A Plant that Preys

by ReadWorks

Most plants rely on the important nutrients in soil to survive. Pitcher plants, however, do not have this luxury. They grow in rainforests and coastal swamps that have nutrient-poor soil. Pitcher plants have had to find other ways to survive, no matter how strange the adaptation. And they have! These plants are carnivores that use insects to gain most of their energy.

pitcher plants

This carnivorous plant is not so much ferocious as it is desperate for nutrients. Its appearance serves as a trap for unsuspecting insects. The plant is shaped like a pitcher, with an egg-sized hole at the top. Some attract prey with nectar-coated lips. Others have hoods or flaps resembling a flower that both trick the insect and prevent the pitcher plant from filling with rainwater. Once an insect slips into the pitcher, the walls of the plant become very smooth and the prey plunges down into the digestive acid awaiting below. These insects drown and dissolve rapidly. Even flying insects rarely escape because the liquid at the base of the plant makes flying with wet wings very difficult.

As the insects decompose, the plant uses digestive enzymes to break down the organisms and gain nutrients such as nitrogen and phosphorous not present in the soil. These digestive juices are similar to those found in the human stomach. And so, rather than rely on photosynthesis as their main source of energy, pitcher plants gain nutrients from their insect prey.

Certain species of pitcher plants have a less one-sided connection with the insects that fall into their trap. Sometimes small crabs and frogs find shelter and mature inside this plant. The droppings from these animals give the plant nutrients. Pitcher plants also give insects like gnats a safe place to eat and develop. In return, the gnat creates a web across the plant's lips and captures other insects. The insect's droppings fall into the pitcher, which supports the survival of the plant. This alliance is called a mutualistic relationship, where two organisms benefit one another.

Bromeliads

by ReadWorks

Sean Murray (CC BY-SA 2.0)

Many species of bromeliads are epiphytes, or air plants, that use trees as support.

The bromeliad plant family contains over 3,000 species and can be found all over North and South America, as well as in many households! They survive in hot, dry deserts, humid rainforests, and cool mountains. If you are looking for a plant that is easy to grow and has beautiful foliage, this is the plant to choose!

Because there are a variety of species, some bromeliads grow only a few inches, while others can reach up to 15 feet high. Almost half of all species of bromeliads are epiphytes, or air plants. Air plants cling to trees or rocks for support, but do not take any nutrients from them. Instead, they use the process of photosynthesis to gain energy. For most plants, the roots are critical in obtaining nutrients from the soil. For bromeliads, leaves take over most of the roots' function. Tank bromeliads, for example, form a tank at the base of their leaves that can hold water. These tanks, created by long leaves woven together, are called rosettes. Birds and small mammals drink this water in the rosettes and leave behind droppings that can provide much-needed nutrients such as nitrogen to these epiphytes. Microscopic organisms even grow in this water.

daryl_mitchell (CC BY-NC-SA 2.0)

This photograph displays a rosette that holds the water at the base of the bromeliad.

The most famous bromeliad is a favorite fruit all across the world-the pineapple. How did the pineapple become the commercial fruit we enjoy today? The pineapple first became a part of recorded history when Columbus sailed to the New World for the second time in 1493. On this voyage, he saw the indigenous people in the West Indies growing these strange spiky fruit. He brought some back to Spain. For years, the pineapple remained a rare fruit there, one that only the richest could enjoy. Now, it is loved all over the world. If you cut the top off a pineapple and cover it in soil in a humid environment, it is possible to grow a whole new pineapple! The wonders of the bromeliad plant family never cease.

The Cacao Tree

by ReadWorks

a cacao tree

The delicious chocolate bar we enjoy today started out as a bean in a cacao tree. The cacao tree is a 15- to 25-foot tree that grows colorful fruit called pods and white flowers. One tree can grow 20 to 30 pods each year. Each pod has about 20 to 60 seeds -cocoa beans-that are harvested to produce chocolate. It takes about 400 beans to make one pound of chocolate! The pulp of the cacao fruit, which surrounds the beans, tastes like a lemony mango and is often made into juices and jellies.

Cacao trees can be found in rainforests across the world, and grow best in areas near the equator. They can only survive in warm or hot places with a lot of rainfall and nutrient-rich soil, making them the perfect rainforest plants. Cacao trees have leaves that can rotate 90 degrees from vertical to horizontal and back again to acquire more or less sunlight. The rainforest canopy provides them with the perfect amount of shade.

Before cacao was used in the sugary snacks we enjoy today, it was used in a bitter drink. In ancient times, the Maya in North and South America made a thick drink from ground cacao, water, corn, and spices. This was a very different hot chocolate from what you find in stores today! During the Aztec Empire, cocoa beans were even used as money and were greatly valued in society. It wasn't until the 1500s that Europeans even knew that cocoa beans existed. After the Spanish conquered the Aztecs living in what is now Mexico, the Spanish recorded the discovery of cacao trees. When the Spanish brought the cocoa beans back to Europe and began adding sugar, chocolate quickly became a favorite food of the Spanish court. This new craze for chocolate caused the creation of cacao plantations to fill that demand. African slaves and Native Americans were forced to work these plantations under incredibly harsh conditions. The desire for chocolate did not cease as the English, Dutch, and French planted more and more trees.

Rberchie (CC BY-SA 4.0)

This photograph displays the process of drying cocoa beans, a pivotal part of creating chocolate.

Now, almost two-thirds of the world's cocoa is produced in Western Africa. Although cocoa originated in the Amazon rainforest, it can now be found as far north as Mexico. Cacao trees thrive best when they have the shade of the lush rainforest to keep the climate consistent. Commercial plantations, however, clear most of the forest to make it easier to harvest the bean pods. This has a negative impact on the cacao trees because the insects that pollinate them live in the rainforest and require the humidity of that environment to survive. These insects are called midges. Wild cacao pods give off over 400 distinct scents, but plantation cacao gives off only a small percentage of those scents, causing the midges to be even more confused by these pods. As a result, these insects are unlikely to venture away from their rainforest homes to the groves of cacao plantations, resulting in a low fertilization rate.

Strangler Figs

by ReadWorks

a strangler fig around its host tree

If plants starred in movies, the strangler fig would be the main character in a horror film. The strangler fig is known in Spanish as *matapalo*, the "killer tree." It can be found in rainforests and other humid environments all over the world. It has an unusual and interesting way of growing because it is an epiphyte. An epiphyte is an air plant that grows on the surface of another plant. This epiphyte can grow figs that many species of birds enjoy. Once birds eat the figs of the epiphyte, they clean their bills and drop fig seeds on high tree branches. Strangler fig seeds then germinate in the rainforest canopy, where there is plenty of sunlight. As a strangler fig seed matures, it begins sending down long roots to the forest ground. Once the roots reach the ground and enter the soil, they weave together and slowly wrap around their host tree. The host tree now must compete with the strangler fig for sunlight and nutrients in the soil. Usually, this process kills the host and only the fig tree is left. The "trunk" of the fig tree is actually a giant web of roots. These trees are immune from forest clearing by humans because loggers do not like their knotted and twisted wood.

