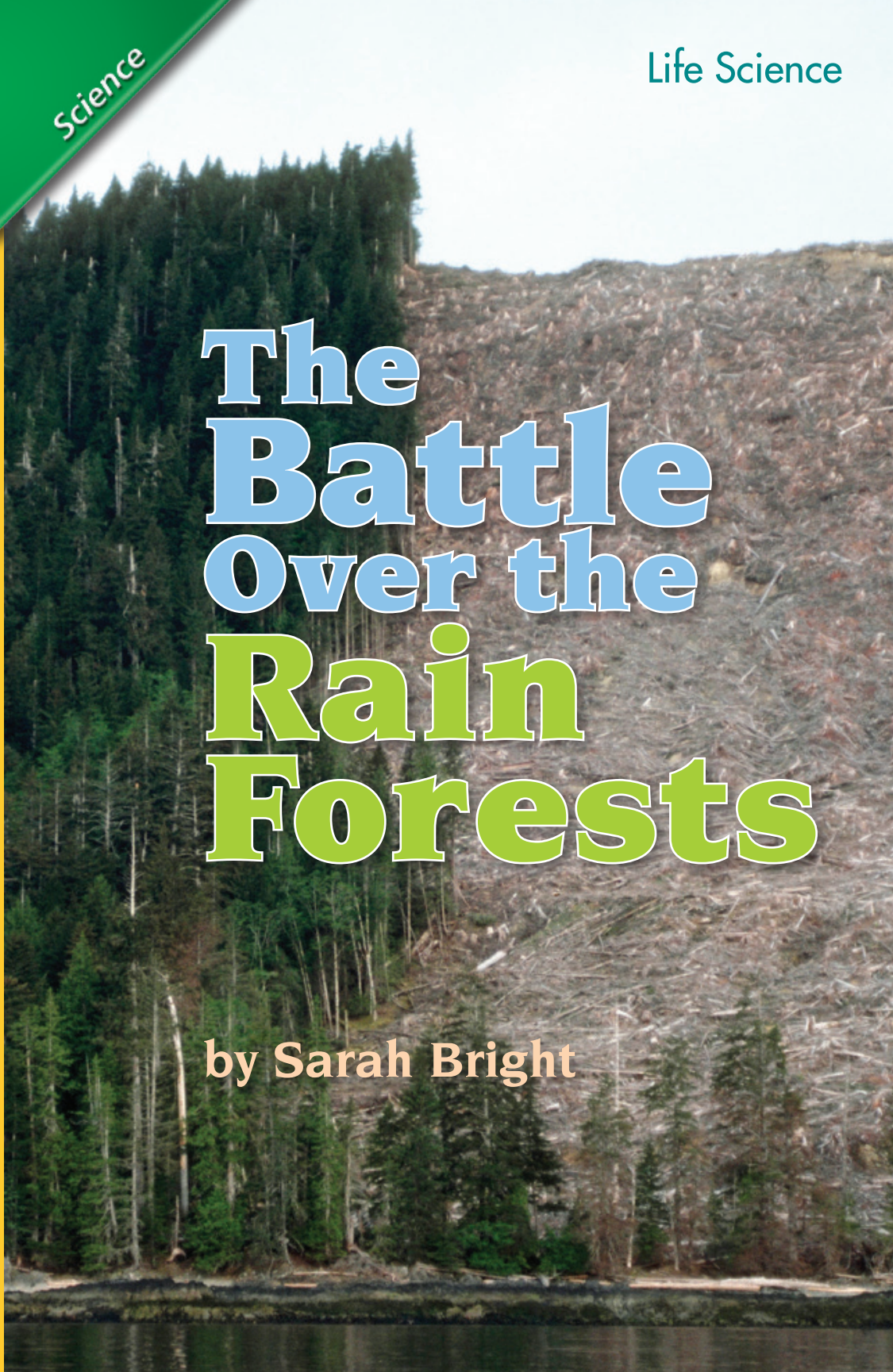
Science

Life Science



The Battle Over the Rain Forests

by Sarah Bright

Vocabulary

basin

charities

equator

erosion

evaporates

exported

industrial

recycled

tropics

Word count: 1,848

Note: The total word count includes words in the running text and headings only. Numerals and words in chapter titles, captions, labels, diagrams, charts, graphs, sidebars, and extra features are not included.

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Introduction

Rain forests are found around the world. Some are located in temperate climates, others in the **tropics.** In either case, they are the oldest, most complicated ecosystems on our planet. They are home to more than 30 million species of animals and plants.

A rain forest typically has four layers: the *emergent layer*, consisting of the tallest trees, where water **evaporates;** the *canopy*, which has shorter trees and vines; the *understory*, with shrubs and shorter plants; and the *forest floor*, home to plants that thrive without sunlight. These layers are treasure troves of plant and animal life.

Rain forests are also treasure troves of valuable crops and products. Scientists are just beginning to understand the medical value of many rain forest plants. For example, a bark extract from the Pacific yew tree contains taxol, which may be effective in fighting cancer.

Rain forests are the most complicated ecosystems on our planet.

Plantations on former rain forest lands produce crops such as bananas, coffee, oil, Brazil nuts, and rubber. These products are used by people around the world. The sale of such cash crops plays a large part in the economies of nations where rain forests are found. The harvesting of rain forest products also provides work for people who often live in poverty.

Similarly, logging of precious rain forest wood and open-pit mining are important. However, these activities often threaten or destroy rain forest ecosystems. In addition, an increasing population puts pressure on the space and resources in the rain forest.

