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Science Bulletin

**MAMMALS OF THE  
SMITHSONIAN  
VENEZUELAN PROJECT**

by

Charles O. Handley, Jr.



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# TABLE OF CONTENTS

ABSTRACT .....	1	Subfamily Stenodermatinae .....	
INTRODUCTION .....	1	<i>Uroderma</i> .....	26
Background .....	1	<i>Vampyrops</i> .....	27
Objectives .....	1	<i>Vampyrodes</i> .....	28
Personnel .....	1	<i>Vampyressa</i> .....	29
Collections .....	2	<i>Chiroderma</i> .....	29
Data .....	3	<i>Ectophylla</i> .....	30
Format of Accounts of Species .....	3	<i>Artibeus</i> .....	30
ACKNOWLEDGMENTS .....	4	<i>Ametrida</i> .....	33
ACCOUNTS OF SPECIES .....	5	<i>Sphacronycteris</i> .....	33
Order Marsupialia .....		<i>Centurio</i> .....	34
Family Didelphidae .....		Subfamily Desmodontinae .....	
<i>Caluromys</i> .....	5	<i>Desmodus</i> .....	34
<i>Monodelphis</i> .....	6	<i>Diphylla</i> .....	35
<i>Marmosa</i> .....	6	Family Natalidae .....	
<i>Philander</i> .....	8	<i>Natalus</i> .....	35
<i>Metachirus</i> .....	8	Family Furipteridae .....	
<i>Lutreolina</i> .....	8	<i>Furipterus</i> .....	35
<i>Didelphis</i> .....	8	Family Thyropteridae .....	
<i>Chironectes</i> .....	9	<i>Thyroptera</i> .....	35
Family Caenolestidae .....		Family Vespertilionidae .....	
<i>Caenolestes</i> .....	9	<i>Myotis</i> .....	35
Order Insectivora .....		<i>Eptesicus</i> .....	37
Family Soricidae .....		<i>Histiotus</i> .....	38
<i>Cryptotis</i> .....	9	<i>Rhogeessa</i> .....	38
Order Chiroptera .....		<i>Lasurus</i> .....	38
Family Emballonuridae .....		Family Molossidae .....	
<i>Rhynchonycteris</i> .....	10	<i>Molossops</i> .....	39
<i>Saccopteryx</i> .....	10	<i>Neoplaticomys</i> .....	39
<i>Cormura</i> .....	11	<i>Tadarida</i> .....	39
<i>Peropteryx</i> .....	11	<i>Eumops</i> .....	39
<i>Diclidurus</i> .....	12	<i>Molossus</i> .....	40
Family Noctilionidae .....		<i>Promops</i> .....	41
<i>Noctilio</i> .....	12	Order Primates .....	
Family Mormoopidae .....		Family Cebidae .....	
<i>Pteronotus</i> .....	13	<i>Aotus</i> .....	41
<i>Mormoops</i> .....	14	<i>Callicebus</i> .....	41
Family Phyllostomidae .....		<i>Cacajao</i> .....	41
Subfamily Phyllostominae .....		<i>Pithecia</i> .....	41
<i>Micronycteris</i> .....	14	<i>Chiropotes</i> .....	42
<i>Glyphonhycteris</i> .....	16	<i>Alouatta</i> .....	42
<i>Lonchorhina</i> .....	16	<i>Cebus</i> .....	42
<i>Macrophyllum</i> .....	16	<i>Saimiri</i> .....	43
<i>Tonatia</i> .....	16	<i>Ateles</i> .....	43
<i>Mimon</i> .....	17	Order Edentata .....	
<i>Phyllostomus</i> .....	17	Family Myrmecophagidae .....	
<i>Phylloderma</i> .....	18	<i>Myrmecophaga</i> .....	43
<i>Trachops</i> .....	19	<i>Tamandua</i> .....	43
<i>Chrotopterus</i> .....	19	<i>Cyclopes</i> .....	44
<i>Vampyrus</i> .....	19	Family Bradypodidae .....	
Subfamily Glossophaginae .....		<i>Bradypus</i> .....	44
<i>Glossophaga</i> .....	19	<i>Choloepus</i> .....	44
<i>Lionycteris</i> .....	21	Family Dasypodidae .....	
<i>Lonchophylla</i> .....	21	<i>Priodontes</i> .....	44
<i>Anoura</i> .....	21	<i>Dasypus</i> .....	44
<i>Choeronycteris</i> .....	22	Order Lagomorpha .....	
<i>Leptonycteris</i> .....	22	Family Leporidae .....	
<i>Lichonycteris</i> .....	23	<i>Sylvilagus</i> .....	45
<i>Scleronycteris</i> .....	23	Order Rodentia .....	
Subfamily Carolliinae .....		Suborder Sciuromorpha .....	
<i>Carollia</i> .....	23	Family Scuridae .....	
<i>Rhinophylla</i> .....	24	<i>Sciurus</i> .....	45
Subfamily Sturnirinae .....		Family Heteromyidae .....	
<i>Sturnira</i> .....	25	<i>Heteromys</i> .....	46

Suborder Myomorpha		
Family Muridae		
Subfamily Cricetinae		
<i>Oryzomys</i> .....	47	
<i>Neacomys</i> .....	49	
<i>Nectomys</i> .....	49	
<i>Rhipidomys</i> .....	50	
<i>Thomasomys</i> .....	51	
<i>Chilomys</i> .....	51	
<i>Akodon</i> .....	51	
<i>Microtus</i> .....	52	
<i>Zygodontomys</i> .....	52	
<i>Calomys</i> .....	53	
<i>Holochilus</i> .....	53	
<i>Sigmodon</i> .....	53	
<i>Sigmomys</i> .....	53	
<i>Anotomys</i> .....	53	
<i>Daptomys</i> .....	54	
Subfamily Murinae		
<i>Rattus</i> .....	54	
<i>Mus</i> .....	54	
Suborder Caviomorpha		
Family Erethizontidae		
<i>Coendou</i> .....	55	
Family Caviidae		
<i>Cavia</i> .....	55	
Family Hydrochaeridae		
<i>Hydrochaeris</i> .....	55	
Family Dasyproctidae		
<i>Agouti</i> .....	55	
<i>Dasyprocta</i> .....	56	
<i>Myoprocta</i> .....	56	
Family Echimyidae		
<i>Proechimys</i> .....	56	
<i>Mesomys</i> .....	57	
<i>Isothrix</i> .....	57	
<i>Echimyis</i> .....	57	
Order Cetacea		
Family Platanistidae		
<i>Inia</i> .....	58	
Order Carnivora		
Family Canidae		
<i>Urocyon</i> .....	58	
<i>Cerdocyon</i> .....	58	
Family Ursidae		
<i>Tremarctos</i> .....	58	
Family Procyonidae		
<i>Procyon</i> .....	58	
<i>Nasua</i> .....	59	
<i>Nasuella</i> .....	59	
<i>Potos</i> .....	59	
<i>Bassaricyon</i> .....	59	
Family Mustelidae		
<i>Mustela</i> .....	59	
<i>Eira</i> .....	59	
<i>Galictis</i> .....	60	
<i>Conepatus</i> .....	60	
<i>Lutra</i> .....	60	
<i>Pteronura</i> .....	60	
Family Felidae		
<i>Felis</i> .....	60	
Order Perissodactyla		
Family Tapiridae		
<i>Tapirus</i> .....	61	
Order Artiodactyla		
Family Tayassuidae		
<i>Tayassu</i> .....	61	
<i>Dicotyles</i> .....	61	
Family Cervidae		
<i>Odocoileus</i> .....	61	
<i>Mazama</i> .....	62	
GAZETTEER .....	62	
LITERATURE CITED .....	85	

# MAMMALS OF THE SMITHSONIAN VENEZUELAN PROJECT

by

Charles O. Handley, Jr.<sup>1</sup>

## ABSTRACT

Mammals and their ectoparasites were collected in all parts of Venezuela between 1965 and 1968 by the Smithsonian Venezuelan Project.

Ecological and geographical data are summarized here for 38,213 specimens of 270 species of mammals obtained by the project.

## INTRODUCTION

### Background

The Smithsonian Venezuelan Project had its roots in the collections of mammals and ectoparasites accumulated in Panamá in the late 1950s and early 1960s by many investigators associated with the Gorgas Memorial Laboratory, Middle America Research Unit, U.S. Army Malaria Control Unit, and Smithsonian Institution. These diverse collections and data were brought together belatedly through the cooperative effort of many scientists in *The Ectoparasites of Panama*, edited by Wenzel and Tipton (1966). The logical follow-up of the Panamanian work was a similar cooperative effort with preplanned objectives and uniform data collection techniques.

Venezuela was selected as the site of the new project because it had 1) a large and diverse fauna, part of which was related to the now familiar Panamanian fauna; 2) an exceptionally good and extensive system of roads and airstrips; 3) a wide spectrum of well-documented endemic arthropod-borne viral diseases; 4) a friendly and interested scientific community; and 5) a stable political environment.

### Objectives

The project was titled at the outset, "Distribution and ecology of mammalian ectoparasites, arboviruses, and their hosts in Venezuela." Its objectives were to 1) collect as large and representative a sample of mammals as possible in all parts of Venezuela; 2) collect whole populations of ectoparasites from as many mammals as possible; 3) collect a standard set of biological, geographical, and ecological data with every

specimen; 4) develop standard procedures for conduct of extensive epidemiological surveys; 5) convert all data to machine-readable form; 6) publish monographs or summary papers on the mammals and on each group of parasites; 7) study mammal-parasite-habitat relationships.

The first group of summary papers on the parasites was published as volume 17, *Brigham Young University Science Bulletin*, 1972. The second group of papers constitutes volume 20, *Brigham Young University Science Bulletin*, 1975-76. Work is underway on a larger "Mammals of Venezuela" and on the mammal-parasite-habitat correlations. To date the project collections have been the basis of about fifty papers.

### Personnel

A consortium of scientists who agreed to study and report on parts of the collection was gathered in the planning stage of the project, and about thirty scientists—entomologists, mammalogists, virologists, and ecologists—in seven countries have participated.

Charles O. Handley, Jr., and V. J. Tipton, who coordinated the project, visited Caracas in May 1965 to discuss the proposed project with the Venezuelan scientists. The first field group reached Venezuela the following July, and thereafter project personnel were in Venezuela almost continuously until September 1968, on a 1 September to 31 August rotation schedule.

The field groups were constituted as follows:

1965-1966

Group 1—Norman E. Peterson, leader  
Jim Flanigan  
Chris Parrish

<sup>1</sup>Smithsonian Institution, Washington, D.C. 20560

Martin L. Taylor  
David G. Young

Group II—Merlin D. Tuttle, leader  
Arden L. Tuttle  
Claudette H. Tuttle

#### 1966-1967

Group I—Norman E. Peterson, leader  
Daniel B. Peacock  
Richard B. Peacock

Group II—Merlin D. Tuttle, leader  
Fred L. Harder  
Virginia E. Harder  
Claudette H. Tuttle

#### 1967-1968

Group I—Norman E. Peterson, leader  
Fred P. Brown, Jr.  
John O. Matson

Group II—Arden L. Tuttle, leader  
Benjamin Inquilla  
Ernest L. Stromeyer  
Charlotte A. Tuttle

The following also participated briefly in the field work: D. P. Furman, C. O. Handley, Jr., C. L. Hayward, Carlos Machado, Carlos Naranjo, Juhani Ojasti, R. H. Pine, V. J. Tipton, and C. E. Yunker.

### Collections

Major collections were made in nineteen of the twenty-four states, territories, districts, and dependencies in Venezuela in an attempt to gain adequate samples of all of the faunas. Unfortunately there are several important gaps in the collections because significant regions were not sampled. Another year of field work would have been required to complete the sampling to perfection. The areas missed were: BOLÍVAR, Serranía de Imataca, the tepuis, and upper Río Caura; DEPENDENCIAS FEDERAL, the Caribbean islands; GUÁRICO, the central Llanos; SUCRE, Cerro Turimiquire; TÁCHIRA, Páramo Batallón and trans-Andean passes near Independencia; T. F. AMAZONAS, Río Negro, Cerro de la Neblina, and other peaks along the Brazilian frontier; T. F. DELTA AMACURO, Río Orinoco delta and Guyana border region; and ZULIA, higher elevations in the Sierra de Perijá.

As far as possible the field personnel used a variety of collecting techniques, including trapping, netting, hunting, and purchase at each major sampling point. Mammals were taken at 100 localities, 25 of which were represented by more than 500 specimens (11 above 1,000; maximum 5,642 at San Juan Río Manapiare). Altogether there are records for 38,213 mammals,

representing at least 270 species. Among these are 12 species which had not been described at the time of their collection, as well as numerous others which had not been taken previously in Venezuela.

The 270 species represented in the collections include nearly 90 percent of the land and fresh water mammalian fauna of Venezuela. Those missing from the collections, which ought to occur or which are known by previous collections to occur in Venezuela, are as follows (with an indication of where they should be sought):

*Marmosa tyleriana* Tate, tepuis of Bolívar and T. F. Amazonas

*Saccoteryx gymnura* Thomas, southern Venezuela

*Peromyscus leucopterus* Peters, southern Venezuela

*Centronycteris maximiliani* Fischer, any place in Venezuela

*Cyttarops allecto* Thomas, southern and western Venezuela

*Micronycteris pusilla* Sanborn, southern Venezuela

*Glyphonycteris daviesi* Hill, anywhere in Venezuela

*Mimon bennettii* Gray, anywhere in Venezuela

*Phyllostomus latifolius* Thomas, Bolívar

*Rhinophylla fischeri* Carter, southern Venezuela

*Vampyressa brocki* Peterson, southern Venezuela

*Thyroptera discifera* Lichtenstein and Peters, northern Venezuela

*Lasiurus egrégus* Peters, anywhere in Venezuela

*Tadarida aurispinosa* Peale, anywhere in Venezuela

*Tadarida macrotis* Gray, mountains of Venezuela

*Eumops maurus* Thomas, Bolívar

*Eumops perotis* Schinz, northern Venezuela

*Eumops trumbulli* Thomas, southern Venezuela

*Cabassous unicinctus* Linnaeus, anywhere in Venezuela

*Sciurus flammifer* Thomas, Bolívar

*Neacomys guianae* Thomas, Bolívar

*Rhipidomys sclateri* Thomas, Bolívar

*Podoxymys roraimae* Anthony, tepuis of Bolívar

*Ichthyomys hydrobates* Winge, Andes

*Ichthyomys pittieri* Handley and Mondolfi, Sierra de la Costa



*Coendou melanurus* Wagner, southern Venezuela  
*Hydrochaeris isthmus* Goldman, Zulia  
*Dasyprocta guamara* Ojasti, T. F. Delta Amacuro  
*Thrinacodus cdax* Thomas, Andes  
*Sotalia guianensis* Van Beneden, Maracaibo and Orinoco basins  
*Speothos venaticus* Lund, anywhere in Venezuela  
*Trichechus inunguis* Natterer, southern T. F. Amazonas  
*Trichechus manatus* Linnaeus, Río Orinoco drainage  
*Mazama rufina* Bourcier and Pucheran, Andes

Most individuals of the uncommon kinds of mammals and a sample of each of the common kinds were searched for arthropod ectoparasites. Whenever a mammal was examined for parasites, an attempt was made to recover every parasite on it. In all, nearly 25,000 mammals were searched for parasites. All of the collections came originally to the Smithsonian, where the mammals were retained to be studied. The arthropods were distributed widely to specialists for study. Upon completion of studies the collection of mammals is being divided between the Smithsonian Institution and the government of Venezuela. The collections of parasites are being divided among the Smithsonian, the entomologists, and Venezuela.

### Data

A data sheet with eighty-column format was filled out in the field for each mammal. Data categories included geographical information (locality code, latitude, longitude, and elevation), ecological information (vegetative life zone, capture site, cover, forest succession, site moisture, and topography), capture information (date, time, precipitation, light, wind, collecting device, bait, and amount of collecting effort), parasite information (kinds of parasites and location on host), and host information (sex, age, reproductive condition, number and size of embryos, stomach contents, external measurements, parts saved, and field number). A single set of field numbers was used throughout the project, and the same number was used for all parts of an individual collection (i.e., data, parasites, skin, skull, blood, viscera, etc.).

At the Smithsonian the data sheets were edited for consistency and accuracy and were

marked for keypunching. Then the carded data were transferred to magnetic tape. A verified host list, arranged by SVP\* number, was one of the early products of the machine-readable data base. This was used by the entomologists to associate host names with SVP numbers in vials of parasites.

Later, after much geographical research, a precise gazetteer was completed. Standardized locality data were taped and used to override the less exact geographical data of the field sheets. Next, a master printout of the 38,213 mammal records, arranged by species and amounting to 229,296 lines, was run off. Other programs sorted and summarized the data base for each species by locality and by various ecological parameters. For example, altitudinal distribution was sorted for each species in blocks of 500 meters and the exact minimum and maximum were listed. Volunteers collected data for individual species from each of the printouts. These data were then converted to a narrative form for the accounts of species.

### Format of Accounts of Species

#### Nomenclature

Arrangement of families and genera, with minor exceptions, follows Simpson (1945). Species are arranged alphabetically. The original citation for each species is included in the LITERATURE CITED section. Except in a few instances, identified by footnotes, each reference was actually examined. Ignored here, for the sake of brevity, subspecies and synonymys of Venezuelan mammals will be the subjects of future papers. Another paper (Handley, in press) describes and names the new species, here given alphabetical designations, and discusses departures from conventional nomenclature (as found, for example, in Cabrera, 1958 and 1961).

#### General Distribution Statement

Each species account begins with a general statement of geographical distribution of the species in Venezuela, referring only to the Smithsonian Venezuelan Project collections. Usually, but not always, this closely approximates the known range of the species computed from all sources.

#### Ecological Parameters

Following the general statement of geographical distribution, frequency of distribution within several ecological parameters is indicated. The parameters are capture site, site moisture, cover,

\* (SVP = Smithsonian Venezuelan Project)

elevation, and vegetative life zone. In the species accounts these are telescoped into a single sentence, each parameter set off by semicolons. Except where sample size was very small, frequency of collection in various categories is expressed as percentages of the total for each parameter. *The percentages do not transcend semicolons.*

**Capture site categories** on the field data sheet included mist net; on ground; beside log; on log; on, in, or beside rock; at base of tree; in tree; in cavern; in house. On ground, beside log, beside rock, and at base of tree are usually combined as "on ground" in the species accounts. "On ground" also includes in underbrush and in brush pile. "In tree" includes in tree, in vines, on tree limb, and on tree trunk.

**Site moisture categories** on the field data sheet included dry, moist, near stream, beside stream, in stream (or over stream). "In moist areas" should be interpreted usually as "mesic," but "dry" doesn't always mean "xeric." A dry yard or forest may simply mean "not damp or not wet."

**Cover categories** on the field data sheet included thorn forest, deciduous forest, evergreen forest, cloud forest, swamp or marsh, savanna or pasture, cropland, orchard, yard. Pasture, cropland, orchard, and yard are often combined in the species accounts as "openings" or "clearings" in one or the other of the forest types. "Orchards" include such diverse plantings as coconut groves, orange groves, scattered mangos, coffee plantations, and banana plantations. "Savanna or pasture" includes páramo.

**Elevation** was recorded to the nearest meter in the field. The computer sorted elevations to minimum and maximum and into 500 meter increments. The species accounts comment on skewness of frequency toward upper or lower limits. No comment signifies uniform distribution.

**Vegetative life zone** for each collection was inferred from the map and descriptive text of Ewel and Madriz (1968), in conjunction with the elevation and gazetteer description of the collecting locality. The species accounts list *actual numbers of mammals* rather than percentages for each life zone since it often happened that a few specimens were scattered through many life zones in a species sample. The life zones of Ewel and Madriz (1968) are abbreviated in the species accounts. See Table 1 for translation of the abbreviations and for the equivalent terms from Holdridge (1947).

#### *Specimens Collected*

The specimens of each species are listed by locality. The localities are listed alphabetically by state. Localities on the boundary between two or more states are listed at the end of the alphabetical sequence.

The lists of "specimens collected" include all of the specimens for which records were kept. *They therefore are not lists of specimens preserved*, since some specimens were lost or discarded in the field. Some of the mammals for which records were kept but for which no specimen was preserved could not be identified with certainty to species. These are mentioned without ecological comment in the species accounts as "*Carollia* sp.?" etc.

### ACKNOWLEDGMENTS

So many persons have contributed to the collection, preparation, identification, and documentation of the mammals that it is difficult to select some whose help was especially noteworthy, for to all are due many thanks. Among the many Venezuelans who in one way or another made the mammal collections possible mention certainly must be made of Edgardo Mondolfi, Carlos Machado, Gonzalo Medina, Juhani Ojasti, Betty Gonzales, A. R. Lancini, and Carlos Naranjo. On the North American side there likewise are many to be mentioned. Obvious are the collectors, particularly the group leaders, Norman Peterson and Arden and

Merlin Tuttle. Bill and Ginny Cowles provided an aerial ecological reconnaissance of Venezuela. Sally DeMott, Cynthia Jones, and Ralph Wetzel assisted with verification of identifications and, together with Kay Ferris, Priscilla Penn, and Gwil Jones, edited most of the specimen data. Luis de la Torre verified the identifications of *Sturnira* and Richard LaVal those of *Myotis*. Data storage and retrieval, coordinated by Kim Mortensen, were programmed by Jim Crockett and Klaus Waibel, while Tom McIntyre and David Bridge were instrumental in machine processing the data. Finally, I am especially grateful to Nancy Moram, Peggy Ma-

son, Rebecca Schad, Darelyn Handley, Sarah Bragdon, Jane Ailes, and Helen Hutchinson, whose assistance was indispensable in assembly

of the manuscript and verification of the data for "Mammals of the Smithsonian Venezuelan Project."

## ACCOUNTS OF SPECIES

### Order MARSUPIALIA

#### Family DIDELPHIDAE

*Caluromys lanatus* Olfers, 1818:206.

Maracaibo lowlands, Andean foothills, and T. F. Amazonas. In trees (100 percent); usually near streams or other moist areas (90 percent) but sometimes in dry places (10 percent); in evergreen forest (100 percent); 24-155 m; bs-T (2), bh-T (10), and bmh-T (9).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (3). T. F. AMAZONAS, Acañaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (1); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (5); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (5); 30 km S Pto. Ayacucho, 126 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (3). TRUJILLO, 25 km NNW Valera, 90 m, (2). ZULIA, El

Rosario, 51 km WNW Encontrados, 37 m, (1). Total 21.

*Caluromys philander* Linnaeus, 1758:54.

Forested areas east of the Andes. Usually taken in trees (94 percent) or rarely on logs and on the ground (6 percent); near streams and in other moist areas (90 percent) or in dry places (10 percent); in evergreen forest (52 percent), orchards (34 percent), other openings such as yards, croplands, and pastures (11 percent), and thorn forest (3 percent); 25-1,600 m (96 percent below 1,200 m); bms-T (2), bh-T (9), bmh-T (13), bs-P (7), bh-P (36), bp-P (1), bh-MB (2), and bmh-MB (1).

Specimens collected: BOLÍVAR, Los Patos, 28 km SE El Manteco, 150 m, (1). CARABOBO, nr. Montalbán, 598 m, (7). DTO. FEDERAL, I.V.I.C., 15 km SW Caracas, 1,600 m, (1); Los Venados, 4 km NNW Caracas, 1,500 m, (2).

Table 1. Vegetative life zones of Venezuela.

Abbreviation	Ewel and Madriz (1968)	Holdridge (1947)
md-T	TROPICAL scrub desert	TROPICAL desert bush
me-T	TROPICAL thorny forest	TROPICAL thorn forest
bms-T	TROPICAL very dry forest	TROPICAL very dry forest
bs-T	TROPICAL dry forest	TROPICAL dry forest
bh-T	TROPICAL humid forest	TROPICAL moist forest
bmh-T	TROPICAL very humid forest	TROPICAL wet forest
me-P	PREMONTANE thorny forest	SUBTROPICAL thorn forest
bs-P	PREMONTANE dry forest	SUBTROPICAL dry forest
bh-P	PREMONTANE humid forest	SUBTROPICAL moist forest
bmh-P	PREMONTANE very humid forest	SUBTROPICAL wet forest
bp-P	PREMONTANE rain forest	SUBTROPICAL rain forest
bs-MB	LOWER MONTANE dry forest	LOWER MONTANE dry forest
bh-MB	LOWER MONTANE humid forest	LOWER MONTANE moist forest
bmh-MB	LOWER MONTANE very humid forest	LOWER MONTANE wet forest
bp-MB	LOWER MONTANE rain forest	LOWER MONTANE rain forest
bh-M	MONTANE humid forest	MONTANE moist forest
bmh-M	MONTANE very humid forest	MONTANE wet forest
bp-M	MONTANE rain forest	MONTANE rain forest
p-SA	SUBALPINE páramo	SUBALPINE wet páramo
pp-SA	SUBALPINE rainy páramo	SUBALPINE rain formation

FALCÓN, 14 km ENE Mirimire, 122 m, (1); 19 km NW Urama, 25 m, (1). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160 m, (1). MONAGAS, San Agustín, 3 to 5 km NW Caripe, 1,170-1,180 m, (25). SUCRE, 21 km E Cumaná, 25-30 m, (2); Manacal, 26 km ESE Carúpano, 180-575 m, (8). T.F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (13); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 750 m, (1); 30 km S Pto. Ayacucho, 126 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (4); Tamatama, Río Orinoco, 135 m, (2). Total 71.

*Monodelphis brevicaudata* Erxleben, 1777:80.

Apparently discrete populations in northern Venezuela (Sucre to Zulia), the Llanos, and southern Venezuela. On the ground (96 percent) or rarely on logs and in trees (4 percent); near streams and in other moist areas (88 percent) or in dry sites (12 percent); in evergreen forest (49 percent), in openings such as pasture, croplands, yards, and orchards (44 percent), and less often (7 percent) in other types of forest (swamp, thorn, deciduous, and cloud); 1-1,160 m; bs-T (32), bh-T (38), bmh-T (1), bs-P (13), bh-P (22), and bmh-P (21).

Specimens collected: ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,050-1,100 m, (10). BARINAS, Altamira, 697-794 m, (7). BOLIVAR, El Manaco, 68 km SE El Dorado, 150 m, (1); 18 to 45 km NE Icabarú, 741-851 m, (5); Río Supamo, 50 km SE El Manteco, 150 m, (1). CARABOBO, Montalbán to 6 km E and S Montalbán, 562-598 m, (13). DTO. FEDERAL, Hda. Carapiche, nr. El Llinón, 48 km W Caracas, 398 m, (1). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (1); nr. Mirimire and up to 14 km ENE Mirimire, 85-250 m, (11). GUÁRICO, Est. Biol. de los Llanos, 9 km SE Calabozo, 100 m, (10); Parque Nac. Guatopo, 15 km NW Altagracia, 680 m, (1). MIRANDA, Birongo, 60 m, (1); Curupao, 5 km NNW Guarenas, 1,160 m, (2); 6 km SSE Río Chico, 1 m, (5). SUCRE, Manacal, 26 km ESE Carúpano, 415-417 m, (2). T. F. AMAZONAS, Acanaña, Río Cumucunuma, 48 km NV Esmeralda, 145 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (3); Esmeralda, Río Orinoco, 135 m, (1); 30 to 32 km S Pto. Ayacucho, 114-135 m, (5); Tamatama, Río Orinoco, 130-135 m, (11). TRUJILLO, La Ceiba, 52 km WNW Valera, 29 m, (3); 12 to 30 km N, NW, and WNW Valera, 61-930 m, (17). YARACUY, Minas de Aroa, 20 km NW

San Felipe, 400-430 m, (6). ZULIA, Kasmera, 21 km SW Machiques, 272-273 m, (2). CARABOBO, FALCÓN, and YARACUY, 10 to 19 km NW Urama, 25 m, (6). Total 127.

*Marmosa cinerea* Temminck, 1824:46.

Bolívar, T. F. Amazonas, and Sierra de la Costa of northern Venezuela. Captured in trees, vines, and on logs (53 percent) or on the ground (47 percent); near streams or in other moist situations (96 percent) and rarely in dry places (4 percent); in evergreen forest (71 percent) or in openings such as yards, orchards, and marshes (29 percent); 25-1,160 m (77 percent below 325 m); bs-T (8), bh-T (13), bmh-T (2), bh-P (2), bmh-P (5), and bp-P (1).

Specimens collected: ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,050 m, (3). BOLIVAR, Hato La Florida, 44 to 47 km ESE Caicara, 43-50 m, (6); Hato San José, 20 km W La Paragua, 306 m, (2); Km 125, 85 km SSE El Dorado, 324-1,032 m, (2). FALCÓN, 19 km NW Urama, 25 m, (4). MIRANDA, Curupao, 5 km NNW Guarenas, 1,150-1,160 m, (2). T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (2); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 750 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (5); 30 to 32 km S Pto. Ayacucho, 126-135 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2). Total 31.

*Marmosa dryas* Thomas, 1898:456.

Mérida and Táchira Andes. On the ground (50 percent) or in trees (50 percent); usually in moist sites (90 percent) but occasionally in dry places (10 percent); in cloud forest (100 percent); 2,210-2,632 m; bmh-MB (8) and bp-M (2).

Specimens collected: MERIDA, 6 km ESE Tabay, 2,630-2,632 m, (2). TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,405-2,410 m, (2). TRUJILLO, Hda. Misisí, 14 to 15 km E Trujillo, 2,210-2,360 m, (6). Total 10.

*Marmosa fuscata* Thomas, 1896:313.

Mountains of northern Venezuela. In trees and vines (71 percent) or on the ground (29 percent); near streams or in other moist areas (100 percent); in evergreen (56 percent) and cloud forest (41 percent) and in forest openings used for crops (3 percent); 1,050-2,350 m; bh-P (11), bmh-P (17), bh-MB (10), and bmh-MB (26).

Specimens collected: ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,050 m,



(2). CARABOBO, La Copa, 4 km NW Montalbán, 1,513-1,537 m, (15). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,443-1,500 m, (5). MIRANDA, Alto Ño León, 31 to 33 km WSW Caracas, 1,750-2,000 m, (5); Curupao, 5 km NNW Guarenas, 1,160 m, (1); I.V.I.C., 15 km SW Caracas, 1,460 m, (5); Pico Ávila, 5 km NNE Caracas, 1,281-2,232 m, (19). MONAGAS, San Agustín, 5 km NW Caripe, 1,150-1,339 m, (10). TRUJILLO, Hda. Misisí, 14 to 15 km E Trujillo, 2,210-2,350 m, (2). Total 64.

*Marmosa impavida* Tschudi, 1845:149.

Táchira Andes. In trees, shrubs, or vines (63 percent) or on leaf litter at the base of trees and vines (37 percent); in moist (88 percent) or rarely in dry situations (12 percent); in cloud (88 percent) or evergreen forest (12 percent); 2,380-2,415 m; bmh-MB (8).

Specimens collected: TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,380-2,415 m, (8). Total 8.

*Marmosa marica* Thomas, 1898:455.

Northern Venezuela. In trees (83 percent) and in a fence post (17 percent); in moist sites (100 percent); in evergreen (43 percent) or deciduous forest (14 percent), and in savanna (43 percent); 18-2,135 m; bs-T (3), bh-T (1), bh-MB (1), and bmh-MB (2).

Specimens collected: DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,500 m, (1); Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,124-2,135 m, (2). FALCÓN, 19 km NW Urama, 25 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (3). Total 7.

*Marmosa murina* Linnaeus, 1758:55.

Bolívar, T. F. Amazonas, and scattered localities in northern Venezuela. On the ground (48 percent) or on logs, in trees, and in houses (52 percent); usually near streams or other moist areas (90 percent) but occasionally in dry sites (10 percent); in evergreen forest (88 percent) or openings such as pastures, orchards, and yards (12 percent); 25-1,365 m; bs-T (4), bh-T (28), bmh-T (1), bh-P (13), and bmh-P (25).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (4); Hato San José, 20 km W La Paragua, 306 m, (1); 45 km NE Icabarú, 851 m, (4); Km 125, 85 km SSE El Dorado, 1,032 m, (21); Los Patos, 28 km SE El Manteco, 350 m, (1); Río Supamo, 50 km SE El Manteco, 350 m, (1). MONAGAS, San Agustín, 5 km NW Caripe, 1,260-1,365 m, (11). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (2); Capibara,

Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (4); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (14). YARACUY, 10 km NW Urama, 25 m, (3). ZULIA, El Rosario, 48 to 63 km WNW Encontrados, 54-125 m, (3). Total 71.

*Marmosa parvidens* Tate, 1931:13.

T. F. Amazonas, Bolívar, and Falcón. Captured on the ground (67 percent) and in a tree (33 percent); near streams or other moist areas (100 percent); in evergreen forest (100 percent); 25-1,032 m; bh-T (3) and bmh-P (2).

Specimens collected: BOLÍVAR, Km 125, 85 km SSE El Dorado, 1,032 m, (2). FALCÓN, 19 km NW Urama, 25 m, (1). T. F. AMAZONAS, Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (2). Total 5.

*Marmosa robinsoni* Bangs, 1898:95.

Northern Venezuela. Usually captured on the ground (66 percent) or in trees (34 percent); near streams or in other moist areas (65 percent) and often in dry sites (35 percent); in evergreen or cloud forest (42 percent), openings (33 percent), or deciduous and thorn forest (25 percent); 1-1,260 m (62 percent below 500 m); bms-T (17), bs-T (118), bh-T (16), me-P (2), bs-P (11), bh-P (25), bmh-P (65), and bmh-MB (2).

Specimens collected: BARINAS, Altamira, 697 m, (1). CARABOBO, nr. Montalbán, 562-1,000 m, (9). FALCÓN, Cerro Santa Ana, Península de Paraguaná, 15 km SSW Pueblo Nuevo, 500-615 m, (62); Cerro Socopo, 84 km NW Carora, 1,258-1,260 m, (2); nr. Mirimire and nr. La Pastora, 14 km ENE Mirimire, 90-250 m, (2); Río Socopito, 80 km NW Carora, 470 m, (1). GUÁRICO, Est. Biol. de los Llanos, 9 km SE Calabozo, 100-115 m, (35); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (46). LARA, Caserio Boro, 10 to 14 km NE and N El Tocuyo, 528-616 m, (3); La Concordia, 47 km NE El Tocuyo, 592 m, (1). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160 m, (8); San Andrés, 16 km SSE Caracas, 1,144 m, (6). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (13); San Agustín, 5 km NW Caripe, 1,150 m, (1). NUEVA ESPARTA, Isla Margarita, 3 km NNE, NE, and S La Asunción, 37-425 m, (15). SUCRE, 16 to 21 km E Cumaná, 1-25 m, (10). TRUJILLO, La Ceiba, 52 km WNW Valera, 29 m, (1); 12 to 25 km N, NW, and WNW Valera, 90-930 m, (9). ZULIA, nr. Cerro Azul, 35 to 40 km NW La Paz, 80 m, (7); Novito, 19 km WSW Machiques, 1,132-1,150 m,

(2). CARABOBO, FALCÓN, and YARACUY. 10 to 19 km NW Urama. 25 m, (22). Total 256.

*Marmosa* sp. A.

Falcón. Captured at the bases of trees in moist evergreen forest; 125-170 m; bh-P (3).

Specimens collected: FALCÓN, nr. La Pastora, 14 km ENE Mirimire, 125-170 m, (3). Total 3.

Remarks: For notes on the systematics and nomenclature of this species, see Handley (in press).

*Marmosa* sp. B.

Desert areas around Golfo de Venezuela. Usually captured in trees and bushes (81 percent) or on the ground (18 percent) and rarely in houses (1 percent); almost always in dry situations (99 percent) but rarely in moist places (1 percent); in thorn forest (98 percent), forest openings (2 percent), and evergreen forest (less than 1 percent); 5-90 m; me-T (205) and bms-T (41).

Specimens collected: FALCÓN, Capatárida and 16 to 18 km WSW and SSW Capatárida, 40-75 m, (135); Península de Paraguaná, 15 to 25 km SSW and SW Pueblo Nuevo, 13-90 m, (73). GUAJIRA and ZULIA, nr. Cojoro, 34 to 37 km NNE Paraguaipoa, 5-15 m, (38). Total 246.

Remarks: For notes on the systematics and nomenclature of this species, see Handley (in press).

*Marmosa* sp. ?

Specimens collected: FALCÓN, Península de Paraguaná, 15 to 25 km SSW and SW Pueblo Nuevo, 13-593 m, (5). GUÁRICO, Est. Biol. de los Llanos, 9 km SE Calabozo, 100 m, (3). MONAGAS, nr. San Agustín, 5 km NW Caripe, 1,150-1,338 m, (2). Total 10.

*Philander opossum* Linnaeus, 1758:55.

Lowlands of western and southern Venezuela. On the ground (98 percent) and on a log (2 percent); near streams and in other moist areas (100 percent); in evergreen forest (91 percent) and openings such as orchards, croplands, and yards (9 percent); 24-324 m; bs-T (2), bh-T (29), and bnh-T (15).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (3). BOLÍVAR, Hato San José, 20 km W La Paragua, 306-324 m, (2). T. F. AMAZONAS, Acañaña, Río Cumucumma, 48 km NW Esmeralda, 145 m, (1); Belén, Río Cumucumma, 56 km NNW Esmeralda, 150 m, (11); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (3); Capibara,

Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (10); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (3); Tamatama, Río Orinoco, 135 m, (9). TRUJILLO, 19 to 30 km N and NW Valera, 90-164 m, (2). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (2). Total 46.

*Metachirus nudicaudatus* E. Geoffroy, 1803:142.

Western and southern Venezuela. On the ground (100 percent); near streams and other moist areas (73 percent) or in dry situations (27 percent); in evergreen forest (73 percent) and in orchards and yards (27 percent); 130-1,150 m; bh-T (10), bh-P (2), and bnh-P (6).

Specimens collected: BARINAS, Altamira, 697-794 m, (3). BOLÍVAR, 28 km NE Icabarú, 775 m, (2). T. F. AMAZONAS, Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (2); Tamatama, Río Orinoco, 135 m, (4). TRUJILLO, 19 km N Valera, 164 m, (3). ZULIA, Kasmera, 21 km SW Machiques, 270 m, (1); Novito, 19 km WSW Machiques, 1,135-1,150 m, (3). Total 18.

*Lutreolina crassicaudata* Desmarest, 1804:19.

Bolívar. On the ground, in grass 0.5-1.5 m high, near a stream and in dry upland pasture with scattered bushes and palms; 298 m; bs-T (4).

Specimens collected: BOLÍVAR, Hato San José, 20 km W La Paragua, 298 m, (4). Total 4.

*Didelphis albiventris* Lund, 1841:236.

Mérida and Táchira Andes. On the ground (86 percent) or in trees (14 percent); in dry situations (54 percent) or near streams and other moist areas (46 percent); in evergreen (53 percent) or cloud forest (47 percent); 2,380-3,275 m; bnh-MB (5), bh-M (6), bp-M (1), and p-SA (2).

Specimens collected: MERIDA, Paramito, 3 to 4 km W Timotes, 3,020-3,275 m, (8); 7 km SE Tabay, 3,155 m, (1). TACHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,380-2,390 m, (5). Total 14.

*Didelphis marsupialis* Linnaeus, 1758:54.

Throughout Venezuela, except at high elevations and in deserts. Usually captured on the ground (72 percent) or in trees, on logs, or in houses (28 percent); most often near streams or in other moist areas (88 percent) but sometimes in dry places (12 percent); in evergreen (52 percent) and cloud forest (6 percent), deciduous and thorn forest (5 percent), or in openings such as yards, orchards, pastures, and croplands (37 percent); 1-2,232 m (56 percent below 500 m, 98 percent below 1,500 m); bms-T (15),

bs-T (92), bh-T (51), bmh-T (9), me-P (1), bs-P (74), bh-P (99), bmh-P (16), bh-MB (8), and bmh-MB (17).

Specimens collected: ANZOÁTEGUI, 14 km W Clarines, 100 m, (1). APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (2); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (2); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (1). ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,100 m, (2). BARINAS, Altamira, 794 m, (7). BOLÍVAR, Hato La Florida, 44 km ESE Caicara, 43-45 m, (15); Hato San José, 20 km W La Paragua, 324 m, (2); 23-45 km NE Icabarú, 851 m, (2); Km 125, 85 km SSE El Dorado, 1,032-1,165 m, (3); Río Supamo, 50 km SE El Manteco, 150 m, (2). CARABOBO, nr. Montalbán, 562-1,000 m, (49). DTO. FEDERAL, Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (2); Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (1); Los Venados, 4 km NNW Caracas, 1,475 m, (2). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (2); nr. Mirimire and 14 km ENE Mirimire, 130-250 m, (5); Río Socopito, 80 km NW Carora, 480 m, (1). GUÁRICO, Est. Biol. de los Llanos, 14 km SE Calabozo, 100 m, (1). LARA, Caserio Boro, 10 to 47 km N and NE El Tucuyo, 518-900 m, (8). MÉRIDA, 4 km E Tabay, 2,100 m, (1). MIRANDA, Alto Ño León, 31 km WSW Caracas, 1,880 m, (1); 3 km NE Caracas, 1,110-1,170 m, (32); I.V.L.C., 15 km SW Caracas, 1,460-1,660 m, (16); Parque Nac. Guatopo, 15 to 21 km NW Altigracia, 630-680 m, (16); 1 to 6 km S and SSE Río Chico, 1 m, (5); San Andrés, 16 km SSE Caracas, 1,140-1,144 m, (2). MONAGAS, Hato Mata de Bejuco, 55 SSE Maturín, 18 m, (10); San Agustín, 5 km NW Caripe, 1,160-1,335 m, (18). SUCRE, 2 to 24 km E Cumana, 1-30 m, (7); Ensenada Cuarenta, 9 km NE Guiría, 1-4 m, (14); Manacal, 26 km ESE Carúpano, 185-470 m, (42). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (2). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150-1,460 m, (7); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (5); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (6); 30 to 32 km S Pto. Ayacucho, 126-135 m, (7); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2); Tamatama, Río Orinoco, 135 m, (1). TRUJILLO, La Ceiba, 46 km WNW Valera, 29 m, (2); 12 to 30 km N to WNW Valera, 61-900 m, (22). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-1,400 m, (6). ZULIA, nr. Cerro Azul, 33 to 39 km NW La Paz, 75-80 m, (15); El Rosario, 45 to 60 km WNW Encontrados, 37-73 m, (13); Kasnera,

21 km SW Machiques, 270 m, (2). CARABOBO, FALCÓN, and YARACUY, 10 to 19 km NW Urama, 25 m, (15). DTO. FEDERAL and MIRANDA, Pico Ávila, 5 km NNE and 6 km NNW Caracas, 1,616-2,232 m, (3). Total 382.

#### *Didelphis* sp. A.

Bolívar and T. F. Amazonas. Captured in trees and on logs (53 percent) or on the ground (47 percent); near streams and other moist areas (100 percent); in evergreen forest (93 percent) and forest openings (7 percent); 126-1,400 m (77 percent above 700 m); bs-T (1), bh-T (3), bh-P (3), bmh-P (6), bp-P (2), and bp-MB (2).

Specimens collected: BOLÍVAR, 26 km NE Icabarú, 824 m, (3); Km 125, 85 km SSE El Dorado, 1,032 m, (6). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,400 m, (2); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 750 m, (2); 20 to 30 km S Pto. Ayacucho, 126-135 m, (3). Total 17.

Remarks: For notes on the systematics and nomenclature of this species, see Handley (in press).

#### *Chironectes minimus* Zimmermann, 1780:317.

Mountains of northern and western Venezuela. In streams in evergreen forest and cultivated land; 395-1,860 m; bh-P (2) and bmh-MB (3).

Specimens collected: MÉRIDA, Santa Rosa, 1 km N Mérida, 1,860 m, (3). MONAGAS, San Agustín, 5 km NW Caripe, 1,150 m, (1). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395 m, (1). Total 5.

### Family CAENOLESTIDAE

*Caenolestes obscurus* Thomas, 1895b:367.

Táchira. On the ground, 1.5-2 m from a stream, near shrubs and a bamboo thicket, in cloud forest; 2,390-2,400 m; bmh-MB (2).

Specimens collected: TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,390-2,400 m, (2). Total 2.

### Order INSECTIVORA

#### Family SORICIDAE

*Cryptotis thomasi* Merriam, 1897:227.

Mérida and Táchira Andes. Taken on the ground (100 percent); usually in moist situations (55 percent) but occasionally in dry sites (15 percent); in cloud forest (94 percent) or páramo (6 percent); 1,980-3,545 m; bh-MB (3), bmh-MB (9), bp-M (6), and p-SA (3).

Specimens collected: MÉRIDA, La Caribonera, 12 km SE La Azulita, 1,990 m, (1); Santa Rosa, 2 km N Mérida, 1,950 m, (3); 5 to 9 km SE and ESE Tabay, 2,630-3,545 m, (9). TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,380-2,415 m, (8). Total 21.

## Order CHIROPTERA

### Family EMBALLONURIDAE

*Rhynchonycteris naso* Wied, 1820b:251.

Throughout the lowlands of Venezuela. Caught in mist nets (55 percent) or from roosts on logs (21 percent), trees (15 percent), and rocks (6 percent); near streams and in other moist situations (97 percent) or in dry places (3 percent); in evergreen forest (71 percent), pastures and yards (18 percent), swamps (6 percent), and thorn forest (5 percent); 1-350 m; bms-T (1), bs-T (37), bh-T (75), bnh-T (38), and bh-P (9).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (2); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (5). BOLÍVAR, El Manaco, 59 to 67 km SE El Dorado, 150 m, (7); Hato La Florida, 47 km SE Caicara, 50 m, (3); Hato San José, 20 km W La Paragua, 306 m, (1); Río Supamo, 50 km SE El Manteco, 150-350 m, (9). FALCÓN, Boca de Yacucuy, 28 km WNW Pto. Cabello, 2 m, (10); 20 km NNE and ENE Mirimire, 1 m, (1). GUÁRICO, Est. Biol. de los Llanos, 14 km SE Calabozo, 100 m, (3). MIRANDA, 7 km N Río Chico, 1 m, (7). MONAGAS, Hato Mata de Bejucó, 55 km SSE Maturín, 18 m, (2). T. F. AMAZONAS, Belén, Río Cumucumuna, 56 km NNW Esmeralda, 150 m, (38); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (6); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (18); Río Mavaca, 108 km SSE Esmeralda, 140 m, (4); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (19); Tamatama, Río Orinoco, 135 m, (15). YARACUY, 10 km NW Urama, 25 m, (3). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (1); El Rosario, 42 to 57 km WNW Encontrados, 24-61 m, (6). Total 160.

*Saccopteryx bilineata* Temminck, 1838:33.

Humid lowland forests throughout Venezuela. Caught in mist nets (27 percent) and found roosting on trees (71 percent) and rocks (1 percent), on houses and in cave mouths (1 percent), and on logs (less than 1 percent); usually near streams (81 percent) and in moist areas (15 percent), but rarely in dry places (4

percent); in evergreen forest (65 percent), orchards (13 percent), swamps (12 percent), yards (8 percent), pastures (1 percent), and deciduous forest (1 percent); 1-630 m (99 percent below 500 m); bs-T (84), bh-T (301), bnh-T (25), bs-P (2), bh-P (5), and bnh-P (3).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (3); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (3); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (1); San Rafael de Atamaica, 42 km SSE San Fernando de Apure, 100 m, (10). BARINAS, 2 km SW Altamira, 620 m, (1). BOLÍVAR, Hato La Florida, 45 km ESE Caicara, 65 m, (1); Hato San José, 20 km W La Paragua, 306 m, (1); Río Supamo, 50 km SE El Manteco, 350 m, (1). CARABOBO, 2 km SE Montalbán, 598 m, (1). FALCÓN, Boca de Yacucuy, 28 km WNW Pto. Cabello, 2 m, (4); 12 to 14 km ENE Mirimire, 60-260 m, (2). MIRANDA, Birongo, 60 m, (2); Parque Nac. Guatopo, 21 km NW Altagracia, 630 m, (1); 5 to 7 km E and SSE Río Chico, 1 m, (9). MONAGAS, Hato Mata de Bejucó, 55 km SSE Maturín, 18 m, (1). SUCRE, Ensenada Cauranta, 9 km NE Güiría, 1 m, (1); Manacal, 26 km ESE Carúpano, 200-575 m, (3). TÁCHIRA, Las Mesas, 17 km San Juan de Colón, 460 m, (2). T. F. AMAZONAS, Belén, Río Cumucumuna, 56 km NNW Esmeralda, 150 m, (22); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (24); 14 to 30 km S and SSW Pto. Ayacucho, 126-135 m, (3); Río Mavaca, 108 km SSE Esmeralda, 140 m, (6); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (246). TRUJILLO, 23 to 25 km NW Valera, 90-164 m, (2). ZULIA, nr. Cerro Azul, 33 to 39 km NW La Paz, 75-80 m, (50); El Rosario, 39 to 48 km WNW Encontrados, 37-54 m, (6). CARABOBO and FALCÓN, 5 to 19 km NW and ENE Urama, 25 m, (14). Total 420.

*Saccopteryx canescens* Thomas, 1901a:366.

Widely scattered Venezuelan lowland localities. Mist netted (100 percent); near streams and in other moist areas (75 percent) or in dry sites (25 percent); in openings such as pastures, yards, and orchards (60 percent), in evergreen forest (30 percent), and in thorn (5 percent) and swamp forest (5 percent); 1-155 m; bs-T (14) and bh-T (9).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 to 46 km NE Pto. Páez, 76 m, (5); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (2); San Rafael de Atamaica, 42 km SSE San Fernando de Apure, 100 m, (2). FALCÓN,



Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (1); 19 km NW Urama, 25 m, (2). MIRANDA, Biringo, 60 m, (2); 7 to 10 km E and ESE Río Chico, 1 m, (2). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (1). SUCRE, Ensenada Cauranta, 9 km NE Güiria, 2 m, (1). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (4). ZULIA, El Rosario, 51 km WNW Encontrados, 50 m, (1). Total 23.

*Saccopteryx leptura* Schreber, 1774: pl. 57 and p. 173.

Scattered lowland localities throughout Venezuela. Caught in mist nets (83 percent) and found roosting on logs (10 percent), in trees (5 percent), and on a house (2 percent); near streams and in other moist areas (82 percent) or in dry sites (18 percent); in evergreen forest (67 percent), yards, pastures, and orchards (18 percent), thorn forest (13 percent), and swamp (2 percent); 1-609 m (95 percent below 500 m); bms-T (1), bs-T (9), bh-T (21), bmh-T (6), bh-P (2), and bmh-P (2).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 km NE Pto. Páez, 76 m, (1); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (2); 1 km W Pto. Páez, 76 m, (1). BARINAS, 2 km SW Altamira, 609 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Hato La Florida, 45 km ESE Caicara, 65 m, (1); Hato San José, 20 km W La Paragua, 306 m, (1). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (4). MIRANDA, Biringo, 60 m, (1); 1 km E Río Chico, 1 m, (1). SUCRE, 21 km E Cumana, 40 m, (1); Manacal, 26 km ESE Carúpano, 575 m, (1). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). T. F. AMAZONAS, Acañaña, Río Cunucumuna, 48 km NW Esmeralda, 145 m, (1); Belén, Río Cunucumuna, 56 km NNW Esmeralda, 150 m, (3); Boca Mavaca, 84 km SSE Esmeralda, 135 m, (3); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); 32 km S Pto. Ayacucho, 135 m, (2); Río Mavaca, 108 km SSE Esmeralda, 140 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (10). YARACUY, Minas de Ároa, 20 km NW San Felipe, 400 m, (1). ZULIA, El Rosario, 48 km WNW Encontrados, 54 m, (1). Total 41.

*Saccopteryx* sp. ?

Specimens collected: T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 135 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 3.

*Cormura brevirostris* Wagner, 1843a:367.

Northeastern and southern Venezuela. Netted (50 percent), shot in flight (17 percent), or captured from roosts in hollow trees (11 percent) or logs (22 percent); near streams or other moist areas (100 percent); in evergreen forest (88 percent) and rarely in fields and yards (12 percent); 135-964 m (91 percent below 500 m); bs-T (1), bh-T (5), bmh-T (9), bs-P (1), bh-P (1), and bmh-P (1).