According to historians, the strangler fig played a role in destroying Mayan cities in Central America. Seeds dropped by birds and bats germinated high on the walls of buildings. The roots would force their way between the stone bricks of the walls and would eventually destroy the entire wall.

Although this killer tree may seem like an enemy, it is also an incredible shelter for a diverse group of animals such as bats, birds, rodents, reptiles, and amphibians. Its hollow openings provide protection for many of these organisms. At certain points of the year, fig trees are the only trees producing fruit, and they provide necessary nutrients for primates and birds. Although these python-like trees may seem menacing, their ability to adapt illustrates how necessary it is for plants to compete successfully in order to survive in the rainforest.

The Lily Pad that Can Hold a Human

by ReadWorks

pontanegra (CC BY-SA 3.0)

giant water lily leaves

The giant water lily delights all who see it with its beauty and size. Giant water lilies not only have flowers that smell like pineapple and butterscotch, but they can also hold the weight of a small child! This plant is native to South America. Its enormous circular leaves lie on the surface of lakes and can grow up to 8 feet across. These water lilies have long stalks that anchor them to the ground below the water. The upper surface of the lily pad is coated in wax that repels water. The undersurface is a purplish red and contains many veins with sharp spines. These spines are a defense against fish and manatees that eat plants as their main source of food. The veins underneath the plant trap air, causing the leaves to have an incredible amount of buoyancy.

J.M.Garg (CC BY-SA 3.0)

This photograph displays the spikes that protect these plants against hungry manatees.

One of the fascinating aspects of the giant water lily is how it gets pollinated in order to reproduce. Giant water lilies produce white flowers that bloom in the evening. A chemical reaction inside the white flower heats the flower. This heat causes the flower to emit a strong fragrance of pineapple and butterscotch. Scarab beetles are attracted to this delicious scent. Once daylight approaches and a beetle lands on a white flower, the flower shuts and traps the beetle. While the beetle struggles to escape, it becomes coated in pollen. The flower then reopens the next evening to release the beetle. The white flower transforms into a dark pink, indicating that a beetle has caused fertilization to take place inside the flower. The pink flower then closes up and sinks below the surface of the water. (These spectacular flowers only live for about 48 hours!) And since the beetles, now dusted with pollen, are not attracted to pink flowers, they go in search of another white flower to repeat the process of pollination.

One of the negative characteristics of the giant water lily is no other species can live under the plant. Due to the size of its leaves on the surface of the water, very little sunlight can reach the rest of the water. As a result, no algae can grow and provide nutrients to animals. However, some organisms do benefit from the giant water lily. One creature that takes advantage of giant water lilies is the Jacana. The Jacana is a species of water bird that is a weak flier. It walks on the lily pad leaves and eats the insects found on the surface of the water lilies.

This fascinating plant has adapted well to the Amazon rainforest and is a beautiful sight to behold.

Bilby (CC BY 3.0)

This is an image of the white flower of the giant water lily. These flowers are white before they are pollinated. Once they are pollinated, they change to a deep pink.

The Most "A-peeling" Fruit: The Banana!

by ReadWorks

a banana plant

More than 100 billion bananas are eaten around the world, and they are a very popular fruit in the United States! Banana plants are indigenous to the tropical habitats of India, Southeast Asia, northern Australia, and South America. They need hot and moist environments to thrive, making them ideal plants for rainforest habitats. They are the fourth largest fruit crop in the entire world!

Although many people think banana plants are trees, they are actually giant herbs that can grow up to 20 feet in one year. Each banana plant contains more than a hundred blossoms. Each blossom will eventually grow into a banana if left on the tree for three or four months. Ten or more bananas growing in a clump are called a "hand." Banana stems contain an average of 150 bananas and weigh almost 100 pounds!

Sackerman519 (CC BY 2.0)

Banana plantations often only contain one plant for acres of land, illustrating their lack of biodiversity.

The trunks of banana plants may look like textured bark, but are actually just many overlapping leaves. These leaves are wrapped tightly around each other to conserve water. Banana plants are actually 93% water, which means they are not very sturdy when faced with strong winds.

In order to keep up with the banana demand, modern agricultural technologies have allowed people to establish banana plantations in non-tropical regions such as California. Banana plantations, however, negatively impact the environment and the workers who harvest the bananas. These plantations cause environmental distress due to their lack of biodiversity. Biodiversity refers to the amount and variety of species living in an area. In rainforests, there are thousands of species to compete with each other and thrive together. They form a web of life where each species relies on another. Banana plantations, however, often contain only the banana plant, a single crop. These plants are more likely to get diseases that spread to the rest of the crop because there are no

predators to kill the pests. Farmers use more and more pesticides to combat these diseases, causing these chemicals to leak into drinking water and canals that humans use. Many workers on these plantations work 14-hour days and do not make a living wage to support themselves and their family. Banana companies are always competing to have the lowest price at the grocery store, meaning they are always searching for cheap labor. What can you do about this? At the grocery store, look for organic and fair trade bananas. The companies that produce these bananas protect their workers and practice sustainable growing methods to ensure the banana remains an "a-peeling" fruit-for both the workers and the consumer!

Tag--I'm It!

by W.M. Akers

"Tuesday. 12:45. Recess. The game is tag. The stakes are high. There is no time to waste," Ryan said this to himself under his breath, on the edge of the jungle gym where kids played tag.

A football fan, Ryan's favorite part of the game was the commentators. Their deep, serious voices made football seem like more than a game. They made it dramatic-like a gladiator fight from ancient Rome. Ryan thought gladiators were pretty cool.

When kids on his playground played tag, he pretended to be a commentator. In his deepest possible voice, he took the imagined audience through the ups and downs of the match.

"Around the corner comes Billy Watkins," he intoned. "Billy's having a strong season so far, and those who watch this sport closely think he might be about to step up to a higher level. If he fulfills his promise, his name could stand alongside the greats of the game-names like Shirley Tompkins and Judy Whitmore, Andy Tobin and George Francis."

As he came around the corner, though, Billy Watkins slipped in the mulch and fell on his face.

He rolled back and forth on the ground, whimpering. No one showed sympathy.

"On the other hand," Ryan said, "Billy may disappoint us all."

Ryan knew something about disappointment. He had time to play commentator because nobody really wanted him to play tag. He'd never understood why, but when he joined the game, nobody would chase him. If he did somehow manage to become "It," nobody would run. But he didn't try to play; if he just narrated the game, he wouldn't be left out. He was still playing tag-he was just playing it in a different way.

"Hey kid!" said a voice behind him, a freckle-faced girl with frizzy pigtails named Angela. A newcomer to the game, Ryan thought to himself. A rookie hungry for respect. A-

"Why aren't you playing the game?" she barked, interrupting his reverie.

