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Type localities for species of amphibians and reptiles described from Costa Rica

by

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ABSTRACT: The geographic type locality for all species, subspecies and varieties of amphibians and reptiles, originally described from Costa Rica, are listed alphabetically. Altitude, vegetation and notes on the locale, together with the taxa described from it are included. The list provides a framework for understanding the sources of old collections in the *milieu* of historical and economic development, and a basic bibliography of Costa Rican herpetology.

The purpose of the following list is to provide a reasonably accurate determination of the geographic localities that were the provenance of all species and subspecies of amphibians and reptiles described from the Republic of Costa Rica. The list had its genesis from a hand-written enumeration of localities and taxa prepared in 1964 as an amusement while I was confined to bed in San José with an illness. Subsequently I found it useful both for bibliographic and taxonomic purposes, but especially for planning fieldwork aimed at elucidating the systematics and distribution of the Costa Rican herpetofauna. It has also been useful to other workers attempting to resample populations for ecologic, biochemical or karyologic studies.

The list is simply organized, with the data arranged alphabetically by major locality reference. The place names are ordered without notice of the Spanish articles: el, los, la, las; common geographic terms: boca, ciénaga, cerro, isla, monte, puerto, río, salto, valle or volcán or such terms as finca, hacienda, rancho or muelle. The place name is given as it appears on the most recent

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1:500,000 scale map of the Instituto Geográfico de Costa Rica or on the 1:50,000 topographic series for the country. Emphasis is on locating the place with relation to other well-known localities, if the name does not appear on the 1:500,000 scale map. The cantón, province and elevation in meters is provided whenever possible. Elevations are corrected from reference to the mentioned maps or by altimeter reading taken by me at the site. Often these readings represent a correction from the approximations included in the original description.

In some cases a detailed discussion of a geographic region including several important localities is developed to aid others wishing to visit several sites on a single field trip.

I have endeavored to visit most of the type localities and include an indication of the major bioclimate (life zone) at each site following HOLDRIDGE (56) and TOSI (114).

In addition, notes clarifying the exact area from which type specimens were taken and the situation at the locality presently are described. Among the most disheartening aspects of the latter is the uniform and rapid destruction of the natural environments at the type localities, vastly accelerated in the past five years. As a further aid to non-Costa Ricans using the list, I have provided annotations relating to the history of the various sites, both as a clue to the reasons collectors were able to visit certain areas in early times, and to provide a sense of time and place for modern students. Most of these notes reflect facts known to any Costa Rican school child, but I trust they will provide appropriate background to those scientific visitors less familiar with Costa Rica's historic development.

Finally a list of species and their author and dates of description are given for each place. These citations provide an introduction to the scientific literature on the amphibians and reptiles of Costa Rica.

A further note on the political divisions of Costa Rica is in order. The republic is divided into seven provinces: ALAJUELA, CARTAGO, GUANACASTE, HEREDIA, LIMON, PUNTARENAS and SAN JOSE. The political capital of each province, except Guanacaste (Liberia), is a city of the same name. The province boundary lines make little geographic sense but reflect prime human emigration patterns and economic considerations. For example, Provincia de Puntarenas essentially consists of those Pacific lowland areas that were supplied by boat from the major port city of Puntarenas during the 19th and early 20th centuries. In another case, the Provincias de Alajuela and Heredia include areas north of the Cordillera Central, settled in the last 100 years by emigrants from the Meseta Central areas associated with the capital cities and originally connected by foot-trails then turned into ox-cart roads over the high passes to the Atlantic lowlands.

Each province is further divided into a series of cantones, usually based on emigration patterns involving movement of people from a single important town, that later became the political cabecera (head) or capital. The cantones of Costa Rica are, by province, as follows:

PROVINCIA DE ALAJUELA:

	Canton	Capital
1.	Alajuela	Alajuela
2.	San Ramon	San Ramón
3.	Grecia	Grecia
4.	San Mateo	San Mateo
5.	Atenas	Atenas
6.	Naranjo	Naranjo
7.	Palmares	Palmares
8.	Poas	San Pedro
9.	Orotina	Orotina
10.	San Carlos	Quesada
11.	Alfaro Ruiz	Zarcero
12.	Valverde Vega	Sarchí Norte
13.	Upala	Upala
14.	Los Chiles	Los Chiles
15.	Guatuso	San Rafael

PROVINCIA DE CARTAGO:

1.	Cartago	Cartago
2.	Paraiso	Paraíso
3.	La Union	Tres Ríos
4.	Jimenez	Juan Viñas
5.	Turrialba	Turrialba
6.	Alvarado	Pacayas
7.	Oreamuno	San Rafael
8.	El Guarco	Tejar

PROVINCIA DE GUANACASTE:

1.	Liberia	Liberia
2.	Nicoya	Nicoya
3.	Santa Cruz	Santa Cruz
4.	Bagaces	Bagaces
5.	Carrillo	Filadelfia
6.	Cañas	Cañas
7.	Abangares	Juntas
8.	Tilaran	Tilarán
9.	Nandayure	Carmona
10.	La Cruz	La Cruz
11.	Hojancha	Hojancha

PROVINCIA DE HEREDIA:

1.	Heredia	Heredia
2.	Barba	Barba

3.	SANTO DOMINGO	Santo Domingo
4.	SANTA BARBARA	Santa Bárbara
5.	SAN RAFAEL	San Rafael
6.	SAN ISIDRO	San Isidro
7.	BELEN	San Antonio
8.	FLORES	San Joaquín
9.	SAN PABLO	San Pablo
10.	SARAPIQUI	Puerto Viejo

PROVINCIA DE LIMON:

1.	LIMON	Limón
2.	POCOCI	Guápiles
3.	SIQUIRRES	Siquirres
4.	TALAMANCA	Bratsi
5.	MATINA	Matina
6.	GUACIMO	Guácimo

PROVINCIA DE PUNTARENAS:

1.	PUNTARENAS	Puntarenas
2.	ESPARTA	Esparta
3.	BUENOS AIRES	Buenos Aires
4.	MONTES DE ORO	Miramar
5.	OSA	Puerto Cortés
6.	AGUIRRE	Quepos
7.	GOLFITO	Golfito
8.	COTO BRUS	San Vito
9.	PARRITA	Parrita

PROVINCIA DE SAN JOSE:

1.	SAN JOSE	San José
2.	ESCAZU	Escazú
3.	DESAMPARADOS	Desamparados
4.	PURISCAL	Santiago
5.	TARRAZU	San Marcos
6.	ASERRI	Aserrí
7.	MORA	Colón
8.	GOICOECHEA	Guadalupe
9.	SANTA ANA	Santa Ana
10.	ALAJUELITA	Alajuelita
11.	CORONADO	San Isidro
12.	ACOSTA	San Ignacio
13.	TIBAS	San Juan
14.	MORAVIA	San Vicente
15.	MONTES DE OCA	San Pedro
16.	TURRUBARES	San Pablo

17.	DOTA	Santa María
18.	CURRIDABAT	Curridabat
19.	PEREZ ZELEDON	San Isidro de El General
20.	LEON CORTES	San Pablo

ACOSTA FARM *see* Cartagos.

AGUA BUENA, Cantón de Golfito, Provincia de PUNTARENAS: 1106 m. Near the Panamá line in the Cordillera Costeña, the region is now being heavily lumbered. Premontane Pluvial bioclimate.

Eleutherodactylus vocator Taylor, 1955
Lepidophyma reticulatum Taylor, 1955

AGUACATE, Cerros del, Monte or Monte de, Cantón de Atenas, Provincia de ALAJUELA: approximately 1000 m. An isolated low range lying north of the Río Grande de Tárcoles, south of San Ramón, west of Palmares, and east of San Marcos. Originally heavily wooded, but now denuded for agriculture, and overgrazed. Premontane Wet bioclimate.

Chalcidolepis metallicus Cope, 1875
Himantodes anisolepis Cope, 1894
Himantodes semifasciatus Cope, 1894 (a syntype)
Sibynomorphus ruthveni Barbour and Dunn, 1921

ALAJUELA, Provincia de.

SAVAGE and HEYER (86) have discussed the possible origin of the type of the listed species.

Hyla cherrei Cope, 1894

ALAJUELA, Cantón de Alajuela, Provincia de ALAJUELA: 951 m. The second most populous city in the republic is on the site of a public chapel, La Lajuela, established in 1782. A small population center, Villahermosa, grew up in the area to become the present city. Premontane Moist bioclimate.

Himantodes semifasciatus Cope, 1894 (a syntype)
Hylella chrysops Cope, 1894 (a specimen from San José was designated the lectotype of this name by STARRETT and SAVAGE, 95)

0.5 km NW ALFOMBRA, Cantón de Pérez Zeledón, Provincia de SAN JOSE: 880 m. This area is just off the road to Dominical at about 16-17 km (by road) WSW of San Isidro de El General. Types of the species listed below were taken from small streams feeding two small waterfalls that cascade down to the east side of the road. Premontane Pluvial bioclimate.

Centrolenella vireovittata Starrett and Savage, 1973

1.5 km NW ALFOMBRA, Cantón de Pérez Zeledón, Provincia de SAN JOSE: 970 m. E.H. Taylor collected in this vicinity on several occasions. The swamp and meadow that he mentions at 15 km (by road) WSW of San Isidro de El General drains into the Río Pacurito and lies east of the road to Dominical. Premontane Pluvial bioclimate.

Anolis humilis marsupialis Taylor, 1956
Dermophis occidentalis Taylor, 1955
Dipsas tenuissima Taylor, 1954
Hyla legleri Taylor, 1958
Neusticurus apodemus Uzzell, 1966

ALTURA, Cantón de Poás. Provincia de ALAJUELA: 2300 m. This little village is west of the bridge over the Río Mastate, about 10 km (by road) west of the Desengaño pass between Volcán Poás and Volcán Barba. TAYLOR (106) lists the site as 6 miles (by road) west of Isla Bonita, southern slope of Volcán Poás. He obviously used Isla Bonita or Cinchona (which *see*) for the entire area from the pass near Varablanca northward along the Sarapiquí road to Cariblanco (Fig. 1). The only road of any length running westward on Volcán Poás is the one leading to the crater of the volcano. Both the distance by road (9.7 km) and altitude leave no question as to this locality. Lower Montane Wet bioclimate.

Oedipina bonitaensis Taylor, 1952

AMUBRE *see* Amubri.

14 km SW AMUBRI, Río Lari, Cantón de Talamanca, Provincia de LIMON: 300 m. This site was erroneously listed as 16 km southwest of Amubre by SAVAGE (79). It is on the northwest bank of the Río Lari gorge near an unnamed creek between Suraya and the Río Yuani. Lowland Wet bioclimate.

Centrolenella ilex Savage, 1967

21 km SW of AMUBRI *see* Alto Lari.

near SALTO EL ANGEL (waterfall), Cantón de Alajuela, Provincia de ALAJUELA: 1380 m. This great and beautiful waterfall is in the Río La Paz Grande just west of a bridge over the river on the road from Varablanca to Cariblanco. *See* Isla Bonita and Cinchona for a description of the area. Premontane Pluvial bioclimate.

Eleutherodactylus angelicus Savage, 1975

4 km ESE LOS ANGELES DE TILARAN, Cantón de Tilarán, Provincia de GUANACASTE: 436 m. HEYER (55) has described this area in detail, it is heavily used for coffee culture. Lowland Moist bioclimate.

Mabuya brachypodus Taylor, 1956

ANGOSTURA, Cantón de Turrialba, Provincia de CARTAGO: 520 m. This locality is on the east bank of the Río Reventazón where the Turrialba

to Siquirres-Puerto Limón road crosses the river over a large bridge. The place is about 5 km ESE of Turrialba and 1 km W of Eslabón. The area is a steep-sided gorge with modest vegetation. It has also been identified as 7 km (by road) ESE of Turrialba. Premontane Wet bioclimate.

Anolis carpenteri A.A. Echelle, A.F. Echelle and Fitch, 1971

near ANGOSTURA, across Río Reventazón, on west bank, Cantón de Turrialba, Provincia de CARTAGO: 591 m. Premontane Wet bioclimate.

Cochranella reticulata Taylor, 1958

BOCA DE ARENAL, Cantón de San Carlos, Provincia de ALAJUELA: 55 m. This place lies near the juncture of the Río Arenal and Río San Carlos on the east bank of the latter river. The original settlement was an important river outpost, the Comandancia San Carlos, when much freight was brought up the Río San Juan from the Caribbean coast and thence up the Río San Carlos. During the middle of the last century freight was transported, originally from Muelle San Carlos where the Río San Rafael joins the larger stream and later from Boca de Arenal, by ox-cart across the pass from Ciudad Quesada via Zapote and Zarcero to Naranjo and thence to San José. After the subsequent development of the route from Sarapiquí via the Desengaño pass to the Meseta Central and the later freight road from Carrillo over Alto La Palma, the San Carlos route diminished in importance. The completion of the Northern (Atlantic) Railroad from Puerto Limón to San José via the Río Reventazón gorge in 1890, virtually eliminated use of the other three routes except for local transport. In the interim the Comandancia was no longer used to regulate river traffic and became known as Muelle Arenal. As pointed out by CARRIKER (21) the term San Carlos was used for this place by collectors in the period 1880-1910. This site is not to be confused with Muelle San Carlos to the south. Much of the original forest in this area has been destroyed only recently to provide pasture for beef cattle. Lowland Moist bioclimate.