Often the interests of people and the ecosystem conflict with one another. Many people consider that resolving the problems of rain forest management is the most important environmental issue of our time.

Chapter One: The Amazon

The Amazon is the most well-known of the world's tropical rain forests. It covers 2.7 million square miles of land in South America and is home to jaguars, parrots, monkeys, and piranhas, among hundreds of thousands of other species.

The Amazon rain forest is also home to about 20 percent of the world's fresh water supply. In addition, with its massive amount of oxygen-producing tree life, the Amazon is sometimes called Earth's "lungs."

In spite of all of its ecological riches, though, the area's human population is very poor. How can we improve the lives of the area's people while maintaining the ecology of the rain forest itself?

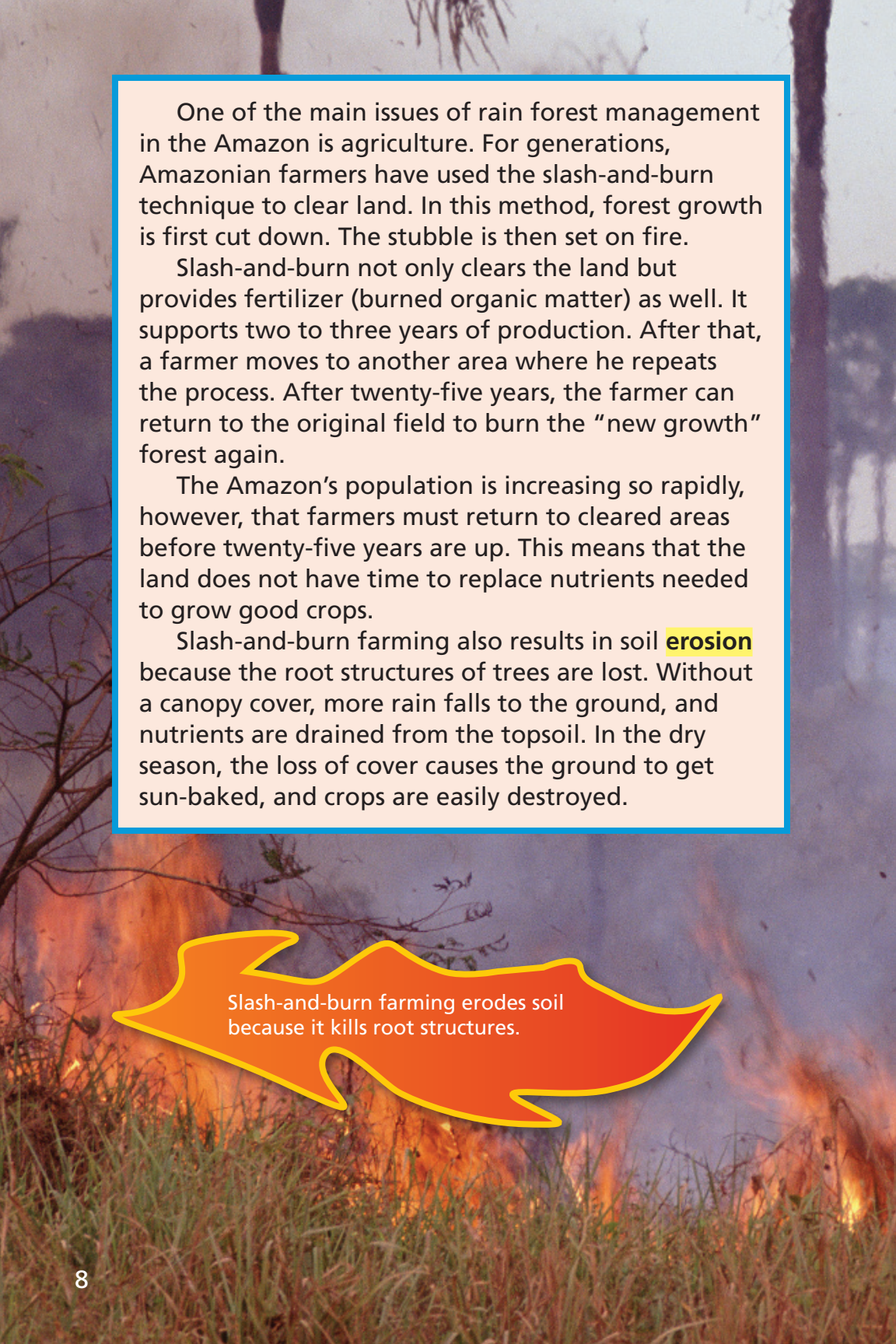
The Amazon rain forest, with its oxygen-producing tree life, is known as Earth's "lungs."

One of the main issues of rain forest management in the Amazon is agriculture. For generations, Amazonian farmers have used the slash-and-burn technique to clear land. In this method, forest growth is first cut down. The stubble is then set on fire.

