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A LIST OF MAMMALS FROM COSTA RICA

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THE University of Michigan Museum of Zoology contains collections of mammals taken by Austin Smith during the years 1928 to 1935. These collections have added considerably to our knowledge of the distribution of Costa Rican mammals.

This paper includes a list of Austin Smith's collecting localities, a map locating each place, and a list of his species. Extensions of ranges over those given by Miller (1924) and, in addition, most of the mammal type localities in Costa Rica are indicated. Distances are by air line. The sources from which the map was made include letters from Smith, a map of Costa Rica by H. Pittier, and the recently completed 1:1,000,000 map of Hispanic America by the American Geographical Society.

COLLECTING LOCALITIES

Agua Caliente, Cartago.—A small village one and one-half miles south of the city of Cartago on the Caribbean slope (about 3800 feet altitude).

Agujas (Las), Puntarenas.—A village on a sandy peninsula, with coconut palms and mangrove trees, about twenty miles south of the city of Puntarenas on the Pacific coast. Collections were made near the mouth of a river of the same name and about two miles inland (altitude, sea level to 25 feet).

Alajuela, Alajuela.—The capital of the province of the same name, on a branch of the Río Grande de Tárcoles, which flows into the Pacific (altitude, about 3100 feet).

Alemania (Hacienda), Guanacaste.—An hacienda about thirty-five miles north of Liberia and eight miles north of Volcán Orosi (altitude, 50 feet).

Angostura Valley, Cartago.—Opposite Turrialba, on the south side of the Río Reventazón.

Ballena, Guanacaste.—On the Peninsula de Nicoya about fifteen miles north of Nicoya at the edge of tidewater (altitude, sea level to 25 feet).

Bebedero, Guanacaste.—A small village at the junction of the Ríos Tenorio and Bebedero, near the upper end of the Golfo de Nicoya (altitude, sea level to 15 feet). This is a collection station of Enrique Arcé, Underwood, Cherrie, Alfaro, Lankester, and Carriker.

Boruca, Puntarenas.—Near the Río Diquis, about twelve miles from the Pacific coast.

Carpintera (La), Cartago.—On the railroad about two miles from Cartago.

Cartago, Cartago.—A city twelve miles southeast of San José on the Caribbean slope (altitude, 4500–4900 feet).

Cerros de San Juan, Guanacaste.—Mountains ten to fifteen miles southwest of Santa Cruz, Peninsula de Nicoya.

Chomes, Puntarenas.—On the Golfo de Nicoya about ten miles northwest of Puntarenas (sea level).

Copey (El, de Dota), Cartago.—About fifteen miles south of Cartago on the Pacific watershed and at the boundary between the tropical and temperate zones. Formerly forested with large trees, mainly oaks (altitude, 6000 feet).

Coto, Puntarenas.—On the Río Coto, eight miles from the Golfo Dulce, Pacific slope (altitude, 25 feet).

Cruz (La), Guanacaste.—In the northern part of the Province, on the Pacific slope, about four miles inland (altitude, sea level to 350 feet).

Esparta, Puntarenas.—A town about twelve miles east of the city of Puntarenas (altitude, 700 feet).

Estrella (de Cartago), Cartago.—About four miles south of Cartago, in the Candelaria mountains (altitude, 6000–7000 feet).

General (El), Puntarenas.—A town about forty miles south-east of Cartago in the foothills of the Pacific slope and twelve miles from the coast (altitude, 2000 feet).

Hondura (La), San José.—An hacienda about twenty miles north of Cartago in a pass between the central mesa and the tropical forest north of the Volcán Irazú (altitude, 4000 feet).

Huacas (Las), Guanacaste.—Near the center of the Peninsula de Nicoya, about fifteen miles southeast of Nicoya (altitude, 100 feet).

Jiménez, Limón.—A small town on the old railroad about thirty miles northeast of Cartago on the northern slopes of the Volcán Turrialba (altitude, 600 feet).

Liberia, Guanacaste.—The capital of Guanacaste, about thirty-five miles northwest of the head of the Golfo de Nicoya (altitude, 300 feet).