Hyla phlebodes Stejneger, 1906

MUELLE ARENAL *see* Boca de Arenal.

ARRIBA.

This name apparently was applied loosely to the Meseta Central by Charles N. Riotte, who sent these specimens to Cope.

Anolis nannodes Cope, 1864 (lectoparatype)
Bufo coccifer Cope, 1867
Engystoma variolosum Cope, 1867
Pliocercus dimidiatus Cope, 1865
Ranula chrysoprasinus Cope, 1867
Sceloporus malachiticus Cope, 1864

AZAHAR, Cantón de El Guarco, Provincia de CARTAGO: 1500-2100 m. This place is reported on by CARRIKER (21) and mapped by SLUD (90). It is on the slopes of the area where the Candelaria ranges join the northern ridges of the Cordillera de Talamanca. Although I can find the place on no Costa Rican map, it lies in the area north of the Interamerican Highway, southwest of San Isidro de Tejar, formerly called San Isidro de Arenilla (1388 m) and southeast of Tobosi (1500 m). It is probably in the area of what is now called Palo Blanco. Lower Montane Wet bioclimate.

Rhadinaea pulveriventris Boulenger, 1896

VOLCAN BARBA, Cantón de Heredia, Provincia de HEREDIA.

Bothriechis nigroviridis W. Peters, 1859

VOLCAN BARBA *see* Cartagos.

VOLCAN BARBA, western slope *see* Finca Georgina.

Pass between VOLCAN BARBA and Volcán Poás *see* Desengaño.

Pass between VOLCAN BARBA and Volcán Irazú *see* Bajo La Hondura and La Palma.

VOLCAN BARBO *see* Volcán Barba.

BATAN, Cantón de Matina, Provincia de LIMON: 15 m. Originally spelled Bataan, this town lies on the railroad between Siquirres and Matina but is now mostly farmed for cacao by small landholders. Tropical Moist bioclimate.

Hyla manisorum Taylor, 1954
Hyla wellmanorum Taylor, 1952
Leiolopisma cherriei lampropholis Taylor, 1956
Microbatrachylus rearki Taylor, 1952

BEBEDERO, Cantón de Cañas, Provincia de GUANACASTE: 7 m. A working cattle ranch where the Ríos de las Piedras and Tenorio join to form the Río Bebedero, mostly in second growth. It is not to be confused with the small village of Bebedero near Escazú range (Fila Cedral) south of San José, where C.F. Underwood collected some material for the British Museum. Tropical Dry bioclimate.

Hyla microcephala Boulenger 1898 (nec Cope, 1886)
Hyla underwoodi Boulenger, 1899 (substitute name for *Hyla microcephala* Boulenger)
Leptodactylus maculilabris Boulenger, 1896

PICO BLANCO, Urén district *see* Río Urén.

PICO BLANCO - in the late 1800's, name applied to Cerro Kámuk. *see* slope of Cerro Utyum.

ISLA BONITA, Cantón de Alajuela, Provincia de ALAJUELA: 1200 m. Isla Bonita is at the northern end and Cinchona (1.5 km south) is at the southern end or entrance to the ill-fated Cinchona plantation established on the Atlantic slope of Volcán Poás during World War II. The entire area on both sides of the road running from the pass between volcanes Barba and Poás, near Varablanca (1804 m) north to Cariblanco (830 m) was called Cinchona or Isla Bonita by Edward H. Taylor, who collected here immediately following the war and in the 1950's and 60's. Isla Bonita lies at the northern end of the cinchona plantation at 1200 m elevation. In addition to the areas sampled by Taylor, other important landmarks from south to north along the road are the Río La Paz Grande and its beautiful waterfall, Salto El Angel, at 1380 m, Río La Paz Pequeño (1370 m) and the Río Santiaguito area and stone quarry (1350 m) 0.6 km south of Cinchona (Fig. 1).

In 1966 Norman J. Scott took Taylor back over this area and had him identify the type-localities. These data are incorporated in this list. It is apparent that Taylor's published localities and elevations are somewhat confused and inconsistent and the information presented here is based on recent altimeter readings and topographic maps for the areas pointed out by Taylor to Scott. I have given Taylor's altitudes as originally published to help identify the localities. The correct altitude is given in meters. Most of these places are Provincia de Alajuela and not Heredia as often reported.

ISLA BONITA (American Cinchona Plantation) Volcán Poás, 6500 ft, Cantón de Alajuela, Provincia de ALAJUELA: 1680 m. This locality is on the slopes of Volcán Poás, above Salto El Angel. Premontane Pluvial bioclimate.

Parvimolge richardi Taylor, 1949

ISLA BONITA (American Cinchona Plantation) eastern slope Volcán Poás, Cantón de Alajuela, Provincia de ALAJUELA: 1200 m. Premontane Pluvial bioclimate.

Eleutherodactylus crassidigitus Taylor, 1952
Geophis bakeri Taylor, 1954
Hyla alleei Taylor, 1952
Hyla rufioculis Taylor, 1952

ISLA BONITA (American Cinchona Plantation) approximately 5000 ft, eastern slope Volcán Poás, Cantón de Alajuela, Provincia de ALAJUELA: 1100 m. E.H. Taylor told N.J. Scott in 1966 that he collected this animal just east of the village of Isla Bonita down toward the Río Sarapiquí (Fig. 1). Premontane Pluvial bioclimate.

Atelopus varius loomisi Taylor, 1952

ISLA BONITA (American Cinchona Plantation) Caribbean slope Volcán Poás, 5200 ft, Cantón de Alajuela, Provincia de ALAJUELA: 1200 m. Premontane Pluvial bioclimate.

Centrolenella colymbiphyllum Taylor, 1949
Hyla fimbrimembra Taylor, 1948

ISLA BONITA (American Cinchona Plantation) eastern slope of Volcán Poás, 5500 ft, Cantón de Alajuela, Provincia de ALAJUELA: 1200 m. Premontane Pluvial bioclimate.

Chiropterotriton abscondens Taylor, 1948
Hyla rivularis Taylor, 1952

ISLA BONITA (American Cinchona Plantation) eastern slope of Volcán Poás, 5600 ft, Cantón de Alajuela, Provincia de ALAJUELA: 1200 m. Premontane Pluvial bioclimate.

Hyla debilis Taylor, 1952

ISLA BONITA (American Cinchona Plantation) southeastern slope Volcán Poás, 5500 ft, Cantón de Alajuela, Provincia de ALAJUELA: 1376 m. E.H. Taylor told N.J. Scott in 1966 that these animals were taken up on the slope of Volcán Poás above Salto El Angel west of the Varablanca to Cariblanco road. Premontane Pluvial bioclimate.

Anolis woodi attenuatus Taylor, 1956
Eleutherodactylus dubitus Taylor, 1952
Pliocercus arubricus Taylor, 1954
Rhadinaea decipiens rubricollis Taylor, 1954

ISLA BONITA (American Cinchona Plantation) approximately 6000 ft, southeastern slope of Volcán Poás, Cantón de Alajuela, Provincia de ALAJUELA: 1529 m. E.H. Taylor told N.J. Scott that the type of this frog was taken on the eastern slope of Volcán Poás above the area of Salto El Angel. Premontane Pluvial bioclimate.

Atelopus varius ambulatorius Taylor, 1952

ISLA BONITA (American Cinchona Plantation) 3.2 km W Caribbean slope, Volcán Poás, Cantón de Grecia, Provincia de ALAJUELA: 1300 m. The type of the two following names was taken on the eastern slope of Volcán Poás, above the area of Salto El Angel, according to N.J. Scott based on his visit to the region with E.H. Taylor in 1966. Premontane Pluvial bioclimate.

Hyla richardi Taylor, 1948
Hyla richardtaylori Taylor, 1954 (substitute name for *Hyla richardi* Taylor, 1952)

6.4 km (4 miles) W (by road) from ISLA BONITA *see* Poasito.

9.7 km (6 miles) W (by road) from ISLA BONITA *see* Altura.

BOQUETE CAMP, Cantón de Pérez Zeledón, Provincia de SAN JOSE: 2000 m. This place was originally a road camp lying between Villa Mills (Millsville) and San Isidro de El General on the west side of the Interamerican Highway. It received its name from a few houses called Boquete, about a kilometer further east and is today marked by a side road that loops away from and then returns to the main highway. Lower Montane Rain bioclimate.

Magnadigita nigrescens Taylor, 1949

BORUCA, Cantón de Buenos Aires, Provincia de PUNTARENAS: 550 m. An ancient Amerindian settlement dating back to pre-Columbian times, that is located on a tableland savanna north of the gorge of the Río Grande de Térraba. Continuous cultivation and annual burning by the resident Amerindian remnants maintain the disturbed savanna environment. These people are probably not descendents of the Brunca stock native to the region, since the Spanish brought Indians of the Güetar culture from the Atlantic lowlands to settle around Boruca in colonial times. The area may be reached by a short steep trail rising from the Térraba gorge (100 m). Boruca and the tableland savannas immediately to the north form a rather inaccessible area maintained as a reserve (Reserva Indígena) by the Costa Rican government for members of the tribe of the stock. Tropical Wet bioclimate.

Anolis longipes Cope, 1893 (also a syntype from Palmar)
Drymobius percarinatus Cope, 1893 (also a syntype from Buenos Aires)
Liohyla pittieri Gunther, 1900
Lithodytes florulentus Cope, 1893

near CERRO BUENAVISTA, summit of pass on Interamerican Highway over Cordillera de Talamanca, boundary between Provincias CARTAGO and SAN JOSE: 3350 m. Montane Pluvial bioclimate.

Magnadigita pesrubra Taylor, 1952
Magnadigita torresi Taylor, 1952

BUENOS AIRES, Cantón de Buenos Aires, Provincia de PUNTARENAS: 360 m. The area around Buenos Aires forms a large, apparently natural grassland, the Sabanas de Buenos Aires. These savannas appear to be an edaphic association produced by a high water table. They have been repeatedly burned over, first by the native Indians and then by European man. Today the region is devoted principally to cattle grazing and is probably essentially unchanged since Cope's materials were collected. Patches of forest on hills to the east and west of the town were probably more extensive 75 years ago and the *Ameiva* and *Dendrobates* were in all likelihood collected in forest situations. Tropical Moist bioclimate.

Ameiva leptophrys Cope, 1893
Dendrobates tinctorius vittatus Cope, 1893
Drymobius percarinatus Cope, 1893 (syntype also from Boruca)
Leptodactylus quadrivittatus Cope, 1893
Synchalinus corallioides Cope, 1893

PORTO CABALLO.

I am unable to locate this place. DOWNS (34) suggests that it is in Provincia de Puntarenas. Isla Caballo is located off the town of Puntarenas and possibly is the place in question.

Colobognathus hoffmanni W. Peters, 1859 (the lectotype of this name is from Costa Rica as designated by DOWNS, 34)

CAIRO, Plantage (Finca); near La Junta, Cantón de Siquirres, Provincia de LIMON: 99 m. Now simply Cairo, an important settlement, formerly an old banana plantation now mostly in cacao production, on the Línea Vieja or old line of the Costa Rica and Northern (Atlantic) railroad running from La Junta to Guápiles. *Centrolenella prosoblepon* may be heard calling from the second growth along the railroad tracks when the train stops here even today. Tropical Moist bioclimate.

Anolis brevipes Boettger, 1893
Hyla prosoblepon Boettger, 1892

LA CANDELARIA *see* Monte Redondo.

According to CARRIKER (21), this name refers to the range of mountains, Cerros de Candelaria, now usually called Cerros de Cedral, bordering the Meseta Central south of San José. GOODWIN (51) stated that Candelaria was used by C. F. Underwood for Monte Redondo. Although the type of *Drymobius paucicarinatus* Cope, 1894 is not an Underwood specimen, I believe that it most probably came from near Monte Redondo as no examples are known from the Candelaria range or Meseta Central .

CARIBLANCA *see* Cariblanco.

CARIBLANCO, Cantón de Alajuela, Provincia de ALAJUELA: 830 m. A town at the Atlantic slope base of the long and steep pass between Volcán Barba and Volcán Poás leading to Alajuela and Heredia on the Meseta Central. The area is now under very heavy cultivation and serves as the gateway to the plains of Sarapiquí. Often referred to as Cariblanco de Sarapiquí and formerly as simply Sarapiquí because of its closeness to the river of that name. Most specimens collected prior to 1940 labeled Sarapiquí are from this town which was on the ox-cart road from Puerto Viejo over the Desengaño pass to the Meseta Central. *See* comments under Cinchona. Premontane Rain bioclimate.

