



## A new species of spiny-tailed iguanid lizard (Iguania: *Stenocercus*) from northwestern Peru

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### Abstract

We describe a new species of *Stenocercus* from the interandean valley of Río Chotano on the Amazonian slope of the northern portion of the Cordillera Occidental of Peru (Cajamarca Region), at elevations of between 1997 and 2318 m. *Stenocercus arndti* **sp. nov.** differs from other *Stenocercus*, except from *S. bolivarensis*, *S. carrioni*, *S. chlorostictus*, *S. crassicaudatus*, *S. empetrus*, *S. eunetopsis*, *S. simonsii*, and *S. torquatus*, in having granular scales on the posterior surface of the thighs, two caudal whorls per autotomic segment, mucronate caudal scales, and distinct longitudinal row of enlarged vertebral scales. However, *Stenocercus arndti* **sp. nov.** is easily distinguished from these species in having a bold black transversal band at midbody that extends ventrolaterally in adult males.

**Key words:** Cajamarca, Iguania, new species, Peru, *Stenocercus*, taxonomy

### Resumen

Describimos una nueva especie de *Stenocercus* del valle interandino del Río Chotano en la pendiente amazónica de la porción norte de la Cordillera Occidental de Perú, Región de Cajamarca, entre los 1997 y 2318 m de altitud. *Stenocercus arndti* **sp. nov.** se diferencia de todas las demás especies de *Stenocercus*, a excepción de *S. bolivarensis*, *S. carrioni*, *S. chlorostictus*, *S. crassicaudatus*, *S. empetrus*, *S. eunetopsis*, *S. simonsii*, and *S. torquatus*, por la combinación de los siguientes caracteres: escamas granulares sobre la superficie posterior de los muslos, vertebrales alargadas, dos anillos caudales por segmento autonómico, escamas caudales mucronadas y una fila longitudinal de escamas vertebrales distinta al resto de escamas dorsales. Sin embargo, los machos adultos de *Stenocercus arndti* **sp. nov.**, son fácilmente diferenciados de las restantes especies, por tener una conspicua banda transversal negra a la mitad del dorso que se extiende hasta la región ventrolateral.

**Palabras clave:** Cajamarca, Iguania, nueva especie, Perú, *Stenocercus*, taxonomía

### Introduction

The iguanian lizard *Stenocercus* is currently composed of 63 species that occur at elevations of between 0–4000 m in the Andes and adjacent lowland areas from northern Venezuela and Colombia to central Argentina, with some species present in the Atlantic lowlands between southern Brazil and central Argentina, and other species present in northeastern Brazil (Torres-Carvajal 2007a; Venegas *et al.* 2013). Members of this genus occupy a variety of habitats, such as dry and humid lowland tropical forests, montane forests, cerrado, puna, and paramo (Torres-Carvajal *et al.* 2006). In fact it is one of the most geographically— and ecologically— widespread reptile taxa currently ranked as a genus in South America (Torres-Carvajal 2007b).

The major diversity of *Stenocercus* occurs in Peru, with currently 36 species, followed by Ecuador with 17, Brazil 10, Colombia 7, Argentina 6, Bolivia 4, Uruguay 1, and Paraguay 1 (Torres-Carvajal 2007b, Torres-Carvajal & Carvajal-Campos 2009, Torres-Carvajal & Mafla-Andora 2013, Venegas *et al.* 2010, Venegas *et al.* 2013).

**Distribution.** *Stenocercus arndti* is known only from two adjacent localities close to La Granja village in the interandean valley of the Río Chotano and from one locality in the vicinity of Kañaris village in the interandean valley of the Río Huancabamba on the Amazonian slope of the northern portion of the Cordillera Occidental in northwestern Peru (Fig. 5). It occurs at elevations from 1997–2318 m in the regions of Cajamarca and Lambayeque. The type locality lies within the Yungas (500–2300 m) ecoregions according to Brack (1986) and Peñaherrera del Águila (1989).

