

The Pollen Problem

Reproduction is another plant problem. They must make new seeds to survive. To do this, they need pollen from the same kind of plant. Pollen helps the plant make seeds.

Plants are rooted in one place. So how does pollen get from one plant to another? An animal delivery service!

Some flowers give off strong odors. The smell attracts **pollinators**. Skunk cabbage is a real stinker. The plant's yellow flowers are inside a "hood."

The temperature in the hood is always warm. The heat helps the smell travel far and wide. The skunky smell attracts hungry insects. They zoom from one smelly flower to another—and spread pollen.



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Fake Food

The slipper orchid seems to have what bugs want. Dots on the flower look like insects called aphids. Hoverflies lay eggs on plants that have aphids.

The fake aphids fool the flies. They lay eggs on the petals. Then, oops! The flies fall into the orchid's "slipper." It is shaped like the toe of a shoe. As the flies struggle to get out, they pollinate the plant. Luckily, they usually escape.

Color Coded

An amazon water lily changes color to attract pollinators. New flowers open white at night. Beetles can see them in the dark. The flowers also smell sweet!

Their color and smell attracts beetles. After it's pollinated, the flower turns pink. It loses its smell. Beetles then know not to stop at that flower.

The scarlet gilia wildflower changes color, too. In summer, its flowers are red. This attracts hummingbirds. The birds leave in the fall. That's when hawkmoths arrive. They fly at night. They can see white flowers better than red ones at night. So the scarlet gilia changes color. It blooms white!

Plant Perfume. *The smell of this skunk cabbage attracts pollinators.*



Bird Blooms. The red flowers of a scarlet gilia attract hummingbirds.

Serious Survivors

Plants have great ways of surviving. They have adapted to poor soil and hot or cold weather. They fool fierce attackers. Trick by trick, they are one of nature's greatest success stories.



Wordwise

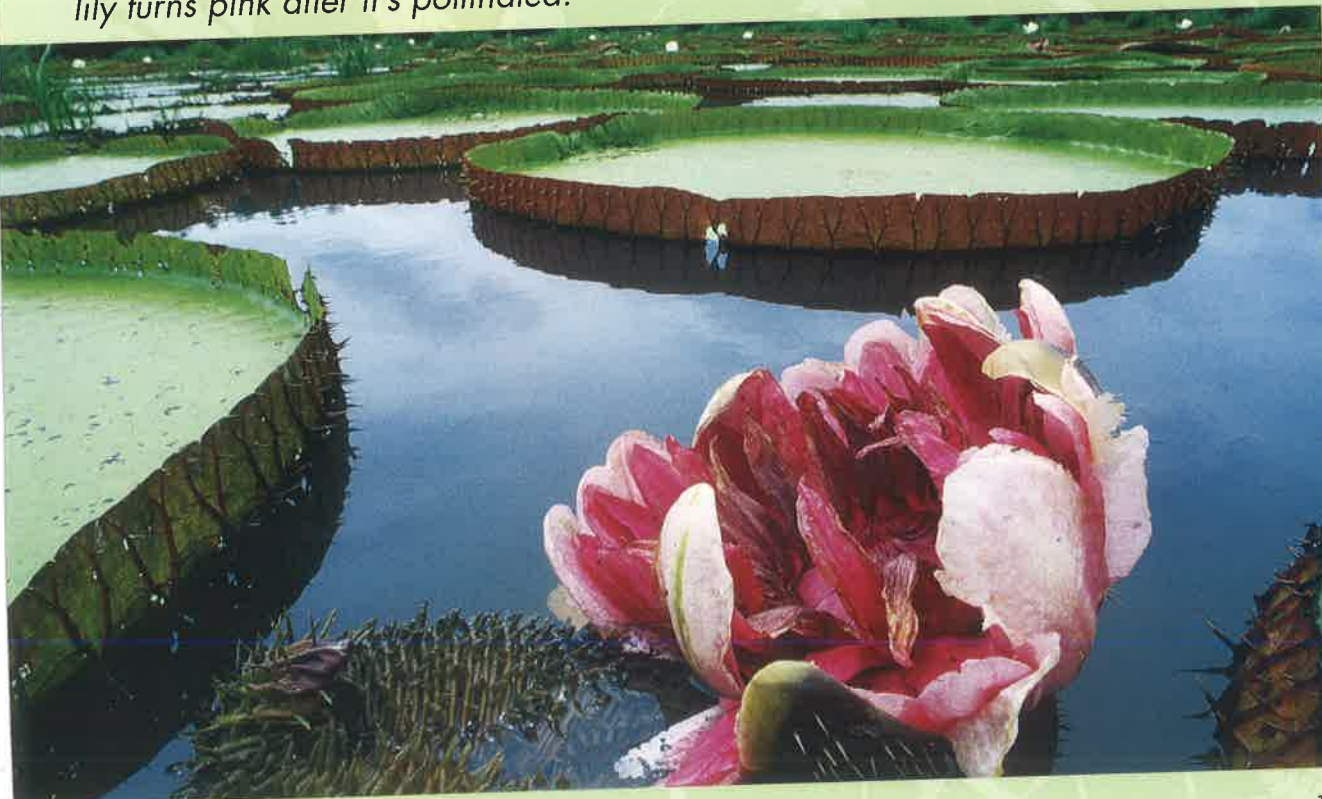
bacteria: tiny living things that are neither plants nor animals