Specimens collected: BOLÍVAR, 40 km NE Icabarú, 964 m, (1); Río Supamo, 50 km SE El Manteco, 150 m, (1). SUCRE, Manacal, 26 km ESE Carúpano, 175 m, (1). T. F. AMAZONAS, Belén, Río Cunucumuna, 56 km NNW Esmeralda, 150 m, (9); Boca Mavaca, 84 km SSE Esmeralda, 135 m, (2); 32 and 65 km S and SSW Pto. Ayacucho, 135-161 m, (2); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 18.

*Peropteryx kappleri* Peters, 1867:473.

Widely scattered localities in northern Venezuela and Bolívar. Found roosting in caverns (74 percent) and among rocks (26 percent); in dry (62 percent) or moist situations (38 percent); in evergreen forest (76 percent) or in croplands (24 percent); 220-854 m; bs-T (1), bh-P (52), and bmh-P (1).

Specimens collected: BARINAS, Altamira, 794 m, (1). BOLÍVAR, 13 km NE Icabarú, 817 m, (1). CARABOBO, 14 km ENE Montalbán, 701 m, (11). FALCÓN, 6 to 12 km ENE Mirimire, 220-260 m, (27); Reicito, 30 km S Mirimire, 300 m, (1). MONAGAS, 3 km SW Caripe, 854 m, (13). Total 54.

*Peropteryx macrotis* Wagner, 1843a:367.

Humid lowlands of southern, central, and western Venezuela. Found roosting in caves (38 percent), rocks (31 percent), and houses (6 percent) or caught in mist nets (25 percent); usually near streams and in other moist areas (88 percent) but occasionally in dry places (12 percent); in evergreen forest (70 percent), openings such as savanna, yards, and orchards (27 percent), and in deciduous forest (3 percent); 65-817 m; bs-T (55), bh-T (50), bmh-T (3), bh-P (108), and bmh-P (1).

Specimens collected: APURE, 1 km W Pto. Páez, 76 m, (1); San Rafael de Atamaica, 42 km SSE San Fernando de Apure, 100 m, (14). BARINAS, Altamira, 600 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Hato La Florida, 45 km ESE Caicara, 65 m, (1); 11 to 19 km NE Icabarú, 700-817 m, (69); Piedra

Virgen, 70 km SSE El Dorado, 374 m, (9). CARABOBO, 14 km ENE Montalbán, 701 m, (11). FALCÓN, 13 km NNE and ENE Mirimire, 270 m, (12); Riccio, 30 km S Mirimire, 300 m, (29). GUÁRICO, Embalse de Guárico, 10 km N Calabozo, 100 m, (1). MIRANDA, Cueva Ricardo Zuloaga, nr. El Encontado, 15 km SE Caracas, 548 m, (7). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (3); Esmeralda, Río Orinoco, 135 m, (31); 20 to 35 km SSW Pto. Ayacucho, 119-195 m, (6); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2). YARACUY, Minas de Aroa, 20 km NW San Felipe, 390-400 m, (16). ZULIA, El Rosario, 42 km NW Encontrados, 24 m, (1); Kasimera, 21 km SW Machiques, 270 m, (5). Total 220.

*Peroteryx trinitatis* Miller, 1899:178.

Lowlands of southern and central northern Venezuela. Found roosting in rocks (50 percent), caverns (22 percent), and houses (18 percent), or caught in nets (10 percent); in dry areas (75 percent) or in moist sites (25 percent); in savanna and pasture (62 percent), yards (21 percent), evergreen forest (15 percent), and swamps (2 percent); 76-400 m; bs-T (37), bh-T (6), and bh-P (18).

Specimens collected: APURE, Pto. Páez, 76 m, (33). BOLÍVAR, Piedra Virgen, 70 km SSE El Dorado, 374 m, (2). FALCÓN, 13 km NNE and ENE Mirimire, 270 m, (6). MIRANDA, 4 km SW Birongo, 195 m, (1). T. F. AMAZONAS, 14 to 32 km S and SSW Pto. Ayacucho, 119-174 m, (6); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). YARACUY, Minas de Aroa, 20 km NW San Felipe, 390-400 m, (12). Total 61.

*Diclidurus albus* Wied, 1820a (1819):1630.

Bolívar, T. F. Amazonas, and Zulia. Shot in flight (100 percent); near stream banks and other moist areas (87 percent) or in dry sites (13 percent); over yards and streets in towns (87 percent) or in evergreen and cloud forest (13 percent); 24-851 m; bs-T (2), bh-T (18), and bh-P (3).

Specimens collected: BOLÍVAR, Icabarú to 21 km NE Icabarú, 473-851 m, (5). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (7). ZULIA, El Rosario, 39 to 42 km WNW Encontrados, 24-37 m, (11). Total 23.

*Diclidurus ingens* Hernández Camacho, 1955:87.

T. F. Amazonas. Shot in flight (100 percent); over stream banks and other moist areas (100 percent); in yards (75 percent) or in evergreen

forest (25 percent); 99-155 m; bs-T (2) and bh-T (2).

Specimens collected: T. F. Amazonas, Pto. Ayacucho, 99 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2). Total 4.

*Diclidurus isabellus* Thomas, 1920b:271.

T. F. Amazonas. Shot in flight (100 percent); over streams or stream banks (100 percent); in evergreen forest (100 percent); 138-155 m; bh-T (28).

Specimens collected: T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (9); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (18). Total 28.

*Diclidurus scutatus* Peters, 1869:400.

Bolívar and T. F. Amazonas. Shot in flight (100 percent); near stream banks and other moist areas (100 percent); over yards and streets in towns (100 percent); 99-851 m; bs-T (12), bh-T (1), and bh-P (1).

Specimens collected: BOLÍVAR, Icabarú to 21 km NE Icabarú, 473-851 m, (11). T. F. AMAZONAS, Pto. Ayacucho, 99 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 14.

Family NOCTILIONIDAE

*Noctilio albiventris* Desmarest, 1818:15.

Lowlands of central and northern Venezuela. Netted (54 percent) or taken from roosts in hollow trees (45 percent) and rarely in rocks (1 percent); never far from streams (but 20 percent netted or found roosting in upland sites); in savanna or pasture (41 percent), swamp or marshes (20 percent), yards, croplands, and orchards (19 percent), evergreen forest (18 percent), and thorn forest (2 percent); 1-300 m; bs-T (306) and bh-T (229).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 to 46 km NE Pto. Páez, 76 m, (86); Pto. Páez to Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (47); San Rafael de Atanaica, 42 km SSE San Fernando de Apure, 100 m, (3). BOLÍVAR, Hato La Florida, 47 km ESE Caicara, 50 m, (2). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (12). GUÁRICO, Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m, (8). MIRANDA, 4 to 7 km E Río Chico, 1 m, (8). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (2). SUCRE, San Fernando, 16 km SE Cumaná, 300 m, (1). T. F. AMAZONAS, 20 to 28 km S Pto. Ayacucho, 135 m, (9); San Juan, Río Manapi-

are, 163 km ESE Pto. Ayacucho, 155 m, (212). TRUJILLO, La Ceiba, 47 km WNW Valera, 29 m, (1); 25 km NW Valera, 90 m, (1). ZULIA, El Rosario, 42 km WNW Encontrados, 21 m, (15). CARABOBO and YARACUY, 10 to 19 km NW Urama, 25 m, (125). Total 535.

*Noctilio leporinus* Linnaeus, 1758:32.

Lowland localities throughout Venezuela. Netted (100 percent); over or near streams or in other moist areas (100 percent); in savannas, pastures, and marshes (53 percent), evergreen and deciduous forest (30 percent), and yards and orchards (17 percent); 1-181 m; bms-T (4), bs-T (51), bh-T (23), bmh-T (4), and bh-P (5).

Specimens collected: APURE, between Pto. Páez and Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (1). BOLÍVAR, Hato La Florida, 47 km ESE Caicara, 50 m, (1); Río Supamo, 50 km SE El Manteco, 150 m, (5). GUÁRICO, Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (2). MIRANDA, 1 to 7 km E and S Río Chico, 1 m, (5). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (1). SUCRE, 21 km E Cumaná, 1 m, (4); Ensenada Cauranta, 9 km NE Güiría, 1 m, (3). T. F. AMAZONAS, Belén, Río Cunucumma, 56 km NNW Esmeralda, 150 m, (4); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (10); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (1); El Rosario, 42 km WNW Encontrados, 24 m, (12). CARABOBO and YARACUY, 10 to 11 km NW Urama, 25 m, (37). Total 87.

#### Family MORMOOPIIDAE

*Pteronotus davyi* Gray, 1838:500.

Lowlands of northern Venezuela. Netted (60 percent) and found roosting in caverns (38 percent) or in houses and rocks (2 percent); in dry (73 percent) or moist sites (27 percent); in thorn forest (39 percent), openings such as yards, orchards, croplands, and pastures (35 percent), and in evergreen forest (26 percent); 1-528 m; bms-T (86), bs-T (2), and bh-P (134).

Specimens collected: DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380 m, (1). FALCÓN, Península de Paraguaná, 7 km W Pueblo Nuevo, 120 m, (85). LARA, Caserio Boro, 10 km N El Tocuyo, 525 m, (1). SUCRE, Ensenada Cauranta, 9 km NE Güiría, 1 m, (1); Manacá, 26 km ESE Caripano, 400 m, (1). YARACUY, Minas de Aroa, 20 km NW San Felipe, 380-400 m, (132); 10 km NW Urama, 25 m, (1). Total 222.

*Pteronotus parnellii* Gray, 1843:50.

Lowlands and low mountains throughout Venezuela except in most of the Llanos and in the extreme west. Caught in mist nets (90 percent) or found roosting in caverns (9 percent) and in tree holes (1 percent); over or near streams and in other moist areas (83 percent) or in dry places (17 percent); in evergreen forest (48 percent), deciduous and thorn forest (23 percent), openings such as yards, orchards, pastures, and croplands (19 percent), swamps (9 percent), and cloud forest (1 percent); 1-1,537 m (92 percent below 500 m); bms-T (28), bs-T (178), bh-T (138), bmh-T (24), bs-P (2), bh-P (123), bmh-P (11), and bh-MIB (1).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 km NE Pto. Páez, 76 m, (5); 1 km W Pto. Páez, 76 m, (6). ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,081-1,100 m, (6). BARINAS, 2 km SW Altamira, 619 m, (1). BOLÍVAR, El Manaco, 56 to 59 km SE El Dorado, 150 m, (6); 5 km NNW Guasipati, 190 m, (64); Hato La Florida, 47 km ESE Caicara, 50 m, (45); Hato San José, 20 km W La Paragua, 306 m, (4); 21 km NE Icabarú, 750 m, (1); Km 125, 85 km SSE El Dorado, 882-1,032 m, (2); Los Patos, 28 km SE El Manteco, 150 m, (4); Río Supamo, 50 km SE El Manteco, 150 m, (3). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (2). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m, (3); Los Venados, 4 km NNW Caracas, 1,513 m, (1). FALCÓN, 14 to 16 km ENE Mirimire, 60-70 m, (6); Península de Paraguaná, 7 km W Pueblo Nuevo, 120 m, (7); Riccio, 30 km S Mirimire, 300 m, (1). GUÁRICO, Hda. Elvira, 10 km NE Altigracia, 630 m, (6). LARA, Caserio Boro, 10 to 13 km N and NW El Tocuyo, 518-900 m, (10). MIRANDA, Birongo to 4 km SW Birongo, 60-195 m, (13); Cueva Ricardo Zuloaga, nr. El Encantado, 15 km SE Caracas, 548 m, (4); Curupao, 5 km NNW Guarenas, 1,140-1,160 m, (4); 1 km E Río Chico, 1 m, (1); San Andrés, 16 km SSE Caracas, 950-1,144 m, (2). MONAGAS, San Agustín, 5 km NW Caripe, 1,165 m, (1). NUEVA ESPARTA, Isla Margarita, 3 km S La Asunción, 53-305 m, (13). SUCRE, Ensenada Cauranta, 9 to 12 km NE Güiría, 1-90 m, (27). T. F. AMAZONAS, Acañaña, Río Cunucumma, 48 km NW Esmeralda, 145 m, (6); Belén, Río Cunucumma, 56 km NNW Esmeralda, 150 m, (18); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (8); 14 to 32 km S and SSE Pto. Ayacucho, 119-135 m, (6); Río Mavaca, 108 km SSE Esmeralda, 140 m, (60); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (34); Tamatama, Río Orino-

co, 135 m. (3). TRUJILLO, 23 to 25 km N and NW Valera, 90-164 m, (3). YARACUY, Minas de Aroa, 20 km NW San Felipe, 380-400 m, (104). CARABOBO, FALCÓN, and YARACUY, 6 to 19 km NW and N Urama, 25-60 m, (15). Total 505.

*Pteronotus personatus* Wagner, 1843a:367.

Bolívar and base of Península de Falcón. Netted over and near streams and in dry areas; in evergreen forest, pasture, and in a yard; 25-395 m; bs-T (1) and bh-P (3).

Specimens collected: BOLÍVAR, Los Patos, 25 km SE El Manteco, 150 m, (1). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395 m, (2); 10 km NW Urama, 25 m, (1). Total 4.

*Pteronotus suapurensis* J. A. Allen, 1904:229.

Northwestern Venezuela. Caught in mist nets (100 percent); mostly in dry situations (94 percent) and only rarely in moist places (6 percent); in yards (90 percent), evergreen forest (8 percent), and deciduous forest (2 percent); 164-400 m; bh-T (2) and bh-P (49).

Specimens collected: TRUJILLO, 19 km N Valera, 164 m, (2). YARACUY, Minas de Aroa, 19 to 30 km NW San Felipe, 395-400 m, (49). Total 51.

*Mormoops megalophylla* Peters, 1864:381.

Widely scattered localities in Bolívar and in northern Venezuela. Found roosting in caverns (82 percent) or caught in mist nets (18 percent); in moist areas and over streams (68 percent) or in dry sites (32 percent); in deciduous and thorn forest (83 percent), orchards and yards (16 percent), and evergreen forest (1 percent); 1-395 m; bms-T (25), bs-T (59), and bh-P (4).

Specimens collected: BOLÍVAR, Hato San José, 20 km W La Paragua, 306 m, (1). FALCÓN, Península de Paraguaná, 7 km W Pueblo Nuevo, 120 m, (25). SUCRE, Ensenada Cauranta, 9 to 11 km NE Güiría, 1-90 m, (59). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395 m, (3). Total 88.

## Family PHYLLOSTOMIDAE

### Subfamily PHYLLOSTOMINAE

*Micronycteris brachyotis* Dobson, 1879:880.

Widely scattered localities in northern and southern Venezuela. Netted (67 percent) and found roosting in a hollow tree (33 percent); in moist (67 percent) or dry situations (33 percent); in evergreen forest (67 percent) and in a settlement in evergreen forest (33 percent); 25-150 m; bh-T (2) and bh-P (1).

Specimens collected: BOLÍVAR, Los Patos, 25 km SE El Manteco, 150 m, (1). FALCÓN, 19 km NW Urama, 25 m, (1). T. F. AMAZONAS, Tamatama, Río Orinoco, 135 m, (1). Total 3.

*Micronycteris hirsuta* Peters, 1869:396.

Widely scattered lowland localities in southern and western Venezuela. Netted (100 percent); near streams and other moist areas (80 percent) or in dry situations (20 percent); in evergreen forest (60 percent) and in yards (40 percent); 24-155 m; bh-T (4) and bmlh-T (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). FALCÓN, 19 km NW Urama, 25 m, (1). T. F. AMAZONAS, Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (1). Total 5.

*Micronycteris megalotis* Gray, 1842:257.

At lower elevations throughout Venezuela. Mist netted (55 percent), or found roosting in hollow trees and logs (24 percent), caverns, crevices, culverts, and rocks (15 percent), or houses (6 percent); near streams and in other moist areas (70 percent) or in dry habitats (30 percent); in evergreen forest (54 percent), openings such as pastures, yards, and orchards (25 percent), thorn and deciduous forest (20 percent), and swamp (1 percent); 2-794 m; me-T (3), bms-T (8), bs-T (23), bh-T (44), bmlh-T (3), bh-P (6), and bmlh-P (14).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 to 46 km NE Pto. Pérez, 76 m, (10); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1); Río Cinaruco, 65 km NW Pto. Pérez, 76 m, (1). BARINAS, Altamira to 2 km S and SW Altamira, 609-794 m, (14). BOLÍVAR, Hato San José, 20 km W La Paragua, 306-324 m, (2). FALCÓN, Boca de Yacuy, 28 km WNW Pto. Cabello, 2 m, (1); Capatárida, 40 m, (3); 6 to 11 km ENE Mirimire, 200-360 m, (5); Riccito, 30 km S Mirimire, 300 m, (3). LARA, Caserio Boro, 10 km N El Tocuyo, 518-537 m, (5). SUCRE, 21 km E Cumaná, 15 m, (3); Manacal, 26 km ESE Carúpano, 200 m, (1). T. F. AMAZONAS, Acanaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (1); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (10); 20 km S Pto. Ayacucho, 135 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (5); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (23). TRUJILLO, 19 to 26 km N Valera, 131-164 m,



(6). YARACUY, 10 km NW Urama, 25 m, (2). ZULIA, El Rosario, 51 km WNW Encontrados, 37 m, (3). Total 101.

*Miconycteris microtis* Miller, 1898:328.

Widespread in southern Venezuela and at scattered localities in northern Venezuela. Found in roosts in hollow trees and logs (40 percent) and under rocks (4 percent), or mist netted (56 percent); near streams and other moist areas (76 percent) or in dry sites (24 percent); in evergreen forest (74 percent), in pastures and yards (18 percent), and in deciduous and thorn forest (8 percent); 15-2,092 m (82 percent below 500 m); me-T (1), bms-T (1), bs-T (8), bh-T (18), bmh-T (8), bh-P (1), bmh-P (1), and bh-MB (7).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 to 46 km NE Pto. Páez, 76 m, (2); Pto. Páez, 75 m, (2). BOLIVAR, 21 km NE Icabarú, 551 m, (1). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,400-1,524 m, (6); Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,092 m, (1). FALCÓN, Capatárida, 40 m, (1). SUCRE, 21 km E Cumaná, 15 m, (1). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). T. F. AMAZONAS, Acañaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (2); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (6); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (13); 28 km S Pto. Ayacucho, 135 m, (1); Río Mavaca, 105 km SSE Esmeralda, 140 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (1). ZULIA, nr. Cerro Azul, 33 to 39 km NW La Paz, 80 m, (3). Total 45.

*Miconycteris minuta* Cervais, 1856:50.

At lower elevations throughout Venezuela. Found in roosts in hollow trees (44 percent) or caught in mist nets (56 percent); near streams and in other moist areas (92 percent) or in dry places (8 percent); in openings such as orchards, pastures, croplands, and yards (49 percent, in order of decreasing frequency), in evergreen forest (24 percent), and in deciduous and thorn forest (17 percent), swamps (8 percent), and cloud forest (2 percent); 1-1,144 m (92 percent below 500 m); bms-T (4), bs-T (41), bh-T (16), bmh-T (1), bh-P (3), and bmh-P (1).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (1); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (1). BARINAS, 2 km SW Altamira, 620 m, (1). BOLIVAR, Los Patos, 28 km SE El Manteco, 150 m, (2). GUÁRICO,

Est. Biol. de los Llanos, 14 km SE Calabozo, 100 m, (1). LARA, Caserio Boro, 10 km N El Tocuyo, 518-525 m, (2). MIRANDA, nr. El Encantado, 13 km SE Caracas, 570 m, (1); 7 km E Río Chico, 1 m, (4); San Andrés, 16 km SSE Caracas, 1,144 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (2). SUCRE, 21 km E Cumaná, 1 m, (2). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); 65 km SSW Pto. Ayacucho, 161 m, (1); Río Mavaca, 105 km SSE Esmeralda, 140 m, (6); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (5). TRUJILLO, 19 to 26 km N and NW Valera, 90-164 m, (10). ZULIA, nr. Cerro Azul, 33 to 35 km NW La Paz, 75-80 m, (24). Total 66.

*Miconycteris nicefori* Sanborn, 1949:230.

At widely scattered localities throughout the humid lowlands of Venezuela. Caught in roosts in hollow trees (93 percent) and in mist nets (7 percent); in dry uplands (94 percent) or near streams and other moist areas (6 percent); in evergreen forest (98 percent) and in yards and orchards (2 percent); 24-460 m; bh-T (11), bmh-T (1), bh-P (179), and bmh-P (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). BOLIVAR, Los Patos, 25 km SE El Manteco, 150-350 m, (179). MIRANDA, Birongo, 60 m, (1). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (3); 25 km S Pto. Ayacucho, 114 m, (1); Río Mavaca, 105 km SSE Esmeralda, 140 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (2). TRUJILLO, 19 km N Valera, 164 m, (1). Total 192.

*Miconycteris schmidtorum* Sanborn, 1935:81.

In the lowlands of northwestern Venezuela and T. F. Amazonas. Found roosting in tree holes (83 percent) and caught in mist nets (17 percent); near streams (72 percent) or in dry areas (28 percent); in evergreen forest (39 percent), thorn forest (25 percent), swamp or marsh (22 percent), or in pastures and orchards (11 percent); 50-155 m; me-T (1), bms-T (4), bs-T (1), bh-T (10), and bmh-T (2).

Specimens collected: FALCÓN, Capatárida to 16 km SSW Capatárida, 50-75 m, (5). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (2); Río Mavaca, 105 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (9). ZULIA, nr. Cerro Azul, 40 km NW La Paz, 75 m, (1). Total 18.

*Glyphonycteris sylvestris* Thomas, 1896:302.

T. F. Amazonas. Caught in bat traps (67 percent) and found roosting in a hollow tree (33 percent); near streams in evergreen forest (100 percent); 130-155 m; bh-T (3).

Specimens collected: T. F. AMAZONAS. Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 3.

*Lonchorhina aurita* Tomes, 1863:83.

Northwestern Venezuela and Bolívar. Netted (90 percent) or found roosting in caves (9 percent) and in a culvert (1 percent); near streams and in other moist areas (98 percent) or rarely in dry sites (2 percent); in evergreen forest (67 percent), deciduous forest (23 percent), yards, orchards, croplands, and pastures (9 percent), and cloud forest (1 percent); 25-1,537 m (96 percent below 1,000 m); bs-T (59), bh-T (35), bs-P (1), bh-P (32), and bmbh-P (4).

Specimens collected: BARINAS, 7 km NNE Altamira, 1,070 m, (1). BOLÍVAR, Hato San José, 20 km W La Paragua, 300 m, (1). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (3); 3 to 6 km SE and W Montalbán, 562-900 m, (28); 10 km NW Urama, 25 m, (1). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-395 m, (3). FALCÓN, Riccio, 30 km S Mirimire, 300 m, (35). MIRANDA, Birongo to 4 km SW Birongo, 60-195 m, (7). TRUJILLO, 19 to 26 km N and NNW Valera, 90-164 m, (37). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-400 m, (2). ZULIA, El Rosario, 65 km WNW Encontrados, 95 m, (1); Kasmera, 21 km SW Machiques, 270 m, (12). Total 131.

Remarks: Specimens from the following localities are tentatively referred to *Lonchorhina aurita*: T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1).

*Lonchorhina orinocensis* Linares and Ojasti, 1971:2.

Near the Río Orinoco, in Apure and northern T. F. Amazonas. Caught emerging from hot dry roosts in large rocks in prairie (96 percent) and netted in moist places in yards, evergreen forest, and deciduous forest (4 percent); 76-135 m; bs-T (244) and bh-T (8).

Specimens collected: APURE, Hato Cariben. Río Cinaruco, 32 km NE Pto. Páez, 76 m, (225); Pto. Páez, 76 m, (17). T. F. AMAZONAS, 14 to 30 km S and SSE Pto. Ayacucho, 114-135 m, (10). Total 252.

*Macrophyllum macrophyllum* Schinz, 1821:163.

Widespread localities in Venezuelan lowlands. Caught in mist nets (62 percent) and found roosting in culverts (38 percent); near streams and in other moist areas (79 percent) or in dry situations (21 percent); in evergreen forest (84 percent), grasslands (14 percent), and deciduous forest (2 percent); 37-181 m; bs-T (18), bh-T (29), bmbh-T (1), and bh-P (2).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 to 46 km NE Pto. Páez, 76 m, (5). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (2); Río Supamo, 50 km SE El Manteco, 150 m, (2). GUÁRICO, Embalse de Guárico, 10 km N Calabozo, 100 m, (12); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (4); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2). ZULIA, El Rosario, 51 to 61 km WNW Encontrados, 37-76 m, (19). Total 50.

*Tonatia bidens* Spix, 1823:65.

Throughout the humid lowlands of Venezuela. Caught in mist nets (100 percent); over and near streams (32 percent) and in other moist sites (52 percent), or occasionally in dry situations (16 percent); in evergreen forest (79 percent), and in swamps, pastures, orchards, and yards (21 percent); 24-155 m; bs-T (2), bh-T (16), and bmbh-T (1).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (1); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Hato La Florida, 47 km SE Caicara, 50 m, (1). FALCÓN, 19 km NW Urama, 25 m, (8). MIRANDA, Birongo, 60 m, (1). T. F. AMAZONAS, Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). ZULIA, El Rosario, 48 km WNW Encontrados, 54 m, (1). Total 19.

*Tonatia brasiliensis* Peters, 1866c:674.

Widespread in humid lowlands. Caught in mist nets (98 percent) and by hand in a house (2 percent); over and near streams (34 percent) and in other moist areas (48 percent) or in dry situations (18 percent); in evergreen forest (56 percent) and in openings such as orchards, yards, pastures, and croplands (40 percent), and

rarely in swamps (2 percent) and deciduous forest (2 percent); 18-794 m (94 percent below 500 m); bs-T (6), bh-T (34), bmh-T (8), and bmh-P (3).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (8). BARINAS, Altamira to 2 km SW Altamira, 619-794 m, (3). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (1). T. F. AMAZONAS, 25 to 65 km S and SSW Pto. Ayacucho, 114-161 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (12). TRUJILLO, 19 km N Valera, 164 m, (1). ZULIA, El Rosario, 39 km WNW Encontrados, 37 m, (1). FALCÓN and YARACUY, 11 to 19 km NW Urama, 25 m, (22). Total 51.

*Tonatia carrieri* J. A. Allen, 1910:147.

T. F. Amazonas. Caught in mist nets set near streams in an evergreen forest and in an orchard; 140-155 m; bh-T (2).

Specimens collected: T. F. AMAZONAS, Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 2.

*Tonatia silvicola* d'Orbigny, 1836: pl. 6 (description, d'Orbigny and Gervais, 1847:11).

Humid lowlands of western and southern Venezuela. Mist netted (71 percent) or found roosting in termite nests in trees (29 percent); near streams (58 percent) and in other moist areas (36 percent), or in dry situations (6 percent); in evergreen forest (74 percent) and openings such as pastures, orchards, and yards (13 percent), and occasionally in deciduous forest (13 percent); 25-460 m; bs-T (9), bh-T (26), bmh-T (5), bh-P (1), and bmh-P (1).

Specimens collected: BOLÍVAR, Los Patos, 28 km SE El Manteco, 150 m, (1). FALCÓN, 19 km NW Urama, 25 m, (5). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (5); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (14); 25 to 65 km S and SSW Pto. Ayacucho, 114-161 m, (3); Río Mavaca, 108 km SSE Esmeralda, 140 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (3). TRUJILLO, 25 km NW Valera, 90 m, (7). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (1). Total 42.

*Mimon crenulatum* E. Geoffroy, 1810:183.

Scattered lowland localities throughout Venezuela. Caught in mist nets (94 percent) or found roosting in hollow trees (6 percent); in moist

areas and near streams (82 percent) or in dry places (18 percent); in evergreen forest (73 percent), openings such as pastures, croplands, orchards, and yards (17 percent), and occasionally in thorn, swamp, and deciduous forest (10 percent); 1-550 m; bms-T (1), bs-T (11), bh-T (51), bmh-T (6), me-P (2), and bh-P (1).

Specimens collected: APURE, Hato Caribén, Río Cinaruco, 32 to 46 km NE Pto. Páez, 76 m, (5); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (6). BOLÍVAR, Los Patos, 28 km SE El Manteco, 150 m, (1). FALCÓN, Boca de Yaraucuy, 25 km WNW Pto. Cabello, 2 m, (1). LARA, Caserio Boro, 10 km NE El Tocuyo, 580 m, (2). MIRANDA, 7 km E Río Chico, 1 m, (2). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (1). SUCRE, 21 km E Cumaná, 1 m, (1). T. F. AMAZONAS, Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). TRUJILLO, 23 km N Valera, 164 m, (2). ZULIA, El Rosario, 39 km WNW Encontrados, 37 m, (2). CARABOBO and FALCÓN, 6 to 19 km NW and N Urama, 25-60 m, (45). Total 72.

*Phyllostomus discolor* Wagner, 1843a:366.

Forested lowlands throughout Venezuela. Caught in mist nets (99.7 percent) and found roosting in a cave (0.3 percent); near streams and other moist areas (58 percent) and in dry sites (42 percent); in orchards, yards, croplands, and pastures (43 percent), in evergreen (23 percent), thorn (22 percent), deciduous (10 percent), and cloud and swamp forest (2 percent); 1-1,165 m (93 percent below 500 m); me-T (61), bms-T (12), bs-T (115), bh-T (102), bs-P (21), bh-P (10), and bmh-P (6).

Specimens collected: BARINAS, 2 km SW Altamira, 611-620 m, (6). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (3); Hato San José, 20 km W La Paragua, 306 m, (2). CARABOBO, 2 km SE Montalbán, 598 m, (13). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m, (3). FALCÓN, Capatárida, 40-55 m, (61); 16 km ENE Mirimire, 70 m, (4); Río Socopito, 80 km NW Carora, 170-180 m, (13). GUÁRICO, Hda. Elvira, 10 km NE Altagracia, 630 m, (2); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (6). MIRANDA, Birongo, 60 m, (1); 1 to 7 km E and S Río Chico, 1 m, (8). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (18); San Agustín, 5 km NW Caripe, 1,160-1,165 m, (3). NUEVA ESPARTA, Isla Margarita, 3 to 10 km S and WSW La Asunción,

47-53 m, (12). SUCRE, Ensenada Cuarenta, 9 km NE Güiría, 1-7 m, (22); Manacal, 26 km ESE Carúpano, 175-350 m, (10). T. F. AMAZONAS, 25 to 33 km S Pto. Ayacucho, 114-195 m, (8); Río Mavaca, 108 km SSE Esmeralda, 140 m, (15); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (6). TRUJILLO, 23 to 25 km N and NW Valera, 90-164 m, (32). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (7); El Rosario, 39 to 63 km WNW Encontrados, 37-125 m, (54); Kasmera, 21 km SW Machiques, 270 m, (14). CARABOBO and FALCÓN, 6 to 19 km NW and N Urama, 25-60 m, (4). Total 327.

*Phyllostomus elongatus* E. Geoffroy, 1810:182.

Southern and central Venezuela. Caught in mist nets (74 percent) and found roosting in tree holes (25 percent) and in a culvert (1 percent); near streams and in other moist areas (85 percent) or occasionally in dry places (15 percent); in evergreen forest (72 percent), yards (20 percent), and pastures, croplands, orchards, and deciduous forest (8 percent); 18-350 m; bs-T (9), bh-T (94), bmb-T (1), and bh-P (13).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 km NE Pto. Páez, 76 m, (1); Río Cinaruco, 65 km NW Pto. Páez, 76 m, (1); San Rafael de Atamaica, 42 km SSE San Fernando de Apure, 100 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Hato San José, 20 km W La Paragua, 306 m, (1); Piedra Virgen, 70 km SSE El Dorado, 229 m, (1); Los Patos, 25 km SE El Manteco, 150-350 m, (10); Río Supano, 50 km SE El Manteco, 150 m, (3). GUÁRICO, Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m, (2). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (3). T.F. AMAZONAS, Belén, Río Cunucumuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (8); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (3); 25 to 33 km S Pto. Ayacucho, 114-195 m, (10); Río Mavaca, 108 km SSE Esmeralda, 140 m, (36); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (29); Tamatama, Río Orinoco, 135 m, (6). Total 117.

*Phyllostomus hastatus* Pallas, 1767:7.

Throughout Venezuela. Caught in mist nets (72 percent) or found roosting in hollow trees (18 percent), caves (6 percent), and houses (4 percent); near streams and in other moist areas (80 percent) or in dry places (20 percent); in openings such as yards, orchards, croplands, and pastures (62 percent), and in evergreen (21 percent), swamp (11 percent), and

deciduous forest (6 percent); 1-1,394 m (94 percent below 500 m); bms-T (1), bs-T (83), bh-T (333), bmb-T (15), bs-P (15), bh-P (45), bmb-P (9), and bh-MB (3).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (15); Pto. Páez, 76 m, (1). BARINAS, Altamira, 620-794 m, (6). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (9); Hato La Florida, 47 km ESE Caicara, 50 m, (1); Icabarú to 45 km NE Icabarú, 473-851 m, (4); Los Patos, 25 km SE El Manteco, 150 m, (2). CARABOBO, Montalbán, 598-618 m, (11). DTO. FEDERAL, Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (3). FALCÓN, 16 km ENE Mirimire, 70 m, (1); Río Scopito, 80 km NW Carora, 480 m, (1). GUÁRICO, Est. Biol. de los Llanos, 14 km SE Calabozo, 100 m, (1). MIRANDA, Biringo, 60-160 m, (11); Curupao, 5 km NNW Guarenas, 1,140 m, (1); San Andrés, 16 km SSE Caracas, 950-1,144 m, (5). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (27); San Agustín, 3 to 5 km NW Caripe, 1,165-1,175 m, (2). SUCRE, 21 km E Cumaná, 1 m, (1); Ensenada Cauranta, 10 km NE Güiría, 90 m, (22); Manacal, 26 km ESE Carúpano, 175-350 m, (36); San Fernando, 16 km SE Cumaná, 300 m, (4). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (2). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (5); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (5); 25 to 33 km S Pto. Ayacucho, 114-195 m, (25); Río Mavaca, 108 km SSE Esmeralda, 104 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (255); Tamatama, Río Orinoco, 135 m, (4). TRUJILLO, 19 to 25 km N to NW Valera, 90-164 m, (10). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (1); El Rosario, 39 to 48 km WNW Encontrados, 37-54 m, (12). CARABOBO, FALCÓN, and YARACUY, 6 to 19 km NW and N Urama, 25-60 m, (16). GUÁRICO and MIRANDA, Parque Nac. Guatopo and Río Orinoco, 10 to 21 km N and NW Altigracia, 470-630 m, (4). Total 504.

*Phylloderma stenops* Peters, 1865b:513.

Numerous lowland localities in southern Venezuela and scattered localities near the northern coast. Netted (100 percent); over and near streams and in other moist places (100 percent); in evergreen forest (44 percent), yards (26 percent), pastures, orchards, croplands, and marshes (23 percent), and thorn forest (7 percent); 1-306 m; bms-T (1), bs-T (8), bh-T (17), and bmb-T (2).

Specimens collected: APURE, Hato Cariben,



Río Cinaruco, 46 km NE Pto. Páez, 76 m, (1); Río Cinaruco, 48 km NW Pto. Páez, 76 m, (1). BOLÍVAR, Hato San José, 20 km W La Paragua, 300-306 m, (2). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (3); 16 km ENE Mirimire, 70 m, (1); 19 km NW Urama, 25 m, (1). SUCRE, 21 km E Cumaná, 1 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (2); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); 33 km S Pto. Ayacucho, 195 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (5); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (6); Tamatama, Río Orinoco, 135 m, (2). Total 28.

*Trachops cirrhosus* Spix, 1823:64.

Humid lowlands of southern, central, and western Venezuela. Caught in mist nets (90 percent) and found roosting in hollow trees (9 percent) and culverts (1 percent); usually near streams and in other moist areas (87 percent) but occasionally in dry sites (13 percent); in evergreen forest (74 percent), open areas such as savannas, yards, orchards, and croplands (22 percent), deciduous forest (3 percent), and swamps (1 percent); 24-1,032 m (99 percent below 500 m); bs-T (204), bh-T (148), bmh-T (1), bh-P (2), and bmh-P (7).

Specimens collected: APURE, Hato Cariben. Río Cinaruco, 32 to 46 km NE Pto. Páez, 76 m, (19); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (6); 5 km NNW Guasipati, 190 m, (1); Hato San José, 20 km W La Paragua, 300-306 m, (7); 45 km NE Icabarú, 851 m, (2); Km 125, 85 km SSE El Dorado, 761-1,032 m, (4); Río Supamo, 50 km SE El Manteco, 350 m, (2). FALCÓN, Riccito, 30 km S Mirimire, 300 m, (5). GUÁRICO Calabozo, 100 m, (4); Embalse de Guárico, 10 km N Calabozo, 100 m, (142); Est. Biol. de los Llanos, 14 km SE Calabozo, 100 m, (6); San José de Tiznados, 52 km NNW Calabozo, 150 m, (12). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 300 m, (1). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (5); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (3); 14 to 33 km S and SSE Pto. Ayacucho, 114-195 m, (5); Río Mavaca, 108 km SSE Esmeralda, 140 m, (83); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (29). TRUJILLO, 23 to 25 km NW and NNW Valera, 90 m, (4). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (3). CARABOBO, FALCÓN, and YARACUY, 6 to

19 km NW and N Urama, 25-60 m, (18). Total 362.

*Chrotopterus auritus* Peters, 1856:415.

Forested lowlands of southern and northwestern Venezuela. Caught in mist nets (89 percent) and found in a cavern (11 percent); usually near streams or other moist areas (89 percent) but occasionally in dry places (11 percent); in evergreen forest (84 percent), openings such as fields and yards (11 percent), and deciduous forest (5 percent); 25-851 m (97 percent below 500 m); bs-T (3), bh-T (26), bmh-T (2), bh-P (5), and bmh-P (1).

Specimens collected: BOLÍVAR, El Manaco, 56 km SE El Dorado, 150 m, (1); 45 km NE Icabarú, 851 m, (1); Río Supamo, 50 km SE El Manteco, 350 m, (1). FALCÓN, 12 km ENE Mirimire, 220 m, (4). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (2); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); 20 km S Pto. Ayacucho, 135 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (13); San Juan Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (3). TRUJILLO, 19 to 25 km N and NW Valera, 90-164 m, (2). ZULIA, Kasmera, 21 km SW Machiques, 270 m, (1). CARABOBO, FALCÓN, and YARACUY, 10 to 19 km NW Urama, 25 m, (7). Total 37.

*Vampyrus spectrum* Linnaeus, 1758:31.

Scattered lowland and foothill localities in northern and southern Venezuela. Caught in mist nets (100 percent); beside streams and in other moist areas (100 percent); in evergreen forest (40 percent), yards (40 percent), and swamps (20 percent); 1-1,032 m; bs-T (1), bh-T (3), and bmh-P (1).

Specimens collected: BOLÍVAR, Km 125, 85 km SSE El Dorado, 1,032 m, (1). MIRANDA, 7 km E Río Chico, 1 m, (1). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (3). Total 5.

Subfamily GLOSSOPHAGINAE

*Glossophaga longirostris* Miller, 1898:330.

Arid lowlands of northern Venezuela and Llanos of central Venezuela. Mist netted (84 percent) or found roosting in houses (10 percent), caverns, rocks, and crevices (4 percent), and in hollow trees (2 percent); mostly in dry situations (65 percent) but often near streams and other moist areas (35 percent); in thorn forest (49 percent), in openings such as savannas and pastures, yards, orchards, and croplands (43 percent, in descending order of frequency), and in swamps and marshes, decidu-

ous, evergreen, and cloud forest (8 percent, in descending order of frequency); 1-650 m (98 percent below 500 m); me-T (288), bms-T (142), bs-T (363), bh-T (27), me-P (4), bs-P (8), and bnh-P (5) (86 percent in dry zones).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 to 46 km NE Pto. Páez, 76 m, (116); Pto. Páez to Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (32); Río Cinaruco, 48 km NW Pto. Páez, 76 m, (1); San Rafael de Atamaica, 42 km SSE San Fernando de Apure, 100 m, (6). BOLÍVAR, Hato La Florida, 44 to 47 km ESE Caicara, 43-50 m, (10); Hato San José, 20 km W La Paragua, 300-306 m, (8). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (15); Capatárida, 40-75 m, (173); 20 km NNE Mirimire, 1-5 m, (20); Península de Paraguaná, 15 to 25 km SW and SSW Pueblo Nuevo, 13-650 m, (36); Río Socopito, 80 km NW Carora, 450 m, (1). GUÁRICO, Calabozo, 100 m, (15); Embalse de Guárico, 10 km N Calabozo, 100 m, (20); Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m, (2); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (2); San José de Tiznados, 52 km NNW Calabozo, 150 m, (69). LARA, Caserio Boro, 10 to 47 km N and NE El Tocuyo, 521-592 m, (15). MIRANDA, 1 to 7 km N, E, and S Río Chico, 1 m, (33). NUEVA ESPARTA, Isla Margarita, 1-305 m, (80). SUCRE, 16 to 21 km E Cumaná, 1-30 m, (33); Ensenada Cauranta, 9 km NE Güiría, 4-7 m, (4). T. F. AMAZONAS, 14 to 30 km SSE, S, and SSW Pto. Ayacucho, 114-161 m, (18); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (16). TRUJILLO, 23 to 26 km NW Valera, 90-164 m, (22). GUAJIRA and ZULIA, nr. Cojoro, 35 to 44 km NNE Paraguanipoa, 5-155 m, (90). Total 837.

*Glossophaga soricina* Pallas, 1766:48.

Lowlands throughout Venezuela. Caught in mist nets (95 percent) or found roosting in houses (3 percent), caverns (1 percent), and hollow trees and logs (1 percent); mostly in moist situations (83 percent) and only occasionally in dry areas (17 percent); in openings such as yards, orchards, savannas, pastures, and croplands (60 percent, in descending order of frequency), in evergreen forest (31 percent), and in thorn forest, swamp, and deciduous forest (9 percent, in descending order of frequency); 1-1,560 m (85 percent below 500 m, 97 percent below 1,000 m); me-T (5), bms-T (19), bs-T (328), bh-T (264), bnh-T (21), me-P (2), bs-P (5), bh-P (78), bnh-P (140), and bh-MB (4) (61 percent in humid zones).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (8); Pto. Páez, 76 m, (5). BARINAS, Altamira, 609-1,070 m, (63). BOLÍVAR, El Manaco, 56 to 59 km SE El Dorado, 150 m, (56); 5 km NNW Guasipati, 190 m, (1); Hato La Florida, 47 km ESE Caicara, 50 m, (1); Hato San José, 20 km W La Paragua, 300-306 m, (21); Icabarú and 23 to 45 km NE Icabarú, 473-551 m, (11); Km 125, 85 km SSE El Dorado, 916-1,165 m, (15); Río Supamo, 50 km SE El Manteco, 150 m, (3). CARABOBO, Montalbán, 598-900 m, (13). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (1); Los Venados, 4 km NNW Caracas, 1,498-1,560 m, (4). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (2); Capatárida, 40-55 m, (5); 13 to 20 km NNE and ENE Mirimire, 5-270 m, (36); Riccito, 30 km S Mirimire, 300 m, (25); Río Socopito, 80 km NW Carora, 470-480 m, (2). GUARICO, Embalse de Guárico, 10 km N Calabozo, 100 m, (1); Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m, (11); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (1). LARA, Caserio Boro, 10 km NE El Tocuyo, 580 m, (2). MIRANDA, Birongo, 60 m, (15); nr. El Encantado, 15 km SE Caracas, 548 m, (1); Parque Nac. Guatopo, 15 to 21 km NW Altigracia, 630-650 m, (12); 1 to 10 km N, E, and S Río Chico, 1 m, (90); San Andrés, 16 km SSE Caracas, 1144 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (4); San Agustín, 3 to 5 km NW Caripe, 175-1,175 m, (4). NUEVA ESPARTA, Isla Margarita, 10 km WSW La Asunción, 47 m, (2). SUCRE, 16 to 21 km E Cumaná, 1-30 m, (15); Ensenada Cuarenta, 9 to 12 km NE Güiría, 1-100 m, (59); Manacal, 26 km ESE Caripano, 300-366 m, (2). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (50). T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (13); 14 to 65 km SSE to SSW Pto. Ayacucho, 114-195 m, (47); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (126); Tamatama, Río Orinoco, 135 m, (10). TRUJILLO, 19 to 25 km N to NW Valera, 90-164 m, (15). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-400 m, (22). ZULIA, nr. Cerro Azul, 33 to 35 km NW La Paz, 75-80 m, (8); El Rosario, 39 to 51 km WNW Encontrados, 37-54 m, (13); Kasmera, 21 km SW Machiques, 270 m, (12); Novito, 19 km WSW Machiques, 1,135 m, (3). CARABOBO, FALCÓN, and YARACUY, 2.5 to 19 km NW and ENE Urama, 25 m, (55). Total 866.

*Glossophaga* sp. ?

Specimens collected: APURE, Ito Cariben, Río Cinaruco, 32 km NE Pto. Páez, 76 m, (2). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (1). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 4.

*Lionycteris spurrelli* Thomas, 1913:271.

Southern Venezuela. Caught in mist nets (63 percent) or found roosting in caves and crevices (37 percent); usually near streams and in other moist areas (99 percent) but also on a ridge-top far from water (1 percent); in evergreen forest (73 percent), yards (12 percent), orchards (12 percent), and savanna (3 percent); 135-1,400 m; bs-T (6), bh-T (76), bmh-T (2), bh-P (66), bmh-P (20), bp-P (1), and bp-MB (4).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (43); 13 to 23 km NE Icabarú, 658-851 m, (66); Km 125, 85 km SSE El Dorado, 602-1,165 m, (20). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (2); Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,400 m, (4); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 700 m, (1); 32 to 65 km S and SSW Pto. Ayacucho, 135-161 m, (7); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (18); Tamatama, Río Orinoco, 135 m, (14). Total 175.

*Lonchophylla robusta* Miller, 1912:23.

Eastern slopes and foothills of the Andes and Sierra de Perijá. Caught in mist nets (100 percent); near streams and other moist areas (70 percent) or in dry sites (30 percent); in evergreen forest (89 percent) or orchards (11 percent); 75-1,135 m; bs-T (2), bh-T (3), and bmh-P (21).

Specimens collected: BARINAS, nr. Altamira, 609-1,070 m, (20). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (2); Kasmera, 21 km SW Machiques, 270 m, (3); Novito, 19 km WSW Machiques, 1,135 m, (1). Total 26.

*Lonchophylla thomasi* J. A. Allen, 1904:230.

Bolívar and T. F. Amazonas. Caught in mist nets (86 percent) and found roosting in hollow trees (14 percent); near streams and in other moist areas (86 percent) or in dry areas (14 percent); in evergreen forest (52 percent) and in forest openings such as yards and orchards (48 percent); 114-851 m; bh-T (17), bh-P (3), and bmh-P (1).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); 45 km NE

Icabarú, 851 m, (1); Río Supamo, 50 km SE El Manteco, 350 m, (3). T. F. AMAZONAS, Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (2); 25 to 32 km S Pto. Ayacucho, 114-135 m, (6); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (6); Tamatama, Río Orinoco, 135 m, (2). Total 21.

*Anoura caudifer* E. Geoffroy, 1818:418.

Mountainous portions of Venezuela. Mist netted (95 percent) and found roosting in rocks (4 percent) and in a culvert (1 percent); usually near streams or in other moist areas (87 percent) but occasionally in dry sites (13 percent); in evergreen forest (86 percent) and openings such as orchards and yards (14 percent); 60-1,700 m (89 percent between 500 and 1,500 m); bh-T (2), bmh-T (2), bh-P (14), bmh-P (93), bp-P (2), bh-MB (2), and bp-MB (5).

Specimens collected: BARINAS, Altamira to 2 km SW and 7 km NNE Altamira, 600-1,070 m, (43). BOLÍVAR, 45 km NE Icabarú, 851 m, (2); Km 125, 85 km SSE El Dorado, 761-1,165 m, (42). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (6); 9 km NE Montalbán, 752 m, (1). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,498 m, (2). MIRANDA, Birongo, 60 m, (2); Curupao, 5 km NNW Guarenas, 1,140-1,180 m, (8); San Andrés, 16 km SSE Caracas, 950 m, (3). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (2); Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,200-1,400 m, (4); Cabecera del Caño Negro, Cerro Duida, 32 km NW Esmeralda, 1,700 m, (1); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 700-800 m, (2). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-400 m, (2). Total 120.

*Anoura cultrata* Handley, 1960:463.

Andes and Sierra de la Costa. Taken in a cave in evergreen forest and in a mist net in cloud forest; 195-1,870 m; bh-T (6) and bmh-MB (1).

Specimens collected: MÉRIDA, La Carbonera, 6 km SE La Azulita, 1,870 m, (1). MIRANDA, Cueva Walter Dupouy, 4 km SW Birongo, 195 m, (6). Total 7.

*Anoura geoffroyi* Gray, 1838:490.

Forested portions of Venezuela. Mist netted (97 percent) and found roosting in caves (3 percent); usually near streams or other moist areas (87 percent) but occasionally in dry places (13 percent); in evergreen forest (64 percent), openings such as orchards, croplands,

and yards (32 percent), and cloud (3 percent) and deciduous forest (1 percent); 7-2,550 m (91 percent below 1,500 m); bs-T (46), bh-T (23), bs-P (3), bh-P (31), bmh-P (53), bh-MB (7), bmh-MB (1), bp-MB (22), and bp-M (4).

Specimens collected: BARINAS, Altamira to 2 km SW Altamira, 609-794 m, (4). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (17); Hato San José, 20 km W La Paragua, 300-306 m, (4); 21 km NE Icabarú, 851 m, (5); Km 125, 85 km SSE El Dorado, 761-1,165 m, (46). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (3); Montalbán to 2 km S Montalbán, 598-1,091 m, (3). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,524-1,581 m, (5); Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,181-2,240 m, (2). FALCÓN, 14 to 16 km ENE Mirimire, 60-70 m, (24). GUÁRICO, Hda. Elvira, 10 km NE Altigracia, 630 m, (2). MÉRIDA, La Carbonera, 12 km SE La Azulita, 2,190 m, (1); 6 km ESE Tabay, 2,550 m, (4). MIRANDA, Birongo, 60 m, (1); Curupao, 5 km NNW Guarenas, 1,160-1,180 m, (2). MONAGAS, San Agustín, 3 to 5 km NW Caripe, 1,160-1,345 m, (20). SUCRE, Ensenada Cuarenta, 9 km NE Güiría, 7 m, (15); Manacal, 26 km ESE Carúpano, 366 m, (1). T. F. AMAZONAS, Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,200-1,400 m, (18); Cabecera del Caño Negro, Cerro Duida, 32 km NW Esmeralda, 1,700 m, (4); 14 to 65 km S, SSE, and SSW Pto. Ayacucho, 119-161 m, (6); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2). ZULIA, Kasmera, 21 km SW Machiques, 270 m, (1). Total 190.

#### *Anoura* sp. A.

Forested portions of Venezuela. Caught in mist nets (100 percent); near streams and in other moist areas (93 percent) or in dry places (7 percent); in evergreen forest (71 percent), openings such as yards and orchards (28 percent), and thorn forest (1 percent); 50-2,240 m (81 percent below 1,500 m); bs-T (3), bh-T (25), me-P (1), bh-P (2), bmh-P (44), and bh-MB (16).

Specimens collected: BARINAS, Altamira, 794 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (10); Hato La Florida, 47 km ESE Caicara, 50 m, (3); Km 125, 85 km SSE El Dorado, 1,032-1,165 m, (38). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (3). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,465-1,524 m, (4); Pico Ávila, nr. Hotel Humboldt and Boca de Tigre, 5 km NNE and 6 km NNW Caracas, 2,092-2,240 m,

(12). LARA, La Concordia, 47 km NE El Tocuyo, 592 m, (1). SUCRE, Manacal, 26 km ESE Carúpano, 366-380 m, (2). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (15). ZULIA, Novito, 19 km WSW Machiques, 1,135 m, (2). Total 91.

Remarks: For notes on the systematics and nomenclature of this species, see Handley (in press).

#### *Choeroneiscus godmani* Thomas, 1903:288.

Bolívar (13) and Falcón (1). Caught in mist nets (100 percent); near streams or other moist areas (100 percent); in evergreen forest (71 percent), orchards (21 percent), and marshes (7 percent); 2-350 m; bs-T (1), bh-T (10), and bh-P (3).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (10); Río Supamo, 50 km SE El Manteco, 350 m, (3). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (1). Total 14.

