

## Richfield Tree Frogs Part of Evolutionary Study

by Joanne Fry

Animal mating calls are a certain sign of spring. Male birds, frogs, crickets - they each have unique strategies for advertising their presence and attracting mates. Birds rely on bright plumage as well as unique song patterns. Crickets and frogs, who survive by blending in with their surroundings, rely solely on their calls.

Environmental biologist Tim Matson of the Cleveland Museum of Natural History has been stalking the common gray tree frog "on and off" since 1985. "The on and off has been closely tied with drought years," he explained. "I did almost nothing in 1988 and 1991."

The data on tree frogs is part of an ongoing study of their distribution and evolutionary patterns. He hopes his findings will give him information not only on the evolutionary strategies of tree frogs, but may in turn shed light on evolutionary development within other species, including humans.

Matson has been collecting tree frog samples on an east-west basis (from the Ohio-Pennsylvania border to the Ohio-Indiana border) as well as looking at north-south differences, comparing the area within the Ohio River drainage divide with the Great Lakes drainage divide. The border between the two divides cuts through portions of Summit County. A pond site on Southern Road, on the north side of the divide, is his only site in Summit County.

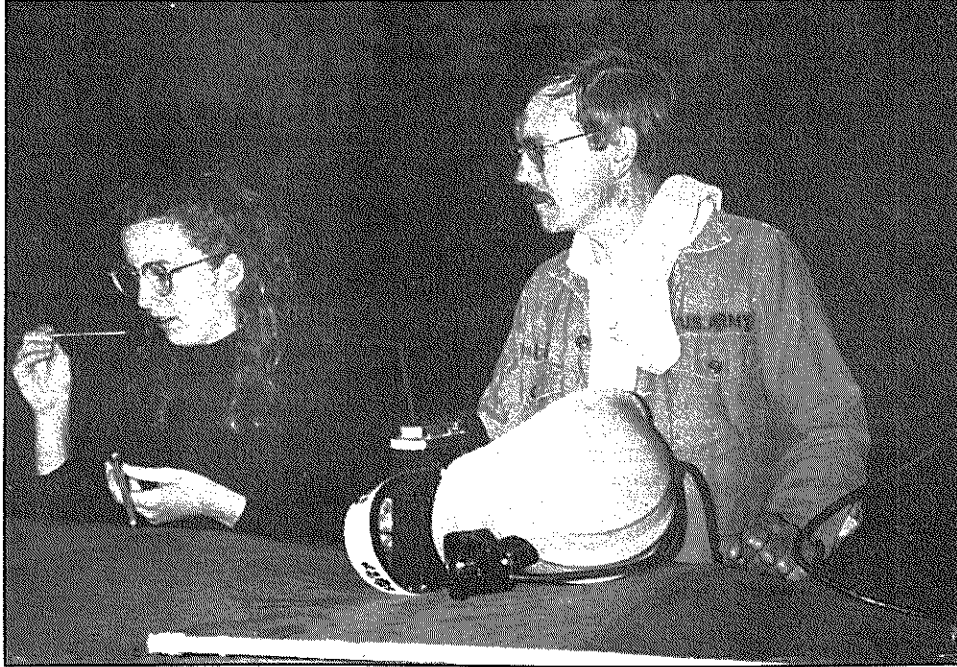
He has collected data on more than 350 frogs from about 36 sites in Ohio, and has taken audio recordings at between 400 and 500 additional sites.

The height of the mating season begins in early May and lasts to mid July.

"You can hear them in April and August," notes Matson, "but they are dispersed from the mating ponds."

The frogs prefer certain conditions - high humidity, high temperatures (in the 60's at night), and rain within the last 24 hours. Nights like this find Matson and a student assistant donning several pairs of thick socks, hip waders, and an adjustable miner's helmet. He carries a thermometer fitted with a fishing bobber - "They're always falling out of my pockets and the darned things cost about \$30".

The tree frogs can be identified by



Biologist Tom Matson and summer intern Shala Hankison take a thermometer reading as they prepare to catch tree frogs to study.

their large toepads and a characteristic white spot edged in black directly below each eye. But although the males are easy to hear, they have several strategies to help them avoid detection and capture.

