

A review and reappraisal of the night monkey, *Aotus lemurinus* (Primates: Cebidae), in Costa Rica

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Resumen: Los monos nocturnos del género *Aotus* habitan actualmente las tierras bajas de Suramérica, aunque en épocas pasadas su distribución se prolongaba hasta Isla Bastimentos, Provincia de Boca del Toro, en Panamá. El único registro de un *Aotus* colectado en Costa Rica proviene del siglo XVIII. Aunque siempre ignorado, la literatura revisada sugiere que este registro es válido. Autores posteriores atribuyeron este espécimen a una localidad denominada Quindín, Quindín, o Quindiu. Aquí se demuestra que esta localidad fue erróneamente asociada al ejemplar por D.G. Elliot aproximadamente 45 años después de que se colectó. Varias observaciones (1975-1986) sugieren que *Aotus lemurinus* se encuentra al menos en dos regiones de las tierras bajas del Caribe de Costa Rica. Monos nocturnos han sido observados en tres ocasiones en la Reserva Biológica de La Selva, Provincia de Heredia. Algunos cazadores han visto también a los monos no solo en los alrededores del área sino también cerca de Bribri, Provincia de Limón, próximo a la frontera con Panamá. Esta especie se debe buscar en habitats apropiados por todas las tierras bajas del Caribe y debe otorgársele protección completa en su categoría de especie amenazada.

Night monkeys are distributed widely throughout the lowlands of South America and north along the Caribbean coast of Central America to extreme western Panamá (Hershkovitz 1983). The ecology and distribution of these monkeys are poorly known, in part because they are nocturnal and seldom observed. Most authors have regarded all night monkeys as a single species, *Aotus trivirgatus* (Humboldt). However, in a recent revision, Hershkovitz (1983) recognized nine allopatric species. Hershkovitz (1983) assigned all night monkeys found in Panamá and adjacent Colombia to *Aotus lemurinus lemurinus* (I. Geoffroy).

Night monkeys are found throughout much of eastern Panamá although this was doubted until Goldman's (1914) report described night monkeys from eastern and central Panamá as a distinct species, *Aotus zonalis* Goldman. In subsequent years, night monkeys were found to be widespread and abundant in Panamá. Handley (1966:774) considered them "common in eastern Panamá" and possibly occurring on the Caribbean coast of western Panamá. The western-most locality

in Panamá for which specimens are available is Isla Bastimentos, Bocas del Toro Province (9° 19'N, 82° 08'W).

There is a single specimen record of a night monkey from Costa Rica. P. L. Sclater (1872: 3) in a report on the primates found in America north of Panamá stated

"In a collection recently formed in the highlands of Costa Rica by Dr. van Patten is a skin of this *Nyctupithecus* [an old generic name for *Aotus*], which agrees in every respect with a skin of the same animal from Bogota; so that this Columbian form evidently ranges thus far north".

The next report of this specimen was by Alston (1879: 14-15) who stated

"The range of the species would therefore appear to extend from the Peruvian Amazons... through Colombia, where it is found near Santa Fé de Bogotá and in the forest of Quindí, to Costa Rica, whence a specimen was sent home by Dr. van Patten and identified with Geoffroy's species by Mr. Sclater".

He went on to report that the species had not yet been reported from Panamá and thus doubted, in part on the basis of geography,

that van Patten's specimen originally came from Costa Rica. Elliot (1913: 14) erroneously reported the locality of this specimen as Quindín, Costa Rica stating

"...Mr. Sclater identified a specimen stated by Dr. van Patten to have been collected in the forest of Quindín (*sic*), Costa Rica... The locality given is probably an error, as no species of *Aotus* is known to inhabit any part of Central America..."

Hershkovitz (1949:408), in his revision of the Colombian and adjacent Panamanian *Aotus* disregarded this specimen as a valid record, accepting Sclater's and Alston's belief that the specimen was

"identifiable with the night monkeys of the Colombian highlands... referred to *lemurinus*"

without having examined the specimen himself. Hall and Kelson (1959:221) and restated by Hall (1981: 260) subsequently credited Hershkovitz for confirming the identification of this specimen stating

"Hershkovitz... regards the specimen as *Aotus trivirgatus lemurinus*... that occurs naturally only in Colombia, South America".

Both Hall and Kelson (1959) and Hall (1981) cited the locality for this specimen as "Quindín, Costa Rica".

Quindío is a department on the western slopes of the Andes in west-central Colombia, the name for a mountain pass in that region, and a general term used for the western side of the central Andes of Colombia. In the literature it appears spelled "Quindiu" or "Quindio". Although Alston's exact meaning of Quindiu is unspecified, he was referring to night monkeys in Colombia, not Costa Rica. All subsequent associations of Quindín, Quindiu being in Costa Rica apparently stem from Elliot's improper citations of Alston's general reference to night monkey distribution in Colombia. There is no locality or region in Costa Rica with a similar spelling.

No specimen of *Aotus* currently can be found at the British Museum (Natural History) that is labeled as being from Costa Rica (P. Hershkovitz, pers. comn; Napier 1976), thus it appears as if this specimen is lost.

Several observations suggest that night monkeys currently may be found in Costa

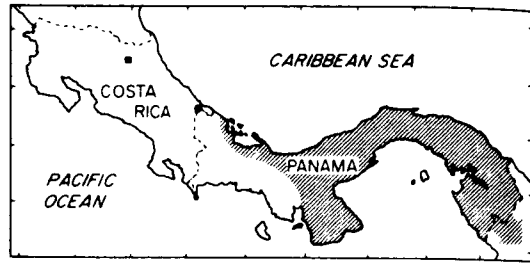


Fig. 1. The distribution of sight records of night monkeys of the genus *Aotus* in Costa Rica and Panamá. The square in northeastern Costa Rica represents the sightings at La Selva Biological Reserve and near Puerto Viejo de Sarapiquí, both in Heredia Province. The circle in southeastern Costa Rica represents the sightings near Bribri, Limón Province. The cross hatch delineates the distribution in Panamá and is adapted from Hall (1981) and Hershkovitz (1983).