#### *Choeroneiscus minor* Peters, 1868:366.

Bolívar. Netted near streams and other moist areas in evergreen forest and in an orchard in a forest opening; 150-1,032 m; bh-T (1), bh-P (1), and bmh-P (1).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Km 125, 85 km SSE El Dorado, 1,032 m, (1); Río Supamo, 50 km SE El Manteco, 350 m, (1). Total 3.

#### *Choeroneiscus* sp. ?

Specimen collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1). Total 1.

#### *Leptoncyteris curasoe* Miller, 1900a:126.

Arid portions of northern Venezuela. Found roosting in caverns (67 percent) and houses (1 percent) or caught in mist nets (32 percent); usually in dry situations (71 percent) but sometimes over or beside streams and ponds (29 percent); in thorn forest (99 percent) and openings such as yards and orchards (1 percent); 1-900 m; me-T (77), bms-T (248), me-P (2), and bs-P (438).

Specimens collected: FALCÓN, Capatárida, 40-55 m, (3); Península de Paraguaná, 7 to 25 km SW and W Pueblo Nuevo, 13-120 m, (109). LARA, Caserio Boro, 10 to 14 km N and NW El Tocuyo, 528-900 m, (591); La Concordia, 47 km NE El Tocuyo, 592 m, (2). NUEVA ESPARTA, Isla Margarita, 3 km S and NE La Asunción, 53-305 m, (9). SUCRE, 16 km E Cumaná, 1 m, (3). GUAJIRA and ZU-



LIA, nr. Cojoro, 35 to 37 km NNE Paraguaipoa, 5-15 m, (48). Total 765.

*Lichonycteris degener* Miller, 1931:411.

Bolivar. Netted in moist evergreen forest; 150 m; bh-T (1).

Specimen collected: BOLIVAR, El Manaco, 59 km SE El Dorado, 150 m, (1). Total 1.

*Scleronycteris ega* Thomas, 1912:405.

T. F. Amazonas. Netted in a yard near a stream in evergreen forest; 135 m; bh-T (1).

Specimen collected: T.F. AMAZONAS, Tamatama, Río Orinoco, 135 m, (1). Total 1.

### Subfamily CAROLLINIINAE

*Carollia brevicauda* Schinz, 1821:164.

Mostly at medium elevations throughout the humid portions of Venezuela. Caught in mist nets (88 percent) or found roosting in rocks (7 percent), culverts (2 percent), caverns (1 percent), hollow trees (1 percent), and in houses, banana leaves, tree roots, and under a bridge (1 percent); near streams and other moist areas (91 percent) or rarely in dry sites (9 percent); in evergreen forest (82 percent), openings such as pastures, croplands, orchards, and yards (15 percent), and cloud (2 percent) and deciduous forest (1 percent); 24-2,147 m (81 percent between 500 and 1,500 m); bs-T (8), bh-T (21), bmbh-T (19), bs-P (8), bh-P (126), bmbh-P (285), bp-P (3), bh-MB (87), bmbh-MB (5) and bp-MB (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (7). ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,100 m, (5). BARINAS, 2 to 7 km SW and NNE Altamira, 600-1,070 m, (177). BOLÍVAR, El Manaco, 56 km SE El Dorado, 150 m, (1); 23 to 45 km NE Icabarú, 824-851 m, (15); Km 125, 70 to 85 km SSE El Dorado, 761-1,165 m, (32). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (56); nr. Montalbán, 598-1,007 m, (31). DTO. FEDER-AL, Alto Ño León, 31 km WSW Caracas, 1,750 m, (1); Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (13); Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m, (11); Los Venados, 4 km NNW Caracas, 1,400-1,559 m, (64); Pico Ávila, 5 km NNE Caracas, 2,147 m, (1). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,260 m, (3); Río Socopito, 80 km NW Carora, 470-480 m, (2). GUÁRICO, Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m, (2); Hda. Elvira, 10 km NE Altigracia, 630 m, (2). MERIDA, 4 km E Tabay, 2,100-2,107 m, (10). MIRANDA, Curupao, 5 km NNW Guarenas,

1,130-1,180 m, (68); nr. El Encantado, 13 km SE Caracas, 570 m, (2); Parque Nac. Guatopo, 21 km NW Altigracia, 630 m, (1); San Andrés, 16 km SSE Caracas, 950-1,144 m, (7). MONA-GAS, San Agustín, 3 to 5 km NW Caripe, 1,160-1,345 m, (11). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). T. F. AMA-ZONAS, Belén, Río Cumucumma, 56 km NNW Esmeralda, 150 m, (12); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (2); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (2); Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,200 m, (1); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 800 m, (3); 32 km S Pto. Ayacucho, 135 m, (3); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (5); Tamatama, Río Orinoco, 135 m, (5). YARACUAY, Minas de Aroa, 20 km NW San Felipe, 395 m, (2). ZULIA, Kasmera, 21 km SW Machiques, 270 m, (2); Novito, 19 km WSW Machiques, 1,135 m, (2). Total 563.

*Carollia castanea* H. Allen, 1890:19.

Humid lowlands west of Lago de Maracaibo and in T. F. Amazonas and low elevations in Andes. Netted near streams and other moist areas (100 percent); in evergreen forest (94 percent) and in a forest settlement (6 percent); 73-460 m; bh-T (12) and bmbh-P (7).

Specimens collected: TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 300-460 m, (7). T. F. AMAZONAS, 32 km S Pto. Ayacucho, 135 m, (8). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (1); Kasmera, 21 km SW Machiques, 270 m, (3). Total 19.

*Carollia perspicillata* Linnaeus, 1758:31.

Throughout Venezuela, except at very high and at very dry localities. Caught in mist nets (90 percent) and found roosting in hollow trees (4 percent), culverts (3 percent), caves and crevices (2 percent), and houses (1 percent); near streams and in other moist areas (88 percent) or less often in dry places (12 percent); in evergreen forest (65 percent), openings such as marshes, pastures, croplands, orchards, and yards (30 percent), or in cloud, deciduous, and thorn forest (5 percent); 1-1,260 m (87 percent below 500 m); bms-T (32), bs-T (817), bh-T (1,646), bmbh-T (529), bs-P (43), bh-P (512), bmbh-P (724), bp-P (1), and bmbh-MB (1).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 km NE Pto. Páez, 76 m, (22); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (232); 1 km W Pto. Páez, 76 m, (5); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (1); Río Cinaruco, 48 km NW Pto. Páez,

76 m. (1); Río Cinaruco, 65 km NW Pto. Páez, 76 m. (5). BARINAS, Altamira, 600-1,070 m. (94). BOLÍVAR, El Manaco, 59 to 67 km SE El Dorado, 150 m. (97); 5 km NNW Guasipati, 190 m. (1); Hato La Florida, 47 km ESE Caicara, 50 m. (4); Hato San José, 20 to 30 km W and NW La Paragua, 300-324 m. (73); Icabarú to 56 km NE Icabarú, 473-551 m. (115); Km 125, 70 to 85 km SSE El Dorado, 602-1,165 m. (109); Los Patos, 25 to 28 km SE El Manteco, 150 m. (33); Piedra Virgen, 70 km SSE El Dorado, 193-272 m. (52); Río Supamo, 50 km SE El Manteco, 150-350 m. (88). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m. (46); 2 to 14 km ENE, NNE, and W Montalbán, 598-1,007 m. (68). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m. (8). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m. (14); Cerro Socopo, 84 km NW Carora, 1,260 m. (1); 11 to 20 km NNE and ENE Mirimire, 5-270 m. (76); Riccito, 30 km S Mirimire, 300-460 m. (159); Río Socopito, 80 km NW Carora, 470-480 m. (7). GUÁRICO, Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m. (13); Hda. Elvira, 10 km NE Altigracia, 630 m. (3); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m. (1); Río Orítico, 10 km N Altigracia, 170 m. (19); San José de Tiznados, 52 km NNW Calabozo, 60 m. (1). LARA, Caserio Boro, 10 km N El Tocuyo, 518 m. (1). MIRANDA, Birongo, 60 m. (75); Cueva Ricardo Zuloaga, nr. El Encantado, 15 km SE Caracas, 548 m. (6); Curupao, 5 km NNW Guarenas, 1,130-1,180 m. (26); nr. El Encantado, 13 km SE Caracas, 570 m. (1); Parque Nac. Guatopo, 12 to 21 km NW Altigracia, 610-710 m. (48); Río Chico and 1 to 7 km N, E, and SSE Río Chico, 1 m. (91); San Andrés, 16 km SSE Caracas, 950-1,144 m. (13). MONAGAS, 3 km SW Caripe, 854 m. (13); Hato Mata de Bejuco, 55 km SSE Maturín, 18 m. (4); San Agustín, 3 to 5 km NW Caripe, 1,160-1,345 m. (29). NUEVA ESPARTA, Isla Margarita, 3 km NNE La Asunción, 38-42 m. (3). SUCRE, 14 to 21 km E Cumaná, 1-40 m. (26); Enseñada Cauranta, 9 to 12 km NE Güiría, 1-90 m. (91); Manacal, 26 km ESE Carúpano, 176-380 m. (73). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 300-460 m. (428). T. F. AMAZONAS, Acañaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m. (10); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m. (287); Boca Mavaca, 84 km SSE Esmeralda, 138 m. (59); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 800 m. (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m. (43); 25 to 65 km SSE, S, and SSW Pto.

Ayacueho, 114-195 m. (414); Río Mavaca, 108 km SSE Esmeralda, 140 m. (77); San Juan, Río Manapiare, 163 km ESE Pto. Ayacueho, 155 m. (359); Tamatama, Río Orinoco, 135 m. (154). TRUJILLO, La Ceiba, 46 to 52 km WNW Valera, 23-29 m. (11); 19 to 26 km N, NW, and WNW Valera, 90-164 m. (214). YARACUY, Minas de Aroa, 20 km NW San Felipe, 350-400 m. (28). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m. (25); nr. Cerro Azul, 33 km NW La Paz, 75-90 m. (12); El Rosario, 39 to 65 km WNW Encontrados, 37-125 m. (130); Kasmera, 21 km SW Machiques, 270 m. (21); Novito, 19 km WSW Machiques, 1,135 m. (4). CARABOBO, FALCÓN, and YARACUY, 2.5 to 24 km NW, N, and NE Urama, 25-60 m. (180). Total 4,305.

#### *Carollia* sp. ?

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m. (116). BARINAS, Altamira to 2 km SW Altamira, 620-794 m. (45). BOLÍVAR, El Manaco, 56 to 67 km SE El Dorado, 150 m. (159); 5 km NNW Guasipati, 190 m. (4); Icabarú, 473 m. (1); Km 125, 85 km SSE El Dorado, 1,032-1,165 m. (32); Los Patos, 25 km SE El Manteco, 350 m. (1); Río Supamo, 50 km SE El Manteco, 150-350 m. (4). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m. (40); Montalbán to 7 km SW Montalbán, 598 m. (52). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m. (9). GUÁRICO, Hda. Elvira, 10 km NE Altigracia, 630 m. (7). MIRANDA, Parque Nac. Guatopo, 21 km NW Altigracia, 630 m. (1). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m. (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m. (224); Boca Mavaca, 84 km SSE Esmeralda, 138 m. (5); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m. (1); 25 to 30 km SSW Pto. Ayacueho, 114-135 m. (3); Río Mavaca, 108 km SSE Esmeralda, 140 m. (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacueho, 155 m. (855); Tamatama, Río Orinoco, 135 m. (23). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m. (15); El Rosario, 37 to 61 km WNW Encontrados, 26-76 m. (158); Kasmera, 21 km SW Machiques, 270 m. (14). FALCÓN and YARACUY, 11 to 19 km NW Urama, 25-60 m. (25). Total 1,797.

*Rhinophylla pumilio* Peters, 1865a:355.

Southern Venezuela. Caught in mist nets (100 percent); near streams and in other moist areas (100 percent); usually in evergreen forest (72 percent) and forest openings such as pastures,

yards, and orchards (23 percent), and rarely in deciduous forest (5 percent); 76-1,400 m; bs-T (10), bh-T (20), bms-T (1), bh-P (4), bms-P (21), and bp-MB (5).

Specimens collected: APURE, Río Cinaruco, 65 km NW Pto. Pérez, 76 m, (3). BOLÍVAR, El Manaco, 59 to 67 km SE El Dorado, 150 m, (6); 28 km NE Icabarú, 775 m, (2); km 125, 85 km SSE El Dorado, 761-1,165 m, (21); Río Supamo, 50 km SE El Manteco, 150-350 m, (2). T. F. AMAZONAS, Acanaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (1); Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,400 m, (5); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (7); 25 to 65 km SSW Pto. Ayacucho, 114-161 m, (9); Tamatama, Río Orinoco, 135 m, (5). Total 61.

### Subfamily STURNIRINAE

*Sturira bidens* Thomas, 1915b:311.

High elevations in the Andes. Caught in mist nets (100 percent); near streams (50 percent) or in drier sites (50 percent); in cloud forest (100 percent); 2,550-2,640 m; bp-M (16).

Specimens collected: MÉRIDA, 4 to 6 km E and ESE Tabay, 2,550-2,640 m, (16). Total 16.

*Sturira bogotensis* Shamel, 1927:129.

Mérida and Táchira Andes. Netted (100 percent); near streams and other moist areas (75 percent) or in dry sites (25 percent); in evergreen or cloud forest (75 percent) and in forest openings such as yards (25 percent); 2,107-2,640 m; bh-MB (1), bms-MB (1), and bp-M (2).

Specimens collected: MÉRIDA, 4 to 6 km E and ESE Tabay, 2,107-2,640 m, (3). TACHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,380 m, (1). Total 4.

*Sturira erythromis* Tschudi, 1844:64.

Mountains of northern and western Venezuela. Mist netted (100 percent); over and near streams (16 percent) and in other moist areas (79 percent) or in dry situations (5 percent); in evergreen (60 percent) and cloud forest (27 percent), openings such as yards and pastures (12 percent), and deciduous forest (1 percent); 1,135-2,550 m; bh-P (4), bms-P (8), bh-MB (64), bms-MB (31), and bp-M (1).

Specimens collected: CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (7). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,400-1,542 m, (53). MÉRIDA, La Carbonera, 6 to 12 km SE La Azulita, 1,870-2,190 m, (25); 4 to 6 km E and ESE Tabay, 2,107-2,550 m, (2). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160

m, (1). MONAGAS, nr. San Agustín, 3 km NW Caripe, 1,165-1,345 m, (3). ZULIA, Novito, 19 km WSW Machiques, 1,135 m, (1). DTO. FEDERAL and MIRANDA, Alto No León, 31 to 33 km WSW Caracas, 1,750-1,945 m, (4); Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,092-2,240 m, (12). Total 108.

*Sturira lilium* E. Geoffroy, 1810:181.

Throughout the forested parts of Venezuela, except for very high and very dry regions. Caught in mist nets (99 percent) or found roosting in houses and hollow trees (1 percent); near streams (54 percent) and other moist areas (36 percent), or sometimes in dry situations (10 percent); in evergreen forest (38 percent), yards, croplands, and pastures (29 percent), orchards (24 percent), deciduous and thorn forest (6 percent), cloud forest (2 percent), and swamps (1 percent); 1-1,982 m (91 percent below 1,000 m); bms-T (51), bs-T (281), bh-T (1,305), bms-T (120), bs-P (19), bh-P (236), bms-P (202), bh-MB (70), and bms-MB (7).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (93). ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,100 m, (2). BARINAS, Altamira to 7 km NNE and SW Altamira, 611-1,070 m, (104). BOLÍVAR, El Manaco, 56 to 59 km SE El Dorado, 150 m, (190); Icabarú to 45 km NE Icabarú, 473-851 m, (57); Km 125, 70 to 85 km SSE El Dorado, 569-1,165 m, (27); Los Patos, 25 km SE El Manteco, 150 m, (8); Río Supamo, 50 km SE El Manteco, 150 m, (9). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (13); nr. Montalbán, 562-752 m, (22). DTO. FEDERAL, Alto No León, 33 km WSW Caracas, 1,665 m, (1); Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (14); Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m, (32); Los Venados, 4 km NNW Caracas, 1,400-1,560 m, (55); Pico Ávila, nr. Boca de Tigre, 6 km NNW Caracas, 1,982 m, (1). FALCÓN, Boca de Yarecu, 28 km WNW Pto. Cabello, 2 m, (6); Cerro Socopo, 84 km NW Carora, 1,260 m, (6); 16 km ENE Mirimire, 70 m, (2); Río Soeopito, 80 km NW Carora, 470-480 m, (16). GUÁRICO, Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m, (27); Hda. Elvira, 10 km NE Altigracia, 630 m, (14); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (1); Río Orituco, 10 km N Altigracia, 470 m, (11). LARA, Cascario Boro, 10 km N El Tocuyo, 518-528, (6). MIRANDA, Birongo, 60 m, (31); Curupao, 5 km NNW Guarenas, 1,130-1,180 m, (30); Parque Nac. Gua-



topo, 21 km NW Altagracia, 630 m, (42); 1 to 7 km E, SSE, and S Río Chico, 1 m, (29); San Andrés, 16 km SSE Caracas, 950-1,144 m, (18). MONAGAS, Hato Mata de Bejucó, 55 km SSE Maturín, 18 m, (1); nr. San Agustín, 3 to 5 km NW Caripe, 1,160-1,345 m, (37). SUCRE, 14 to 21 km E Cumaná, 1 m, (45); Ensenada Cauranta, 9 to 12 km NE Güiría, 1-90 m, (45); Manacal, 26 km ESE Carúpano, 170-380 m, (15). TACHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (27); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); 14 to 33 km S and SSE Pto. Ayacucho, 114-195 m, (121); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (626). TRUJILLO, La Ceiba, 48 km WNW Valera, 27 m, (1); 19 to 25 km N and NW Valera, 90-164 m, (161). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (117); nr. Cerro Azul, 33 km NW La Paz, 75 m, (1); El Rosario, 42 to 63 km WNW Encontrados, 24-125 m, (20); Kasmera, 21 km SW Machiques, 270 m, (6); Novito, 19 km WSW Machiques, 1,135 m, (4). CARABOBO, FALCÓN, and YARACUY, 6 to 19 km NW Urama, 25-60 m, (195). Total 2,291.

*Sturnira ludovici* Anthony, 1924:8.

Mountains and foothills of northern and western Venezuela. Caught in mist nets (99.7 percent) and by hand in a house (0.3 percent); near streams (17 percent) and in other moist areas (70 percent) or occasionally in dry situations (13 percent); in evergreen (72 percent), deciduous (6 percent), and cloud forest (6 percent), orchards (8 percent), yards (6 percent), and gardens, pastures, and marshes (2 percent); 24-2,240 m (80 percent between 500 and 1,500 m); bs-T (23), blh-T (6), bmh-T (9), bs-P (1), bh-P (59), blh-P (174), blh-MB (33), and bmh-MB (28).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (9). ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,100 m, (1). BARINAS, Altamira to 2 km SW Altamira, 609-794 m, (156). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (15); 2 to 13.5 km NE and SE Montalbán, 595-1,007 m, (3). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (1); Los Venados, 4 km NNW Caracas, 1,400-1,544 m, (25). GUÁRICO, Hda. Elvira 10 km NE Altagracia, 630 m, (21). MÉRIDA, La Carbonera, 12 km SE La Azulita, 2,150-2,190 m, (18); 4 km E Tabay, 2,107 m, (2). MIRANDA, Birongo, 600 m, (6); Curupao, 5 km NNW Guarenas, 1,000-1,180 m, (63); Par-

que Nac. Guatopo, 21 km NW Altagracia, 630 m, (16); San Andrés, 16 km SSE Caracas, 1,144 m, (1). MONAGAS, nr. San Agustín, 3 to 5 km NW Caripe, 1,160-1,345 m, (8). ZULIA, Novito, 19 km WSW Machiques, 1,135 m, (2). DTO. FEDERAL and MIRANDA, Alto Ño León, 31 to 33 km WSW Caracas, 1,750-2,024 m, (4); Pico Avila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,092-2,240 m, (12). Total 363.

*Sturnira tildae* de la Torre, 1959:1.

Humid lowlands and low mountains of southern and eastern Venezuela. Caught in mist nets (100 percent); near streams (46 percent) and in other moist areas (53 percent) or rarely in dry places (1 percent); in evergreen forest (87 percent) and in forest openings such as orchards (12 percent) and yards (1 percent); 90-1,165 m; bh-T (32), bmh-T (111), bh-P (2), and bmh-P (73).

Specimens collected: BOLÍVAR, El Manaco, 56 to 59 km SE El Dorado, 150 m, (3); 45 km NE Icabarú, 851 m, (15); Km 125, 70 to 85 km SSE El Dorado, 882-1,165 m, (58). SUCRE, Ensenada Cauranta, 12 km NE Güiría, 90 m, (1); Manacal, 26 km ESE Carúpano, 300 m, (1). T. F. AMAZONAS, Acañaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (1); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (110); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (8); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (3); Río Mavaca, 108 km SSE Esmeralda, 140 m, (15); Tamatama, Río Orinoco, 135 m, (3). Total 218.

*Sturnira* sp. ?

Specimens collected: DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m, (26). MIRANDA, Parque Nac. Guatopo, 21 km NW Altagracia, 630 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); 25 km S Pto. Ayacucho, 114 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 30.

Subfamily STENODERMATINAE

*Uroderma bilobatum* Peters, 1866b:394.

Throughout all except the driest lowlands of Venezuela. Mist netted (98 percent) or found in roosts (2 percent); over or near streams (46 percent) and in other moist areas (26 percent) or in dry situations (28 percent); in yards, orchards, croplands, and pastures (46 percent), evergreen forest (44 percent), deciduous and thorn forest (8 percent), cloud forest (1 percent), and swamps (1 percent); 1-1,537 m (98 percent below 1,000 m); bms-T (9), bs-



T (158), bh-T (225), bmh-T (132), bs-P (11), bh-P (56), and bmh-P (86).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (38). BARINAS, Altamira to 2 km SW Altamira, 609-794 m, (65). BOLÍVAR, El Manaco, 59 to 67 km SE El Dorado, 150 m, (12); 23 to 45 km NE Icabarú, 824-851 m, (16). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (4); Montalbán to 2 km SE Montalbán, 598 m, (10). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (3). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (13); 14 to 16 km ENE Mirimire, 60-122 m, (36); Río Socopito, 80 km NW Carora, 470-480 m, (20). GUÁRICO, Est. Biol. de los Llanos, 9 km SE Calabozo, 100 m, (1); Hda. Elvira, 10 km NE Altagracia, 630 m, (1); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (1). LARA, Caserio Boro, 10 km N El Tucuyo, 515-537 m, (9). MIRANDA, Birongo, 60 m, (10); Parque Nac. Guatopo, 21 km NW Altagracia, 630 m, (1); 1 to 7 km E, SSE, and S Río Chico, 1 m, (16); San Andrés, 16 km SSE Caracas, 1,144 m, (6). MONAGAS, nr. San Agustín, 3 to 5 km NW Caripe, 1,160-1,165 m, (3). SUCRE, Ensenada Cauranta, 9 to 11 km NE Güiría, 7-40 m, (3); Manacal, 26 km ESE Carúpano, 175-300 m, (2). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (5). T. F. AMAZONAS, Acanaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (1); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (93); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); 14 to 65 km SSE, S, and SSW Pto. Ayacucho, 119-161 m, (7); Río Mavaca, 108 km SSE Esmeralda, 140 m, (8); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (36); Tamatama, Río Orinoco, 135 m, (9). TRUJILLO, La Ceiba, 46 to 48 km WNW Valera, 23-29 m, (59); 19 to 25 km N and NW Valera, 90-164 m, (25). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-400 m, (15). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (3); El Rosario, 39 to 63 km WNW Encontrados, 24-125 m, (94); Kasmera, 21 km SW Machiques, 270 m, (29); Novito, 19 km WSW Machiques, 1,135 m, (2). CARABOBO and YARACUY, 10 to 11 km NW Urama, 25 m, (20). Total 677.

*Uroderma magnirostrum* Davis, 1968:679.

Widespread in humid lowlands. Caught in mist nets (99.7 percent) and hand caught in a house (0.3 percent); over and near streams (89 percent) and in other moist areas (7 percent), or rarely in dry sites (4 percent); in yards (81 percent), pastures, orchards, and croplands (7

percent), evergreen forest (6 percent), swamps (4 percent), and thorn forest (2 percent); 1-1,140 m (99.5 percent below 500 m); bs-T (28), bh-T (318 = 87 percent), bmh-T (18), and bh-P (3).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (18). BOLÍVAR, 23 km NE Icabarú, 824 m, (1). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (8); 16 km ENE Mirimire, 70 m, (2); Río Socopito, 80 km NW Carora, 480 m, (1); 19 km NW Urama, 25 m, (3). GUÁRICO, Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m, (12); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (1). MIRANDA, Curupao, 5 km NNW Guarenas, 1,140 m, (1); 1 to 4 km E and S Río Chico, 1 m, (3). SUCRE, Manacal, 26 km ESE Carúpano, 380 m, (1). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); 14 to 25 km S and SSE Pto. Ayacucho, 114-119 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (208); Tamatama, Río Orinoco, 135 m, (90). TRUJILLO, La Ceiba, 46 km WNW Valera, 29 m, (1). ZULIA, El Rosario, 39 to 63 km WNW Encontrados, 24-125 m, (9); Kasmera, 21 km SW Machiques, 270 m, (4). Total 367.

*Uroderma* sp. ?

Specimens collected: DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (2). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (5). Total 10.

*Vampyrops aurarius* Handley and Ferris, 1972:522.

Mountains of southern Venezuela. Caught in mist nets (100 percent); near streams (10 percent) and in other moist areas (89 percent), or rarely in dry sites (1 percent); in evergreen forest (100 percent); 700-1,400 m (90 percent above 1,000 m); bmh-P (58), bp-P (3), and bp-MB (1).

Specimens collected: BOLÍVAR, Km 125, 85 km SSE El Dorado, 882-1,165 m, (58). T. F. AMAZONAS, Cabecera del Caño Negro, Cerro Duida, 32 km NW Esmeralda, 1,400 m, (1); Caño Culobra, Cerro Duida, 50 km NNW Esmeralda, 700-800 m, (3). Total 62.

*Vampyrops brachycephalus* Rouk and Carter, 1972:1.

Low mountains of northeastern Venezuela. Mist netted over streams in evergreen forest

(100 percent); 175-375 m; bs-P (2) and bh-P (2).

Specimens collected: SUCRE, Manacal, 26 km ESE Carúpano, 175-375 m. (4). Total 4.

*Vampyrops helleri* Peters, 1866b:392.

Throughout the humid lowlands and foothills of Venezuela. Caught in mist nets (100 percent); over and near streams (38 percent) and in other moist habitats (40 percent), or in dry situations (22 percent); in evergreen forest (52 percent) and openings such as yards (37 percent), orchards (6 percent), and croplands and pastures (2 percent), as well as occasionally in swamps (2 percent), thorn and deciduous forest (1 percent), and cloud forest (0.1 percent); 1-1,537 m (99 percent below 1,000 m); bs-T (38), bh-T (403 = 49 percent), bmbh-T (42), bs-P (3), bh-P (221 = 27 percent), and bmbh-P (114).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (36). BARINAS, Altamira to 2 km SW Altamira, 609-794 m, (100). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (13); Hato La Florida, 47 km ESE Caicara, 50 m, (1); Hato San José, 20 km W La Paragua, 306-324 m, (2); 23 to 45 km NE Icabará, 524-551 m, (5); Río Supamo, 50 km SE El Manteco, 150 m, (1). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (8); 2 to 3 km SE and SW Montalbán, 598-618 m, (2). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380 m, (1). FALCÓN, 14 to 16 km ENE Mirimire, 60-122 m, (15); Río Socopito, 80 km NW Carora, 480 m, (1). GUARICO, Río Orituco, 10 km N Altagracia, 470 m, (1). MIRANDA, Biringo, 60 m, (9); Curupao, 5 km NNW Guarenas, 1,160-1,180 m, (5); Parque Nac. Guatopo, 21 km NW Altagracia, 630 m, (4); 1 to 7 km E, SSE, and S Río Chico, 1 m, (16). SUCRE, Ensenada Cauranta, 9 km NE Güiría, 1 m, (1); Manacal, 26 km ESE Carúpano, 175-380 m, (7). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (6); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (3); 14 to 65 km SSE, S, and SSW Pto. Ayacucho, 114-195 m, (180); Río Mavaca, 108 km SSE Esmeralda, 140 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (154); Tamatama, Río Orinoco, 135 m, (9). TRUJILLO, La Coiba, 46 km WNW Valera, 29 m, (1); 23 to 25 km N and NW Valera, 90-164 m, (5). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-400 m, (197). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (3); El Rosario, 37 to 65 km WNW Encontrados, 24-125 m, (18); Kasmira, 21 km SW

Maehiques, 270 m, (1); Novito, 19 km WSW Maehiques, 1,135 m, (2). FALCÓN and YARACUY, 11 to 19 km NW Urama, 25 m, (12). Total 821.

*Vampyrops umbratus* Lyon, 1902:151.

Mountains of northern and western Venezuela. Caught in mist nets (100 percent); over or near streams (61 percent) and in other moist areas (30 percent), or in dry situations (9 percent); in evergreen forest (67 percent) and openings such as yards, orchards, pastures, and croplands (23 percent), in cloud forest (9 percent), and rarely in deciduous forest (1 percent); 395-2,550 m (99.5 percent above 1,000 m); bh-P (38), bmbh-P (18), bh-MB (136), bmbh-MB (23), and bp-M (6).

Specimens collected: ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,100 m, (5). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (13). DTO. FEDERAL, Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (15); Los Venados, 4 km NNW Caracas, 1,400-1,559 m, (54). MERIDA, La Carbonera, 12 km SE La Azulita, 2,150-2,190 m, (5); 4 to 6 km ESE and E Tabay, 2,107-2,550 m, (10). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160-1,180 m, (34). MONAGAS, San Agustín, 3 to 5 km NW Caripe, 1,165-1,180 m, (3). TRUJILLO, Hda. Misisi, 13 km E Trujillo, 1,830 m, (3). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395 m, (1). DTO. FEDERAL and MIRANDA, Alto No León, 31 to 33 km WSW Caracas, 1,665-1,945 m, (8); Pico Ávila, 5 km NNE and 6 km NNW Caracas, 2,025-2,250 m, (70). Total 221.

*Vampyrops vittatus* Peters, 1859:225.

Mountains of northern and western Venezuela. Caught in mist nets (100 percent); mostly in moist (90 percent), but occasionally in dry sites (10 percent); in evergreen forest (89 percent) and in a yard in a forest opening (11 percent); 619-2,119 m; bmbh-P (2) and bh-MB (8).

Specimens collected: BARINAS, Altamira and 2 km SW Altamira, 619-794 m, (2). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,400-1,507 m, (7); Pico Ávila (nr. Boca de Tigre), 6 km NNW Caracas, 2,119 m, (1). Total 10.

*Vampyrodes caraccioli* Thomas, 1889:167.

Scattered localities in T. F. Amazonas (3), Bolívar (2), and Miranda (1). Mist netted (100 percent); near streams (87 percent) and in other moist areas (13 percent); in evergreen forest (91 percent) and forest openings such as yards and orchards (9 percent); 60-1,032 m (96

percent below 500 m); bh-T (4), bmh-T (18), and bmh-P (1).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Km 125, 85 km SSE El Dorado, 1,032 m, (1). MIRANDA, Biringo, 60 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (18); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (1). Total 23.

*Vampyressa bideus* Dobson, 1878:535.

Humid lowlands of southern Venezuela. Caught in mist nets (100 percent); near streams and in other moist areas (100 percent); in evergreen forest (68 percent), pasture (17 percent), yards (10 percent), orchards (3 percent), and swamps (2 percent); 24-851 m (99 percent below 500 m); bs-T (20), bh-T (28), bmh-T (66), bh-P (2), and bmh-P (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (2). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (2); 45 km NE Icabarú, 851 m, (1); Los Patos, 28 km SE El Manteco, 150 m, (1); Río Supamo, 50 km SE El Manteco, 150 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (64); 14 to 65 km SSE to SSW Pto. Ayacucho, 119-161 m, (24); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (22). Total 117.

*Vampyressa pusilla* Wagner, 1843a:366.

Southern and western Venezuela. Caught in mist nets (99 percent) and by hand in a house (1 percent); near streams (5 percent) and other moist areas (73 percent), as well as in dry sites (22 percent); usually in evergreen forest (92 percent), and rarely in yards (5 percent), orchards (1 percent), croplands (1 percent), and swamps (1 percent); 23-1,537 m (86 percent above 500 m); bs-T (1), bh-T (1), bmh-T (7), bh-P (14), bmh-P (91), and bh-MB (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (7). BARINAS, Altamira to 2 km SW Altamira, 609-794 m, (33). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (56); 9 km N Montalbán, 727-773 m, (6). DTO. FEDERAL, Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (1). MIRANDA, Curupao, 5 km NNW Guarenas, 1,180 m, (1). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). TRUJILLO, La Ceiba, 52 km WNW Valera, 23 m, (1). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-400 m, (7). Total 115.

*Chiroderma salvini* Dobson, 1878:532.

Mountains of northern and western Venezuela. Caught in mist nets (97 percent) and by hand in a house (3 percent); usually in moist (79 percent), or less often in dry situations (21 percent); in evergreen forest (56 percent), forest openings such as roadways, yards, orchards, and fields (35 percent), and rarely in cloud forest (9 percent); 611-2,240 m (93 percent above 1,000 m); bh-P (9), bmh-P (10), and bh-MB (10).

Specimens collected: BARINAS, 2 km SW Altamira, 611 m, (1). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (9). DTO. FEDERAL, Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (2); Los Venados, 4 km NNW Caracas, 1,465-1,559 m, (2); Pico Ávila (=Hotel Humboldt and Boca de Tigre), 5 km NNE and 6 km NNW Caracas, 2,118-2,240 m, (6). MIRANDA, Parque Nac. Guatopo, 21 km NW Altigracia, 630 m, (1). MONAGAS, nr. San Agustín, 3 to 5 km NW Caripe, 1,160-1,180 m, (8). Total 29.

*Chiroderma trinitatum* Goodwin, 1958:1.

Southern Venezuela (Bolívar and T. F. Amazonas) and eastern foothills of Andes. Caught in mist nets (100 percent); usually over or near streams and in other moist areas (95 percent), but rarely in dry situations (5 percent); in evergreen forest (67 percent) or in forest openings such as yards (24 percent), orchards (6 percent), or fields (3 percent); 24-1,032 m (97 percent below 500 m); bs-T (2), bh-T (30), bmh-T (30), bh-P (3), and bmh-P (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (2). BARINAS, Altamira, 794 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (11); Km 125, 85 km SSE El Dorado, 1,032 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (28); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Capibara, Brazo Casiquiare, 106 km SV Esmeralda, 130 m, (2); 25 to 30 km S Pto. Ayacucho, 114-135 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 135-155 m, (9); Tamatama, Río Orinoco, 135 m, (6). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-400 m, (3). Total 67.

*Chiroderma villosum* Peters, 1860:748.

Humid lowlands throughout Venezuela. Caught in mist nets (99.6 percent) or by hand in hollow trees and houses (0.4 percent); over or near streams and in other moist areas (98 percent), or in dry situations (2 percent); mostly in yards (63 percent) and other openings



such as orchards, fields, and pastures (17 percent), but occasionally in evergreen forest (20 percent); 24-851 m (99 percent at elevations less than 500 m); bs-T (49), bh-T (642), bmlh-T (16), bh-P (15), and bmlh-P (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (8). BARINAS, 2 km SW Altamira, 619 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (18); Hato La Florida, 47 km ESE Caicara, 50 m, (1); Hato San José, 20 km W La Paragua, 306 m, (2); 23 to 45 km NE Icabarú, 473-851 m, (7); Río Supamo, 50 km SE El Manteco, 150 m, (1). FALCÓN, Río Socopito, 80 km NW Carora, 480 m, (2); 19 km NW Urama, 25 m, (6). SUCRE, Manacal, 26 km ESE Carúpano, 300 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (8); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Esmeralda, Río Orinoco, 135 m, (2); Pto. Ayacucho to 65 km SSW Pto. Ayacucho, 114-161 m, (122); Río Mavaca, 108 km SSE Esmeralda, 140 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (494); Tamatama, Río Orinoco, 135 m, (36). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395 m, (8). ZULIA, nr. Cerro Azul, 35 km NW La Paz, 80 m, (1); El Rosario, 42 to 48 km WNW Encontrados, 24-54 m, (2). Total 724.

#### *Chiroderma* sp. ?

Specimens collected: T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (5). Total 5.

#### *Ectophylla macconnelli* Thomas, 1901b:145.

Bolívar, T. F. Amazonas, and eastern Andean foothills. Mist netted (99 percent) and found roosting in a tree (1 percent); mostly near streams and other moist areas (96 percent), but occasionally in dry places (4 percent); in evergreen forest (93 percent) and in forest settlements (7 percent); 24-1,032 m (97 percent below 500 m); bh-T (59), bmlh-T (10), and bmlh-P (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (2). BARINAS, 2 km SW Altamira, 619 m, (1). BOLÍVAR, Km 125, 85 km SSE El Dorado, 1,032 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (8); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (51); 25 km S Pto. Ayacucho, 114 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (4). Total 71.

#### *Artibeus cinereus* Gervais, 1856:36.

Throughout the humid portions of Venezuela, except at high elevations. Caught in mist nets (99 percent) and by hand in a house at night and roosting under a banana leaf (1 percent); near streams and in other moist areas (86 percent), or in dry sites (14 percent); in evergreen forest (82 percent), yards and orchards (12 percent), and in swamps, croplands, cloud forest, deciduous forest, thorn forest, and pastures (6 percent, in descending order of frequency); 1-2,119 m (57 percent between 1,000 and 2,000 m); bs-T (31), bh-T (16), bmlh-T (32), bs-P (1), bh-P (70), bmlh-P (254), bp-P (3), bh-MB (29), and bmlh-MB (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (31). BARINAS, Altamira, 609-1,070 m, (24). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (3); Hato San José, 20 km W La Paragua, 300-324 m, (5); 23 to 45 km NE Icabarú, 824-851 m, (3); Km 125, 85 km SSE El Dorado, 826-1,165 m, (120); Río Supamo, 50 km SE El Manteco, 150 m, (2). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (104); 3 to 13.5 km W and NE Montalbán, 657-1,007 m, (10). DTO. FEDERAL, Alto No León, 33 km WSW Caracas, 1,665 m, (1); Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (5); Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (1); I.V.I.C., 15 km SW Caracas, 1,600 m, (1); Los Venados, 4 km NNW Caracas, 1,410-1,542 m, (13); Pico Ávila, nr. Boca de Tigre, 6 km NNW Caracas, 1,982-2,119 m, (7). FALCÓN, 14 to 16 km ENE Miremore, 70-122 m, (4); Río Socopito, 80 km NW Carora, 480 m, (1); 19 km NW Urama, 25 m, (2). GUARICO, 10 km N and NE Altigracia, 470-630 m, (3); Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m, (3). MERIDA, 4 km E Tabay, 2,077-2,107 m, (2). MIRANDA, Curupao, 5 km NNW Guarenas, 1,130-1,180 m, (25); nr. El Encantado, 13 km SE Caracas, 570 m, (1); Parque Nac. Guatopo, 21 km NW Altigracia, 630 m, (2); 1 to 7 km E and S Río Chico, 1 m, (11); San Andrés, 16 km SSE Caracas, 950-1,144 m, (5). MONAGAS, San Agustín, 5 km NW Caripe, 1,165-1,180 m, (5). SUCRE, Ensenada Cauranta, 9 to 11 km NE Güiría, 1-75 m, (9); Manacal, 26 km ESE Carúpano, 175-575 m, (11). TACHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (2). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 800 m, (3); Tamatama, Río Orinoco, 135 m, (1). TRUJILLO,

Hda. Misísí, 13 km E Trujillo, 1,830 m, (2). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-400 m, (3). ZULIA, El Rosario, 48 to 65 km WNW Encontrados, 54-125 m, (9); Novito, 19 km WSW Machiques, 1,135 m, (2). Total 438.

*Artibeus concolor* Peters, 1865a:357.

T. F. Amazonas and southern Bolívar. Caught in mist nets (100 percent); in moist areas or near streams (100 percent); in evergreen forest (27 percent) or in yards (68 percent) and other openings such as pasture and orchards (5 percent); 114-1,032 m (84 percent below 500 m); bs-T (2), bh-T (95), bmh-T (3), bh-P (1) and bmh-P (19).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (7); 23 km NE Icabarú, 824 m, (1); Km 125, 85 km SSE El Dorado, 500-1,032 m, (19). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (3); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); 14 to 65 km SSW Pto. Ayacucho, 114-161 m, (4); Río Mavaca, 108 km SSE Esmeralda, 140 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (10); Tamatama, Río Orinoco, 135 m, (72). Total 120.

*Artibeus fuliginosus* Gray, 1838:487.

Bolívar and T. F. Amazonas. Caught in mist nets (99.7 percent) and by hand in a house at night (0.3 percent); near streams (91 percent) and in other moist areas (9 percent), or rarely in dry sites (0.3 percent); in evergreen forest (59 percent), yards (36 percent) and other openings such as orchards, pastures, and croplands (5 percent), and rarely cloud forest (0.3 percent); 114-1,032 m (97 percent below 500 m); bs-T (6), bh-T (235), bmh-T (60), bh-P (8), bmh-P (11), and bh-MB (1).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Hato San José, 20 km W La Paragua, 306 m, (2); Icabarú to 45 km NE Icabarú, 478-851 m, (8); Km 125, 85 km SSE El Dorado, 569-1,032 m, (4); Los Patos, 28 km SE El Manteco, 150 m, (4); Río Supamo, 50 km SE El Manteco, 150 m, (4). T. F. AMAZONAS, Acanaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (14); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (46); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (3); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (28); 25 to 65 km SSW Pto. Ayacucho, 114-161 m, (7); Río Mavaca, 108 km SSE Esmeralda, 140 m, (70); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155

m, (48); Tamatama, Río Orinoco, 135 m, (82). Total 321.

*Artibeus hartii* Thomas, 1892:409.

Northern Venezuela and T. F. Amazonas. Netted (100 percent); mostly near streams and in other moist situations (89 percent), but occasionally in dry places (11 percent); in evergreen (41 percent), cloud (13 percent), and deciduous forest (4 percent), or in openings such as pastures (18 percent), yards (16 percent), and gardens, orchards, and marshes (8 percent); 2-2,250 m (91 percent between 1,000 and 2,250 m); bs-T (5), bh-T (1), bh-P (12), bmh-P (11), bh-MB (90), and bmh-MB (7).

Specimens collected: ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,100 m, (1). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (7). DTO. FEDERAL, Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (1); Hda. Carapiche, nr. El Limón, 48 km W Caracas, 350 m, (4); Los Venados, 4 km NNW Caracas, 1,400-1,559 m, (34); Pico Ávila, nr. Hotel Humboldt and Boca de Tigre, 5 km NNE and 6 km NNW Caracas, 1,982-2,250 m, (63); FALCÓN, Boca de Yacuy, 28 km WNW Pto. Cabello, 2 m, (1); Riccio, 30 km S Mirimire, 300 m, (1); Río Socopito, 80 km NW Carora, 470 m, (1). GUÁRICO, Hda. Elvira, 10 km NE Altagracia, 630 m, (3). MIRANDA, San Andrés, 16 km SSE Caracas, 1,144 m, (3). MONAGAS, San Agustín, 3 to 5 km NW Caripe, 1,160-1,180 m, (4). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). ZULIA, Novito, 19 km WSW Machiques, 1,135 m, (2). Total 126.

*Artibeus jamaicensis* Leach, 1821:75.

Almost everywhere in Venezuela, except in the highest and driest places. Caught in mist nets (98 percent) or in roosts, mostly houses (2 percent); usually near streams and in other moist areas (84 percent), but sometimes in dry sites (16 percent); in openings such as yards, orchards, pastures, and croplands (48 percent, in order of decreasing frequency), evergreen forest (33 percent), deciduous forest (8 percent), thorn forest (5 percent), swamp (5 percent), and cloud forest (1 percent); 1-2,135 m (83 percent below 500 m, 99 percent below 1,500 m); bms-T (144), bs-T (853), bh-T (694), bmh-T (149), bs-P (74), bh-P (232), bmh-P (76), bp-P (2), bh-MB (56), and bp-MB (22).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (106); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (2). ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,100 m, (3). BARINAS,

Altamira and 1 to 2 km S and SW Altamira, 600-794 m, (35). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); 5 km NNW Cuasipti, 190 m, (4); Hato La Florida, 47 km ESE Caicara, 50 m, (1); Hato San José, 20 km W La Paragua, 300-324 m, (22); 21 to 45 km NE Icabarú, 775-851 m, (12); Km 125, 85 km SSE El Dorado, 569-1,165 m, (7). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (8); nr. Montalbán, 598-1,007 m, (78). DTO. FEDERAL, Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (12); Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m, (6); Los Venados, 4 km NNW Caracas, 1,400-1,557 m, (38); Pico Ávila (nr. Hotel Humboldt and Boca de Tigre), 5 km NNE and 6 km NNW Caracas, 1,982-2,135 m, (6). FALCÓN, Boca de Yaracuy, 28 km WNW pto. Cabello, 2 m, (31); 13 to 16 km ENE Mirimire, 60-270 m, (72); Riecito, 30 km S Mirimire, 300 m, (4); Río Socopito, 80 km NW Carora, 470-480 m, (53). GUÁRICO, Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m, (40); Hda. Elvira, 10 km NE Altagracia, 630 m, (16); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (10); Río Orituco, 10 km N Altagracia, 470 m, (5). LARA, Caserio Boro, 10 km N El Tocuyo, 515-528 m, (8). MIRANDA, Birongo, 60 m, (12); Curupao, 5 km NNW Guarenas, 1,130-1,180 m, (58); nr. El Encantado, 13 km SE Caracas, 570 m, (2); Parque Nac. Guatopo, 21 km NW Altagracia, 630 m, (18); nr. Río Chico, 1 m, (246); San Andrés, 16 km SSE Caracas, 950-1,144 m, (16). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (5); nr. San Agustín, 3 to 5 km NW Caripe, 1,160-1,180 m, (30). NUEVA ESPARTA, Isla Margarita, nr. La Asunción, 37-305 m, (53). SUCRE, 14 to 21 km E Cumaná, 1-15 m, (85); Ensenada Cuarenta, 9 to 12 km NE Güiria, 1-90 m, (63); Manacal, 26 km ESE Carúpano, 175-380 m, (22); San Fernando, 16 km SE Cumaná, 300 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (43); Boca Mavaca, 54 km SSE Esmeralda, 138 m, (5); Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,140-1,200 m, (21); Cabecera del Caño Negro, Cerro Duida, 32 km NW Esmeralda, 1,650 m, (1); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 800 m, (1); 14 to 30 km S and SSE Pto. Ayacucho, 119-161 m, (26); Río Mavaca, 108 km SSE Esmeralda, 140 m, (117); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (306); Tamatama, Río Orinoco, 135 m, (33). TRUJILLO, La Ceiba, 46 to 53 km WNW Valera, 16-29 m, (5); 19 to 26 km N to WNW Valera, 90-164 m, (316). YARACUY, Minas de

Aroa, 20 km NW San Felipe, 395 m, (23). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (8); nr. Cerro Azul, 33 km NW La Paz, 75-50 m, (30); El Rosario, 42 to 63 km WNW Encontrados, 54-125 m, (70); Kasmera, 21 km SW Machiques, 270 m, (34); Novito, 19 km WSW Machiques, 1,135 m, (18). FALCÓN and YARACUY, 11 to 19 km NW Urama, 25 m, (54). Total 2,302.

*Artibeus lituratus* Olfers, 1818:224.

Throughout Venezuela, mostly at lower elevations. Caught in mist nets (98 percent) and in roosts, mostly houses (2 percent); near streams and in other moist areas (66 percent), or in dry uplands (34 percent); in evergreen (41 percent) and rarely in other types of forest such as deciduous, thorn, and cloud (2 percent), swamps and marshes (25 percent), yards (15 percent), and other openings such as orchards, croplands, and pastures (14 percent); 1-2,011 m (93 percent below 500 m); bms-T (10), bs-T (162), bh-T (459), bmh-T (828), bs-P (9), bh-P (76), bmh-P (57), bh-MB (18), and bmh-MB (1) (79 percent in bh-T and bmh-T).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 23-24 m, (827). BARINAS, Altamira, 609-1,070 m, (27). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (16); Hato San José, 20 km W La Paragua, 300-324 m, (4); Km 125, 85 km SSE El Dorado, 602-1,032 m, (13); Los Patos, 28 km SE El Manteco, 150-350 m, (7). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (5); Montalbán, 598-1,007 m, (4). DTO. FEDERAL, Boca de Tigre Valley, 5 km NW Caracas, 1,394 m, (1); Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380 m, (2); Los Venados, 4 km NNW Caracas, 1,476-1,559 m, (16); Pico Ávila, 6 km NNW Caracas, 2,011 m, (1). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (10); Cerro Socopo, 84 km NW Carora, 1,260 m, (1); nr. La Pastora, 14-16 km ENE Mirimire, 60-122 m, (11); Río Socopito, 80 km NW Carora, 470-480 m, (59). MIRANDA, Birongo, 60 m, (16); Curupao, 5 km NNW Guarenas, 1,130-1,180 m, (18); 1 to 7 km E and S Río Chico, 1 m, (29). NUEVA ESPARTA, Isla Margarita, 3 km NNE and 10 km WSW La Asunción, 38-47 m, (7). SUCRE, 16 to 21 km E Cumaná, 1-5 m, (3); Ensenada Cauranta, 9 to 12 km NE Güiria, 1-90 m, (24); Manacal, 26 km ESE Carúpano, 175-380 m, (18). TACHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). T. F. AMAZONAS, 14 to 65 km SSE to SSW Pto. Ayacucho, 114-161 m, (14); Río Mavaca, 108 km SSE Esmeralda, 140 m, (2); San



Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (61); Tamatama, Río Orinoco, 135 m, (32). TRUJILLO, La Ceiba, 46 to 53 km WNW Valera, 16-29 m, (14); 19 to 26 km N, NW, and WNW Valera, 90-164 m, (24). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395 m, (9). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (1); El Rosario, 42 to 65 km WNW Encontrados, 24-95 m, (252); Kasmera, 21 km SW Machiques, 270 m, (50); Novito, 19 km WSW Machiques, 1,135 m, (11). FALCÓN and YARACUY, 10 to 19 km NW Urama, 25 m, (20). GUÁRICO and MIRANDA, Parque Nac. Guatopo, 10 to 21 km NE, N, and NW Altigracia, 470-630 m, (10). Total 1,620.

*Artibeus* sp. A.

Lowlands of Bolívar and T. F. Amazonas. Netted (100 percent); near streams and in other moist areas (92 percent), or in dry sites (8 percent); in evergreen forest (52 percent), or in openings such as savannas (25 percent) and yards and orchards (23 percent); 119-161 m; bs-T (12), bh-T (36), bmh-T (1), and bh-P (5).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (11); Los Patos, 28 km SE El Manteco, 150 m, (4); Río Supamo, 50 km SE El Manteco, 150 m, (1). T. F. AMAZONAS, Belén, Río Cunucumuna, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); 14 to 65 km S, SSE, and SSW Pto. Ayacucho, 119-161 m, (17); Río Mavaca, 108 km SSE Esmeralda, 140 m, (7); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (6); Tamatama, Río Orinoco, 135 m, (6). Total 54.

Remarks: For notes on the systematics and nomenclature of this species, see Handley (in press).

*Artibeus* sp. D.

Foothills and lower slopes of the Sierra de Perijá. Found roosting in a damp cave in evergreen forest and netted in a yard in a forest opening; 270-1,135 m; bh-T (3) and bmh-P (1).

Specimens collected: ZULIA, Kasmera, 21 km SW Machiques, 270 m, (3); Novito, 19 km WSW Machiques, 1,135 m, (1). Total 4.

Remarks: For notes on the systematics and nomenclature of this species, see Handley (in press).

*Artibeus* sp. P.

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (2); Km 125, 85 km SSE El Dorado, 1,032 m, (1). DTO. FEDERAL, Hda.

Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (2). FALCÓN, Río Socopito, 80 km NW Carora, 470 m, (1). T. F. AMAZONAS, Belén, Río Cunucumuna, 56 km NNW Esmeralda, 150 m, (3); Tamatama, Río Orinoco, 135 m, (2). Total 12.

*Ametrida centurio* Gray, 1847:15.

