Jacalyn Barrella

October 30, 2016

The Wild Amazon

The Amazon provides many natural habitats, hosting the greatest diversity on the planet. Today, there are about a dozen species discovered every year. With the ever-changing climate and the direct disturbances made to the forest, adaptation is necessary for survival. Animals will need to successfully alter physically and behaviorally in order to endure the changes taking place within the old forest. One ancient inhabitant of the amazon might already be making adjustments resulting from a lesser abundance of fish. The black caiman has remained nearly unchanged since it walked with the dinosaurs. Now, they are suddenly making behavior alterations: while feeding in the dry season, they will work together to trap fish for food. This is just one strange change among the thousands of creatures within the Amazon.

Among the 400 million hectares of the Amazon River basin lives a complex web of mutual dependence. Adaptation will be difficult because many animals depend or benefit on the survival of others. For example, huge killer tarantulas are phenomenal hunters. One animal, however, is not threatened by them: a venomous frog. Because the tarantula cannot dine on the frog, it benefits the arachnid by eating the ants from its burrow, protecting its eggs. These complex relationships among the organisms of the amazon are threatened. This is dangerous, because the death of one species can have a domino effect on the rainforest's ecology.

Due to the demand for the precious trees of the Amazon, the forest is losing health. As a medicine chest, it is unfortunately losing its chemically beneficial plants. On the other hand, the Amazon hosts a number of toxic plants and animals as well. During the dry season, some parrot species are forced to eat the nutrient rich, yet toxic plants. In order to neutralize these toxins, they

will eat the exposed clay of the dried up river. Some animals produce their own food, like the leaf cutter ant. Using leaf fragments collected by the foragers, the colonies' gardeners grow edible fungus to sustain the colony's needs. The Matis people, one of the tribes of the Amazon, use toxins on an arrow to paralyze their prey.

Aside from composting and toxic arrows, there are many different ways of feeding in the Amazon. Tapia, huge herbivores, are fabulous sniffers. They walk through the forest all day sniffing out the best of meals. On the other hand, mata mata turtles hunt by sitting still. They sit patiently until prey swim by. Using their long necks and long snout they are able to raise to the surface and get oxygen. Depending on how habitat alters in response to climate change, mata mata and tapia stand a chance of survival. They both have a little bit of flexibility in their approach of food gain. However, if a specific resource is no longer available, survival may not happen. For example, if the leaf cutter needed that specific plant's leaves, but it goes extinct, they will have a hard time adjusting.

Other animals are threatened because they use survival and life strategies during very specific times. For example, many turtles lay their eggs at a precise time so that they will hatch just as the water levels rise to meet the newborns. If the climate alters water levels, the eggs may drown if the turtles do not know to make adjustments. The giant river otter, already endangered, rely on dry land to make dens during the summer season. It creates the perfect setting to teach baby seals, as the dens are usually secluded from usual danger. With a change in weather, this will become challenging. If there is no good place for a den, the baby seals may not survive, fulfilling extinction.

Some animals stand little chance of survival with climate changes. For example, the sloth eats leaves which are extremely difficult to process, as well as low calorie. It is also very slow

moving. With this specific diet, and inability to move quickly, sloths are at a disadvantage to adaptation. With fragmenting forests, they could become secluded and doomed. On the other hand, others are at an advantage in terms of adaptation. The Amazon River dolphin uses sonar to hunt and has a flexible neck, making it more mobile. However, it is potentially disadvantaged because it lives solely in fresh water rivers. If, with climate chang, they dry up or gain saline, the dolphins could be in trouble. The Pirarucú is at an advantage because it basically has a lung. This allows it to live in acidic and low oxygenated waters during the dry season, where most other marine creatures have trouble. In this fish's case, resources that are not available to most others are accessible for the Pirarucú.

Logging is an immediate and direct problem for the life in the Amazon. Because this forest has been evolving for countless years, it has created a web of beneficial and complex relationships. Nineteen square kilometers are lost every day. With this excessive removal of habitat, this web is broken and facing exponential consequences. On top of the logging industry, climate change as a whole poses an issue on the very specific lives of the Amazon. Adaptation and survival in the amazon is variable and unpredictable. Some animals are unfortunately not very adaptable, making survival in altering conditions nearly impossible. However, some animals are a little more plastic, but not entirely. For example, an animal may endure a temperature change, but it might not be able to endure the extinction of a specific plant. Some species are very plastic and can endure a lot because they are not dependent on much. It seems the Pirarucú doesn't depend on anything specifically but water and itself. As long as the water of the amazon doesn't completely dry up, it will probably survive. Another variable is the speed of changing conditions. If conditions are altered too quickly, many species will have no reproductive time for evolving. With enough time the genes and behaviors of some animals can

change in favor of the new climates. The only thing that is sure is the extinction of species with the current change in climate.