"I'm playing."

"No you're not! You're just standing over here being weird."

"I'm providing commentary, for, uh..." Ryan tried to think of anything to say besides "for the folks at home." He couldn't. "For the folks at home."

"What folks?! Are you on the phone or something?"

"Just leave me alone."

"I can't!"

"Why not?"

"Because I'm 'It!' Why aren't you running? I'm 'It', and that means you're supposed to run." Ryan shrugged. She poked him in the stomach. "Fine! Now you're 'It!'"

Ryan froze. He hadn't been 'It' for a long time. He didn't know what to do. The rest of the players stopped, too, and stared at him. If he moved, would they move too? Or would they stand there, waiting for him to quit embarrassing himself and get off the playground?

"Uh, weirdo!" shouted Angela. "This isn't freeze tag. Start running!"

So he ran the only way he knew how: with narration.

"Heart pounding in his ears, the frightened young commentator springs into action," he muttered. "He isn't sure how, he isn't sure why, but he knows one thing. He is going to get that

girl with the pigtails."

"Quit talking to yourself, and run like you mean it!" said Angela.

"He races up the slide, and across the footbridge, his target in his sights just a few feet away. The bridge's wooden slats clatter under his feet, sending shockwaves up his spine and into his jaw. Ryan is undaunted. This will be his hour. He reaches toward his foe, stretches out his fingers, and-ow!"

Ryan's hands clutched air. He fell face-forward, off the jungle gym, landing where Angela had been just a moment before. She had slid down the fireman's pole. He had not been so graceful.

"Dazed and confused, the young competitor tries to get his bearings. He looks up and sees the face of his opponent staring down at him, looking concerned and curious about why Ryan is still talking to himself."

"I think you might have broken your brain," Angela said.

"Ryan's brain is fine. Angela is the one who needs to worry."

"Why?"

Ryan leapt to his feet and poked Angela in the stomach.

"Because Angela is 'It!'"

Ryan turned and ran, a happy gladiator, battling at last.

Thank You, Bees, Butterflies, and Bats

This text is provided courtesy of the National Fish and Wildlife Foundation.

iStock

a bumblebee pollinates blueberry flowers

The next time you take a big bite of a delicious chocolate bar, thank a bat. Why? Because chocolate is made from cocoa beans. Those cocoa beans come from cocoa plants. And cocoa plants depend on the bats!

Bats are pollinators. That means that when bats fly from cocoa plant to cocoa plant and drink nectar from the flowers, they are helping the cocoa plants produce seeds. The seeds become beans, which are harvested to make chocolate. Scientists have done studies to learn more about the bats and cocoa plants. They found that in Indonesia, when the bats were kept away from the plants, there were fewer cocoa beans to harvest!

You might know that bees and butterflies are pollinators, too. Just like bats, bees and butterflies help to produce food. Bees buzz around plant flowers to collect food. While doing this, they pollinate apple trees, cranberries bushes, melon plants, and more, helping the plants to produce fruit. Bumblebees, for example, are important for growing blueberries.

Conservationists are scientists and other professionals who work to protect the environment and wildlife. They are conducting research and providing advice to people to make sure pollinators such as bats, bees, and butterflies have plenty to eat and safe places to live.

Conservationists have been working with landowners to help butterflies that live in or travel through their land. Through just one program managed by the National Fish and Wildlife Foundation, 300,000 acres of land have been restored or improved to support butterflies and other pollinators. More than 750,000 milkweed seedlings have been planted. Milkweeds are the only plants that monarch caterpillars eat, so without milkweed, there would be no more monarch butterflies. Since butterflies and other pollinators help to make so many of the foods we eat, the least we can do is to make sure they get food to eat, too.

The next time you eat some juicy blueberries, or take a bite of a nice, crisp apple, remember that without bees, butterflies, and bats, there would be none of these delicious foods to enjoy. Thank you, pollinators!

- - - - -

These conservation efforts are supported by the National Fish and Wildlife Foundation (NFWF), which specializes in bringing together individuals, government agencies, nonprofit organizations, and corporations to restore our nation's fish, wildlife, plants, and habitats for current and future generations.

Amazing Trees Help Us Breathe

This text is provided courtesy of the National Fish and Wildlife Foundation.

iStock

a live oak tree in South Carolina known as "Angel Oak"

When you look at trees from the ground up, you can identify four parts: the roots, the trunk, the branches, and the leaves. All four parts are vital to the health of the tree. What might be harder to see is just how important trees are to the health of the earth and all of us people! Here are some of the many ways that trees help us all.

The roots of trees help prevent erosion, which makes streams and rivers healthier by keeping soil where it is supposed to be. If topsoil washes into streams and rivers during heavy rains, it can lower oxygen levels in the water and hurt fish. Soil and sediment can form layers in areas that cause other problems, like changing the water depth.

Trees also help us breathe! Tree trunks transport water and nutrients from the roots to the branches, which hold the leaves. Leaves are like tiny chemistry laboratories. They use water from the roots, the sun's energy, and carbon dioxide — one of the gases in the air — in a process called photosynthesis, which creates sugars to feed the tree. While making their own food and absorbing carbon dioxide, trees discard oxygen, which is the gas in the air that animals (including people) breathe. One large tree can provide a day's supply of oxygen for up to four people!

Trees also store carbon dioxide in their fibers, which are found in the roots, trunk, branches, stems, and leaves. Carbon dioxide in the atmosphere helps keep the earth warm through a process called the greenhouse effect, which traps heat from the sun. Too much carbon

dioxide makes the earth heat up too much, causing strong storms and sea-level rise. Since trees absorb carbon dioxide, they can help reduce the greenhouse effect. One mature tree absorbs about 48 pounds of carbon dioxide from the atmosphere each year.

Now that people understand how important trees are, groups are getting together to plant more trees and help forests in other ways. Arborists and forestry specialists study trees, tree diseases, and ways to keep trees healthy. They work with community groups to promote healthy forests.

Some people help support the health of natural forests by removing dead brush to prevent bad wildfires. They may remove smaller trees to open up space that helps other trees grow larger. There are even groups in cities that focus on planting trees to provide shade for recreation, food for wildlife and people, and carbon absorption to help cities cool down in summer months.

You can help the earth and people, too, by planting more amazing trees.

- - - - -

These conservation efforts are supported by the National Fish and Wildlife Foundation (NFWF), which specializes in bringing together individuals, government agencies, nonprofit organizations, and corporations to restore our nation's fish, wildlife, plants, and habitats for current and future generations.

Copying Nature's Engineers

This text is provided courtesy of the National Fish and Wildlife Foundation.

iStock

Beavers build dams that slow down water in streams.

Do you know which animals are experts at managing water? Beavers! Beavers cut down small trees by chewing around the trunks. Then, they use the wood to build dams in rivers and streams. The dams slow the water flow and create deep ponds where beavers can build their homes, called lodges.