nutrient: chemical that a living thing needs to be healthy

pollinator: animal that takes pollen from one flower to another

reproduction: process by which a living thing makes young versions of itself

Pretty in Pink. An Amazon water lily turns pink after it's pollinated.





GEOGRAPHY

Reading Strategy: As you read this story, use the writer's words to imagine what life was like at a lighthouse. What did the keepers hear, see, smell, and feel?

Lighth



© VESPA ABESINES PHOTOGRAPHY/GETTY IMAGES

*Lingesnes Lighthouse,
Norway*

house Lives

by Marissa Moss

It was a cold, stormy night in January 1856. Tall waves crashed into a tiny island off the coast of Maine. Two lighthouse beams shined through the dark.

The keeper of the lighthouse was gone. He had left to get supplies. His wife and daughters had to face the storm alone. Water flooded into their house. Abbie wasted no time. She got her mother and sisters to higher ground.

Abbie stayed behind. Someone had to keep the light shining. It warned ships of dangerous rocks. The storm kept her father away for four long weeks. Yet not once did Abbie let the light burn out. She was only 17 years old.



Lighthouse Lens. *Cut glass in a Fresnel lens focuses light into a bright beam.*

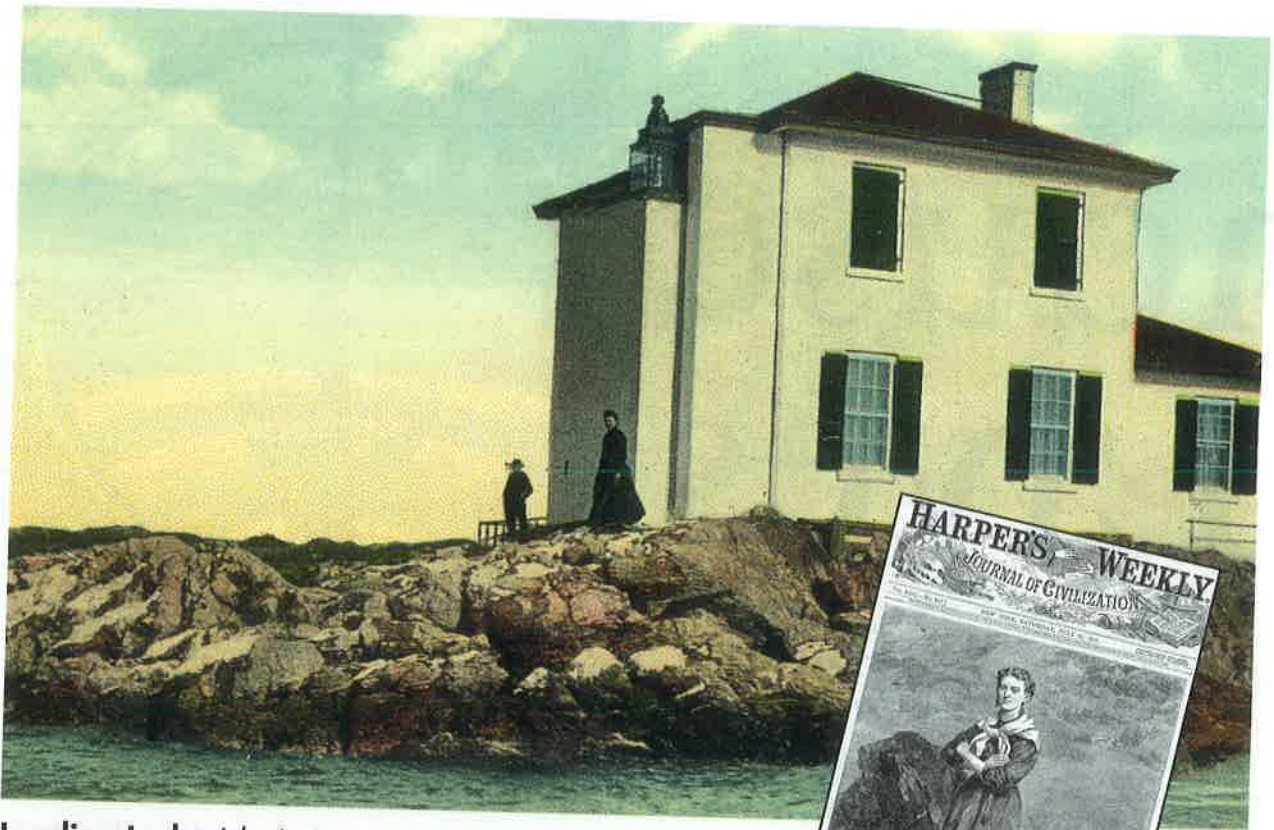
Shining Bright

Ships have depended on these lights for two thousand years. At first, people burned fires. The fires warned ships of sharp rocks or reefs. The first lighthouse in the United States was built in 1716. It was in Boston.

Keepers once used whale oil or kerosene to light the tower's lamp. They put a glass lens around the lamp. It was called a Fresnel lens. It focused the lamp's rays of light into one strong beam. Sailors could see the beam from miles away.

Many lighthouses had their own pattern of flashing light. It told the sailors where they were. The bright lights led them to safer waters. Sailors can thank people like Abbie for keeping those lights burning.

COURTESY OF JEREMY D'ENTREKONT



Leading Lady. *Ida Lewis was famous for rescues she made while working at this lighthouse (above). A magazine put her picture on the cover (right).*

Risky Rescues

