

THE ADAPTIVE SIGNIFICANCE OF GEOPHAGY IN THE MILNE-EDWARDS' SIFAKA (PROPTHECUS EDWARDSI) AT RANOMAFANA NATIONAL PARK, MADAGASCAR.

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Geophagy, the intentional consumption of soil, is a well-documented phenomenon that occurs in a wide variety of species throughout the primate radiation. However, despite the frequent observation of this behavior, its adaptive significance has proven difficult to ascertain. This study uses a multidisciplinary approach to examine the phenomenon within an anatomically folivorous lemur, and to test the leading explanations for this behavior, including the facilitation of secondary plant-compound absorption, mineral supplementation and self-medication. Behavioral data collected during approximately 3,375 hours of focal sampling from December 2002-November 2003 reveal neither intra-annual nor age/sex distinctions in soil consumption behavior within and amongst the seven study groups sampled, and a positive correlation between geophagy and fruit feeding, suggesting that soil ingestion plays an important biological role in this species. To examine this relationship further, soil samples collected from August 2002-December 2003 (149 from locations where soils were consumed and 42 from control sites within the home ranges of the study groups) were examined using a combination of particle size analysis, standard element and specific ion analyses, and isotope analysis. Results of these tests reveal that study animals express a preference for soils with higher clay, buffered pH, and ¹⁵N content, suggesting that geophagy serves a role in digestive function and/or self-medication. Funding for this project was provided by: Fulbright (IIE), The St. Louis Zoo (FRC), National Science Foundation (BCS DDIG 0333078 to SAN) and Primate Conservation, Incorporated.

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