Why is managing water so important? Water is a vital resource for all living things, but too much water can be destructive. When fast-moving water washes topsoil and rocks (called sediment) from the banks of rivers and streams, the sediment travels downstream. Flooding from heavy rain storms may wash sediment to places where it harms both wildlife and people. The water also can sweep fish and other wildlife away from their homes.

So when researchers wanted to learn how to improve riverbanks to help prevent flooding, they studied beavers. Beavers are often called “nature’s engineers.” Beaver dams act as speed bumps to slow the water and spread it out over an area called a floodplain.

When water spreads out, it creates wetlands and wet meadows. These wetlands hold water the same way a sponge does, releasing it a bit at a time, which helps prevent flooding. The wetlands also filter sediment and pollutants from the water. This makes the rivers cleaner and provides new habitats (homes) for fish and birds. In the American west, wetlands cover just 2 percent of the land but contain as much as 80 percent of the region’s biodiversity! That means just a few wetlands are home to many different species of plants and animals.

Because of the way they manage water, beavers serve as a keystone species. This means they support many other animals, including birds such as swans and ducks, and even fish such as salmon and trout. Some scientists compare beaver ponds to rain forests and coral reefs in their support of biodiversity.

Many years ago, beavers were trapped for their fur. Unfortunately, in some areas in the western United States, when there were no beavers left, wetlands dried up. In some areas the wetlands were purposefully drained. This led to a decrease of wildlife and an increase in flooding in some areas. Now, we know how important wetlands are to prevent flooding and support wildlife. And by imitating nature's engineers, people have learned how important beavers are to wetlands.

In western Colorado and eastern Utah, along the Little Dolores and Colorado rivers, conservationists are mimicking or copying beavers by building beaver-like structures. These conservationists place large tangles of logs and branches in the water to imitate the size and shape of a natural beaver dam. Organizations working together hope these dams will improve the riverbanks and create new homes for a threatened bird called the Gunnison sage-grouse. They hope the improved riverbanks will also create new homes for elk, mule deer, wild turkeys, and ducks. They also hope better riverbanks will provide better grazing for livestock.

In Montana, people are using imitation beaver dams to help restore wet meadows in eastern parts of the state. People are planting native wildflowers to help speed up the restoration. This will also improve the habitat for the greater sage-grouse, which is an important species of bird. The project includes ranchers and other private landowners, the National Fish and Wildlife Foundation, and the National Wildlife Federation.

Beaver dam imitations also can be used to increase the chance that beavers might move there on their own. In some cases, conservationists move beaver families from other areas in the hope they will want to live in these new neighborhoods!

- - - - -

These conservation efforts are supported by the National Fish and Wildlife Foundation (NFWF), which specializes in bringing together individuals, government agencies, nonprofit organizations, and corporations to restore our nation's fish, wildlife, plants, and habitats for current and future generations.

Save Those Swamps!

This text is provided courtesy of the National Fish and Wildlife Foundation.

Jim Hudgins / U.S. Fish & Wildlife Service

sandhill cranes on Shiawassee National Wildlife Refuge in Michigan

Have you ever seen a swamp? With their mix of water and plants, swamps often look very different from other types of natural areas—and they can smell different, too. They are full of frogs, insects, and fish. You might not realize it, but swamps are extremely helpful to people.

There are two kinds of swamps: freshwater swamps and saltwater swamps. As you might guess, freshwater swamps are filled with fresh water, while saltwater swamps are filled with salty water, usually from nearby oceans or bays. Both types of swamps contain trees and other plants, and they are both important.

Why are swamps so important to people? First, think of swamps as giant sponges. When heavy rains fall, they are able to absorb a lot of the excess water and prevent flooding in

nearby areas. When swamps are located near coastlines, they can absorb storm surges, which are huge amounts of seawater that get pushed ashore by high winds during storms.

Swamps also act as a natural filter. They purify, or clean, the water that enters them. How does that happen? The water that flows in can have a lot of nitrogen and other chemicals in it. Plants that live in swamps absorb and use these chemicals, and the water that leaves the swamp is cleaner.

Lots of damage has occurred over time that has decreased the number of swamps in the United States, along with their size and effectiveness. That's because people didn't understand how helpful swamps are. Some people thought swamps were wasted spaces filled with unwanted insects, so they started draining and filling in swamps. In some places, the land was used for farming.

When swamps located near coastlines were drained, those coastlines suffered, because their protection from flooding was removed. The loss of swamps also harmed communities that relied on the tasty fish and crustaceans that used to live in those swamps.

Once people realized how helpful swamps are, many decided to preserve the swamps that were still around and restore some that had been drained.

One example is in Michigan, along the Shiawassee River, which flows into Saginaw Bay and Lake Huron. Conservationists there are recreating the wetlands of the past. Projects like this are also taking place near the Great Lakes in Wisconsin and Ohio, and in wetlands in Indiana.

All of these efforts are helping local wildlife, plants, people—and swamps.

- - - - -

These conservation efforts are supported by the National Fish and Wildlife Foundation (NFWF), which specializes in bringing together individuals, government agencies, nonprofit organizations, and corporations to restore our nation's fish, wildlife, plants, and habitats for current and future generations.

Better Grasslands Mean Better Dinners and Happier Birds

This text is provided courtesy of the National Fish and Wildlife Foundation.

U.S. Fish & Wildlife Service

cattle on grasslands in the United States

When you think of a bird, where do you picture it? In a tree? On the top of a building? If so, grassland birds in the western United States may surprise you! As you might guess from their name, these birds live in the many types of tall and short grasses.

Grasslands are fairly flat, open areas of grass. They go by many names. In the United States, they are often called prairies. In South America, some grasslands are known as pampas. Some Central Eurasian grasslands are referred to as steppes, while some African grasslands are savannas. Many grasslands are found in areas without much rainfall—too little to support trees, but more rain than deserts get. What they all have in common are grasses. In the United States, these can include bluestems, buffalo grass, blue and side-oats grama, switchgrass, wheatgrasses, and more. The grasses vary in height from about 4 to 10 inches up to 7 feet tall, with roots that extend from 3 feet to more than 10 feet deep into the soil!

The deep root systems are important. They hold the soil in place and add important nutrients to it. The rich variety of plants in grasslands provide food and shelter for many animals. In addition to the many species of birds that live in the grasslands or migrate through the plains, the prairies of the United States are home to wild animals such as mule deer, pronghorns, and elk. You may be surprised to learn of one more important animal grasslands support: cattle. The cattle that ranchers raise on the plains may end up as beef on someone's dinner plate. Grass-fed beef is becoming more popular. Consumers are becoming more interested in purchasing beef that came from cattle raised on wildlife-friendly grasslands.

