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The hemipenis of *Opipeuter xestus* (Squamata: Gymnophthalmidae)

GUNTHER KÖHLER & MILAN VESELY

Abstract. The everted hemipenis of *Opipeuter xestus* is described and illustrated. At the median welt several enlarged spines are present, a feature absent in the known hemipenes of the other gymnophthalmid genera.

Key words. Reptilia, Squamata, Gymnophthalmidae, *Opipeuter xestus*, hemipenis morphology.

UZZELL (1969) described the new genus and species *Opipeuter xestus* from "Incachaca, Cochabamba, Bolivia". He differentiated his new taxon from all other gymnophthalmids (=microteiids) by the combination of smooth body scales, the large, nearly circular, undivided transparent disc in the lower eyelid, and the distinctive hemipenis morphology. UZZELL (1969) had no specimen of *O. xestus* with everted hemipenis at hand, so he had to rely on information generated from the dissection of inverted hemipenes. Since its original description, *O. xestus* has received little attention and is only mentioned briefly in some checklists and accounts (KÖHLER et al. 1995, DIRKSEN & DE LA RIVA 1999, PINCHEIRA-DONOSO 2002) and in a recent paper dealing with the taxonomy of the supposedly closely related genera *Euspondylus* and *Proctoporus* (KÖHLER & LEHR 2004). CEI (1993) provided data on the external morphology and natural history of *Opipeuter xestus* in northern Argentina, as well as drawings of a portion of the inverted hemipenis based on photographs in UZZELL (1969). Descriptions of the hemipenial morphology for eight gymnophthalmid species were provided by PRESCH (1978), and KIZIRIAN (1996) described and illustrated the hemipenes of most Ecuadorian species of *Riama* (formerly *Proctoporus*). However, the everted hemipenis of *O. xestus* has not been described nor illustrated. In the

Gymnophthalmidae, the hemipenis has the potential to be a rich source of data for taxonomic and possibly also for phylogenetic information. The available data on gymnophthalmid hemipenis variation indicates a wide range of interspecific variation and little intraspecific variation (PRESCH 1978, KIZIRIAN 1996, KÖHLER & LEHR 2004).

We have started a study on the morphological variation and distribution of *O. xestus* and have examined 24 Bolivian specimens of this species from the following museum collections: Florida Museum of Natural History, University of Florida: UF 130008-20, Departamento de Cochabamba, 6 km NNE Puna, 2800 m; Zoologische Staatssammlung München: ZSM 5/1940-1, Departamento de Cochabamba, Yungas del Palmar; Zoologisches Forschungsmuseum A. Koenig: ZFMK 57841-42, 60184, Departamento de Cochabamba, Sehuencas, 2200 m; Forschungsinstitut und Naturmuseum Senckenberg: SMF 81841, Departamento de Santa Cruz, Remates, 2300 m. This study is an ongoing effort and its results will be published elsewhere. In the collection of the Florida Museum of Natural History, University of Florida, we came across an adult male of *O. xestus* (UF 130012) with almost completely everted hemipenes. To provide a description and illustration of the hemipenis, we separated one of them, along with its retractor

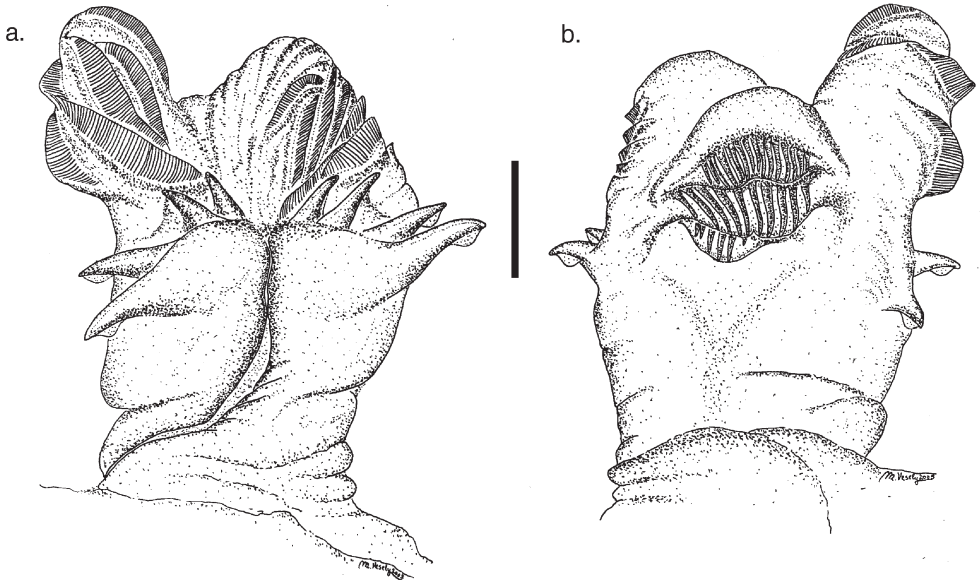


Fig. 1. Left hemipenis of *Opipeuter xestus* (UF 130012): (a) sulcate view, (b) asulcate view. Scale bar = 1.0 mm.

muscle, from the specimen. Terminology for hemipenial morphology follows that of SAVAGE (1997).

