FIRST RECORDS OF PROTURA (ARTHROPODA: HEXAPODA) IN CAMPANIA, SOUTH-ITALY

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ABSTRACT

The first records of Protura in three localities of Campania (South Italy) are shown. Three species were recorded: *Acerentulus confinis* (88 specimens), *Gracilentulus gracilis* (34) and *Eosentomon transitorium* (1). Some considerations are outlined on the presence of juvenile individuals and on the sex ratio of the two dominant species.

KEYWORDS: Acerentomidae, *Acerentulus*, *Gracilentulus*, oak wood, sex ratio, vineyard.

SHORT NOTE

Protura are poorly known soil micro-arthropods (see Nosek, 1973). A couple of rather recent papers described the Italian fauna of Protura (Galli et al., 2011) and its ecology (Galli et al., 2019b), but no data from Campania (Southern Italy) were available. The only generic information about Protura in this region was the recorded presence of specimens in some of the biotopes studied by Battaglini (1964) in the Astroni area, close to Naples. In this faunal note, the data relating to proturans more recently collected in Campania (Figure 1) are presented in detail.

Proturans from soil samples were extracted by means of Berlese-Tullgren funnels. Then, they were incubated at 40–50° C for 24 hours in lactic acid to make them clear, and finally mounted on slides in Marc André II medium. Specimens were observed and identified to species and life-stage levels with the aid of an interference contrast microscope (Leica DM LB2), a Leica DFC 295 camera and Leica Application Suite Vers. 3.8.

Results are listed below.

Anacapri (Naples province) on Solaro mt. (Bosco dell'Anginola), 500 m elev., under Holm oak *Quercus ilex*, 14.IV.2022, coll. P. Gardini & M. Cogorno. *Eosentomon transitorium* Berlese, 1908: 1 maturus junior.

Starza (Santa Maria di Castellabate, Salerno province), 30 m elev., vineyard, 26.IV.2019, coll. A. Comenale. *Acerentulus confinis* (Berlese, 1908): 1 male, 6 females, 5 maturi juniores, 1 individual moulting from larva II to maturus junior, 2 larvae II, 3 larvae I.

Starza (Santa Maria di Castellabate, Salerno province), 30 m elev., oak wood, 26.IV.2019, coll. A. Comenale - *Acerentulus confinis* (Berlese, 1908): 22 males, 18 females, 1 praeimago, 19 maturi juniores, 2 individuals moulting from larva II to maturus junior, 6 larvae II, 2 larvae I. *Gracilentulus gracilis* (Berlese, 1908): 10 males, 10 females, 9 maturi juniores, 4 larvae II, 1 larva I. *Eosentomon* cf *transitorium*: 1 female.