Miravalles (Hacienda), Guanacaste.—Fifteen miles east of Liberia.

Muñeco (El), Cartago.—About five miles southeast of Cartago, on the Río Navarro, three miles upstream from the village of Navarro (altitude, 4200 feet).

Navarro, Cartago.—A small village about five miles south-east of Cartago.

Oja Ancha, Guanacaste.—In the south-central part of the Peninsula de Nicoya, 10° north latitude (altitude, 500–800 feet).

Pacuare (= Pacuarito ?), Limón.—About thirty miles west of Limón on the railroad to San José and on the river of the same name (altitude, 2000 feet).

Pelón (El), Guanacaste.—A collecting station on a line between Hacienda Santa María and Volcán Orosi, not to be confused with a town of the same name several miles to the west.

Perálta, Cartago.—The name of a station on the Northern Railroad thirty miles east of San José. Collections were made in near-by hills at 2000 to 3000 feet altitude.

Pozo Azul, San José.—Nine miles upstream from the mouth of the Río Pirrís.

Pozo del Tempisque, Guanacaste.—A station on the Río Tempisque about eight miles from its mouth (altitude, 100 feet).

Punta Jiménez, Puntarenas.—Near the southern coast of the Peninsula de Osa on the Golfo Dulce, opposite the mouth of the Río Coto.

Puntarenas, Puntarenas.—The most important Pacific seaport town of Costa Rica, on the Golfo de Nicoya (sea level).

Quebrada Azul, Alajuela.—A village about eight miles northwest of Villa Quesada (altitude, 800 feet).

Quesada (Villa), Alajuela.—About twenty miles northwest of Alajuela (altitude, 2200 feet).

San Carlos, Alajuela.—A small settlement on the Río San Carlos about fifteen miles north of Villa Quesada (altitude, 120 feet).

San Gerónimo, San José.—Eleven miles upstream from the mouth of the Río Pirrís.

San Isidro, Cartago.—On the Caribbean slope about two miles south of Cartago (altitude, 5500 feet).

San Juanillo, Guanacaste.—A village on the Pacific coast of the Peninsula de Nicoya, about 10° north latitude (sea level).

San Joaquín (de Dota), San José.—On the Pacific slope of the Cordillera de Talamanca, about five miles south of Santa María de Dota (altitude, 4000 feet).

San Pedro (de Poás), Alajuela.—About half-way between the city of Alajuela and the Volcán de Poás (altitude, 6000 feet).

Santa María (de Dota), San José.—A village on the Río Parrita, about twelve miles south of Cartago.

Santa María (Hacienda), Guanacaste.—A large hacienda, the eastern part of which is within the cloud forest fifteen miles northeast of Liberia (altitude, 3200 feet).

Suerre, Limón.—A finca near Jiménez (altitude, about 1500 feet).

Talamanca (= Sipúrio), Limón.—Near the Río Sixaola, fifteen miles from the Caribbean coast.

Tambor, Puntarenas.—A small settlement on the Bahía de Ballena at the southeastern extremity of the Peninsula de Nicoya (sea level).

Tempate, Guanacaste.—A village on the Peninsula de Nicoya about fifteen miles northwest of Santa Cruz and four miles from the Pacific Ocean (altitude, 100–150 feet). Specimens sent to Gray and Salvin in 1862 were collected here by Enrique Arcé.

27 de Abril, Guanacaste.—A village near the Pacific coast and five miles northwest of Santa Cruz (altitude, 200 feet).

Uvita (Puerto), Puntarenas.—A village on the Pacific coast about ten miles north of the mouth of the Río Diquis (sea level).

Vieja (La, de San Carlos), Alajuela.—Ten miles south of San Carlos (altitude, 350–1200 feet).

Volcán Irazú, Cartago.—About ten miles northeast of Cartago.

Volcán Miravalles, Guanacaste.—A collecting station on the Volcán about twenty miles east of Liberia (altitude, 1500 feet).