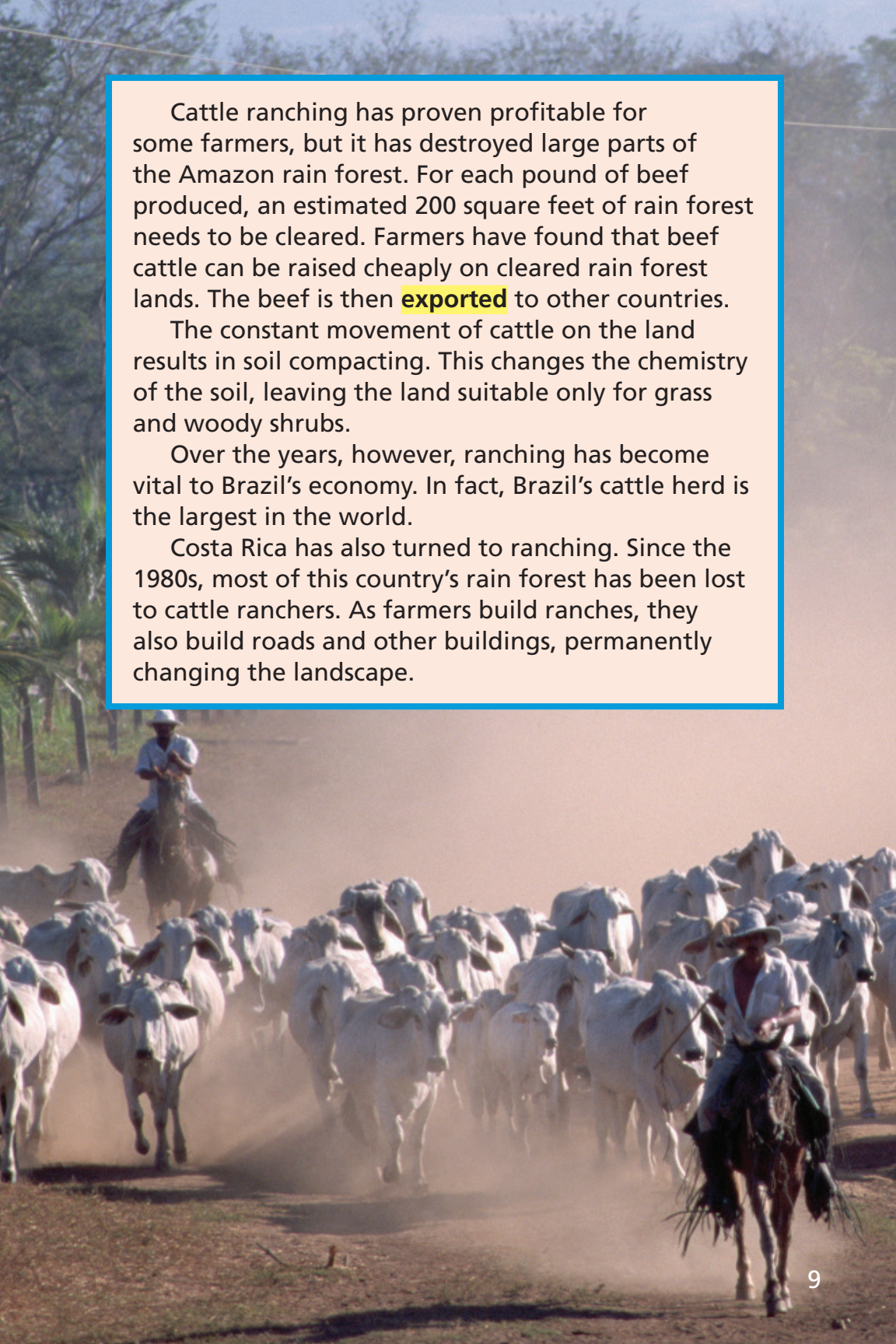
Slash-and-burn not only clears the land but provides fertilizer (burned organic matter) as well. It supports two to three years of production. After that, a farmer moves to another area where he repeats the process. After twenty-five years, the farmer can return to the original field to burn the "new growth" forest again.

The Amazon's population is increasing so rapidly, however, that farmers must return to cleared areas before twenty-five years are up. This means that the land does not have time to replace nutrients needed to grow good crops.

Slash-and-burn farming also results in soil **erosion** because the root structures of trees are lost. Without a canopy cover, more rain falls to the ground, and nutrients are drained from the topsoil. In the dry season, the loss of cover causes the ground to get sun-baked, and crops are easily destroyed.



Slash-and-burn farming erodes soil because it kills root structures.



Cattle ranching has proven profitable for some farmers, but it has destroyed large parts of the Amazon rain forest. For each pound of beef produced, an estimated 200 square feet of rain forest needs to be cleared. Farmers have found that beef cattle can be raised cheaply on cleared rain forest lands. The beef is then **exported** to other countries.

The constant movement of cattle on the land results in soil compacting. This changes the chemistry of the soil, leaving the land suitable only for grass and woody shrubs.

Over the years, however, ranching has become vital to Brazil's economy. In fact, Brazil's cattle herd is the largest in the world.

