

A Tale of Two Species

Highlight the key points from the reading as you go, answer the questions at the end, and then discuss the story with your group in order to prepare for sharing with the class.

The American Green Tree Frog and The Barking Tree Frog

Tree frogs can be heard in many rural and suburban settings across the United States and provide perhaps one of the most recognizable evening symphonies second only to the chirping of crickets. As with crickets, the calls of tree frogs are primarily the responsibility of the male who holds the goal of successfully courting a female for the mating season.

Like the calls of crickets and the calls of birds, frog courtship calls are generally unique to each species. Females only respond to the calls of the males they recognize as being part of their own species.

Two closely related frogs, the American green tree frog, *Hyla cinerea*, and the barking tree frog, *Hyla gratiosa*, co-occur in the southeastern United States. Though the species look distinct, they are actually able to hybridize, producing healthy young. However, despite this possibility, hybrids are rare in the wild and scientists wanted to know why.

They brought frogs of each species into the lab and paired them off for mating. Females of either species would mate with males of either species when they were given no choice. However, when any female was allowed to choose, she chose the male of her own species, rejecting the other. The research team figured out females were using subtle differences in male calls to help them distinguish the correct mate. The males of the other species just didn't quite sound "right" to the females. This in part explains the lack of hybridization in nature.

But what happens when females DO mate with the other tree frog species? Hybrids form and mature. But something particularly unfortunate happens with the male hybrids: it turns out they don't sing either species tune all that well! Since hybrid males are competing with much better singers of both species, these males sadly fail to mate at all. Thus, the hybrid lineage stops after a single generation. Researchers are, however, still less certain about the fate of female hybrids.

After you have highlighted some key points from the reading above, paraphrase three of them.

1.

2.

3.

Title: [What organisms are you looking at?]

Summary: [1-2 sentences summarizing what is happening in the system]

Focus trait: [what trait is keeping the species separate?]

Web Resources:

Wikipedia Article, "American green tree frog" (https://en.wikipedia.org/wiki/American_green_tree_frog)

Wikipedia Article, "Barking tree frog" (https://en.wikipedia.org/wiki/Barking_tree_frog)

Scientific Articles:

Höbel, Gerlinde, and H. Carl Gerhardt. "Reproductive character displacement in the acoustic communication system of green tree frogs (*Hyla cinerea*)."
Evolution 57.4 (2003): 894-904.

Oldham, Robert S., and H. Carl Gerhardt. "Behavioral isolating mechanisms of the treefrogs *Hyla cinerea* and *H. gratiosa*." *Copeia* (1975): 223-231.