

A species complex in the genus *Notogynaphallia* (Platyhelminthes, Tricladida, Terricola)

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GRAFF (1899) (1) was the first to describe, based on material from Taquara, state of Rio Grande do Sul, Brazil, a land planarian with an elongated body, parallel margins and yellowish dorsum with five dark longitudinal stripes. The worms were identified as *Geoplana marginata* Schultze et Müller, 1857. The author also studied a seven-striped worm from the same locality, naming it *Geoplana marginata* var. *abundans*. GRAFF illustrated the copulatory apparatus of the species with a penis papilla, and a long seminal vesicle with the efferent ducts entering into its proximal end. However, he did not specify the external aspects of the sectioned specimen. Later, worms with five dark longitudinal stripes on a yellowish background, from the states of Rio de Janeiro (2, 3) and São Paulo (4), were studied. RIESTER (2) considered his material conspecific with GRAFF's, as did MARCUS (4) who interpreted the penis papilla of GRAFF's specimen as a temporary structure, as was verified in his own material. E.M. FROELICH (3) concluded that her material was conspecific with RIESTER's and different from MARCUS' and GRAFF's species. She separated the two species renaming RIESTER's *G. caissara*. C.G. FROELICH (5) showed that GRAFF's specimens could not be *G. marginata* Schultze et Müller, but did not rename Graff's species. He also analysed two seven-striped worms from Rio Grande do Sul, the anatomy of which was not in agreement with GRAFF's drawing, naming it *G. abundans*. The anatomy of the species, however, was not described. Thus, the five-striped GRAFF material, as well as MARCUS' material, remained without a well-defined taxonomic status. When OGREN & KAWAKATSU (6) erected the genus *Notogynaphallia* to Geoplaninae without a penis papilla, the male atrium with folded walls, and the female canal entering dorsally into the atrium, *G. marginata* sensu Graff and *G. abundans* were included.

On studying the geoplanid fauna of the National Forest of São Francisco de Paula, Rio Grande do Sul, 50 km from Taquara, we verified the occurrence of three morphospecies with elongated bodies, parallel margins and yellowish dorsa with five dark longitudinal stripes. Despite these shared characters the morphospecies could be distinguished by the width of the stripes and pattern of

distribution. In the present work we study these morphospecies as well as the anatomy of *N. abundans*.

The National Forest of São Francisco de Paula is located between 29°23' and 29°27'S, and 50°23' and 50°25'W, at an altitude of ~930 m. Specimens of *Notogynaphallia abundans* were from Salvador do Sul, Novo Hamburgo and São Leopoldo, state of Rio Grande do Sul, Brazil. In the laboratory, the external aspects were observed from live and fixed animals. They were killed using boiling water and fixed with neutral formaldehyde. The ratio of the height of cutaneous musculature to the height of the body (mc:h index) was calculated by the method of C.G. FROELICH (7).

The four species constitute a complex presenting a long prostatic vesicle, a folded and usually very long male atrium, a female atrium ending in a dorsally or dorso-anteriorly directed proximal diverticulum (vagina), and a long common glandular oviduct approaching dorso-anteriorly. The species, besides the details of the external morphology, can be mainly distinguished by the following anatomical characters: thickness of the cutaneous musculature (mc:index), position of the ovary and first testes relative to the body length, exit of the oviduct tubes in relation to the surface of the ovaries, rising of the oviducts in relation to the gonopore, posterior limit of the serial testes, site of the efferent duct entrance into the prostatic vesicle, morphology of the prostatic vesicle, and morphology of the male and female atria.

The study of the external morphology and the anatomy of *Notogynaphallia* sp. 1 and the comparison with the 23 described species of the genus lead us to conclude it is a new species. The external aspects and the anatomy of *Notogynaphallia* sp. 2 are concordant with those of *N. marginata* sensu Marcus, despite some variations of the relative width of both the paired stripes. *Notogynaphallia* sp. 3 has the same external morphology as *N. marginata* sensu Graff, besides a very similar anatomy of the copulatory apparatus. Thus, the study confirmed our presumption that *N. marginata* sensu Graff and *N. marginata* sensu Marcus are different species, so both will be renamed. *N. abundans* was validated as a distinct species and its anatomy will be described.

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