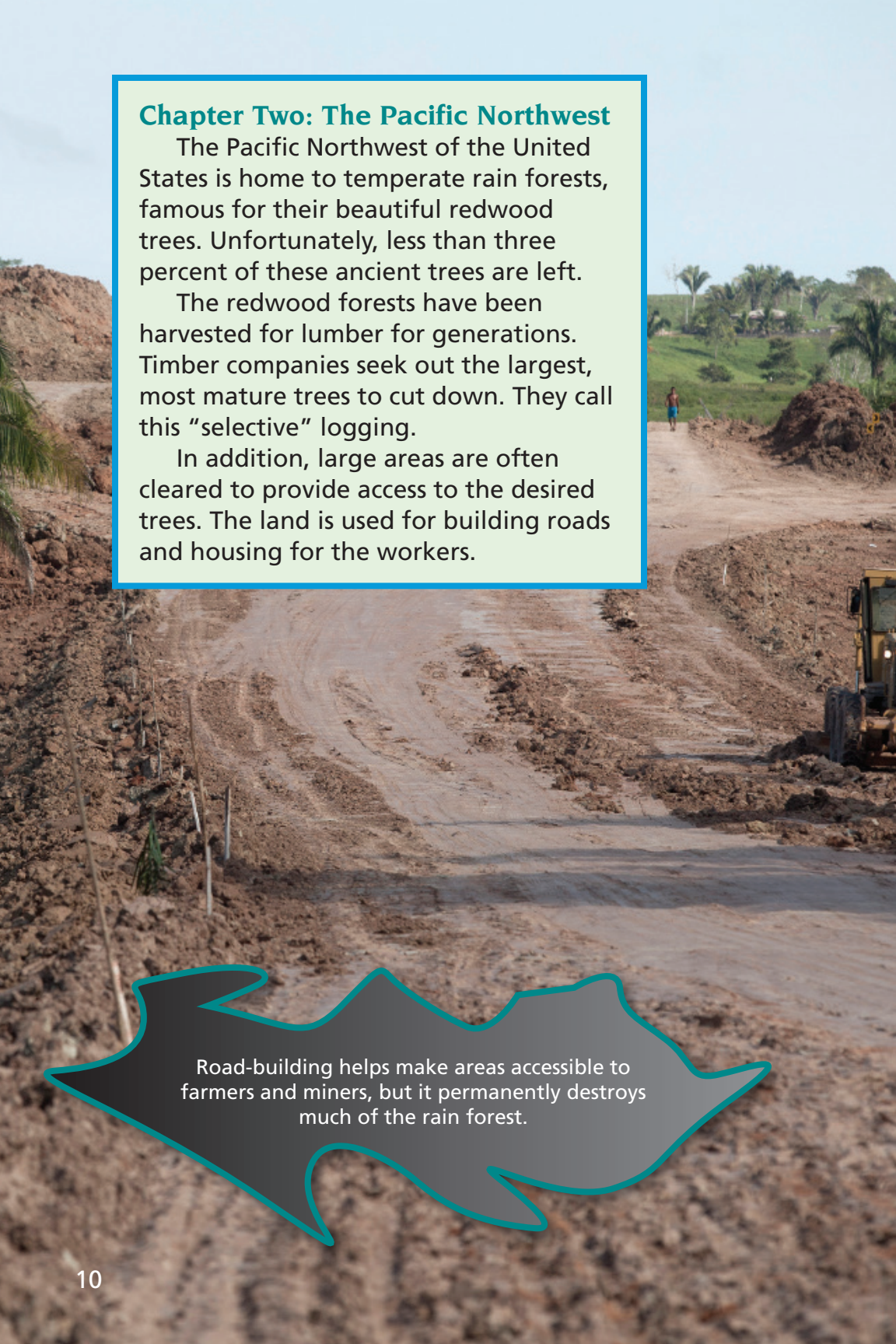
Costa Rica has also turned to ranching. Since the 1980s, most of this country's rain forest has been lost to cattle ranchers. As farmers build ranches, they also build roads and other buildings, permanently changing the landscape.

Chapter Two: The Pacific Northwest

The Pacific Northwest of the United States is home to temperate rain forests, famous for their beautiful redwood trees. Unfortunately, less than three percent of these ancient trees are left.

The redwood forests have been harvested for lumber for generations. Timber companies seek out the largest, most mature trees to cut down. They call this "selective" logging.

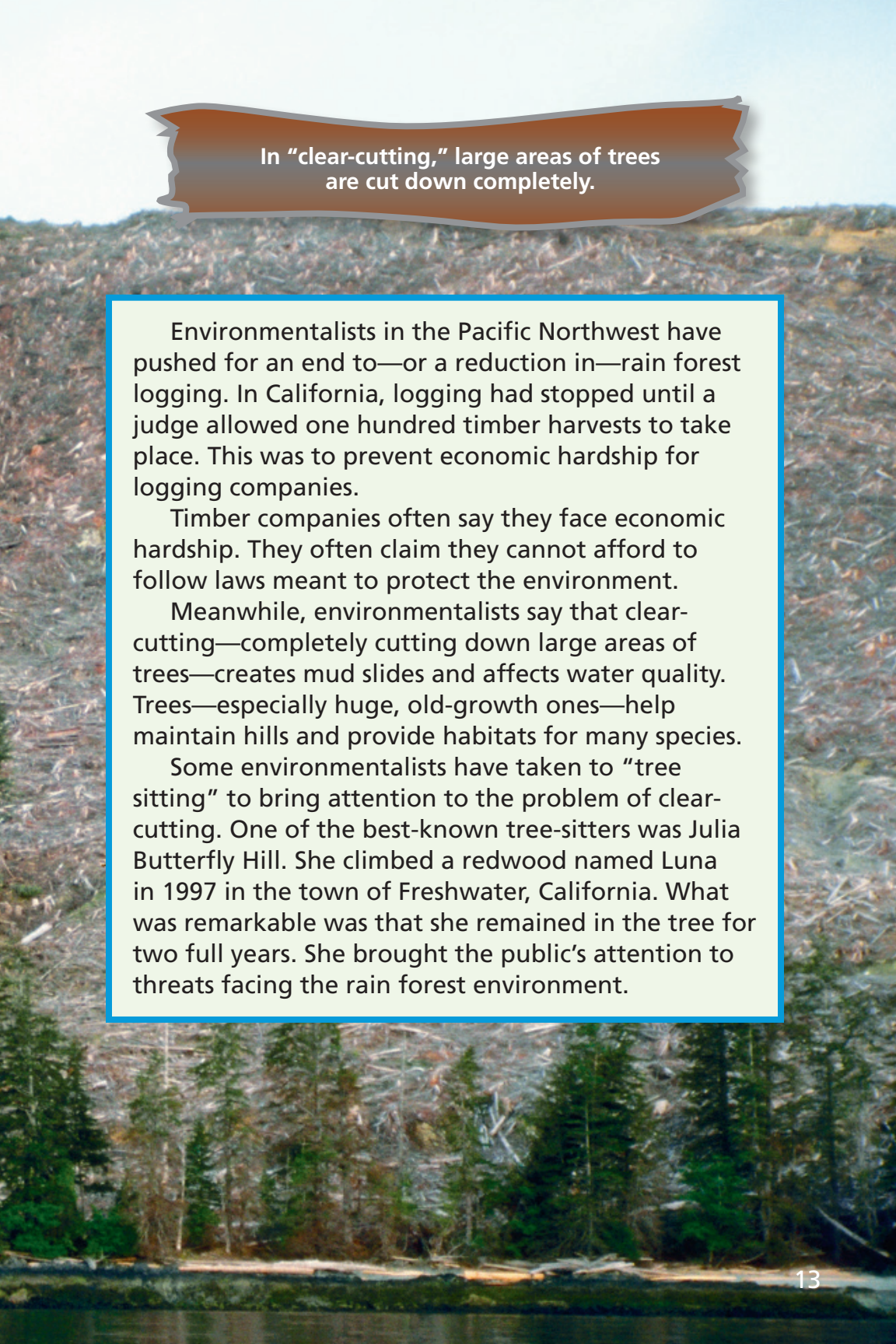
In addition, large areas are often cleared to provide access to the desired trees. The land is used for building roads and housing for the workers.