Geophis ruthveni Werner, 1925

Leptophis nebulosus Oliver, 1942
Phrydops melas Boulenger, 1905
Streptophorus oxynotus Werner, 1910
Streptophorus subtesselatus Werner, 1910

LA CARPINTERA, Cantón de La Unión, Provincia de CARTAGO: A landmark peak (1888 m) lying southeast of San José near the world famous coffee center of Tres Ríos. Much original forest remains on the upper slopes of the mountain because of vigilant protection and restricted entry enforced by its present owners. The lizard described by Cope is a synonym of *Ameiva undulata* Weigmann, 1834 and almost certainly came from the lower slopes of the peak near the town of Carpintera (1350 m). Premontane Moist bioclimate.

Cnemidophorus amivoides Cope, 1894

CARTAGO, Cantón de Cartago, Provincia de CARTAGO: 1435 m. The colonial capital of Costa Rica was founded in 1563 in the caldera of an old volcanic crater usually called the Valle del Guarco in the upper Río Reventazón basin, by Juan Vásquez de Coronado. Governor Coronado was a younger cousin of the famous North American explorer Francisco Vásquez de Coronado. He epitomized the very best qualities among the Spanish explorers and colonizers of the New World.

The new colony was begun by moving all the settlers from Garcimuñoz which had been founded two years earlier in the Río Grande de Tárcoles basin across the continental divide to the west. The city was moved up the slope of the Guarco valley to its present site in 1572. Because of the difficult terrain, two routes were used to supply Cartago from the Caribbean coast. One followed the difficult gorge of the Río Reventazón but a second diverged at Turrialba and followed the slope of the Talamanca range southeastward and then followed the Río Moravia or Río Chirripó to the coast. Both routes terminated near the mouth of the Río Matina, north of Puerto Limón.

The small settlement at Matina was a center for cacao cultivation but was under constant harassment during colonial times. The Caribbean coast was a collecting place for the flotsam and jetsam of the Spanish main and outcasts from British, French and Dutch Caribbean islands as well. Escaped Negro slaves from the islands, Carib Indians, and others came to form a mixed population of low density and subsistence economy with scattered settlements from Belice (British Honduras) along the entire coast of Central America to the Bocas del Toro region of Panamá. By the 17th century these peoples formed a loose confederation and were called *Zambos Mosquitos* or Mosquito Coast Indians. They spoke a form of pigeon English and consorted with all the worst European elements along the coast. Repeated raids by the Mosquito Indians, often in cooperation with English pirates, were a constant threat to the colony of Costa Rica. Matina was repeatedly attacked, sacked and reoccupied during this period and finally abandoned.

The most dangerous and famous raid from the Caribbean coast came

in 1666 when the famous English pirates Morgan and Mansfield, together with Mosquito allies, followed the Río Reventazón past Turrialba to within 20 km of Cartago before retreating. In order to reduce these problems the colonial and later republican governments paid an annual tribute to the Mosquito chief, up until as late as 1841.

The *Bufo* almost certainly did not originate from this place since it is known only from lowland Puntarenas and Guanacaste, elsewhere in Costa Rica. Premontane Moist bioclimate.

Bufo luetkenii Boulenger, 1891
Geophis moestus Gunther, 1872
Hyla salvinii Boulenger, 1881 (syntypes also from San José)
Hylaemorphus pluto Fitzinger in A. Schmidt, 1857

elevated country near CARTAGO, Cantón de Cartago, Provincia de CARTAGO.

Ablabes gracilis Gunther, 1872
Leptognathus annulatus Gunther, 1872
Microdromus virgatus Gunther, 1872

near CARTAGOS, Volcán Barba, Acosta farm, Cantón de Santa Bárbara, Provincia de HEREDIA: 2133 m. On the southwestern slope of Volcán Barba on the main road from Alajuela to Varablanca via the Desengaño pass. Lower Montane Wet bioclimate.

Anolis altae Dunn, 1930

near CARTAGOS, a little above the farm of Manuel Acosta, Cantón de Santa Bárbara, Provincia de HEREDIA: 2140 m. *see* previous entry. Lower Montane Wet bioclimate.

Hyla picadoi Dunn, 1937

CARRETERA INTERAMERICANA *see* Interamerican Highway.

CARRILLO, Cantón de Coronado, Provincia de SAN JOSE: 500 m. The former terminus of the Costa Rica and Northern Railroad on the Línea Vieja or old line on the west bank of the Río Sucio near its juncture with the Río Hondura. Frequent washouts between this place and the present terminal station near Guápiles on this branch of the rail line caused its abandonment in the 1880's. Formerly, an ox-cart road ran from here over the La Palma pass (which *see*) to San José. This road is all but impassable even on foot from Bajo La Hondura (which *see*) to Carillo, today. Lowland Wet bioclimate.

Himantodes semifasciatus Cope, 1894 (a syntype)

MESETA CENTRAL *see* Valle Central.

VALLE CENTRAL.
The terms Valle Central and Meseta Central are variously used to dis-

tinguish the two upland intermountain basins where most of the Costa Rican population has been concentrated since colonial times. Usage of these terms by geographers, historians, biologists and Costa Ricans is inconsistent. Usually two drainage basins are included in these terms: the upper basin of the Río Reventazón between Turrialba and Cartago (Valle or Meseta Central Oriental) and the upper drainage basin of the Río Grande de Tárcoles from the level of San Ramón (1052 m) and Santiago de Puriscal (1102 m) (Valle or Meseta Central Occidental) to the San José region. The two basins are separated by a low divide, Alto de Ochomogo (1545 m), between San José and Cartago. The eastern valley drains via the Reventazón into the Caribbean, the western valley through the Tárcoles into the Pacific. Generally, coffee growing areas between 500 and 1500 m in the two basins are included but sometimes the terms encompass the entire drainage basin above 500 m in elevation.

VALLE CENTRAL, middle COSTA RICA
Premontane Moist bioclimate.
Tantilla armillata Cope, 1875

CERVANTES, Cantón de Alvarado, Provincia de CARTAGO: 1441 m. A small sugar-cane town on the southern slopes of Volcán Turrialba. Essentially denuded of native vegetation. Premontane Wet bioclimate.
Oedipina longissima Taylor, 1952
Tantilla costaricensis Taylor, 1954

CERRO CHOMPIPE *see* Alto del Roble.

1.5 km SW CHITARIA at Río Chitaría on road between Turrialba and Peralta, Cantón de Turrialba, Provincia de CARTAGO: 775 m. Variously reported as 6.2 miles or 9.9 km (by road) NE of the bridge over the Río Reventazón; 7 miles or 11.2 km ENE of the town of Turrialba or 1.75 miles or 3 km N Jabillos. Premontane Wet bioclimate.
Bolitoglossa epimela Wake and Brame, 1963

CINCHONA, Isla Bonita *see* Isla Bonita.

CINCHONA, Volcán Poás, approximately 5500 ft *see* Isla Bonita, 5500 ft.

CINCHONA, Cantón de Alajuela, Provincia de ALAJUELA: 1360 m. Premontane Pluvial bioclimate.
Dermophis costaricense Taylor, 1955

0.5 km S CINCHONA, near Río Santiaguito, Cariblanco road, Cantón de Heredia, Provincia de HEREDIA: 1350 m. Variously recorded as stone quarry near El Angel waterfall, 3.8 miles or 6.1 km (by road) S Cariblanco, 5 miles or 8 km (by road) N Varablanca = juncture Volcán Poás road (Highway

120) with Sarapiquí road (Highway 9). Premontane Pluvial bioclimate.
Oedipina poelzi Brame, 1963

0.8 km N juncture of RIO CLARO and Río La Hondura, Cantón de Coronado, Provincia de SAN JOSE: 1150 m, *see* La Hondura for a description of this area. Premontane Pluvial bioclimate.
Eleutherodactylus andi Savage, 1974

COCALES CREEK *see* Río Cocolis.

RIO COCOLIS, Cantón de Talamanca, Provincia de LIMON: 100 m. A steep, fast-moving stream 0.5 km northeast of Suretka, near the Panamá boundary in the Alta Talamanca valley. Tropical Moist bioclimate.
Cochranella chirripoi Taylor, 1958.

ISLA DEL COCO.
The famous treasure island located 500 km southwest of mainland Costa Rica. It was discovered sometime between 1514-1542, is unpopulated and served as a refitting station for the English and Dutch privateers and pirates of the 17th and early 18th centuries who harassed Spanish shipping in the Pacific. For the latter reason, it is reputed to be the site of much buried pirate loot, but so far little has been discovered. Visits to the island are rigorously controlled by the Costa Rican government and permission to look for treasure requires a special license. Tropical Moist bioclimate.
Sphaerodactylus pacificus Stejneger, 1903
Anolis townsendi Stejneger, 1900

CIENAGA COLORADO, 3 km NE Juan Viñas, 6.3 km W Turrialba (by road), Cantón de Turrialba, Provincia de CARTAGO: 1200 m. Premontane Wet bioclimate.
Oedipina psuedouniformis Brame, 1968

near CONCORDIA at Finca Zeledón, Cantón de Alajuela, Provincia de ALAJUELA: 1828 m. This locality is on the western slope of Volcán Barba but at a point that could well fit TAYLOR'S (108) reference as between Volcán Barba and Poás. The locality must be on the Pacific (soutehrn) slope of the Cordillera since Taylor always called the Atlantic slope area Cinchona or Isla Bonita, and the altitude record locates it near Concordia. Premontane Wet bioclimate.
Geophis zeledoni Taylor, 1954

CONE FINCA *see* Finca Volcán.

BOCA CORONADO (Boca Mala), Cantón de Osa, Provincia de PUNTARENAS: 3 m. On the Pacific coast 12 km northwest of Puerto Cortés. Tropical

Wet bioclimate.

Sibon septentrionale rubicatum Cope, 1893

COSTA RICA. Costa Rica, rich coast, was the name given to this area by Cristopher Columbus on his fourth voyage of discovery. He landed near present day Puerto Limón on September 25, 1502 and remained several days. Although most Costa Rican accounts list September 18 as the date of dicovery, LANDSTROM (60) justifies the later date. Subsequent Spanish explorations in 1514, 1522-23 and 1524 were along the west coast but an *entrada* from the Caribbean coast by Diego Gutiérrez in 1549 discovered the Reventazón basin. The earliest settlement of importance, Garcimuñoz, was established, after several other attempts at colonization had failed, by Juan de Cavallón on an *entrada* from the west in 1561. The small colony was in the western portion of the Tárcoles basin probably on the site of present day Turrúcares. Subsequently the settlers moved across the continental divide to the area of Cartago (which *see*).

The area of Costa Rica supported a fairly large indigenous population at the time of the conquest. Four major cultural types are generally recognized as being represented at that time. In the northwest, modern Guanacaste and the Península de Nicoya, lived a stock, the Chorotegas, related to other Central American west coast cultures to the north. Over the Atlantic lowlands and slopes, central highlands and the basin of the Río Grande de Tárcoles to the Pacific coast from Puntarenas south to a little north of Parrita lived the Güetares, allied to Atlantic Panamanian and northwestern Colombian tribes. Southward on the Pacific coast and inner valleys associated with the Río Grande de Térraba (Diquis) were the Brunca (Buruca), allies of the Chiriquis of Panamá and culturally related to South American stocks. Also scattered over the Atlantic lowlands were several trading centers inhabited by Mexican merchants (Nahuas) and their families. Today these indigenous cultures have disappeared and only a few hundred essentially Indian people live in Costa Rica.

The country was generally known as Nuevo Cartago prior to 1540, but the name Costa Rica became firmly entrenched thereafter. During the colonial period, the region was regarded as a province under the Captaincy General of Guatemala, with Cartago as the capital. Independence from Spain was declared on September 15, 1821.

The principal crop of Costa Rica during the 19th and 20th centuries has been coffee. Originally the rich lands of the Río Grande de Tárcoles basin and the Valle de El Guarco were used for subsistence crops and wheat, sugar cane (at lower elevations) and cattle feed. In the early 1800's some tea was also grown but fared poorly when India became the chief exporter of inexpensive tea under British control. Coffee was also experimented with about the same time and by 1829 was an important crop. An explosive expansion in coffee acreage occurred in 1841 and from that point on strongly dominated economic, political and social life until the middle of the 20th

century. Much of the Meseta Central and surrounding slopes were turned into small coffee fincas to produce what is usually recognized as some of the very best coffees in the world.