Venezuela east of Lago de Maracaibo. Netted (100 percent); near streams and in other moist areas (97 percent), or rarely in dry situations (3 percent); in evergreen (75 percent), cloud (1 percent), and deciduous forest (1 percent), or in openings such as yards (21 percent) and orchards (2 percent); 90-2,150 m (93 percent below 1,500 m); bs-T (4), bh-T (25), bs-P (1), bh-P (5), bmh-P (101), bh-MB (14), and bmh-MB (1).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (4); 45 km NE Icabarú, 851 m, (1); Km 125, 85 km SSE El Dorado, 761-1,165 m, (100). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,400-1,559 m, (13); Pico Ávila (=Hotel Humboldt and Boca de Tigre), 5 km NNE and 6 km NNW Caracas, 2,013-2,150 m, (2). FALCÓN, Riccio, 30 km S Mirimire, 300 m, (1). GUÁRICO, Est. Biol. de los Llanos, 9 km SE Calabozo, 100 m, (1); Parque Nac. Guatopo, 12 km NNW Altigracia, 470 m, (1). MIRANDA, San Andrés, 16 km SSE Caracas, 1,144 m, (2). SUCRE, Ensenada Cauranta, 12 km NE Güiría, 90 m, (1); Manacal, 26 km ESE Carúpano, 175-380 m, (3). T. F. AMAZONAS, Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (19). TRUJILLO, 25 km NW Valera, 90 m, (1). Total 151.

*Sphaeronycteris toxophyllum* Peters, 1882:989.

Scattered localities of many habitat types throughout Venezuela. Caught in mist nets (100 percent); over and near streams (77 percent) and in other moist areas (13 percent), or in dry situations (10 percent); in openings such as yards (45 percent) and pastures, orchards, croplands, and marshes (9 percent), as well as in evergreen (39 percent), thorn (5 percent), deciduous (1 percent), and cloud forest (1 percent); 2-2,240 m; bs-T (22), bh-T (48), me-P (5), bh-P (4), bmh-P (2), and bh-MB (76).

Specimens collected: ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,100 m, (1). BOLÍVAR, Hato La Florida, 47 km SE Caicara, 50 m, (1); Hato San José, 20 km W La Paragua, 300-306 m, (8); 23 to 45 km NE Icabarú, 824-851 m, (2). DTO. FEDERAL, Boca de Tigre Valley, 5 km NW Caracas, 1,394

m, (1); Los Venados, 4 km NNW Caracas, 1,400-1,559 m, (68); Pico Ávila (=Hotel Humboldt and Boca de Tigre), 5 km NNE and 6 km NNW Caracas, 2,013-2,240 m, (7). FALCÓN, Boca de Yaracuy, 25 km WNW Pto. Cabello, 2 m, (3); Riccito, 30 km S Mirimire, 300 m, (1); Río Socopito, 80 km NW Carora, 480 m, (3). GUÁRICO, Est. Biol. de los Llanos, 9 km SE Calabozo, 100 m, (4); Hda. Elvira, 10 km NE Altagracia, 630 m, (1). LARA, La Concordia, 47 km NE El Tocuyo, 592 m, (5). MIRANDA, San Andrés, 16 km SSE Caracas, 1,144 m, (1). SUCRE, Manacal, 26 km ESE Carúpano, 380 m, (2). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); 65 km SSW Pto. Ayacucho, 161 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (10); Tamatama, Río Orinoco, 135 m, (34). ZULIA, El Rosario, 63 km WNW Encontrados, 125 m, (1). Total 157.

*Centurio senex* Gray, 1842:259.

Lowlands of western Venezuela.

Netted (100 percent); near streams and in other moist sites (60 percent), or in dry situations (40 percent); in a variety of habitats (20 percent each), including evergreen, deciduous, and thorn forests and openings such as yards and marshes; 2-125 m; bs-T (1), bh-T (3), and bnh-T (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (1). ZULIA, El Rosario, 42 to 65 km WNW Encontrados, 24-125 m, (3). Total 5.

Subfamily DESMODONTINAE

*Desmodus rotundus* E. Geoffroy, 1810:181.

At lower elevations throughout Venezuela. Netted (93 percent) or found roosting in caves (4 percent), hollow trees (2 percent), and houses (1 percent); near streams and other moist areas (85 percent), or in dry sites (15 percent); in all cover types, from a maximum of 28 percent in evergreen forest, to a minimum of 1 percent in cloud forest (or to summarize another way, 57 percent in forests of all types and 43 percent in yards, pastures, and other open habitats); 1-1,537 m (97 percent below 1,000 m); me-T (12), bms-T (74), bs-T (401), bh-T (237), bnh-T (42), me-P (7), bs-P (47), bh-P (66), bnh-P (77), and bh-MB (1) (55 percent in dry zones, 45 percent in humid zones).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 to 46 km NE Pto. Páez, 76 m,

(8); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (26); 1 km W Pto. Páez, 76 m, (2); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (2); Río Cinaruco, 65 km NW Pto. Páez, 76 m, (2); San Rafael de Atamaica, 42 km SSE San Fernando de Apure, 100 m, (2). BARINAS, 2 to 7 km NNE and SW Altamira, 609-1,070 m, (63). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Hato San José, 20 km W La Paragua, 300-306 m, (16); 21 to 25 km NE Icabarú, 775-851 m, (7). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (10); nr. Montalbán, 598-1,007 m, (58). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (1); Los Venados, 4 km NNW Caracas, 1,498 m, (1). FALCÓN, Boca de Yaracuy, 25 km WNW Pto. Cabello, 2 m, (73); Capatárida, 40-55 m, (10); 14 km ENE Mirimire, 60-122 m, (4); Riccito, 30 km S Mirimire, 300 m, (13); Río Socopito, 80 km NW Carora, 470 m, (2). GUAJIRA, nr. Cojoro, 37 km NNE Paraguaipoa, 15 m, (1). GUÁRICO, 10 km NE Altagracia, 630 m, (24); Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, 100 m, (20); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (3); Río Orituco, 10 km N Altagracia, 470 m, (6). LARA, Caserio Boro, 10 km NE El Tocuyo, 580 m, (7). MIRANDA, Birongo, 60-160 m, (55); nr. El Encantado, 13 to 15 km SE Caracas, 570 m, (8); Río Chico and 1 to 10 km E and S Río Chico, 1 m, (45); San Andrés, 16 km SSE Caracas, 1,144 m, (3). MONAGAS, 3 km SW Caripe, 854 m, (17); Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (9); San Agustín, 3 to 5 km NW Caripe, 1,160-1,180 m, (10). NUEVA ESPARTA, Isla Margarita, 3 to 10 km NNE, S, and WSW La Asunción, 18-53 m, (57); Isla Margarita, 31 km W Porlamar, 10 m, (1). SUCRE, 16 to 21 km E Cumaná, 1-40 m, (17); Ensenada Cauranta, 9 to 12 km NE Güiría, 1-90 m, (6); Manacal, 26 km ESE Carúpano, 175-380 m, (11). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (4). T. F. AMAZONAS, Acanaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (3); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (13); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (4); Esmeralda, Río Orinoco, 135 m, (1); Pto. Ayacucho to 65 km SSE to SSW Pto. Ayacucho, 119-195 m, (58); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (113); Tamatama, Río Orinoco, 135 m, (13). TRUJILLO, 19 to 26 km N, NW, and WNW Valera, 90-164 m, (115). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (9); El Rosario, 42 to 60 km WNW Encontrados, 24-73 m, (2);



Kasmera, 21 km SW Machiques, 270 m, (15). CARABOBO, FALCÓN, and YARACUY, 6 to 19 km NW and N Urama, 25-60 m, (12). Total 964.

*Desmodus youngii* Jentink, 1893:282.

Scattered localities in the lowlands of Venezuela. Caught in mist nets (95 percent) and found in a house (5 percent); near streams and other moist areas (79 percent) or in dry sites (21 percent); in yards (42 percent), pasture (26 percent), evergreen forest (16 percent), orchards (11 percent), and thorn forest (5 percent); 1-480 m; me-T (1), bms-T (3), bs-T (8), and bh-T (7).

Specimens collected: BOLÍVAR, Hato San José, 20 km W La Paragua, 306 m, (1). FALCÓN, 6 km SE Capatárida, 50 m, (1); Río Socopito, 80 km NW Carora, 480 m, (1). SUCRE, 21 km E Cumaná, 1 m, (3); Ensenada Cauranta, 9 km NE Güiría, 4 m, (2). T. F. AMAZONAS, 14 to 28 km S and SSE Pto. Ayacucho, 119-135 m, (5); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (5). ZULIA, El Rosario, 42 km WNW Encontrados, 24 m, (1). Total 19.

*Diphylla ecaudata* Spix, 1823:68.

Northern Venezuela. Caught in mist nets (18 percent) and found roosting in caves (55 percent) and houses (27 percent); in moist (55 percent) or dry areas (45 percent); in evergreen forest (55 percent), orchards (27 percent), croplands (9 percent), and deciduous forest (9 percent); 1-1,537 m; bms-T (3), bs-T (1), bh-P (6), and bmh-P (1).

Specimens collected: CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (1). MONAGAS, 3 km SW Caripe, 854 m, (5); nr. San Agustín, 3 km NW Caripe, 1,185 m, (1). SUCRE, 21 km E Cumaná, 1 m, (3). TRUJILLO, 23 km N Valera, 164 m, (1). Total 11.

#### Family NATALIDAE

*Natalus timidirostris* Miller, 1900b:160.

Scattered lowland localities in northwestern and central Venezuela. Found mostly in caverns, both dry and wet (93 percent), but also netted over streams and ponds (7 percent); in dry sites (74 percent) or less often in moist sites (26 percent); in deciduous (77 percent) or thorn forest (15 percent) and occasionally in swamps (6 percent), evergreen forest (1 percent), and cropland (1 percent); 50-548 m; bms-T (28), bs-T (145), and bh-P (2).

Specimens collected: BOLÍVAR, Hato La Florida, 47 km SE Caicara, 50 m, (11). FALCÓN, 11 km ENE Mirimire, 250 m, (2); Penin-

sula de Paraganá, 7 km W Pueblo Nuevo, 120 m, (27). LARA, Caserio Boro, 10 km N El Tocuyo, 521 m, (1). MIRANDA, Cueva Ricard Zuloaga, nr. El Encantado, 15 km SE Caracas, 548 m, (134). Total 175.

#### Family FURIPTERIDAE

*Furipterus horrens* F. Cuvier, 1828:155.

T. F. Amazonas. Captured in mist nets (83 percent) and by hand in a house at dusk (17 percent); near streams and in other moist areas (100 percent); in evergreen forest (33 percent) and yards (67 percent); 130-150 m; bh-T (5) and bmh-T (1).

Specimens collected: T. F. AMAZONAS, Belén, Río Cumunuma, 56 km NNW Esmeralda, 150 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); 32 km S Pto. Ayacucho, 135 m, (1); Tamatama, Río Orinoco, 135 m, (3). Total 6.

#### Family THYROPTERIDAE

*Thyroptera tricolor* Spix, 1823:61.

Southern Venezuela. Found roosting in rolled *Heliconia* leaves (73 percent) or caught in mist nets (27 percent); near streams and in other moist areas (100 percent); in evergreen forest (82 percent) and openings such as orchards (18 percent); 130-851 m; bs-T (9), bh-T (1), and bmh-P (1).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); 45 km NE Icaará, 851 m, (1). T. F. AMAZONAS, Belén, Río Cumunuma, 56 km NNW Esmeralda, 150 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (8). Total 11.

#### Family VESPERTILIONIDAE

*Myotis albescens* E. Geoffroy, 1806b:204.

Scattered localities throughout Venezuela, particularly in southern and western sectors. Netted (59 percent) or trapped (19 percent), hand caught in roosts in rocks (16 percent) and in a hollow tree (1 percent), and shot in flight (5 percent); over or near streams and lagoons and in other moist areas (99 percent), or rarely in dry sites (1 percent); in evergreen forest (52 percent), openings such as yards, pastures, and croplands (37 percent), and swamps or marshes (11 percent); 1-155 m; bs-T (24), bh-T (49), bmh-T (12), and bh-P (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (3); Río Cinarico, 38 km NNW Pto. Pérez, 76 m, (13). BOLÍVAR, Río Supamo, 50 km

SE El Manteco, 150 m, (1). MIRANDA, 5 to 10 km E and ESE Río Chico, 1 m, (10). T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (7); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (2); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (8); 25 km SSW Pto. Ayacucho, 114 m, (8); Río Mavaca, 108 km SSE Esmeralda, 140 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (28). TRUJILLO, 23 km NNW Valera, 90 m, (1). ZULIA, El Rosario, 42 km WNW Encontrados, 24 m, (1). Total 86.

*Myotis keaysi* J. A. Allen, 1914:383.

Sierra de la Costa, northern Venezuela. Caught in mist nets (100 percent); over streams and in other moist areas (100 percent); in evergreen forest (mostly in yards and orchards, 96 percent), or in deciduous (2 percent) and cloud forest (2 percent); 630-2,092 m (96 percent above 1,000 m); bs-T (1), bh-P (8), bmh-P (43), and bh-MB (3).

Specimens collected: ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,081-1,100 m, (41). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (2). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,400-1,507 m, (2); Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,092 m, (1). GUÁRICO, Hda. Elvira, 10 km NE Altigracia, 630 m, (1). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160-1,180 m, (6); San Andrés, 16 km SSE Caracas, 950-1,144 m, (2). Total 55.

*Myotis larensis* LaVal, 1973:44.

Deserts around the Golfo de Venezuela. Found roosting in tree holes and in houses (65 percent) or caught in mist nets (35 percent); usually in dry sites (92 percent) but occasionally near streams (8 percent); in thorn forest (92 percent) or in clearings (8 percent); 5-55 m; me-T (26).

Specimens collected: FALCÓN, Capatárida and 6 km SSW Capatárida, 40-55 m, (25). ZULIA, nr. Cojoro, 35 km NNE Paraguaipoa, 5 m, (1). Total 26.

*Myotis nigricans* Schinz, 1821:179.

Widespread in the more humid portions of Venezuela. Caught in mist nets (74 percent) or bat traps (1 percent), with insect nets from roosts in houses (21 percent), and by hand in houses and hollow trees (4 percent); near streams and in other moist areas (74 percent), or in dry sites (26 percent); mostly in houses or yards and orchards (84 percent), but also in evergreen forest (9 percent), pastures (5 per-

cent), and in swamps (2 percent): 18-2,240 m (97 percent below 1,200 m); bs-T (102), bh-T (7), bmh-T (3), bh-P (37), bh-MB (3), and bmh-MB (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (2); Pto. Pérez, 76 m, (2); Río Cinaruco, 38 km NNW Pto. Pérez, 76 m, (1); San Fernando de Apure, 25 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Río Supamo, 50 km SE El Manteco, 150 m, (1). DTO. FEDERAL, Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,092-2,240 m, (4). GUÁRICO, Est. Biol. de los Llanos, 14 km SE Calabozo, 100 m, (2). MIRANDA, Curupao, 5 km NNW Guarenas, 1,180 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (1); nr. San Agustín, 3 km NW Caripe, 1,190 m, (34). T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (2); 25 to 32 km S Pto. Ayacucho, 114-135 m, (4). YARACUY, Minas de Aroa, 20 km NW San Felipe, 400 m, (1). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (1). CARABOBO and YARACUY, 6 to 11 km NW Urama, 25-60 m, (94). Total 153.

*Myotis oxyotus* Peters, 1866a:19.

Andes, Sierra de la Costa, and mountains of the Guiana region. Mist netted (56 percent) and caught at roosts in a cave (22 percent), house (11 percent), and house roof (11 percent); near streams and in other moist areas (89 percent), or in dry habitats (11 percent); in evergreen forest (78 percent) and in openings such as yards and orchards (22 percent); 800-2,110 m; bh-P (2), bmh-P (2), bp-P (1), bh-MB (2), and bmh-MB (2).

Specimens collected: BOLÍVAR, 21 km NE Icabarú, 851 m, (2); Km 125, 85 km SSE El Dorado, 826-1,032 m, (2). MÉRIDA, 4 km E Tabay, 2,107-2,110 m, (2). T. F. AMAZONAS, Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 800 m, (1). DTO. FEDERAL and MIRANDA, Alto No León, 33 km WSW Caracas, 1,665-1,950 m, (2). Total 9.

*Myotis riparius* Handley, 1960:466.

Central and southern Venezuela. Netted (89 percent) and trapped (11 percent); near streams and in other moist areas (58 percent), or in dry sites (42 percent); in croplands, orchards, and yards (58 percent), and in evergreen forest (42 percent); 24-1,070 m (90 percent below 200 m); bh-T (8), bmh-T (7), bh-P (2), and bmh-P (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24

m, (7). BARINAS, 7 km NNE Altamira, 1,070 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); 45 km NE Icabarú, 851 m, (1); Río Supamo, 50 km SE El Manteco, 150 m, (2). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (2); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); Tamatama, Río Orinoco, 135 m, (3). Total 19.

*Myotis* sp. ?

Specimens collected: DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380 m, (1). Total 1.

*Eptesicus andinus* J. A. Allen, 1914:382.

Humid low and middle elevations in mountains of northern Venezuela and in Bolívar. Caught in mist nets (100 percent); near streams and in other moist areas (75 percent), or in dry sites (25 percent); in evergreen forest (92 percent) and in openings such as yards (8 percent); 54-1,260 m; bh-T (2), bh-P (1), bmlh-P (9), and bmlh-MB (1).

Specimens collected: BARINAS, Altamira to 2 km SW Altamira, 611-794 m, (5). BOLÍVAR, Km 125, 85 km SSE El Dorado, 882 m, (4). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,260 m, (1). MONAGAS, nr. San Agustín, 3 km NW Caripe, 1,170 m, (1). ZULIA, El Rosario, 48 to 63 km WNW Encontrados, 54-125 m, (2). Total 13.

*Eptesicus brasiliensis* Desmarest, 1819b:478.

Scattered localities east of the Andes, mostly south of the Río Orinoco. Caught in mist nets (53 percent), and by hand from holes in snags standing in lagoons (41 percent), and by hand in houses (6 percent); near streams and in other moist sites (94 percent), or in drier situations (6 percent); in yards (47 percent), evergreen forest (38 percent), and swamps, savanna, and orchards (15 percent); 18-380 m; bs-T (2), bh-T (60), bmlh-T (1), and bh-P (1).

Specimens collected: BOLÍVAR, El Manaco, 59 to 67 km SE El Dorado, 150 m, (3). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (2). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (5); 25 to 33 km SSW Pto. Ayacucho, 144-195 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (28); Tamatama, Río Orinoco, 135 m, (22). Total 64.

*Eptesicus dimidiatus* Osgood, 1915:197.

Llanos of central Venezuela. Mist netted in a yard in dry, mixed grassland and deciduous scrub; 100 m; bs-T (2).

Specimens collected: GUÁRICO, Est. Biol. de los Llanos, 9 km SE Calabozo, 100 m, (2). Total 2.

*Eptesicus furinalis* d'Orbigny and Gervais, 1847: 13.

Widely scattered localities east of the Andes. Caught in mist nets (81 percent) and by hand in holes in trees (13 percent) and logs (6 percent); over or near streams and in other moist sites (80 percent), or in dry places (20 percent); in yards (38 percent), evergreen forest (25 percent), and savanna, swamps, and orchards (37 percent, in descending order of frequency); 1-1,160 m; bs-T (6), bh-T (7), bmlh-T (1), and bh-P (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). BOLÍVAR, Hato San José, 20 km W La Paragua, 300 m, (1). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160 m, (1); nr. El Encantado, 13 km SE Caracas, 570 m, (2); 7 km E Río Chico, 1 m, (1); San Andrés, 16 km SSE Caracas, 950 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (1). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (4); Tamatama, Río Orinoco, 135 m, (1). FALCÓN and YARACUY, 10 to 19 km NW Urama, 25 m, (3). Total 16.

*Eptesicus fuscus* Palisot de Beauvois, 1796:18.

Mountains of northern Venezuela. Mist netted (100 percent); beside streams and in other moist areas (100 percent); in evergreen (75 percent) and cloud forest (25 percent); 1,260-1,524 m; bh-MB (3) and bmlh-MB (1).

Specimens collected: DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,498-1,524 m, (3). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,260 m, (1). Total 4.

*Eptesicus montosus* Thomas, 1920a:363.

Mountains of Bolívar and northern Venezuela. Netted (100 percent); over and near streams and in other moist areas (100 percent); in evergreen forest (74 percent), yards in forest openings (23 percent), and cloud forest (3 percent); 1,165-1,581 m; bmlh-P (6), bh-MB (29), and bmlh-MB (1).

Specimens collected: BOLÍVAR, Km 125, 85 km SSE El Dorado, 1,165 m, (1). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (5). DTO. FEDERAL, Los Venados, 4 km

NNW Caracas, 1,400-1,581 m. (29). FALCÓN, Cerro Socopo, 81 km NW Carora, 1,260 m. (1). Total 36.

*Eptesicus* sp. ?

Specimens collected: MIRANDA, San Andrés, 16 km SSE Caracas, 1,144 m. (1). Total 1.

*Histiotes* sp. A.

Sierra de la Costa. Netted (100 percent); in moist evergreen forest (within the forest, 50 percent, and in a livestock pen where the underbrush had been cleared, 50 percent); 1,498-2,101 m; bh-MB (4).

Specimens collected: DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,498 m. (2); Pico Ávila, 5 km NNE Caracas, 2,092-2,101 m. (2). Total 4.

Remarks: For notes on the systematics and nomenclature of this species, see Handley (in press).

*Rhogeessa minutilla* Miller, 1897:139.

Arid lowlands of northern Venezuela. Found roosting in hollow trees (84 percent), in houses (3 percent), and in a crevice in the ground (less than 1 percent), mist netted (12 percent), and shot in flight (1 percent); in dry (96 percent) or moist sites (4 percent); in thorn forest (96 percent) and in a yard in a forest opening (4 percent); 10-592 m; me-T (123), bms-T (99), and me-P (3).

Specimens collected: FALCÓN, Capatárida to 6 km SSW Capatárida, 40-55 m. (108). LARA, Caserio Boro, 10 km NE, N, and NW El Tocuyo, 518-537 m. (99); La Concordia, 47 km NE El Tocuyo, 592 m. (3). NUEVA ESPARTA, Isla Margarita, 31 km W Porlamar, 10 m. (1). ZULIA, nr. Cojoro, 34 to 37 km NNE Paraguaipoa, 10-15 m. (14). Total 225.

*Rhogeessa tumida* H. Allen, 1866:286.

Humid lowlands of northern Venezuela and middle reaches of the Río Orinoco. Caught in mist nets (88 percent) and with insect nets (12 percent); over and near streams and in other moist areas (63 percent), or in dry sites (37 percent); in pasture and prairie (39 percent), evergreen forest (26 percent), yards (22 percent), and in deciduous, thorn, and swamp forest (13 percent); 1-570 m; bs-T (14), bh-T (7), bs-P (1), and bh-P (3).

Specimens collected: APURE, Hato Cariben, Río Cinarico, 32 km NE Pto. Páez, 76 m. (2); 1 km W Pto. Páez, 76 m. (1). FALCÓN, 19 km NW Urama, 25 m. (5). MIRANDA, nr. El Encantado, 13 km SE Caracas, 570 m. (1); Río Chico and 1 to 7 km E Río Chico, 1 m. (3). MONAGAS, Hato Mata de Bejuco, 55 km SSE

Maturín, 18 m. (5). SUCRE, Manacal, 26 km ESE Carúpano, 170 m. (1). T. F. AMAZONAS, 65 km SSW Pto. Ayacucho, 161 m. (1). TRUJILLO, 25 km NW Valera, 90 m. (1). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-400 m. (3). ZULIA, El Rosario, 39 to 48 km WNW Encontrados, 37-54 m. (2). Total 25.

*Lasiurus borealis* Müller, 1776:20.

Scattered humid lowland localities in T. F. Amazonas and western Venezuela. Netted (86 percent) and trapped (14 percent); near streams and in other moist areas (100 percent); in evergreen forest (71 percent) and forest openings such as pastures and yards (29 percent); 24-155 m; bs-T (1), bh-T (4), and bms-T (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m. (2). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 135 m. (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m. (1). ZULIA, El Rosario, 57 km WNW Encontrados, 61 m. (1). CARABOBO and FALCÓN, 10 to 19 km NW Urama, 25 m. (2). Total 7.

*Lasiurus cinereus* Palisot de Beauvois, 1796:18.

In a wide variety of habitats at scattered localities in northern Venezuela. Caught in mist nets (88 percent) and found hanging in foliage in a tree (12 percent); over or near streams and in other moist areas (88 percent), or in dry areas (12 percent); in evergreen forest (50 percent), thorn forest (25 percent), cloud forest (12.5 percent), and cropland (12.5 percent); 40-1,465 m; me-T (1), me-P (1), bh-P (2), and bh-MB (4).

Specimens collected: DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m. (2); Los Venados, 4 km NNW Caracas, 1,400-1,465 m. (4). FALCÓN, Capatárida, 40 m. (1). LARA, La Concordia, 47 km NE El Tocuyo, 592 m. (1). Total 8.

*Lasiurus ega* Gervais, 1856:73.

Scattered localities in northern and southern Venezuela. Caught in mist nets (53 percent) or shot in flight (47 percent); over or near streams and in other moist areas (100 percent); in yards and in savanna or pasture (68 percent) or in evergreen forest (32 percent); 1-851 m (90 percent below 500 m); bs-T (9), bh-T (8), and bh-P (2).

Specimens collected: BOLÍVAR, Icabarú to 21 km NE Icabarú, 473-851 m. (3). MIRANDA, 1 km S Río Chico, 1 m. (1). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m. (8). CARABOBO and YARACUY, 10 km NW Urama, 25 m. (7). Total 19.



## Family MOLOSSIDAE

*Molossops abrasus* Temminck, 1826:232.

Bolívar. Caught in a mist net beside a pond in a clearing in mature evergreen forest; 150 m; bh-T (2).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (2). Total 2.

*Molossops greenhalli* Goodwin, 1958:3.

Bolívar. Netted over a pond in a clearing in evergreen forest; 150 m; bh-T (1).

Specimen collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1). Total 1.

*Molossops parvus* Thomas, 1901c:190.

Bolívar and Yaracuy. Netted beside a pond in a clearing in evergreen forest and over a stream in a pasture; 25-150 m; bs-T (1) and bh-T (1).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1). YARACUY, 10 km NW Urama, 25 m, (1). Total 2.

*Molossops planirostris* Peters, 1865c:575.

Llanos and savannas of central Venezuela. Caught in roosts in rotting snags (98 percent) and in the attic of a house (2 percent), or mist netted (less than 1 percent); in seasonal lagoons, near streams, and in other moist places (100 percent); in swamps (94 percent), yards (5 percent), and evergreen forest (1 percent); 18-155 m; bs-T (13) and bh-T (228).

Specimens collected: APURE, San Fernando de Apure, 25 m, (4). BOLÍVAR, Hato La Florida, 47 km ESE Caicara, 50 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (8). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (228). Total 241.

*Molossops* sp. ?

Specimen collected: DTO. FEDERAL, Caracas, 857 m, (1). Total 1.

*Neoplattomys mattogrossensis* Vicira, 1942:430.

Central Venezuela. Hand caught from roosts in narrow crevices under rocks (67 percent) or mist netted (28 percent) or shot (5 percent) near such roosts; usually near streams and in other moist areas (83 percent), but sometimes in hot, dry sites (17 percent); in evergreen forest (78 percent) and in prairie (22 percent); 76-195 m; bs-T (16) and bh-P (2).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 km NE Pto. Páez, 76 m, (3). BOLÍVAR, Los Patos, 28 km SE El Manteco, 150 m, (2). T. F. AMAZONAS, 20 to 33 km S Pto. Ayacucho, 135-195 m, (13). Total 18.

*Tadarida brasiliensis* I. Geoffroy, 1824:343.

Andes. Caught at roosts in houses (63 percent), or mist netted (37 percent); near streams (100 percent); in orchards (63 percent) and yards (37 percent); 2,107 m; bh-MB (8).

Specimens collected: MÉRIDA, 4 km E Tabay, 2,107 m, (8). Total 8.

*Tadarida gracilis* Wagner, 1843a:368.

At low elevations in Yaracuy and southern Venezuela. Found roosting in rocks (97 percent) and houses (1 percent) or mist netted (2 percent); over or near streams (58 percent) and in other moist sites (19 percent), or in dry areas (23 percent); in savanna and pasture (52 percent), evergreen forest (47 percent), and in orchards and yards (1 percent); 25-350 m; bs-T (81), bh-T (67), bmh-T (69), and bh-P (3).

Specimens collected: APURE, 1 km W Pto. Páez, 76 m, (50); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (28). BOLÍVAR, Río Supamo, 50 km SE El Manteco, 150-350 m, (3). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (69); Boea Mavaca, 84 km SSE Esmeralda, 138 m, (67). YARACUY, 10 km NW Urama, 25 m, (3). Total 220.

*Tadarida laticaudata* E. Geoffroy, 1805:156.

Bolívar. Mist netted beside a pond in evergreen forest; 150 m; bh-T (2).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (2). Total 2.

*Eumops amazonicus* Handley, 1955:177.

Bolívar and T. F. Amazonas. Netted over a pond in a large clearing in evergreen forest and taken from a roost in a hole in a dead snag standing in a large lagoon; 150-155 m; bh-T (2).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 2.

*Eumops auripendulus* Shaw, 1800:137.

Llanos and Península de Falcón. Netted over and adjacent to streams in a pasture and in a savanna; 25-100 m; bs-T (5).

Specimens collected: APURE, San Rafael de Atamaica, 42 km SSE San Fernando de Apure, 100 m, (1). YARACUY, 10 km NW Urama, 25 m, (4). Total 5.

*Eumops dabbenei* Thomas, 1914:480.

Península de Falcón. Netted over a stream in a pasture; 25 m; bs-T (1).

Specimen collected: YARACUY, 10 km NW Urama, 25 m, (1). Total 1.

*Eumops glaucinus* Wagner, 1843a:368.

T. F. Amazonas and base of Península de Falcón. Taken from roosts in trees (83 percent) and houses (7 percent) and netted (10 percent); over or near streams, swamps, and lagoons (89 percent), or in dry areas (11 percent); in swamp forest (51 percent), evergreen forest (32 percent), and in yards (17 percent); 155-598 m (93 percent below 500 m); bh-T (68), bs-P (6), and bh-P (7).

Specimens collected: CARABOBO, Montalbán, 598 m, (6). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (68). YARACUY, Minas de Aroa, 20 km NW San Felipe, 395-400 m, (7). Total 81.

*Eumops nanus* Miller, 1900c:471.

Arid borders of Golfo de Venezuela. Netted over a small pond in thorn forest (47 percent) and taken from a roost in a tree hole in thorn forest (53 percent); 15-40 m; me-T (17).

Specimens collected: FALCÓN, Capatárida, 40 m, (9). GUAJIRA, nr. Cojoro, 37 km NNE Paraguaipoa, 15 m, (8). Total 17.

*Eumops* sp. ?

Specimen collected: DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (1). Total 1.

*Molossus ater* E. Geoffroy, 1805:279[=379].

North-central, northeastern, and southern Venezuela. Caught in nets (60 percent) or at roosts in hollow trees (38 percent), houses (2 percent), and in hollow logs and in rocks (less than 1 percent); usually near streams and in other moist places (68 percent), but often in dry sites (32 percent); in open places such as yards, pastures, and orchards (45 percent), swamps (32 percent), evergreen forest (22 percent), and thorn and cloud forest (1 percent); 1-1,180 m (85 percent below 500 m); bms-T (46), bs-T (177), bh-T (114), bmh-T (12), bs-P (2), and bh-P (59).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (30); Pto. Páez, 76 m, (25). MIRANDA, El Manaco, 59 km SE El Dorado, 150 m, (10). CARABOBO, Montalbán, 155-598 m, (3). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (1). MIRANDA, Birongo, 60 m, (1). MONAGAS, San Agustín, 3 to 5 km NW Caripe, 1,160-1,180 m, (57). SUCRE, 14 to 21 km E Cumaná, 1-15 m, (46); Ensenada Cauranta, 9 km NE Güiría, 1 m, (2); San Fernando, 16 km SE Cumaná, 300 m, (118). T. F. AMAZONAS, Acañaña, Río Cunucumuma, 48 km NW Esmeralda, 145 m, (10); Belén, Río Cunucumi-

ma, 56 km NNW Esmeralda, 150 m, (2); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); 20 to 65 km S and SSW Pto. Ayacucho, 135-161 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (102). Total 410.

*Molossus aztecus* Saussure, 1860:285.

Lowlands of central and southern Venezuela. Found roosting in tree holes and rotting tree trunks (89 percent) and in houses (8 percent), or caught in nets (3 percent); usually over or near lagoons and other moist areas (99 percent), but rarely in dry sites (1 percent); in swamps (52 percent), evergreen forest (38 percent), and yards and pastures (10 percent); 25-155 m; bs-T (16) and bh-T (137).

Specimens collected: APURE, San Fernando de Apure, 25 m, (9). BOLÍVAR, Hato La Florida, 47 km ESE Caicara, 50 m, (3). GUÁRICO, Est. Biol. de los Llanos, 9 km SE Calabozo, 100 m, (2). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 36 m, (2). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (10); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (127). Total 153.

*Molossus bondae* J. A. Allen, 1904:228.

Northwestern Venezuela. Netted beside a stream in a pasture (90 percent) and found roosting in the thatched roof of a house in a dry upland area (10 percent); 25-578 m; bs-T (19) and bs-P (2).

Specimens collected: CARABOBO, Montalbán, 598 m, (2). CARABOBO and YARACUY, 10 km NW Urama, 25 m, (19). Total 21.

*Molossus molossus* Pallas, 1766:49.

At lower elevations throughout Venezuela, except in the basin of Lago de Maracaibo. Caught in mist nets (51 percent), hand caught from roosts in houses (16 percent), trees (1 percent), and rocks (less than 1 percent), and purchased (probably mostly from roosts in houses, 32 percent); usually near streams and in other moist areas (76 percent), but frequently in dry sites (24 percent); in openings such as yards, pastures, and croplands (61 percent), in evergreen (33 percent), cloud (3 percent), and thorn forest (2 percent), and in swamps (1 percent); 1-915 m; bms-T (52), bs-T (217), bh-T (23), bmh-T (4), bs-P (1), bh-P (38), and bmh-P (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1); 1 km W Pto. Páez, 76 m, (1); San Rafael de Atamaica, 42 km SSE San Fernando de Apure, 100 m, (3). BARINAS, Altamira, 620-

794 m, (2). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (12); Hato La Florida, 47 km ESE Caicara, 50 m, (7); Hato San José, 20 km W La Paragua, 300 m, (1); Icabarú, 473 m, (91). DTO. FEDERAL, Caracas, 915 m, (1); Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m, (13). FALCÓN, Península de Paraguaná, 9 to 15 km SSW Pueblo Nuevo, 55-120 m, (37); Riecito, 30 km S Mirimire, 300 m, (88). LARA, Caserio Boro, 10 km N El Tocuyo, 537 m, (14). MIRANDA, 7 km E and S Río Chico, 1 m, (1). MONAGAS, Hato Mata de Bejoco, 55 km SSE Maturín, 18 m, (3). SUCRE, 14 km E Cumaná, 1 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (10). YARACUY, Minas de Aroa, 20 km NW San Felipe, 400 m, (25). CARABOBO and YARACUY, 10 to 11 km NW Urama, 25 m, (22). Total 337.

*Molossus sinaloae* J. A. Allen, 1906:236.

Northern Venezuela. Found roosting in houses (50 percent) and caught over streams in mist nets (50 percent); in evergreen forest (17 percent), forest openings (50 percent), and pasture (33 percent); 1-1,160 m; bs-T (5) and bh-P (1).

Specimens collected: MIRANDA, 1 km S Río Chico, 1 m, (3). MONAGAS, San Agustín, 5 km NW Caripe, 1,160 m, (1). YARACUY, 10 km NW Urama, 25 m, (2). Total 6.

*Molossus* sp. ?

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (3). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 380-398 m, (8). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (37). Total 48.

*Promops centralis* Thomas, 1915a:62.

Bolívar. Caught in a mist net over a stream in evergreen forest; 50 m; bs-T (1).

Specimen collected: BOLÍVAR, Hato La Florida, 47 km ESE Caicara, 50 m, (1). Total 1.

*Promops nasutus* Spix, 1823:60.

Bolívar and T. F. Amazonas. Roosting in a rotting tree in a swamp (75 percent) and netted at the edge of a clearing in evergreen forest (25 percent); 155-1,032 m; bh-T (3) and bmh-P (1).

Specimens collected: BOLÍVAR, Km 125, 85 km SSE El Dorado, 1,032 m, (1). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (3). Total 4.

## Order PRIMATES

### Family CEBIDAE

*Aotus trivirgatus* Humboldt, 1812:306.

T. F. Amazonas and basin of Lago de Maracaibo. In trees (100 percent); usually in evergreen forest (96 percent) but occasionally in deciduous forest (4 percent); in moist (56 percent) or dry areas (44 percent); 37-1,200 m (99 percent below 500 m); bs-T (2), bh-T (63), bmh-T (4), and bmh-P (11).

Specimens collected: TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (10). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (4); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (4); 14 km SSE Pto. Ayacucho, 135 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (19). TRUJILLO, 25 km NW Valera, 90 m, (2). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (1); El Rosario, 45 to 65 km WNW Encontrados, 37-95 m, (37); Novito, 19 km WSW Machiques, 1,200 m, (1). Total 80.

*Callicebus torquatus* Hoffmannsegg, 1807:86.

Southern T. F. Amazonas. In trees (100 percent); near streams and other moist areas (100 percent); in evergreen forest (100 percent); 130-150 m; bh-T (27) and bmh-T (4).

Specimens collected: T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (4); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (11); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (6); 7 km SE Esmeralda, 135 m, (2); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); Tamatama, Río Orinoco, 135 m, (7). Total 31.

*Cacajao melanocephalus* Humboldt, 1812:316.

Southern T. F. Amazonas. In trees (100 percent); near streams (100 percent); in evergreen forest (100 percent); 130-140 m; bh-T (15).

Specimens collected: T. F. AMAZONAS, Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (5); Río Mavaca, 108 km SSE Esmeralda, 140 m, (10). Total 15.

*Pithecia pithecia* Linnaeus, 1766:40.

Southern Venezuela. Found in trees (100 percent); in moist evergreen forest (93 percent) or in dry deciduous forest (7 percent); 150-350 m; bh-T (23), bmh-T (2), and bh-P (3).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (23); Los Patos, 25 km SE El Manteco, 350 m, (2); Río Supamo, 50 km SE El Manteco, 150 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (2). Total 28.

*Chiropotes satanas* Hoffmannsegg, 1807:93.

Lowlands of T. F. Amazonas. In trees (100 percent); near streams (100 percent); in evergreen (80 percent) or deciduous forest (20 percent); 135-161 m; bh-T (51) and bmh-T (13).

Specimens collected: T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (13); Boca de Río Cunucunuma, 49 km W Esmeralda, 135 m, (2); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (20); 20 km SE Esmeralda, Río Orinoco, 135 m, (2); 70 km SSW Pto. Ayacucho, 161 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (5); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (19); Tamatama, Río Orinoco, 135 m, (2). Total 64.

*Alouatta seniculus* Linnaeus, 1766:37.

Forested lowlands of Venezuela. Usually near streams or other moist areas (69 percent) but frequently in dry places (31 percent); in the canopy of evergreen (80 percent) or deciduous forest (5 percent) or in scattered trees in savanna and orchards (15 percent); 18-800 m (95 percent below 500 m); bs-T (26), bh-T (54), bmh-T (12), bh-P (10), and bmh-P (1).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (5); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (9); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (1); Río Cinaruco, 48 km NW Pto. Páez, 76 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (6); Hato La Florida, 38 km SE Caicara, 50 m, (2); Hato San José, 20 km W La Paragua, 324 m, (5); 21 to 46 km NE Icabarú, 658-800 m, (5). FALCÓN, nr. La Pastora, 11 km ENE Mirimire, 250 m, (3); Río Socopito, 80 km NW Carora, 470 m, (3); 19 km NW Urama, 25 m, (2). GUÁRICO, Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (5). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (3); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (21); Tamatama, Río Orinoco, 135 m, (4). TRUJILLO, La Ceiba, 52 km WNW Valera, 29 m, (8); 25 km NW Valera, 90 m, (1). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (6); nr. Cerro Azul, 33 to 39 km NW La Paz, 75-80 m, (2); El Rosario, 45 to 51 km WNW Encontrados, 37-50 m, (9). Total 103.

*Cebus albifrons* Humboldt, 1812:324.

Lowlands and foothills SW and S of Lago de Maracaibo, head of Río Apure, and southern T.

F. Amazonas. In forest canopy (100 percent); usually in dry upland areas (81 percent) but occasionally near streams (19 percent); in evergreen forest (100 percent); 24-460 m; bh-T (29), bmh-T (11), and bmh-P (8).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (11). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (8). T. F. AMAZONAS, Río Mavaca, 108 km SSE Esmeralda, 140 m, (5); Tamatama, Río Orinoco, 135 m, (1). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 75 m, (6); El Rosario, 45 to 51 km WNW Encontrados, 37-50 m, (17). Total 48.

*Cebus apella* Linnaeus, 1758:28.

Isla Margarita and southern T. F. Amazonas. In trees (100 percent); near streams in evergreen forest (75 percent) and in dry mountain-side orchard (25 percent); 130-410 m; bh-T (8), bs-P (3), and bh-P (1).

Specimens collected: NUEVA ESPARTA, Isla Margarita, 3 km NE La Asunción, 305-410 m, (4). T. F. AMAZONAS, Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (2); Tamatama, Río Orinoco, 135 m, (6). Total 12.

*Cebus nigrivittatus* Wagner, 1848:430.

Widespread in T. F. Amazonas north and east of the Río Orinoco and in Bolívar; locally distributed in northern Venezuela. Found in trees (96 percent) and among rocks on cliff (4 percent); near streams and in other moist areas (78 percent) as well as in dry upland sites (22 percent); in evergreen (93 percent), cloud (1 percent), and deciduous forest (1 percent) and in savanna gallery forest (5 percent); 18-1,537 m (89 percent below 500 m); bs-T (19), bh-T (55), bmh-T (8), bh-P (18), bmh-P (3), bp-P (3), and bp-MB (3).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (1). BOLÍVAR, El Manaco, 56 to 59 km SE El Dorado, 150 m, (25); Hato La Florida, 45 km ESE Caicara, 58 m, (5); Hato San José, 20 to 32 km W and NW La Paragua, 300-324 m, (9); 19 to 46 km NE Icabarú, 658-800 m, (5); Los Patos, 25 km SE El Manteco, 350 m, (5); Río Supamo, 50 km SE El Manteco, 350 m, (10). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (1). FALCÓN, Riccito, 30 km S Mirimire, 300 m, (4); 10 km NW Urama, 25 m, (13). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (4). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (8); Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,400 m, (3);



Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 825 m, (3); Esmeralda, Río Orinoco, 135 m, (2); 32 km S Pto. Ayacucho, 135 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (10). Total 109.

### *Cebus* sp. ?

Specimens collected: T. F. AMAZONAS, Caño Cariche, Río Orinoco, 92 km W Esmeralda, 40 m, (1); Esmeralda, Río Orinoco, 135 m, (5). Total 6.

### *Saimiri sciureus* Linnaeus, 1758:29.

Lowlands of T. F. Amazonas. In trees (100 percent); near streams (89 percent) and in other moist areas (11 percent); in evergreen forest (100 percent); 130-155 m; bh-T (50) and bmh-T (7).

Specimens collected: T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (7); Boca Mavaca, 84 km SSE Esmeralda, 135 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (4); Río Mavaca, 108 km SSE Esmeralda, 140 m, (9); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (24); Tamatama, Río Orinoco, 135 m, (12). Total 57.

### *Ateles belzebuth* E. Geoffroy, 1806a:272.

T. F. Amazonas, upper Apure, and Maracaibo lowlands. In trees (100 percent); in dry uplands (52 percent) or near streams and other moist areas (48 percent); in evergreen (78 percent) or deciduous forest (22 percent); 24-155 m; bs-T (2), bh-T (75), and bmh-T (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 135 m, (22); Río Mavaca, 108 km SSE Esmeralda, 140 m, (14); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (11); Tamatama, Río Orinoco, 135 m, (1). TRUJILLO, La Ceiba, 48 km WNW Valera, 28 m, (2). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (17); El Rosario, 45 to 51 km WNW Encontrados, 37-54 m, (10). Total 78.

## Order EDENTATA

### Family MYRMECOPHAGIDAE

#### *Myrmecophaga tridactyla* Linnaeus, 1758:35.

Lowlands of southern Venezuela. On the ground (100 percent); in dry savanna (57 percent) and in moist evergreen forest (43 percent); 65-310 m; bs-T (6), bh-T (1), and bmh-T (3).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (1).

BOLÍVAR, Hato La Florida, 52 km ESE Caicara, 65 m, (1); Hato San José, 20 km W La Paragua, 300-310 m, (3); Río Cuchivero, nr. Caicara, 200 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 10.

#### *Tamandua mexicana* Saussure, 1860:9.

Lowlands south and west of Lago de Maracaibo. Found in trees (87 percent) or on the ground (13 percent); in dry habitats (65 percent) or near streams and other moist areas (35 percent); in evergreen forest (100 percent); 37-460 m; bh-T (16) and bmh-P (2).

Specimens collected: TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (2). ZULIA, El Rosario, 39 to 51 km WNW Encontrados 37-61 m, (16). Total 18.

Remarks: Reasons for separating *Tamandua mexicana* Saussure from *Tamandua tetradactyla* Linnaeus are in Wetzel (1975).

#### *Tamandua tetradactyla* Linnaeus, 1758:35.

Throughout the lowlands and foothills of Venezuela east of Lago de Maracaibo. Found in trees (64 percent), on the ground (24 percent), and dead on roads (12 percent); most often in dry areas (64 percent) but also near streams (23 percent) and in other moist areas (13 percent); in thorn (44 percent), evergreen (30 percent), and deciduous forest (5 percent), or in savannas and croplands (21 percent); 18-1,537 m (83 percent below 500 m); me-T (14), bms-T (14), bs-T (18), bh-T (9), bmh-T (3), bs-P (1), bh-P (4), and bmh-P (1).

Specimens collected: ANZOÁTEGUI, 20 km E Pto. Píritu, 27 m, (1). APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (2); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (2). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Hato La Florida, 45 km SE Caicara, 65 m, (1); Hato San José, 20 km W La Paragua, 297-324 m, (4); Icabarú, 473 m, (1); Los Patos, 25 km SE El Manteco, 350 m, (1); 25 km S Upata, 300 m, (1); 5 km SSW Upata, 300 m, (1). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (1); 2 to 9 km SE and NE Montalbán, 598-752 m, (2); 15 km SW Pto. Cabello, 50 m, (1). FALCÓN, Capatárida to 31 km WSW and SSE Capatárida, 40-100 m, (19); 15 to 18 km NE and ENE Mirimire, 75 m, (2); Riceito, 30 km S Mirimire, 300 m, (1). GUÁRICO, La Encrucijada, 18 km S El Sombrero, 200 m, (1). LARA, Caserio Boro, 10 km N El Tocuyo, 537 m, (7). MIRANDA, Parque Nac. Guatopo, 21

km NW Altagracia, 630 m, (1). MONAGAS, Hato Mata de Bejeco, 55 km SSE Maturín, 18 m, (5). T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca de Río Cumucunuma, 49 km W Esmeralda, 135 m, (2); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); 26 km S Pto. Ayacucho, 119 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (3). Total 64.

*Cyclopes didactylus* Linnaeus, 1758:35.

T. F. Amazonas. In trees (100 percent); near streams (100 percent); in evergreen forest (100 percent); 138-145 m; bh-T (2) and bmh-T (1).

Specimens collected: T. F. AMAZONAS, Acanafia, Río Cumucunuma, 48 km NW Esmeralda, 145 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (2). Total 3.

#### Family BRADYPODIDAE

*Bradypus tridactylus* Linnaeus, 1758:34.

Bolívar. In trees (100 percent); in moist (67 percent) or dry sites (33 percent); in evergreen (67 percent) or deciduous forest (33 percent); 150-350 m; bh-T (2) and bh-P (4).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (2); Los Patos, 25 km SE El Manteco, 350 m, (2); Río Supamo, 50 km SE El Manteco, 150 m, (2). Total 6.

*Bradypus variegatus* Schinz, 1825:510.

Northern and western Venezuela and T. F. Amazonas. In trees (100 percent); in dry sites (63 percent) or near streams (37 percent); in evergreen forest (80 percent) or in scattered trees in pasture (20 percent); 24-1,144 m; bs-T (1), bh-T (4), and bh-P (3).

Specimens collected: MIRANDA, San Andrés, 16 km SSE Caracas, 1,144 m, (3). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (1). ZULIA, El Rosario, 42 to 51 km WNW Encontrados, 24-37 m, (2). CARABOBO and YARACUY, 10 km NW Urama, 25 m, (1). Total 8.

Remarks: For use of the name *Bradypus variegatus* Schinz, in place of the more familiar *Bradypus infuscatus* Wagler (1831:611), see Wetzel and Kock (1973:25).

*Choloepus didactylus* Linnaeus, 1758:35.

Southern Venezuela. In trees (100 percent); in moist (50 percent) or dry situations (50 percent); in evergreen (50 percent) or deciduous

forest (50 percent); 150-350 m; bmh-T (3) and bh-P (1).

Specimens collected: BOLÍVAR, Los Patos, 25 km SE El Manteco, 350 m, (1). T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (3). Total 4.

*Choloepus hoffmanni* Peters, 1858:128.

Lowlands and foothills west and south of Lago de Maracaibo. In trees (100 percent); in moist (75 percent) or dry situations (25 percent); in evergreen forest (75 percent) or orchard (25 percent); 24-460 m; bs-T (2), bh-T (2), and bmh-P (4).

Specimens collected: TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (4). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (2); El Rosario, 42 to 60 km WNW Encontrados, 24-73 m, (2). Total 8.

#### Family DASYPODIDAE

*Prionotus maximus* Kerr, 1792:112.

Central and southern Venezuela. On the ground (100 percent); in a dry area and near a stream; in evergreen forest and in cropland; 24-155 m; bh-T (1) and bmh-T (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 2.

*Dasypus kappleri* Krauss, 1862:24.

Bolívar and T. F. Amazonas. On the ground (100 percent); in moist areas (100 percent); in evergreen forest (100 percent); 150-658 m; bh-T (1), bmh-T (2), and bh-P (2).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); 19 km NE Icabará, 658 m, (1); Río Supamo, 50 km SE El Manteco, 350 m, (1). T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (2). Total 5.

*Dasypus novemcinctus* Linnaeus, 1758:51.

At lower elevations throughout Venezuela, except in the driest areas. On the ground (100 percent); in moist (72 percent) or dry areas (28 percent); in savanna, pasture, croplands, and orchards (44 percent), in evergreen (44 percent) and cloud forest (4 percent), and in deciduous and thorn forest (8 percent); 18-1,537 m; bms-T (4), bs-T (18), bh-T (14), bmh-T (5), bs-P (2), bh-P (7), and bmh-P (4).

Specimens collected: ANZOATEGUI, 14 km W Clarines, 100 m, (2). APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo,

24 m, (2). BOLIVAR, Hato La Florida, 52 km ESE Caicara, 65 m, (1); Hato San José, 20 km W La Paragua, 324 m, (1). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (2); La Trinidad, 9 km NW Montalbán, 900 m, (3); Montalbán, 598 m, (2). FALCÓN, nr. Mirimire, 250 m, (1). LARA, Caserio Boro, 10 km N El Tocuyo, 537 m, (2). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160 m, (1); Tácata, 35 km SW Caracas, 366 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (14). SUCRE, Ensenada Cuarenta, 12 km NE Güiria, 90 m, (2). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (2). T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (3); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); 32 km S Pto. Ayacucho, 135 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (6). TRUJILLO, La Ceiba, 48 km WNW Valera, 28 m, (1); 30 km NW Valera, 90 m, (1). ZULIA, El Rosario, 45 to 51 km WNW Encontrados, 37 m, (3); Kasmera, 21 km SW Machiques, 270 m, (3); Río Negro, 8 km W Machiques, 250 m, (1). Total 54.

*Dasypus sabanicola* Mondolfi, 1968:151.

Llanos of Apure. Taken on the ground in dry prairie; 76 m; bs-T (2).

Specimens collected: APURE, 1 km W Pto. Páez, 76 m, (2). Total 2.