Road-building helps make areas accessible to farmers and miners, but it permanently destroys much of the rain forest.

A redwood forest

A tree-sitter occupies a tree to protest logging practices in the rain forest.



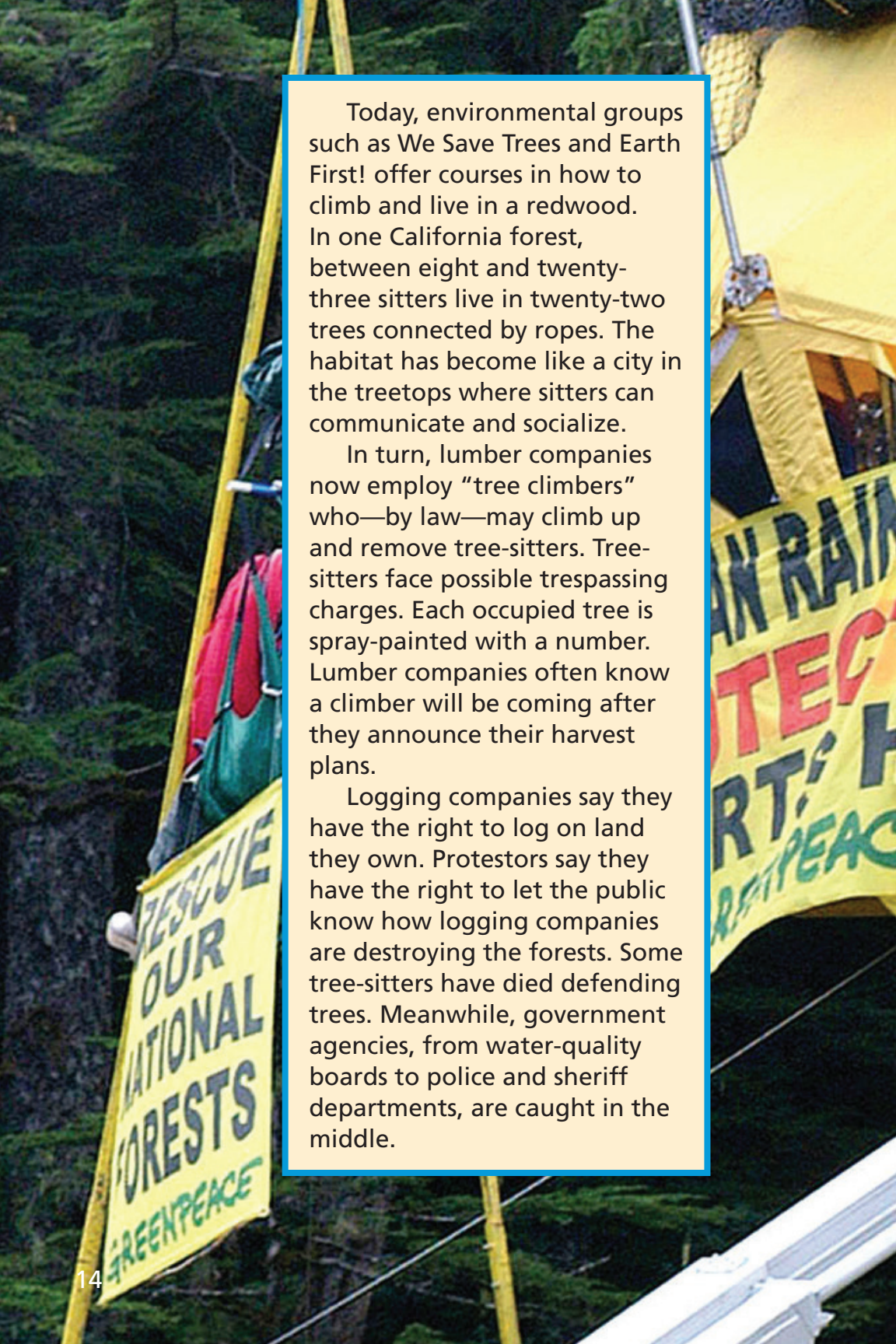
In "clear-cutting," large areas of trees are cut down completely.