Vueltas (Las), Cartago.—A collection was made on Cerro Vueltas in the oak forest near the timber line, about twenty miles south of Cartago (altitude, 11,000–11,300 feet).

Zarcéro, Alajuela.—On the headwaters of a tributary to the Río San Carlos about fifteen miles northwest of Alajuela (altitude, 5300 feet).

ANNOTATED LIST OF MAMMALS

The mammals listed are in the University of Michigan Museum of Zoology and were collected by Austin Smith between July, 1928, and May, 1935. A few localities for squirrels from the Donald R. Dickey collection are also included. Previously, these squirrels were listed erroneously as belonging to the Museum of Zoology (Harris, 1937). An asterisk indicates that the range of the species given by Miller (1924) did not include Costa Rica.

- **Didelphis richmondi* Allen. Opossum.
Type locality: Greytown, Nicaragua.
Specimen: El Muñeco, 1.
- Marmosa mexicana zeledoni* Goldman. Mouse opossum.
Type locality: Navarro, Costa Rica.
Specimens: El Muñeco, 6; San Joaquín de Dota, 2.
- **Metachirops opossum fuscogriseus* Allen. Woolly opossum.
Type locality: Greytown, Nicaragua.
Specimens: Hacienda Santa María, 3.
- Caluromys laniger centralis* Hollister. Long-tailed opossum.
Type locality: Talamanca, Costa Rica.
Specimen: Puntarenas, 1.
- **Cryptotis micrura* Tomes. Shrew.
Type locality: Cobán, Guatemala.
Specimens: Estrella, 2; Cartago, 1; El Muñeco, 1.
- Cryptotis orophila* Allen. Shrew.
Type locality: Volcán Irazú, Costa Rica.
Specimen: Las Vueltas, 1.
- Saccopteryx bilineata centralis* Thomas. White-lined bat.
Type locality: Teapa, Tabasco, Mexico.
Specimens: Las Huacas, 3.
- **Phyllostomus hastatus panamensis* Allen. Spear-nosed bat.
Type locality: Boquerón, Chiriquí, Panama.
Specimens: 27 de Abril, 4.
- Glossophaga soricina leachii* Gray. Long-tongued bat.
Type locality: Realejo, Nicaragua.
Specimen: Tambor, 1.
- Carollia perspicillata azteca* Saussure. Short-tailed bat.
Type locality: Southern Mexico.
Specimens: 27 de Abril, 1; Cerros de San Juan, 1; Las
Huacas, 1; San Carlos, 2.
- Uroderma bilobatum* Peters. Yellow-nosed bat.
Type locality: São Paulo, Brazil.
Specimens: Las Huacas, 3; Cerros de San Juan, 1.

- Artibeus jamaicensis palmarum* Allen and Chapman. Large line-faced bat.
Type locality: Trinidad.
Specimens: Las Huacas, 2.
- **Artibeus nanus* Anderson. Anderson line-faced bat.
Type locality: Tierra Colorada, Guerrero, Mexico.
Specimens: 27 de Abril, 3.
- **Molossus sinaloae* Allen. Mastiff bat.
Type locality: Escuinapa, Sinaloa, Mexico.
Specimens: La Vieja de San Carlos, 2.
- Nasua narica bullata* Allen. Coati-mundi.
Type locality: Pozo Azul, San José Province, Costa Rica.
Specimens: El Copey de Dota, 1; San Joaquín de Dota, 1.
- Bassaricyon lasius* Harris. Bushy-tailed olingo.
Type locality: Estrella de Cartago, Costa Rica.
Specimen: Estrella de Cartago, 1.
- **Potos flavus arborensis* Goodwin. Kinkajou.
Type locality: El Sáuce Perálta, Limón Province, Costa Rica.
Specimens: El Copey de Dota, 1; El Muñeco, 1.
- **Jentinkia sumichrasti notinus* Thomas. Ring-tailed cat.
Type locality: Boquéte, Chiriquí, Panama.
Specimen: El Copey de Dota, 1.
- Mustela frenata costaricensis* Goldman. Long-tailed weasel.
Type locality: San José, Costa Rica.
Specimen: El Muñeco, 1.
- Felis pardinoides oncilla* Thomas. Cat.
Type locality: Volcán de Irazú, Costa Rica.
Specimen: El Copey de Dota, 1.
- **Felis eyra panamensis* Allen. Jaguarundi.
Type locality: Boquerón, Chiriquí, Panama.
Specimen: El Muñeco, 1.
- Saimiri örstedii citrinellus* Thomas. Titi monkey.
Type locality: Pozo Azul, San José Province, Costa Rica.
Specimens: Coto, 3.