Anolis (*Draconura*) *capito* W. Peters, 1863
Anolis hoffmanni W. Peters, 1863
Anolis oxylophus Cope, 1875
Basiliscus americanus Bocourt, 1874 (a syntype)
Bothriechis lateralis W. Peters, 1862
Brachydactylus mitratus W. Peters, 1863
Celestus bilobatus O'Shaughnessy, 1874
Chelopus gabbii Cope, 1875
Colobognathus hoffmani W. Peters, 1859 (lectotype designated by Downs, 1967 from this series)
Dendrobates amoeuus Werner, 1901
Dendrobates typographicus Keferstein, 1867
Dendrophidium melanotropis Cope, 1875
Diplotropis bilineata Gunther, 1872
Epicrates cupreus concolor Bocourt, 1882
Geoemyda costaricensis Kanberg, 1930
Glossostoma aterrimum Gunther, 1900
Himantodes semifasciatus Cope, 1894 (a syntype)
Homalocranium sexfasciatum Fischer, 1882
Hydromorphus concolor W. Peters, 1859
Hylodes palmatus Boulenger, 1882
Hylodes platyrhynchus Gunther, 1900
Hypopachus seebachii Keferstein, 1867
Leiyla guentherii Keferstein, 1868
Leptodeira ocellata Gunther, 1895 (one syntype)
Oedipina uniformis Keferstein, 1868
Ophiobatrachus vermicularis Gray, 1868
Phyllomedusa lemur Boulenger, 1882
Polychrus (*Chaunoleemus*) *multicarinatus* W. Peters, 1869
Rana palmipes hoffmanni Muller, 1924
Siphonops simus Cope, 1878
Sphaerodactylus homolepis carinatus Andersson, 1916
Sphaerodactylus lineolatus imbricatus Andersson, 1916
Sphaerodactylus mertensi Wermuth, 1965 (substitute name for *Sphaerodactylus lineolatus imbricatus* Andersson, 1916)
Spilotes grandisquamis W. Peters, 1868
Streptophorus (*Ninia*) *maculata* W. Peters, 1861
Typhlops (*Helminthophis*) *frontalis* W. Peters, 1860
Xiphosoma annulata Cope, 1875

Various species whose types are usually listed as being from simply Costa Rica, have been found to have more accurate data associated with them than appears from their original descriptions or subsequent citations. These include:

Bothriechis nigroviridis see Volcán Barba
Catostoma psephotum see Cerro Utyum
Colobognathus brachycephalus see San José
Leptognathus pictiventris see eastern Costa Rica
Ninia sebae tesselata see Sipurio
Rhadinaea pulveriventris Boulenger *see* Azahar
Spilotes chrysobronchus see Costa Rica, east coast region

COSTA RICA, coast of eastern or east coast region, Cantón de Limón, Provincia de LIMON. Tropical Moist bioclimate.

Bufo auritus Cope, 1875
Bufo gabbi Taylor, 1952 (substitute name for *Bufo auritus*)
Spilotes chrysobronchus Cope, 1875

COCHRAN (22) shows that this form was collected by W. M. Gabb. The type locality "Coast region of Costa Rica" clearly applies to the east coast, since this is where Gabb lived and worked when these collections were made.

Sibynophis truncatus Cope, 1878

inadvertently recorded this place as being on the west slope of Volcán Poás. This pass has also been called Varablanca or Los Cartagos pass. Lower Montane Wet bioclimate.

Atelopus senex Taylor, 1952

Los Diamantes, Cantón de Pococí, Provincia de LIMON: 260 m. This is an experimental farm of the Costa Rican government in the Atlantic lowland banana-cacao zone, near Guápiles. Tropical Wet bioclimate.

Centrolenella albomarginata Taylor, 1949
Centrolenella granulosa Taylor, 1949
Centrolenella spinosa Taylor, 1949
Kinosternon angustipons Legler, 1965
Lepidophyma anomalum Taylor, 1955
Micrurus alleni richardi Taylor, 1951
Oedipina cyclocauda Taylor, 1952
Oedipina gracilis Taylor, 1952

Los Diamantes W shore of river, on E edge of rubber tree finca, 0.5 km S of railway tracks, 1.6 km E Guápiles, Cantón de Pococí, Provincia de LIMON: 300 m. Tropical Wet bioclimate.

Oedipina carablanca Brame, 1968

2 km S Division on Interamerican Highway, Cantón de Pérez Zeledón, Provincia de SAN JOSE: 2286 m. Lower Montane Pluvial bioclimate.

Ninia cerroensis Taylor, 1954

Dominical road *see* Alfombra.

above El Empalme, Costa Rican Forest Preserve, Interamerican Highway, Cerro de la Muerte, boundary between Provincias de CARTAGO-SAN JOSE: 2134-2438 m. This area is now completely deforested as often happens to Latin American forest preserves. Lower Montane Pluvial bioclimate.

Rhadinaea altamontana Taylor, 1954

near El Empalme, Cantón de El Guarco, Provincia de CARTAGO: 2286 m. Lower Montane Pluvial bioclimate.

Oedipina paucidentata Brame, 1968

186 m N El Empalme, Cantón de El Guarco, Provincia de CARTAGO: 2286 m. Lower Montane bioclimate.

Oedipina altura Brame, 1968

SE El Empalme *see* Río Humo.

Escazu, Cantón de Escazú, Provincia de SAN JOSE: 1100 m. Premontane Moist bioclimate.

Hylodes nubilis Gunther, 1901

LAS ESQUINAS, Esquinas Forest Preserve, between Palmar and Golfito, Cantón de Osa, Provincia de PUNTARENAS: 50-60 m. Probably near Río Esquinas between Piedras Blancas and Kilometer 40. Lowland Wet bioclimate.

Dryadophis sanguiventris Taylor, 1954
Hyla weyerae Taylor, 1954

LA ESTRELLA, Cantón de El Guarco, Provincia de CARTAGO: 1525 m. This place is in a small valley south of Cartago, against the northeast base of the Cordillera de Talamanca. Much of PICADO'S (76) classic study of bromeliad biology and associated faunas was carried out here . This locality has been confused by WILSON (121) with the Valle de la Estrella in the Atlantic lowlands. The reference to a specimen of *Drymobius melanotropsis* from the latter site is in error for this montane locality. Lower Montane Pluvial bioclimate.

FLORENCIA, Cantón de Turrialba, Provincia de CARTAGO: 800 m. Taylor lists this place as Hacienda La Florencia about 3 miles (4.8 km) west of Turrialba. The village of Florencia lies 3 km SSE of Turrialba near Quebrada Florencia; it is about 2 km SW of the Instituto Interamericano de Ciencias Agrícolas (IICA) where Taylor stayed and where the collector, John Reark lived. Premontane Wet bioclimate.

Cochranella decorata Taylor, 1958

LAS FLORES DE TENORIO, Cantón de Cañas, Provincia de GUANACASTE: 480 m. Las Flores is 8 km NNE Hacienda Tenorio, on the western slope of Volcán Tenorio. Premontane Wet bioclimate.

Anadia metallica arborea Taylor, 1955

0.5 miles or 0.8 km W EL GENERAL, Cantón Pérez Zeledón, Provincia de SAN JOSE: 704 m. El General or General Viejo lies east of the Río General, about 6 km east of San Isidro de El General. Premontane Wet bioclimate.

Leposoma bisecta Taylor, 1949

near FINCA GEORGINA, western slope Volcán Barba, Cantón de Santa Bárbara, Provincia de HEREDIA: 2286 m. This area is near the road winding along the southwestern slope of Volcán Barba (Pacific drainage) leading to the Desengaño pass above Los Cartagos. Lower Montane Pluvial bioclimate.

Bufo holdridgei Taylor, 1952

GOLFITO, Cantón de Golfito, Provincia de PUNTARENAS: 3 m. This place lies on the Golfo Dulce and is the largest port in terms of tonnage handled in Costa Rica. The gulf apparently derives its name from the French "d'Ourse", equivalent of the Spanish surname "de Osa", borne by the enclosing peninsula, later mispronounced or corrupted to "Dulce" in Spanish.

The main portion of this town was constructed by the Compañía Bananera as a port for banana exportation after moving operations from the Atlantic slope in 1938. It lies on a narrow stretch of flat land squeezed between the Golfo Dulce and a high ridge. The port and harbor at Golfito are nearly completely enclosed by islands and headlands that protect it from the famous squalls that blow across the gulf. The town is connected from the south by rail to banana holdings in western Panamá and southern Costa Rica as far north as Palmar. Lowland Wet bioclimate.

Anolis biscutiger Taylor, 1956
Eleutherodactylus taurus Taylor, 1958
Hyla dulcensis Taylor, 1958

GUANACASTE, Provincia de.

This area of the Pacific northwest lowlands and northern Península de Nicoya was annexed to Costa Rica by a plebiscite on July 25, 1824 over the vigorous protests of Nicaragua. The region is relatively flat and generally has a definite and long (5-6 months) dry season. Much of the vegetation is cleared and repeatedly burned to stimulate the growth of grasses for the huge cattle herds that make the region famous. The 25th of July or Guanacaste Day is celebrated throughout Costa Rica as a national holiday, with a *gran feria* or rodeo at the provincial capital Liberia. I am particularly partial to these celebrations since my daughter Nancy was born on the 25th of July. When we lived in Costa Rica she always enjoyed the school holiday and celebrations staged by the entire populace on her birthday.

Until construction of the Interamerican Highway, most communication between Guanacaste and the Meseta Central was by boat to Puntarenas and overland by the Carretera Nacional, later supplemented by the railroad. Rapid communication with Liberia was by boat from Puntarenas up the Golfo de Nicoya and the Río Tempisque to Puerto Ballena and then overland by horse through Filadelfia.

Micrurus pachecoi Taylor, 1951

GUAPILES, Cantón de Pococí, Provincia de LIMON: 262 m. The largest town in northern Limón province and cantón capital. The town was the economic center of the Santa Clara district of the Compañía Bananera de Costa Rica until it completely abandoned banana culture on the Atlantic lowlands in 1942. The Línea Vieja (which *see*) of the Costa Rica and Northern Railroad terminates to the west of Guápiles at the Río Toro Amarillo. The town has been connected by rail with Puerto Limón since 1882. Banana cultivation is now the principal activity in the region. Lowland Wet bioclimate.

Eleutherodactylus humeralis Fowler, 1916
Eleutherodactylus noblei Barbour and Dunn, 1921

LA HONDURA or Bajo La Hondura, Cantón de Coronado, Provincia de SAN JOSE: 1245 m. Formerly a rest station on the ox-cart road from Carrillo to

San José across the La Palma pass. Subsequently a modest farm, but now reduced to a goat dairy. The Río Claro area lies about 0.5 km north and west at the juncture of that river and the Río La Hondura. Most collections from this area are from between Alto La Palma (which *see*) and La Hondura or the Río Claro area, since the flats around La Hondura are overgrazed pastures. The type of *E. moro* was taken out of a bromeliad from a small tree in a pasture. Premontane Pluvial bioclimate.

Eleutherodactylus moro Savage, 1965

near BAJO LA HONDURA; pass between Barba and Irazú, Caribbean slope, below the divide and above the Finca of Félix Delgado, Cantón de Coronado, Provincia de SAN JOSE: 1200 m. Premontane Pluvial bioclimate.

Eleutherodactylus altae Dunn, 1942

RIO HUMO at Interamerican Highway, 1 km S Chávez, Cantón de El Guarco, Provincia de CARTAGO: 2860 m. Also reported as 12 miles or 15.2 km (by road) SE El Empalme. Montane Pluvial bioclimate.

Bolitoglossa sooyorum Vial, 1963

INTERAMERICAN HIGHWAY (Carretera Interamericana). The idea of a paved all-weather highway extending from Alaska to Tierra del Fuego and passing through all the mainland American countries arose in the era of good feelings and Pan-Americanism during the 1930's. Work on the Costa Rican section of the highway began with United States' aid in 1936.

The highway runs from the Nicaragua border south through the Guanacaste plains well inland from the sea and Golfo de Nicoya via La Cruz, Liberia, Bagaces and Cañas to the base of the Puntarenas península. From this point it follows the old ox-cart route (Carretera Nacional) to Esparta. From Esparta to Alajuela the highway runs along the base of the foothills of the Cordillera Central, around the north end of the Montes del Aguacate and well north of the historic Esparta-San José ox-cart road and the Ferrocarril al Pacífico.

During the latter part of the 19th century, the Río Grande de Tárcoles basin was rapidly settled along the ox-cart road route. A number of connecting roads and settlements gradually developed into important agricultural and political centers on the northern slope of the basin from these population movements. Ready access to market for their crops, principally coffee and sugar cane, was vital for these bustling new towns, that did not greatly benefit from the completion of the railroad. In consequence the planners of the Interamerican Highway routed the road through these newer commercial areas beginning with San Ramón and passing through Palmares, Naranjo, Sarchí, and Grecia enroute to Alajuela, Heredia and San José. At this point the highway utilized the already existing roadway between San José and Cartago. From Cartago the road passes south and then southeastward along the main ridge of the Cordillera de Talamanca, across the divide at 3350 m near Cerro Buenavista and plunges downward almost due south to San Isidro de El

General. From this point it follows the Valley of the Río General generally southeastward to the Río Grande de Térraba. Original plans called for the highway to cross the Río Térraba near Paso Real and continue up the valley of the Río Coto Brus to cross the Panamá frontier near La Unión.

As a matter of fact, the route was changed in the 1950's, many believe at the instigation of the Compañía Bananera de Costa Rica, to follow a more coastal route through the zone where banana cultivation was being intensified following the transfer of operations from the Caribbean plains by the company in the 1940's.