Environmentalists in the Pacific Northwest have pushed for an end to—or a reduction in—rain forest logging. In California, logging had stopped until a judge allowed one hundred timber harvests to take place. This was to prevent economic hardship for logging companies.

Timber companies often say they face economic hardship. They often claim they cannot afford to follow laws meant to protect the environment.

Meanwhile, environmentalists say that clear-cutting—completely cutting down large areas of trees—creates mud slides and affects water quality. Trees—especially huge, old-growth ones—help maintain hills and provide habitats for many species.

Some environmentalists have taken to "tree sitting" to bring attention to the problem of clear-cutting. One of the best-known tree-sitters was Julia Butterfly Hill. She climbed a redwood named Luna in 1997 in the town of Freshwater, California. What was remarkable was that she remained in the tree for two full years. She brought the public's attention to threats facing the rain forest environment.

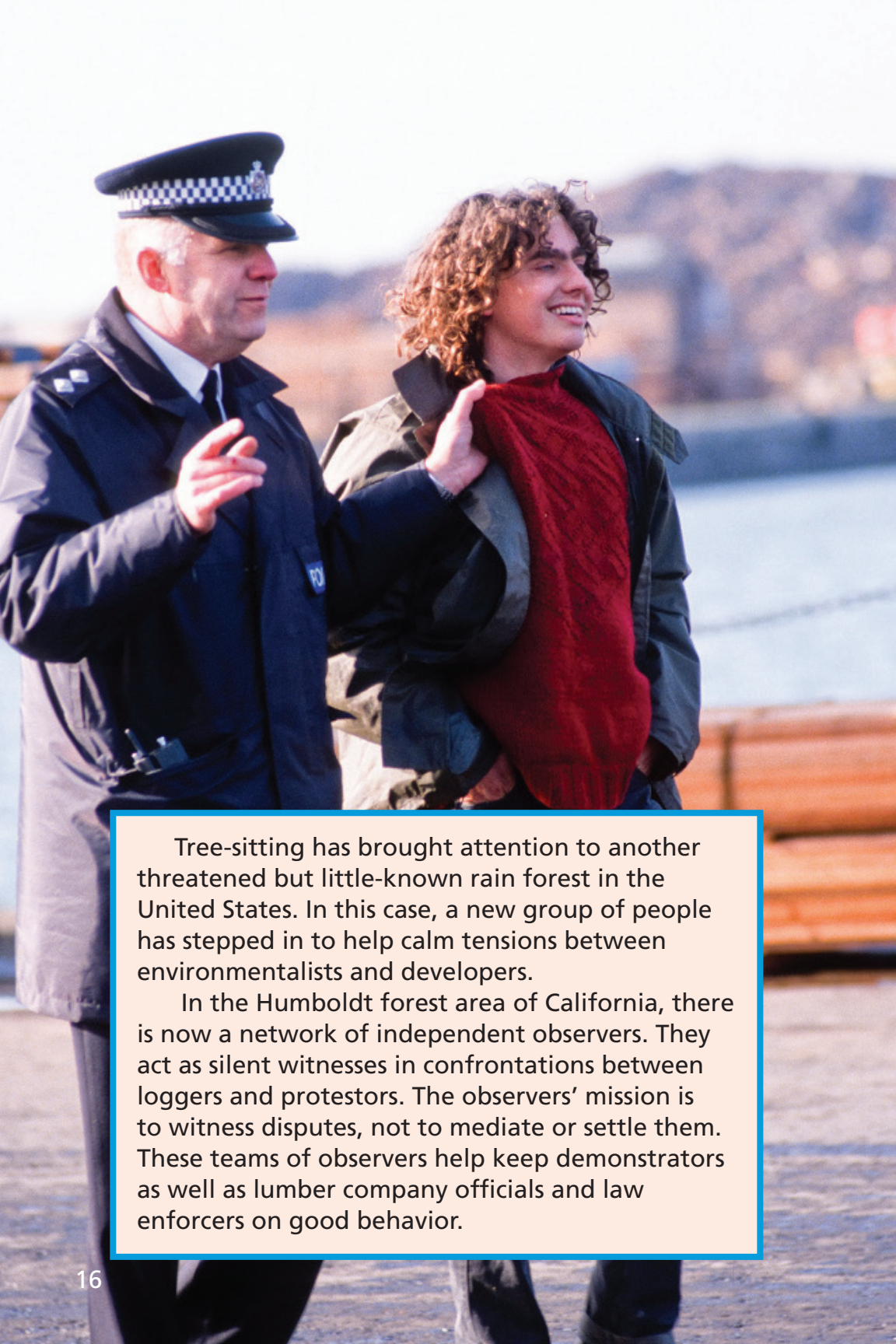


Today, environmental groups such as We Save Trees and Earth First! offer courses in how to climb and live in a redwood. In one California forest, between eight and twenty-three sitters live in twenty-two trees connected by ropes. The habitat has become like a city in the treetops where sitters can communicate and socialize.

In turn, lumber companies now employ "tree climbers" who—by law—may climb up and remove tree-sitters. Tree-sitters face possible trespassing charges. Each occupied tree is spray-painted with a number. Lumber companies often know a climber will be coming after they announce their harvest plans.

Logging companies say they have the right to log on land they own. Protestors say they have the right to let the public know how logging companies are destroying the forests. Some tree-sitters have died defending trees. Meanwhile, government agencies, from water-quality boards to police and sheriff departments, are caught in the middle.

