The semifossorial snakes of the genus *Ninia* are widely distributed throughout Central and South America, ranging from southern Mexico to northern Peru at elevations between sea level and 1600 m (Dunn, 1935; Savage, 2002; Angarita-Sierra, 2014). *Ninia* currently comprises twelve species, of which only four occur in South America (*N. atrata* Hallowell, 1845; *N. franciscoi* Angarita-Sierra, 2014; *N. hudsoni* Parker, 1940; *N. teresitae* Angarita-Sierra and Lynch, 2017). Even though the identities of some populations of the named forms of *N. atrata* have been resolved (see Savage and Lahanas, 1991; McCranie and Wilson, 1995; Savage, 2002; Angarita-Sierra and Lynch, 2017), their sympatric distribution and morphological overlap between *N. atrata* and its congeners have masked the taxonomic identity of several undescribed species.

*Ninia teresitae* was recently described based on ten specimens from several localities of the Chocó-Magdalena biogeographic province in Colombia. This taxon was previously confused with *N. maculata* and *N. atrata* by Castaño-M et al. (2004) due to its irregular spotted patterns on the ventral body surfaces. However, this species can be distinguished from all congeners by using morphometric ratios of the head’s scales, colour pattern of the ventral surfaces of head and body, hemipenial morphology, and nasal scale count (Angarita-Sierra and Lynch, 2017).

As part of an ongoing study of the *Ninia atrata* complex, I have examined more than 400 specimens that cover the entire range of the species. During examination of *Ninia* specimens housed at the Museum of Zoology, Pontificia Universidad Católica del Ecuador (QCAZ), I discovered 14 specimens of *N. teresitae* from eight new localities (Table 1), all restricted to Pacific lowlands and the western slopes of the Ecuadorian Andes (Fig. 1). In the following account, I followed the methods and terminology of Peters (1964) and Dowling (1951). Hemipenial preparation followed Pesantes (1994) with

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![Figure 1. Distribution map of *Ninia teresitae*. Purple hexagons correspond to the new localities reported in this study, black triangles depict literature records, and the red triangle denotes the type locality.](image)
adjustments as suggested by Myers and Cadle (2003), Zaher and Prudente (2003), and Smith and Ferrari-Castro (2008). The staining process followed Jadin and Smith (2010) and Angarita-Sierra (2014). Tail length (TL) and snout–vent length (SVL) measurements were made to the nearest 0.5 mm using a type measure.

**Results**

The specimens reported in this paper were identified as *Ninia teresitae* using the following external morphological characters and hemipenial morphology (Angarita-Sierra and Lynch, 2017): ventral surfaces of head and body spotted without regular pattern, subcaudal surface homogenously black or dark brown; two nasal scales; bilobed hemipenis; *sulcus spermaticus* centrifugal with a bifurcation proximal to midpoint of the hemipenial body; lateral projection ornamented with a large basal hooked spine that is larger than any other spine on the hemipenial body (Fig. 2).

All specimens used to compile this report (six males, eight females) had the same colour pattern variation on the ventral surfaces of head and body as observed in the type series of *Ninia teresitae*, having strong or faint (inmaculate in QCAZ 1257) irregular pigmented spots or faint irregular pigmented spots on the ventral surface. Also, all specimens exhibited dorsal surfaces that were uniformly dark brown–black; the nuchal collar present or absent, when present it was W-shaped, or included the parietal scales (Fig. 3).

The Ecuadorian specimens expand our knowledge of the morphological variation of the species and allow adjustment of the following characters: maximum male SVL = 382 mm (earlier 324 mm), minimum female SVL = 115 mm (198 mm), minimum ventral scale count in males = 138 (143), and minimum ventral scale count in females = 148 (150). All remaining pholidosis features as well as body size measurement fall within the ranges described in the original species description of *N. teresitae* (Angarita-Sierra and Lynch, 2017). Likewise, the hemipenial morphology observed on two males (QCAZ 1585, 7207) agrees with the original description, exhibiting a bilobed and semicaliculate organ, with a lateral projection ornamented by a large, basal, hooked spine that is larger than any other spine on the hemipenial body, and a centrifugal and bifurcate *sulcus spermaticus*.

**Discussion**

Northwestern Ecuador lies at the intersection of two of the most diverse terrestrial ecoregions on the planet, the Andes and the Chocó (Arteaga et al., 2016). This convergence has allowed the evolution of astonishing species richness, with several diversification patterns and lineages observed in relatively limited areas (e.g., Mindo or Bilsa Biological Station; Arteaga et al., 2016, Arteaga et al., 2013). In addition, northwestern Ecuador belongs to an historical interchange pathway for South and North American faunal elements that allowed great immigration and emigration of snake lineages (Cadle and Greene, 1993), but in addition, greater rates of
speciation have been observed than in other regions (Pyron and Wiens, 2013). These peculiarities make the northwestern Ecuador a significant hotspot for reptilian tropical biodiversity and endemism, as well as part of a biogeographical unit clearly recognized as the Chocó-Magdalena biogeographic province (Cadle, 1985; Hernández-Camacho, 1992, Angarita-Sierra and Lynch, 2017). Given the biogeographic definition of this province (Hernández-Camacho et al., 1992), the presence of *N. teresitae* in Ecuadorian Pacific lowlands as well as on the western slopes of the Ecuadorian Andes was expected. Particularly, these new records found in northwestern Ecuador mark the southernmost geographic extent of the species, which coincides with the southern limit of the Chocó-Magdalena biogeographic province.

The Ecuadorian records of *N. teresitae* come from both conserved and transformed habitats (ranging from Chocoan rainforest to crops and towns), showing the same high tolerance of the species towards transformed habitats observed in the population at the type locality and in several sisters taxa (e.g., *N. atrata*, *N. diademata*, *N. maculata*). Northwestern Ecuadorian populations of *N. teresitae* occur in sympatry with *N. atrata* in three of the eight localities recorded, reaching elevations of 1605 m (Table 1). Finally, a proper and careful revision of the *N. atrata*-like snakes from Ecuador is recommended, in order to understand and clarify the taxonomic composition and geographic distribution of the genus.

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