

The Rodent, the Bee, and the Brazil Nut Tree

Most plants have flowers that are pollinated by many kinds of insects and seeds spread by many kinds of animals. There is one plant though, that needs one single animal to pollinate it and one single animal to release its seeds – the mighty Brazil nut tree.

Brazil nut trees are found only in the rainforests of South America. They are huge – growing up to 200 feet tall, towering over the rest of the forest canopy. Their seeds are as big as cannonballs, as hard as rock, and can weigh up to 5 pounds. Nut collectors have to wait until after the trees have dropped all their seeds before going into the forest to collect them.

The only animal that can open the seed pods to eat the seeds is a rodent called an agouti. Weighing about ten pounds, with sharp teeth, the agouti can gnaw through a Brazil nut pod to reach the 25 nutritious seeds inside. The agouti bury the seeds they doesn't eat right away to save them for later. Some grow into new Brazil nut trees, when there is enough sunlight and moisture. This has earned the agouti the nickname – *seed spreader*.

Every year, in the beginning of the rainy season, the Brazil nut trees flower. Their beautiful blooms last for just one day. They are big, tightly coiled flowers with a heavy hood. It takes a big, strong insect to get inside to collect nectar and pollen. Only one insect can do the job – the female orchid bee. These bees are perfect for pollinating Brazil nut tree flowers. They are big and strong and have a very long tongue that can reach down into the coil of the flower to its nectar. Orchid bees don't live everywhere though. They are only found in wild rainforests that are home to a very special orchid. The male orchid bees pollinate the orchid's flowers and get covered by their strong scent and color. This attracts the female orchid bees to mate and, when they are in bloom, she will also visit the Brazil nut blossoms to feed and pollinate.

To grow Brazil nuts, a rainforest must have Brazil nut trees, agoutis to open the nuts, female orchid bees to pollinate the flowers, and orchids for male bees to pollinate and attract the females. This only happens in a very wild rainforest. When farmers try to grow Brazil nut trees on plantations, they usually fail. Without a healthy rainforest full of orchids, there are no female orchid bees to pollinate the Brazil nut flowers – so no Brazil nuts will grow.

Today, as the South American rainforests are being cut down, the future of the Brazil nut tree is in danger. Only healthy rainforests with orchids, orchid bees and agoutis can keep the life cycle of the Brazil nut going for the future.

LS1.B Growth and Development of Organisms: Genetic factors as well as local conditions affect the growth of the adult plant. (MS-LS1-5)

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The **agouti** is the only animal that can open the tough Brazil nut seed pods. They eat the seeds inside or bury them for later. This allows some to grow into new Brazil nut trees.

The females **orchid bee** is the only insect that is strong enough to enter the tightly coiled flowers of the Brazil nut tree and, with their very long tongue, can reach down far enough to pollinate them.



Orchid bees only live in very wild rainforest where one species of **orchid** is found and male orchid bees pollinate its flowers and get covered by its strong scent and color. This attracts the females to complete their life cycle.

