



ACKNOWLEDGMENTS

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- ✿ And last, but not least, God, for having created such a vast, wonderful, perfect, incredible (the list of adjectives could fill this page) world. And this book, designed to show how vast, wonderful, perfect, incredible (the list of adjectives could fill this page) God is, is my humble way of saying, "Thank you, Lord Jesus! You are the only one worthy of all honor and glory and praise!"

— *The Author*

POISON DART FROG

SCIENTIFIC NAME 🌿 *Oophaga pumilio*

ENGLISH NAME 🌿 poison dart frog, strawberry frog

SPANISH NAME 🌿 ranita roja patitas azules

RANGE 🌿 along the Atlantic coast from
Nicaragua to Panama



BLUE BRITCHES AND A BRIGHT RED SHIRT

Have you ever seen a stop sign in the jungle? I have.

Poison dart frogs were made with bright colors that tell all frog hunters, “Beware, I’m poisonous!”

Poison dart frogs are so called because the South and Central American Indians used the toxins under the frogs’ skin to poison the darts for their blowguns. The Indians pierced the frogs through with a thin stick and held them over a fire till they were partially roasted, which made the toxins seep out of their pores. Then they touched the tip of a dart against a frog to coat it with poison, making the darts very potent weapons. A bird, a monkey, or even a tapir shot with a poisoned dart would quickly die. The small amount of poison in the meat wouldn’t cause a problem for the eater.

The poison dart frog is outstanding. The *pumilio* measures only about an inch long and could comfortably sit on your thumbnail. Though most are bright red with bright blue legs, there are some color variations from region to region.

These frogs spend most of their time on the forest floor watching for ants or termites for their dinner. As far as is known, adult *pumilios* have only one enemy—man—who cuts down the forests and ruins the habitats where these frogs flourish. You will find *pumilios* in rain forests from altitudes of zero to 3,150 feet.

Come with me to the tropical rain forest on a sunny day in the rainy season. As we tramp along a stream, we see many wild and beautiful things. Everything is so green and alive. Giant ferns wave their frilly fronds in the breeze. Orchid blossoms freely give off their sweet aroma. Large, sky-blue butterflies sweep their way along the creek.

Surrounded by sounds, we make our way around the rocks and over the rotten logs. A rufous-tailed jacamar calls, an orange-billed sparrow scolds us, and crickets squeak incessantly. But when we hear a quiet little *cheet, cheet, cheet*, we stop. I lift my finger to my lips and whisper, “Do you hear? That’s him. Follow me.”

We scramble up a low bank and tiptoe around a huge tropical cedar tree. We crouch behind a bush and wait. The *cheet* begins again, and then we see him. A very fine gentleman dressed in bright blue britches and a scarlet shirt. This is what we came to the jungle for—the *Oophaga pumilio*, God’s special poison dart frog.



Pumilio in full regalia.



Other examples of nature's showy stop signs.



This same principle applies for the monarch butterfly and the coral snake—both are poisonous. They don't need to hide or camouflage themselves. They can actually flaunt their colors because no smart creature will ever touch them. The *Oophaga pumilio*, though tiny, is bright red and announces clearly, "Stop! Don't touch me!"

As we watch, Mr. Pumilio does it again. He inflates his throat pouch till it's full and tight and begins his soft *cheet, cheet, cheet*. I whisper, "Yes, young man, we see you and admire your color and your song." But here comes someone else. It's Mrs. Pumilio. She dresses and looks exactly like her husband. As we watch them hop together toward a giant tree fern, I'll tell you the *pumilio's* incredible story.

When the first hard rains come in about the middle of May, Mr. and Mrs. Pumilio start thinking about raising their yearly family. First Mr. Pumilio begins his mating calls, usually perched upon a low branch, log, or rock. During this time he is also very busy chasing away other males that dare enter his territory, which is about ten feet square.

Once the rainy season is well under way, Mr. Pumilio deposits sperm on a few leaves on the jungle floor, upon which Mrs. Pumilio then lays two to five eggs.

It's Papa's job to keep the eggs moist. If he doesn't, the eggs shrivel up and die. So Mr. Pumilio keeps very busy. Unless it's raining, Mr. Pumilio spends most of the daylight hours hauling water to keep the eggs wet. This he does by jumping into a nearby puddle and hurriedly hopping back to wet the eggs with his body. He also guards the nest and chases off small predators.

After about ten days, the eggs hatch. Tiny tadpoles pop out, ready to face life. Now Mama comes to the nest and straddles it. She stretches her hind legs over the nest, and one of the tiny black tadpoles creeps up onto her back. Then she hops off to find a special natural aquarium for her precious one.

Mrs. Pumilio sometimes makes her way up a tree trunk in short, quick little hops and finds a water-filled knothole. More often she finds a bromeliad and crawls into the middle of this plant that forms a small tank. There she backs in, and the tadpole goes for his first swim.

Then Mama goes back to her nest and repeats the process until all her babies are delivered to their own personal aquariums. Each one provides a safe place to hide from their few enemies. High water in the heavy rains won't bother them. No hungry minnow will grab them. Nope, Taddy is safe in his new home.

Then a very unusual quirk of nature takes place. Mama Pumilio lays an egg for Taddy. It's an unfertilized egg that her body produces especially to feed her babies. The hungry baby latches onto the egg with a small beak provided by the Creator for this purpose. He clings to the egg, slowly sucking out the nutrients as he needs them. Once the egg is empty, the tadpole discards it. When he's hungry again, he flips upside down and wags his tail close to the surface, causing little ripples. This is his way of telling Daddy or Mama, "It's time for another egg!" As far as we know, in all nature, only poison dart frogs lay these special eggs to feed their young. Not only that, other kinds of tadpoles can be raised in captivity with a variety of food, but not a *pumilio*. He will die if he doesn't have what nature made just for him—Mama's egg.

Mrs. Pumilio lays an egg for each tadpole. Then, every one to nine days, Mama goes to each hiding place and lays another egg. Often Mr. Pumilio goes ahead and calls her, showing her the hiding places. This goes on for six weeks while each baby is growing. Slowly he develops, grows, and finally leaves the nest as a tiny, unique little frog with bright blue britches and a scarlet shirt.



Mama frog carries her little one piggyback to its natural aquarium.

I found the *pumilios* in a lovely strip of jungle close to our home in Waslala, where a small creek winds up a wooded ravine. Close to a beautiful waterfall, the *pumilios* were very active. I called the place Dazzling Falls Cove.

I wasn't alone the day I found the *pumilios*. Paul and Karla Kaufman, dear friends from Missouri, were introducing us to new camera equipment and accompanied me on this jungle hike. I had been a friend of the *pumilios* for years in Costa Rica, but I didn't know much about their unique reproductive story. Paul, an expert on poison dart frogs, explained many new

things to me about them.

"Pablo, the mother carries her babies and places them in bromeliads."

"But, Paul," I questioned, "what happens here? There are no bromeliads in these woods."

"That's for you to figure out, Pablo. There is something here. It will probably be up in the trees somewhere. They sometimes use knotholes in trees that fill up with water. I've heard they will even use cans and things left in the woods by humans."

During the next several months I traveled several times to Dazzling Falls Cove to see the frogs. I learned a lot. I found mamas with tadpoles on their backs. I even found a tadpole in one of the cans I had set up along the gully most of the *pumilios* frequented. One day a national brother from the church was with me and helped me figure