Environmental groups train people to climb and occupy trees in the Pacific Northwest rain forest.
Snorkel



Tree-sitting has brought attention to another threatened but little-known rain forest in the United States. In this case, a new group of people has stepped in to help calm tensions between environmentalists and developers.

In the Humboldt forest area of California, there is now a network of independent observers. They act as silent witnesses in confrontations between loggers and protestors. The observers' mission is to witness disputes, not to mediate or settle them. These teams of observers help keep demonstrators as well as lumber company officials and law enforcers on good behavior.

Chapter Three: Africa, Asia, and Canada

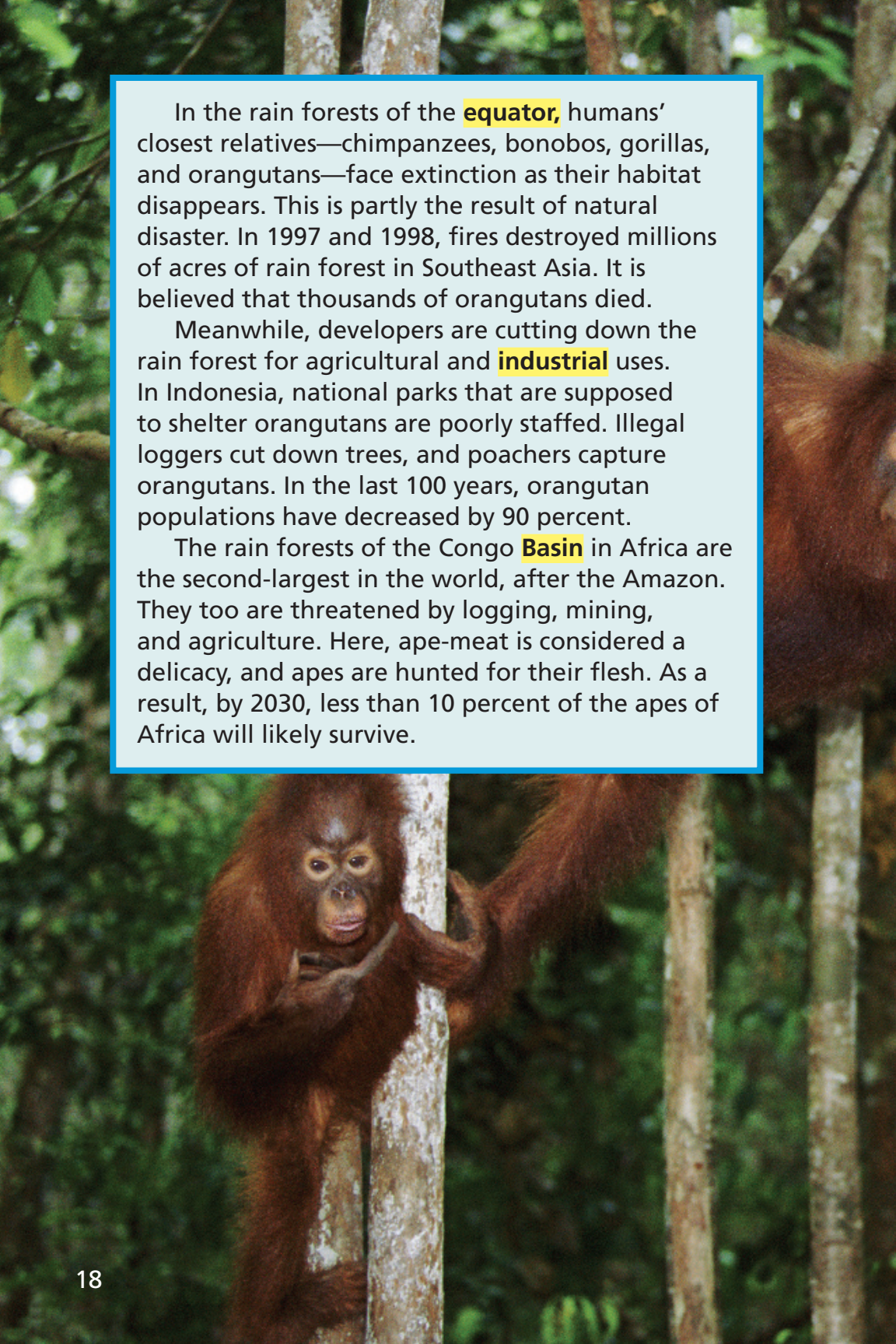
The largest temperate coastal rain forest on the planet is found in Canada. The Great Bear Rain Forest, as it is known, is full of breathtaking fjords and icy mountains. It is home to many species of plants, birds, and mammals. It is also where the spirit bear lives.

In recent decades, however, large lumber companies have begun to log within the Great Bear Rain Forest. Environmentalists feared the destruction of its habitat would harm the spirit bear. Some activists went to work.

Greenpeace International led a boycott against a major lumber company. As a result, the company agreed to negotiate with the government and environmental groups to save the spirit bear's habitat.

The Great Bear Rain Forest in Canada is the only habitat of the all-white black bear, known as the spirit bear.

Greenpeace is an environmental group that has lobbied to save ancient-growth forests around the world.



In the rain forests of the **equator,** humans' closest relatives—chimpanzees, bonobos, gorillas, and orangutans—face extinction as their habitat disappears. This is partly the result of natural disaster. In 1997 and 1998, fires destroyed millions of acres of rain forest in Southeast Asia. It is believed that thousands of orangutans died.