UF 130012 has a snout-vent length of 43 mm and fits well the description for *O. xestus* given by UZZELL (1969). It has a large, nearly circular, undivided transparent disc in the lower eyelid; smooth dorsal scales, 44 in a longitudinal count at midbody; some mid-dorsal scales irregularly arranged; complete longitudinal ventral count 28; eight longitudinal ventral scale rows at midbody; 24 scales around midbody; 14 subdigital lamellae under fourth finger; 20 subdigital lamellae under fourth toe; two anterior preanal plates; three posterior preanal plates; five femoral pores on each thigh.

The almost completely everted, left hemipenis of UF 130012 (Fig. 1) is a stout capitate organ with a medial welt; the apex consists of two lobes, only one of which is fully everted. The single sulcus spermaticus is bordered by well-developed sulcal lips and ends at the base of the apex. On the upper portion of the

truncus, on the median welt, are four large hard spines arranged in a single row on each side of the sulcus spermaticus, the spines increasing in size laterally. The tips of the two outer spines bear a small flap-like membrane. On the asulcate side of the basal part of the apex there is a bulging processus with a patch of flounces bearing calcified spinules; the flounces are oriented vertically and are arranged in three horizontal rows. There are five rows of flounces on each lobe; the lower two obliquely encircling the lobe, the other three more or less oriented longitudinally.

Our observations differ in several details from the description UZZELL (1969) provided from an opened inverted hemipenis. UZZELL (1969:10) described and illustrated two sets of flounces forming two chevrons. The different arrangement of flounces in our specimen probably reflects the everted versus inverted condition of the organ. Our description agrees with that of UZZELL (1969) in the presence of a series of enlarged spines on the median welt. In UZZELL's specimen those spines

are more numerous ("three spines along the lateral edge of the sulcus, five along the medial edge"; UZZELL 1969:13) and arranged in two rows. More research is needed to evaluate whether these differences reflect individual or geographic variation in this taxon. There remains the possibility of cryptic species among the various populations of *Opipeuter*. As far as is known, the presence of enlarged spines is a unique characteristic of *Opipeuter* and absent in other gymnophthalmid genera (UZZELL 1969, KIZIRIAN 1996, KÖHLER & LEHR 2004).

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References

CEI, J. M. (1993): Reptiles del noroeste, nordeste y este de la Argentina: herpetofauna de las selvas subtropicales, puna y pampas. Museo Regionale di Scienze Naturali, Torino. Monografie XIV.

- DIRKSEN, L. & I. DE LA RIVA (1999): The lizards and amphisbaenians of Bolivia (Reptilia, Squamata): checklist, localities, and bibliography. – *Graellsia*, **55**: 199-215.
- KIZIRIAN, D. A. (1996): A review of Ecuadorian *Proctoporus* (Squamata: Gymnophthalmidae) with descriptions of nine new species. – *Herpetological Monographs*, **10**: 85-155.
- KÖHLER, G. & E. LEHR (2004): Comments on *Euspondylus* and *Proctoporus* (Squamata: Gymnophthalmidae) from Peru, with the description of three new species and a key to the Peruvian species. – *Herpetologica*, **60**: 101-118.
- KÖHLER, J., L. DIRKSEN, P. L. IBISCH, G. RAUER, D. RUDOLPH & W. BÖHME (1995): Zur Herpetofauna des Sehuenecas-Bergregenwaldes im Carrasco-Nationalpark, Bolivien. – *Herpetofauna*, **17** (96): 12-25.
- PINCHEIRA-DONOSO, D. (2002): Lista sistemática de los reptiles de Bolivia. – *Noticiario Mensual del Museo Nacional de Historia Natural*, Santiago, Chile, **350**: 18-27.
- PRESCH, W. (1978): Descriptions of the hemipenial morphology in eight species of the microteiid lizards (family Teiidae, subfamily Gymnophthalminae). – *Herpetologica*, **34**: 108-112.
- SAVAGE, J. M. (1997): On terminology for the description of the hemipenes of squamate reptiles. – *Herpetological Journal*, **7**: 23-25.
- UZZELL, T. (1969): A new genus and species of teiid lizard from Bolivia. – *Postilla*, **129**: 1-15.

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Authors' addresses: GUNTHER KÖHLER, Forschungsinstitut und Naturmuseum Senckenberg, Sektion Herpetologie, Senckenberganlage 25, D-60325 Frankfurt a.M., Germany, E-Mail: gkoehler@senckenberg.de; MILAN VESELÝ, Department of Zoology, Faculty of Natural Sciences, Palacký University, tř. Svobody 26, CR-77146 Olomouc, Czech Republic.