Over the past few years, grasslands have grown smaller. With the decline of grassland

habitats came the decline of grassland birds—a greater decline than any other group of birds. This caused the National Audubon Society, a conservation group that protects birds and bird habitats, to look for ways to help them. Audubon is working with ranchers throughout the Great Plains to create new programs to improve millions of acres of grassland. This will improve the habitat for birds. The program also makes sure that the land provides value to the ranchers' livestock, which share the grasslands with many wildlife species.

Many conservation groups such as The Nature Conservancy, Pheasants Forever, Ducks Unlimited, American Bird Conservancy, and Bird Conservancy of the Rockies are working with ranchers on other programs. The groups are creating plans to benefit both wildlife and livestock throughout the western United States. They are protecting grasslands from disappearing and improving the way people use them to feed cattle. At the same time, the programs provide habitats for species such as sage-grouse, pronghorn, mule deer, and elk.

By working together, ranchers who raise food for people across the country and groups that care about wild animals and birds can make the land better for everyone.

- - - - -

These conservation efforts are supported by the National Fish and Wildlife Foundation (NFWF), which specializes in bringing together individuals, government agencies, nonprofit organizations, and corporations to restore our nation's fish, wildlife, plants, and habitats for current and future generations.

Nature Is Our Super Shield!

This text is provided courtesy of the National Fish and Wildlife Foundation.

National Oceanic and Atmospheric Administration

a map showing the location of the coral reefs by Florida

What happens when a storm hits? Severe thunderstorms can damage people's homes and cars with hail, heavy rain, and floodwaters. Hurricanes and other strong storms produce high waves and storm surges, which push the water level of the ocean far above the normal level. In fact, storm surges can wipe out entire beaches along the coastline! People who live near the shore can lose their homes. All the wildlife that live on the coastline can lose their homes, too.

The good news is that nature—in the form of marshes, coral reefs, and barrier islands—can act as shields to protect the coastlines from storm surges. These work so well that they seem like superhero shields!

How can marshes, coral reefs, and barrier islands do this? These areas soak up energy from waves, wind, and flooding. So, all over the United States, organizations are working to fix and improve coral reefs, marshes, and barrier islands. People are helping to create, repair, or upgrade nature's shields. Here are a few examples.

Coral reefs protect coastlines by creating a barrier or buffer against the flow of water pushing toward shore. The water rushes in, but the strong coral can block its progress and prevent

some water from getting to shore. Unfortunately, pollution from humans can damage the coral reefs. That's one reason the University of Miami in Florida is restoring more than 125 acres of reef habitat in the Miami-Dade and Broward county area. Restoring these reefs will protect the coastlines. These reefs also will provide important habitat for fish.

In Louisiana, the Jefferson Parish Coastal Management Department is rebuilding one mile of shoreline. They are creating up to 70 acres of marsh, tidal creeks, and lagoons. These will help shield the coastline from storm surges and improve water quality and wildlife habitats in the area. The project also will protect 1,375 homes and other buildings.

Sometimes these super shields work so hard and soak up so much energy from storms that they suffer a lot of damage. In Puerto Rico, for example, hurricanes Irma and Maria struck the island in 2017 and damaged the structure of the coral reefs near the coastlines. So, a group called Sociedad Ambiente Marino is rebuilding the coral reefs. The organization is using 3-D printers to help create artificial coral colonies!

There are many other people working to create similar improvements to help nature protect land, wildlife, and people. Once the projects are finished, these super shields will help protect cities and towns from storms and make them more resilient. That means storms will cause less damage, and the towns will recover faster.

- - - - -

These conservation efforts are supported by the National Fish and Wildlife Foundation (NFWF), which specializes in bringing together individuals, government agencies, nonprofit organizations, and corporations to restore our nation's fish, wildlife, plants, and habitats for current and future generations.

Jam Session

by Frances Killea

"Aren't you a little old to be playing make-believe?"

I, myself, had given up on play-acting when I was nine. It was kid's stuff, and I didn't feel very much like a kid anymore. My mother, however, seemed to have absorbed everything about childhood that I'd left behind. Now she was dancing around the living room with the handle of a dust mop in her hand, held at an angle like a rock star's microphone, singing.

When I said that, though, she stopped.

"Hey, Monica, you like movies, right? Some people make a living out of playing make-believe."

She wasn't wrong. I did like movies, and actors did make a living dressing up, and pretending they were someone else. The fact that Mom was right annoyed me. I didn't say anything, but picked up a stack of magazines that was on the kitchen floor, and put it on the table.

"Thanks, honey. I don't think this dust mop could handle those." Mom hummed a few lines of the music she had on.

I liked rock best, and she liked musicals. But today was *West Side Story*, which I loved. I'd caught my mother in the middle of a very animated version of the song "Maria."

"Also, Monica, we're going blueberry picking after I finish the kitchen," Mom said, without looking up from her pile of dust, which she was now sweeping into the dustpan.

"We're WHAT?" I had just finished putting all of the books on my bedroom floor back on my bookshelves.

Plus, I'd made my bed, and changed my hamster's water and food bowls. I was tired. "What am I? Slave labor?"

"Far from it. You're a lucky eleven-year-old girl who gets to be responsible for her very own bedroom in a safe house, in a safe neighborhood, in a free country. And you have the summer off, and a mom who is really good at making blueberry jam, but needs another set of hands."

I was about to protest, but she interrupted. "And you have full use of those hands. You're not sick or crippled-so be thankful for that. You are far, far from oppressed, my friend."

Mom dumped a pan of crumbs and dust into the trash. I stared at her. She was pretty awesome, most days. I really did love her. Still...dancing in the kitchen, pretending to be a star? *Blueberry picking?* She was known to sing out loud a lot. The berry-picking thing was new.

"Why don't we just go to the store?" I asked.

Mom threw a rag at me, and I automatically started wiping down the counters. "Because, number one, the berries there are shipped in from across the country, and they don't taste as fresh or as flavorful as the ones we can pick ourselves. And number two..." she paused to slam a drawer full of silverware shut, which just about broke my eardrums with clashing forks. "...it's fun."

So that was that. I grumbled my way through putting the clean dishes away, and then grumbled my way into the car, staying silent as we drove out east. It felt like forever. I had looked at the car clock when we left the house, and when we rolled up to the blueberry farm, it had only been half an hour. It's funny how quickly the scenery changed. We'd gone from our little town and neighborhood-not a city, by any stretch, but at least *populated*-to the country, where a house seemed surrounded by a mile of corn on every side.

My mother pointed to a small barn. The big sliding door was open, and inside was an old man standing hunched over a cash register. Mom went to speak to him as I rounded the back of the building to explore. I found a wooden table full of white buckets, a few empty wooden crates stacked near a coil of hose and a dog bowl filled with water. A bumblebee was struggling in the water, and I picked up a stick to help it out.

"Monica, grab a couple of buckets. Those are what we'll pick into." Mom came around the corner, and I reached for a pail from the stacks on the table.

"They're stuck," I huffed, wrestling with two that didn't want to come apart. "Help me!"

