak tree in a wood where severe outbreaks of the pest occur from time to time. The association of *Dromius* sp. with Gypsy Moth egg masses and the possibility that it could be a useful predator is speculated. *Xenomerus ergenna* Walk. is recorded also in Sardinia.

The unknown male of *Xenomerus canariensis* Huggert is described and compared with that of *Xenomerus ergenna* Walker. *Xenomerus canariensis* Huggert is also reported

from other Italian regions (Sicily and Sardinia) and other European countries (France, Holland, England) appearing to be more common than *Xenomerus ergenna* Walk.

Some biological and taxonomical aspects of *Xenomerini* are briefly discussed.

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