Microsciurus alfari alfari Allen. Pigmy tree squirrel.

Type locality: Jiménez, Costa Rica.

Specimens: San Joaquín de Dota, 4.

Microsciurus alfari alticola Goodwin. Pigmy tree squirrel.

Type locality: Lajos, Villa Quesada, altitude, 5000 feet,
Province of Alajuela, Costa Rica.

Specimens: La Hondura, 1; La Vieja de San Carlos, 1.

**Microsciurus alfari browni* Bangs. Pigmy tree squirrel.

Type locality: Bogava, Chiriquí, Panama.

Specimens: Coto, 4; Puntarenas, 2; Puerto Uvita, 2; El
General, 1.

Sciurus hoffmanni hoffmanni Peters. Hoffmann squirrel.

Synonym: *Sciurus hoffmanni chiriquensis* Bangs.

Type locality: Agua Caliente, San José, Costa Rica.

Specimens: San Joaquín de Dota, 10; El Copey de Dota, 1;
Las Vueltas, 6; San Isidro, 1; El Muñeco, 3; Villa Que-
sada, 3; Zarcé, 3; San Pedro de Poás, 2; El General, 2;
Punta Jiménez, 2; Coto, 4.

Agua Caliente, according to Austin Smith, is probably the locality where Hoffmann collected the specimen on which Peters based the type of *hoffmanni*, which was labeled simply "Costa Rica" by the collector. Allen (1915: 216) indicated the "type region . . . to be the vicinity of San José." It is here fixed at Agua Caliente, San José Province, Costa Rica. The last six specimens listed above are the only specimens which might be considered as *S. h. chiriquensis*, if the latter can be considered a recognizable subspecies. Allen (1915: 221), who restricted the range of *chiriquensis* to the lowlands of Costa Rica and Chiriquí, stated that *chiriquensis* differed from *hoffmanni* by the former's slightly richer and more rufous tone of coloration, a reversal of the statement concerning these characters as given by Bangs (1902: 22) in the original description of *chiriquensis*. Allen had stated previously (1904: 66) that *chiriquensis* was indistinguishable from

hoffmanni. The specimens in the present collection, from Costa Rica, show considerable variation, but no average difference in coloration between the mountain and lowland forms. The same can be said of the comparison between these Costa Rican animals and a large series from Chiriquí in the Museum of Comparative Zoology at Harvard. In his account of *chiriquensis*, Bangs reported that the animals taken at higher altitudes were more woolly and had more underfur than did those from lowlands. The same can be said of the specimens in the present collection from Costa Rica; specimens from Punta Jiménez and Coto have thinner pelages than do those from the highlands. Bole (1937: 161) stated that specimens of *chiriquensis* from Mariato, in external characters, tended towards *hoffmanni*. He also found these animals ranging from sea level and coastal islands to 4000 feet elevation. In view of the foregoing, it would seem that *chiriquensis* should be considered a synonym of *hoffmanni* and that the range of the latter in Central America should include central Costa Rica south through the Azuero Peninsula of Panama.

Sciurus deppei miravallensis Harris. Miravalles squirrel.

Sciurus miravallensis Harris, *Occ. Papers Mus. Zool. Univ. Mich.*, No. 227 (1931): 1.

Type locality: Volcán de Miravalles, Costa Rica.

Specimens: Volcán de Miravalles, 2; Hacienda Alemania, 1; Hacienda Santa María, 3.

