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DIETARY OBSERVATIONS ON THE RED, FIG-EATING BAT (*STENODERMA RUFUM*) IN PUERTO RICO

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Introduction

For 103 years *Stenoderma rufum* Desmarest was known only from a single skin and a skull (later lost) with no collection locality and housed in the Paris Museum. In 1916 fossil skull remains of *S. rufum* were found by Anthony (1918) in a cave in Puerto Rico, but the taxon was presumed extinct until a specimen was captured in 1957 on St. John, Virgin Islands, by Hall and Bee (1960). More recently, *S. rufum* has been netted in low numbers at El Verde, Puerto Rico, by Tamsitt and Valdivieso (1970) and on St. Thomas, Virgin Islands (Genoways and Baker 1972). This bat is narrowly endemic (probably to the three islands from which it is reported) and is seldom encountered. While its common name, the red, fig-eating bat, falsely implies some knowledge of its diet, nothing is known of its food preferences, natural history, or ecology, and populations for study may only exist today in protected rain forest refugia such as El Verde (Genoways and Baker 1972).

Materials and Methods

During a study of biochemical aspects of bat-plant interactions in July 1981, two specimens of *S. rufum* were captured at the El Verde Field Station of the Center for Energy and Environment Research in the Luquillo National Forest, Puerto Rico. Surrounding vegetation is Tabonuco-type, lower montane rain forest (elev. 350 m). Between 2000 and 2030 on July 22, one male and one female specimen of *S. rufum* were captured in ground-level mist nets in a vegetation clearing. Since a primary research goal was to determine dietary constituents of local bats, the female bat was sacrificed to examine the digestive tract contents; the male was examined and released to minimize reduction of probably low (but unknown) local population numbers. The pelage of both bats was examined carefully for adherent pollen, but none was detected.

Plant materials for laboratory analysis were collected at the El Verde Field Station and vouchers were deposited at RSABG. Fruit energy content was determined by bomb calorimetry (Allen et al. 1974). Sulfur and phosphorus contents were determined by the turbidimetric and vanadomolybdophosphoric methods, respectively, of the American Public Health Association (1971). Sodium, potassium, and magnesium contents were determined

by atomic absorption spectrophotometry and nitrogen content by Kjeldahl digestion (Allen et al. 1974).

Results and Discussion

The stomach of the dissected bat was empty (suggesting that it had just begun foraging), but the intestine contained numerous (± 35) seed of *Cecropia peltata* L. (Moraceae), which apparently constituted the previous night's meal. Only seed of this taxon were found and their identity was confirmed by comparison with authentic material (both fertile and aborted seed from this compound fruit were present in the intestine, which strongly confirms the plant identification). The nutritional constitution of *Cecropia peltata* fruit was determined in the laboratory to be as follows (all constituents are expressed in amounts per gm dry fruit weight): caloric content 4675 cal, sulfur 0.8 mg, sodium 1.7 mg, potassium 2.3 mg, magnesium 6.5 mg, nitrogen 32.6 mg, and phosphorus 2.1 mg.

Cecropia fruit have been reported as dietary constituents of additional vertebrate taxa. Howell and Burch (1973) noted the occurrence of this fruit in diets of three species of the frugivorous-bat genus, *Artebius*. Eisenmann (1977) reported that the fruit of *Cecropia mexicana* Hemsl. in Panama is a favored food source for 13 bird species and 3 nonflying mammals (capuchin monkey, kinkajou, and woolly opossum). The diversity of vertebrates feeding on these closely related *Cecropia* species weakens Fleming's (1979) postulate that "plants apparently perceive qualitative differences in the dispersal services of birds and mammals and attempt to attract members of one group but not the other." Data on the nutritional constituents of fruits of additional *Cecropia* species would be of value in evaluating the possibility of biochemical adaptation in fruit constituents to meet the needs of particular seed-disperser classes.

Cecropia peltata occurs in flower and fruit during the entire year and the limited observations described above suggest that it contributes substantially to the year-round diet of *S. rufum*. *Cecropia peltata* grows widely and commonly in Puerto Rico and throughout the West Indies, so the reason for the restricted distribution of *S. rufum* is not dietary and must be sought elsewhere in the natural history of this bat, perhaps in the restricted occurrence of suitable roosting sites, the only datum about which is the account by Koopman (1975) of an anecdotal report of *S. rufum* roosting in a hollow silk-cotton tree (probably *Ceiba pentandra* (L.) Gaertn.).

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