

OR196

Molecular evidences that Heterotermes tenuis should be a species complex

Tiago Carrijo, Adriana Morales, Eliana Cancellato

Proposed originally by A.R. Wallace, the riverine barrier hypothesis states that major Amazonian rivers significantly reduce or prevent gene flow between populations inhabiting opposite river banks. Thus, the alignment of Amazonas-Madeira-Mamoré Rivers divides the Neotropical region into two areas of endemism for a diversity of taxa. We used the mitochondrial gene COII intending to test whether the Madeira River was a geographic barrier to the genetic flow of the populations of *Heterotermes tenuis*. We sampled in 12 areas along 200 km near the banks of the Madeira River, in the state of Rondônia, Brazil, being six on the right bank and eight on the left. We used 84 sequences of *H. tenuis* from Rondônia, six from the Cerrado biome, and three from GenBank (from Manaus-Brazil, French Guiana and Ecuador); and one of *H. longiceps* as outgroup. We found a strong genetic structure within our samples, however, without any relation to the side of the river or any other spatial feature. In a tree built with a Bayesian approach in the software BEAST, using the model HKY+I, we were able to distinct two groups: one with the individuals from French Guiana, Manaus and 28 individuals from RO, and the second with the individuals from Ecuador, those from the Cerrado and the other 56 individuals from RO. Besides, the haplotype network, F statistics and K2P genetic distance, also pointed to the same direction, corroborating the isolation of these two groups. The divergence between them was estimated with an uncorrelated lognormal relaxed clock, and dated from approximately 20 million years, in the Miocene. All these evidences led us to suggest that the name *H. tenuis* should comprises at least two morphological-cryptic species possibly isolated during the Miocene marine incursions, much earlier than the riverine barriers, as first hypothesized by us.