The new route follows the gorge of the Río Grande de Térraba southward to the banana company center at Palmar and thence follows a generally southeastern course to the boundary with Panamá near Villa Neily.

The northern portions of the highway from the Nicaraguan line to the Talamanca range were paved and well maintained from the mid-forties onward. The complete route was not finished until the late 1950's and travel below San Isidro de El General was often interrupted by flooding until 1962, when all of the bridges were finished. A side road connecting the banana company installation at Golfito with the main road was opened in 1963. Not until the early 1970's were the Talamanca mountain and southern sections paved over most of their length.

Meanwhile the volume of traffic and increasing number of freight trucks made the Meseta Central Occidental portions of the route obsolete. In 1965 a new four lane *autopista* was completed south of the old Interamerican Highway between San José and Alajuela. In 1972 the autopista was extended across the Meseta directly to San Ramón, by-passing the winding route of the old highway. At present the new highway turns south before entering Cartago, by-passing also the town of Tejar.

Many localities in the present paper and elsewhere are located on the old highway.

INSTITUTO INTERAMERICANO DE CIENCIAS AGRICOLAS, SE Turrialba, Cantón de Turrialba, Provincia de CARTAGO: 602 m. The institute's name has recently been changed to Centro Agronómico Técnico de Investigación y Enseñanza. The IICA was established originally under the aegis of the Organization of American States (OAS/OEA) on a large finca near Turrialba in the period 1942-1946.

Collecting today in the area of the IICA-CATIE holdings is frustrating and unexciting because of the conversion of most lands to agriculture. Premontane Wet bioclimate.

Hyla immensa Taylor, 1952

VOLCAN IRAZU, Cantón de Cartago, Provincia de CARTAGO: maximum elevation 3432 m. This volcano is located in the Cordillera Central immediately north of Cartago and approximately 20 km east of San José. Its significance to the history of the republic cannot be overemphasized.

During the period from March 1963 to the end of 1964, Volcán Irazú

actively poured out millions of tons of volcanic ash which fell in varying amounts over the Meseta Central and as far west as Puntarenas. Although the *ceniza* caused much temporary damage and much inconvenience, particularly in San José where a large part of it fell, the final results are instructive. The pattern of ash fall, as regulated by the prevailing winds, followed almost exactly in pattern and amount (heaviest density equaled richest coffee) the areas that traditionally produce the finest coffees. The ash is predominantly comprised of hydroxides of silicon, substances usually rapidly leached out of tropical soils. The ash falls thus led to bumper crops of outstanding quality coffees in succeeding years.

A similar outpouring of ash occurred in the period 1917-1920 with the same results and in colonial times in 1723. It is obvious that with astute and practical genius, the Costa Rican farmer had carefully selected the very best land for coffee cultivation; land that periodically had been enriched by the blasts of volcanic ash from Irazú.

The animals listed below are from various locations of the slopes of the volcano, all probably from between Cartago and the crater. The species described by Boulenger and Gunther are labeled simply "Irazu". The southern and western slopes of the mountain once supported a series of diverse forests. Heavy human use, since colonial times, has gradually denuded most of the accessible slopes, and the vegetation was further adversely affected by sheer weight of volcanic ash at higher levels. Coffee, corn, potatoes, truck gardens and dairy farms form distinct zones from lower to higher slopes and few areas can be worked for amphibians or reptiles with any success today.

Ablabes decipiens Gunther, 1893
Anolis godmani Boulenger, 1885 (other syntypes from Guatemala)
Anolis tropidolepis Boulenger, 1885
Celestus cyanochloris Cope, 1894
Geophis godmani Boulenger, 1894
Oedipus robustus Cope, 1894
Sceloporus irazuensis Gunther, 1890
Tachymenis decipiens Gunther, 1895

Faldas (slopes) of VOLCAN IRAZU *see* Volcán Irazú.

JIMENEZ, Cantón de Pococí, Provincia de LIMON: 223 m. On the Río Jiménez between Guápiles and Guácimo in the Atlantic banana-cacao zone. Lowland Wet bioclimate.

Pogonapsis ruficeps Cope, 1894

JUAN VIÑAS, Cantón de Jiménez, Provincia de CARTAGO: 1165 m. The following species described from Juan Viñas has been shown by ROSSMAN and SCOTT (11) to be from Asia. The locality data are clearly in error. The type and paratypes are representatives of *Enhydris plumbea.*

Helicops wettsteini Amaral, 1929

LA JUNTA *see* Reventazón.

CERRO KAMUK *see* slope of Cerro Utyúm.

ALTO LARI, Confluence of Río Lari and Río Pari, 21 km SW Amubri, Cantón de Talamanca, Provincia de LIMON: 440 m. This locality is in the gorge of the Río Lari. These data correct slightly those given in the original description cited below. Lowland Wet bioclimate.

Hyla lythrodes Savage, 1968

PUERTO LIMON, Cantón de Limón, Provincia de LIMON: 2 m. The site of Cariay, where Columbus landed in 1502. Today a major port. During colonial times the principal port for Costa Rica on the Atlantic versant was at the mouth of the Río Matina. Matina had been abandoned for some time when the Moín-Puerto Limón area was opened as a port in 1867. Completion of the interoceanic railroad and the establishment of the banana trade are principally responsible for the development of this city situated on a slightly uplifted dead coral reef. Two rail lines serve the city to the northwest, the original Costa Rica Railway runs along the coast to Swamp Mouth and then turns inland. The Northern Railroad line to Zent and Matina, completed in 1902, runs west from Puerto Limón to Zent then north to cross the older Costa Rica line. The coast south of Limón is served by a rail line that runs to the Valle de la Estrella. Formerly lines extended south of the Río Estrella, but bridge washouts and the general deterioration of the region since the move of the Compañía Bananera to the Pacific coast has eliminated these connections. All of these railroads are now part of the nationalized Costa Rica Railroad Company.

The Limón of most accounts is this port city. Lowland Moist bioclimate.

Chelopus funereus Cope, 1875

Micrurus nigrocinctus mosquitensis K. Schmidt, 1933

LINEA VIEJA, Cantones Limón and Pococí, Provincia de LIMON. That section of the Costa Rica and Northern Railroad running northwestward on the Atlantic llanuras from the Río Reventazón near La Junta to Guápiles. Formerly the line ran to Carrillo (which *see*) but was abandoned west of the Río Toro Amarillo when the main line between Puerto Limón and San José was completed in 1890, along the gorge of the Río Reventazón. Many type localities mentioned in the present account are along this section of railroad. Branch lines are Roxana or Río Frío, Cairo or Río Peje, and Parismina. The entire region was a major banana growing section until the disastrous attacks of Panamá disease forced gradual abandonment (1933-1942) of the region by the Compañía Bananera.

The Compañía was originally established by the legendary Costa Rican

entrepreneur, Minor C. Keith. Keith's uncle, Henry Meiggs, who won fame in building railroads up the face of the Andes in Chile and Perú undertook what must have seemed to him, the infinitely much easier task of building the Costa Rican railroad in 1872. Minor's older brother was placed in charge but died, and the younger man took over. As a way to provide freight for the railroad as it was abuilding, Keith began to grow bananas and started shipping them in 1874. Out of this grew the combine of Keith and Andrew W. Preston that formed the United Fruit Company and its Costa Rican subsidary, la Compañía Bananera de Costa Rica. Without doubt during the late 19th-early 20th centuries Minor C. Keith was the most powerful economic and political force in Central America and the United Fruit Company continued his dominance until these countries became more self-determining in mid-century.

The immense effort involved in construction of the railroad saw continuous recruitment of workers for the road because of hundreds of deaths, mostly from malaria. Finally hundreds of Jamaican Negroes were brought in because of their higher resistance to disease and they remained to work in the banana plantations.

The original plan to connect Puerto Limón and the Meseta Central called for the line to run from the coast to Guápiles and then across the La Palma pass to San José. By 1882 the railroad was completed between Limón and Carrillo. The physical difficulties of frequent washouts, changes in the stream beds, land slides and floods in the heavy rainfall zone between Guápiles and La Palma forced abandonment of this attempt.

Keith then re-grouped and re-planned his project and decided to follow the old colonial trail up the Río Reventazón through Peralta and Turrialba to Cartago (the new line). The Meseta Central was finally connected to the Caribbean by rail in 1890 after nearly 20 years of effort and 4,000 deaths from disease among its construction workers.

BOCA MALA *see* Boca Coronado.

MAX CONE FINCA *see* Finca Volcán.

VILLA MILLS *see* Siberia.

MILLSVILLE *see* Siberia.

MONTEVERDE, Cantón de Puntarenas, Provincia de PUNTARENAS: 1400 m. The site of the now famous colony of conservative North American Quakers or Friends near the boundary between Alajuela, Puntarenas and Guanacaste provinces, on the headwaters of the Río Guacimal.

Not to be confused with the old lowland banana finca, Monteverde, east of Siquirres on the railroad, Provincia de Limón. Premontane Wet bioclimate.

Typhlops costaricensis Jiménez and Savage, 1963

2.5 km ESE MONTEVERDE, Cantón de San Carlos, Provincia de ALAJUELA: 1590 m. The type locality is located just over the Puntarenas-Alajuela provincial boundary in the headwater drainage of the Río Peñas Blancas. This is a slight correction of the data given in the original description cited below. A detailed description of the type locality is given in the same paper. Lower Montane Pluvial bioclimate.

Bufo periglenes Savages, 1967

MORAVIA DE CHIRRIPO, Cantón de Turrialba, Provincia de CARTAGO: 1116 m. This place, at the beginning of one of the old colonial trails to Matina, is located in a beautiful broad valley. The valley is now given over to cattle raising and is deforested. Most of the species recorded below were probably taken near the southern margin of the valley where several streams flow through rocky wooded hillsides. Sometimes called Moravia de Turrialba.

Not to be confused with Moravia (actually San Vicente de Moravia) a fashionable suburb north of San José. Premontane Pluvial bioclimate.

Bolitoglossa alvaradoi Taylor, 1954
Bolitoglossa arborescandens Taylor, 1954
Cochranella talamancae Taylor, 1952
Hyla alvaradoi Taylor, 1952
Hyla moraviensis Taylor, 1952

MOREHEAD FINCA *see* Morehouse Finca.

MOREHOUSE FINCA, approximately 6.4 km S Turrialba, Cantón de Turrialba, Provincia de CARTAGO: 600 m. This finca belonged to the Morehouse family, although TAYLOR (103, 104) erroneously listed it as Morehead Finca. It seems to have been located in the vicinity of the Ingenio Florencia about 4 km SE of Turrialba or 2-3 km S of the Instituto Interamericano de Ciencias Agrícolas, where Taylor, the collector, stayed. Premontane Wet bioclimate.

Microbatrachylus costaricensis Taylor, 1952

MOREHOUSE FINCA, 8 km SW Turrialba, Cantón de Turrialba, Provincia de CARTAGO: 600 m. Premontante Wet bioclimate.

Alopoglossus plicatus Taylor, 1949
Dipsas costaricensis Taylor, 1951
Nothopsis torresi Taylor, 1951
Oedipina serpens Taylor, 1949
Pliocercus annellatus Taylor, 1951

CERRO DE LA MUERTE. This name was originally applied to the massif lying along the boundary between Provincias de Cartago and San José near the

crest of the Cordillera de Talamanca on the horse trail from Cartago to the Valle de El General. The Interamerican Highway now crosses the range near Cerro Asunción at 3350 m. The high ridge area formerly called Cerro de la Muerte is often now called Cerro Buenavista. In the biological literature the term Cerro de la Muerte was often and is still used for any area along the highway from El Empalme (2208 m) above Cartago, to San Isidro de El General (703 m) on the Pacific versant. VIAL (116) has carefully mapped the area along the highway.

CERRO DE LA MUERTE *see* Cerro Buenavista.

CERRO DE LA MUERTE *see* División.

CERRO DE LA MUERTE *see* El Empalme.

CERRO DE LA MUERTE *see* Río Humo.

CERRO DE LA MUERTE *see* Siberia.

NAVARRO, Cantón de Cartago, Provincia de CARTAGO: 1100 m. According to CALVERT and CALVERT (20) this locality was an experimental farm of the United Fruit Company where oranges and grapefruit were raised, just south of the Río Agua Caliente below its juncture with the Río Navarro. This area is southwest of the little village now called Navarro, which corresponds to Calvert's La Flor. Since Dunn seems to have collected around the citrus farm and up the Navarro river for some distance, the exact locality probably cannot be determined. Premontane Pluvial bioclimate.

Syrrhopus lutosus Barbour and Dunn, 1921

ISLA NUEVA, near head of Río Sucio, Cantón de Cartago, Provincia de CARTAGO. This place may be the same as that listed by GOODWIN (51) as Isla Nievo, slopes of Volcán Irazú. Neither place can be located on any map, but they are on the Atlantic slope of the volcano.

Levirana vibicaria Cope, 1894 (ZWEIFEL, 122 designated the syntype from Rancho Redondo as the lectotype)

OLD HARBOUR *see* Puerto Viejo.