## Order LAGOMORPHA

### Family LEPORIDAE

*Sylvilagus brasiliensis* Linnaeus, 1758:58.

Scattered localities in central and northern Venezuela. On the ground (100 percent); usually near streams and in other moist areas (80 percent) or occasionally in dry areas (20 percent); in evergreen forest (75 percent) and in yards or pastures (25 percent); 24-1,524 m; bs-T (2), bnh-T (2), and bh-MB (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (2). BOLIVAR, Hato San José, 20 km W La Paragua, 300 m, (2). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,624 m, (1). Total 5.

*Sylvilagus floridanus* J. A. Allen, 1890:160.

Lowlands north of the Río Orinoco. On the ground (100 percent); in dry upland sites (97 percent) or rarely in moist places (3 percent); in thorn forest (76 percent), savannas and pastures (20 percent), and orchards and deciduous forest (4 percent); 10-598 m; me-T (22), bms-T (89), bs-T (30), and bs-P (1).

Specimens collected: ANZOÁTEGUI, 14 km W Clarines, 100 m, (35). APURE, Hato Cariben, Río Cinaruco, 32 to 46 km NE Pto. Páez, 76 m, (11); Pto. Páez to 38 km NNW Pto. Páez, 76 m, (1); Río Cinaruco, 65 km NW Pto. Páez, 76 m, (1). CARABOBO, Montalbán, 598 m, (1). FALCÓN, Capatárida to 18 km SSW and WSW Capatárida, 30-75 m, (23); Península de Paraguaná, 15 km SSW Pueblo Nuevo, 45-55 m, (34). GUÁRICO, Hda. Los Mamones, 16 km NW Barbacoas, 228 m, (3). LARA, Caserio Boro, 10 km N El Tocuyo, 537 m, (10). MONAGAS, Hato Mata de Bejuco, 55 km, SSE Maturín, 18 m, (14). NUEVA ESPARTA, Isla Margarita, 3 km NNE La Asunción, 35-60 m, (7); 36 km W Porlamar, 10 m, (1). ZULIA, nr. Cojoro, 34 km NNE Paraguaipoa, 10 m, (1). Total 142.

## Order RODENTIA

### Suborder SCIUROMORPHA

#### Family SCIURIDAE

*Sciurus aestuans* Linnaeus, 1766:88.

Bolívar and mountains of T. F. Amazonas. Found in trees (100 percent); near streams and in other moist areas (100 percent); in evergreen forest (100 percent); 150-1,400 m; bh-T (2), bh-P (2), and bp-MB (2).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (2); 28 km NE Icabarú, 775 m, (2). T. F. AMAZONAS, Cabeceira del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1400 m, (2). Total 6.

*Sciurus gilvularis* Wagner, 1843b:43.

Lowlands of T. F. Amazonas. Found in trees (100 percent); near streams and other moist areas (100 percent); in evergreen forest (100 percent); 135-155 m; bh-T (10).

Specimens collected: T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (5); 32 km S Pto. Ayacucho, 135 m, (2); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2). Total 10.

*Sciurus granatensis* Humboldt, 1805:8 and 13.

Forested portions of northern and western Venezuela. Collected in trees (99 percent) or rarely on the ground (1 percent); near streams and other moist areas (73 percent) or in dry habitats (27 percent); in evergreen (62 percent), cloud (7 percent), deciduous (1 percent), and thorn forest (1 percent), and in forest openings such as yards (15 percent), orchards (10 percent), and croplands and pastures (4 per-

cent); 1-2,400 m (93 percent below 1,500 m); bms-T (1), bs-T (9), bh-T (23), bnh-T (9), bs-P (22), bh-P (31), bmh-P (71), bh-MB (1), bmh-MB (10), and p-SA (1).

Specimens collected: ANZOÁTEGUI, 14 km W Clarines, 100 m, (1). APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (9). BARINAS, Altamira to 1 km E Altamira, 600-794 m, (44). CARABOBO, La Copa, 4 km NW Montalbán, 1,500-1,513 m, (3); Montalbán to 9 km NW, NNW, and SE Montalbán, 598-1,000 m, (24). DTO. FEDERAL, Alto Ño León, 33 km WSW Caracas, 1,740 m, (1); Los Venados, 4 km NNW Caracas, 1,465 m, (1). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,260 m, (1); 14 km ENE Mirimire, 150 m, (1); Riccito, 30 km S Mirimire, 300 m, (1); 19 km NW Urama, 25 m, (1). GUÁRICO, Hda. Elvira, 10 km NE Altagracia, 630 m, (1); Hda. Los Mamones, 16 km NW Barbacoas, 228 m, (1); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (1). MÉRIDA, La Carbonera, 12 km SE La Azulita, 2,170-2,180 m, (4); Paracito, 3 km W Timotes, 2,290 m, (1). MIRANDA, Curupao, 5 km NNW Guarenas, 1,140-1,160 m (5); 6 km SSE Río Chico, 1 m, (1); San Andrés, 16 km SSE Caracas, 1,144 m, (2). MONAGAS, nr. San Agustín, 2 to 5 km NW Caripe, 1 120-1,180 m, (18). NUEVA ESPARTA, Isla Margarita, 3 km NE La Asunción, 350 m, (1). SUCRE, Manacal, 26 km ESE Carúpano, 200-575 m, (4). TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,350-2,400 m, (4); Las Mesas, 17 km NE San Juan de Colón, 300-460 m, (22). ZULIA, Boca del Río de Oro, 60 km WNW Encontrados, 73 m, (3); nr. Cerro Azul, 33 km La Paz, 75 m, (2); El Rosario, 45 to 51 km WNW Encontrados, 37-50 m, (19); Novito, 19 km WSW Machiques, 1,135-1,165 m, (2). Total 178.

*Sciurus igniventris* Wagner, 1842:360.

Lowland forests of southern Venezuela. Found in trees (100 percent); near streams and other moist areas (100 percent); in evergreen forest (100 percent); 130-658 m; bh-T (22), bnh-T (7), and bh-P (3).

Specimens collected: BOLÍVAR, 19 km NE Icabarú, 658 m, (3). T. F. AMAZONAS, Acañaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (2); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (5); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (9); Capihara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); Pto. Ayacucho to 70 km SSW Pto. Ayacucho, 135 m, (1); Río Mavaca, 108 km SSE Esmeralda, 140 m, (4); San Juan, Río Mana-

piare, 163 km ESE Pto. Ayacucho, 155 m, (5); Tamatama, Río Orinoco, 135 m, (2). Total 32.

### Family HETEROMYIDAE

*Heteromys anomalus* Thompson, 1815:161.

Northern Venezuela. Caught on the ground (41 percent), often near tree bases (35 percent), logs (14 percent) and boulders (10 percent); in moist areas and near streams (93 percent) or occasionally in dry areas (7 percent); in evergreen forest (84 percent), in openings such as grasslands, croplands, orchards, and yards (11 percent), and occasionally in cloud forest and deciduous forest (5 percent); 7-2,223 m (54 percent below 500 m); bs-T (33), bh-T (28), bs-P (14), bh-P (102), bmh-P (9), bh-MB (7), and bmh-MB (55).

Specimens collected: ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,050 m, (4). BARINAS, Altamira, 697-900 m, (5). CARABOBO, Montalbán, 562 m, (1). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (3). FALCÓN, 14 km ENE Mirimire, 150-170 m, (2); Río Socopito, 80 km NW Carora, 470-480 m, (27); 19 km NW Urama, 25 m, (6). MIRANDA, Alto Ño León, 31 to 36 km WSW Caracas, 31-33 m, (9); 3 km NE Caracas, 1,130-1,170 m, (2); Curupao, 5 km NNW Guarenas, 1,160-1,190 m, (5); Pico Ávila, 5 km NNE and 6 km NNW Caracas, 1,982-2,223 m, (53); San Andrés, 16 km SSE Caracas, 1,144 m, (1). MONAGAS, Cueva del Guácharo, 5 km W Caripe, 1,010 m, (2); San Agustín, 3 to 5 km NW Caripe, 1,170-1,335 m, (10). NUEVA ESPARTA, Isla Margarita, 3 to 4 km NE La Asunción, 100-420 m, (3). SUCRE, Ensenada Cauranta, 9 to 11 km NE Giiiría, 7-45 m, (4); Manacal, 26 km ESE Carúpano, 175-575 m, (55). TRUJILLO, La Ceiba, 48 km WNW Valera, 28 m, (2); 12 to 30 km N, NW, NNW, and WNW Valera, 90-930 m, (26). YARACUY, Minas de Aroa, 20 km NW San Felipe, 407 m, (1). ZULIA, nr. Cerro Azul, 35 to 40 km NW La Paz, 80 m, (4); El Rosario, 45 to 48 km WNW Encontrados, 37-54 m, (7); Kasmera, 21 km SW Machiques, 270-273 m, (11). GUÁRICO and MIRANDA, Parque Nac. Guatopo, 15 to 21 km NW Altagracia, 640-720 m, (5). Total 248.

*Heteromys* sp. A.

Península de Paraguaná. Caught on the ground beside logs (40 percent) and at the bases of trees (60 percent); near streams and in other moist places (100 percent); in cloud forest (83 percent) and in thorn forest (17 percent); 90-615 m; bms-T (1) and bmh-P (5).

Specimens collected: FALCÓN, Cerro Santa



Ana, Península de Paraguaná, 15 km SSW Pueblo Nuevo, 550-615 m, (5); nr. Moruy, Península de Paraguaná, 15 km SSW Pueblo Nuevo, 90 m, (1). Total 6.

Remarks: A single juvenile specimen from Guárico, Hato Los Leones, Caño Agua Fría, 23 km NE Calabozo, 89 m, has tiny feet and the dusky color of forearm and flanks discontinuous, as in *Heteromys* sp. A, and it is tentatively assigned to that species. This is the only specimen of *Heteromys* that we have from the Llanos. If it is correctly associated with *Heteromys* sp. A, it indicates for that species a discontinuous geographic distribution similar to that of *Calomys hummelincki*. For notes on the systematics and nomenclature of *Heteromys* sp. A, see Handley (in press).

#### Suborder MYOMORPHA

#### Family MURIDAE

#### Subfamily CRICETINAE

*Oryzomys albigularis* Tomes, 1860b:264.

Andes and Sierra de la Costa. Caught on the ground, often at the base of trees, logs, and rocks (98 percent), or rarely on logs (2 percent); in moist areas (97 percent) or rarely in dry areas (3 percent); in cloud forest (63 percent), evergreen forest (27 percent), yards and croplands (8 percent), and deciduous forest (2 percent); 1,050-3,080 m (98 percent between 1,000 and 2,500 m); bs-P (7), bh-P (3), bmh-P (21), bh-MB (57), bmh-MB (121), and bp-M (3).

Specimens collected: ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,050-1,100 m, (21). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,418-1,661 m, (24). MÉRIDA, La Carbonera, 12 km SE La Azulita, 2,190 m, (1); Santa Rosa, 2 km N Mérida, 1,965-2,025 m, (23); 6 to 7 km ESE and SE Tabay, 2,550-3,080 m, (3). MIRANDA, 3 km NE Caracas, 1,110-1,175 m, (7); Curupao, 5 km NNW Guarenas, 1,160 m, (3). TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,370-2,420 m, (17). TRUJILLO, Hda. Misisi, 14 to 15 km E Trujillo, 2,210-2,365 m, (14). DTO. FEDERAL and MIRANDA, Alto No León, 31 to 36 km WSW Caracas, 1,750-2,000 m, (10); Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,050-2,280 m, (89). Total 212.

*Oryzomys bicolor* Tomes, 1860a:217.

Scattered localities at lower elevations throughout Venezuela. Usually trapped in trees (53 percent), but often on the ground (47 percent); in moist areas (61 percent) or in dry

sites (39 percent); in savanna and pasture (41 percent), evergreen forest (31 percent), deciduous and thorn forest (23 percent), cloud forest (3 percent), and yard (2 percent); 1-1,537 m (93 percent below 500 m); bms-T (2), bs-T (26), bh-T (6), bmh-T (2), bh-P (3), and bmh-P (3).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (3). BOLÍVAR, 45 km NE Icabarú, 851 m, (2); Río Supamo, 50 km SE El Manteco, 350 m, (3). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (1). FALCÓN, 19 km NW Urama, 25 m, (3). GUÁRICO, Est. Biol. de los Llanos, 9 km SE Calabozo, 100 m, (1). MIRANDA, 1 km S Río Chico, 1 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (12). SUCRE, 16 to 21 km E Cumaná, 1-15 m, (2); Ensenada Cauranta, 9 km NE Güiría, 4 m, (5). T. F. AMAZONAS, Acanaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2); Tamatama, Río Orinoco, 130 m, (1). TRUJILLO, 25 km NW Valera, 90 m, (4). Total 42.

*Oryzomys capito* Olfers, 1818:209.

Humid lowlands of northern and southern Venezuela. Found in houses (57 percent), on the ground, often near rocks or logs (38 percent), or rarely on logs (5 percent); near streams and in other moist areas (92 percent) or in dry places (8 percent); in evergreen (69 percent) and cloud forest (3 percent) or in forest openings such as yards and orchards (28 percent); 25-1,400 m (88 percent below 500 m); bs-T (2), bh-T (24), bh-P (9), bmh-P (4), and bp-MB (1).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); 46 km NE Icabarú, 800 m, (1); Km 125, 85 km SSE El Dorado, 1,032 m, (1). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (1). FALCÓN, 19 km NW Urama, 25 m, (1). MONAGAS, nr. San Agustín, 3 km NW Caripe, 1,320 m, (1). T. F. AMAZONAS, Cabeceira del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,400 m, (1); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); Tamatama, Río Orinoco, 135 m, (21). YARACUY, Minas de Aroa, 20 km NW San Felipe, 400-405 m, (7). ZULIA, nr. Cerro Azul, 39 km NW La Paz, 80 m, (2); Novito, 19 km WSW Machiques, 1,131-1,132 m, (2). Total 40.

*Oryzomys concolor* Wagner, 1845:147.

Widespread in Venezuela at low and medium elevations and in both dry and humid regions.

Trapped in houses, trees, and on logs (53 percent) or on the ground (47 percent); near streams and in other moist places (74 percent) or in dry sites (26 percent); in evergreen forest (38 percent), yards, orchards, and croplands (25 percent), prairie and pasture (23 percent), and in thorn, deciduous, swamp, or cloud forest (14 percent); 1-2,230 m (85 percent below 1,500 m); me-T (8), bs-T (32), bh-T (28), bmh-T (3), bh-P (12), bmh-P (8), bh-MB (7), and bmh-MB (7).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (3); Río Cinaruco, 65 km NW Pto. Páez, 76 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (3); Hato La Florida, 44 km ESE Caicara, 43 m, (2); Hato San José, 20 km W La Paragua, 306-324 m, (8); 45 to 46 km NE Icabarú, 800-815 m, (4); Km 125, 70 to 85 km SSE El Dorado, 1,000-1,032 m, (3); Río Supamo, 50 km SE El Manteco, 350 m, (1). CARABOBO, 3 km SW Montalbán, 618 m, (1). DTO. FEDERAL, I.V.I.C., 15 km SW Caracas, 1,660 m, (2); Los Venados, 4 km NNW Caracas, 1,473-1,662 m, (5). FALCÓN, Capatárida, 40 m, (8); 19 km NW Urama, 25 m, (1). MIRANDA, Alto Ño León, 31 km WSW Caracas, 1,980 m, (1); Birongo, 60 m, (1); Curupao, 5 km NNW Guarenas, 1,100-1,164 m, (4); 6 km SSE Río Chico, 1 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (17); nr. San Agustín, 3 to 5 km NW Caripe, 1,150-1,200 m, (7). T. F. AMAZONAS, Acañaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (2); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (10); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2); Tamatama, Río Orinoco, 135 m, (6). TRUJILLO, La Ceiba, 52 km WNW Valera, 29 m, (1); 12 to 19 km N and WNW Valera, 164-930 m, (2). ZULIA, Novito, 19 km WSW Machiques, 1,155 m, (1). DTO. FEDERAL and MIRANDA, Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,095-2,230 m, (6). Total 105.

*Oryzomys fulvescens* Saussure, 1860:102.

Widespread in northern, central, and southeastern Venezuela. Found on the ground, usually in the open (86 percent), but occasionally at the bases of trees (5 percent), around logs (4 percent), or in houses (5 percent); usually in moist areas (80 percent), but also in dry areas (20 percent); in a wide variety of habitats—evergreen forest (41 percent), prairie and pasture (25 percent), croplands, orchards, and yards

(23 percent), cloud forest (7 percent), and swamp, thorn, and deciduous forest (4 percent); 1-2,405 m (81 percent below 1,500 m); bms-T (3), bs-T (55), bh-T (2), bs-P (6), bh-P (101), bmh-P (11), bh-MB (4), and bmh-MB (35).

Specimens collected: APURE, Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (1). BOLÍVAR, Hato San José, 20 km W La Paragua, 297-300 m, (20); 23 to 55 km NE Icabarú, 800-905 m, (5); Km 125, 85 km SSE El Dorado, 1,032 m, (6). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (2); 1 to 2 km E and SE Montalbán, 598 m, (6). DTO. FEDERAL, Alto Ño León, 31 to 36 km WSW Caracas, 1,770 m, (4); Los Venados, 4 km NNW Caracas, 1,445-1,500 m, (2). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,260-1,265 m, (17); Río Socopito, 80 km NW Carora, 480 m, (1). GUÁRICO, Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (2). LARA, Caserio Boro, 10 km N El Tocuyo, 900 m, (2). MÉRIDA, Santa Rosa, 1 km N Mérida, 1,860-1,890 m, (2). MIRANDA, I.V.I.C., 15 km SW Caracas, 1,460 m, (2); 6 km S and SSE Río Chico, 1 m, (5). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (23); San Agustín, 3 to 5 km NW Caripe, 1,150-1,445 m, (77). SUCRE, Cerro Negro, 10 km NW Caripe, 1,525-1,685 m, (20); 2 km E Cumaná, 1 m, (1); Manacal, 26 km ESE Carúpano, 250-425 m, (2). TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,370-2,405 m, (12). YARACUY, 10 km NW Urama, 25 m, (2). ZULIA, nr. Cerro Azul, 35 to 40 km NW La Paz, 80 m, (3). Total 217.

*Oryzomys macconnelli* Thomas, 1910:186.

Mountains of Bolívar and T. F. Amazonas. Trapped on the ground in moist evergreen forest (100 percent); 1,000-1,400 m; bmh-P (1) and bh-MB (1).

Specimens collected: BOLÍVAR, Km 125, 85 km SSE El Dorado, 1,000 m, (1). T. F. AMAZONAS, Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,400 m, (1). Total 2.

*Oryzomys minutus* Tomes, 1860a:215.

High mountains of northern Venezuela. Occasionally captured in trees (6 percent) but more often on the ground in association with rocks (65 percent), tree bases (5 percent), or logs (3 percent), or in the open (21 percent); in relatively dry sites (58 percent) or in moist places (42 percent); in cloud forest (94 percent), páramo and cropland (4 percent), and in evergreen forest, deciduous forest, and or-

chard (2 percent); 1,150-3,810 m (92 percent between 2,000 and 3,500 m); bh-P (7), bh-MB (9), bnh-MB (77), bnh-M (13), bp-M (205), and p-SA (31).

Specimens collected: MERIDA, La Carbonera, 12 km SE La Azulita, 2,180 m, (4); Paramito, 3 to 4 km W Timotes, 3,050-3,345 m, (25); Santa Rosa, 1 to 2 km N Mérida, 1,870-2,055 m, (8); 4 to 9 km SE Tabay, 2,127-3,810 m, (225). MONAGAS, San Agustín, 5 km NW Caripe, 1,150 m, (1). SUCRE, Cerro Negro, 10 km NW Caripe, 1,630-1,690 m, (6). TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,350-2,420 m, (48). TRUJILLO, Hda. Misisí, 15 km E Trujillo, 2,360 m, (10). DTO. FEDERAL and MIRANDA, Alto No León, 31 to 33 km WSW Caracas, 1,750-1,996 m, (2); Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,080-2,241 m, (13). Total 342.

#### *Oryzomys* sp. A.

Eastern Llanos. Trapped on the ground (75 percent) and in a house (25 percent); in moist (75 percent) or dry sites (25 percent); in prairie (100 percent); 18 m; bs-T (4).

Specimens collected: MONAGAS, Hato Mata de Bejucó, 55 km SSE Maturín, 18 m, (4). Total 4.

Remarks: For notes on the systematics and nomenclature of this species, see Handley (in press).

#### *Oryzomys* sp. ?

Specimens collected: BOLÍVAR, Hato San José, 20 km W La Paragua, 306 m, (1). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,470 m, (1). MERIDA, 5 to 8 km ESE and SE Tabay, 2,570-3,430 m, (7). MIRANDA, 1 km S Río Chico, 1 m, (1); San Andrés, 16 km SSE Caracas, 1,144 m, (1). MONAGAS, nr. San Agustín, 3 to 5 km NW Caripe, 1,150-1,320 m, (3). NUEVA ESPARTA, Isla Margarita, 3 km NE La Asunción, 405 m, (1). SUCRE, Ensenada Cauranta, 9 km NE Güiría, 4 m, (1). Total 16.

#### *Neacomys tenuipes* Thomas, 1900:153.

Mountains of northern Venezuela and Bolívar. Usually found on the ground, associated with rocks (39 percent), or under dense cover of ferns, herbs, shrubs, or vines (50 percent), rarely on logs (11 percent); near streams and in other moist areas (100 percent); in evergreen (41 percent) or cloud forest (37 percent), and occasionally in openings such as yards, orchards, and croplands (22 percent); 404-1,655 m; bs-P (1), bh-P (1), bnh-P (3), bh-MB (11), and bnh-MB (12).

Specimens collected: ARAGUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,050 m, (2). BOLÍVAR, 45 km NE Icabarú, 851 m, (1). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,443-1,655 m, (11). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,260-1,265 m, (6). MIRANDA, 3 km NE Caracas, 1,170 m, (1); I.V.I.C., 15 km SW Caracas, 1,460 m, (6). YARACUY, Minas de Aroa, 20 km NW San Felipe, 404 m, (1). Total 28.

#### *Nectomys alfarí* J. A. Allen, 1897:39.

Foothills of the Sierra de Perijá. Trapped on the ground (100 percent); near a stream (68 percent) and in a relatively dry site (32 percent); under low bushes in a banana patch (100 percent); 1,134-1,155 m; bnh-P (3).

Specimens collected: ZULIA, Novito, 19 km WSW Machiques, 1,134-1,155 m, (3). Total 3.

#### *Nectomys squamipes* Brants, 1827:138.

Humid lowlands and foothills of southern, western, and eastern Venezuela. Caught on the ground (100 percent); usually in or near grass (80 percent), but also among palms, banana plants, shrubs, and herbs (7 percent), among boulders and logs beside streams (7 percent), under tin in a garbage pile (3 percent), and in houses (3 percent); usually in or near streams (65 percent) or in other damp places (19 percent), but occasionally in dry situations (16 percent); in evergreen forest (69 percent) and in forest openings, such as yards (13 percent), marsh edges (11 percent), and pastures, orchards, and gardens (7 percent); 24-1,180 m (94 percent below 500 m); bs-T (18), bh-T (49), bnh-T (21), bh-P (5), and bnh-P (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (8); Río Cinaruco, 38 km NNW Pto. Pérez, 76 m, (2). BARINAS, Altamira, 697 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Hato La Florida, 44 to 53 km ESE Caicara, 40-56 m, (11); Hato San José, 20 km W La Paragua, 297-306 m, (5); 19 km NE Icabarú, 658 m, (1). MONAGAS, San Agustín, 5 km NW Caripe, 1,150-1,180 m, (4). T. F. AMAZONAS, Acañaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (12); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (24); 25 to 35 km S Pto. Alacucho, 114-135 m, (4); San Juan, Río Manapiere, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (5). ZULIA, El Rosario, 37 to 60 km WNW Encontrados, 37-73 m, (11); Kasmera, 21 km SW Machiques, 270-275 m, (3). Total 94.



*Rhipidomys couesi* J. A. Allen and Chapman, 1893:211.

Extreme northeastern Venezuela, Andes, and southern Venezuela. Caught in coconut and stilt palms and on a log (50 percent), on the ground and at the base of a coconut palm (33 percent), and in a house (17 percent); in dry (57 percent) or moist situations (43 percent); in evergreen forest (43 percent), orchards (43 percent), and cloud forest (14 percent); 1-1,400 m; bms-T (1), bs-T (2), bh-P (2), bmh-P (1), and bp-MB (1).

Specimens collected: BARINAS, Altamira, 600 m, (1). NUEVA ESPARTA, Isla Margarita, 3 km NE La Asunción, 410-415 m, (2). SUCRE, 24 km E Cumaná, 1 m, (1); Ensenada Cauranta, 9 km NE Güiría, 4 m, (2). T. F. AMAZONAS, Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,400 m, (1). Total 7.

*Rhipidomys fulviventris* Thomas, 1896:304.

Táchira Andes and mountains of Bolívar and T. F. Amazonas. Trapped on the ground, beside and beneath logs, rocks, and trees and in thickets (43 percent), on logs (33 percent), and in trees and vines (24 percent); usually near streams and in other moist areas (97 percent) and only rarely in dry situations (3 percent); in cloud forest (54 percent), evergreen forest (33 percent), and clearings such as pastures and croplands (13 percent); 1,032-2,422 m; bmh-P (12), bmh-MB (26), and bp-MB (1).

Specimens collected: BOLÍVAR, Km 125, S5 km SSE El Dorado, 1,032 m, (12). TACHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,370-2,422 m, (26). T. F. AMAZONAS, Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,400 m, (1). Total 39.

*Rhipidomys leucodactylus* Tschudi, 1845:183.

Orinocan lowlands of southern T. F. Amazonas. Shot in houses, mostly in the thatch (80 percent), and trapped on the ground (20 percent); near streams and other moist areas (50 percent) and occasionally in dry places (20 percent); in evergreen forest (63 percent) and clearings (17 percent); 135-145 m; bh-T (6) and bmh-T (2).

Specimens collected: T. F. AMAZONAS, Acaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (2); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (5); Tannatama, Río Orinoco, 135 m, (1). Total 8.

*Rhipidomys macconnelli* de Winton, 1900:52.

Mountains of Bolívar and T. F. Amazonas. Trapped on the ground and on cliffs (81 per-

cent) or on logs and in trees (19 percent); near streams and in other moist areas (100 percent); in evergreen forest (100 percent); 750-1,480 m; bmh-P (26), bp-P (9), and bp-MB (42).

Specimens collected: BOLÍVAR, Km 125, S5 km SSE El Dorado, 1,032-1,165 m, (26). T. F. AMAZONAS, Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,400-1,450 m, (38); Cabecera del Caño Negro, Cerro Duida, 32 km NW Esmeralda, 1,400 m, (4); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 750-825 m, (9). Total 77.

*Rhipidomys mastacalis* Lund, 1841:240.

Southern Venezuela. Trapped most often in houses (75 percent), but also in trees and on logs (15 percent), or on the ground (10 percent); in moist situations (100 percent) in home-steads and orchards (82 percent) and in evergreen forest (18 percent); 130-1,480 m; bh-T (5), bh-P (5), bmh-P (37), bp-P (2), and bp-MB (1).

Specimens collected: BOLÍVAR, El Manaco, 56 to 70 km SE El Dorado, 150 m, (4); 45 to 53 km NE Icabarú, 800-923 m, (42). T. F. AMAZONAS, Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,480 m, (1); Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, 750 m, (2); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1). Total 50.

*Rhipidomys venezuelae* Thomas, 1896:303.

Northwestern Venezuela. Trapped on the ground (53 percent), in trees (28 percent) and on logs (6 percent), and in houses and caverns (13 percent); mostly in moist situations (80 percent) but also in dry places (20 percent); in cloud (52 percent), evergreen (24 percent), and thorn forest (10 percent), and in yards (14 percent); 13-1,500 m; me-T (3), bms-T (1), bh-T (1), bs-P (1), bh-P (5), bmh-P (15), and bh-MB (4).

Specimens collected: CARABOBO, 4 km NNW Montalbán, 1,000 m, (2). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,470-1,500 m, (4). FALCÓN, Capatárida, 40 m, (1); 14 km ENE Mirimire, 190 m, (1); Península de Paraganá, 15 to 25 km SSW and SW Pueblo Nuevo, 13-595 m, (17); Río Socopito, 80 km NW Carora, 470 m, (2). LARA, Caserio Boro, 10 to 13 km N and NW El Tocuyo, 537-900 m, (2). TRUJILLO, 12 km WNW Valera, 930 m, (1). Total 30.

*Rhipidomys venustus* Thomas, 1900:152.

Andes and mountains of northern Venezuela. Usually caught in trees and vines (68 percent),



but also found at the bases of shrubs in banana and coffee plantations (14 percent), on rock ledges (11 percent), in houses (5 percent), and in a hollow log (2 percent); in moist areas (78 percent) or in dry sites (22 percent); in cloud (55 percent) and evergreen forests (40 percent) or in orchards (5 percent); 1,160-3,160 m; bh-P (17), bh-MB (1), bnh-MB (28), and bp-M (6).

Specimens collected: MÉRIDA, 6 to 7 km ESE and SE Tabay, 2,250-3,160 m, (6). MONAGAS, nr. San Agustín, 3 to 5 km NW Caripe, 1,160-1,340 m, (17). TRUJILLO, Hda. Misísí, 14 km E Trujillo, 2,210 m, (15). DTO. FEDERALE and MIRANDA, Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,095-2,223 m, (14). Total 52.

*Rhipidomys* sp. ?

Specimens collected: BOLÍVAR, 45 to 46 km NE Icabarú, 800-815 m, (2); Km 125, 85 km SSE El Dorado, 1,032 m, (1). T. F. AMAZONAS, Cabecera del Caño Culcra, Cerro Zoida, 40 km NNW Esmeralda, 1,400 m, (1). Total 4.

*Thomasomys aureus* Tomes, 1860a:219.

Táchira Andes. Caught in a tree near a stream in cloud forest; 2,400 m; bnh-MB (1).

Specimen collected: TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,400 m, (1). Total 1.

*Thomasomys hylophilus* Osgood, 1912:50.

Táchira Andes. Trapped at the bases of trees and among tree roots, often in bamboo thickets (43 percent), beside and under moss rotting logs (17 percent), in thick growths of shrubs and tree ferns (15 percent), on mossy tree limbs (10 percent), in litter on stream banks (10 percent), and under tangled vines (5 percent); near streams and in other damp places (100 percent); most often in cloud forest (80 percent), but also in clearings used for pasture and crops (15 percent) and in evergreen forest (5 percent); 2,350-2,425 m; bnh-MB (40).

Specimens collected: TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,350-2,425 m, (40). Total 40.

*Thomasomys laniger* Thomas, 1895a:59.

Mérida Andes. Caught among lichen- and moss-covered boulders and in rock slides (59 percent), in thick, low shrubs on the ground (30 percent), at the base of trees and logs (6 percent), in trees (3 percent), and in a house (2 percent); most often in relatively dry habitats (76 percent), but frequently in damp places (24 percent); in cloud forest and páramo (100 per-

cent); 2,210-3,560 m; bnh-MB (10), bnh-M (4), bp-M (50), and p-SA (5).

Specimens collected: MÉRIDA, Paramito, 3 to 4 km W Timotes, 3,147-3,266 m, (5); 5 to 9 km ESE and SE Tabay, 2,570-3,560 m, (54). TRUJILLO, Hda. Misísí, 14 to 15 km E Trujillo, 2,210-2,360 m, (10). Total 69.

*Thomasomys lugens* Thomas, 1896:306.

Mérida Andes. Trapped beside logs and at the base of trees and tree ferns (45 percent), among moss- and lichen-covered boulders (22 percent), in thick cover of herbs and ferns on the ground (22 percent), and on logs (11 percent); usually in damp habitats (94 percent) but rarely in relatively dry places (6 percent); in cloud forest (100 percent); 1,990-3,172 m; bh-MB (4), bnh-MB (7), bnh-M (1), and bp-M (6).

Specimens collected: MÉRIDA, Paramito, 3 km W Timotes, 3,172 m, (1); Santa Rosa, 2 km N Mérida, 1,990-2,040 m, (4); 5 to 6 km ESE Tabay, 2,590-2,710 m, (6). TRUJILLO, Hda. Misísí, 14 to 15 km E Trujillo, 2,210-2,360 m, (7). Total 18.

*Thomasomys vestitus* Thomas, 1898:454.

Mérida Andes. Trapped under a mossy log on damp ground and on a log over a small stream, both in cloud forest; 2,350 m; bnh-MB (2).

Specimens collected: TRUJILLO, Hda. Misísí, 15 km E Trujillo, 2,350 m, (2). Total 2.

*Thomasomys* sp. ?

Specimens collected: MÉRIDA, 5 to 6 km ESE Tabay, 2,580-2,670 m, (3). Total 3.

*Chilomys instans* Thomas, 1895b:368.

Táchira and Mérida Andes. Taken at the base of rotting moss-covered trees (40 percent), under moss-covered logs and fallen limbs (40 percent), and under lichen- and moss-covered tree roots (20 percent); in openings and in dense tangles of vines and bamboo in moist fern, moss, and lichen-laden cloud forest (100 percent); 2,405-2,700 m; bnh-MB (3) and bp-M (2).

Specimens collected: MÉRIDA, 5 to 6 km ESE Tabay, 2,630-2,700 m, (2). TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,405-2,430 m, (3). Total 5.

*Akodon urichi* J. A. Allen and Chapman, 1897:19.

Mountainous areas east of Lago de Maracaibo. Normally trapped on the ground (99 percent) but once caught on a log (1 percent); usually near streams and in other moist areas (87 percent) but occasionally in dry sites (13 percent); usually in old fields, clearings and

other grassy areas, with the grass often tall and thick, often mixed with ferns and herbs, sometimes associated with rocks and logs (54 percent), or in second growth shrubs mixed with vines, herbs, and ferns (35 percent), or rarely in thick forest (11 percent); usually in evergreen (50 percent), cloud (7 percent), or deciduous forest (1 percent), or in forest openings such as croplands (21 percent), yards and gardens (11 percent), pastures (7 percent), and orchards (3 percent); 24-2,232 m (80 percent above 1,000 m); bs-T (1), bmh-T (1), bs-P (13), bh-P (20), bmh-P (18), bh-MB (26), bmh-MB (27), and bp-MB (10)—(98 percent above the Tropical zone).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). ARACUA, Est. Biol. Rancho Grande, 13 km NW Maracay, 1,050-1,059 m, (9). BOLÍVAR, 45 km NE Icabarú, 851 m, (2); Km 125, 70 to 85 km SSE El Dorado, 1,032 m, (3). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (4); 2 to 4.5 km SE Montalbán, 598 m, (11). DTO. FEDERAL, Hda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m, (3); I.V.I.C., 15 km SW Caracas, 1,580 m, (1); Los Venados, 4 km NNW Caracas, 1,443-1,635 m, (13); Pico Ávila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,185-2,232 m, (22). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,260-1,280 m, (10). GUÁRICO, Parque Nac. Guatopo, 15 km NW Altigracia, 710-720 m, (2). MIRANDA, Curupao, 5 km NNW Guareñas, 1,160 m, (2). MONAGAS, San Agustín, 5 km NW Caripe, 1,180 m, (6). SUCRE, Cerro Negro, 10 km NW Caripe, 1,560-1,680 m, (5); Manacal, 26 km ESE Carúpano, 190-425 m, (4). T. F. AMAZONAS, Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, 1,400 m, (10). DTO. FEDERAL and MIRANDA, Alto Ño León, 31 to 33 km WSW Caracas, 1,770-2,025 m, (8). Total 116.

Remarks: A single specimen collected in the páramo at 3,020 m near Paramito, 3 km W Timotes, MERIDA, is tentatively referred to *Akodon urichi*.

*Microxus bogotensis* Thomas, 1895b:369.

Mérida and Táchira Andes. Caught on the ground (92 percent) or on moss-covered logs (8 percent); either in dry sites (52 percent) or near streams and in other moist areas (48 percent); usually in rocks (50 percent), but also under mossy rotting logs, roots, and brush piles (33 percent), and in grass, shrubs, and bamboo thickets (17 percent); in cloud forest (96 percent) and openings such as cropland (4 per-

cent); 2,360-3,815 m; bmh-MB (10), bp-M (10), and p-SA (6).

Specimens collected: MERIDA, 7 to 9 km SE Tabay, 3,170-3,815 m, (16). TÁCHIRA, Buena Vista, nr. Páramo de Táná, 41 km SW San Cristóbal, 2,370-2,420 m, (9). TRUJILLO, Hda. Misísí, 15 km E Trujillo, 2,360 m, (1). Total 26.

*Zygodontomys brevicauda* J. A. Allen and Chapman, 1893:215.

Low elevation grasslands throughout Venezuela. Captured on the ground (100 percent); usually near streams and in other damp areas (81 percent) but occasionally in dry habitats (19 percent); in and under boxes and junk in and around houses (33 percent), in grass (26 percent), at the base of trees and logs (15 percent), among ferns, herbs, weeds, or vegetables (10 percent), under shrubs and vines (8 percent), around boulders and termite mounds (6 percent), and in brush piles (2 percent); in prairie and pasture (30 percent), croplands (17 percent), yards and orchards (9 percent), grassy openings and borders in evergreen (38 percent), deciduous (2 percent), and thorn forest (2 percent), and marsh and cloud forest edges (2 percent); 1-1,180 m (93 percent below 500 m); bms-T (42), bs-T (428), bh-T (207), bmh-T (69), bs-P (8), bh-P (76), bmh-P (2), and bmh-MB (1).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (2); Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (10); Río Cinaruco, 65 km NW Pto. Páez, 76 m, (6). BOLÍVAR, 5 km NNW Guasipati, 190 m, (1); Hato La Florida, 44 to 53 km SE Caicara, 43-100 m, (30); Hato San José, 20 km W La Paragua, 297-306 m, (6); 46 to 56 km NE Icabarú, 800-923 m, (9). CARABOBO, nr. Montalbán, 579-598 m, (7). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,260 m, (1); 14 km ENE Mirimire, 90 m, (3); Río Socopito, 80 km NW Carora, 470-480 m, (56). GUÁRICO, Est. Biol. de los Llanos, 9 km SE Calabozo, 100 m, (2); Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (17); Hato Los Leones, Caño Agua Fría, 23 km NE Calabozo, 89 m, (2). LARA, Caserio Boro, 10 km N El Tocuyo, 537 m, (32). MIRANDA, Río Chico and 1 to 6 km SSE and S Río Chico, 1 m, (108). MONAGAS, Hato Mata de Bejucó, 55 km SSE Maturín, 18 m, (59); San Agustín, 5 km NW Caripe, 1,150-1,180 m, (8). NUEVA ESPARTA, Isla Margarita, 3 km NE La Asunción, 395-420 m, (6). SUCRE, 21 to 24 km E Cumaná, 1-20 m, (10); Ensenada Cauranta, 9 km NE Güiría, 1-4

m, (20); Manacal, 26 km ESE Carúpano, 175-425 m, (16). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (69); Esmeralda, Río Orinoco, 135 m, (47); 18 to 25 km S Pto. Ayacucho, 119-145 m, (10); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (85); Tamatama, Río Orinoco, 135 m, (2). TRUJILLO, La Ceiba, 52 km WNW Valera, 29 m, (11); 25 to 30 km NW Valera, 90 m, (136). ZULIA, nr. Cerro Azul, 35 to 40 km NW La Paz, 80 m, (4); El Rosario, 45 km WNW Encontrados, 37 m, (1). CARABOBO, FALCÓN, and YARACUY, 10 to 19 km NW Urama, 25 m, (57). Total 833.

*Calomys hummelincki* Husson, 1960:34.

Llanos of the Orinoco and deserts around Golfo de Venezuela. Caught on the ground (100 percent); usually in moist (86 percent) but occasionally in dry sites (14 percent); in grass (86 percent), houses (9 percent), and in nests under a slab of bark and under a bottle (5 percent); in sandy grassland (95 percent), thorn forest (2.5 percent), and yards (2.5 percent): 15-76 m; me-T (1), bms-T (1), and bs-T (42).

Specimens collected: APURE, Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (6). FALCÓN, Península de Paraguaná, 15 km SSW Pueblo Nuevo, 55 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (36). ZULIA, nr. Cojoro, 34 km NNE Paraguaipoa, 15 m, (1). Total 44.

*Holochilus brasiliensis* Desmarest, 1819a:62.

Widely scattered moist lowland localities throughout Venezuela east of Lago de Maracaibo. Trapped on the ground (100 percent); usually near streams and in other moist areas (95 percent), and only rarely in dry situations (5 percent); in croplands (41 percent), grasslands (39 percent), yards (10 percent), and in openings in evergreen forest (10 percent): 18-658 m; bs-T (29), bh-T (1), bmh-T (1), bh-P (3), and bh-P (5).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). BOLÍVAR, Hato San José, 20 km W La Paragua, 297-306 m, (4); 19 km NE Icabarú, 658 m, (4). CARABOBO, Montalbán, 562-618 m, (4). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (7). T. F. AMAZONAS, Tamatama, Río Orinoco, 135 m, (1). TRUJILLO, 30 km NW Valera, 90-99 m, (15). YARACUY, 10 km NW Urama, 25 m, (3). Total 39.

*Sigmodon hispidus* Say and Ord, 1825:354.

Grassy lowlands and foothills of northwest-

ern Venezuela. Found on the ground (100 percent); near streams, irrigation ditches, and other moist areas (91 percent) and only rarely in dry sites (9 percent); usually in grass, but rarely in weeds, bushes, and houses; in croplands (44 percent), savannas and pastures (31 percent), yards and orchards (16 percent), and in grassy openings in forest (9 percent); 200-1,580 m (90 percent between 500 and 1,000 m); bms-T (89), bs-T (1), bh-T (1), bs-P (195), bh-P (7), bmh-P (16), bh-MB (13), and bmh-MB (4).

Specimens collected: ARAGUA, El Limón, 4 km NW Maracay, 524 m, (1). BARINAS, Altamira, 600-794 m, (14). CARABOBO, nr. Montalbán, 562-1,000 m, (198). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,485-1,580 m, (13). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,257-1,265 m, (4); 11 km ENE Mirimire, 200 m, (1); Río Socopito, 80 km NW Carora, 480 m, (1). LARA, Caserio Boro, 10 km N El Tocuyo, 518-900 m, (89). MÉRIDA, Mesa Bolívar, 22 km SSE El Vigía, 690 m, (1). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160 m, (1). ZULIA, Kasma, 21 km SW Machiques, 270 m, (1); Novito, 19 km WSW Machiques, 1,134-1,135 m, (2). Total 326.

*Sigomys alstoni* Thomas, 1881:691.

Low elevation grasslands of eastern and southern Venezuela. Caught on the ground (100 percent); in dry situations (54 percent) or in moist areas (46 percent); usually in grass, but sometimes in sedge, houses, gardens, and weed patches; in savanna and pasture (62 percent), yards, orchards, and croplands (19 percent), forest openings (13 percent), and marsh borders (6 percent); 1-1,180 m (81 percent below 500 m); bms-T (8), bs-T (89), bh-T (8), bh-P (19), and bmh-P (16).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 32 km NE Pto. Páez, 76 m, (6); Pto. Páez to Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (10); Río Cinaruco, 65 km NW Pto. Páez, 76 m, (1). BOLÍVAR, Hato La Florida 44 to 53 km SE Caicara, 43-56 m, (6); 46 to 53 km NE Icabarú, 800-923 m, (21). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (58); San Agustín, 5 km NW Caripe, 1,180 m, (6). SUCRE, 2 km E Cumaná, 1 m, (8); Manacal, 26 km ESE Carúpano, 410-424 m, (8). T. F. AMAZONAS, 18 to 25 km S Pto. Ayacucho, 119-145 m, (8); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (8). Total 140.

*Anotomys trichotis* Thomas, 1897:220.

Táchira Andes. Trapped on a moss-covered rock under an overhanging dirt bank beside a



stream in mature cloud forest; 2,400 m; bmh-MB (1).

Specimen collected: TÁCHIRA, Buena Vista, nr. Páramo de Tamiá, 41 km SW San Cristóbal, 2,400 m. (1). Total 1.

*Daptomys venezuelae* Anthony, 1929:2.

Cerro Duida. Trapped on the ground beside a stream in evergreen forest; 1,400 m; bp-MB (1).

Specimen collected: T. F. AMAZONAS, Cabeceira del Caño Negro, Cerro Duida, 32 km NW Esmeralda, 1,400 m. (1). Total 1.

### Subfamily MURINAE

*Rattus norvegicus* Berkenhout, 1769:5.

Northern Venezuela. Caught on the ground (100 percent); in moist areas (100 percent); in piles of brush and logs (40 percent), in buildings (40 percent), and in grass (20 percent); in evergreen forest (60 percent), cloud forest (20 percent), and prairie (20 percent); 18-2,150 m; bs-T (1), bh-MB (3), and bmh-MB (1).

Specimens collected: DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,460-1,498 m. (2); Pico Avila, nr. Hotel Humboldt, 5 km NNE Caracas, 2,150 m. (1). MIRANDA, I.V.I.C., 15 km SW Caracas, 1,460 m. (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m. (1). Total 5.

*Rattus rattus* Linnaeus, 1758:61.

Throughout northern Venezuela and at scattered localities in southern Venezuela. Usually found on the ground (95 percent) but also rarely in trees, vines, and shrubs (5 percent); near streams and in other moist areas (67 percent) or in dry sites (33 percent); in houses (65 percent), in grass and weeds (25 percent), around rocks and boulders (6 percent), and in trees, vines, and shrubs (4 percent); in openings such as homesteads, croplands, pastures, and orchards (61 percent), and in evergreen (26 percent), cloud (7 percent), and thorn forest (6 percent); 1-3,020 m (79 percent below 500 m); me-T (3), bms-T (24), bs-T (64), bh-T (70), bmh-T (3), bs-P (20), bh-P (47), bmh-P (10), bh-MB (13), bmh-MB (5), and p-SA (1).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Pérez, 76 m. (1); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m. (3). BOLÍVAR, Hato San José, 20 km W La Paragua, 300-312 m. (6). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m. (10); Montalbán to 1.2 km SE Montalbán, 598 m. (20). DTO. FEDERAL, Alto Ño

León, 31 km WSW Caracas, 1,770 m. (2); Ilda. Carapiche, nr. El Limón, 48 km W Caracas, 398 m. (29). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m. (4); Capatárida, 40 m. (1); 14 km ENE Mirimire, 200 m. (3); Península de Paraguaná, 15 to 25 km SSW and SW Pueblo Nuevo, 13-55 m. (12). MÉRIDA, Paramito, 3 km W Timotes, 3,020 m. (1); Santa Rosa, 1 km N Mérida, 1,850-1,860 m. (8). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160 m. (1); I.V.I.C., 15 km SW Caracas, 1,460 m. (3); 1 to 6 km SSE and S Río Chico, 1 m. (8). MONAGAS, Cueva del Guácharo, 5 km W Caripe, 1,010-1,180 m. (6); Hato Mata de Bejuco, 55 km SSE Maturín, 18 m. (6). NUEVA ESPARTA, Isla Margarita, 3 km NNE La Asunción, 37-50 m. (10). SUCRE, 16 km E Cumaná, 1 m. (3); Ensenada Cauranta, 9 km NE Güiría, 4-7 m. (7); Manacal, 26 km ESE Carúpano, 300 m. (6). T. F. AMAZONAS, 25 to 32 km SSW Pto. Ayacucho, 114-135 m. (5); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m. (63). TRUJILLO, Hda. Misísí, 13 km E Trujillo, 1,830 m. (5); La Ceiba, 47 km WNW Valera, 29 m. (1); 25 to 30 km NW and NNW Valera, 90-130 m. (33). YARACUY, Minas de Aroa, 20 km NW San Felipe, 400 m. (2). ZULIA, nr. Cojoro, 35 km NNE Paraguai-poa, 5 m. (1). Total 260.

*Mus musculus* Linnaeus, 1758:62.

Northern Venezuela. Trapped on the ground (100 percent); in dry sites (95 percent) or rarely in moist places (5 percent); in houses (60 percent), in grass and herbs (21 percent), and in stone walls and rock piles (19 percent); in yards, croplands, orchards, and pasture (52 percent), in páramo (29 percent), or in openings in thorn (16 percent) or cloud forest (3 percent); 2-3,259 m; me-T (12), bms-T (28), bs-T (1), bs-P (2), bh-P (3), bmh-P (1), bh-MB (9), bmh-MB (1), bmh-M (5), and p-SA (21).

Specimens collected: BARINAS, Altamira, 794 m. (1). CARABOBO, Montalbán, 598 m. (2). DTO. FEDERAL, Alto Ño León, 31 km WSW Caracas, 1,770 m. (1); Los Venados, 4 km NNW Caracas, 1,546 m. (1). FALCÓN, Capatárida, 40 m. (1); Península de Paraguaná, 15 km SSW Pueblo Nuevo, 55 m. (5). LARA, Caserio Boro, 10 km N El Tocuyo, 537 m. (1). MÉRIDA, Paramito, 3 to 4 km W Timotes, 3,004-3,259 m. (26). MONAGAS, San Agustín, 5 km NW Caripe, 1,180 m. (3). NUEVA ESPARTA, Isla Margarita, 7 km SW Porlamar, 2 m. (11); 3 km NNE La Asunción, 37-38 m. (20). SUCRE, 16 km E Cumaná, 5 m. (2).



TRUJILLO, Hda. Misísí, 13 km E Trujillo, 1,700-1,800 m, (S). CARABOBO and YARACUY, 10 km NW Urama, 25 m, (1). Total 83.

### Suborder CAVIOMORPHA

#### Family ERETHIZONTIDAE

*Coendou prehensilis* Linnaeus, 1758:57.

Forested lowlands of T. F. Amazonas and northern and western Venezuela. Usually taken in trees (91 percent) or rarely on the ground (9 percent); near streams and in other moist areas (77 percent) or in dry sites (23 percent); in evergreen (80 percent) or deciduous forest (7 percent) or in yards and croplands (13 percent); 24-1,524 m (77 percent below 500 m); bs-T (1), bh-T (4), bmh-T (2), bh-P (6), bmh-P (3), and bh-MB (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). DTO. FEDERAL, Los Venados, 4 km NNW Caracas, 1,524 m, (1). FALCÓN, nr. Mirimire, 250 m, (1). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160 m, (1). MONAGAS, San Agustín, 5 km NW Caripe, 1,180-1,200 m, (2). SUCRE, Manacal, 26 km ESE Carúpano, 300 m, (2). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (3). T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1). San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 76 m, (1); El Rosario, 48 km WNW Encontrados, 54 m, (1). Total 17.

*Coendou prinosus* Thomas, 1905:310.

Southwest of Lago de Maracaibo. Found in a tree in an upland area in mature evergreen forest; 54 m; bh-T (1).

Specimen collected: ZULIA, El Rosario, 48 km WNW Encontrados, 54 m, (1). Total 1.

#### Family CAVIIDAE

*Cavia porcellus* Linnaeus, 1758:59.

Mountains of northern Venezuela. Captured on the ground (100 percent); in dry upland sites (71 percent) or occasionally in moist situations (29 percent); usually in tall grass and weeds and low shrubs; in grasslands (68 percent), orange groves (18 percent), croplands and gardens (11 percent), and scrubby evergreen forest (3 percent); 598-1,200 m; bs-P (3) and bh-P (25).

Specimens collected: CARABOBO, nr. Montalbán, 598 m, (3). MONAGAS, San Agustín,

3 to 5 km NW Caripe, 1,180-1,200 m, (25). Total 28.

#### Family HYDROCHAERIDAE

*Hydrochaeris hydrochaeris* Linnaeus, 1766:103.

Bolívar, T. F. Amazonas, and the Llanos. Found on the ground (100 percent); in streams or on streambanks (88 percent) or in uplands away from water (12 percent); in grasslands (35 percent), and in evergreen (30 percent), deciduous (30 percent), or thorn forest (5 percent); 18-350 m; bs-T (24), bh-T (2), and bh-P (1).

Specimens collected: APURE, Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (3); Río Cinaruco, 48 km NW Pto. Páez, 76 m, (3); Río Cinaruco, 65 km NW Pto. Páez, 76 m, (5). BOLÍVAR, Hato La Florida, 44 to 45 km ESE Caicara, 45-65 m, (7); Hato San José, 20 km W La Paragua, 297 m, (2); Río Supamo, 50 km SE El Manteco, 350 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (4). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 27.

#### Family DASYPROCTIDAE

*Agouti paca* Linnaeus, 1766:81.

