

Red-eyed tree frogs use vibrations as a means of communication

June 22 2010, by Lin Edwards



Red-eyed tree frog of Central and South America. Image: Graham P. Oxtoby, via Wikipedia.

(PhysOrg.com) -- A study of the Central American red-eyed tree frog has found that the males shake the branches they're perched on to produce strong vibrations to mark out their territory for mating.

Researchers from the Adelaide Zoo and Flinders University, Adelaide, led by Dr. Greg Johnston, were studying the role of bright colors in the behavior of frogs in their breeding rituals, when they discovered that the

Panamanian rainforest frogs shake the branches they are posing on as part of the ritual, especially if another male is in the vicinity. Johnston said they struck a pose that displayed all their colors and then did what looked to him like “little tantrums,” which produced strong vibrations that traveled through the plants.

The researchers chose red-eyed tree frogs (*Agalychnis callidryas*) to study because they are brilliantly colored with gold and blue stripes on their sides, purple flashes on their thighs, bright orange feet, and green backs, and their eyes are bright red. They used infrared cameras to study the frogs mating at night, and also used a miniature [seismograph](#) to confirm the vibrations were really made by the frogs and not by the wind or other natural effects.

The team introduced competing males and observed them. They found the two males shook their branches until one of them gave up, or until they fought to decide the victor. Shaking branches was the most frequent display of aggression, and the behavior and vibrational characteristics varied with the size of the male and the degree of conflict.

It was clear to the researchers the frogs were using their vibrations to mark out their territory for mating, with the vibrations traveling around 1.5 meters through the tree branches and male frogs spacing themselves around the rainforest pond accordingly.

In another experiment the researchers used a [robot](#) frog to produce vibrations when male frogs were in the vicinity. Johnston said the male frogs reacted to the robot in the same way as they would with a real male frog.

The research adds to the knowledge of how vibrations can be used as another mode of communication among animals. Scientists have known for a long time that animals are sensitive to vibrations but little is known

about using them as a communication method. Another [study](#) in April's edition of *Nature* described how certain caterpillars used vibrations as a form of communication.

The results of the research are reported in the June issue of the journal *Current Biology*.

More information: Vibrational Signaling in the Agonistic Interactions of Red-Eyed Treefrogs, *Current Biology*, Volume 20, Issue 11, 1012-1017, 20 May 2010 [doi:10.1016/j.cub.2010.03.069](https://doi.org/10.1016/j.cub.2010.03.069)

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