

Vocalizations of *Eleutherodactylus martinicensis* as a function
of distances from a stream in Dominica

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Abstract:

The nocturnal Tink frog is tan and has a dark black eye line. These amphibian vocalizations were recorded with a Marantz PMD661 digital sound recorder and a Shure BG 4.0 condenser microphone over three different days to determine if the length perpendicular from the stream made a difference on the number of calls per 10 second intervals. My hypothesis, *E. martinicensis* would vocalize more calls at the stream greater distances away from the stream, although not supported fully was not fully disproved. It can be assumed that Tink frogs vocalized more often from the stream to around 20 meters perpendicular to the stream because of possible predators, or moisture availability.

Introduction:

Dominica is located in the lesser Antillean islands of the Caribbean and is known for its rich variety of habitats including tropical rainforest, dry forest, elfin forest, and costal regions (Evans P, 1992). Not only does this island contain unique flora and fauna but, it is also home to many reptile and amphibian species. The particularly abundant *Eleutherodactylus martinicensis*, also known more commonly as the Tink frog, which are usually tan and have a dark black eyeline. These amphibians are found in lush tropical habitats and vary in size depending on gender. Both females and males are nocturnal and active throughout the year. This frog species is endemic to the Lesser Antilles and can be heard all throughout the island. *E. martinicensis* has a distinct vocalization call that can be used for mating and/or territorial purposes. This experiment was designed to help determine whether *E. martinicensis* individuals made more calls closer to the stream than they did further from the stream. My hypothesis was that *E. martinicensis* would vocalize more calls at the stream then fifty meters away from the stream.

Materials & Methods:

Observations were taken over a period of 3 different nights at the Bee House located on the northern portion of the property. Measurements were obtained along an old service road that provided a 50 meter path perpendicular to the stream for sound recordings. Headlamps were used to the light the pathway that the measuring tape was extended along during the study. During each trial, one person held the tip of a the large measuring tape while another person walked in 10 meters intervals away from the starting point. At the stream and at each increment of 10 meters a series of 3 different 10 second recordings were taken using a Marantz PMD661 digital sound recorder and a Shure BG 4.0 condenser microphone. After each data collection the recordings would then be downloaded onto a Macintosh for count analyses. Only the loudest calls were counted in each of the recordings. Then for each spatial increment, an average number of calls was calculated from the three 10 second sound recordings. Data was stored and visualized in Microsoft Excel.

Results:

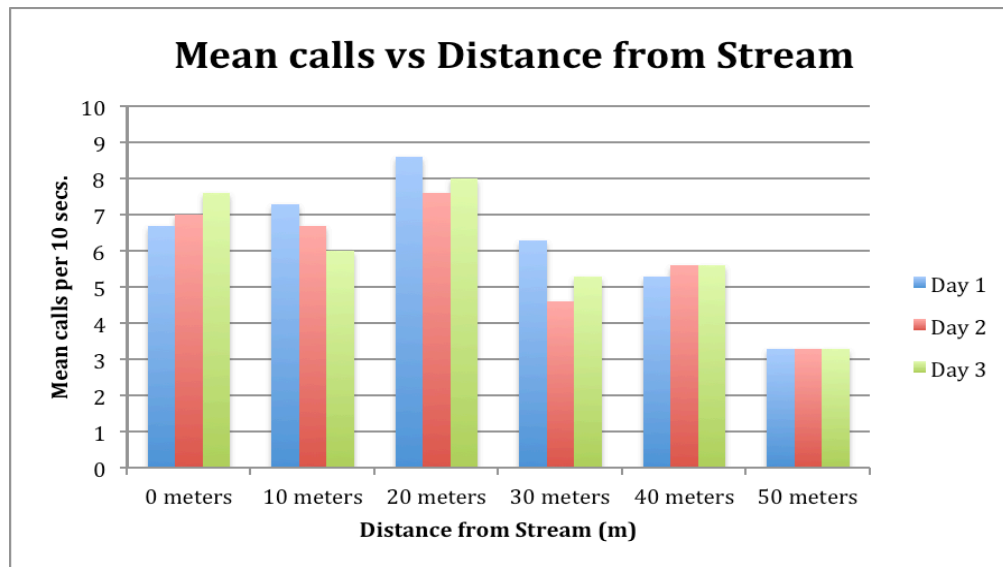


Figure 1: Mean number of Tink frog calls per 10 seconds per sampling interval versus various distances from the stream.

Discussion:

During the 3 day trial period, multiple recordings were taken of the *E. martinicensis* along the stream. I observed that from the stream to roughly 20 meters from the stream was the location where the most calls were vocalized as seen in Figure 1. Beginning at 30 meters the number of calls delivered were on a regular fashion and although this discovery did not support my initial hypothesis, that *E. martinicensis* would vocalize more calls at the stream then fifty meters away from the stream, it also did not disprove it. Due to amphibians living their first stage of life in an aquatic environment I believed there would have been more calls coming from the stream; however, the possibility of predators could be a factor as to why the frogs are further away from the stream than suspected. With the amount of rainfall it could also be assumed that too much water in the stream could be a serious complication for Tink frogs. I also observed that after a

light rain the Tink frogs call became louder and more clear meters away from the stream. This could be due to territorial issues or mating calls. These observations have led me to believe perhaps another study could be done with the amount of rainfall and how often a Tink frog calls as a function of precipitation. In conclusion, due to either rainfall or threat of predators, one could assume that Tink frogs would commonly locate themselves up to a safe distance of 20 meters perpendicular from a stream.

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Literature citations:

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