Mom grabbed the end of one, and I held the handle on the other; and we yanked. The buckets slid free, and I fell over from the force of the pull.

"Okay," I said, dusting myself off and frowning. We started walking past rows of blueberry bushes, a lot of them taller than Mom. "How do we do this?"

"Well, just like how you'd think," my mother replied. She ducked into the path between two rows of bushes, and I followed.

"Just go for the ones that are dark all around. Don't pick anything with white or pink on it. Those aren't ready yet, and they're going to be sour." Mom handed me an unripe berry.

"Duh, I know that, I've had blueberries before," I said, and didn't take it.

"Huh," Mom looked at me. "Not as sour as you, though, I bet." She turned away. "Let's divide and conquer, shall we? I'll pick here, and you can find your own row to work on, and we'll meet somewhere in the middle."

"Fine." I stomped away.

The grass itched my ankles. I wanted to sit down, but the sun was hot, and the shade under the bushes helped a little. So I found my own row, and started picking a short way into the patch. Almost immediately, reaching into the branches for a particularly juicy-looking berry, a yellowjacket stung my finger.

"OUCH!" I yelled. "STUPID BEE!" I swallowed to keep from crying. I listened, but didn't hear my mother reply to me.

She must not have heard. Or maybe she's ignoring me, I thought. My face felt hot, and I could feel anger bubbling up from my stomach to my chest. I kicked the near-empty pail by my feet, and screamed in frustration.

All I could hear in response were birds. I sniffed and wiped my eyes. My finger hurt, and it looked puffy. I picked up my bucket, and ran back up to where I thought my mom had been working. She wasn't there anymore. When I ran down the row calling out and looking for her, I saw no one, and heard nothing. I flipped the bucket upside down and sat on it, resting my face in my hands for a moment while I let a few tears slide down my nose.

There was nothing else to do but pick, I thought.

So I stood up, and walked a few rows back, parking myself next to a particularly tall blueberry shrub, making sure it was relatively bee-free. With both hands, I started yanking every ripe blueberry from the branches, fueled by anger. Gradually, though, I slowed down, feeling calmer as the sun shifted, and a breeze cooled off my shoulders.

"These are weird," I said to myself, looking at a handful of berries.

They were dusty-looking, like they'd been frosted. However, the dust rubbed off when I wiped them against my shirt. I'd never picked blueberries before; I'd actually never picked any berries before, and being out there was annoyingly hot and full of bugs. But I was beginning to relax. I caught myself humming one of the songs from the soundtrack my mother had been listening to that morning, and made myself stop.

I moved to the next bush, and started on that one. Shortly after, I walked to another, and then another; picking a handful of fruit from each before looking for new territory. My bucket was only a third of-the-way full, and my finger was hot and red, but I had to admit, I was having fun.

I didn't hear my mother when she walked up. I had filled my bucket another third of-the-way to the top, and I was singing and dancing in place under the branches.

"Who's making-believe now?" My mom laughed.

I was embarrassed. "Yeah...but I'm eleven. I'm allowed to do this."

"Newsflash, honey: people never get too old to pretend."

"I got stung," I said, and suddenly needed a hug. I almost tipped over my harvest, but jumped over it before kicking the pail.

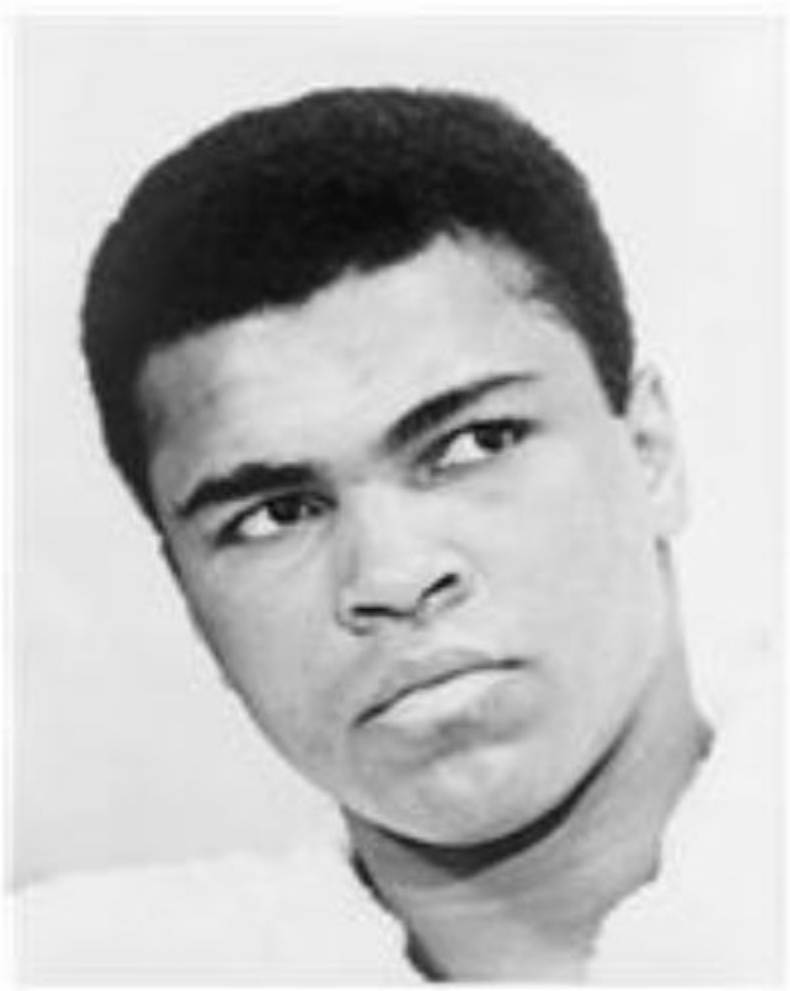
Mom set hers down and hugged me back. "Let's head home, shall we?"

We paid for our berries by weight. Mom got me a can of Coke from a rickety, old machine in the barn, which I put on my finger before I popped the tab. We shared it in the car on the way home.

When we got back, Mom gave me some first-aid cream for my sting, and I curled up on the living room couch with a book. I don't remember which song exactly, because I was drifting in and out of a nap, but I heard my mom singing along to *West Side Story* again. Only this time, it made me smile, and when I woke up, there were five jars of jam on the counter, and the house smelled like vanilla, sugar, and fruit.

Famous African Americans - Muhammad Ali: The Greatest

by ReadWorks



In 1942, Cassius Clay, Jr., was born in Louisville, Kentucky. In 1960, during the Summer Olympics, Clay won a gold medal in boxing. Four years later, in 1964, he won his first world heavyweight boxing title. The same year, he changed his name to Muhammad Ali. He later converted to Islam.

Muhammad Ali was the greatest boxer of his time-and he knew it. In fact, he called himself "The Greatest." By the time he retired in 1981, he had a career record of 56 wins, five losses, and 37 knockouts.

