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NOTES ON BATS FROM THE LUQUILLO MOUNTAINS OF PUERTO RICO

Michael R. Willig and Arlene Bauman

Oak Ridge Associated Universities Summer Fellows

August 23, 1984

CENTER FOR ENERGY AND ENVIRONMENT RESEARCH,

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Luquillo Mountains of Puerto Rico

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Introduction

Bats compose the major portion of the Puerto Rican mammal fauna in

terms of species richness and densities. Sixteen species compose the

?modern bat fauna, although two of those taxa (*Marcrotus waterhousei*

Phyllonycteris major) have become extinct on the island since the late

Pleistocene (Baker and Genoways, 1978). The only other extant mammals

from Puerto Rico are *Mus musculus* (House Mouse), *Rattus norvegicus*, *Ra*

tus

rattus (Roof Rat) and *Herpestes auropuncta*

introduced species. Nonetheless, in comparison with the other large

tus (Indian Mongoose), al

Islands of the West Indies (Cuba, Hispaniola, and Jamaica), the Puerto Rican

chiropteran fauna is quite depauperate; for the most part, this can be

attributed to Puerto Rico's small size and remote position with respect

to the mainland (Baker and Genoways, 1978).

Anthony's (1918, 1925) pioneering work on the bat fauna of Puerto Rico was somewhat limited since he primarily obtained specimens from caves or buildings. More recently, Tansitt and Valdivieso (1970) presented data concerning the chiropteran community at the El Verde field station in the Luquillo Experimental Forest. This report is a continuation of that research in that a more extensive survey of the chiropteran fauna of the forest was undertaken.

Materials and Methods

Various numbers of standard Japanese mist nets were utilized to capture bats in the Luquillo Experimental Forest. Netting areas included locales on the grounds of the El Verde Field Station (360 m), positions along the entrance road to the station, and various sites within the forest to the

South of the Quebrada Sonadora. In addition, bats were captured within the

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£1 Yungue Quadrangle at the base of the £1 Toro trail] (750m). Nets were opened at dusk and closed no earlier than 2300 hours. [See appendix 1 for 2 complete summary of netting records.] Sacrificed specimens were identified, aged, sexed and measured (Total length, Tail length, Hindfoot length, Ear length and Tragus length) according to standard museum procedure (DeBlase and Martin, 1981). In addition, dissections were performed on the specimens to ascertain reproductive condition and determine stomach contents. Specimens were preserved in a buffered 10% formalin solution and housed at the Carnegie Museum of Natural History, Pittsburgh, Pennsylvania

Results and discussion

As expected, the bat fauna of the Luquillo Forest was depauperate in comparison with continental tropical rain forests and other comparable sites on islands of the Greater Antilles in terms of species richness and species densities. One hundred fifty-three specimens were captured during 23 nights of netting; 66 specimens were released after capture while 87 specimens were sacrificed for further analysis (see Table 1). Two new species of bats (*Brachyphylla cavernarum* and *Eptesicus fuscus*) for the Luquillo Forest were captured, while *Pteronotus parnellii* was recorded for the first time from the Caribbean National Forest at £1 Yunque. unidentified aerial insectivores frequently foraged above the forest canopy: however, numerous attempts to

capture specimens with mist nets proved unsuccessful?

Digestive tracts from approximately 20: (17 individuals) of the
Sacrificed specimens contained food (Table 1). Fruits of *Cecropia peltata*
appeared to be the main dietary constituent for both of the common
frugivores (*Artibeus jamaicensis* and *Stenoderma rufum*).

Two specimens of

A. jamaicensis contained Piper seeds also.

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Both *A. jamaicensis* and *S. rufum* exhibited high levels of reproductive

activity during June and July. Sixty-eight percent of the adult female
A. jamaicensis were pregnant and/or lactating while 100% of the adult
female *S. rufum* were pregnant and/or lactating during the course of the study.

This indicates that like other tropical bats (Wilson, 1979; Willig, 1982),

these species give birth at the beginning of the rainy season, thereby
?maximizing the quantities of food available during periods of high
Physiological stress (lactation).

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Table 1. Relative abundance of bats (based upon netting samples)

and stomach contents of sacrificed individuals. Values in parenthesis

indicate the number of preserved specimens retained for stomach analysis.

NUMBER

INDIVIDUALS

Artibeus jamaicensis Frugivore 90 (48) piper. relensense

Stenoderma rufum Frugivore 50 (35) *Cecropia peltata*

Nonophylus rednani Nectarivore 8 (5)

Brachyphylla cavernarum ? Frugivore ro

Eptesicus fuscus Insectivore ra

Pteronotus pannelii Insectivore »

TOTAL 153° 87

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