OLD LINE *see* Línea Vieja.

PACUARE, Cantón de Turrialba, Provincia de CARTAGO: 590 m. This place is where the road from Turrialba to Moravia de Chirripó crosses the Río Pacuare. Premontane Pluvial bioclimate.

Anadia metallica attenuata, Taylor, 1955

PALMA *see* Palmar.

LA PALMA, Cantón de Coronado, Provincia de SAN JOSE: 1500 m. The La Palma pass lies between Volcán Barba to the west and Volcán Irazú to the east. In the last century it served as the connecting link between the terminus of the Northern (Atlantic) Railroad at Carrillo (500 m) and San José. The remnants of the original ox-cart road now begin near La Palma (1500 m) and continue northward over the pass at Alto La Palma (1520 m) and down the Atlantic slope to Bajo de La Hondura (1200 m) where the road disintegrates. The accompanying map (Fig. 3) shows the relationships of important collection sites. Although the environment is greatly disturbed, the La Palma region still yields to assiduous collecting. The area on the Pacific slope for about 2 km south of the pass is the source of most of the listed species types and is in the premontane belt. Near the pass, Alto de La Palma, there is more rain and a Lower Montane Wet bioclimate prevails. The types of *Hyla angustilineata* almost certainly came from this higher zone. Immediately across the divide on the Atlantic versant where the road winds down to Bajo La Hondura (which *see*) a Premontane Pluvial bioclimate prevails.

LA PALMA, Cantón de Coronado, Provincia de SAN JOSE: 1372 m. The data suggest that the centrolenid was collected along the San José-La Palma road, but at a lower elevation than the region usually called La Palma today. I know of no additional specimens from this area, or indeed from the Meseta Central Occidental and adjacent slopes. Certainly the forests along the road were more extensive in Dunn's day (type and paratype were collected January 15-16, 1929) and probably were uncut to lower elevations. Today the area below 1450 m along the road is dairy pasture and this may explain why *valerioi* has not been retaken here. Premontane Wet bioclimate.

Centrolene valerioi Dunn, 1931
Trimeresurus nummifer picadoi Dunn, 1939

LA PALMA, Cantón de Coronado, Provincia de SAN JOSE: 1600 m. Although BOULENGER (14) lists no altitude for his species, GUNTHER (54) attributes an altitude of 1600 m to both forms listed below, based on data from the collector Cecil F. Underwood. This elevation seems to be an erroneously high estimate, but both species are known today from the La Palma pass between 1400-1500 m. Premontane Wet-Lower Montane Wet bioclimates.

Hyla pseudopuma Gunther, 1901
Hylodes underwoodi Boulenger, 1896

1.5 km S ALTO LA PALMA, Cantón de Coronado, Provincia de SAN JOSE: 1500 m. The type was taken near Quebrada Lajas, where it crosses the road. Premontane Wet bioclimate.

Centrolenella euknemos Savage and Starret, 1967

PALMAR NORTE, Cantón de Osa, Provincia de PUNTARENAS: 26 m.

The area around Palmar Norte has been greatly modified by the extensive development of banana plantations on the flood plains of the Río Grande de Térraba (formerly called the Río Diquís). This locality is at the base of the southwestern margin of the northern Cordillera Costeña and is the Palmar of the 19th and early 20th century collectors. COPE (31) lists the place as Palma and Palmar, the former being an obviously typographical error for the latter. The animals described by Cope were collected by George K. Cherrie who is known to have collected at Palmar in 1891 (CARRIKER, 21). Palmar Sur is immediately south and across the river from Palmar Norte. It is a rather new town established by the United Fruit Company (Compañía Bananera de Costa Rica) when they opened this area to banana cultivation in 1938. Lowland Wet bioclimate.

Anolis aquaticus Taylor, 1956
Anolis longipes Cope, 1893 (a syntype also from Boruca)
Haptoglossa presssicauda Cope, 1893
Hylodes stejnegerianus Cope, 1893
Mocoa cherriei Cope, 1893
Oedipina alleni Taylor, 1954

about 4.8 km N PALMAR NORTE, Cantón de Osa, Provincia de PUNTARENAS: approximately 50 m. Lowland Wet bioclimate.

Dendrobates granuliferus Taylor, 1958

PALOMO, Valle de Orosi, Cantón de Paraíso, Provincia de CARTAGO: 1064 m. Misspelled as Paloma by STEJNEGER (98), this place lies on the eastern bank of the Río Grande de Orosi. Premontane Wet bioclimate.

Gastrotheca coronata Stejneger, 1911

SALTO LA PAZ (waterfall) *see* Salto El Angel (waterfall)

PERALTA, Cantón de Turrialba, Provincia de CARTAGO: 368 m. This town is on the western bank of the Río Reventazón on the old colonial route from the Caribbean. It is a major railroad stop on the section between La Junta and Turrialba. The types of these species described by BARBOUR (2) were collected by the famous orchid fancier, amateur naturalist and longtime Costa Rican resident and businessman, Charles H. Lankester. Lowland Moist bioclimate.

Eleutherodactylus peraltae Barbour, 1928
Hyla lancasteri Barbour, 1928
Rana taylori H. Smith, 1959

RIO POAS DE ASERRI, Cantón de Aserrí, Provincia de SAN JOSE: approximately 1250 m. This river flows from the Cedral or Candelaria range northeastward to join the Río Tiribí, near San Rafael Arriba. Premontane Wet bioclimate.

Conophis nevermanni Dunn, 1937

VOLCAN POAS *see* Altura.

VOLCAN POAS *see* Isla Bonita.

VOLCAN POAS *see* Cinchona.

VOLCAN POAS *see* Poasito.

near POASITO, Cantón de Poás, Provincia de ALAJUELA: 2100 m. TAYLOR (100) states that this locality is on the eastern Caribbean drainage of Volcán Poás, 4 miles (by road) west of Isla Bonita, at approximately 7000 ft. It is clear from his later references to the type locality of *Oedipina bonitaensis* and *O. syndactyla* (107: 771) that both were taken August 3, 1947 on the road running along the southern (Pacific drainage) slope of Poás from near Varablanca to the crater of the volcano. Taylor used the name Isla Bonita or Cinchona for the entire area lying north of the Desengaño pass to Cariblanco (Fig. 1), along the western margin of the canyon of the Río Sarapiquí.

Poasito is a small dairy center on the headwaters of the Río Poás. The type specimen was taken from a pasture probably to the west of Poasito toward Altura (which *see*). Lower Montane Wet bioclimate.

Oedipina syndactyla Taylor, 1948

PASO AZUL *see* Pozo Azul.

PAZO AZUL *see* Pozo Azul.

POZO AZUL, Cantón de Aguirre, Provincia de PUNTARENAS: 50 m. This name is applied to a flat area lying between the Ríos Pirrís (Parrita) and Grande de Candelaria where they join due north of Parrita near the Pacific coast. Lowland Moist bioclimate.

Himantodes semifasciatus Cope, 1894 (a syntype)
Leptophis ultramarinus Cope, 1894

QUEPOS, Cantón de Aguirre, Provincia de PUNTARENAS: 5 m. This town was a principal port for the shipment of bananas to the United States, developed by the Compañía Bananera in 1939 for this purpose. Tradition has it that Juan Vásquez de Coronado encamped with friendly Brunca Indians here during his grand *entrada* across the Cordillera de Talamanca and through the Meseta Central in 1512. The excellent road from San José via Santiago de Puriscal to Quepos, parallels Coronado's route. Lowland Moist bioclimate.

Anolis cupreus spilomelas Fitch, A. A. Echelle and A.F. Echelle, 1972

MONTE REDONDO, Cantón de Aserrí, Provincia de SAN JOSE: 1040 m. Also called La Candelaria, this locality is near Jorco de Acosta, south of the

Candelaria or Cedral range that forms the southern rim of the Valle Central Occidental. It is not to be confused with the famous Rancho Redondo on the western slopes of Volcán Irazú. Premontane Wet bioclimate.

Drymobius paucicarinatus Cope, 1894
Liohyla engytympanum Gunther, 1900

RANCHO REDONDO, Cantón de Goicoechea, Provincia de SAN JOSE: 2048 m. This place is not to be confused with Monte Redondo in the Aserrí region. Rancho Redondo lies on the west slope of Volcán Irazú near the headwaters of the Río Tiribí. Lower Montane Wet bioclimate.

Levirana vibicaria Cope, 1894 (this example is the lectotype; also a lectoparatype from Isla Nueva, *see* ZWEIFEL, 120)

REVENTAZON, Cantón de Siquirres, Provincia de LIMON: 60 m. DUNN (39) who described the species below from this locality apparently did not know that it was a banana plantation located northeast of La Junta and Cairo. These latter places are on the Atlantic railroad, the former at the juncture between the Línea Vieja and the main line from San José to Puerto Limón, the latter is on the old line. Reventazón is bounded on the southwest by the old finca, now a town, of Francia and on the northeast by the former finca Louisiana. DUNN (39) originally equated this place to La Junta but changed it to "probably from Siquirres" in 1937 (43). Lowland Moist bioclimate.

Trimetopon simile Dunn, 1930

RIO REVENTAZON, ESE Turrialba *see* Angostura.

bridge over RIO REVENTAZON near Turrialba *see* Angostura.

bridge over RIO REVENTAZON at Interamerican Institute of Agriculture, Turrialba *see* near Angostura.

NE of bridge over RIO REVENTAZON *see* Chitaría.

E margin of ALTO DEL ROBLE, 0.5 km N Cerro Chompipe, near Río Las Vueltas, Cantón de San Rafael, Provincia de HEREDIA: 2030 m. This place is on the southern slope ol Volcán Barba just north of the road running north and then eastward from San Rafael. The beautiful oak forests of the Alto are now being rapidly cut down but very nice woods still surround the Río Las Vueltas. The type was taken on the west bank of the stream. Lower Montane Pluvial bioclimate.

Eleutherodactylus escoces Savage, 1975

E margin of ALTO DEL ROBLE, 0.5 km N Cerro Chompipe, W fork Río Las Vueltas, Cantón de San Rafael, Provincia de HEREDIA: 2100 m. The type of the following species was taken in the woods near the waterfall in the west fork of the stream. This is about a hundred meters upstream

from the previously listed locality. The stream is called, incorrectly, the south fork in the original description. Premontane Pluvial bioclimate.

Hyla xanthosticta Duellman, 1968

FINCA SAN BOSCO, 4 km NNE Tilarán, Cantón de Tilarán, Provincia de GUANACASTE: 640 m. HEYER (55) has pinpointed this locality called Finca Jenkins by TAYLOR (110). Premontante Wet bioclimate.

Agalychnis saltator Taylor, 1955

FINCA SAN BOSCO, 5 km NNE Tilarán, Cantón de Tilarán, Provincia de GUANACASTE: 640 m. *see* preceeding. Premontane Wet bioclimate.

Eleutherodactylus mimus Taylor, 1955
Lepidophyma ophiophthalmum Taylor, 1955

SAN CARLOS *see* Boca de Arenal.

SAN ISIDRO DE EL GENERAL, Cantón de Pérez Zeledón, Provincia de SAN JOSE: 703 m. San Isidro de El General, formerly Ureña, is the principal town of the Valle del General. Until construction of the Interamerican Highway across the Cerro de la Muerte ridge of the Cordillera de Talamanca, in the 1940's and 50's, the region could be reached only over a horse trail from the Meseta Central. The long and exhausting trip required following one of several routes from San José or Cartago to the Dota valley, west of the main ridge and then ascending and following the ridge to the high pass near Cerro Buenavista al 3350 m. The trail then plunged down the southern slope of the Cordillera to División where it turned eastward to the headwaters of the Río General and then followed that river's east bank to El General (General Viejo). San Isidro lies about 5 km due west of El General on the west side of the Río General. Formerly the main route to Volcán and Buenos Aires extended eastward along the foothills southeastward of El General. Completion of the Interamerican Highway to San Isidro and its extension southeastward through the Valle del General eliminated the older routes as major lines of communication and shifted the political and economic center for the region to the booming frontier town of San Isidro. Premontane Wet bioclimate.

Bolitoglossa palustris Taylor, 1949
Dermophis glandulosus Taylor, 1955

3.2 km E SAN ISIDRO DE EL GENERAL, Cantón de Pérez Zeledón, Provincia de SAN JOSE: 691 m. Premontane Wet bioclimate.

Oedipina pacificensis Taylor, 1952

8 km E SAN ISIDRO DE EL GENERAL, Cantón de Pérez Zeledón, Provincia de SAN JOSE: approximately 600 m. It seems likely that this locality and probably the preceeding one are on the Interamerican Highway southeast of San Isidro. Lowland Moist bioclimate.

Ameiva festiva occidentalis Taylor, 1956

mountains near SAN ISIDRO DE EL GENERAL, Cantón de Pérez Zeledón, Provincia de SAN JOSE: Premontane Wet bioclimate.