**Etymology.** The specific name is a patronym for Dr. Rudolf G. Arndt of Pomona, New Jersey, USA, in recognition of his financial support for the improvement of the herpetological collection of CORBIDI through the BIOPAT-Programme.

## Discussion

Due to the morphological similarity (e.g. spinose caudal scutellation and reduced number of caudal whorls) and geographic proximity of *Stenocercus arndti* sp. n. with *S. empetrus* and *S. eunetopsis*, we assigned tentatively this new taxon to the supraspecific clade *Microphractoides*, according with the phylogenetic classification of Torres-Carvajal *et al.* (2006). The supraspecific clade *Microphractoides* is stemming from the most recent common ancestor of *S. empetrus*, *S. eunetopsis* and *S. imitator* and is nested in the supraspecific clade *Scelotrema* together with the supraspecific clades *Microphractus* and *Saccodeira* (Torres-Carvajal *et al.* 2006). However, tails armed with strongly mucronate and spinose scales is a derived characteristic within *Stenocercus*, according to Frost and Etheridge (1989), and Cadle (1991). Although the phylogenetic reconstruction of Torres-Carvajal *et al.* (2006) only included four of the eight previously known species of *Stenocercus* characterized by a spiny tail and two caudal whorls per autotomic segment, a latter phylogenetic hypothesis based on molecular and morphological characters, that included more species showed that the species with spiny tails appeared independently in a clade composed by species of the *Scelotrema* clade with no spiny tail and with three caudal whorls per autotomic segment (see Torres-Carvajal 2007). Furthermore, other two species that have more spinose caudals, *S. marmoratus* and *S. roseiventris*, than the aforementioned species also appear separated at the two different major clades in Torres-Carvajal (2007). The definition of *Microphractoides* and *Scelotrema* is based on molecular data, which indicate that presence-absence alone of spiny scales is not a useful character to define these groups.

Spinose caudal scutellation is also known in others lizards of several families, especially in rock-dwelling species (Bellairs 1970). According to Bellairs (1970), *Stenocercus* with spinose caudal scutellation, including *S. arndti* sp. n., frequent rock habitats (e.g. *S. crassicaudatus*, *S. empetrus*, *S. eunetopsis*, and *S. simonsii*), although a few are also arboreal (e.g. *S. chlorostichus* and *S. torquatus*) (Fritts 1974; Cadle 1991; Torres-Carvajal 2000; Torres-Carvajal *et al.* 2005). This suggests that our knowledge about the origin of the spiny tails and other morphological characters, as well as the ecology of species in *Stenocercus* is unclear and needs to be improved for an accurate definition of the supraspecific groups.

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**APPENDIX.** Specimens examined.

*Stenocercus carrioni*— **ECUADOR:** Loja: Celica, Huajala QCAZ 10319, 10324, 10329.

*Stenocercus chlorostichus*— **PERU:** Cajamarca: Santa Cruz: Agua Azul, MUSM 25821.

*Stenocercus crassicaudatus*— **PERU:** Cuzco: Urubamba: Machu Picchu CORBIDI 09058, MUSM 4905, 4906, 8691.

*Stenocercus empetrus*— **PERU:** Cajamarca: Cajamarca CORBIDI 06532, 08638, MUSM 4909–10, La Colmena MUSM 8659, San Vicente MUSM 8676; Departamento de la Libertad: Huamachuco MUSM 8658, 8675, 8677–8680.

*Stenocercus eunetopsis*— **PERU:** Cajamarca: Santa Cruz, Udima, MUSM 4018, 4022–4029.

*Stenocercus simonsii*— **ECUADOR:** Azuay: Giron, sendero El Salado, QCAZ 09636.

*Stenocercus torquatus*— **PERU:** Ayacucho: La Mar: carretera San Antonio-Chinquitirca, CORBIDI 06956; Cusco: La Convención: Echarate, 06041, 06044, 08619; Junín: Alto Yurinaqui, MUSM 8617–8619; Pasco: Oxapampa: Huampal, CORBIDI 07211; Bosque de Sholet, CORBIDI 09912.