Moose lowlands of Venezuela. Found on the ground (100 percent); usually near streams and in other moist areas (83 percent) or less often in dry places (17 percent); in evergreen forest (87 percent), savanna or pasture (5 percent), cloud forest (3 percent), deciduous and thorn forest (3 percent), and orchard (2 percent); 1-1,537 m (94 percent below 500 m); bs-T (11), bh-T (59), bmh-T (16), bh-P (21), and bmh-P (4).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (2); Pto. Páez to Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (1). BOLÍVAR, El Manaco, 56 to 59 km SE El Dorado, 150 m, (12); Hato La Florida, 44 to 63 km SE and ESE Caicara, 40-65 m, (4); 19 km NE Icabarú, 658 m, (3); Los Patos, 25 to 28 km SE El Manteco, 150-350 m, (4); Río Supamo, 50 km SE El Manteco, 350 m, (7). CARABOBO, La Copa, 4 km NW Montalbán, 1,537 m, (3). FALCÓN, nr. Mirimire and up to 14 km ENE Mirimire, 125-250 m, (6). MIRANDA, 1 km S Río Chico, 1 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (1). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (14);

Boca Mavaca, 84 km SSE Esmeralda, 138 m, (11); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); Esmeralda, Río Orinoco, 135 m, (1); Pto. Ayacucho to 65 km SSW Pto. Ayacucho, 119-161 m, (9); Río Mavaca, 108 km SSE Esmeralda, 140 m, (3); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (1). YARACUY, Minas de Aroa, 19 km WNW San Felipe, 500 m, (1). ZULIA, El Rosario, 45 to 60 km WNW Encontrados, 37-73 m, (22); Kasmera, 21 km SW Machiques, 270 m, (2). Total 111.

*Agouti taczanowskii* Stolzmann, 1885:161.

Mérida and Táchira Andes. Most specimens are without ecological data; two were taken on the ground near a stream in cloud forest; 2,000-3,000 m (69 percent between 2,500 and 3,000 m); bhm-MB (2) and bhm-M (27).

Specimens collected: MÉRIDA, Paramito, 3 to 4 km W Timotes, 2,000-3,000 m, (27). TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,380 m, (2). Total 29.

*Dasyprocta aguti* Linnaeus, 1766:80.

Lowlands of Bolívar, northern T. F. Amazonas, and northeastern Venezuela. Found on the ground (100 percent); usually near streams and in other moist areas (87 percent) but occasionally in dry areas (13 percent); in evergreen forest (77 percent), in openings such as pasture, cropland, orchards, or yards (15 percent) and in deciduous and thorn forest (8 percent); 2-854 m (89 percent below 500 m); bms-T (1), bs-T (4), bh-T (40=71 percent), bs-P (3), bh-P (5), and bhm-P (3).

Specimens collected: BOLÍVAR, El Manaco, 56 to 59 km SE El Dorado, 150 m, (20); 43 to 45 km NE Icabarú, 851-854 m, (3); Km 33, 28 km SE El Dorado, 100 m, (2); Los Patos, 25 km SE El Manteco, 350 m, (1); Río Supano, 50 km SE El Manteco, 350 m, (2). CARABOBO, Montalbán, 598 m, (3). FALCÓN, Boca de Yaracuy, 28 km WNW Pto. Cabello, 2 m, (1); nr. Mirimire and 16 to 18 km NE Mirimire, 60-250 m, (4). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (2). T. F. AMAZONAS, 32 km S Pto. Ayacucho, 155 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (17). Total 56.

*Dasyprocta fuliginosa* Wagler, 1832:1220.

Southern T. F. Amazonas. Captured on the ground (100 percent); near streams and other moist areas (100 percent); in evergreen (88 percent) or deciduous forest (12 percent); 135-150 m; bh-T (6) and bhm-T (2).

Specimens collected: T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmer-

alda, 150 m, (2); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Esmeralda, Río Orinoco, 135 m, (2); Tamatama, Río Orinoco, 135 m, (3). Total 8.

*Dasyprocta variegata* Tschudi, 1845:190.

Zulia and western Apure. Captured on the ground (100 percent); in dry areas (65 percent) or near streams and other moist areas (35 percent); in evergreen forest (100 percent); 24-50 m; bh-T (23) and bhm-T (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (2). ZULIA, El Rosario, 45 to 51 km WNW Encontrados, 37-50 m, (23). Total 25.

*Myoprocta pratti* Pocock, 1913:110.

T. F. Amazonas. Found on the ground (100 percent); near streams and in other moist areas (100 percent); in evergreen forest (100 percent); 135-150 m; bh-T (9) and bhm-T (1).

Specimens collected: T. F. AMAZONAS, Belén, Río Cumucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (4); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); Tamatama, Río Orinoco, 135 m, (4). Total 10.

#### Family ECHIMYIDAE

*Proechimys canicollis* J. A. Allen, 1899:200.

Foothills of Sierra de Perijá in northwestern Venezuela. Trapped on the ground (100 percent); in moist (50 percent) or dry sites (50 percent); in evergreen and deciduous forest, cropland, and orchard (25 percent each); 75-80 m; bs-T (4).

Specimens collected: ZULIA, nr. Cerro Azul, 33 to 40 km NW La Paz, 75-80 m, (4). Total 4.

*Proechimys guyannensis* E. Geoffroy, 1803:194.

Lowlands of Bolívar and T. F. Amazonas. Found on the ground (100 percent); usually near streams and other moist areas (95 percent) or rarely in dry situations (5 percent); in shrubs, herbs, and grass (74 percent), in houses (15 percent), at the base of trees and boulders and beside and under logs (8 percent), on logs (2 percent), and in a hollow tree (1 percent); in evergreen forest (87 percent), and in a hollow tree (1 percent); in evergreen forest (87 percent) and brushy openings such as yards (7 percent), orchards (2 percent), and pastures (2 percent), or in swamps (2 percent); 43-851 m (96 percent below 500 m); bs-T (31), bh-T (282), bhm-T (31), bh-P (12), and bhm-P (5).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Hato La

Florida, 44 to 47 km ESE Caicara, 43-130 m, (24); Hato San José, 20 to 32 km W and NW La Paragua, 297-324 m, (3); 28 to 45 km NE Icabarú, 775-851 m, (14); Río Supamo, 50 km SE El Manteco, 150-350 m, (3). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (31); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (11); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (14); Pto. Ayacucho to 33 km S and SSE Pto. Ayacucho, 99-135 m, (59); Río Mavaca, 108 km SSE Esmeralda, 140 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (179); Tamatama, Río Orinoco, 135 m, (14). Total 361.

*Proechimys hoplomysoides* Tate, 1939:179.

Bolívar and T. F. Amazonas. Captured on the ground (100 percent); near streams and in other moist areas (100 percent); in evergreen forest (75 percent) and in an orchard (25 percent); 135-1,032 m; bh-T (1) and bmh-P (3).

Specimens collected: BOLÍVAR, Km 125, 85 km SSE El Dorado, 1,032 m, (3). T. F. AMAZONAS, Tamatama, Río Orinoco, 135 m, (1). Total 4.

*Proechimys semispinosus* Tomes, 1860b:265.

Lowlands and foothills of northern and western Venezuela and southern T. F. Amazonas. Usually found on the ground (95 percent), occasionally in houses (4 percent), and rarely on logs and in caverns (1 percent); commonly in moist sites (92 percent) or infrequently in dry places (8 percent); in evergreen forest (75 percent), brushy openings such as yards, pastures, orchards, and croplands (18 percent), deciduous and thorn forest (6 percent), and cloud forest (1 percent); 1-1,340 m (75 percent below 500 m; 96 percent below 1,000 m); bms-T (16), bs-T (31), bh-T (177), bmh-T (76), bs-P (21), bh-P (95), bmh-P (38), and bmh-MB (5).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (78). BARINAS, Altamira, 697-900 m, (33). CARABOBO, nr. Montalbán, 562-1,000 m, (42). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,260-1,265 m, (5); nr. Mirimire and up to 14 km ENE Mirimire, 122-250 m, (31); Península de Paraguaná, 15 km SSW Pueblo Nuevo, Cerro Santa Ana, 530-615 m, (5); Río Socopito, 80 km NW Carora, 470-480 m, (15). GUÁRICO, Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (4). LARA, Caserio Boro, 10 km N El Tocuyo, 518 m, (14). MIRANDA, Curupao, 5 km NNW Guarenas, 1,160 m, (1); Parque Nac. Guatopo, 15 km NW Altigracia, 680 m, (1); 6 km SSE Río Chico, 1

m, (1). MONAGAS, Cueva del Guácharo, 5 km W Caripe, 1,010 m, (3); San Agustín, 5 km NW Caripe, 1,265-1,340 m, (3). SUCRE, 21 km E Cumaná, 15 m, (2); Manacal, 26 km ESE Caripano, 180-575 m, (21). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (9); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (26); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1); Tamatama, Río Orinoco, 135 m, (54). TRUJILLO, La Ceiba, 48 to 52 km WNW Valera, 28-29 m, (5); 12 to 30 km NW and WNW Valera, 90-900 m, (16). YARACUY, Minas de Aroa, 20 km NW San Felipe, 390-395 m, (2). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 75 m, (1); El Rosario, 45 to 65 km WNW Encontrados, 37-95 m, (21); Kasmera, 21 km SW Machiques, 265-273 m, (33). CARABOBO, FALCÓN, and YARACUY, 10 to 19 km NW Urama, 25 m, (32). Total 459.

*Proechimys* sp. ?

Specimens collected: T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (3); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (9); Tamatama, Río Orinoco, 135 m, (3). Total 16.

*Mesomys hispidus* Desmarest, 1817:58.

Lowland forests of T. F. Amazonas. Found in trees or houses (94 percent) or rarely on the ground (6 percent); near streams and in other moist places (90 percent) or in dry sites (10 percent); in evergreen forest (89 percent) and in forest openings such as yards (11 percent); 130-155 m; bh-T (19) and bmh-T (2).

Specimens collected: T. F. AMAZONAS, Acañaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (1); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (10); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (8); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 21.

*Isothrix bistriata* Wagner, 1845:146.

Southern T. F. Amazonas. Captured in trees (88 percent) or rarely on the ground (12 percent); near streams (100 percent); in evergreen forest (100 percent); 130-138 m; bh-T (9).

Specimens collected: T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (6); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (2); Tamatama, Río Orinoco, 135 m, (1). Total 9.

*Echimys armatus* I. Geoffroy, 1838:887.

Bolívar, T. F. Amazonas, and the eastern and western Llanos. Found in trees (87 per-

cent) or on the ground (13 percent); near streams and in other moist areas (98 percent) or rarely in dry places (2 percent); in evergreen forest (91 percent) or in scattered trees in savanna (9 percent); 18-350 m; bs-T (4), bh-T (39), bmh-T (1), and bh-P (1) (91 percent in humid zones).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). BOLÍVAR, Río Supamo, 50 km SE El Manteco, 350 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (4). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (33); San Juan Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (5); Tamatama, Río Orinoco, 135 m, (1). Total 45.

*Echymys semivillosus* I. Geoffroy, 1838:887.

Central Llanos and base of the Península de Falcón. Captured in trees (98 percent) or on the ground (2 percent); near streams and in other moist areas (88 percent) or in dry places (12 percent); usually in thorn forest (90 percent), occasionally in scattered trees in savanna (8 percent), and rarely in evergreen forest (2 percent); 25-579 m; bms-T (45), bs-T (4), bh-T (1), and bs-P (2) (98 percent in dry zones).

Specimens collected: APURE, Río Cinaruco, 38 km NNW Pto. Páez, 76 m, (3). BOLÍVAR, Hato La Florida, 45 km SE Caicara, 65 m, (1). CARABOBO, 1 km SE Montalbán, 579 m, (2). FALCÓN, 19 km NW Urama, 25 m, (1). LARA, Caserio Boro, 10 km N El Tocuyo, 158-537 m, (45). Total 52.

## Order CETACEA

### Family PLATANISTIDAE

*Inia geoffrensis* Blainville, 1817:151.

T. F. Amazonas. Captured in rivers flowing through evergreen forest; 135-155 m; bh-T (2).

Specimens collected: T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1); Tamatama, Río Orinoco, 135 m, (1). Total 2.

## Order CARNIVORA

### Family CANIDAE

*Urocyon cinereoargenteus* Schreber, 1775: pl. 92.

Northwestern Venezuela. Captured in dry thorn forest; 537 m; bms-T (2).

Specimens collected: LARA, Caserio Boro, 10 km N El Tocuyo, 537 m, (2). Total 2.

*Cerdocyon thous* Linnaeus, 1766:60.

Scattered localities throughout Venezuela except in southern T. F. Amazonas. Found on the

ground (100 percent); near streams and other moist areas (64 percent) or in dry sites (36 percent); in prairie or pasture (49 percent), marshes, croplands, yards, and orchards (15 percent), deciduous and thorn forests (19 percent), and evergreen and cloud forests (17 percent); 1-2,000 m (97 percent below 620 m); me-T (1), bms-T (7), bs-T (50), bh-T (10), bmh-T (7), bs-P (3), bh-P (7), bmh-P (2), and bh-MB (1).

Specimens collected: ANZOÁTEGUI, 14 km W Clarines, 100 m, (1). APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (3); Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (7); Pto. Páez to 38 km NNW Pto. Páez, 76 m, (8). BOLÍVAR, Hato San José, 20 to 23 km W and NW La Paragua, 297-309 m, (6); 56 km NE Icabarú, 905 m, (1). CARABOBO, Montalbán to 3 km SE and SW Montalbán, 598-618 m, (7). DTO. FEDERAL, Alto No León, 36 km WSW Caracas, 2,000 m, (1). FALCÓN, nr. Boca de Tocuyo, 13 km SE San Juan de los Cayos, 1 m, (1); Boca de Yara-cuy, 28 km WNW Pto. Cabello, 2 m, (5); 18 km WNW Captárida, 40 m, (1); nr. Mirimire and up to 15 km NE Mirimire, 20-250 m, (6). LARA, Caserio Boro, 10 km N El Tocuyo, 518-537 m, (3). MIRANDA, 1 to 5 km E and S Río Chico, 1 m, (4). MONAGAS, San Agustín, 5 km NW Caripe, 1,200 m, (1); Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (4). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (2). T. F. AMAZONAS, 14 to 55 km SSE to SSW Pto. Ayacucho, 114-135 m, (14); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). TRUJILLO, 19 to 25 km N to NW Valera, 90-164 m, (7). ZULIA, El Rosario, 51 km WNW Encontrados, 37 m, (1); Río Negro, 8 km W Machiques, 250 m, (1). FALCÓN and YARACUY, 10 to 19 km NW Urama, 25 m, (3). Total 88.

### Family URSIDAE

*Tremarctos ornatus* F. Cuvier, 1825: fasc. 50.

Táchira Andes. Killed by native hunters in moist cloud forest; 2,380 m; bmh-MB (2).

Specimens collected: TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,380 m, (2). Total 2.

### Family PROCYONIDAE

*Procyon cancrivorus* G. Cuvier, 1798:113.

Scattered localities in northern and central Venezuela. Found on the ground (100 percent); near streams (100 percent); in evergreen forest (50 percent), swamp (33 percent), and decidu-



ous forest (17 percent); 1-320 m; bms-T (1), bs-T (3), and bh-T (2).

Specimens collected: BOLÍVAR, Hato San José, 20 km W La Paragua, 320 m, (1). GUÁRICO, Embalse de Guárico, 10 km N Calabozo, 100 m, (1). MIRANDA, 13 km E El Guapo, 12 m, (1); 5 km E Río Chico, 1 m, (1). ZULIA, El Rosario, 51 km WNW Encontrados, 37 m, (1); nr. Río Limón, 7 km NW San Rafael de Mara, 1 m, (1). Total 6.

*Nasua nasua* Linnaeus, 1766:64.

Lowlands of Bolívar and T. F. Amazonas. Shot on the ground (67 percent) or in trees (33 percent); in moist areas (57 percent) or in dry sites (43 percent); in evergreen (71 percent) or deciduous forest (29 percent); 100-350 m; bs-T (4), bh-T (1), and bh-P (2).

Specimens collected: BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (1); Hato San José, 20 km W La Paragua, 324 m, (1); Km 33, 28 km SE El Dorado, 100 m, (1); Los Patos, 25 km SE El Manteco, 350 m, (2). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (1); Tamatama, Río Orinoco, 135 m, (1). Total 7.

*Nasuella olivacea* Gray, 1865:703.

Mérida and Táchira Andes. Captured on the ground (100 percent); in dry (60 percent) or moist sites (40 percent); in cloud forest (57 percent) and páramo (43 percent); 2,000-3,020 m; bmh-MB (2), bmh-M (2), and p-SA (3).

Specimens collected: MERIDA, Paramito, 3 km W Timotes, 2,000-3,020 m, (5). TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,380 m, (2). Total 7.

*Potos flavus* Schreber, 1774:187.

Lowland (occasionally montane) humid forests throughout Venezuela. Captured in trees (100 percent); in moist (53 percent) or dry areas (47 percent); in evergreen forest (95 percent) and openings such as yards, orchards, and croplands (3 percent), or rarely in cloud (1 percent) and thorn forest (1 percent); 24-1,750 m (97 percent below 500 m); bs-T (4), bh-T (85), bmh-T (16), bs-P (2), bh-P (9), bmh-P (42), and bmh-MB (4).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (13). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (4); 15 km NE Icabarú, 800 m, (1); Río Supamo, 50 km SE El Manteco, 150 m, (1). CARABOBO, 9 km NW Montalbán, 900 m, (1). DTO. FEDERAL, Alto Ño León, 31 km WSW Caracas, 1,750 m, (3). FALCÓN, Cerro Socopo, 84 km NW Carora, 1,260 m, (1);

nr. Mirimire to 14 km ENE Mirimire, 125-250 m, (4). SUCRE, Manacal, 26 km ESE Carúpano, 180-200 m, (4). TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (42). T. F. AMAZONAS, Acanaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (1); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (2); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (2); 30 to 32 km S Pto. Ayacucho, 135 m, (3); Río Mavaca, 108 km SSE Esmeralda, 140 m, (2). ZULIA, nr. Cerro Azul, 33 km NW La Paz, 80 m, (3); El Rosario, 39 to 63 km WNW Encontrados, 37-125 m, (68). CARABOBO and FALCÓN, 6 to 19 km NW and N Urama, 25 m, (7). Total 162.

*Bassaricyon gabbii* J. A. Allen, 1876:21.

Lowlands of Zulia and T. F. Amazonas. Found in trees (100 percent); in moist evergreen forest (100 percent); 135-460 m; bs-T (1), bh-T (3), and bmh-P (1).

Specimens collected: TÁCHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); 30 km S Pto. Ayacucho, 135 m, (2); Río Mavaca, 108 km SSE Esmeralda, 140 m, (1). Total 5.

## Family MUSTELIDAE

*Mustela frenata* Lichtenstein, 1831: pl. 42.

Monagas. Captured on the ground (83 percent) and in a tree (17 percent); in or near coffee in moist evergreen forest (83 percent) and in dry pasture (17 percent); 1,150-1,340 m; bh-P (6).

Specimens collected: MONAGAS, San Agustín, 5 km NW Caripe, 1,150-1,340 m, (6). Total 6.

*Eira barbara* Linnaeus, 1758:46.

Scattered localities in southern and western Venezuela. Found on the ground (100 percent); in moist (66 percent) or dry areas (33 percent); in evergreen (92 percent) or cloud forest (8 percent); 24-2,350 m; bh-T (7), bmh-T (2), bh-P (2), bmh-P (2), and bmh-MB (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). BARINAS, Altamira, 600 m, (1). BOLÍVAR, El Manaco, 56 to 59 km SE El Dorado, 150 m, (3). FALCÓN, 7 to 12 km ENE Mirimire, 120-200 m, (2). TÁCHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,380 m, (2); Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). T. F. AMAZONAS, Acanaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (1); 35 km S Pto. Aya-

cucho, 195 m, (1). ZULIA, El Rosario, 45 to 51 km WNW Encontrados, 24-37 m, (3). Total 15.

*Galictis vittata* Schreber, 1776: pl. 124 (description 1777:447).

Lowland localities in northern Venezuela. Taken on the ground (100 percent); near streams or other moist areas (100 percent); in evergreen forest (67 percent) and in grassland (33 percent); 18-460 m; bs-T (1), bmh-T (1), and bmh-P (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (1). TACHIRA, Las Mesas, 17 km NE San Juan de Colón, 460 m, (1). Total 3.

*Conepatus semistriatus* Boddaert, 1785:84.

Northern Venezuela. Captured on the ground (100 percent); usually in dry (71 percent) but also in moist areas (29 percent); in thorn forest (71 percent), pasture (19 percent), and evergreen forest (10 percent); 18-55 m; me-T (14), bms-T (1), bs-T (4), and bh-T (2).

Specimens collected: FALCÓN, Capatárida and 3.5-6 km NE Capatárida, 40-50 m, (14); Península de Paraguaná, 15 km SSW Pueblo Nuevo, 55 m, (1); 19 km NW Urama, 25 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (4). ZULIA, El Rosario, 51 km WNW Encontrados, 37 m, (1). Total 21.

*Lutra longicaudis* Olfers, 1818:233.

Lowland rivers in southern and western Venezuela. Found in streams and on streambanks (100 percent); in evergreen forest (100 percent); 37-145 m; bh-T (3) and bmh-T (1).

Specimens collected: T. F. AMAZONAS, Acaña, Río Cunucumuna, 48 km NW Esmeralda, 145 m, (1). ZULIA, El Rosario, 51 km WNW Encontrados, 37-50 m, (3). Total 4.

*Pteronura brasiliensis* Gmelin, 1788:93.

Llanos. Caught in a stream in tree-bordered savanna; 76 m; bs-T (1).

Specimen collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (1). Total 1.

#### Family FELIDAE

*Felis concolor* Linnaeus, 1771:522.

Scattered localities in central and western Venezuela. Taken on the ground (100 percent); in both dry (50 percent) and moist situations (50 percent); in evergreen (75 percent) and cloud forest (25 percent); 73-2,380 m; bs-T

(1), bh-T (2), bh-MB (2), and bmh-MB (1).

Specimens collected: BOLÍVAR, Río Tiquire, 27 km ENE Maripa, 100 m, (1). MÉRIDA, 4 km E Tabay, 2,100 m, (2). TACHIRA, Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, 2,380 m, (1). ZULIA, Boca del Río del Oro, 60 WNW Encontrados, 73 m, (2). Total 6.

*Felis onca* Linnaeus, 1758:42.

Western and southern Venezuela. Captured in trees (67 percent) and on the ground (33 percent); in dry (50 percent) or moist sites (50 percent); in evergreen forest (100 percent); 37-350 m; bh-T (1), bmh-T (2), and bh-P (1).

Specimens collected: BOLÍVAR, Río Supamo, 50 km SE El Manteco, 350 m, (1). T. F. AMAZONAS, Belén, Río Cunucumuna, 56 km NNW Esmeralda, 150 m, (2). ZULIA, El Rosario, 51 km WNW Encontrados, 37 m, (1). Total 4.

*Felis pardalis* Linnaeus, 1758:42.

Lowlands throughout Venezuela. Usually taken on the ground (81 percent) but also in trees (19 percent); near streams or other moist areas (71 percent) or in dry situations (29 percent); in evergreen forest (72 percent), deciduous and thorn forest (14 percent), and in swamps, marshes, or pastures (14 percent); 2-350 m; me-T (1), bms-T (1), bs-T (6), bh-T (13), bmh-T (4), and bh-P (6).

Specimens collected: ANZOÁTEGUI, 14 km W Clarines, 100 m, (1). APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (1). BOLÍVAR, El Manaco, 59 km SE El Dorado, 150 m, (4); nr. Caicara, 200 m, (1); Hato San José, 20 km W La Paragua, 324 m, (1); Los Patos, 25 to 28 km SE El Manteco, 350 m, (2); Río Supamo, 50 km SE El Manteco, 150-350 m, (3). CARABOBO, 10 km NW Urama, 25 m, (2). FALCÓN, Boca de Yaraeny, 28 km WNW Pto. Cabello, 2 m, (2); 13 km ENE Mirimire, 150 m, (1); Península de Paraguaná, 6 km N Pueblo Nuevo, 25 m, (1). T. F. AMAZONAS, Acaña, Río Cunucumuna, 48 km NW Esmeralda, 145 m, (1); Belén, Río Cunucumuna, 56 km NNW Esmeralda, 150 m, (3); Capibara, Brazo Casiquiare, 106 km SW Esmeralda, 130 m, (1); Esmeralda, Río Orinoco, 135 m, (1); 32 km S Pto. Ayacucho, 135 m, (1); Tamatama, Río Orinoco, 135 m, (3). ZULIA, El Rosario, 45 km WNW Encontrados, 37 m, (2). Total 31.

*Felis tigrina* Schreber, 1775: pl. 106 (description 1777:396).

Sierra de la Costa and Bolívar. Caught on the ground (100 percent); in moist (75 percent)

and dry situations (25 percent); in evergreen (75 percent) and deciduous forest (25 percent); 40-2,181 m; bs-T (1), bh-P (1), and bh-MB (2).

Specimens collected: BOLÍVAR, Hato La Florida, 63 km SE Caicara, 40 m, (1); Los Patos, 25 km SE El Manteco, 350 m, (1). DTO. FEDERAL, Pico Ávila, 5 km NNE and 6 km NNW Caracas, 2,013-2,181 m, (2). Total 4.

*Felis wiedii* Schinz, 1821:235.

Scattered lowland localities in northern and southern Venezuela. Taken on the ground (100 percent); in moist (75 percent) or dry sites (25 percent); in evergreen forest (100 percent); 125-854 m; bmh-T (2), bh-P (2), and bmh-P (1).

Specimens collected: BOLÍVAR, 43 km NE Icabarú, 854 m, (1). FALCÓN, 14 km ENE Mirimire, 125 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (2). YARACUY, Minas de Aroa, 30 km NW San Felipe, 500 m, (1). Total 5.

*Felis yagouaroundi* E. Geoffroy, 1803:124.

Scattered lowland localities throughout Venezuela. Caught on the ground (60 percent) and in trees (40 percent); in dry pasture (75 percent) or thorn forest (25 percent); 18-600 m; me-T (1), bs-T (4), and bmh-P (1).

Specimens collected: APURE, Hato Cariben, Río Cinaruco, 46 km NE Pto. Pérez, 76 m, (1). BARINAS, Altamira, 600 m, (1). FALCÓN, Capatárida, 40 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (2). T. F. AMAZONAS, 55 km SSW Pto. Ayacucho, 119 m, (1). Total 6.

## Order PERISSODACTYLA

### Family TAPIRIDAE

*Tapirus terrestris* Linnaeus, 1758:74.

Forested lowlands of southern Venezuela. Taken on the ground (100 percent); most often in or near streams and in other moist areas (84 percent), and infrequently in dry situations (16 percent); in evergreen (91 percent) or deciduous forest (9 percent); 24-854 m; bs-T (2), bh-T (21), bmh-T (6), bh-P (3), and bmh-P (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). BOLÍVAR, Hato San José, 20 km W La Paragua, 303-350 m, (2); 43 km NE Icabarú, 854 m, (1); Los Patos, 25 km SE El Manteco, 350 m, (3). T. F. AMAZONAS, Acanaña, Río Cunucunuma, 48 km NW Esmeralda, 145 m, (1); Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (4); Boca Mavaca, 84 km SSE Esmeralda, 138 m, (1); Capibara, Brazo

Casiquiare, 106 km SW Esmeralda, 130 m, (1); Esmeralda, Río Orinoco, 135 m, (18); 30 km S Pto. Ayacucho, 135 m, (1). Total 33.

## Order ARTIODACTYLA

### Family TAYASSUIDAE

*Tayassu pecari* Link, 1795:104.

Forested localities in southern Venezuela. Shot on the ground (100 percent); most often near streams and in other moist sites (59 percent) but frequently in dry habitats (41 percent); in evergreen forest (89 percent) and savanna (11 percent); 24-854 m (94 percent below 500 m); bs-T (1), bh-T (4), bmh-T (6), bh-P (6), and bmh-P (1).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (3). BOLÍVAR, Hato San José, 20 km W La Paragua, 324 m, (1); 43 km NE Icabarú, 854 m, (1); Km 33, 28 km SE El Dorado, 100 m, (3); Río Supamo, 50 km SE El Manteco, 150-350 m, (6). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (3); 28 km S Pto. Ayacucho, 135 m, (1). Total 18.

*Dicotyles tajacu* Linnaeus, 1758:50.

Forested lowlands of southern and western Venezuela. Taken on the ground (100 percent), occasionally in caverns and recesses between tree buttresses; near streams and other moist places (64 percent) or in dry habitats (36 percent); in evergreen (70 percent), thorn (19 percent), and deciduous forest (3 percent), or in savanna (8 percent); 24-600 m; bms-T (1), bs-T (10), bh-T (23), bmh-T (5), bh-P (3), and bmh-P (2).

Specimens collected: APURE, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (5). BARINAS, Altamira, 600 m, (2). BOLÍVAR, El Manaco, 56 to 70 km SE El Dorado, 150 m, (10); Hato San José, 20 km W La Paragua, 330 m, (1); Km 33, 28 km SE El Dorado, 100 m, (2); Río Supamo, 50 km SE El Manteco, 150-350 m, (2). FALCÓN, 13 to 17 km ENE Mirimire, 25-125 m, (11). T. F. AMAZONAS, Boca Mavaca, 84 km SSE Esmeralda, 138 m, (8); Esmeralda, Río Orinoco, 135 m, (2); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (1). Total 44.

### Family CERVIDAE

*Odocoileus virginianus* Zimmermann, 1780:24 and 129.

Central and northern Venezuela. Found on the ground (90 percent) or in water (10 per-

cent); in dry (53 percent) or moist sites (47 percent); in prairie (45 percent) or in thorn (25 percent), deciduous (15 percent), and evergreen forest (15 percent); 1-350 m: bs-T (15), bh-T (3), and bh-P (3).

Specimens collected: APURÉ, Hato Cariben, Río Cinaruco, 46 km NE Pto. Páez, 76 m, (2); Pto. Páez, 76 m, (1); Río Cinaruco, 48 km NW Pto. Páez, 76 m, (2). BOLÍVAR, Hato La Florida, 45 km ESE Caicara, 65 m, (2); Hato San José, 20 km W La Paragua, 300 m, (2); Los Patos, 25 km SE El Manteco, 350 m, (2). FALCÓN, nr. Mirimire and up to 15 km NE and ENE Mirimire, 50-200 m, (4). GUÁRICO, Hato Las Palmitas, 35 km SSW San Juan de los Morros, 181 m, (1). MIRANDA, Cúpira, 30 km E El Guapo, 100 m, (1); 6 km SSE Río Chico, 1 m, (1). MONAGAS, Hato Mata de Bejuco, 55 km SSE Maturín, 18 m, (1). T. F. AMAZONAS, San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (2). Total 21.

*Mazama americana* Erxleben, 1777:324.

Forested lowland localities in northwestern and southern Venezuela. Taken on the ground (97 percent) or in water (3 percent); in or near streams and in other moist areas (77 percent) or in dry sites (23 percent); in evergreen (78 percent) or deciduous forest (14 percent) and in croplands, pastures, and clearings around houses (8 percent); 24-500 m: bs-T (4), bh-T (41), bnh-T (3), and bh-P (20).

Specimens collected: APURÉ, Nulita, Selvas de San Camilo, 29 km SSW Santo Domingo, 24 m, (1). BOLÍVAR, El Manaco, 56 to 59 km

SE El Dorado, 150 m, (27); Hato San José, 20 km W La Paragua, 300-306 m, (2); Icabarú, 473 m, (2); Km 33, 28 km SE El Dorado, 100 m, (3); Los Patos, 25 km SE El Manteco, 350 m, (12); Río Supamo, 50 km SE El Manteco, 150-350 m, (3). FALCÓN, 12 km ENE Mirimire, 240 m, (1). T. F. AMAZONAS, Belén, Río Cunucunuma, 56 km NNW Esmeralda, 150 m, (2); 32 km S Pto. Ayacucho, 126 m, (1); San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, 155 m, (7). YARACUY, Minas de Aroí, 19 km WNW San Felipe, 500 m, (4). ZULIA, El Rosario, 45 km WNW Encontrados, 37 m, (3). Total 68.

*Mazama gouazoubira* G. Fischer, 1814:465.

Forests of Bolívar and Falcón. Found on the ground (100 percent); near streams and in other moist areas (67 percent) or in dry sites (33 percent); in evergreen forest (60 percent) thorn forest (20 percent), pastures and yards (13 percent), and deciduous forest (7 percent); 60-976 m (94 percent below 500 m); bs-T (5), bh-T (8), and bh-P (3).

Specimens collected: BOLÍVAR, 15 km SE El Dorado, 75 m, (1); El Manaco, 59 km SE El Dorado, 150 m, (7); Hato San José, 20 km W La Paragua, 330 m, (1); Icabarú to 51 km NE Icabarú, 473-976 m, (2); Los Patos, 25 km SE El Manteco, 350 m, (1). FALCÓN, 13 to 15 km NE and ENE Mirimire, 60-125 m, (4). Total 16.

*Mazama* sp. ?

Specimen collected: BOLÍVAR, Km 125, 85 km SSE El Dorado, 1,032 m, (1). Total 1.

## GAZETTEER

The Smithsonian Venezuelan Project collected specimens at 102 localities. For each of these the gazetteer includes reference to a well-known map point, geographic coordinates, elevation, state, narrative description, Holdridge life zone, collectors, SVP numbers, kinds of specimens collected, dates of collections, and SVP locality code number.

All distances and geographic coordinates were determined from the following U.S. Air Force Operational Navigation Charts (scale 1:1,000,000): K-26, first edition, compiled 1965; K-27, first edition, compiled 1963; L-26, second edition, compiled 1966; and L-27, first edition, compiled 1965. All distances cited from Caracas were measured from the Plaza Venezuela, 10°-

30'N-66°53'W. Elevations were determined in the field with aircraft-type altimeters.

Most of the localities included several sub-localities at which collections were made. In all, 1,390 collecting sites were identified in specimen data, and names of 243 of these, in addition to the 102 primary locality names, appeared on specimen labels. In the gazetteer, these sub-localities are referenced to the primary localities in which they are included, without further description.

Acañaña (Río Cunucunuma), 48 km NW Esmeralda and 13 km SSW Belén, 3°32'N-65°48'W, 145 m (T. F. AMAZONAS). Indian village in valley of Río Cunucunuma.



- Terrain hilly; mountains of 500 m or more nearby. Evergreen forest broken by trails and gardens around village. Holdridge classification: TROPICAL very humid forest (bmh-T). Collector: M. Tuttle. SVP numbers: 17176, 18587-18635, 19443, 19635, 26255-26263, 27896-27914 (80 mammals, purchased). Mar-Jun 1967. SVP locality 31.
- Agua de Obispo*, 2 km SSW Montalbán, 598 m (see Montalbán)
- Agua Fria*, 7 km NNE Altamira, 1,070 m (see Altamira)
- Agua Santa* (nr.), 23 to 25 km NW Valera, 90 m (see Valera)
- Agua Viva* (nr.), 19 to 23 km N Valera, 164 m (see Valera)
- Agüide* (nr.), 20 km NNE Mirimire, 1-5 m (see Mirimire)
- Altamira** (within 7 km of town center), 8°50'N-70°30'W, 600-1,070 m (BARINAS). Lower E slopes of Andes; very steep and rocky; almost no flat ground. Streams, largest 15-30 m wide, with v-shaped valleys, rocky beds, and fast-flowing, clear, cold water. Agricultural land (mostly in coffee and bananas), second growth evergreen forest (trees up to 10-15 m high), small areas of grass (1-2 m high), and bamboo surround Altamira. Nearest undisturbed forest several hours away by foot or horseback. Holdridge classification: PRE-MONTANE very humid forest (bmh-P). Collectors: A. Tuttle, Inquilla, Stromeyer, and Peterson (1 specimen). SVP numbers: 4361, 33152-34357, 40863 (1,224 mammals, 10 birds, 3 reptiles, 1 amphibian). 30 Mar 1966, 13 Dec 1967-13 Jan 1968. SVP locality 37.
- Alto Ño León**, 31 to 36 km WSW Caracas, 10°26'N-67°10'W, 1,665-2,050 m (DTO. FEDERAL and MIRANDA). Upper reaches of Sierra de la Costa, with steep to moderately steep slopes, small streams, occasional rock outcrops, and rich, loamy, humus-laden soil, or clay-loam with limited humus. Dominant original vegetation either cloud forest, with trees 15-20 m high, abundant epiphytes, and very dense 3-4 high subcanopy of shrubs, vines, ferns, and forbs; or, on S slopes, drier, more open forest with fewer epiphytes. All now much altered by human intrusion: much clearing and burning, many roads and footpaths, and many small coffee and vegetable farms. Remnants of mature cloud forest with numerous rotting stumps and logs of large trees; scrubby second growth cloud forest with many tree ferns; openings cleared from cloud forest mostly covered with dense ferns and shrubs, 1-1.5 m high, and little grass. S slope second growth forest with scattered trees and cover of bamboo, forbs, and brambles. Holdridge classification: LOWER MONTANE humid forest (bh-MB) and LOWER MONTANE very humid forest (bmh-MB). Collectors: Peterson, Naranjo, Ojasti, D. Peacock, and R. Peacock. SVP numbers: 3708-3745, 12462, 13058-13098 (69 mammals, 10 birds, 1 amphibian). 19-23 Dec 1965, 5 Mar and 24-27 May 1967. SVP locality 54.
- Aragüita*, 0.5 km SSE Montalbán, 598 m (see Montalbán)
- Aroa* (nr.), 30 km NW San Felipe, 500 m (see Minas de Aroa)
- Begón*, 1 km S Altamira, 794 m (see Altamira)
- Belén** (Río Cunucunuma), 56 km NNW Esmeralda, 3°39'N-65°46'W (to 3°37'N-65°53'W and 3°43'N-65°42'W), 150 m (T. F. AMAZONAS). Broad, undulating valley bordered by cliff-sided mountains—Cerro Duida, Cerro Huachamacari, and Cerro Marahuaca. Streams numerous, sandy or rocky, fast flowing, clear or red, mostly sheltered by forest canopy. Forest nearly continuous, evergreen, dense, 18-36 m high, and mostly undisturbed. Village of Belén, with about 100 people, 18 huts, chickens and dogs, and clearings for banana, papaya, guava, yucca, etc., located at edge of prairie 0.5 km in diameter (with bunch grass 0.25-1 m high). Holdridge classification: TROPICAL very humid forest bmh-T). Collectors: M. Tuttle and Harder. SVP numbers: 15108-15780, 15947, 16090-16192, 16194-16548, 16550-16621, 16670-16676, 16836-16910, 16940-17175, 17177-17182, 17594 (1,506 mammals, 3 birds, 8 reptiles, 12 amphibians). 30 Dec 1966-21 Feb 1967, 5 Apr 1967. SVP locality 25.
- Betijoque* (nr.), 20 km WNW Valera, 134 m (see Valera)
- Birongo** (Birongo to 4 km SW Birongo), 10°-29'N-66°16'W, 60-195 m (MIRANDA). Eastern foothills of Sierra de la Costa. Steep ridges, rocky soil, and swift, rocky streams. Primary forest evergreen, with canopy at 35-40 m, subcanopies at 25 and 15 m, and ground cover of ferns and low herbs. Much land cleared for cacao, oranges, and bananas, leaving scattered large shade trees, grassy openings, and patches of low shrubs. In addition to trapping and netting, bats were collected from Cueva Alfredo Jahn near Birongo and Cueva Walter Dupouy near Capaya. Holdridge classification: TROPICAL

CAL humid forest (bh-T). Collectors: Peterson, Brown, Matson, and Naranjo. SVP numbers: 21154-21371, 21373-21426, 21661, 21799-21808 (282 mammals, 1 reptile). 20-23 & 28 Jan 1968. SVP locality 78.

*Boca de Apure*, 0.5 km SSW Montalbán, 598 m (see Montalbán)

*Boca de Río Cunucunuma*, 49 km W Esmeralda, 3°11'N-66°00'W, 135 m (T. F. AMAZONAS). Evergreen forest on river plain. Holdridge classification: TROPICAL humid forest (bh-T). Collector: M. Tuttle. SVP numbers: 19226-19229 (4 mammals, purchased). 20 May 1967. SVP locality 99-12.

*Boca de Tigre*, 5 km NW Caracas, 1,394 m (see Boca de Tigre Valley)

*Boca de Tigre*, 6 km NNW Caracas, 1,982-2,119 m (see Pico Avila)

*Boca de Tigre Valley*, 5 km NW Caracas, 10°32'N-66°54'W, 1,394-1,616 m (D.T.O. FEDERAL). Very damp, densely forested stream valley, about half way up inland slope of Sierra de la Costa, near Clavelitos. Trees averaging 15 m high, with many vines; ferns and some grass along stream 2.5 m wide. Holdridge classification: LOWER MONTANE humid forest (bh-MB). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 822-852, 858-869, 872-888, 901-905, 948-969, 1066, 1093-1094 (90 mammals). 27 and 30 Aug and 7 Sep 1965. SVP locality 3.

*Boca de Yaracuy*, 28 km WNW Pto. Cabello, 10°35'N-68°15'W, 2 m (FALCÓN). Flat, sandy, very hot and humid lowland within 1 km of coast. Collecting in open coconut palm groves, thick scrubby thorny forest (trees 4-12 m high), vine-tangled swamp, and in large grassy and weedy openings with scattered shallow ponds and occasional palms and shrubs. Patches of bare, nearly white sand made even moonless nights rather light. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 1193-1563, 1565-1578 (228 mammals, 140 birds, 9 reptiles, 8 amphibians). 22 Sep-10 Oct 1965. SVP locality 4.

*Boca del Río*, 36 km W Porlamar, 10 m (see Isla Margarita)

*Boca del Río de Oro*, 60 km WNW Encontrados, 73 m (see El Rosario)

*Boca Mavaca*, 84 km SSE Esmeralda, 2°30'N-65°13'W (to 2°33'N-65°02'W and 2°23'N-65°16'W), 138 m (T. F. AMAZONAS). Undulating forested plain within 20 km radius

of Boca Mavaca, including banks of Orinoco, Mavaca, and Manaviche rivers, all white water streams. Numerous smaller streams and occasional lagoons and shallow swamps. Scattered low hills. River banks high and steep, overgrown with vines and tree limbs. Forest evergreen, mature, mostly undisturbed; canopy often open near streams, otherwise dense, 10-35 m high; undergrowth dense (including many patches of *Heliconia* and scattered palms) except in seasonally flooded low-lying areas. Clearings around Indian villages with grass 1-2.5 m high, banana patches, and various fruit and nut trees. Holdridge classification: TROPICAL humid forest (bh-T). Collectors: M. Tuttle, A. Tuttle, Harder, and Peterson (1 specimen). SVP numbers: 6512-6731, 11249, 16661-16669, 16677-16835, 17183-17380, 17396, 17402-17408, 17412, 35783 (529 mammals, 17 birds, 36 reptiles, 12 amphibians, 3 other). 9-21 Feb and 10 Nov 1966, 1-27 Mar 1967. SVP locality 10.

*Boquerón*, 10 km WSW La Asunción, 47 m (see Isla Margarita)

*Boquerón*, 5 km NW Caripe, 1,180 m (see San Agustín)

*Buena Vista* (nr. Páramo de Tamá), 41 km SW San Cristóbal and 12 km SSE Las Delicias, 7°27'N-72°26'W, 2,350-2,430 m (TÁCHIRA). Hilly terrain on north facing slope at head of large, wide Andean valley. Numerous small (2-6 m wide), swift, rocky streams; Río Táchira nearby; occasional swampy and marshy areas. Mature cloud forest with discontinuous canopy of scattered trees 25-30 m high; subcanopy at 10-15 m, open or closed; many tree ferns, stilt palms, and thick clusters of tree bamboo; vines few and thin, or hanging from trees in abundance; shrub stratum 1.5 m high; moss and other epiphytes very abundant on trees and ground; abundant litter of logs, fallen trees, dead bamboo, and leaves. Virtually impenetrable clumps of vine-like bamboo dominant (choking out other vegetation), scattered throughout the forest, around fields, and forming thick canopies over streams. Clearings (formed by cutting and burning forest) with thick grass and clover, patches of needlelike rushes, and clumps of ferns, herbs, low shrubs, and blackberries. Collecting at upper edge of agricultural clearing (pasture and cropland); cloud forest continuous on steep slopes from this point up to ridgetop páramo, 5 hours' walk distant. Holdridge classification: LOWER

- MONTANE very humid forest (bmh-MB). Collectors: Peterson, Brown, and Matson. SVP numbers: 21810-22020 (195 mammals, 14 birds, 1 reptile, 1 other). 1-29 Mar 1968. SVP locality 80.
- Buena Vista*, 9 km SSW Pueblo Nuevo, 80-120 m (see Península de Paraguaná)
- Cabecera del Caño Culebra** (Cerro Duida), 40 km NNW Esmeralda, 3°30'N-65°43'W, 1,140-1,480 m (T. F. AMAZONAS). Uninhabited, trailless, and undisturbed Cerro Duida Plateau; drained mostly by Caño Culebra and Caño Negro, flowing northward to Río Cunucunuma, through complex of valleys and ridges. Caño Culebra mostly subterranean at head, although some tributaries surface at 1,830 m. Stream open and 0.5-1.5 m wide at 1,400 m; drops steeply to bench at 800 m, then falls over N rim of plateau. Surface composed of roots, leaves, and humus of varying thickness, capping rocks and concealing depressions and crevices; quaking and treacherous underfoot. Low, dense, scrubby summit forest (as seen at loc. 26, Caño Culebra) replaced at loc. 27 by island of high (12-20 m, occasionally 35 m) evergreen forest with slender trunks and branches mostly near tops, superficially similar to lowland forest of Cunucunuma Valley. Holdridge classification: LOWER MONTANE rain forest (bp-MB). Collectors: M. Tuttle and Harder. SVP numbers: 15934-15946, 15948-15997, 15999-16089, 16622-16633, 16637-16647, 16911-16939 (177 mammals, 29 birds). 25 Jan-13 Feb 1967. SVP locality 27.
- Cabecera del Caño Negro** (Cerro Duida), 32 km NW Esmeralda, 3°26'N-65°43'W, 1,225-1,830 m (T. F. AMAZONAS). Topography much like that at Cabecera del Caño Culebra. Ground densely covered with large, heavy-leaved plants holding quantities of water in leaf bracts. Scattered trees up to 12 m high, with large leaves and branches all along trunks. Footing so treacherous that Indians refused to work and camp had to be abandoned. Holdridge classification: LOWER MONTANE rain forest (bp-MB). Collectors: M. Tuttle and Harder. SVP numbers: 16634-16636, 16648-16660 (16 mammals). 14-17 Feb 1967. SVP locality 28.
- Calaboza**, 8°56'N-67°26'W, 100 m (GUÁRICO). Llanos. Holdridge classification: TROPICAL dry forest (bs-T). Collector: Peterson. SVP numbers: 24278-24296 (19 mammals, pursued).
- 11-13 Mar 1968. SVP locality 79-14.
- Campo Grande*, 51 km NE Icabarú, 976 m (see Icabarú)
- Caño Agua Fría*, 23 km NE Calabozo, 150 m (see Hato Los Leones)
- Caño Azul*, 65 km WNW Encontrados, 95 m (see El Rosario)
- Caño Cariche** (Río Orinoco), 92 km W Esmeralda, 3°05'N-66°23'W, 128 m (T. F. AMAZONAS). High evergreen forest on Orinoco Plain. Canopy nearly complete; scattered palms and vines; understory fairly open and consisting mostly of slender shrubs, 3-4 m high. Holdridge classification: TROPICAL humid forest (bh-T). Collector: Peterson. SVP number 11200 (1 mammal). 31 Oct 1966. SVP locality 99-13.
- Caño Caurima*, 20 km SE Esmeralda, 135 m (see Esmeralda)
- Caño Cuca*, 14 km W Esmeralda, 135 m (see Esmeralda)
- Caño Culebra* (mouth), 60 km NNW Esmeralda, 150 m (see Belén)
- Caño Culebra** (Cerro Duida), 50 km NNW Esmeralda and 7 km SE Belén, 3°37'N-65°41'W, 750-825 m; a few specimens at 700 m and 1,795 m (T. F. AMAZONAS). North rim of Cerro Duida Plateau, where foamy, red water Caño Culebra, 5-8 m wide, falls over 300 m cliff. Plateau dissected by deep, steep-sided valleys with frequent waterfalls. High, exposed points burned by lightning fires. Cliff face and ledges clothed with grass, scattered small, scrubby trees, and tough ferns. At plateau rim, high tropical evergreen forest of valley grades abruptly into lower, drier, denser, scrubbier montane forest containing many low (6-9 m), leathery-leaved trees (very dense and branching along entire stem) and some taller trees, up to 12 m high (to 15 m in damp, protected valleys). Trees and rocks laden with epiphytes; open areas covered with dense growths of lichens; ground cover of grass, large-leaved succulents, and palms nearly everywhere abundant and often very dense. Holdridge classification: PREMONTANE rain forest (bp-P). Collectors: M. Tuttle and Harder. SVP numbers: 15781-15933, 15998, 16193 (155 mammals). 11 Jan-2 Feb 1967. SVP locality 26.
- Caño Essa*, 60 km NW Esmeralda, 150 m (see Belén)
- Caño Guavirito*, 12 km WNW San Juan, Río Manapiare, 155 m (see San Juan, Río Manapiare)

- Caño Iguapó*, 10 km SE Esmeralda, 135 m (see Esmeralda)
- Caño Macasi*, 2 km ENE Capibara, 150 m (see Capibara)
- Caño Majagua*, ca. 25 km N San Juan, Río Manapiare, 155 m (see San Juan, Río Manapiare)
- Caño Parucito*, 9 km SSE San Juan, Río Manapiare, 155 m (see San Juan, Río Manapiare)
- Caño Seta*, 56 km NNW Esmeralda, 150 m (see Belén)
- Caño Tamatama*, 135 m (see Tamatama)
- Capatárida** (within 31 km of town center), 11° 10'N-70°37'W (to 11°07'N-70°46'W and 10°54'N-70°41'W), 30-100 m (FALCÓN). Flat coastal desert, crossed by many streams, none of them permanently flowing; mixed sand and clay soil. Dominant vegetation low (3-8 m) thorny trees (many hollow), shrubs, and cacti, often very dense, with many vines. Trees larger where streams overflow during rains. Holdridge classification: TROPICAL thorny forest (me-T) and TROPICAL very dry forest (bms-T). Collectors: A. Tuttle, Inquilla, and Stromeyer. SVP numbers: 23646-23647, 43761-44412 (608 mammals, 18 birds, 28 reptiles). 19 Jun-3 Jul 1968. SVP locality 42.
- Capibara** (Brazo Casiquiare), 106 km SW Esmeralda, 2°37'N-66°19'W, 130 m (T. F. AMAZONAS). Low-flying, forested plain, mostly permanently or seasonally flooded to depths of 0.5-3 m. High ground at time of collections, a few centimeters to about 1 meter above water level. Occasional monoliths and low rocky hills (disintegrated monoliths). Evergreen forest mostly lower than on upper Orinoco, but with patches of high forest. Dense stands of *Heliconia* to 10 m high; patches of low palm forest, rather open beneath, forming fairly complete canopy at 7-9 m. Collecting centered at old farm site on slight rise, inhabited until about 1955 by 12-15 families. Four hectares previously cleared for pasture and crops, had mostly reverted to second growth scrub, but two thatched roof huts, numerous fruit trees (still bearing), and small clearings with grass to 1.8 m high remained. Holdridge classification: TROPICAL humid forest (bh-T). Collectors: M. Tuttle and Harder. SVP numbers: 19260-19433, 19436-19442, 19444-19478, 19480-19634, 19636-19641, 19645-19646, 29007 (321 mammals, 11 birds, 12 reptiles, 22 amphibians, 14 other). 25 May-15 Jun 1967. SVP locality 33.
- Caracas**, 10°30'N-66°53'W (at Plaza Venezuela), 825-1,180 m (DTO. FEDERAL and MIRANDA). Upper portion of dry valley of Río Guaire and lower interior slopes of Sierra de la Costa. Most of area occupied by city of Caracas and its suburbs and all profoundly disturbed by human beings. Collecting among houses in Caracas for bats; along stream through deciduous scrub near Petare; and in semideciduous forest in the steep-sided ravine of Quebrada Chacaito (swift, rocky stream, many large boulders, evergreen trees up to 25 m, deciduous shrubs and smaller woody plants, thin grass in openings, and tall, dense grass on slopes above). Holdridge classification: PREMONTANE dry forest (bs-P). Collectors: M. Tuttle, A. Tuttle, Peterson, D. Peacock, and R. Peacock. SVP numbers: 752, 3772-3776, 13013-13057, 16549 (44 mammals, 6 amphibians, 2 other). 23 Aug 1965, 8 Jan and 17 Dec 1966, 14-18 May 1967. SVP locality 96.
- Casero Boro**, 10 km N and 10 to 47 km NE El Tocuyo, 9°53'N-69°47'W to 10°02'N-69°26'W, 518-900 m (LARA). Upper portion of Río Tocuyo Basin near N base of Andes; mountainous to W of river, hilly or undulating to E; river 60 m wide; muddy. Most flat areas on valley floor planted to sugar cane (also some tomatoes and onions). Wild cane and scattered trees 18-24 m high in band 15-24 m wide on river bank. Uplands desertlike, with dry washes, dry, sandy soil, and low thorny forest dominated by acacias and cacti. Holdridge classification: TROPICAL very dry forest (bms-T), PREMONTANE thorny forest (me-P), and PREMONTANE dry forest (bs-P). Collectors: A. Tuttle, Inquilla, and Stromeyer. SVP numbers: 35000-35433, 44413-44999 (1,008 mammals, 2 birds, 11 reptiles). 14-24 Jul 1968. SVP locality 43.
- Casiquiare Canal**, 106 km SW Esmeralda, 130 m (see Capibara)
- Cerro Azul**, 33 to 40 km NW La Paz, 10°51'N-72°16'W, 75-80 m (ZULIA). Wide, flat valley of Río Cachimí (shallow and rocky, 30-40 m wide) in rolling, hilly country at upper edge of Maracaibo Plain, near northern terminus of Sierra de Perijá. Extensive clearing in five years prior to collecting had reduced formerly continuous deciduous forest to small scattered patches of much disturbed forest. Human population high; many roads and houses; land used for dairy pasture, banana plantations, and corn fields. Collecting in banana patches; cornfields overgrown with



grass, weeds, and morning glories; and various kinds of deciduous forest, all with more or less discontinuous, open canopy, and all characterized by abundant rotting fallen trees; remnant high riverbank forest with trees 30-40 m high and many vines and epiphytes; scrub forest with scattered trees 20-25 m high, vines and epiphytes, open subcanopy at 10 m, scattered clusters of bamboo, dense shrubs 3 or 4 m high, patches of thorny, vine-like bamboo, and variable ground cover of low herbs and woody plants, interlaced with thorny vines; scrubby thorn forest 5 m high, with sparse low woody plants and herbs and grassy openings. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: Peterson, Brown, Matson, and Naranjo. SVP numbers: 23198-23418 (206 mammals, 11 reptiles, 4 amphibians). 7-16 Jun 1968. SVP locality 83.