In 1984, Muhammad Ali found out that he had Parkinson's disease. It is a disease that affects

the brain. The disease made it difficult for him to speak or use his body. After the terrorist attacks of September 11, 2001, he put these difficulties aside. Ali addressed the United States. He talked about his faith. He urged America not to look down on Muslim people because of the attacks. He thought it was important to speak out. Many people admired his courage. In 2005, Ali was honored with the Presidential Medal of Freedom for his role in working for equality and civil rights.

In 2016, Muhammad Ali died at the age of 74. He was known not just for his faith and his boxing. His courage, his way of speaking, and his desire to help others also made him famous.

SummerReads: Swimming - Different Swimming Strokes

by Andrew Funk

A young swimmer practices the dog paddle in a pool near San Diego, California, April 2010.

Whether they are young or old, new swimmers usually start out with the same swimming stroke that dogs use when they swim. This stroke is called the dog paddle. It's easy to learn to dog paddle but dog paddling isn't very fast.

Most swimmers learn the breaststroke next. The breaststroke begins by lying in the water with your front side down. You move both arms in a circle. You raise your head out of the water to breathe once during each stroke. You also need to kick your legs in a circular motion like a frog's kick. The fastest swimmers use a stroke called the front crawl. To do this stroke, you lie face down in the water. You move your arms like a windmill. At the same time, you move your legs up and down like scissors. Since your face is in the water, you have to turn you head to the side every two or three strokes to breathe.

There are other swimming strokes. An example of another stroke is the backstroke or back crawl. As you can tell from the name, this stroke is like the front crawl except that you lie on your back. A good thing about a backstroke is that your face is out of the water. That means that breathing is not a problem. But there's another problem. You can't see where you are going! Choose your strokes with care!

SummerReads: Bikes & Boards - Sidewalk Surfing

by Andrew Funk

This text is provided courtesy of Elfrieda H. Hiebert and TextProject.

Photo: A skateboard competitor performs a jump at the Sprite Urban Games in London, England, July 2006.

No one knows exactly who had the idea of putting wheels on a board and going for a ride on it. It is known that it was surfers who first rode skateboards. They called it "sidewalk surfing."

Skateboarding became popular in the 1970s. During that time, California had a serious lack of water. Many people took the water out of their swimming pools. The dry pools were deep enough so that skateboarders could do aerial tricks in them. But the steep, straight walls of the pools led to many injuries.

Skateboarders began hearing about huge water pipes that were not in use. The curved sides of the pipes made it possible to still perform aerial tricks but did not lead to as many injuries. People began to build similar shapes out of wood and called them half-pipes.

Early skateboards were flat and thick like small surfboards. They had wheels made of clay or rubber that did not grip the riding surface well. Once clay and rubber were replaced with plastic wheels, skating became very popular. Skateboards are still usually made of wood. But now the nose and tail of skateboards have small rises. By stepping quickly on one or other of the rises, a skater can control the board during jumps and tricks.

One reason for the popularity of skateboarding is that many different tricks can be performed with a skateboard. The most basic trick is called the "ollie," named after Alan "Ollie" Gelfland who first performed it. The skater kicks down on the tail of the board and jumps up at the same time. It looks like the board is flying in the air.

SummerReads: Swimming - Swimming Underwater

by Andrew Funk

Taken by Dr. Louis M. Herman. Released into the public domain by NOAA.

Humpback whales (Megaptera novaeangliae) near Maui, Hawaii.

Humans can swim under water but only for short periods of time. After about two minutes, a human needs to return to the surface to get oxygen from the air.

There are animals that, like humans, use lungs for breathing. Some of these animals are much better underwater swimmers than humans. Whales can stay underwater for up to two hours without coming to the surface for air. Birds also have lungs and many can stay underwater much longer than humans.

The best underwater swimmers are fish. Unlike humans, most fish breathe through gills that allow them to get oxygen from the water. Since they do not have to come to the surface, fish are excellent swimmers. Some fish can reach speeds of more than 40 miles per hour.

Almost all animals are born with either gills or lungs and have one or the other for their entire lives. But some animals are born with gills and then switch to lungs later in life. This means that they live in water for the first part of life and, later, breathe air and live on land. Frogs are an example of such animals. Frogs start out as eggs in the water. When the eggs hatch, tadpoles that breathe with gills come out. Later, tadpoles become frogs and the gills are gone. Frogs use lungs for breathing. Tadpoles can stay underwater but frogs can't. Frogs need to come to the water's surface to breathe.

SummerReads: Bikes & Boards - Bicycles

by Andrew Funk

This text is provided courtesy of Elfrieda H. Hiebert and TextProject.

Riders demonstrate old-style bicycles at Greenfield Village in Dearborn, Michigan, August 2007.

The first bicycles did not look like the bicycles of today. Their frames and wheel rims were made of wood or solid metal that made them heavy and hard to ride. One of the early bicycles had a very big wheel in front and a very small wheel in back. People in England named it the penny-farthing because it reminded them of two English coins. The penny was a big coin and the farthing a tiny coin.

The pedals on a penny-farthing were joined to the hub of the big front wheel. That meant that the rider had to sit almost on top of the front wheel to reach the pedals. A bump on the road could send a rider flying over the front of the bicycle. Many riders got hurt and even died. These bicycles were just for adults, usually men.

A little over 100 years ago, three inventions led to bicycles like those of today. First, the use of chains and gears meant that pedals could be joined to the frame rather than to the wheel. Wheels could now be the same size and riders could be seated lower and further back on the bicycle.

The second invention was a way of treating rubber. This made it possible to have air-filled rubber tires. Air-filled rubber tires made a smooth ride, unlike that on wooden or metal tires.

Third, the invention of hollow, metal frames meant that bicycles were no longer as heavy. These changes made bicycles safer and easier to ride. Now bicycles could be for everyone-men, women and children.

SummerReads: Bikes & Boards - Catch a Wave

by Andrew Funk

This text is provided courtesy of Elfrieda H. Hiebert and TextProject.

Father and son surf lesson at Morro Bay, California, December 2007.

Almost 250 years ago, the first Europeans who visited islands in the Pacific Ocean saw local islanders riding on waves. The riders started from shore with a wooden board. They used the board to paddle out into the ocean. When they got past the point where the waves were breaking, they turned and faced the shore. Then, they lay on the board and paddled toward shore. When a wave broke, they stopped paddling and let the board move with the wave. At this point, some riders got to their feet and stood for the rest of the ride. When the wave died away, the board stopped moving. Riders would then turn their boards, paddle back out into the ocean, and begin all over again. Because this action took place in the ocean surf, the activity became known as surfing.

People know about surfing around the world but that doesn't mean that people can surf everywhere. The waves have to be the right size. The breaking wave has to be big enough to support a surfer on a board. The wave also has to be long enough so that the surfer can ride it for some distance. Big, long waves are rare in the freshwater of most lakes. That means that almost all surfing happens in the saltwater of oceans.