Bothrops schlegelii supraciliaris Taylor, 1954

WSW SAN ISIDRO *see* Alfombra.

SAN JOSE, Cantón de San José, Provincia de SAN JOSE: 1160 m. The present capital city of Costa Rica was established in 1736 by settlers from Cartago in the upper basin of the Río Grande de Tárcoles. Originally called Villa Nueva de la Boca del Monte, or Villita, the small village that was founded grew in the area between the tributaries of the Río Virilla, the Río Torres and Río María Aguilar to become the active city of San José. Costa Rica became independent from Spain in 1821, without any struggle. San José gained prominence and political ascendency over the country by supporting republicanism against the monarchist views of the citizens of the colonial capital of Cartago and Heredia who supported remaining in the Mexican Empire of Augustín de Iturbide. In the dispute the republicans defeated the monarchists in a brisk fight near the divide, Alto de Ochomogo, between Cartago (Atlantic) and San José (Pacific) in 1823. San José has since that time been the cultural and economic center of the republic.

The principal communication between San José and the outside world during the 19th century (1821-1890) was down the drainage of the Río Grande de Tárcoles, primarily along its northern margin, to the Golfo de Nicoya on the Pacific. People and freight were transported by the ox-cart road (Carretera Nacional) running from San José via the settlement of Esparta (originally Espiritu Santo de Esparza, founded 1574) to the long sand spit, where Puntarenas is now located, that projected out into the Golfo de Nicoya. The cart road ran from San José to the other major population centers of the Meseta Central, Heredia and Alajuela. From the latter place the road turned southward to cross the trough of the Río Grande de Tárcoles at La Garita to continue westward to Atenas and then ascended the southern slopes of the Montes del Aguacate (which *see*). The road wound across the montes to the village of San Mateo and then northwestward to Esparta.

With the primary concern on communication and freight transportation by the Pacific route, it is not surprising that plans for a railroad between San José and Puntarenas were developed in the mid-1800's. Although a failure, a mule-drawn carriage running on crude rails was estableshed in 1857 between Puntarenas and Esparta. During the government of President Tomás Guardia, a railroad from Puntarenas to Esparta was constructed, where it connected to the ox-cart road to San José.

I have elsewhere in this paper discussed the trade routes between the Meseta Central and the Caribbean coast by the Río San Carlos and the Desengaño pass and Río Sarapiquí (see Boca de Arenal), and La Palma pass (*see* La Palma). Completion of the Costa Rica and Northern Railroad between Puerto Limón and

San José in 1890 (*see* Carrillo and Línea Vieja), and the railroad connecting Alajuela, Heredia, San José and Cartago (completed in 1873) spurred interest in a railroad to the Pacific port of Puntarenas.

The Ferrocarril al Pacífico was constructed in two parts. The original efforts had railroad materials, including a dismanteled locomotive, carried overland by ox-cart to San José. The construction of the rail-line proceeded from San José westward (1897-1910), generally following the trough of the Río Grande de Tárcoles south of the old ox-cart road. As late as 1909, the railroad was completed only to Orotina. The second and final stage of construction involved establishing the line from Puntarenas to Orotina, by-passing Esparta with a loop that returned to the coast at Caldera. This line terminated in San José, but was connected by a branch running from Ciruelas to Alajuela to the Atlantic railroad system to complete the interoceanic railroad envisioned by President Tomás Guardia in 1870. The Pacific railroad was converted completely to electric power in 1930. Important towns along the rail-line are (from east to west): San Antonio de Belén, Turrúcares, Escobal, Concepción, Orotina, Caldera, Barranca and Puntarenas.

Many of the type localities mentioned in the present list are from along the Pacific ox-cart road or are rail stations, since collectors in the 19th century followed these communication routes.

The original vegetation in the city and its environs has been replaced by coffee culture and more recently land development. Numerous tropical trees and other plants thrive along roadways, in parks and gardens and as shade and fences for the coffee fincas. Nevertheless it seems likely that several species of amphibians and reptiles described from the city or from nearby do not occur on the Meseta Central Occidental today. Premontane Moist bioclimate.

Cinosternon albogulare A. Duméril and Bocourt, 1870
Fleischmannia obscura Boettger, 1898
Geoemyda manni Dunn, 1930
Hyla salvinii Boulenger, 1882 (syntype also from Cartago)
Hylella fleischmanni, Boettger, 1893
Hylella chrysops Cope, 1894 (STARRETT and SAVAGE, 95 designated this specimen as the lectotype; a lectoparatype, is from Alajuela)
Hylodes fleischmanni Boettger, 1892
Leimadophis taeniurus juvenalis Dunn, 1937
Lithodytes euryglossus Cope, 1894
Trimetopon pliolepis Cope, 1894

near SAN JOSE, Cantón de San José, Provincia de SAN JOSE: 1160 m. Although MALNATE (62) lists the following species from San José, COPE (25: 204) states they are from near the capital city. None of them are known from the city or nearby, but all may occur on the Atlantic slopes of the Cordillera Central between Alto La Palma and Carrillo or near La Palma on the Pacific slope, areas often visited by 19th century collectors and a rather

short distance from San José.

Anolis insignis Cope, 1871
Anolis microtus Cope, 1871
Anolis trochilus Cope, 1871
Colobognathus brachycephalus Cope, 1871
Colobognathus dolicocephalus Cope, 1871
Rhadinaea serperaster Cope, 1871

SAN JUAN DE VIÑAS *see* Juan Viñas.

SAN JUANILLO, Cantón de Santa Cruz, Provincia de GUANACASTE: 24 m. The type of the listed species came from this locality on the outer coast of the Península de Nicoya. Lowland Moist bioclimate.

Sceloporus variabilis olloporus H.M. Smith, 1937

SAN MATEO, Cantón de San Mateo, Provincia de ALAJUELA: 264 m. A place on the Carretera Nacional near Orotina, now of reduced importance since the railroad replaced the ox-cart road as an effective freight route to the Pacific. Lowland Moist bioclimate.

Cnemidophorus alfaronis Cope, 1894

SANTA CLARA, Cantón de Pococí, Provincia de LIMON: 255 m. A formerly important banana finca and center on the Río Santa Clara and the Línea Vieja near Guápiles. Lowland Wet bioclimate.

Himantodes semifasciatus Cope, 1894 (a syntype)

4.8 km NE SANTA CRUZ, south face of Volcán Turrialba, Cantón de Turrialba, Provincia de CARTAGO: 1475 m. Lower Montane Pluvial bioclimate.

Oedipina inusitata Taylor, 1952

1.25 km SE SANTA CRUZ, slope of Volcán Turrialba, Cantón de Turrialba, Provincia de CARTAGO: 1371 m. Premontane Pluvial bioclimate.

Hyla tica Starrett, 1966

The trivial name of this species alludes to the nickname *tico* applied originally by other Central Americans to Costa Ricans. The term has its derivation from the use by Costa Ricans of the diminutive suffix *-tico* or *-ico* in place of the usual Spanish diminutive *-ito* (*-ita*). With the usual Spanish style, the nickname was used in slyly demeaning fashion suggesting the small size of the country, and its poverty. Also in typical Latin style, the Costa Ricans came to use the nickname themselves as a term of endearment and national pride. Until very recently, it was all right for one *tico* to call another Costa Rican a *tico,* but bad form for a foreigner to use the term.

SANTA MARIA, Cantón de Dota, Provincia de SAN JOSE: 1545 m.

Santa María de Dota is in the upper drainage of the Río Pirrís in a valley lying south and west of the Interamerican Highway as it crosses the Cordillera de Talamanca. The valley and adjacent slopes originally were covered by pure stands of giant oaks that have now been destroyed. Lower Montane Wet bioclimate.

Gerrhonotus alfaroi, Stejneger, 1907

SARAPIQUI *see* Cariblanco.

SIBERIA, 2 km S Villa Mills (Millsville) on Interamerican Highway, Cantón de Pérez Zeledón, Provincia de SAN JOSE: 2900 m. Lower Montane Pluvial bioclimate.

Magnadigita cerroensis Taylor, 1952

SIPURIO, Cantón de Talamanca, Provincia de LIMON: 71 m. While COPE (25) may not have listed all these forms as from Sipurio, COCHRAN (22) authenticates the locality as the place of origin for these types collected by William M. Gabb, based on data at the U.S. National Museum. I (82) have discussed this area near the Panamá line in some detail, noting the precedence of Amubri over Sipurio as the center of the Alta Talamanca region in the 20th century. Lowland Moist bioclimate.

Basiliscus plumifrons Cope, 1875
Bothriopsis proboscidens Cope, 1875
Cinosternum brevigulare Cope, 1885 (also syntypes from Puerto Viejo)
Cinosternum postinguinale Cope, 1887 (substitute name for *Cinosternum brevigulare* preoccupied by *Cinosternum brevigulare* Gunther, 1885; also syntypes from Puerto Viejo)
Contia pachyura Cope, 1875
Lachesis stenophrys Cope, 1875
Leptognathus argus Cope, 1875
Leptophis saturatus Cope, 1875
Ninia sebae tesselata Cope, 1875

near SIPURIO, Cantón de Talamanca, Provincia de LIMON: approximately 70 m. Lowland Moist bioclimate.

Hyla gabbii Cope, 1875
Hyla uranochroa Cope, 1875

near SIPURIO, eastern foot of mountains, Cantón de Talamanca, Provincia de LIMON: 70 m. Lowland Moist bioclimate.

Hyla elaeochroa Cope, 1875

SIQUIRRES, Cantón de Siquirres, Provincia de LIMON: 62 m. A large

commercial center on the main railroad line from La Junta to Puerto Limón. Lowland Moist bioclimate.

Rhinobothryum bovalli Andersson, 1916
Trimetopon viquezi Dunn, 1937

SIQUIRRES *see* Reventazón.

RIO SUCIO, Cantón de Cartago, Provincia de CARTAGO: 1900-2000 m. The headwaters of the river, where C.F. Underwood collected the types of the species listed below, is on the north (Atlantic) slope of Volcán Irazú. The country in this region remains virtually inaccessible even today. Lower Montane Pluvial bioclimate.

Rana godmani Gunther, 1900

SURETKA, Cantón de Talamanca, Provincia de LIMON: 60 m. At one time an important banana center on the Río Telire or Río Sixaola, now a few scattered houses. I (82) have discussed this place in some detail as the probable site of La Ciudad de Santiago de Talamanca (founded 1605). Lowland Moist bioclimate.

Tantilla schistosa taylori H.M. Smith, 1962

SURETKA, Cocales Creek *see* Río Cocolis.

TAPANTI, Cantón de Paraíso, Provincia de CARTAGO: 1200 m. The name applies to an area on the north side of the Río Grande de Orosi due east of the town of Río Macho. This place should not be confused with Hacienda Tapantí, a farm on the road between Tapantí and Río Macho on the south side of the river. Formerly the road ended at Tapantí but it now runs farther to the east toward Taus, across the divide into the Río Pejibaye drainage. Premontane Pluvial bioclimate.

Phyllomedusa annae Duellman, 1963

NNE TILARAN *see* San Bosco

between TURRIALBA and Peralta *see* Chitaría

ESE TURRIALBA *see* Río Reventazón.

Volcán TURRIALBA *see* Santa Cruz.

UATSI, Cantón de Talamanca, Provincia de LIMON: 40 m. This place is the terminus of the rail line running from Almirante in Panamá into the Baja Talamanca area of Costa Rica. It was formerly called Volio and lies in cleared bottom land. It is approximately 9 km NE of Bratsi (Bambú) on the Río Sixaola. Lowland Moist bioclimate.

Leposoma southi orientalis Taylor, 1955

UREN district *see* Río Urén.

between RIO UREN and RIO LARI, Urén district, Cantón de Talamanca, Provincia de LIMON: 760 m. I (83) have clarified the source of the type of the species listed below. The area has never been revisited and remains in virgin forest on a low ridge extending northwestward from the base of Cerro Kámuk (Pico Blanco). Premontane Pluvial bioclimate.

Cranopsis fastidiosus Cope, 1875

slope of CERRO UTYUM, Cantón de Talamanca, Provincia de LIMON. As I (82) have discussed elsewhere, the materials collected by William M. Gabb and described by COPE (26, 27) from the Atlantic slopes of the Cordillera de Talamanca in southeastern Costa Rica were collected on the slopes of Cerro Utyum (also spelled Ujum) not on Cerro Kámuk, then called Pico Blanco. This area is still essentially undisturbed and is rarely visited. Uninterrupted forests stretch for many kilometers along these slopes of the Talamanca-Chiriquí massif.

Anolis pachypus Cope, 1875
Ranula brevipalmata Cope, 1875

CERRO UTYUM, between 3000 and 5000 ft, Cantón de Talamanca, Provincia de LIMON: 914-1524 m. Premontane Pluvial bioclimate.

Ollotis coerulescens Cope, 1875

CERRO UTYUM, 5000 ft, Cantón de Talamanca, Provincia de LIMON: 1524 m. Premontane Pluvial bioclimate.