*Cerro Caridad*, 6 to 13 km ENE Mirimire, 120-260 m (see Mirimire)

*Cerro de Murciélagos*, 1 km W Pto. Páez, 76 m (see Puerto Páez)

*Cerro del Tigre*, 20 km W La Paragua, 400 m (see Hato San José)

*Cerro Duida* (see Cabecera del Caño Culebra, Cabecera del Caño Negro, and Caño Culebra)

*Cerro Matasiete*, 3 to 4 km NE La Asunción, 100-425 m (see Isla Margarita)

*Cerro Negro*, 10 km NW Caripe, 1,520-1,690 m (see San Agustín)

*Cerro Santa Ana*, 15 km SSW Pueblo Nuevo, 500-650 m (see Península de Paraguaná)

*Cerro Socopo*, 84 km NW Carora, 10°28'N-70°48'W, 1,257-1,280 m (FALCÓN). Cerro Socopo, northern terminus of line of ridges separating arid interior basins from Maracaibo Plain. Extensive evergreen forest on inaccessible N slope; remainder of mountain cleared for agriculture. Other summits to S and SE nearly, if not entirely, denuded of forest. Cerro Cerrón, the highest, had little more than 25 percent of its cloud forest cap left in 1967 and that was being cut. Collecting in scrub cloud forest at head of sheltered valley, 1 km SE summit of Cerro Socopo. Scattered trees and palms up to 30 m high; small trees formed discontinuous subcanopy at 3-4 m; tree ferns numerous along streams; epiphytes and vines common; small shrubs and patches of grass provided dense ground cover; open areas with dense ferns 1.5 m high, scattered patches of grass, and widely scattered trees up to 20 m high. Holdridge classification: LOWER MON-

TANE very humid forest (bmh-MB). Collectors: Peterson, Brown, Matson, and Pine. SVP numbers: 22811-22899 (62 mammals, 13 birds, 14 amphibians). 13-18 May 1968. SVP locality 82 (subloc. 10-17).

*Chaberí*, 18 km NE Icabarú, 741 m (see Icabarú)

*Chaparrito*, 14 km SSE Pto. Ayacucho, 119 m (see Puerto Ayacucho)

*Churguata*, 32 km SSE Pto. Ayacucho (see Puerto Ayacucho)

*Cinco Rancho*, 28 km NE Icabarú, 775 m (see Icabarú)

*Clarines* (14 km W Clarines), 9°57'N-65°18'W, 100 m (ANZOÁTEGUI). Arid plain with low deciduous forest and grassy openings. Holdridge classification: TROPICAL very dry forest (bms-T). Collector: Peterson. SVP numbers: 14712-14752 (41 mammals, purchased). 26 Jun and 3 Jul 1967. SVP locality 94-11.

*Cojoro*, 30 to 44 km NNE Paraguaipoa, 11°38'N-71°50'W, 5-50 m (ZULIA, Venezuela and GUAJIRA, Colombia). Flat to undulating coastal desert, with gravel and sandy-clay soil, and isolated low mountains, with large eroded rocks and ledges and very little soil. Many gullies and streams up to 15 m wide and 2-3 m deep, dry or with isolated pools, except after rare rains; wells brackish. Except in driest places, coastal plain covered with low, thin-stemmed, thorny bushes; cacti up to 5 m high (sometimes forming dense thickets); numerous small *Opuntia*; but usually no grass, weeds, or other ground cover except twigs and branches. Gullies and streambeds lined with thorny trees up to 5 m high, laced with many vines, and with sparse grass in openings. Mountains and drier lowland areas nearly bare of vegetation, with only occasional clumps of grass and scattered individual shrubs and cacti at 20-50 m intervals. Palm and banana plantations and fruit trees around houses and wells and abundant goats, sheep, burros, dogs, and house cats. Holdridge classification: TROPICAL thorny forest (me-T). Collectors: Peterson, Brown, Matson, and Naranjo. SVP numbers: 23419-23645, 24226 (203 mammals, 4 birds, 16 reptiles, 4 amphibians, 1 other). 19 Jun-1 Jul 1968. SVP locality 84.

*Colonia Tovar* (nr.), 36 km WSW Caracas, 2,000 m (see Alto Ño León)

*Corocoro*, nr. Cerro Yutaje, 18 km NE San Juan, Río Manapiare, 155 m (see San Juan, Río Manapiare)

*Coromoto*, 30 km S Pto. Ayacucho, 126 m (see Puerto Ayacucho)

*Cucurito*, 15 km N San Juan, Río Manapiare, 155 m (see San Juan, Río Manapiare)

*Cucuyal*, 14 km ENE Montalbán, 701 m (see Montalbán)

*Cueva Alfredo Jahn*, 160 m (see Birongo)

*Cueva del Guácharo*, 5 km W Caripe, 1,010 m (see San Agustín)

*Cueva del Guano*, 7 km W Pueblo Nuevo, 120 m (see Península de Paraguaná)

*Cueva del Tigre*, nr. Sotillo, 21 km E Cumaná, 40 m (see Cumaná)

*Cueva La Tapia*, 3 km N La Asunción, 50 m (see Isla Margarita)

*Cueva Ricardo Zuloaga*, 15 km SE Caracas, 548 m (see El Encontado)

*Cueva Vieja*, 10 km N El Tocuyo, 900 m (see Caserio Boro)

*Cueva Walter Dupouy*, 4 km SW Birongo, 195 m (see Birongo)

**Cumaná** (to 24 km E Cumaná), 10°26'N-64°02'W (to 10°28'N-64°08'W and 10°27'N-63°57'W), 1-50 m (SUCRE). Very dry, steep-sided coastal hills and narrow coastal plain; bare rock outcrops and boulders; numerous streams, reduced to isolated pools of water in dry season. Many roads and settlements; much of limited flat land planted to coconut palms, oranges, or bananas. Collecting in scrubby thorn forest of acacia, cactus, and thorny trees 10-20 m high, with many vines, shrubs to 5-8 m, and patches of grass; in overgrown coconut and orange groves with herbaceous and woody growth 2-5 m high, and wild cane 3-4 m high; in yards and chicken coops; and in tidal marsh with sedge 1-2 m high, patches of cane in wetter parts of marsh, and scattered small clumps of fleshy-leaved scrubby trees, 4-10 m high, in drier parts of marsh. Holdridge classification: TROPICAL very dry forest (bms-T). Collectors: Peterson, D. Peacock, and R. Peacock. SVP numbers: 11250-11356, 11713-12000 (343 mammals, 6 birds, 8 reptiles, 1 amphibian, 7 other). 7 Dec 1966-7 Jan 1967. SVP locality 67.

**Cumbe**, 1 km SW Altamira, 650 m (see Altamira)

**Cumbre Canoabo**, 9 km NE Montalbán, 657-773 m (see Montalbán)

**Cúpira**, 30 km E El Guapo, 10°10'N-65°42'W, 100 m (MIRANDA). Dry, scrubby, second growth deciduous forest at upper edge of coastal plain. Holdridge classification: TROPICAL dry forest (bs-T). Collector:

Peterson. SVP number: 24819 (1 mammal, found dead on road). Jun 1967. SVP locality 99-16.

**Curupao**, 5 km NNW Guarenas, 10°31'N-66°35'W, 1,130-1,190 m (MIRANDA). Lower S (interior) slope of Sierra de la Costa; steep-sided ridges with abundant moss and lichen-covered boulders and ledges; many small, fast-flowing streams. Continuous, mature, relatively undisturbed, evergreen forest above collecting area; much-disturbed deciduous forest and fruit orchards below. Collecting sites: 1) Near small aqueducts and 50x100 m reservoir at lower edge of mature, moist, fairly open, evergreen forest with larger trees 0.5 m dbh and 10-20 m high, twisted, and laden with vines and moss; shrubs up to 4 m; numerous ferns and herbs 0.1-2 m high; grass only along trails. 2) Orchard overgrown with vines, shrubs, and herbs, but upper canopy still composed almost entirely of mango, orange, and avocado trees; lower subcanopy of coffee and bananas. 3) Fruit orchard and patches of deciduous trees. Holdridge classification: PREMONTANE humid forest (bh-P). Collectors: Peterson, D. Peacock, and R. Peacock. SVP numbers: 10259-10543, 10546-10657 (391 mammals, 2 birds, 4 reptiles). 4-14 Oct 1966. SVP locality 64.

**Dabajuro**, 18 km SSW Capatárida, 75 m (see Capatárida)

**Descanso**, 56 km NE Icabarú, 905 m (see Icabarú)

**El Blanquero**, 45 km SSE Maturín, 18 m (see Hato Mata de Bejuco)

**El California**, 4 km NNW Montalbán, ca. 1,000 m (see Montalbán)

**El Calvario**, 0.1 km NNW Montalbán, 598 m (see Montalbán)

**El Castaño**, 1.2 km SE Montalbán, 598 m (see Montalbán)

**El Central**, 10 km NW Urama, 25 m (see Urama)

**El Cobalongo**, 7 km NNE Altamira, 900 m (see Altamira)

**El Cruz**, 37 km NW La Paragua, 298 m (see Hato San José)

**El Divide**, 22 to 30 km NW Valera, 90 m (see Valera)

**El Dorado** (15 km SE El Dorado), 6°38'N-61°33'W, 75 m (BOLÍVAR). Low, undulating plain, sloping toward Río Cuyuni, with dense mixed forest (zone of transition between evergreen and deciduous). Holdridge classification: TROPICAL humid forest (bh-T).

Collectors: M. Tuttle and A. Tuttle. SVP numbers: 7950, 8978 (2 mammals). 6 May and 1 Jun 1966. SVP locality 18.

**El Encantado**, 13 to 15 km SE Caracas, 10° 27'N-66°47'W, 500-570 m (MIRANDA). Valley of Río Guaire between El Encantado and Los Naranjos. Steep slopes, frequent cliffs and outcrops, and numerous caves. Most caves small, dry, and dusty, but Cueva Ricardo Zuloaga with entrances 20x15 m in diameter, large rooms, long passages, dry or damp, much guano, and nesting oilbirds. Area clothed with low, dry, deciduous forest with few openings. Nearby ridge-tops with roads and houses, but valley largely uninhabited and accessible only on foot. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: Peterson, Parrish, Naranjo, Ojasti, Brown, and Matson. SVP numbers: 3777-3811, 21099-21153, 21429-21508 (170 mammals). 9 Jan 1966, 13-14 Jan 1968. SVP locality 77 (including loc. 55-13).

**El Filo**, 1 km SE Altamira, 600 m (see Altamira)

**El Gavilán**, 14 km SSE Pto. Ayacucho, 135 m (see Puerto Ayacucho)

**El Guapo** (13 km E El Guapo), 10°10'N-65°51'W, 12 m (MIRANDA). Coastal plain; evergreen forest with clearings for farms and small settlements. Holdridge classification: TROPICAL humid forest (bh-T). Collector: Peterson. SVP number: 3996 (1 mammal, found dead on road). 27 Feb 1966. SVP locality 99-10.

**El Limón**, 4 km NW Maracay, 10°17'N-67°36'W, 524 m (ARAGUA). Interior basin; dry savanna, with tall grass and patches of deciduous trees. Holdridge classification: PRE-MONTANE dry forest (bs-P). Collector: Peterson. SVP number: 13008 (1 mammal). 22 Apr 1967. SVP locality 99-19.

**El Limón**, 48 km W Caracas, 380-398 m (see Hacienda Carapiche)

**El Manaco**, 56 to 68 km SE El Dorado, 6°19'N-61°19'W to 6°09'N-61°22'W, 150 m (a few specimens at 374 m) (BOLIVAR). Low, undulating, densely forested plain with infrequent small permanent streams and ponds and occasional small swamps, bisected by all-weather highway; mountains rise abruptly at S edge of area. Evergreen forest, 20-40 m high, largely undisturbed except for small settlements, farms, and road construction clearings along highway. Collecting in clearings, at rainwater pools in bare gravel pits, in gardens and fruit groves, on stream and

swamp margins, and to a limited extent in deep forest. Holdridge classification: TROPICAL humid forest (bh-T). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 7863-7871, 8180, 8498, 8500, 8951, 8962-8977, 8979, 8983, 8997-8999, 9006-9026, 9031, 9033, 9035-9949 (940 mammals, 8 birds, 6 reptiles, 2 amphibians, 16 other). 13 May-8 Jul 1966. SVP locality 20 (including locality 21; overlaps locality 19 at higher elevations).

**El Mango**, 11 km NE Güiria, 30-90 m (see Ensenada Cauranta)

**El Merey**, 1 km SE Montalbán, 598 m (see Montalbán)

**El Milagro**, 4 km NW El Nula, 24 m (see Nulita)

**El Mundo Nuevo de Surukún**, 43 km NE Icabarú, 854-964 m (see Icabarú)

**El Nudo**, 13 km NE Icabarú, 817-881 m (see Icabarú)

**El Nula** (= San Camilo), 3 km S Nulita, 24 m (see Nulita)

**El Pauji**, 21 km NE Icabarú, 851 m (see Icabarú)

**El Pico**, 1 km SSW Montalbán, 598 m (see Montalbán)

**El Polo**, 15 km NE Icabarú, 800 m (see Icabarú)

**El Raudal**, 33 km S Pto. Ayacucho, 195 m (see Puerto Ayacucho)

**El Rodeo**, 35 km NE El Tocuyo, 634 m (see Caserio Boro)

**El Rosario**, 39 to 65 km WNW Encontrados, 9°09'N-72°36'W (to 9°13'N-72°34'W, 9°11'N-72°48'W, and 9°07'N-72°46'W), 24-125 m (ZULIA). Basin of Lago de Maracaibo, within 10 km of N bank of Río Catatumbo (125-200 m wide), from edge of lakeshore swamps to Colombian frontier at Río de Oro. Terrain low and flat in E, to undulating, to hilly near Río de Oro; lower portions flood seasonally, leaving sloughs and damp areas in dry season. Mature evergreen forest 18-30 m high, with many palms and vines, relatively free of underbrush in areas prone to flooding; dense, scrubby, second growth forest averages 10-15 m high. Patches of *Heliconia* 2.5-3 m high and grass to 1 m high in sloughs and old streambeds. Whole region much disturbed by oil wells, pipe lines, and associated roads; logging operations; clearing and burning for agriculture; and road building (Maracaibo-San Cristóbal highway, under construction, bisected area). Holdridge classification: TROPICAL humid forest (bh-T). Collectors: A. Tuttle, Iniquilla, and Stromeier. SVP numbers: 40968-42199,

42493-42715 (1,443 mammals, 5 birds, 7 reptiles). 24 Feb-3 Apr 1968. SVP locality 39. *El Rosario*, 1.2 km SW Montalbán, 618 m (see Montalbán)

*El Tocuyo* (see Caserio Boro)

*El Vigía* (see Mesa Bolívar)

**Embalse de Guárico**, 10 km N Calabozo, 9°01'N-67°26'W, 100 m (GUARICO). Llanos. Holdridge classification: TROPICAL dry forest (bs-T). Collector: Peterson. SVP numbers: 21509-21528, 21570-21598, 21603, 21665-21666, 21668, 21671, 21674, 21676-21798 (178 mammals, purchased). 22 and 27 Jan 1968. SVP locality 79-10.

**Ensenada Cauranta**, 9 to 12 km NE Güiría, 10°38'N-62°15'W, 1-100 m (SUCRE). Coastal lowlands and low mountains on S side of Península de Paria. Coastal area flat and dry, with numerous small intermittent streams. Mountain ridges steep sided and humid, with small, swiftly flowing rocky streams, and many large boulders. Entire area heavily populated, broken up into small farms, and converted to agriculture. Most of lowlands covered with coconut palm and banana groves (also mangos, oranges, and sugar cane); some farms, poorly tended, had grass up to 2 m high and patches of shrubs and vines. Unfarmed lowland areas mostly quite dry and grown up to dense, low, thorny shrubs. Isolated small patches of deciduous forest had trees 8-15 m high, interior free of underbrush, and edges with dense growths of herbs and small woody plants and trees completely blanketed with tangles of vines. In mountains, evergreen forest remnant consisted of scattered epiphyte-laden trees 23-30 m high, mostly shading orchards of cacao and bananas (some overgrown with small shrubs and vines and dense ground cover of ferns and herbs). Second growth vegetation very thick and moist. Occasional small, moist, limestone caves. Holdridge classification: TROPICAL dry forest (bs-T) and PREMONTANE humid forest (bh-P). Collectors: Peterson, D. Peacock, and R. Peacock. SVP numbers: 13099-13643 (517 mammals, 12 birds, 6 reptiles, 6 amphibians, 4 other). 2-19 Jun 1967. SVP locality 71.

**Esmeralda** (Río Orinoco, to 20 km SE and 14 km W Esmeralda), 3°11'N-65°33'W (to 3°03'N-65°28'W and 3°09'N-65°40'W), 135 m (T. F. AMAZONAS). Low-lying Orinoco Plain, with scattered low hills, and occasional rock mounds (up to 60 m) with numerous small caves and crevices formed by jumbled

rock slabs. Evergreen forest 30-35 m high, with open understory of forbs and slender shrubs. Small patches of savanna with dense grass up to 1 m high and many slender termite mounds up to 1.5 m high. A mission and airstrip at Esmeralda and numerous Indian villages nearby. Holdridge classification: TROPICAL humid forest (bh-T). Collectors: Peterson, M. Tuttle, and Harder. SVP numbers: 11202-11248, 11250-11279, 18969-18994, 18998-19002, 19142-19155 (122 mammals). 3-11 Nov 1966, 11-16 May 1967. SVP locality 32 (and 66).

*España*, 57 km WNW Encontrados, 61 m (see El Rosario)

**Estación Biológica de los Llanos**, 9 to 14 km SE Calabozo, 8°52'N-67°23'W, 100-115 m (GUARICO). Llanos. Tall grass (1 m), with scattered, low, scrubby trees (*Curatella*, *Byrsonima*, and *Bowdichia*), and islands of forest (mata) up to 500 m in diameter. Matas with closed canopy of small trees (8 m high) and thick-trunked trees (12 m high); sub-stratum sparse in interior, dense and almost impenetrable on edges, with bunch grass, scattered herbs, and small woody plants to 50 cm high, and shrubs (some spiny, 2 m). Streams bordered by scrubby gallery forest with thin-stemmed trees 4-6 m high forming complete canopy; scattered large trees (to 25 m), spiny shrubs, and vines; grass in openings. Soil gravelly, sandy-clay, with little humus. Collecting in savanna and matas and on station lawn (with close-mowed grass and scattered shade trees about 12 m high). Holdridge classification: TROPICAL dry forest (bs-T). Collectors: Peterson, Naranjo, Brown, and Matson. SVP numbers: 4842, 24570-24800 (216 mammals, 1 bird, 12 reptiles, 3 amphibians). 28 Aug 1966, 16-23 Aug 1968. SVP locality 86.

**Guasqualito** (10 km WNW Guasqualito, nr. Río Sanare), 7°16'N-70°45'W, 100 m (APURE). Low hills; marshes, patches of forest, and prairie. Holdridge classification: TROPICAL dry forest (bs-T). Collector: Peterson. SVP numbers: 3969-3970 (2 reptiles, found dead on road). 13 Feb 1966. SVP locality 99-17.

**Guasipati** (5 km NNW Guasipati), 7°31'N-61°55'W, 190 m (BOLIVAR). Dry hilly terrain with patches of savanna and vine-laden deciduous forest. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: M. Tuttle and A. Tuttle. SVP numbers:



7872-7873, 7875-7949 (76 mammals, 1 reptile). 24-29 Apr 1966. SVP locality 16.

**Guatopo** (Parque Nacional Guatopo), 10 to 35 km NE, N, and NW Altagracia, 10°11'N-66°31'W and 10°03'N-66°27'W to 9°55'N-66°19'W. 300-740 m (GUÁRICO and MIRANDA). Crest and S slopes of Serranía del Interior, facing the Llanos. Low, steep-sided ridges; numerous small rocky streams; clay or clay-loam soil, very slippery in rainy season. Area largely forested, much of it relatively little disturbed, but collecting was mostly in abandoned agricultural land in various stages of reversion to forest (evergreen at higher elevations, deciduous at lower). Typically, grass high (to 1.5 m) and dense in openings and along trails; herbs and small woody plants (0.2-1.5 m); shrubs to 5 m; individual trees and thickets of *Cecropia* common; scattered larger (to 30 m), older trees; many trees and shrubs (coffee, bananas, oranges, etc.) still surviving from agricultural era. Along streams at lower elevations clumps and thickets (to 10 m high) of bamboo common. Holdridge classification: TROPICAL dry forest (bs-T), TROPICAL humid forest (bh-T), and PREMONTANE humid forest (bh-P). Collectors: Peterson, D. Peacock, R. Peacock, and Naranjo. SVP numbers: 191-192, 4901-4999, 10000-10054, 10056-10255 (338 mammals, 5 birds, 9 reptiles, 1 amphibian, 6 other). 24 Jul 1965, 16 Sep-2 Oct 1966. SVP locality 63.

**Guayabal**, 28 km S Pto. Ayacucho, 135 m (see Puerto Ayacucho)

**Hacienda Bajo Seco**, 3 km S Río Chico, 1 m (see Río Chico)

**Hacienda Bejuquero**, 1 km S Río Chico, 1 m (see Río Chico)

**Hacienda Carapiche** (nr. El Limón), 48 km W Caracas, 10°29'N-67°19'W, 350-398 m (DTO. FEDERAL). Steep-sided valley on lower seaward slope of Sierra de la Costa, near mesic-xeric ecotone. Soil sandy to loamy clay, with many boulders and smaller stones. Largely evergreen forest formed epiphyte-laden, semiclosed canopy at 20 m; shrub subcanopy at 3 m; ground cover of low herbs and scattered ferns. Forest much disturbed around roads and farms (corn, bananas, coffee, poultry), where there was dense second growth scrub. Clearings with dense grass up to 2.5 m high, together with many herbs and scattered trees. Holdridge classification: PREMONTANE humid forest (bh-P). Collectors: Peterson, D. Peacock, R. Peacock,

and Naranjo. SVP numbers: 4651-4841 (186 mammals, 1 bird, 2 reptiles, 2 amphibians). 18-22 Aug 1966. SVP locality 61.

**Hacienda El Rodeo**, 35 to 40 km NW La Paz, 75-80 m (see Cerro Azul)

**Hacienda El Tigre**, 39 km NW La Paz, 80 m (see Cerro Azul)

**Hacienda Elvira**, 10 km NE Altagracia, 630 m (see Guatopo)

**Hacienda Guanital**, 14 km E Cumaná, 1 m (see Cumaná)

**Hacienda Guaracayal**, 24 km E Cumaná, 1 m (see Cumaná)

**Hacienda La Aurora**, 794 m (see Altamira)

**Hacienda La Cañada**, 3 km SW Montalbán, 618 m (see Montalbán)

**Hacienda La Concordia**, 9 km NE Güiría, 7 m (see Ensenada Cauranta)

**Hacienda La Guapa**, 6 km SSE Río Chico, 1 m (see Río Chico)

**Hacienda La Rosa**, 12 km NE Güiría, 90-100 m (see Ensenada Cauranta)

**Hacienda Los Chuárez**, 3 km NNE La Asunción, 42-70 m (see Isla Margarita)

**Hacienda Los Mamones**, 16 km NW Barbacoas, 9°34'N-67°05'W, 228 m (GUÁRICO). Llanos. Undulating plain, with irrigation canals and small lagoons. Savanna fenced for pasture, subject to grazing and frequent burning. Scattered deciduous trees (to 15 m) and clumps of shrubs; many palmettolike palms; and dry grass and forbs. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: Peterson, Parrish, and Naranjo. SVP numbers: 3997-4007 (4 mammals, 2 birds, 5 amphibians). 2 Mar 1966. SVP locality 92.

**Hacienda Misisí**, 13 to 15 km E Trujillo, 9°21'N-70°18'W, 1,769-2,360 m (TRUJILLO). Ridge-top and N facing slope of steep-sided, well-watered Andean valley. Soil rich loam, with thick humus layer. Low, scrubby cloud forest on ridge crest, higher forest on slopes; trees in exposed places distorted by persistent high winds. High forest with trees 15-20 m high and vines, moss, lichens, orchids, and other epiphytes; tree fern and shrub subcanopy 5-6 m high; ground stratum of grass, moss, ferns, and forbs to 1 m high; dense thickets of bamboo in openings. In dry season, dead leaves, grass, and bamboo generally concealed fallen trees and boulders; moss and lichens covered exposed rocks, logs, and trees. Occasional small farms within forest; entire valley floor and lower slopes cleared for pasture and crops such as corn, wheat,

onions, and potatoes. Hunting pressure heavy. Collecting in 27x2 km block of primary cloud forest, possibly the last remaining in Trujillo State; in recently cleared and second growth cloud forest; and on stream banks, along stone walls, and in patches of shrubs in cultivated areas. Holdridge classification: LOWER MONTANE humid forest (bh-MB) and LOWER MONTANE very humid forest (bmh-MB). Collectors: Peterson and Parrish. SVP numbers: 3813-3909 (87 mammals, 9 birds, 1 reptile). 18-29 Jan 1966. SVP locality 56.

*Hacienda Pedogal*, 1 km S Río Chico, 1 m (see Río Chico)

*Hacienda Platanal*, 33 km NW La Paz, 75-80 m (see Cerro Azul)

*Hacienda Quetepe*, 16 km E Cumaná, 1-5 m (see Cumaná)

*Hacienda San Antonio*, 34 km NW La Paz, 80 m (see Cerro Azul)

*Hacienda San Fernando*, 3 km NW Caripe, 1,165-1,460 m (see San Agustín)

*Hacienda Socopito*, 80 km NW Carora, 470-480 m (see Río Socopito)

*Hacienda Tucusito*, 3 km SW Caripe, 854 m (see San Agustín)

*Hacienda Tumantal*, 21 km E Cumaná, 1-20 m (see Cumaná)

*Hacienda Valle Verde*, 46 km WNW Valera, 29 m (see La Ceiba)

**Hato Cariben** (nr. Santa María), 32 to 46 km NE Pto. Páez, 6°33'N-67°13'W, 76 m (APURE). Relatively flat, sandy plain (mostly seasonally flooded), with patches of low, rolling hills of soft sand, and occasional isolated low rocky hills or rock domes; bounded on E by muddy Río Orinoco and on N by clear Río Cinaruco; frequent small, clear lagoons. Uplands covered with grass 15-60 cm high; stream courses, low damp areas, and lagoons bordered by dense forest 7.5-18 m high, with little ground cover; ecotone between forest and grassland usually rather sharp. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 5480-5637, 5639-6116 (607 mammals, 7 birds, 6 reptiles, 16 amphibians). 1 Dec 1965-11 Jan 1966. SVP locality 6.

*Hato Destino*, 30 to 33 km NW La Paragua, 300-306 m (see Hato San José)

*Hato Juan Felipe*, 53 km SSE Maturín, 18 m (see Hato Mata de Bejuco)

*Hato La Costumbre*, 45 km SSE Maturín, 18 m (see Hato Mata de Bejuco)

**Hato La Florida**, 38 to 63 km SE and SSE Cai-cara, 7°30'N-65°52'W to 7°25'N-65°39'W, 40-130 m (BOLIVAR). Flat to undulating plain and steep-sided low mountains at southern edge of Llanos; many small streams, some reduced to dry beds with isolated pools in dry season; clay or sandy soil, often with pebbles or rocks; mountain slopes littered with huge boulders. Entire area savanna, bounded southward by evergreen forest. Collecting in: 1) open, pastured prairie with grass 1-2 m high, herbs 1-3 m, and scattered low shrubs; 2) belts of swampy or marshy evergreen forest bordering streams; clay soil saturated with water and with much standing water; trees, mostly palms, 10-15 m high; shrubs 3-4 m, herbs 0.5-2 m, and dense grass in openings; 3) belts of dry evergreen forest bordering dry stream beds, similar to swamp forest but with more vines and spiny plants and trees up to 25 m high; 4) steep mountainside savanna with low grass (0.5 m), some soft and woody herbs, and widely scattered stunted trees with twisted trunks and branches; 5) plots of banana, pineapple, and yucca. Human population mostly occupied with cattle raising. Many roads and trails. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: Peterson, D. Peacock, R. Peacock, and Furman. SVP numbers: 12741-12888, 12890-13003 (221 mammals, 19 birds, 17 reptiles, 3 amphibians, 2 other). 14 Apr-6 May 1967. SVP locality 70.

*Hato La Vergareña*, 26 to 32 km W and SW La Paragua, 306-310 m (see Hato San José)

*Hato Larao*, 1 km S Montalbán, 598 m (see Montalbán)

**Hato Las Palmitas**, 35 km SSW San Juan de los Morros, 9°36'N-67°27'W, 181 m (GUARI-CO). Rolling, hilly terrain in high Llanos; sandy-clay soil with much gravel; numerous small streams (reduced to isolated pools in dry season). Grassland on hills and forest (mata) in sheltered valleys. Grass in savannas 0.5 m (where grazed) to 1.5 m, with scattered small trees (6-8 m) and shrubs. Brushlands composed of thin-stemmed woody plants 1-5 m high, cactus of several varieties, numerous thick-stemmed vines, and scattered trees to 10 m high. Forest deciduous, very thick and difficult to penetrate, 8-15 m high; shrubs, forbs, and occasional vines not forming a definite subcanopy; seasonally very dry. Occasional weedy abandoned corn fields. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: Peterson, D. Pea-

cock, R. Peacock, Naranjo, Brown, and Matson. SVP numbers: 4871-4900, 21003-21077, 21809 (101 mammals, 1 bird, 1 reptile, 3 amphibians). 3-4 Sep 1966, 3-7 Jan and 10 Feb 1968. SVP locality 62.

**Hato Los Leones** (Caño Agua Fría), 23 km NE Calabozo, 9°03'N-67°16'W, 150 m (GUÁRICO). Llanos. Undulating tall grass savanna, with scattered patches of upland forest and narrow bands of thin scrubby forest bordering streams. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 9960-9962 (3 mammals). 20 Jul 1966. SVP locality 23.

**Hato Mata de Bejuco**, 55 km SSE Maturín, 9°19'N-62°56'W, 18 m (MONAGAS). Llanos. Sandy plain, extensively flooded to depths of 0.5-1 m during rainy season. Grass (25-50 cm high), mostly in clumps, on higher ground; thorny, vine-laden forest (9-12 m high), mostly lacking ground cover, in bands 150-300 m wide along streams; scattered palms on damp ground. Land divided into large ranches (hatos); areas of better soil fenced and cultivated, or used for dry season pasture; numerous small settlements along roadways. Collecting on both sides of Río Tigre (60 m wide) near Highway 8 crossing. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: A. Tuttle and Pine. SVP numbers: 7874, 9963-9999, 15000-15073, 15075-15082, 15085-15106, 43445-43499, 43512-43593, 43595-43760 (417 mammals, 5 birds, 16 reptiles, 7 amphibians). 23 Apr and 1-11 Aug 1966, 2-11 Jun 1968. SVP locality 24 (and 41).

**Hato San José**, 20 to 37 km NW, W, and SW La Paragua, 6°49'N-63°29'W (to 6°58'N-63°36'W and 6°44'N-63°27'W), 297-400 m (BOLÍVAR). Flat to undulating plain and isolated low mountains; sandy or clay soil; occasional lagoons and numerous small streams, mostly reduced to isolated pools in dry season. Two basic habitats: isolated savannas and continuous evergreen forest. Typical mature evergreen forest with tree canopy at 30-35 m and shrub subcanopy at 5-10 m; decaying logs on ground; little underbrush. Second growth forest with mixture of evergreen and deciduous plants; scattered taller trees up to 35 m; smaller trees 15-25 m; very dense undergrowth of bamboo (4-6 m) and saplings (4-8 m); vines, brambles, and grass 2-4 m high. Brushland with thick clumped grass 0.2-1.5 m high, scattered trees

(3-4 m), shrubs (1.5-2.5 m), woody weeds and brambles (1-1.5 m). Savannas with scattered trees and shrubs, or open and treeless on uplands and with bands of forest up to 200 m wide along streams; trees mostly evergreen and including many palms; subcanopy at about 8-10 m and shrubs 2-3 m; numerous vines; rotting logs and leaves on ground; many vines and shrubs leafless in dry season. Cattle raising and lumbering the dominant human disturbances; many roads and trails. Holdridge classification: TROPICAL dry forest (bs-T) and TROPICAL humid forest (bh-T). Collectors: Peterson, D. Peacock, R. Peacock, and Furman. SVP numbers: 12365-12460, 12463-12739 (308 mammals, 42 birds, 21 reptiles, 2 other). 26 Feb-11 Apr 1967. SVP locality 69.

**Hato Santa Barbara**, 58 km SSE Maturín, 18 m (see Hato Mata de Bejuco)

**Hotel Humboldt**, 5 km NNE Caracas, 2240 m (see Pico Ávila)

**Icabarú** (Icabarú to 56 km NE Icabarú, 4°20'N-61°46'W to 4°35'N-61°19'W, 473-982 m (BOLÍVAR). S edge of Gran Sabana near Brazilian boundary. Hilly to mountainous (sheer-sided, flat-topped mesas visible to N). Soil light, sandy, and rocky in savanna; red and rocky in forest; caves abundant. Streams numerous, up to 20 m wide, clear or red. Some large tracts of evergreen forest, but most forest in isolated blocks or in strips along streams, with savanna intervening. Mature forest 10-30 m high; mostly lacking dense undergrowth; some with many vines; some quite damp, with ferns and moss covering trees, vines, and rocks. Savanna with bunch grass about 1 m high, scattered bushes 0.5-3 m high, and occasional dense patches of ferns. Collecting in forest and savanna along road between Icabarú and Sta. Elena, and in caves, fruit groves, gardens, and thatched roofs of houses in Indian villages. Holdridge classification: TROPICAL dry forest (bs-T), PREMONTANE humid forest (bh-P), and PREMONTANE very humid forest (bmh-P). Collectors: A. Tuttle, Inquilla, Stromeyer, and Yunker. SVP numbers: 42716-43444, 43500-43511 (705 mammals, 16 birds, 17 reptiles, 3 amphibians). 24 Apr-19 Jun 1968. SVP locality 40.

**Independencia**, 23 km NE Icabarú, 824 m (see Icabarú)

**Ipapure**, 35 km NNE Paraguaipoa, 15 m (see Cojoro)

**Isla Cudawaca**, 7 km SE Esmeralda, 135 m (see Esmeralda)

**Isla Margarita**, 11°03'N-63°51'W (to 10°59'N-64°11'W and 10°55'N-63°53'W), 2-425 m (NUEVA ESPARTA). Island, about 65x25 km, on Continental Shelf in Caribbean, about 25 km N mainland; several low (less than 1,000 m), steep-sided mountains, and large flat to hilly coastal plain; many small streams, most reduced to dry washes during much of the year. Habitats include desert, with scattered, low (to 4 m), thorny shrubs and cacti without ground cover or underbrush; sand dunes with scattered thorny shrubs, cacti, and clumps of low grass and prostrate herbs and woody plants; low (6-10 m), scrubby, thorn forest, with many shrubs (2-4 m high) and cover of spiny vines; rocky, grassy (1-1.5 m high) mountain slopes; humid mountain-top cloud forest of stunted evergreen trees (4-7 m high), heavily laden with moss and other epiphytes, with herbs 1-2 m high in openings, and thick humus layer of rotting logs and leaves, but little soil. Most habitats disturbed by dense human population and much of island farmed: coconuts, bananas, mangos, oranges, lemons, pineapples, corn, sugar cane, etc. Holdridge classification: TROPICAL scrub desert (md-T), TROPICAL thorny forest (mc-T), TROPICAL very dry forest bms-T), PREMONTANE dry forest (hs-P), and PREMONTANE humid forest (bh-P). Collectors: Peterson, D. Peacock, and R. Peacock. SVP numbers: 11357-11399, 12001-12364 (316 mammals, 46 birds, 18 reptiles, 10 amphibians, 17 other). 5 Jan-13 Feb 1967. SVP locality 68.

**Isnotú**, 12 km WNW Valera, 900-930 m (see Valera)

**IVIC** (Instituto Venezolano de Investigaciones Científicas), 15 km SW Caracas, 10°24'N-66°55'W, 1,460-1,665 m (DTO. FEDERAL and MIRANDA). Steep sides and moderately sloping top of interior ridge overlooking Caracas; sandy-clay soil with few stones; numerous small, swift, rocky streams; occasional small swampy areas. Originally probably covered with cloud forest; now much disturbed, converted to open grassland, with second growth evergreen scrub on slopes, and small, isolated tracts of remnant cloud forest on ridge-tops; numerous roads, trails, and buildings. Open areas with very dense, coarse grass to 1.5 m, mixed with ferns and scattered clumps of shrubs to 4 m. Most collecting in cloud forest, with trees 25-30 m, laden with vines, orchids, and bromeliads; subcanopy at 10 m; abundant ground cover of low herbs and ferns. Holdridge classifica-

tion: PREMONTANE humid forest (bh-P) and LOWER MONTANE very humid forest (bmh-MB). Collectors: Peterson, Brown, and Matson. SVP numbers: 13004, 14753-14790, 21428 (39 mammals, 1 amphibian). 10 Oct 1966, 17-31 Oct 1967, 18 Jan 1968. SVP locality 74.

**Juncalito**, 18 km WSW Capatárida, 75 m (see Capatárida)

**Kasmera**, 21 km SW Machiques, 9°59'N-72°-43'W, 265-275 m (ZULIA). Eastern base of Sierra de Perijá. Collecting at biological station in wide, flat-bottomed valley of Río Yasa, a fast-flowing, rocky stream about 15 m wide, bordered by steep slopes and cliffs; occasional caves. Valley floor with second growth evergreen scrub about 4 m high; many stumps and logs, very dense growth of shrubs, vines, and *Heliconia*; scattered trees up to 30 m high. Station yard on riverbank with lawn, clumps of low shrubs, banana and papaya plants, and scattered grapefruit trees. Second growth evergreen forest on ridge-side with canopy at 25 m, subcanopy of scrubby trees at 10 m; vines, moss, and bromeliads abundant and often covering trunks and branches of trees. Holdridge classification: TROPICAL humid forest (bh-T). Collectors: Peterson, Brown, Matson, and Yunker. SVP numbers: 22021-22050, 22052, 22054-22199, 22600-22734 (285 mammals, 11 birds, 15 reptiles, 1 other). 8-24 Apr 1968. SVP locality 81 (subloc. 10-18).

**Kilometer 33**, 25 km SE El Dorado, 6°30'N-61°30'W, 100 m (BOLÍVAR). At evergreen edge of evergreen-deciduous ecotone on densely forested, undulating plain. Holdridge classification: TROPICAL humid forest (bh-T). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 9000-9002 (3 mammals). 14-27 MAY 1966. SVP locality 22.

**Kilometer 40**, 19 km NW Urama, 25 m (see Urama)

**Kilometer 67**, 56 km SE El Dorado, 150 m (see El Manaco)

**Kilometer 74**, 59 km SE El Dorado, 150 m (see El Manaco)

**Kilometer 88**, 68 km SSE El Dorado, 150 m (see El Manaco)

**Kilometer 125**, 68 to 85 km SSE El Dorado, 5°59'N-61°26'W to 6°09'N-61°22'W, 193-1,165 m (mostly at 1,032 m) (BOLÍVAR). Deep valleys and steep ridges (occasional cliffs), near head of Río Venamo (4-8 m wide), between lowland plain and Gran Sabana; bi-



sected by a single, new, all-weather highway. Dense, moist, luxuriant forest (12-24 m high), virtually undisturbed except on roadsides (ferns, grass, moss, and shrubs 1-2 m high there); all potential growing places festooned with orchids, ferns, mosses, and other epiphytes. Ground saturated, rocky, with little cover except for abundant moss-covered boulders and fallen trees. Collecting on roadside, in road construction clearings, along streams, and to a limited extent in dense forest. Holdridge classification: TROPICAL humid forest (bh-T) and PREMONTANE very humid forest (bmh-P). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 7951-8179, 8181-8334, 8336-8497, 8499, 8501-8950, 8952-8961, 9027-9030, 9032, 9034 (937 mammals, 66 birds, 4 reptiles, 5 amphibians). 8 May-8 Jun 1966. SVP locality 19 (overlaps locality 20 at lower elevations).

*La Aguada*, 2 km SSE La Asunción, 41-63 m (see Isla Margarita)

*La Asunción*, 3 km NE, 295-360 m (see Isla Margarita)

*La Bellaca*, 600 m (see Altamira)

*La Blanquita*, 4 km N El Nula, 24 m (see Nulita)

*La Carbonera*, 6 to 12 km SE La Azulita, 8°35'-N-71°02'W, 1,870-2,190 m (MÉRIDA). Disturbed cloud forest on N facing slope of large Andean valley. Most large trees had been recently removed; shrub stratum (up to 8 m) and scattered trees (to 20 m) remained; grass and ferns in openings. Holdridge classification: LOWER MONTANE very humid forest (bmh-MB). Collectors: Peterson and Parrish. SVP numbers: 4466-4544 (59 mammals, 19 birds, 1 other). 21-27 Apr 1966. SVP locality 59.

*La Ceiba*, 46 to 53 km WNW Valera, 9°28'-N-71°04'W, 16-29 m (TRUJILLO). Flat alluvial plain bordering Lago de Maracaibo near mouth of Río Motatán. Dikes keep river about 4 m higher than plain. Lake shore relatively dry, with short grass and scattered palm trees. Four km-wide band behind lake shore permanently flooded marsh and swamp forest with dense growth of *Heliconia*, cattail-like plants, broad-leaved grass, and trees 15-20 m high. Areas bordering inland edge of swamp subject to extensive seasonal flooding; formerly covered with deciduous forest 20-30 m high, with subcanopy of spiny palms, and dense ground cover of spiny palms and succulents; mostly cleared for pasture and crops during 20 years prior to collections;

primary forest remains only in small isolated tracts on swamp margins. Holdridge classification: TROPICAL dry forest (hs-T). Collectors: Peterson, Flanigan, Taylor, and Young. SVP numbers: 2547-2551, 3550, 3552-3633, 3635-3701, 3703, 3992-3995 (131 mammals, 4 birds, 17 reptiles, 6 amphibians, 2 other). 3 Sep and 26 Oct-7 Nov 1965, 19 Feb 1966. SVP locality 53.

*La Chiricoa*, 3 km NE El Nula, 24 m (see Nulita)

*La Colonia*, 55 km NE Icabarú, 905-923 m (see Icabarú)

*La Concordia*, 47 km NE El Tocuyo, 592 m (see Caserio Boro)

*La Copa*, 4 km NW Montalbán, 1,446-1,537 m (see Montalbán)

*La Coromoto*, 7 km SE Tabay, 3,070-3,410 m (see Tabay)

*La Cristalina*, 5 km N El Nula, 24 m (see Nulita)

*La Cumbre* (nr.), 7 to 10 km ENE Mirimire, 200 m (see Mirimire)

*La Danta*, 31 km SSE Capatárida, 100 m (see Capatárida)

*La Encrucijada*, 18 km S El Sombrero, 9°14'N-67°02'W, 200 m (GUÁRICO). Llanos. Holdridge classification: TROPICAL dry forest (hs-T). Collector: Peterson. SVP number: 24228 (1 mammal, found dead on road). 25 May 1968. SVP locality 99-15.

*La Guardia*, 18 m (see Isla Margarita)

*La Isla*, 37 km NNE Paraguaipoa, 15 m (see Cojoro)

*La Laguna*, 5 km NW Caripe, 1,165-1,365 m (see San Agustín)

*La Leonera*, 3 km W Montalbán, 900 m (see Montalbán)

*La Mucuy*, 4 km E Tabay, 2,077-2,127 m (see Tabay)

*La Pastora* (nr.), 11 to 19 km ENE Mirimire, 20-400 m (see Mirimire)

*La Pucra*, 14 km ENE Montalbán, 767 m (see Montalbán)

*La Quinta*, 0.5 km SW Altamira, 697 m (see Altamira)

*La Rinconada*, 63 WNW Encontrados, 125 m (see El Rosario)

*La Soledad*, 5 km SW Altamira, 794 m (see Altamira)

*La Trinidad*, 9 km NW Montalbán, 900 m (see Montalbán)

*La Verinidad*, 10 km WNW La Asunción, 19 m (see Isla Margarita)

*La Vega del Río Santo Domingo*, 2 km SW Altamira, 620 m (see Altamira)

- La Villa*, 32 km NE Pto. Páez, 76 m (see Hato Cariben)
- La Voluntad*, 14 km NE Montalbán, 1,007 m (see Montalbán)
- La Yuca*, 2 km SE Altamira, 600 m (see Altamira)
- Laguna Guara*, 15 km SSW San Juan, Río Manapiare, 155 m (see San Juan, Río Manapiare)
- Laguna Verde*, 9 km SE Tabay, 3,430-3,830 m (see Tabay)
- Lagunillas* (1 km NE Lagunillas), 8°30'N-71°-22'W, 915 m (MÉRIDA). Arid Andean valley; with steep slopes, dry streams, sandy-clay soil, numerous boulders and rock outcrops, scattered trees and shrubs to 20 m high, many cacti to 6 m high, and abundant forbs. Holdridge classification: PREMONTANE dry forest (bs-P). Collector: Peterson. SVP numbers: 4357-4358 (2 reptiles). 27 Mar 1966. SVP locality 91.
- Las Matas*, 5 km S Montalbán, 598 m (see Montalbán)
- Las Mesas*, 17 km NE San Juan de Colón, 8°-10'N-72°10'W, 300-460 m (TÁCHIRA). Western foothills of Andes, near head of plain of Lago de Maracaibo. Holdridge classification: PREMONTANE very humid forest (bmh-P). Collector: Peterson. SVP numbers: 21078-21098, 21427, 21599-21602, 21604-21660, 21662-21664, 21667, 21669, 21672, 21675, 22200-22582, 22584-22599, 24229-24277, 24297-24334, 24473-24478, 24546-24569, 24801-24810, 24820 (617 mammals, purchased). Jan-Jul 1968. SVP locality 79-12.
- Las Queseras*, 20 km S Pto. Ayacucho, 135 m (see Puerto Ayacucho)
- Los Alpes*, 35 km NW Altagracia, 300 m (see Guatopo)
- Los Hatos*, 4 km NE Capatárida, 40 m (see Capatárida)
- Los Jebes*, 11 km SW Capatárida, 60 m (see Capatárida)
- Los Naranjos* (nr.), 15 km SE Caracas, 500 m (see El Encantado)
- Los Papayos*, 7 km SW Montalbán, 598 m (see Montalbán)
- Los Patos*, 25 km SE El Manteco, 7°11'N-62°-22'W, 350 m (BOLÍVAR). Upland plain in zone of transition between savanna and evergreen forest; scattered small ponds and farms. Holdridge classification: PREMONTANE humid forest (bh-P). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 7364-7565, 7568-7593, 7620, 7710-7713, 7725-7770, 7772-7776, 7785-7792, 7814, 7820-7823, 8980-8982, 8984-8996, 9003-9005, 9950-9959, 35710 (302 mammals, 2 birds, 23 amphibians). 5-15 Apr (plus purchases up to 11 Jul) 1966. SVP locality 14.
- Los Venados*, 4 km NNW Caracas, 10°32'N-66°54'W, 1,400-1,739 m (DTO. FEDERAL). Old coffee finca, now part of Parque Nacional El Ávila; about halfway up inland slope of Sierra de la Costa, overlooking Caracas; mostly gentle slopes; numerous small, rocky, swift-flowing streams (Río Anaico and Quebrada Guayabal). Collecting mostly within 1,000 m of park headquarters; lawns, livestock pens, open weedy areas, fairly dry to rather moist second growth forest. Holdridge classification: LOWER MONTANE humid forest (bh-MB). Collectors: M. Tuttle, A. Tuttle, Peterson, Flanigan, Handley, Tipton, and Young. SVP numbers: 1-190, 193-618, 639-640, 1133-1146 (595 mammals, 37 birds). 21 Jul-15 Aug 1965. SVP locality 1.
- Manacal*, 26 km ESE Carúpano, 10°37'N-63°-01'W, 170-575 m (SUCRE). Crest of low mountains at base of Península de Paria. Ridgetops fairly level, but slopes steep; small, swift, rocky or sandy streams numerous, mostly seasonal at lower elevations; soil mostly clay; some areas with boulders and cliffs. Human population high and virtually all land cultivated, predominantly with coffee and cacao, but also with bananas, corn, mangos, and avocados. Collecting in: 1) Evergreen forest, with trees 10-25 m high; open very dense shrub subcanopy 3-5 m; numerous vines and epiphytes; and grass and herbs 1.5 m (very dense to absent). 2) Remnant evergreen forest with original tree canopy but natural subcanopy replaced by coffee or cacao; well-tended and clean, or with ground cover of ferns, grass, herbs, and vines. 3) Overgrown meadow, with dense coarse grass, herbs, small woody plants, and vines to 2 m high; and scattered shrubs 2-4 m. 4) Yards in village, with houses, lawns, gardens, fruit trees, shrubs, weeds, chickens, ducks, pigs, and donkeys. Holdridge classification: PREMONTANE dry forest (bs-P) and PREMONTANE humid forest (bh-P). Collectors: Peterson, D. Peacock, R. Peacock, and Tipton. SVP numbers: 14299-14711 (403 mammals, 7 birds, 1 reptile, 2 other). 18 Jul-4 Aug 1967. SVP locality 73.
- Maurá*, 46 km NE Icabarú, 800 m (see Icabarú)
- Mesa Bolívar* (nr.), 22 km SSE El Vigía, 8°26'N-71°34'W, 690 m (MÉRIDA). East facing

slope of large Andean valley. Scattered deciduous trees and shrubs with vines; clumps of *Cecropia*; grass. Holdridge classification: PREMONTANE dry forest (bs-P). Collector: Peterson. SVP number: 4016 (1 mammal, found dead on road). 8 Mar 1966. SVP locality 97.