Sciurus variegatoides atrirufus Harris. Tree squirrel.

Type locality: Tambor, Guanacaste, Costa Rica.

Specimens: Tambor, 6.

Sciurus variegatoides austini Harris. Tree squirrel.

Type locality: Las Agujas, Puntarenas, Costa Rica.

Specimens: Las Agujas, 10.

Sciurus variegatoides dorsalis Gray. Tree squirrel.

Type locality: Liberia, Costa Rica.

Specimens: Liberia, 2; El Pelón (Dickey coll.), 2; La Cruz, 2; Bebedero, 1; Chomes (Dickey coll.), 2; 27 de Abril, 4;

Las Huacas, 1; San Juanillo, 8; Cerros de San Juan, 4; Oja Ancha, 4; Pozo del Tempisque, 1; Tempate, 7; Ballena, 11.

Sciurus variegatoides rigidus Peters. Tree squirrel.

Type locality: San José, Costa Rica.

Specimens: Cartago, 2; Agua Caliente, 1; Zarcéro, 6; Esparta, 3; Puntarenas, 4; San Joaquín de Dota, 1.

Sciurus variegatoides thomasi Nelson. Tree squirrel.

Type locality: Talamanca, Costa Rica.

Specimens: Villa Quesada, 1; Perálta, 1; La Vieja, 1; San Carlos, 2; Pacuare (Dickey coll.), 1; Jiménez, 2; Quebrada Azul, 1.

Macrogeomys dolichocephalus Merriam. Pocket gopher.

Type locality: San José, Costa Rica.

Specimens: El Muñeco, 6.

Macrogeomys heterodus Peters. Pocket gopher.

Type locality: Costa Rica.

Specimens: Zarcéro, 3.

Heteromys oresterus Harris. Spiny pocket mouse.

Type locality: El Copey de Dota, Cartago, Costa Rica.

Specimens: El Copey de Dota, 10; El Muñeco, 1.

Heteromys repens Bangs. Spiny pocket mouse.

Type locality: Boquéte, Volcán de Chiriquí, Panama.

Specimens: Hacienda Santa María, 3; El General, 1.

Liomys salvini nigrescens Thomas. Black spiny pocket mouse.

Type locality: Costa Rica.

Specimens: Tempate, 1; Cerros de San Juan, 4; San Juanillo, 1.

Reithrodontomys mexicanus cherrii Allen. Harvest mouse.

Type locality: San José, Costa Rica.

Specimens: El Copey de Dota, 5; Estrella, 3; Cartago, 2; San Joaquín de Dota, 1.

Reithrodontomys sp.

Specimen: Hacienda Santa María, 1.

- Peromyscus nudipes nudipes* Allen. White-footed mouse.
Type locality: La Carpintera, Costa Rica.
Specimens: San Joaquín de Dota, 1; Las Vueltas, 5; El Copey de Dota, 6; Estrella, 16; El Muñeco, 8; Zarcéro, 2.
- Peromyscus nudipes hesperus* Harris. White-footed mouse.
Type locality: Hacienda Santa María, Guanacaste, Costa Rica.
Specimens: Cerros de San Juan, 2; Hacienda Santa María, 5.
- Oryzomys couesi couesi* Alston. Rice rat.
Type locality: Cobán, Guatemala.
Specimens: San Juanillo, 13; Hacienda Santa María, 2.
- Oryzomys alfaroi alfaroi* Allen. Rice rat.
Type locality: San Carlos, Costa Rica.
Specimens: Cerros de San Juan, 2; Hacienda Santa María, 5; El Muñeco, 2.
- Oryzomys talamancae* Allen. Talamanca rice rat.
Type locality: Talamanca, Costa Rica.
Specimen: Coto, 1.
- Oryzomys devius* Bangs. Rice rat.
Type locality: Boquéte, Chiriquí, Panama.
Specimens: Estrella, 11; El Muñeco, 8.
- Oryzomys tectus tectus* Thomas. Rice rat.
Type locality: Bogava, Chiriquí, Panama.
Specimen: El General, 1.
- Oryzomys fulvescens costaricensis* Allen. Costa Rica rice rat.
Type locality: El General, Costa Rica.
Specimens: El Copey de Dota, 4; San Joaquín de Dota, 5; Estrella, 2; El Muñeco, 5; Cartago, 3; El General, 3; Cerros de San Juan, 1; Hacienda Santa María, 2.
- Oryzomys caliginosus chrysomelas* Allen. Rice rat.
Type locality: Suerre, Costa Rica.
Specimens: El General, 2; Coto, 1; Hacienda Santa María, 11.
- Oryzomys aphantus* Harris. Rice rat.
Type locality: San Joaquín de Dota, Costa Rica.

