

# Advertisement call variation in the *Leptodactylus mystaceus* species complex (Amphibia: Leptodactylidae) with a description of a new sibling species

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**Abstract.** Whereas morphological analysis of populations recognized as *Leptodactylus mystaceus* indicates there is one species with modest geographic variation, analysis of advertisement calls indicates there are at least two or perhaps three species involved. The differences found in advertisement calls are sufficient to act as species isolating barriers to recognize at least two species, which action is taken. A consequent result is the description of a new sibling species. The significance of sibling species in the genus *Leptodactylus* is discussed briefly.

## Introduction

Heyer (1978: 41) stated that the distribution of *Leptodactylus mystaceus* (as *L. amazonicus*) was characterized as occurring "Throughout the greater Amazon Basin, Guianas, northern Atlantic Forest, and cerrados bordering the Amazon Basin". At that time, recordings of advertisement calls were available only from a single site. Since then, recordings of *L. mystaceus* have been made at several other localities. Analysis of these recordings, together with those of two other members of the *L. mystaceus* complex, form the basis of the characterization of the acoustic variation within the group.

## Materials and methods

Museum abbreviations follow Leviton et al. (1985) with the exception that MHNSM is the Museo de Historia Natural, Universidad San Marcos, Peru.

The recordings analyzed and associated data of morphologically identified *L. mystaceus* are (arranged roughly from East to West and North to South):

Brazil: Pará; near Altamira. ASN-AJC (Archivo Sonoro Neotropical, Adão J. Cardoso recording) Tape 64 (cut 1, 3), December 1986, 21:35 h, 25°C air temperature, voucher specimen ZUEC 7196, recorded by Adão J. Cardoso. ASN-AJC Tape 67 (cut 7), 7 December 1986, 25.5°C air temperature, voucher specimen ZUEC 7249, recorded by Adão J. Cardoso.

Brazil: Pará; Parque Nacional da Amazônia (Rio Tapajós). USNM (tape archive at National Museum of Natural History, Smithsonian Institution) Tape 53 (cut 6), 21 January 1981, 18:00-23:00 h, 24.6°C air temperature, voucher specimen USNM 288748, recorded by Ronald I. Crombie.

Brazil: Amazonas; Biological Dynamics of Forest Fragments sites, N of Manaus. USNM Tape 149 (cuts 1 and 2), 12 January 1984, 20:23 h, unvouchered, recorded by Barbara L. Zimmerman. USNM Tape 161 (cut 1), 9 April 1987, 19:30 h, unvouchered, recorded by Barbara L. Zimmerman.

Venezuela: Amazonas; Neblina base camp. USNM Tape 70 (cut 2), 24 February 1985, 19:00 h, 25.2°C air temperature, voucher specimen USNM 332867, recorded by Reginald B. Cocroft. USNM Tape 70 (cut 3), 24 February 1985, 20:15 h, 24.4°C air temperature, voucher specimen USNM 332868, recorded by Reginald B. Cocroft.

Ecuador: Napo; Limoncocha. USNM Tape 16 (cut 3), 20 June 1971, 22.9°C air temperature, unvouchered, recorded by W. Ronald Heyer. USNM Tape 16 (cut 4), 20 June 1971, 23.2°C air temperature, unvouchered, recorded by W. Ronald Heyer. USNM Tape 18 (cut 2), 15 July 1971, about 20:00 h, 22.9°C air temperature, unvouchered, recorded by W. Ronald Heyer. USNM Tape 18 (cut 3), 15 July 1971, 20:30-21:00 h, 22.9°C air temperature, voucher specimen LACM 92111, recorded by W. Ronald Heyer.

Brazil: Mato Grosso; Chapada dos Guimarães. ASN-AJC Tape 32 (cut 1), 12 November 1982, 23:00 h, 22°C air temperature, voucher specimen ZUEC 5093, recorded by Adão J. Cardoso.

Brazil: Amazonas; Rio Juruá, Barro Vermelho. USNM Tape 254 (cut 1), 23 October 1991, 18:30 h, 27°C, voucher specimen INPA 3272; recorded by Claude Gascon.

Brazil: Acre; Rio Juruá, Porongaba. USNM Tape 256 (cut 5), 19 February 1993, 18:30 h, 26°C, unvouchered, recorded by Claude Gascon.

Brazil: Acre; Rio Acre, Xapuri. ASN-AJC Tape 54 (cut 4), 24 December 1983, 20:10 h, voucher specimen ZUEC 5745, recorded by Adão J. Cardoso. ASN-AJC Tape 113 (cut 8), 16 November 1991, 17:00 h, 24°C air temperature, unvouchered, recorded by Adão J. Cardoso.

Peru: Madre de Dios; Tambopata. USNM Tape 204 (cut 3), 1 January 1989, 17:45 h, unvouchered, recorded by Reginald B. Cocroft. USNM tape 204 (cut 4), 1 January 1989, 18:10 h, 25.5°C air temperature, voucher specimen USNM 332861, recorded by Reginald B. Cocroft. USNM Tape 204 (cut 5), 1 January 1989, 18:30 h, 25.4°C air temperature, voucher specimen USNM 332862, recorded by Reginald B. Cocroft. USNM Tape 205