*Middle Refugio*, 6 km ESE Tabay, 2,550-2,710 m (see Tabay)

*Minas de Aroa*, 19 to 30 km NW San Felipe, 10°25'N-68°54'W, 350-500 m (YARACUY). Near head of Río Aroa, on NW flank of Sierra de Aroa. Steep-sided canyons, often with sheer walls; rocky, sandy-clay soil with many boulders and outcrops; rocky, boulder-strewn, fast-flowing streams, up to 4 m wide. Lower edge of evergreen mountain forest, reduced to second growth scrub with thick underbrush and scattered large trees or to forest with discontinuous canopy of trees 25-35 m high; subcanopy of shrubby palms and scattered trees 4-15 m; scattered low herbs; many vines and bromeliads. Occasional small patches of bananas, coffee groves, and small fields; low herbs, particularly legumes, abundant in openings. Collecting mostly in and around buildings, caves, mine shafts, and slag piles of abandoned copper mine. Holdridge classification: PREMONTANE humid forest (bh-P). Collectors: Peterson, Brown, and Matson. SVP numbers: 20279, 20290-20807, 20809-21002 (707 mammals, 4 birds, 1 amphibian, 1 other). 30 Nov-23 Dec 1967. SVP locality 76.

*Mirimire* (Mirimire to 20 km NNE to ESE Mirimire), 11°12'N-68°37'W (to 11°05'N-68°38'W, 11°10'N-68°44'W, and 11°20'N-68°42'W), 1-400 m (FALCÓN). Undulating to level lowlands and isolated low, steep-sided limestone ridges with cliffs and many small dry or moist caves and crevices (1-12 m high, 20-100 m deep); sandy-clay soil; numerous small streams. Evergreen forest on ridges; low, dry, deciduous thorn forest in lowlands; thickly settled, but farms small and openings discontinuous; crops included lemons, oranges, mangos, bananas, and corn. Upper canopy of evergreen forest at 25-30 m, discontinuous; subcanopy continuous at 10 m; many thorny vines and epiphytes; ground cover of low herbs and woody plants; tough, coarse grass in openings. Evergreen forest continued along streams into lowlands, but trees only about 12 m high, with subcanopy at 8 m, and thick underbrush of vines, thorny plants, and herbs. Deciduous thorn

forest thick, low (6-12 m), with many epiphytes and tall cacti, and understory of woody shrubs, thorny plants, and low grasses. Lagoons near coast bordered by mangroves. Holdridge classification: TROPICAL very dry forest (bms-T), TROPICAL dry forest (bs-T), and PREMONTANE humid forest (bh-P). Collectors: Peterson, Brown, and Matson. SVP numbers: 14791-14807, 14809-14999, 20000-20278, 20280-20289, 22583, 24811-24818 (488 mammals, 4 birds, 7 reptiles, 4 amphibians, 3 other). 9 Nov-4 Dec 1967 (additional sporadic collections. Aug 1967-Feb 1968). SVP locality 75.

*Montalbán* (within 14 km of town center), between 10°09'N-68°21'W, 10°14'N-68°12'W, and 10°17'N-68°21'W, 562-1,537 m (CARABOBO). Fertile basin, rimmed except S by mountains, highest to N and NW. Human population high and small settlements and roads numerous. Most of basin's floor pastured or cultivated; oranges dominant crop; also mangos, bananas, coffee, papayas, tobacco, and sugar cane; "gamaloti" grass up to 1.8 m high. Mature (9-12 m high), wet cloud forest, with palms and ferns on higher mountaintops; vines, moss, ferns, bromeliads, and orchids plentiful, especially on NW slopes; ferns (up to 1.8 m) and grass abundant where trees had been cut. Lower mountain slopes with patches of mature evergreen forest, 9-18 m high; elsewhere second-growth forest and scrub dominant. Holdridge classification: PREMONTANE dry forest (bs-P), PREMONTANE humid forest (bh-P), and PREMONTANE very humid forest (bmh-P). Collectors: A. Tuttle, Inquilla, and Stromeyer. SVP numbers: 31801-33151, 35434-35478 (1,335 mammals, 15 birds, 36 reptiles, 10 amphibians). 31 Oct-6 Dec 1967, 31 Jul-8 Aug 1968. SVP locality 36 (and 44).

*Montero*, 2 km ENE Montalbán, 598 m (see Montalbán)

*Moracoy*, 16 km SSW San Juan, Río Manapiare; 155 m (see San Juan, Río Manapiare)

*Morganito*, 70 km SSW Pto. Ayacucho, 161 m (see Puerto Ayacucho)

*Morocoy*, 65 km SSW Pto. Ayacucho, 161 m (see Puerto Ayacucho)

*Moruy*, 15 km SSW Pueblo Nuevo, 45-90 m (see Peninsula de Paraguaná)

*Novito*, 19 km WSW Machiques, 10°02'N-72°43'W, 1,131-1,200 m (ZULIA). Lower E slopes of Sierra de Perijá, overlooking valley

of Río Negro. Steep slopes and numerous small streams. Evergreen forest remnant with canopy at 25-30 m and scattered larger trees to 40 m, serving as shade for coffee and bananas; sparse ground cover of grass and weeds; numerous decaying logs, leaves, and fallen trees; many vines in trees; openings with spiny, nettlelike plants, dense ferns, and large-leaved succulents. Collecting around small ridge-top village surrounded by coffee and banana plantations, lemon groves, and pastures. Holdridge classification: PRE-MONTANE very humid forest (bmh-P). Collectors: Matson and Yunker. SVP numbers: 22735-22810 (73 mammals, 3 birds). 27 Apr-7 May 1968. SVP locality S1 (subloc. 19-25).

**Nulita** (Selvas de San Camilo), 29 km SSW Sto. Domingo, 7°19'N-71°57'W, 24 m (APURE). Well-watered, rocky, undulating plain near head of Río Sarare (at western edge of Selvas de San Camilo). Streams small, rocky or sandy, mostly swift flowing; marshes and ponds infrequent. Collecting mostly in second-growth evergreen forest, 12-24 m high, with numerous palms, and in land recently cleared for pasture and crops (such as yucca, bananas, coffee, and cacao). Fruit trees fairly abundant. Fallow fields overgrown with grass and weeds, and burned forest grown up to very dense grass, weeds, and shrubs, 1-2 m high. In nearby undisturbed forest, trees 25-45 m high, laden with moss and vines. Holdridge classification: TROPICAL very humid forest (bmh-T). Collectors: A. Tuttle, Inquilla, and Stromeyer. SVP numbers: 34388-34437, 34439-34999, 40000-40862, 40864-40967, 42200-42492 (1,502 mammals, 42 birds, 25 reptiles, 1 amphibian, 1 other). 17 Jan-20 Feb 1968. SVP locality 38.

**Orocodones**, 6 km NS Capatárida, 40 m (see Capatárida)

**Paparo**, 7 km N Río Chico, 1 m (see Río Chico)

**Paramito**, 3 to 4 km W Timotes, 8°59'N-70°46'W, 2,000-3,605 m (MÉRIDA). Mérida Andes. Steep upper SW slope of Motatán Valley near its head. Clear, rapid, boulder-filled streams; numerous rock outcrops; rocky clay-loam soil; many boulders. Frost common. Páramo at high level elevations and on exposed ridges, typified by low (to 0.5 m) grass, mat-forming plants, forbs, moss, and ferns, all more or less dominated by "fraile-jones" (*Espeletia*). Some páramo areas with low (2-3 m), bushy, small-leaved shrubs (solitary, in thickets, or forming nearly com-

plete canopy), usually draped with lichens. Scrubby cloud forest in protected ravines and at lower elevations, with irregularly spaced shrubs and trees 6-10 m high; open to nearly closed canopy; ground cover of forbs, ferns, mosses, lichens, and brambles; and boulders, fallen trees, roots, trunks, and branches of standing trees festooned with epiphytes. Whole area much disturbed by human population: burned, overgrazed (cattle, sheep, goats, burros, horses), criss-crossed with foot paths and stone walls, cultivated (potatoes, wheat, corn), and overhunted. Holdridge classification: MONTANE very humid forest (bmh-M) and SUBALPINE páramo (p-SA). Collectors: Peterson and Parrish. SVP numbers: 3910-3968, 3971-3991, 35671-35688, 35730-35731, 35791-35799 (99 mammals, 8 birds, 1 reptile, 1 other). 3-16 Feb 1966. SVP locality 57.

**Paría**, 25 km S Pto. Ayacucho, 114 m (see Puerto Ayacucho)

**Parque Nacional Guatopo**, 15 to 21 km NW Altagracia, 610-740 m (see Guatopo)

**Península de Paraguaná**, 6 to 25 km S, SW, and N Pueblo Nuevo, 11°50'N-69°59'W (to 11°-49'N-70°06'W, and 12°00'N-69°56'W), 13-650 m (FALCON). Isolated arid peninsula; mostly flat or gently undulating, but with range of low hills and steep-sided mountain, Cerro Santa Ana; connected to mainland by low, narrow, sparsely vegetated isthmus. Soil sand or sandy-clay, quite rocky in spots; occasional small limestone caverns. Many small windmill-fed artificial ponds and tanks; streams small, intermittent, dry or with stagnate algae-covered pools much of year. Lowland plain clothed with desert scrub, varying from sparse and scattered to very dense; dominated by low (8-10 m) thorn trees (*Mimosa*) commonly spaced 3-15 m apart, clusters (30-50 m in diameter) of *Opuntia*, and 1-2 m high shrubs; scattered tree cacti (*Cereus*), small trees, and terrestrial bromeliads; little ground cover except for cacti, logs, branches, and twigs. Forest slightly higher, but still scrubby, in sheltered places in hills. Much of plain cleared for pasture or crops and overrun by goats, cattle, dogs, cats, and high human population. Mountaintop cloud-shrouded and capped with cloud forest on N and W slopes; large-crowned, evergreen trees formed closed canopy at 20 m, and thin-stemmed trees an open subcanopy at 10 m; vines, mosses, lichens, and other epiphytes very abundant; ground nearly covered by thorny terrestrial



bromeliads and scattered ferns and small woody and herbaceous plants; soil dark brown, humus filled, sandy-clay; many moss-covered boulders. Transition from thorn forest to cloud forest abrupt. Holdridge classification: TROPICAL thorny forest (me-T), TROPICAL very dry forest (bms-T), and PREMONTANE very humid forest (bmh-P). Collectors: Peterson, Brown, and Matson. SVP numbers: 23648-24026, 24028-24225, 24227 (548 mammals, 15 birds, 12 reptiles, 3 amphibians). 5 Jul-2 Aug 1968. SVP locality 85.

*Perai-Tepuí*, 41 km NE Icabarú, 982 m (see Icabarú)

*Petaquire*, 31 km WSW Caracas, 1,750 m (see Alto No León)

*Petare*, 10 km E Caracas, 825 m (see Caracas)

**Pico Ávila** (= Hotel Humboldt and vicinity), 5 km NNE to 6 km NNW Caracas, 10°33'N-66°52'W, 1,982-2,288 m (DTO. FEDERAL and MIRANDA). Crest of Sierra de la Costa above Caracas; steep slopes; very cool, damp, and windy. Trapping and netting near Hotel Humboldt on Pico Ávila and westward along ridge-top, past Boca de Tigre, to vicinity of Pico Galipán: lawns and gardens with deep, heavy sod; damp, low, evergreen forest; pockets of cloud forest with stunted, moss-laden trees and many palms and bamboos. Holdridge classification: LOWER MONTANE humid forest (bh-MB) and LOWER MONTANE very humid forest (bmh-MB). Collectors: M. Tuttle, A. Tuttle, and Handley. SVP numbers: 619-638, 641-751, 753-821, 853-857, 870-871, 889-900, 906-947, 970-1065, 1067-1092, 1095-1132, 1147-1192, 1564 (411 mammals, 57 birds). 17 Aug-27 Sep 1965. SVP locality 2.

*Piedra Virgen*, ca. 70 km SSE El Dorado, 374 m (see Kilometer 125)

*Platanillal*, 30 km S Pto. Ayacucho, 119 m (see Puerto Ayacucho)

*Portochuelo*, 4 km NW La Asunción, 50 m (see Isla Margarita)

*Potrerito*, 2 km SE Montalbán, 598 m (see Montalbán)

*Pueblo Nuevo* (6 km N Pueblo Nuevo), 25 m (see Península de Paraguaná)

*Puente Rincón*, 1 km SW Altamira, 650 m (see Altamira)

*Puente Tigre*, 50 km SSE Maturín, 18 m (see Hato Mata de Bejucó)

*Puerta Vieja*, 14 km NE El Tocuyo, 616 m (see Caserio Boro)

**Puerto Ayacucho** (Pto. Ayacucho to Morganito, 70 km SSW Pto. Ayacucho), between 5°06'N-67°45'W and 5°40'N-67°35'W, 99-195 m (T. F. AMAZONAS). River plain, E bank of Río Orinoco; rolling, with scattered black rocks up to 90 m high and 120 m in diameter, more or less surrounded by accumulations of boulders and other fragments; soil sandy, mixed with gravel; drained by numerous streams up to 15 m wide; few lagoons or swamps. Savanna (S edge of Llanos) extending inland from river up to 15 km, merging abruptly into evergreen forest, with trees mostly 10-25 m high (in some areas 20-30 m high). Forest mostly rather open, except along streams, with occasional logs and boulders on forest floor, and more or less draped with vines. Savanna with closely spaced clumps of grass 0.5-1.5 m high; scattered low shrubs ("chaparro"—*Curatella americana*) and palms; irregular bands of low trees (3-9 m tall) around rocks and along watercourses. Numerous roads and small settlements; some fresh clearing and second growth in forest; regular burning in savanna. Holdridge classification: TROPICAL dry forest (bs-T) and TROPICAL humid forest (bh-T). Collectors: A. Tuttle, Inquilla, Stromeyer, and Peterson (2 specimens). SVP numbers: 11201, 13012, 30354-31800, 34438 (1,402 mammals, 22 birds, 23 reptiles, 3 amphibians). 29 Sep 1966, 10 May and 6 Sep-17 Oct 1967. SVP locality 35.

**Puerto Cabello** (15 km SW Pto. Cabello), 10°21'N-68°06'W, 50 m (CARABOBO). Dry, steep-sided valley with scrubby, second-growth deciduous forest. Holdridge classification: TROPICAL dry forest (bs-T). Collector: Peterson. SVP number 21372 (1 mammal, found dead on road). 29 Jan 1968. SVP locality 99-14.

**Puerto Nuevo**, 18 km SSW San Juan, Río Manapiare, 155 m (see San Juan, Río Manapiare)

**Puerto Páez** (from Pto. Páez to Río Cinaruco, 38 km NNW Pto. Páez), between 6°12'N-67°27'W and 6°33'N-67°31'W, 76 m (APURE). Town of Pto. Páez, nearby rock outcrop (Cerro de Murciélagos), and savanna to ferry crossing on Río Cinaruco, 38 km NNW Pto. Páez (on road to San Pablo and San Fernando). Seasonally flooded, low, gently rolling sandhills, covered with dense, 0.5-1 m high grass. High ground, probably never flooded, dry and sandy, with clumps of bunch grass 0.3-1.2 m apart. Sluggish streams, pools, and marshes in low ground

between hills bordered by very lush cover of herbs, ferns, and grass (0.6-1.2 m high), scattered palms, patches of low forest (9-15 m high) almost lacking ground vegetation. Few human habitations. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 6117-6398, 6444-6511, 13011, 35751 (336 mammals, 13 birds, 2 reptiles, 1 fish). 11 Jan-1 Feb 1966. SVP locality 7.

**Puerto Píritu** (20 km E Pto. Píritu), 10°04'N-64°51'W, 27 m (ANZOATEGUI). Very arid, low coastal hills; scrubby deciduous forest with cactus and thorny shrubs and trees 10-15 m high. Holdridge classification: TROPICAL very dry forest (bms-T). Collector: Peterson. SVP number: 12461 (1 mammal, found dead on road). 14 Feb 1967. SVP locality 94-10.

**Puerto Tuy**, 7 km E Río Chico, 1 m (see Río Chico)

**Pure**, 16 km SSW Capatárída, 75 m (see Capatárída)

**Quebrada Ávila**, 3 km NE Caracas, 1,050-1,100 m (see Caracas)

**Quebrada Cantarana**, 11 km NE Icabarú, 750 m (see Icabarú)

**Quebrada Chacaito**, 3 km Caracas, 1,110-1,180 m (see Caracas)

**Quebrada Espinoza**, 19 km NE Icabarú, 700 m (see Icabarú)

**Quebrada Seca**, 26 km N Valera, 131 m (see Valera)

**Quetepe**, 16 km E Cumaná, 1-5 m (see Cumaná)

**Rancho Grande** (Estación Biológica), 13 km NW Maracay, 10°21'N-67°40'W, 1,050-1,100 m (ARAGUA). Relatively dry, steep, inland slopes near crest of Sierra de la Costa, overlooking basin of Lago de Valencia. Few streams. Collecting in moderately disturbed cloud and evergreen forest, with dense shrub and ground strata; around fruit trees and shrubs on station lawn; and in high grass and overgrown banana patch on abandoned farm. Holdridge classification: PREMONTANE very humid forest (bmh-P). Collectors: Peterson, Flanigan, Handley, and Young. SVP numbers: 2001-2113, 13005-13007, 13009-13010 (118 mammals). 5-11 Aug 1965, 22 Apr 1967. SVP locality 50.

**Rancho Grande** (nr.), 44 km NNE Paraguaipoa, 15-50 m (see Cojoro)

**Raya**, 32 km S Pto. Ayacucho, 135 m (see Puerto Ayacucho)

**Riecito**, 30 km S Mirimire, 10°54'N-68°46'W,

300 m (FALCÓN). Low mountains bordering lower course of Río Tocuyo. Holdridge classification: TROPICAL dry forest (bs-T). Collector: Peterson. SVP numbers: 24821-24999, 35479-35670 (371 mammals, purchased). 6-8 Sep 1968. SVP locality 79-16.

**Río Chico** (to 10 km from town center), 10°19'N-65°58'W, 1 m (MIRANDA). Wide, nearly level coastal plain, with sandy ocean beach backed by 5 km wide belt of swampy pockets between former beach lines; backed further inland by 5-10 km wide zone of arid thorn forest, much disturbed by settlement, agriculture, and roads; merging further inland rather abruptly into extensive, humid evergreen forest. Collecting on ocean beach; in flooded pastures and thickets of coconut palms and scrubby trees on causeways across marshes, swamps, and lagoons between uplands and beach; in thorn forest, with scattered large, spreading trees, palms, and thick, low shrubs, blanketed by thorny vines; in citrus, guava, and banana orchards; in lawns and gardens with palm-lined drives, fruit trees, large, low, spreading, flowering trees, and chicken coops, surrounded by thorn forest; in extensive high (2 m) grass surrounded by pasture, forest, and bananas; and in disturbed evergreen forest with scattered trees 12-15 m high, continuous subcanopy of bananas, cacao, etc., 5-8 m high, numerous vines, and sparse ground cover of grass and ferns. Holdridge classification: TROPICAL dry forest (bs-T) and TROPICAL humid forest (bh-T). Collectors: Peterson, D. Peacock, and R. Peacock. SVP numbers: 10658-11199, 11400-11712, 35750 (822 mammals, 5 birds, 17 reptiles, 5 amphibians, 7 other). 22 Oct-21 Nov 1966. SVP locality 65.

**Río Cinaruco**, 38 km NNW Pto. Páez, 76 m (see Puerto Páez)

**Río Cinaruco**, 46 km NE Pto. Páez, 76 m (see Hato Cariben)

**Río Cinaruco**, 48 km NW Pto. Páez, 6°31'N-67°46'W, 76 m (APURE). Llanos near Río Cinaruco. Upland savanna slightly rolling, covered with grass about 0.5 m high. Forest band (6-125 m wide) on banks of river and bordering lagoons, low (5-15 m) and dense, with many spiny palms and thorny vines; ground covered with dry leaves and twigs. Collecting in savannas and forest on both banks of river. Holdridge classification: TROPICAL dry forest (bs-T). Collector: M. Tuttle. SVP numbers: 6399-6409 (9 mam-

- mals, 2 birds). 13-18 Jan 1966. SVP locality 8.
- Río Cinaruco**, 65 km NW Pto. Páez, 6°33'N-67°55'W, 76 m (APURE). Llanos near Río Cinaruco. Savanna with grass about 0.5 m high and scattered patches of dry forest to 1 km in diameter; small streams bordered by palms and other trees, with lush undergrowth (0.5-1 m high) of herbs, grass, ferns, and moss; evergreen forest on wet ground along river with *Heliconia* to 7.5 m high forming dense thickets and with palms to 30 m high, extending above broadleaf canopy. Collecting in gardens around Indian settlement and in savannas and forest in banks of river. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 6410-6443 (26 mammals, 6 birds, 2 reptiles). 19-21 Jan 1966. SVP locality 9.
- Río Cuchivero**, nr. Caicara to 38 km SE Caicara, 50-200 m (see Hato La Florida)
- Río Cunucunuma**, 150 m (see Acanaña and Belén)
- Río Danta**, 67 km SSE El Dorado, 150 m (see El Manaco)
- Río Manaviche**, 15 to 20 km E Boca Mavaca, 138 m (see Boca Mavaca)
- Río Mavaca**, 108 km SSE Esmeralda, 2°15'N-65°17'W (to 2°05'N-65°18'W and 2°20'N-65°15'W), 140 m (T. F. AMAZONAS). At edge of Orinoco Plain, where Río Mavaca passes into region of hills and low mountains (300-450 m). Río Mavaca, a white water stream, here has many black water tributaries, to 10 m wide. River plain flooded in rainy season, leaving numerous moist areas and occasional permanent lagoons in dry season. Flood plain forest evergreen, 25-35 m high, largely undisturbed except for Indian trails, and because of flooding, largely lacking ground vegetation (but some flat areas had dense stands of low palms). Hill forest 15-30 m high, with numerous palms and abundant undergrowth. Hollow trees unusually abundant. Holdridge classification: TROPICAL humid forest (bh-T). Collectors: M. Tuttle and Harder. SVP numbers: 17381-17395, 17397-17401, 17409-17410, 17413-17593, 17595-18136 (631 mammals, 41 birds, 9 reptiles, 64 amphibians). 21 Mar-16 Apr 1967. SVP locality 29.
- Río Montalbán**, 0.2 km W Montalbán, 598 m (see Montalbán)
- Río Motatán**, 23 km NNW Valera, 90 m (see Valera)
- Río Negro**, 8 km W Machiques, 10°03'N-72°-37'W, 250 m (ZULIA). Hilly western edge of plain of Lago de Maracaibo. Dry, shrubby pastureland. Holdridge classification: TROPICAL humid forest (bh-T). Collector: Peterson. SVP numbers: 22051, 22053 (2 mammals, found dead on road). 14 Apr 1968. SVP locality 81-26.
- Río Orinoco** (see Boca Mavaca, Esmeralda, Puerto Ayacucho, Puerto Páez, and Tamatama)
- Río Orituco**, 14 km SE Calabozo, 100 m (see Estación Biológica de los Llanos)
- Río Orituco**, 10 km N Altagracia, 470 m (see Guatopo)
- Río Salado**, 10 km NE Güiría, 90 m (see Enseñada Cauranta)
- Río Santo Domingo**, 1 to 2 km SW and E Altamira, 600-619 m (see Altamira)
- Río Socopito**, 80 km NW Carora, 10°30'N-70°-44'W, 470-480 m (FALCÓN). Valley of Río Socopito, 6 km NE Cerro Socopo summit. Remnant evergreen forest on valley floor had open or closed tree canopy at 30 m; sub-canopy, occasionally closed, at 10 m; very dense ground cover of shrubs, grasses, and herbs; bromeliads and vines frequent. On hills above river, scrub thorn forest had continuous canopy at 10 m and scattered larger acacias and mimosas, and occasional cacti; irregular ground cover of grass and low herbs. Holdridge classification: TROPICAL dry forest (bs-T) and PREMONTANE humid forest (bh-P). Collectors: Brown and Matson. SVP numbers: 22900-23197 (294 mammals, 1 bird, 2 reptiles, 1 amphibian). 20-30 May 1968. SVP locality 82 (subloc. 1S-24).
- Río Supamo**, 50 km SE El Manteco, 7°00'N-62°15'W, 350 m (BOLIVAR). Forested upland plain. Collections from both banks of Río Supamo in mature evergreen forest, 20-35 m high, with abundant vines and epiphytes and scattered palms; largely undisturbed except for jeep trails and occasional small clearings with huts, gardens, and secondary scrub forest. Holdridge classification: PREMONTANE humid forest (bh-P). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 7326-7363, 7566-7567, 7594-7619, 7621-7709, 7714-7724, 7771, 7777-7784, 7793-7813, 7815-7818, 7824-7861 (209 mammals, 8 birds, 13 reptiles, 2 amphibians, 6 other). 30 Mar-4 May 1966. SVP locality 13.
- Río Tigre**, 50 km SSE Maturín, 18 m (see Hato Mata de Bejuco)

- Río Tiquire**, 27 km ENE Maripa, 7°27'N-64°55'W, 100 m (BOLIVAR). Forest bordering stream in extensive savanna. Holdridge classification: TROPICAL dry forest (bs-T). Collectors: Peterson, D. Peacock, and R. Peacock. SVP number: 12740 (1 mammal, purchased). 13 Apr 1967. SVP locality 87.
- Río Tocuyo**, 10 km N El Tocuyo, 518 m (see Caserio Boro)
- Río Ventuari**, 172 km ESE Pto. Ayacucho, 155 m (see San Juan, Río Manapiaré)
- Río Yaracuy**, 10 km NW Urama, 25 m (see Urama)
- Rueda**, 18 km S Pto. Ayacucho, 145 m (see Puerto Ayacucho)
- Sabana Aguirre**, 5 km SE Montalbán, 562 m (see Montalbán)
- Sabana de Mendoza**, 20 to 30 km WNW and NW Valera, 90-134 m (see Valera)
- Salamanca**, 3 km NNE La Asunción, 37-38 m (see Isla Margarita)
- Salvajito**, 15 km SSE Pto. Ayacucho, 174 m (see Puerto Ayacucho)
- Samariapo**, 55 km SSW Pto. Ayacucho, 119 m (see Puerto Ayacucho)
- San Agustín**, 2 to 10 km NW, W, and SW Caripe, 10°12'N-63°32'W, 854-1,690 m (MONAGAS and SUCRE). Upper reaches of Río Caripe Valley and gentle to moderate E and SE slopes and steep NE slopes of Cerro Negro. Summit with páramolike vegetation and stunted trees; lower elevations with moist evergreen forest and small areas of savanna. Moderate slopes and valleys almost entirely cultivated (coffee, oranges, lemons, bananas, cabbages, beans, etc.), with remnant forest providing shade canopy. Collecting in: 1) Rock outcrops and ledges, with dense, coarse grass (1 m high); prostrate thorny vines, and scattered ferns and shrubs (to 2 m high) on high, steep, exposed slope. 2) Scrubby, eutover evergreen forest remnant along small, swift-flowing stream through vegetable fields and orchards; scattered trees 20-30 m high; dense, vine-covered shrubs (4-6 m); and grass and herbs 1-2 m. 3) Moist evergreen forest with trees 20-25 m high, laden with orchids and bromeliads and festooned with lichens; understory of coffee and bananas; ground clear or with cover of vines, ferns, and herbs up to 1.5 m; tree-bases and boulders moss-covered; soil black and with heavy humus. 4) Montane savanna, with dense grass to 1 m; herbs and small woody plants; and shrubs (2 m). 5) Moist limestone caverns. Holdridge classification: PREMONTANE humid forest (bh-P). Collectors: Peterson, D. Peacock, R. Peacock, and Tipton. SVP numbers: 13644-14298 (632 mammals, 10 birds, 3 reptiles, 1 amphibian, 9 other). 22 Jun-16 Jul 1967. SVP locality 72.
- San Andrés**, 16 km SSE Caracas, 10°22'N-66°50'W, 950-1,144 m (MIRANDA). Upper part of steep N slope of Quebrada Suapire. Trapping and netting in cloud forest with many ferns and vines and much bamboo; and in coffee plantation with canopy trees 30 m high, shrub stratum cleared for coffee, and ground cover of low grass and forbs. Holdridge classification: PREMONTANE humid forest (bh-P). Collectors: Peterson, Naranjo, D. Peacock, and R. Peacock. SVP numbers: 3746-3771, 4598-4650, 4843-4870 (106 mammals, 1 amphibian). 26-30 Dec 1965, 10-12 Aug 1966. SVP locality 55.
- San Eusebio**, 12 km SE La Azulita, 1,990-2,190 m (see La Carbonera)
- San Fernando**, 16 km SE Cumaná, 10°21'N-64°06'W, 150-300 m (SUCRE). Lower portion of Río Manzanares in foothills. Holdridge classification: TROPICAL dry forest (bs-T). Collector: Peterson. SVP numbers: 24345, 24389, 24417-24472, 24480-24545 (124 mammals, purchased). 15-18 Apr and 17-26 May 1968. SVP locality 79-15.
- San Fernando de Apure**, 7°53'N-67°26'W, 25 m (APURE). Llanos, with seasonally flooded, scrubby, second-growth forest near river, grassy savanna beyond. Collections from attic of house at Apure Airport. Holdridge classification: TROPICAL dry forest (bs-T). Collector: M. Tuttle. SVP numbers: 6732-6744, 6754 (14 mammals). 27 Feb 1966. SVP locality 11.
- San José**, 10 km NE El Tocuyo, 550 m (see Caserio Boro)
- San José de Tiznados**, 52 km NNW Calabozo, 9°23'N-67°34'W, 150 m (GUÁRICO). Llanos. Holdridge classification: TROPICAL dry forest (bs-T). Collector: Peterson. SVP numbers: 24335-24344, 24346-24388, 24390-24416, 24479 (81 mammals, purchased). 15 Apr and 22-28 May 1968. SVP locality 79-13.
- San Juan de los Cayos** (13 km SE San Juan de los Cayos, nr. Boca de Tocuyo), 11°04'N-68°21'W, 1 m (FALCÓN). Dry, sandy coastal plain with low thorn forest. Holdridge classification: TROPICAL dry forest (bs-T). Collector: Peterson. SVP number: 14508 (1 mammal, found dead on road). 9 Nov 1967. SVP locality 99-11.



**San Juan, Río Manapiare**, 163 km ESE Pto. Ayacucho, 5°15'N-66°13'W (to 5°28'N-66°13'W and 5°02'N-66°13'W, within 30 km of San Juan), 155 m (T. F. AMAZONAS). Part of the Ventuari Basin, an extensive plain, nearly surrounded by high, forested mountains. Basin with many streams and lagoons, and subject to extensive seasonal flooding (about 95 percent flooded near San Juan at time of collections). Basin with continuous evergreen forest and isolated savannas, and scattered palms and bands of forest along streams. Many dead (often rotten or hollow) snags standing in lagoons serving as bat roosts. Most of forest undisturbed, except where large Indian population had made small clearings for settlements and gardens. Holdridge classification: TROPICAL humid forest (bh-T). Collectors: M. Tuttle and Harder. SVP numbers: 19647-19999, 25001-26254, 26264-26931, 26933-27595, 27915-28383, 28397-29006, 29008-30353, 35764 (5,632 mammals, 21 birds, 8 reptiles, 2 other). 25 Jun-3 Aug 1967. SVP locality 34.

**San Pablo** (nr.), 13 km ESE Mirimire, 270 m (see Mirimire)

**San Pedro**, 2 km SE Altamira, 600 m (see Altamira)

**San Rafael de Atamaica**, 42 km SSE San Fernando de Apure, 7°31'N-67°24'W, 100 m (APURE). Llanos. Holdridge classification: TROPICAL dry forest (bs-T). Collector: Peterson. SVP numbers: 21529-21569, 21670, 21673 (43 mammals, purchased). 21 Jan 1968. SVP locality 79-11.

**San Rafael de Mara** (7 km NW San Rafael de Mara, nr. ferry at Río Limón), 10°59'N-71°47'W, 1 m (ZULIA). Arid coastal plain. Holdridge classification: TROPICAL very dry forest (bms-T). Collector: Peterson. SVP number: 24027 (1 mammal, found dead on road). 2 Jul 1968. SVP locality 88.

**Sanjón**, 1 km E Montalbán, 598 m (see Montalbán)

**Santa Ana**, 1.4 km E Montalbán, 598 m (see Montalbán)

**Santa Apolonia** (nr.), 48 to 52 km WNW Valera, 28-29 m (see La Ceiba)

**Santa Clara**, 18 km WNW Capatárida, 40 m (see Capatárida)

**Santa Crucita**, 21 km NW Altagracia, 500 m (see Guatopo)

**Santa Lucía de Surukún**, 45 km NE Icabarú, 851 m (see Icabarú)

**Santa Rosa** (La Hechicera), 1 to 2 km N Mérida, 8°37'N-71°09'W, 1,860-2,050 m (MÉRIDA).

Agricultural experiment station on floor of Andean valley. Collecting in: 1) Remnant cloud forest, burned about four years previously; moist, with many boulders and thick humus; trees to 20 m high, forming closed canopy, but rather open beneath, with scattered shrubs, numerous ferns and herbs, and moss and lichens covering rocks, logs, and roots and trunks of trees. 2) Stream bank second-growth scrub in cultivated area; trees to 6 m, shrubs 3 m, many herbs, ferns, and vines. 3) Weeds up to 2 m high bordering small stream flowing among houses and through cane fields and banana patch. Holdridge classification: LOWER MONTANE humid forest (bh-MB). Collector: Peterson. SVP numbers: 4545-4597 (52 mammals, 1 bird). 14-31 May 1966. SVP locality 60.

**Santa Rosa**, 6 km SSW Capatárida, 50 m (see Capatárida)

**Santa Rosa** (nr.), 17 km ENE Mirimire, 75 m (see Mirimire)

**Selvas de San Camilo** (see Nulita)

**Sividigua**, 6 km SE Capatárida, 50 m (see Capatárida)

**Sotillo**, 21 km E Cumaná, 30-40 m (see Cumaná)

**Tabay** (Parque Nacional de la Sierra Nevada, 4 to 9 km E and SE and 1 km SW Tabay), 8°36'N-71°01'W, 1,530 and 2,077-3,830 m (MÉRIDA). Large Andean valleys, heading near Pico Humboldt. Valley floors flat in upper reaches and containing glacial lakes; walls steep and very high; remnant glaciers persisting at valley heads. Soil clay-loam, deep at lower elevations, in pockets between boulders at middle elevations, and often absent at higher elevations; boulders, talus, and exposed bedrock commonplace. Streams clear, rapid flowing, boulder-strewn. Flora varied from closed canopy cloud forest at lower elevations to open alpine páramo at higher elevations. Mature cloud forest, penetrable only with machete, with trees 18-24 m high; tree ferns and shrubs 3-15 m high formed a lower canopy; vines, lichens, and other epiphytes draped trees and shrubs; moss and scattered herbs, and, in particularly moist areas, liverworts, usually covered ground, boulders, and logs; slender, vinelike bamboo was scattered throughout and formed dense thickets in openings. Forest-páramo ecotone dominated by moss and lichen covered boulders; low (4 m) twisted trees; low (0.5 m) spreading shrubs; grass and herbs (to 1 m). Páramo had bare rock outcrops, boulder fields, bunch grass (to 1.5 m),

scattered "frailejones," shrubs (to 3 m), and moss. Access by a single foot path; no hunting or agriculture; no clearing, but part of forest-páramo ecotone had burned two years before collections were made. Holdridge classification: LOWER MONTANE humid forest (bh-MB), MONTANE rain forest (bp-M), and SUBALPINE páramo (p-SA). Collectors: Peterson, Parrish, and Tipton. SVP numbers: 4008-4015, 4017-4356, 4359-4360, 4362-4465 (394 mammals, 53 birds, 2 amphibians, 5 other). 8-24 Mar and 4-17 Apr 1966. SVP locality 58.

*Tacarigua de La Laguna*, 10 km ESE Río Chico, 1 m (see Río Chico)

*Tácata*, 35 km SW Caracas, 10°13'N-67°00'W, 366 m (MIRANDA). Dry valley, with farms and second growth deciduous forest. Holdridge classification: TROPICAL dry forest (bs-T). Collector: Peterson. SVP number: 20508 (1 mammal, purchased). 17 Dec 1967. SVP locality 99-18.

*Tamanaco*, 4 km NE San Juan, Río Manapiare, 155 m (see San Juan, Río Manapiare)

*Tamatama* (Río Orinoco), 2 km above mouth of Brazo Casiquiare, 3°10'N-65°49'W, 135 m (T. F. AMAZONAS). Undulating plain of Río Orinoco, with hills up to 60 m. High evergreen forest, more or less disturbed near river. Most collecting in thatched roofed buildings, yards, and gardens of New Tribes Mission. Holdridge classification: TROPICAL humid forest (bh-T). Collectors: M. Tuttle and Harder. SVP numbers: 17411, 18137-18586, 18636-18968, 18995-18997, 19003-19141, 19156-19225, 19230-19259, 19434-19435, 19642-19644, 28384-28396 (940 mammals, 73 birds, 26 reptiles, 5 amphibians). Mar and 20 Apr-20 Jun 1967. SVP locality 30.

*Teatas de Mariá Guevara*, 31 km W Porlanar, 10 m (see Isla Margarita)

*Timotes* (Mts. W Timotes), 2,000-2,500 m (see Paramito)

*Tortuguera*, 7 km SW Porlanar, 2 m (see Isla Margarita)

*Turgua* (nr.), 16 km SSE Caracas, 1,144 m (see San Andrés)

*Uaiparú*, 19 km NE Icabarú, 658 m (see Icabarú)

*Upata* (5 km SSW Upata), 7°59'N-62°25'W, 300 m (BOLÍVAR). Hills covered with low deciduous forest and grassland, on road from Upata to El Manteco. Holdridge classification: TROPICAL dry forest (bs-T). Col-

lectors: M. Tuttle and A. Tuttle. SVP number: 7862 (1 mammal, found dead on road). 28 Apr 1966. SVP locality 17.

*Upata* (25 km S Upata), 7°45'N-62°26'W, 300 m (BOLÍVAR). Hilly evergreen forest, on road from Upata to El Manteco. Holdridge classification: PREMONTANE humid forest (bh-P). Collectors: M. Tuttle and A. Tuttle. SVP number: 7819 (1 mammal, found dead on road). 14 Apr 1966. SVP locality 15.

*Urama* (2.5 to 24 km NW, N, and NE Urama), 10°37'N-68°24'W, 10°32'N-68°23'W, 10°29'N-68°19'W, 25-60 m (CARABOBO, FALCÓN, and YARACUY). Cattle ranch on flat to hilly plain between Salado, Yaraucuy, and Aroa rivers, inland about 15 km from coast. Numerous permanent and seasonal streams; some small ponds; and a few extensive, rather open swamps. Much clearing for pasture; grass varying from short on dry hills to 1.5-2.5 m high; dense patches of wild cane and *Heliconia* on streambanks and in other damp places; occasional banana plantations. Small patches of thorny deciduous forest between Salado and Yaraucuy rivers; extensive stands of mature evergreen forest N Río Yaraucuy. Holdridge classification: TROPICAL dry forest (bs-T) and TROPICAL humid forest (bh-T). Collectors: M. Tuttle and A. Tuttle. SVP numbers: 1579-1826, 1828-1999, 5000-5479, 6745-6753, 6755-7194, 7196-7325 (1,272 mammals, 39 birds, 56 reptiles, 112 amphibians). 12 Oct-16 Nov 1965, 4-25 Mar 1966. SVP locality 5.

*Valera* (12 to 30 km N to NW Valera), 9°32'N-70°40'W (to 9°31'N-70°35'W, 9°25'N-70°46'W, and 9°21'N-70°42'W), 90-930 m (TRUJILLO). Lower Río Motatán Basin. Alluvial plain with scattered low hills, bordered by low mountains; mostly sandy or sandy-clay soils; occasional clay escarpments up to 30 m high. Lower part of area dry (smaller stream courses seasonal), mostly cultivated and irrigated; higher part more humid, with continuous secondary forest and small isolated tracts of primary forest. Collecting in second-growth evergreen forest with trees 17-25 m high and thorny shrubs and vines; second-growth deciduous forest, mostly rather open, with trees to 25 m, vines, grass, and herbaceous plants, and often cactus and thorny shrubs; dense brush 5 m high, with clumps of high grass and scattered trees 10-15 m high; fallow fields overgrown with grass to 2.5 m high and scattered thorny shrubs 3-4

m high; high grass and forbs at edge of flooded rice fields; pasture, with clumps of grass 1 m high and scattered trees; swamp with damp ground and small streams, dense *Heliconia* 4-5 m high, scattered palms and trees to 25 m, vines, and thickets of bamboo. Holdridge classification: TROPICAL dry forest (bs-T) and TROPICAL humid forest (bh-T). Collectors: Peterson, Flanigan, Handley, Taylor, and Young. SVP numbers:

2114-2546, 2552-3549, 3551, 3634, 3702, 3704-3707, 3812 (1,320 mammals, 65 birds, 42 reptiles, 11 amphibians, 1 other). 15 Aug-25 Oct, 1 and 6 Nov, and 3-13 Dec 1965 and 17 Jan 1966. SVP locality 51.  
*Vetania*, 46 km NE Icabarú, 800 m (see Icabarú)  
*Yabuquiva*, 25 km SW Pueblo Nuevo, 13 m (see Península de Paraguaná)  
*Zamurito*, 13 km SSE Capatárida, 30-60 m (see Capatárida)

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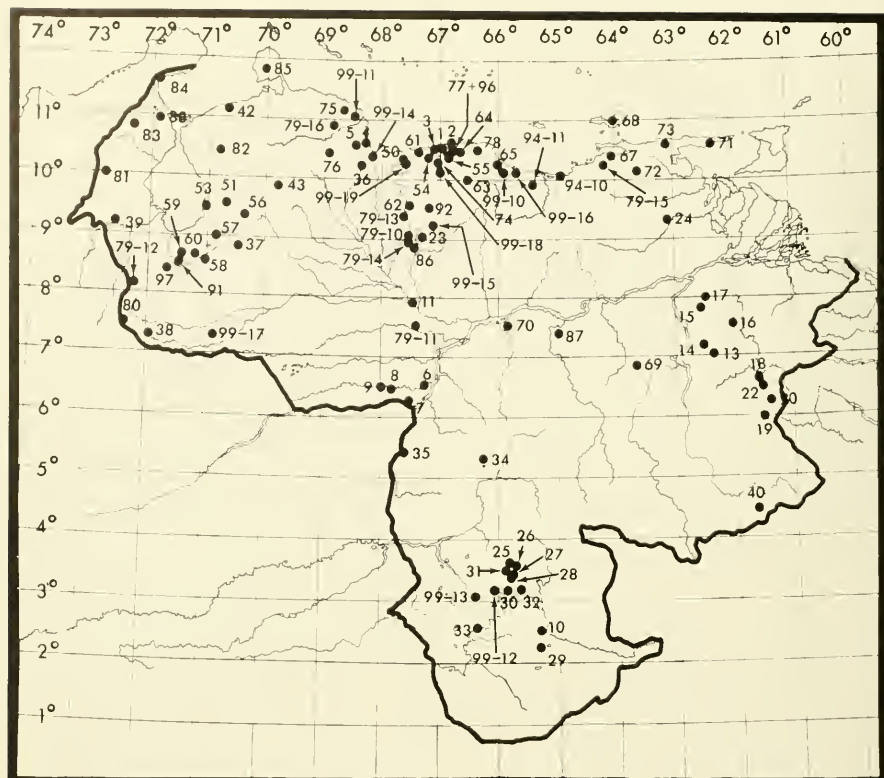


Fig. 1 Map of Venezuela showing major SVP collecting localities.

- |    |   |    |   |
|----|---|----|---|
| 01 | Los Venados, 4 km NNW Caracas, Dto. FEDERAL   | 15 | Upata (25 km S), BOLÍVAR  |
| 02 | Pico Ávila (= Hotel Humboldt and Boca de Tigre), 5 km NNE to 6 km NNW Caracas, Dto. FEDERAL and MIRANDA | 16 | Guasipati (5 km NNW), BOLÍVAR   |
| 03 | Boca de Tigre Valley, 5 km NW Caracas, Dto. FEDERAL   | 17 | Upata (5 km SSW), BOLÍVAR   |
| 04 | Boca de Yaracuy, 28 km WNW Pto. Caballo, FALCÓN   | 18 | El Dorado (15 km SE), BOLÍVAR   |
| 05 | Urama (2.5 to 24 km NW, N, and NE), CARABOBO, FALCÓN, and YARACUY                                       | 19 | Km 125, 68 to 85 km SSE El Dorado, BOLÍVAR                                  |
| 06 | Hato Cariben, nr. Santa María, 32 to 46 km NE Pto. Páez, APURE  | 20 | El Manaco, 56 to 68 km SE El Dorado, BOLÍVAR                                |
| 07 | Puerto Páez (to Río Cinaruco, 38 km NNW), APURE   | 22 | Km 33, 28 km SE El Dorado, BOLÍVAR  |
| 08 | Río Cinaruco, 48 km NW Pto. Páez, APURE   | 23 | Hato Los Leones (Caño Agua Fria), 23 km NE Calabozo, GUÁRICO                |
| 09 | Río Cinaruco, 65 km NW Pto. Páez, APURE   | 24 | Hato Mata de Bejuco, 55 km SSE Maturín, MONAGAS                             |
| 10 | Boca Mavaca, 84 km SSE Esmeralda, T. F. AMAZONAS  | 25 | Belén, Río Cunucunuma, 56 km NNW Esmeralda, T. F. AMAZONAS                  |
| 11 | San Fernando, APURE   | 26 | Caño Culebra, Cerro Duida, 50 km NNW Esmeralda, T. F. AMAZONAS              |
| 13 | Río Supamo, 50 km SE El Manteco, BOLÍVAR  | 27 | Cabecera del Caño Culebra, Cerro Duida, 40 km NNW Esmeralda, T. F. AMAZONAS |
| 14 | Los Patos, 25 km SE El Manteco, BOLÍVAR   | 28 | Cabecera del Caño Negro, Cerro Duida, 32 km NW Esmeralda, T. F. AMAZONAS    |
|    |   | 29 | Río Mavaca, 108 km SSE Esmeralda, T. F. AMAZONAS                            |



30	Tamatama, Río Orinoco, 2 km above Boca de Casiquiare, T. F. AMAZONAS	73	Manacal, 26 km ESE Carúpano, SUCRE
31	Acanaña, Río Cunucumuma, 48 km NW Esmeralda, T. F. AMAZONAS	74	I.V.I.C., 15 km SW Caracas, DTO. FEDERAL and MIRANDA
32	Esmeralda (to 20 km SE and 14 km W), Río Orinoco, T. F. AMAZONAS	75	Mirimire (to 20 km NNE to ESE), FALCÓN
33	Capibara, Brazo Casiquiare, 106 km SW Esmeralda, T. F. AMAZONAS	76	Minas de Aroa, 19 to 30 km NW San Felipe, YACUAY
34	San Juan, Río Manapiare, 163 km ESE Pto. Ayacucho, T. F. AMAZONAS	77	El Encantado, 13 to 15 km SE Caracas, MIRANDA
35	Puerto Ayacucho (to 70 km SSW), T. F. AMAZONAS	78	Birongo, MIRANDA
36	Montalbán (within 14 km of town center), CARABOBO	79-10	Embalse de Guárico, 10 km N Calabozo, GUÁRICO
37	Altamira, BARINAS	79-11	San Rafael de Atamaica, 42 km SSE San Fernando, APURE
38	Nullita, Selvas do San Camilo, 29 km SSW Sto. Domingo, APURE	79-12	Las Mesas, 17 km NE San Juan de Colón, TÁCHIRA
39	El Rosario, 39 to 65 km WNW Encontrados, ZULIA	79-13	San José de Tiznados, 52 km NNW Calabozo, GUÁRICO
40	Icabarú (to 56 km NE), BOLÍVAR	79-14	Calabozo, GUÁRICO
42	Capatánrida (within 31 km of town center), FALCÓN	79-15	San Fernando, 16 km SE Cumaná, SUCRE
43	Caserío Boro, 10 to 47 km N and NE El Tocuyo, LARA	79-16	Ricito, 30 km S Mirimire, FALCÓN
50	Rancho Grande (Est. Biol.), 13 km NW Maracay, ARAGUA	80	Buena Vista, nr. Páramo de Tamá, 41 km SW San Cristóbal, TÁCHIRA
51	Valera (12 to 30 km N to NW), TRUJILLO	81-(10-18)	Kasmera, 21 km SW Machiques, ZULIA
53	La Ceiba, 46 to 53 km WNW Valera, TRUJILLO	81-(19-25)	Novito, 19 km WSW Machiques, ZULIA
54	Alto No León, 31 to 36 km WSW Caracas, DTO. FEDERAL and MIRANDA	81-26	Río Negro, 8 km W Machiques, ZULIA
55	San Andrés, 16 km SSE Caracas, MIRANDA	82-(10-17)	Cerro Socopo, 84 km NW Carora, FALCÓN
56	Hda. Misisi, 13 to 15 km E Trujillo, TRUJILLO	82-(18-24)	Río Socopito, 80 km NW Carora, FALCÓN
57	Paramito, 3 to 4 km W Timotes, MÉRIDA	83	Cerro Azul, 33 to 40 km NW La Paz, ZULIA
58	Tabay (4 to 9 km ESE and 1 km SW), Parq. Nac. Sierra Nevada, MÉRIDA	84	Cojoro, 30 to 40 km NNE Paraguaipoa, GUAYIRA and ZULIA
59	La Carbonera, 6 to 12 km SE La Azulita, MÉRIDA	85	Península de Paraguaná, 6 to 25 km S. SW, and N Pueblo Nuevo, FALCÓN
60	Santa Rosa, 1 to 2 km N Mérida, MÉRIDA	86	Est. Biol. de los Llanos, 9 to 14 km SE Calabozo, GUÁRICO
61	Hda. Carapiche, nr. El Limón, 48 km W Caracas, DTO. FEDERAL	87	Río Tiquire, 27 km ENE Maripá, BOLÍVAR
62	Hato Las Palmitas, 35 km SSW San Juan de los Morros, GUÁRICO	88	San Rafael de Mara (7 km NW, nr. Río Limón), ZULIA
63	Guatopo (Parq. Nac.), 10 to 35 km NE, N, and NW Altigracia, GUÁRICO and MIRANDA	91	Lagunillas (1 km NE), MÉRIDA
64	Curupao, 5 km NNW Guareñas, MIRANDA	92	Hda. Los Mamones, 16 km NW Barbacoas, GUÁRICO
65	Río Chico (to 10 km from town center), MIRANDA	94-10	Pto. Píritu (20 km E), ANZOÁTEGUI
67	Cumaná (to 24 km E), SUCRE	94-11	Clarines (14 km W), ANZOÁTEGUI
68	Isla Margarita, NUEVA ESPAÑA	96	Caracas, DTO. FEDERAL and MIRANDA
69	Hato San José, 20 to 37 km NW, W, and SW La Paragua, BOLÍVAR	97	Mesa Bolívar, 22 km SSE El Vigía, MÉRIDA
70	Hato La Florida, 38 to 63 km SE and SSE Caicara, BOLÍVAR	99-10	El Guapo (13 km E), MIRANDA
71	Ensenada Cauranta, 9 to 12 km NE Güiría, SUCRE	99-11	San Juan de los Cayos (13 km SE, nr. Boca de Tocuyo), FALCÓN
72	San Agustín, 2 to 10 km to W and SW Caripe, MONAGAS and SUCRE	99-12	Boca de Río Cunucumuma, 49 km W Esmeralda, T. F. AMAZONAS
		99-13	Caño Cariche, Río Orinoco, 92 km W Esmeralda, T. F. AMAZONAS
		99-14	Pto. Cabello (15 km SW), CARABOBO
		99-15	La Encrucijada, 18 km S El Sombrero, GUÁRICO
		99-16	Cúpira, 30 km E El Guapo, MIRANDA
		99-17	Guas dualito (10 km WNW, nr. Río Sannare), APURE
		99-18	Tácata, 35 km SW Caracas, MIRANDA
		99-19	El Limón, 4 km NW Maracay, ARAGUA