Specimen : San Joaquín de Dota, 1.

In his revision of the genus *Oryzomys*, Goldman (1918) recorded sixty-nine specimens, comprising eight species, from thirteen localities in Costa Rica. In the collections of the Museum of Zoology, there are eighty-five specimens from ten localities. One subspecies, *O. b. alleni*, recorded by Goldman is not represented in the present collection. One species, *aphrastus*, was not available to Goldman. There has now been a total of nine species of *Oryzomys* recorded from Costa Rica.

**Tylomys watsoni* Thomas. Climbing rat.

Type locality : Bogava, Chiriquí, Panama.

Specimens : San Joaquín de Dota, 2 ; El Muñeco, 1.

**Ototylomys fumeus* Allen. Climbing rat.

Type locality : Matagalpa, Nicaragua.

Specimens : Cerros de San Juan, 4.

**Nyctomys sumichrasti venustulus* Goldman. Vesper rat.

Type locality : Greytown, Nicaragua.

Specimen : La Vieja, 1.

Sigmodon hispidus borucae Allen. Cotton rat.

Type locality : Boruca, Costa Rica.

Specimens : San Juanillo, 7 ; Cerros de San Juan, 10 ; Las Huacas, 1 ; Hacienda Santa María, 5.

Scotinomys irazú Allen. Irazú brown mouse.

Type locality : Volcán de Irazú, Costa Rica.

Specimens : Las Vueltas, 1 ; El Copey de Dota, 4 ; Estrella, 5 ; Cartago, 2 ; El Muñeco, 1.

Rattus rattus rattus Linnaeus. Black rat.

Type locality : Upsala, Sweden.

Specimen : Cartago, 1.

**Proechimys semispinosus panamensis* Thomas. Spiny rat.

Type locality : City of Panama, Panama.

Specimens : Coto, 5.

Proechimys semispinosus rubellus Hollister. Spiny rat.

Type locality: Angostura Valley, Costa Rica.

Specimens: San Carlos, 3.

Dasyprocta punctata underwoodi Goldman. Agouti.

Type locality: San Gerónimo, Costa Rica.

Specimen: 27 de Abril, 1.

Sylvilagus floridanus costaricensis Harris. Cottontail.

Type locality: Hacienda Santa María, Guanacaste, Costa Rica.

Specimens: El Pelón, 2; Hacienda Santa María, 3.

Sylvilagus dicei Harris. Forest rabbit.

Type locality: El Copey de Dota, Costa Rica.

Specimen: El Copey de Dota, 1.

Sylvilagus gabbi gabbi Allen. Forest rabbit.

Type locality: Talamanca, Costa Rica.

Specimens: Perálta, 1; Villa Quesada, 2.

Mazama sartorii cerasina Hollister. Brocket deer.

Type locality: Talamanca, Costa Rica.

Specimen: San Juanillo, 1.

Choloepus hoffmanni Peters. Two-toed sloth.

Type locality: Costa Rica.

Specimen: Estrella, 1.

**Tamandua tetradactyla chiriquensis* Allen. Two-toed anteater.

Type locality: Boquerón, Chiriquí, Panama.

Specimen: El General, 1.

**Cabassous centralis* Miller. Armadillo.

Type locality: Chamelicón, Honduras.

Specimen: El Muñeco, 1.

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