They are chameleon-like in nature, assuming the coloration of their surroundings. Their body color can range from an almost clear yellow-green with no blotching to a green-gray, almost mold-like color.

They are also very ventriloquistic, notes Matson.

"They throw their voices very well. When you think you know where they are, look over just a few feet."

Matson and his assistant approach their target area very quietly and do not turn their lights on until they are sure they know where a frog is.

"Once he sees you he will stop calling unless there is a chorus going on; then they are pretty oblivious to everything around them. If you watch carefully you can detect movement of the vocal pouch."

Catching the frogs triggers a third protective strategy. The frogs secrete a mucus that can create typical allergic reactions, ranging from itching and eye-watering to nausea to a sudden lowering of blood pressure.

Matson keeps a tape recorder running to record each mating call. As each frog is caught, he takes their body temperature and quickly puts it in a collection bucket. He and his assistant take notes on its coloration, blotching patterns

(these can disappear in very bright areas), and calling position.

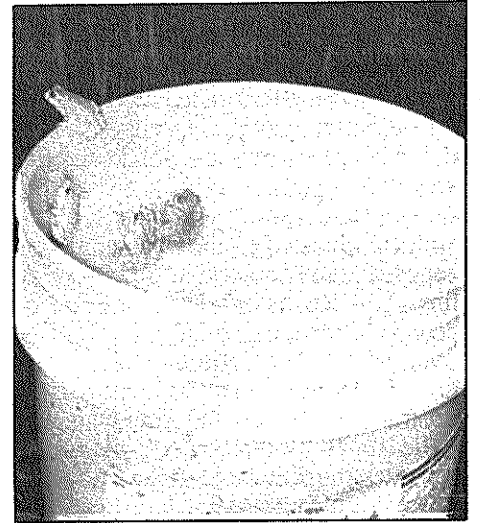
"We want to record exactly where they were - in the trees, on a log, in the grass, the type of vegetation around, as well as how far from the surface of the water we found them."

The next day, Matson takes a droplet of blood from the toe of each frog and records the size (length and width) of their red blood cells. The frogs are returned to their home ponds within a few days.

The blood testing will help Matson identify and classify the frogs. Significant variations have been noted in the mating calls of one species, the Copes gray tree frog, which is found primarily in the south, midwest and southwest,

as well as in southern Ohio. The common gray tree frog, which is typically found in the eastern part of the United States and into the northern half of Ohio, does range into Copes territory.

The two species look almost identical to the naked eye, but differ significantly in genetic makeup. The common gray tree frogs are tetraploids, with four sets of chromosomes. The Copes gray tree frog, has only two sets of chromosomes.



"Go ahead and jump!" One of 12 gray tree frogs caught and studied by biologist Tim Matson prepares to return to his old hangout.

In many locations, says Matson, the sounds of the two are almost indistinguishable. To complicate matters even further, the Copes tree frog will modify its mating call when it comes in contact with the common gray tree frog. Changes in temperatures will also affect the sound of the call among members of both species.

## Mail Hub Offers Plastic Peanuts Recycling

A collection center for plastic loose-fill, the puffs of plastic foam used as packing material, is available at The Mail Hub in the Brecksville Shopping Center. Residents are encouraged to deposit clean, good-as-new, foam loose-fill shaped like peanuts, figure eights, cup-shaped disks, and other geometric forms, at The Mail Hub rather than in their trash.

According to owner Raymond Zadd, "We will assume responsibility for storing the loose-fill and preventing it from being scattered as litter."

He explained that plastic loose-fill, properly called expanded polystyrene or

EPS, is one of the most cost-efficient packaging materials available. Providing better protection for fragile items, it is lightweight, easy to work with, and keeps handling costs down. Zadd suggests phoning the local collection center at 526-9242 prior to dropping off the loose-fill.

The center collection program is a national effort launched by the Plastic Loose-Fill Producers' Council consisting of major manufacturers, converters and distributors of loose-fill. These companies include: The Dow Chemical Company, Free-Flow Packaging Corporation, Inner-Pac, Rapact and Storopack.

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