Ida Lewis was a famous lighthouse keeper. Her family moved to Lime Rock, Rhode Island in 1854. Soon after, her father became sick. Ida took over his job. She was only 16.

In 1858, a boat flipped over near the lighthouse. Ida jumped into her rowboat. She paddled through the waves. She saved all four of the men.

Later, Ida saved at least 14 more people. Magazines wrote about her. People called her “the bravest woman in America.” After her death, people renamed the lighthouse after her.

Hard Living

Lighthouse keepers had to be tough. Some towers stood on rocky points. Others were on tall cliffs or tiny islands. It was often wet and stormy.

Many times, the only way to reach town was by boat. Just getting to school or buying food was hard.

The keeper’s job was tough, too. At night, the keeper climbed the tower to light the lamp. The light had to be checked often during the night. It could not go out. In the morning, the tired keeper climbed the tower again to blow out the lamp.

Living on the Edge

Life was very tough at Point Bonita Lighthouse in California. The tower was on a high cliff. A tunnel and a footpath led up to the tower. In the early 1900s, the Martins lived here.

Cliffs and water surrounded the family on all sides. Mrs. Martin had to tie long ropes to her children when they played outside. She was worried they would fall off the cliff!

In 1954, the Coast Guard built a suspension bridge to the lighthouse. Now it is the only U.S. lighthouse with this type of bridge.

A Thing of the Past

In the late 1800s, lighthouses started using electricity. Technology got better. Machines and computers could now do the keeper's job. Keepers were no longer needed.

Still, history remembers the families who led lighthouse lives. Their brave work helped to keep ships and their crews safe. Sailors could count on a strong light to lead them home.

Guiding the Way. *Patterns painted on lighthouses are called daymarks. They helped sailors know where they were.*

Cape Lookout,
North Carolina



RAYMOND GERMAN/NATIONAL GEOGRAPHIC STOCK

Assateague
Island,
Virginia



RAYMOND GERMAN/NATIONAL GEOGRAPHIC STOCK

Tybee Island,
Georgia



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with their vibrant colors.

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