

Parental care in *Akymnopellis chilensis* (Gervais, 1847)

(Myriapoda, Chilopoda, Scolopendromorpha, Scolopendridae)

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Parental care in *Akymnopellis chilensis* is described for the first time. Females were observed coiling around the offspring with the ventral side. This is in accordance with all other known cases of parental care within the order Scolopendromorpha.

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Introduction

Several studies related to parental care in Chilopoda have recently been published (Bonato & Minelli 2002, Chiarello 2015, Kudo et al. 2016, Mitić et al. 2010, 2016). However, knowledge regarding reproductive behaviour for these arthropods remains insufficient (Bonato & Minelli 2002).

Two clades are distinguished within the chilopods: Adesmata, grouping the orders Scutigermorpha and Lithobiomorpha, which do not present any type of parental care, and Phylactometria, grouping the orders Craterostigmomorpha and Epimorpha (Scolopendromorpha and Geophilomorpha), which do present parental care (Bonato & Minelli 2002).

Two alternative positions can be identified within Phylactometria: one where the female coils around the offspring with the sternites outwards, as is the case with Geophilomorpha, and another where the female coils around the offspring with the tergites outwards, characteristic of the orders

Craterostigmomorpha and Scolopendromorpha (Bonato & Minelli, 2002, Edgecombe et al. 2010). In Chile, studies regarding these arthropods have been scarce and discontinuous, and records on parental care have never been established. For this reason the present work describes the first record of parental care in Chilean chilopods, specifically of the species *Akymnopellis chilensis* (Gervais, 1847).

Methods

In the summer of 2016 in the Valdivian forests of southern Chile, field surveys were carried out in search of *Akymnopellis chilensis* (Gervais, 1847) in order to document the parental care of this species, following the Bonato & Minelli (2002) methodology.

The specimens were photographed on site using a NIKON D-3200 camera. The papers of Chamberlin (1955) and Vega-Román & Ruiz (2014) were used for determination, as well as the diagnostic characteristics presented by Shelley (2008).



Fig. 1. Parental care in *Akymnopellis chilensis* with the terga facing outwards and the sternites in contact with the offspring.

Results and discussion

A specimen of *A. chilensis* was found inside a buried decaying trunk covered with litter and humus.

The ventral surface (sternites) of the female was in contact with the offspring (eggs or juveniles) and

with the dorsal surface (tergites) facing outwards (Fig. 1). The body was coiled in a simple loop around the offspring. The anterior region, however, was in constant motion always facing towards the entrance of the burrow. When it felt disturbed, the female moved one of the offspring from one place to another using the forcipules and the first pair of legs. It subsequently continued with the same movement of the anterior region, keeping the forcipules open. During the majority of the observation period, the specimen maintained the movement of the anterior body region, always directed towards the entrance of the burrow, without changing the coiled position.

The offspring were very similar to the early stages of Geophilomorpha, especially in the lack of movement and in the coiled position (Fig. 2). The bodies of the offspring were coiled in a circle, with no apparent movement; the tergites were slightly visible, and the locomotive appendages could be observed in each of them. Neither the pleura nor the sternites were observable. The cephalic plaque was developed and presented a pair of forward facing

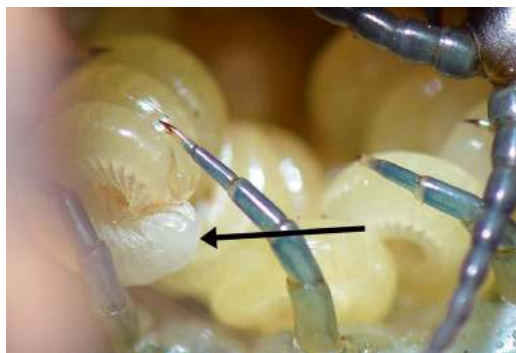


Fig. 2. Offspring stages.

antennae in its anterior region. The pigmentation had not yet developed. All the offspring were whitish.

The position adopted by *A. chilensis* females with their offspring during breeding season had not previously been described. Unfortunately, no data are available on the other species of the genus in order to assess whether the behaviour of *A. chilensis* mothers is typical for the species, whether it varies between specimens, or whether it is shared with other species of the genus, *Akymnopellis platei* (Attems, 1903) or *Akymnopellis laevigata* (Porat, 1876). However, the females position with the offspring follows the pattern documented in all other species of the order Scolopendromorpha (Bonato & Minelli 2002, Siriwt et al. 2014, Mitić et al. 2016).

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