

AMERICA'S RAIN FORESTS

A DISTANCE LEARNING ADVENTURE

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Frog/Toad Conversation

INTRODUCTION

The mascots of "America's Rain Forests" are Quico, the coqui frog of the Caribbean National Forest (El Yunque) in Puerto Rico, and Cammo, the boreal toad of the Tongass National Forest in Alaska.

SETTING

Quico, a coqui frog living in Puerto Rico (*Eleutherodactylus coqui*), and Cammo, a boreal toad living in Alaska (*Bufo borealis*), have developed a friendship over the years and telephone each other from time-to-time to discuss specific issues and rain forest life in general. Each "conversation" contains a specific theme, such as hibernation, predation, metamorphosis, and mating habits, highlighting both the differences and the similarities between the two species and their separate rain forest habitats. The conversations are written in colloquial English and use scientific terms that should be easily understood by students.

HIBERNATION

CAMMO: Well, here it is October already, I've got to think seriously about going into hibernation!

QUICO: Hibernation, what's that?

CAMMO: Up here in the Tongass, when it gets real cold outside - like freezing cold - me and my toad buddies find a nice burrow and get inside it to keep warm. We sleep there without coming out until the weather warms up in the springtime, sometimes for six or seven months!



QUICO: Freezing! That doesn't sound like fun! It never gets that cold down here in El Yunque; it stays nice and warm and moist all year! By the way Cammo, how can you toads sleep that long without eating anything?

CAMMO: We eat a lot of food before we hibernate in order to store-up extra body fat, that way we don't need to eat, because we're sleeping and not using-up too much energy!

PREDATORS

QUICO: Hey Cammo, down here in Puerto Rico we Coquis get attacked and sometimes killed and eaten by tarantulas. Are you guys bothered by any predators like that?

CAMMO: Tarantulas, what are they? They sound scary!

QUICO: They're a big spider with eight eyes, a hairy body and legs, and poisonous fangs. We try everything we can to escape them. When we climb up in trees at night to catch bugs to eat, they lay in wait for us on the tree trunks

and try to grab us on the way up. We sometimes jump off the tree with our arms and legs extended and "parachute" to the ground to escape them! We get even with them though; we catch and eat young tarantulas before they get big enough to eat us; that's called reverse predation and it happens only in the tropical ecosystems!

CAMMO: That sounds terrible. Up here in the Tongass, we worry about big black birds called ravens. They swoop down and try to kill and eat us when we're out on the water during mating season. Sometimes we don't notice them until it's too late, because we're waiting for an interesting mate to swim by! Anyway, we boreal toads are able to "sweat" a kind of poison through our skins that can sometimes make them leave us alone!

METAMORPHOSIS

CAMMO: I remember when I hatched out of my egg, I had to spend a few weeks as a tadpole before I changed into a toad!

QUICO: Tadpole, what's a tadpole? I never heard of such a thing. When I was ready to hatch from my egg, I used a special tooth on my nose to break through the eggshell; and anyway, I was a little tiny frog as soon as I hatched. Tell me some more about the time you spent being a tadpole.



CAMMO: Well, It was kind of boring, really. I only had a head with a mouth and a lot of teeth, two eyes and a tail, no legs or fingers or toes. Mostly, I just swam around feeding on algae and plants and trying to avoid being eaten by fish, birds, and snakes! And then, one day after a little over a month had passed, all of a sudden, a lot of changes (metamorphosis) began to happen to me! I lost my tail and started to grow back legs and then front legs as I began to change into a toad!

QUICO: Wow, I guess I had it kind of easy, not having to start out life as a tadpole. How come you had to be a tadpole anyway? Why didn't you just start out life as a little toad?

CAMMO: It's a long story, Quico. You see like all toads, my mom laid her eggs in the water, not on land, so when I chewed through the eggshell I had to swim before I could do anything else. So, as a tadpole, I could swim and eat and get bigger until it was time for me to change into a toad.

QUICO: I get it now, I think I did all that tadpole stuff and then grew legs and fingers and toes while I was still inside the egg. When I broke out, I was on land and I could crawl around and I didn't need to swim!

CAMMO: Quico, little buddy, I think you've got it!

MATING HABITS

QUICO: When I'm looking for a girl coqui frog to be my mate, I sing my song to attract her attention. My song sounds like this: "ko-kee". I make it by pumping up a sac that looks like a balloon under my chin. I sing the "ko" part to attract a mate; the "kee" part is to let other male coquis know that this is my territory and to stay away! I sing my song in the late afternoon and early evening, and then again in the early morning when it is cooler and there is more humidity. What do you boreal toads do to attract a mate, Cammo?