Rica and that they are or were in fact widely distributed in the eastern Caribbean lowlands of the country. Three recent sightings are recorded in the mammal log of the La Selva Biological Reserve. The La Selva Biological Reserve is a field station of the Organization for Tropical Studies located 1 km south of Puerto Viejo de Sarapiquí, Heredia Province in the Caribbean lowlands of northeastern Costa Rica (10° 26' N, 83° 59' W); elevation ranges from 35 to 150 m (see Fig. 1). La Selva lies within the Tropical Wet Forest Life Zone, and lowland evergreen forest is the dominant forest type. Much of the station is primary rainforest that has been preserved; small areas were cleared in the 1950's for cacao, *Cordia*, and pejobaye production, and for buildings.

Sometime between 11 and 17 February 1982 an animal identified as a "night monkey" was observed at the intersection of the Far Loop and East River trails by Raymond Méndez. The observation was made at 9:35 P.M. and no further information was recorded.

On 19 December 1985 an animal was observed in a fig tree by the trail just behind the field station at 7:45 p.m. by Feynner Arias Godínez. He described it as having "large eyes, fast moving, squirrel size +, long tail, reddish brown breast, black end of tail, jumping, and round head". He later told me that the animal was high in the fig tree and actively jumping from branch to branch, and that the eye shine was bright red. Arias is familiar with the other four species of Primates

found in Costa Rica, squirrel monkeys (*Saimiri oerstedii*), mantled howler monkeys (*Alouatta palliata*), Geoffroy's spider monkeys (*Ateles geoffroyi*), and white-faced capuchins (*Cebus capucinus*), as well as the larger marsupials such as gray four-eyed opossums (*Philander opossum*) and woolly opossums (*Caluromys derbianus*), and carnivores such as the olingo (*Bassaricyon gabbii*) and kinkajou (*Potos flavus*), which might be confused with night monkeys.

On 25 December 1986 Arias observed two, possibly three animals that he identified as night monkeys in the same general area as his observation of the previous year. The animals were seen at 2:20 a.m. high in a *Ficus* tree and threw down bromeliad leaves.

In surveying hunters between 1975 and 1979 concerning the present distribution and status of several species of endangered vertebrates in Costa Rica Vaughan (1983) obtained additional information suggesting that night monkeys were present in Costa Rica. Of the dozens of hunters interviewed from throughout the country, only a few were familiar with night monkeys. One hunter stated that night monkeys were seen near Puerto Viejo de Sarapiquí, and a few hunters stated that they were found in Limón Province around Bribri, near the Panamanian border. Bribri is only some 70 km north northwest of Isla Bastimentos, Panamá, which has the northern-most documented population of *Aotus lemurinus* (Fig. 1).

The presence of *Aotus lemurinus* in Costa Rica still needs confirmation. However, in light of the recent observations at the La Selva Biological Reserve and near the Panamanian frontier, night monkeys should be sought in appropriate habitats in the Caribbean lowlands of eastern Costa Rica. Night monkeys require large tracts of intact forest. Unfortunately, much of the lowland primary forest is being cleared for pasture land and agricultural use. If night monkeys are located in Costa Rica, they and their associated habitats should receive complete protection.

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REFERENCES

- Alston, E. R. 1879-1882. *Biologia Centrali-Americana. Mammalia*, xx + 1-220 p. + 22 pls.
- Elliot, D. G. 1913. A review of the Primates. Vol II. Amer. Mus. Nat. Hist., Monograph Series, 2 (Anthropoidea, *Aotus* to *Lasiopyga*): cxxvi + 317 + xxxviii.
- Goldman, E. A. 1914. Descriptions of five new mammals from Panama. *Smithsonian Misc. Coll.* 63: 1-7.
- Hall, E. R. 1981. *The mammals of North America*. Vol. 1. 2nd Edition, John Wiley & Sons, New York. xv + 1-600 + 90 p.
- Hall, E. R. & K. R. Kelson. 1959. *The mammals of North America*. Vol. I. Ronald Press Company, New York. xxx + 1-546 + 79 p.
- Handley, C. O., Jr. 1966. Checklist of the mammals of Panama, p. 753-795. In R. L. Wenzel & V. J. Tipton (eds.). *Ectoparasites of Panama*. *Field Mus. Nat. Hist.*, Chicago, 861 p.
- Hershkovitz, P. 1949. *Mammals of northern Colombia*. Preliminary report No. 4: *Monkeys (Primates)*, with taxonomic revision of some forms. *Proc. United States Nat. Mus.* 98 (3232): 323-427.
- Hershkovitz, P. 1983. Two new species of night monkeys, genus *Aotus* (Cebidae, Platyrrhini): A preliminary report on *Aotus* taxonomy. *American J. Primatol.* 4: 209-243.
- Napier, P. H. 1976. *Catalogue of Primates in the British Museum (Natural History)*. Part. I: Families Callitrichidae and Cebidae. *British Museum (Natural History)*, London. xi + 121 p.
- Sclater, P. L. 1872. On the *Quadrumana* found in America north of Panama. *Proc. Zool. Soc. London*. 1872: 2-8.
- Vaughan, C. 1983. A report on dense forest habitat for endangered wildlife species in Costa Rica. *National University, Heredia, Costa Rica*. 66 p. + 33 maps.