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## Earthworm populations in an altitudinal gradient (1000-1850m) of the Coastal Atlantic Rainforest, Brazil

GUILHERME CARDOSO<sup>1</sup>, HERLON NADOLNY<sup>2</sup>, VICTOR TEDESCHI<sup>1</sup>, ALEXANDER FEIJOO<sup>3</sup>SAMUEL JAMES<sup>4</sup>, **GEORGE BROWN**<sup>5</sup><sup>1</sup>Biology Department, PUCPR, Curitiba-PR, Brazil; <sup>2</sup>Ecosistema Consultoria Ambiental, Curitiba-PR, Brazil<sup>3</sup>Universidad Tecnológica de Pereira, Pereira, Colombia; <sup>4</sup>Biology Department, University of Iowa, Iowa City, IA, USA<sup>5</sup>Embrapa Florestas, Colombo, PR, Brazil

The Brazilian Atlantic Rainforest is one of the world's biodiversity hotspots, but it is highly fragmented and only 7-13% of the original extent is preserved, mainly along the coastal mountain range which extends from Rio Grande do Sul to Southern Bahia. Around 150 earthworm species are known from this biome, but many locations still remain unsampled and with an unknown diversity. In the present study, we aimed at evaluating the abundance and diversity of earthworms in an altitudinal gradient from 1000-1850m along the Pico Paraná/Caratua Massif, in the coastal range of Paraná State. Earthworms were sampled quantitatively using the handsorting method in three 50x50x 20cm deep monoliths, and in 12 TSBF-sized (25x25x20cm) holes at 1000±30m, 1150±30m, 1300±30m, 1450±30m, 1600±30m, 1750±30m and 1800-1850m elevation. At 1450m populations were assessed in burned (grassy vegetation) and unburned (forest) plots. Quantitative samples were taken in Dec. 2011 and Mar. 2012; additional sampling will be undertaken in Jun. and Aug. 2012. Earthworms were counted, weighed and identified to species level. Furthermore, qualitative samples were taken on at least seven occasions by searching manually for earthworms in various niches (dead logs, bromeliads, soil, moss, litter, etc.). Fifteen earthworms have been identified so far, being 7 *Glossoscolex* sp., one *Urobenus*, *Andiorrhinus*, *Fimoscolex* and *Kerriona* sp. (all 11 of these new species), as well as two *Amyntas* (*A. corticis*, *A. gracilis*), *Pontoscolex corethrurus* and an unidentified Ocneroдрilidae sp. The exotic/peregrine species were only found at the lowest elevation station. Abundance was highest at the base of the mountain=1000m (11-43 indiv. m<sup>-2</sup>; 1.5-35.2 g m<sup>-2</sup>), the summit=1800-1850m (24-30 indiv. m<sup>-2</sup>; 1.7-2.4 g m<sup>-2</sup>) and in the burned area=1450m (5-47 indiv. m<sup>-2</sup>; 4.8-54.5 g m<sup>-2</sup>). In the intermediate and higher elevation forest plots, earthworm abundance tended to be much lower, with frequent zeroes in the samples, probably due to shallower and/or sandier-rockier soils, due to steep slopes, reducing habitat quality for earthworms despite a generally high OM content. This is the first study of earthworm diversity along an altitudinal transect in Brazil, and shows that many new species can be found using this methodology, but also that a significant collection effort is necessary to do so.