CAMMO; Well, I suppose you could say we're kind of "laid back," Quico. First of all, we don't sing a song when we want to attract a girl toad. We just hang around in the water, looking "cool", and wait for one to swim by! We only make a noise when we want to be released by the girl after mating or by some human who has just grabbed us! From what you say, it looks like we're a lot more relaxed about mating than you guys are, Quico!

DIURNAL vs. NOCTURNAL

QUICO: Hey Cammo, I've been up all night chasing insects, the sun is coming up and I'm ready for bed! I thought I'd give you a call before I hit the sack and see how you are doing.

CAMMO: Hit the sack? How come? The day is just beginning now that the sun is coming up. It's time to go bug hunting!

QUICO: Maybe for you it is, but I've been working hard all night in cool temperature at the tree tops. I need to go home to my leaf litter and get under cover so I can sleep and keep cool all day!

CAMMO: What's the matter; does sunshine and heat bother you? I look forward to basking in the sun; it warms me up and makes me more active!

QUICO: I can't stay out in the sun. If I do, I'll shrivel-up and die! I need to stay moist and keep cool until the sun goes down. Then I can come out and play all night!

CAMMO: Wow, not me. I play and hunt bugs all day. By the time the sun goes down, I'm ready to sleep all night.

QUICO: Well, Cammo old pal, I guess maybe we have different habits because we live in different climates. What do you think?

CAMMO: Quico little buddy, I think you've hit the nail on the head, talk to you again next week!

EATING HABITS

QUICO: Hey Cammo, while I've got you on the phone, what kind of food do you toads eat up there in the Tongass? Down here in El Yunque, my favorites are crickets, cockroaches, beetles and moths, even spiders and centipedes (if they are dead!). My kids don't seem to like anything but ants, ants, and more ants!

CAMMO: Up here in the Tongass, I eat a lot of bees, beetles, ants, and spiders. I also like to eat crayfish, sowbugs, and grasshoppers. Mostly, I wait for them to show up on the ground or in a burrow made by another animal.



QUICO: Wow, hunting bugs on the ground, what a concept! I like climbing trees to hunt. The higher I go, the more insects I find. Of course, I hunt at night, not during the day like you do. Maybe that makes a difference.

CAMMO: Again, Quico little pal, I think you've got the picture! Hope to hear from you again next week, So long for now.

LONGEVITY

QUICO: Hey Cammo, I was sitting here updating my address book, and I got to thinking; I don't have your birth date written down. I need it so I can send you a card when your birthday comes around! For that matter, I don't even know how old you are or how long you toads usually expect to live!



CAMMO: Well, let me see. I was born on July 4, 2001 (I'm a "Yankee Doodle Toad"!), I guess that makes me four years old. With any luck, if I can avoid becoming "raven food" and if I can find a good burrow to hibernate in every winter, I should live until the ripe old age of nine, like my parents did. Grandpa wasn't so lucky; he got snatched by a raven when he was only five!

QUICO: Wow, you Boreal Toads live longer than we Coqui frogs do. If we don't get eaten by hawks or scorpions or get fried when we're caught out in the sun during the day, we still only live about four or five years! By the way, I was born on January 1, 2003. Yeah, I know, since it's so close to Christmas, I usually don't get very many presents, but it sure makes it easy to remember my birthday (hint-hint.) I'll be expecting a birthday card from you in January, old buddy! Gotta run, talk to you again real soon.

DIGITS - WEBBED / UNWEBBED

QUICO: Cammo, How come your fingers and toes are attached to each other and not separate like mine? Does that serve a useful purpose for you?

CAMMO: Well, my tiny friend, unlike you tree frogs, we toads spend a lot of time swimming. We need our "webbed" fingers and toes to give us better traction in the water.



QUICO: I get it, sort of like those swim-fins that humans put on their feet when they go snorkeling. We coquis don't need anything like that. We don't spend much time swimming, except when it rains real hard! Our separate fingers and toes are designed to make us the great tree climbers that we are.

CAMMO: Quico, for a little guy, you sure brag a lot, but I think you've got the picture! Gotta run, talk to you soon.

BREEDING AGE

QUICO: I was one year old when I became interested in girl coquis. I have been mating ever since. How old are you boreal toads before you start getting the urge to chase girls and mate, Cammo?

CAMMO: Wow, you're already mating at one year! We toads don't start mating until we are three years old. We have a mating season that begins in May and ends around July.

QUICO: A mating "season" huh? We coquis don't have a mating season. We mate all year round! I guess it has something to do with living in a warm climate that never changes much. We don't have to hide out most of the year like you toads do!

CAMMO: Again, my little friend, you have figured it out! But we toads don't call it "hiding out." We call it hibernation! Gotta run, talk to you soon.