Crepidius epioticus Cope, 1875

CERRO UTYUM, 6000 ft, Cantón de Talamanca, Provincia de LIMON: 1829 m. The listed frogs are both synonyms of *Eleutherodactylus biporcatus* (W. Peters) which rarely occur above 700-800 m. The altitudinal data are clearly wrong. Lower Montane Pluvial bioclimate.

Lithodytes gulosus Cope, 1875
Lithodytes megacephalus Cope, 1875

CERRO UTYUM, 7000 ft, Cantón de Talamanca, Provincia de LIMON: 2134 m. Lower Montane Pluvial bioclimate.

Lithodytes melanostictus Cope, 1875
Phyllobates hylaeformis Cope, 1875

CERRO UTYUM, 5000-7000 ft, Cantón de Talamanca, Provincia de LIMON: 1524-2134 m. From Premontane Pluvial to Lower Montane Pluvial bioclimates.

Catostoma psephotum Cope, 1875
Contia calligaster Cope, 1875

Hyla nigripes Cope, 1875
Hyla punctariola moesta Cope, 1875
Hyla punctariola monticola Cope, 1875
Hyla punctariola pictipes Cope, 1875
Hylodes cerasinus Cope, 1875
Lithodytes habenatus Cope, 1875
Lithodytes muricinus Cope, 1875
Lithodytes podiciferus Cope, 1875

Summit of CERRO UTYUM, Cantón de Talamanca, Provincia de LIMON: 3084 m. Montane Pluvial bioclimate.
Gerrhonotus monticolus Cope, 1878

VICTORIA, Cantón de Matina, Provincia de LIMON: 35 m. A farm near juncture of the Río Zent and Río Peje, across the latter river from the spur rail line running along northeast bank of the former river south from Zent in completely cleared bottom land. Lowland Moist bioclimate.
Phyllobates beatriciae Barbour and Dunn, 1921

PUERTO VIEJO, Cantón de Talamanca, Provincia de LIMON: 2 m. This old port town, that formerly served as the access to the Valle de Talamanca, was originally called Old Harbour when the region was under the implied protection of the British Crown as part of Mosquitia, during the last century. The name was retained by the English speaking Jamaican immigrants who settled over much of the Limón coast after they helped build the railroad during the 1880's and 90's, and worked in the Compañía Bananera plantations developed contemporaneously. Lowland Moist bioclimate.
Ameiva gabbiana Cope, 1875
Cinosternum brevigulare Cope, 1885 (syntypes also from Sipurio)
Cinosternum postinguinale Cope, 1887 (a substitute name for *Cynosternum brevigulare* Cope, 1885, preoccupied by *Cinosternum brevigulare* Gunther, 1885; syntypes also from Sipurio)

between PUERTO VIEJO and Sipurio (low country), Cantón de Talamanca, Provincia de LIMON. Lowland Moist bioclimate.
Leptophis aeruginosus Cope, 1875
Mabuia alliacea Cope, 1875

near PUERTO VIEJO, Cantón de Talamanca, Provincia de LIMON. Lowland Moist bioclimate.
Dendrobates talamancae Cope, 1875

FINCA VOLCAN, 1.6 km Volcán, Cantón de Buenos Aires, Provincia de PUNTARENAS: 404 m. This farm is also called Finca Max Cone after

one of its owners. It is located in a heavily cultivated area just northeast of the Río Volcán and about 2 km north of the Interamerican Highway where it crosses the latter river. Lowland Moist bioclimate.

Coniophanes fissidens obsoletus Minton and H. M. Smith, 1960

VOLIO *see* Uatsi.

RIO LAS VUELTAS *see* Alto del Roble.

FINCA ZELEDON *see* Concordia.

ZENT, Cantón de Matina, Provincia de LIMON: 19 m. Lowland Moist bioclimate.

Lathrogecko xanthostigma Noble, 1916
Oedipina alfaroi Dunn, 1921

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Fig. 1 Area of the Desengaño pass between Volcán Poás to the west and Volcán Barba to the east. The main fork in the road where one may go either to the crater of Volcán Poás or to Cariblanco, is marked by a small restaurant, which is usually and incorrectly cited as Vara Blanca by most collectors. The entire area from the pass to around Isla Bonita was called Cinchona-Isla Bonita by E. H. Taylor in his Costa Rican works.

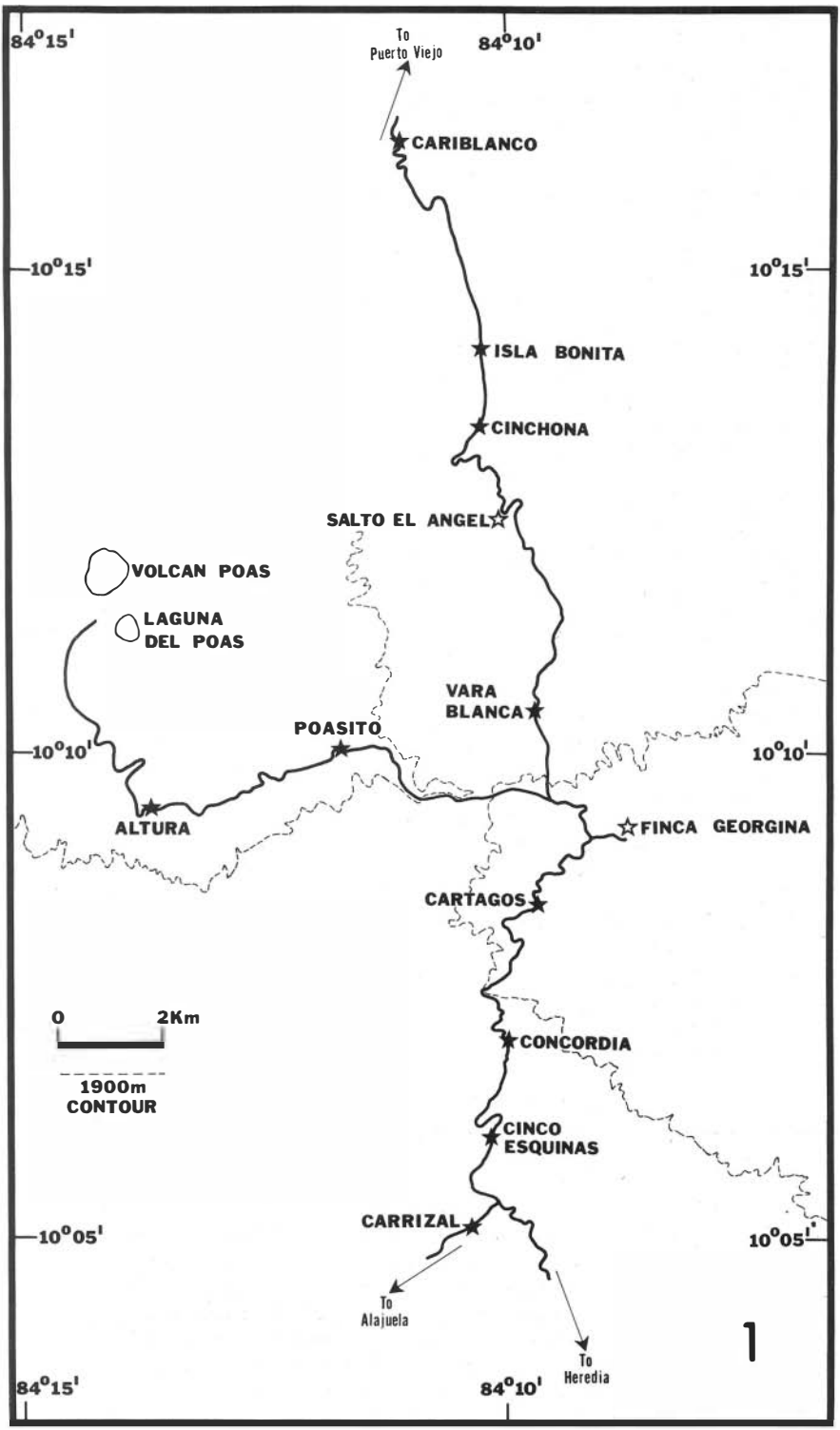
84°15'
To
Puerto Viejo
84°10'
CARIBLANCO
10°15'
10°15'
ISLA BONITA
CINCHONA
SALTO EL ANGEL
VOLCAN POAS
LAGUNA
DEL POAS
VARA
BLANCA
POASITO
10°10'
10°10'
ALTURA
FINCA GEORGINA
CARTAGOS
0
2Km
1900m
CONTOUR
CONCORDIA
CINCO
ESQUINAS
CARRIZAL
10°05'
10°05'
To
Alajuela
To
Heredia
84°15'
84°10'
1

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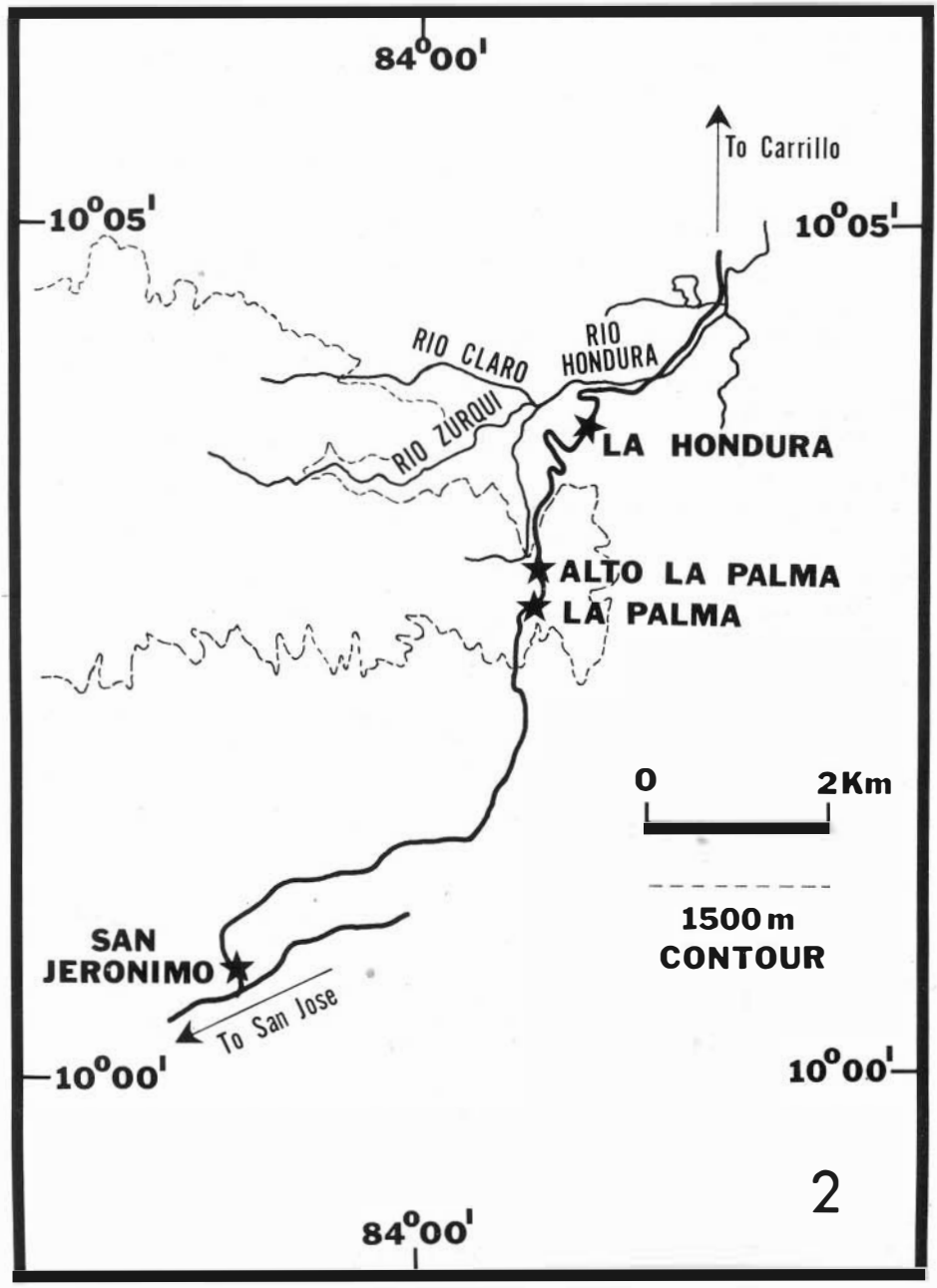
Fig. 2 Area of the La Palma pass between Volcán Barba to the west and Volcán Irazú to the east. Collections labeled La Palma may have been taken anywhere between the continental divide near Alto La Palma southward on the Pacific (southern) slopes to around 1400 m in elevation. Most recent samples are from near the 1500 m contour just below La Palma.


84°00'
To Carrillo
10°05'
10°05'
RIO CLARO
RIO HONDURA
RIO ZURQUI
LA HONDURA
ALTO LA PALMA
LA PALMA
0
2Km
1500 m CONTOUR
SAN JERONIMO
To San Jose
10°00'
10°00'
2
84°00'

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