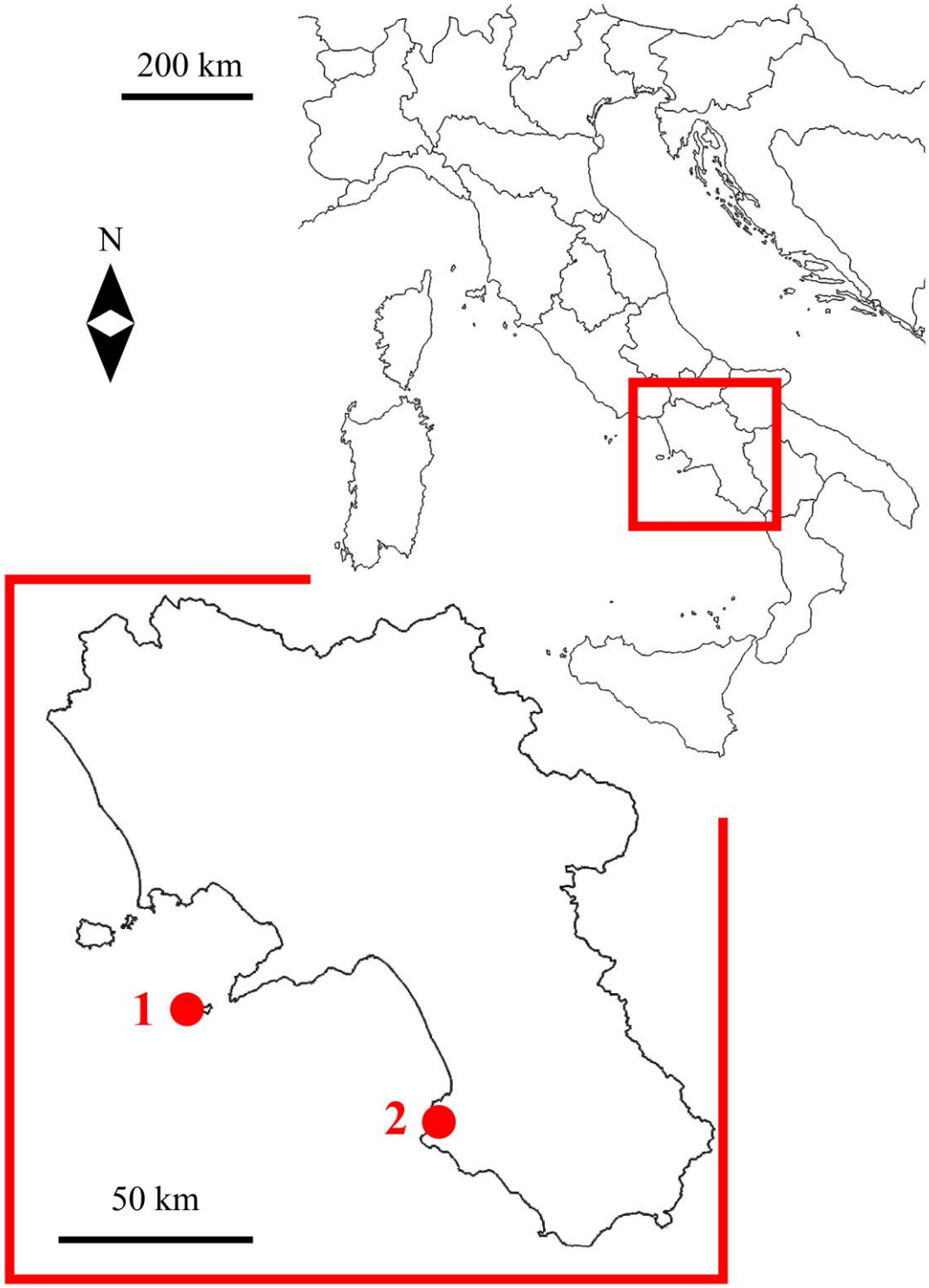

Figure 1. Sampling localities in Campania (Southern Italy). 1 Anacapri (Naples); 2 Starza, Santa Maria di Castellabate (Salerno).

The dominant species resulted to be *A. confinis* (totally 88 specimens), followed by *G. gracilis* (34). The records of these species in Campania in the recent Italian check-list (Galli, 2021) were based on the preliminary analysis of part of the specimens from Santa Maria di

Castellabate. *Acerentulus confinis*, *G. gracilis*, as well as *E. transitorium*, have wide ranges (Szeptycki, 2007) and this supports the observation that moving from the north to the south of Italy, Protura assemblages include proportionally evermore widespread species (Galli et al., 2019a).

In Starza's oak wood, where the number of adults is sufficient for a quantitative analysis both in *A. confinis* and *G. gracilis* the sex ratio is approximately equal to one. While the latter has not been examined, *A. confinis* local population differs from what has been recorded in Italy, where the overall sex ratio results unbalanced towards females (Galli et al., 2019). Moreover, for both species a high percentage of juvenile specimens (from larva I to praeimago) was obtained, highlighting that the sampling period (end of April) falls within their breeding season (for the phenology of *A. confinis* in a northern Italy population, see Galli et al., 2012).

Protura assemblages of vineyard and oak wood in Starza (S.M. di Castellabate) were compared by χ^2 analysis using software PAST (version 4.10 - Hammer et al. 2001) and they resulted statistically different (Table I). Therefore *A. confinis* seems to be more adapted to the soil characteristics and management of the vineyards than *G. gracilis*, which was abundant in the soil of the close natural oak wood.

Table I. Comparison between Protura assemblages in vineyard and Oak wood (S.M. di Castellabate).

	Vineyard	**Oak wood**	χ^2
Acerentulus confinis	18	70	χ^2=8.152, d.f. = 2
Gracilentulus gracilis	-	34	Monte Carlo $p < 0.05$
Eosentomon cf *transitorium*	-	1	Fisher exact test $p_{(no\ assoc.)} < 0.01$

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