GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Population structure and demographic inferences concerning the endangered onychophoran species *Epiperipatus acacioi* (Onychophora: Peripatidae)

G.A. Lacorte[1], I.S. Oliveira[2,3] and C.G. Fonseca[1]

[1]Departamento de Biologia Geral, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil
[2]Departamento de Zoologia, Instituto de Ciências Biológicas, Universidade Federal de Minas Gerais, Belo Horizonte, MG, Brasil
[3]Institute of Biology II: Molecular Evolution & Animal Systematics, University of Leipzig, Leipzig, Germany

Corresponding author: G.A. Lacorte
E-mail: gustavo.lacorte@gmail.com

Genet. Mol. Res. 10 (4): 2775-2785 (2011)
Received December 6, 2010
Accepted July 30, 2011
Published November 9, 2011
DOI http://dx.doi.org/10.4238/2011.November.9.1

ABSTRACT. *Epiperipatus acacioi* (Onychophora: Peripatidae) is an endemic species of the Atlantic rainforest in southeastern Brazil, with a restricted known distribution, found only in two nearby areas (Tripuí and Itacolomi). Mitochondrial gene COI sequences of 93 specimens collected across the known range of *E. acacioi* were used to assess the extant genetic diversity and patterns of genetic structure, as well as to infer the demographic history of this species. We found considerable variability within the populations, even though there has been recent environmental disturbance in these habitats. The samples from the two areas where this species is found showed significantly different COI sequences and constitute two distinct populations [exact test of sample differentiation (P = 0.0008) and pairwise F_{ST} analyses (F_{ST} = 0.214, P < 0.00001)]. However, there was little genetic differentiation among samples from different sampling sites within populations, suggesting that the potential for dispersal of *E. acacioi* is

greater than would have been expected, based on their cryptic behavior and reduced vagility. Mismatch analyses and neutrality tests revealed evidence of recent population expansion processes for both populations, possibly related to variations in the past distribution of this species.

Key words: Onychophora; Mitochondrial DNA; Dispersal; Population expansion; Population structure