The best waves for surfing also depend on the slope and shape of the ocean floor next to the beach and on wind patterns. In the United States, the best surfing places are in Hawaii, California, and Florida.

SummerReads: Swimming - Swimwear

by Andrew Funk

A young girl wears goggles while learning the backstroke near Tai Po, Hong Kong, May 2006.

The clothes worn by swimmers have changed a great deal over time. About 200 years ago, women wore dresses made of wool to swim. Wool absorbs water. That meant that the dresses got heavy in the water, making it hard for women to swim and not sink.

Today, a swimming suit is made to fit the body snugly. A snug fit allows a swimmer to glide through the water. The suit is made of cloth that does not absorb water. Because the suit doesn't absorb water, the swimmer is carrying less weight and can move faster.

Another big change in swimwear is the wetsuit. A wetsuit covers almost the entire body with a close-fitting layer of special rubber. The rubber has very small bubbles of gas that make the suit lighter and better at keeping the body warm. A thin layer of water gets trapped between a person's skin and the inside of the suit. The body warms this small amount of water. Since the water can't get out, it helps to keep the body warm. A wetsuit makes it possible to swim and surf even in places where the water is cold. Goggles are another addition to swimwear. Salt from ocean water or chemicals in swimming pools can hurt your eyes. By wearing goggles, swimmers can keep the salt and chemicals out of their eyes. Swimmers who want to keep salt and chemicals away from their noses can wear masks.

Keep Looking

by ReadWorks

By the time they parked, paid the station meter, bought their train tickets, and stepped onto the long silver train, it was 10:24 a.m. Luckily the second car was almost empty. They plopped down into the cool maroon and navy leather seat, happy they had made it.

Just as Netty's mom let out a sigh of relief, a bell, sounding like an old telephone, rang for a few seconds solid. The train jerked backwards, then jolted forward towards New York City. In a few hours they would be home with Daddy and their pup!

The last three days had been filled from morning to night with people speaking about math. Her mom had taken Netty upstate to the Hudson Valley for a big meeting with math teachers from all over the country. The math teachers were meeting to share their teaching styles and learn from each other, like a huge, math-y show-and-tell.

Netty's mother was very popular at the meeting. People were very excited to meet her and seemed to know a lot about the beautiful shapes she made using a special kind of math called "geometry." Netty's mother made big, colorful stars with lots of points out of paper or metal. Some of her shapes even looked like gigantic snowflakes. Many of them were on

display at the meeting. Netty loved seeing the crowds of math teachers looking amazed and talking excitedly about her mother's stars.

The math meeting had been fun, but as the train rolled them smoothly towards home, Netty felt glad it was over. Also, the train ride was a great way to see the countryside. It had big windows and moved slow enough so that things weren't too blurry.

They had traveled to the meeting at night, so Netty hadn't noticed all the tree-covered mountains, little lakes with lily pads, and streams flowing with fresh water. It was so nice to look out at all the scenery passing by like a movie in the quiet train car and not hear anything about math. At least for a little while!

Then the train conductor made his entrance. He wore a sturdy, blue uniform, a punchy hip-pack around his waist, and the special black-brimmed hat with red stripes all conductors wear. He was definitely older than Netty's mom, but not yet an old man. Netty liked the way he smiled as he spoke. It felt like he was a stand-up comedian whose act was divided into personal one-minute episodes for each customer as he collected his or her tickets.

As he clicked the riders' tickets he made small talk with each of the passengers. Some of them must have known him, since he greeted them by name and asked them about their work or families. Every once in a while he sang out the snippet of a song as he clipped ticket after ticket.

He even quacked at one of the passengers.

"How are you?" she'd asked him.

"*Quack, quack!*" he'd replied. "Just okay, I'm not going to lie too much to you. *Quack!*"

"I feel about the same," she confessed.

"I have to watch out. As a duck I don't want to get cooked. Don't want to be somebody's Peking Duck, if you know what I mean. *Quack!* Don't want to end up roasted."

"I hear ya," the woman agreed.

Netty hoped the funny conductor didn't get roasted either. Netty's mother had a rule against eating duck anyhow. She always said they were such sweet animals that they didn't deserve to be eaten. Netty agreed with her mother.

When the conductor waddled over to take their tickets, though, he must have no longer felt like a duck. He didn't quack once at Netty or her mother.

Instead he took one look at Netty's widening eyes and asked, "Do you like big birds?"

Netty nodded yes.

"Well, have you ever seen a blue heron?"

Netty shook her head no.

"Oh, you're in for a treat, my friend," he sang.

Then he whistled, "They're kind of like a pelican or stork minus all the white."

Then he pointed out the window, his own eyes widening as he looked into the passing trees.

"Just keep looking out there about ten feet up into the trees. That's where they build their nests-up high where no one can touch them."

Netty and her mom looked out, almost expecting to see nests everywhere among the trees. After a few minutes of searching the branches together they still didn't see anything, though. All they saw were the trees themselves, growing higher than some city buildings out of a patch of swampy waters.

The conductor said, "Keep looking. They're out there."

That was the end of his routine with them, so he made his exit into the neighboring car to entertain more passengers.

While Netty kept searching the woods for a blue heron, her mother took out a camera in case they did actually see something. She had only just removed the lens cover when Netty saw it.

"Look!" Netty cried, pointing up at a large nest, high up on an approaching tree.

As it came closer, Netty saw the nest, and in it the largest, most beautiful bird she had ever seen. Its beak was slender and long, its body lean and covered in a shiny brown, grey, and blue coat of feathers.

It stared at them as the train passed by. Netty felt as if it was staring right at her. Maybe it was. Maybe it thought the train was some kind of nest on wheels and Netty some kind of freshly hatched chick whose mother fed her math instead of worms.

Netty's mother instantly flipped on her camera and started snapping. *Click! Click! Click!* went her shutter as the proud mama bird guarding her nest floated out of sight.

"I think I got one with you both!" Netty's mother crowed with her own pride.

"We'll see," she concluded, returning her camera to its bag.

Soon the green countryside gave way to more and more houses, followed by bigger and bigger buildings.

They briefly glimpsed Manhattan's mammoth skyline before the train dove underground towards its final stop. They reached Grand Central Station in New York and then transferred to a subway train that took them to their neighborhood in Brooklyn. When they climbed to street level at their stop, Netty's Dad and pup were both right there, waiting in their car to pick them up.

They all hugged, so happy to be together again. Then they went home for lunch, where Netty's mother made fresh lemonade and sandwiches for everyone.

The following week Netty came home from school one afternoon and found an envelope sitting next to her bed. She opened it to discover a stunning photograph of Netty and the blue heron. Her mother had gotten one!

In the picture you could see the amazement in Netty's profile looking out the train's window at the enormous mother bird sitting elegantly on her nest in the background.

Netty bolted to show her father.

Climbing up the stairs, she burst out with delight, "Daddy, have you ever seen a blue heron?!"