

# A new species of *Leucostethus* (Anura: Dendrobatidae) from the Cordillera Mache-Chindul in northwestern Ecuador, with comments on similar *Colostethus* and *Hyloxalus*

Gregory O Vigle <sup>1</sup>, Luis A Coloma, Juan Carlos Santos, Sebastian Hernandez-Nieto, H Mauricio Ortega-Andrade, Daniel J Paluh, Morley Read

The image shows a screenshot of a web browser displaying a PubMed article. The browser's address bar shows the URL: <https://pubmed.ncbi.nlm.nih.gov/33756857/>. The article title is "A new species of *Leucostethus* (Anura: Dendrobatidae) from the Cordillera Mache-Chindul in northwestern Ecuador, with comments on similar *Colostethus* and *Hyloxalus*". The authors listed are Gregory O Vigle, Luis A Coloma, Juan Carlos Santos, Sebastian Hernandez-Nieto, H Mauricio Ortega-Andrade, Daniel J Paluh, and Morley Read. The article is dated 2020 Dec 22, with PMID: 33756857 and DOI: 10.11646/zootaxa.4896.3.2. The abstract text is partially visible, starting with "We describe a new species of dendrobatid frog, *Leucostethus blisa* sp. nov., using molecular, morphological, and acoustic evidence. We also comment on the taxonomic status of four similar *Hyloxalus* and *Colostethus*. We provide an updated phylogeny of *Leucostethus* that corroborates previous hypotheses of relationships of nine species. Phylogenetic analysis using mitochondrial (i.e., 7095 bp of combined data from NADH1, NAHD2, cytochrome c oxidase I, cytochrome b and 12S-16S rRNA) and seven nuclear genes (i.e., 4739 bp) indicate a close relationship of *L. blisa* to an undescribed species from Gorgona Island, Colombia, both of which apparently diverged in the Pliocene about 3 million years ago with about 6.25% (i.e., 146/2335 bp) differences for the section of 12S-16S mitochondrial fragment. *Leucostethus blisa* is diurnal and riparian, characterized by distinctive bright mustard-yellow flash marks in the axillar and groin regions, posterior belly, and in the hindlimbs, the presence of dark gray lower labial stripe or marks, sexual dimorphism in ventral pattern, and by having male uniparental care. We describe its osteology and the male advertisement call, which is a series of peep notes. Osteological microCT images of representatives of each of the *Colostethinae* genera reveal a number of intriguing characters that may prove to be useful in phylogenetic studies. In terms of its distribution, *Leucostethus blisa* is currently known only from a very small area within the Reserva Biológica Blisa, located within the Cordillera Mache-Chindul in the Chocóan region of northwestern Ecuador, which was a Pliocene-Pleistocene refugium. This region is