Meanwhile, developers are cutting down the rain forest for agricultural and **industrial** uses. In Indonesia, national parks that are supposed to shelter orangutans are poorly staffed. Illegal loggers cut down trees, and poachers capture orangutans. In the last 100 years, orangutan populations have decreased by 90 percent.

The rain forests of the Congo **Basin** in Africa are the second-largest in the world, after the Amazon. They too are threatened by logging, mining, and agriculture. Here, ape-meat is considered a delicacy, and apes are hunted for their flesh. As a result, by 2030, less than 10 percent of the apes of Africa will likely survive.

Less than 2 percent of the orangutan's rain forest habitat survives in Borneo and Sumatra.

Chapter Four: What Can We Do?

From what you have read, you can see that it may be impossible to "save" an entire rain forest. You can see that there are difficult issues and conflicting interests involved.

The challenge is to balance the demands of developing areas and the needs of people with the need to maintain rain forest habitats. Creative thinking is needed to find ways to maintain this balance.

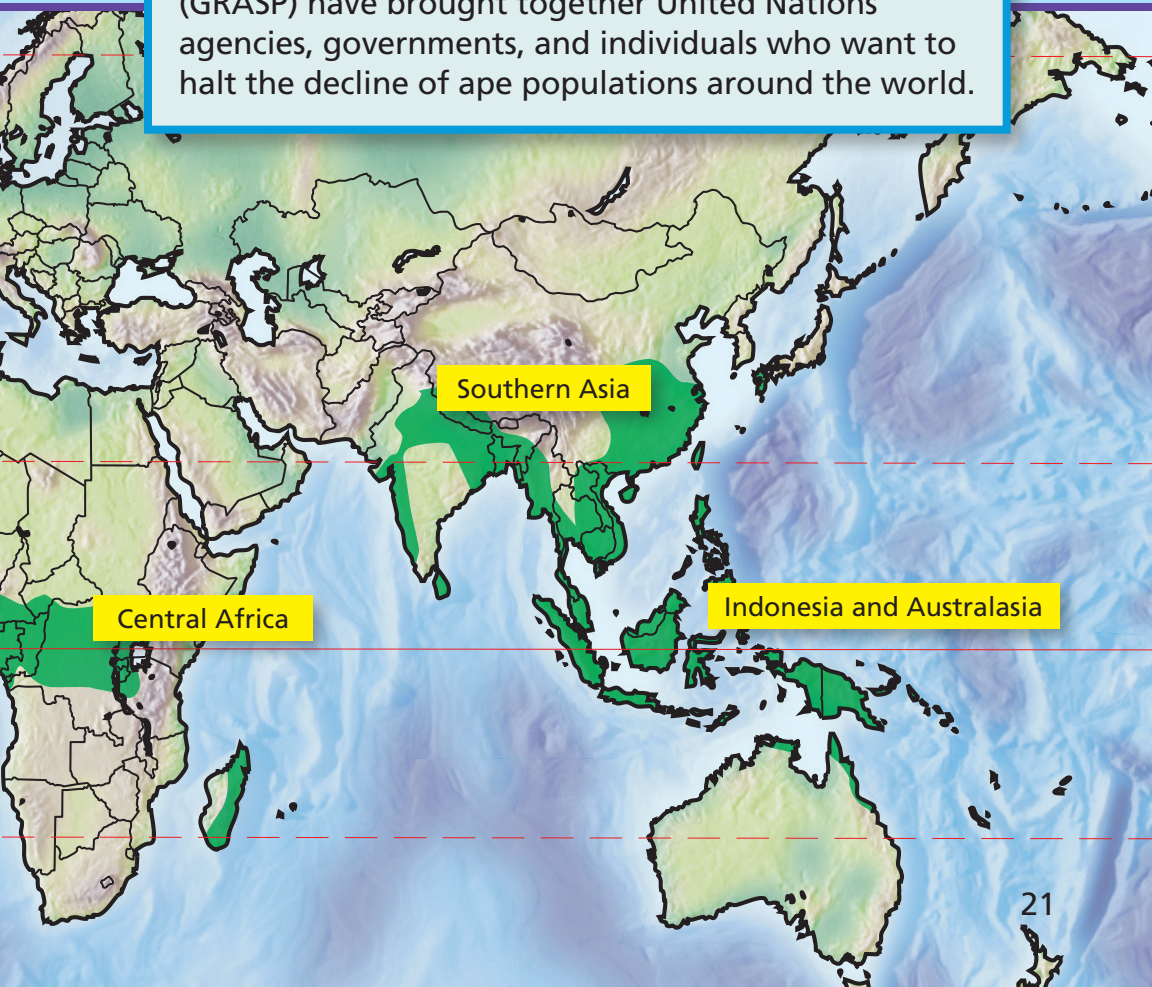
Often poor farmers use farming methods that may harm the environment. They may not have the money or other resources to switch to a more "rain-forest-friendly" method of farming. For their own survival, and that of their families, they may need to grow as much food as they can, in the fastest, cheapest way possible.

Many people today are searching for creative solutions to the conflicting interests that threaten the world's rain forests.

As a result, international organizations now support coffee cooperatives that benefit small farmers. They make sure participating farmers get a fair price per pound. Some retailers give incentives to small farmers to stay in the coffee bean business. This stops small farmers from selling their land to developers.

In Brazil, activists successfully lobbied to link 25 million acres of pristine wilderness. The corridor, or area of linked lands, is home to nine primate species and more than five hundred bird species.

Groups such as the Great Apes Survival Partnership (GRASP) have brought together United Nations agencies, governments, and individuals who want to halt the decline of ape populations around the world.



People around the world find ways to raise money to save the rain forests.

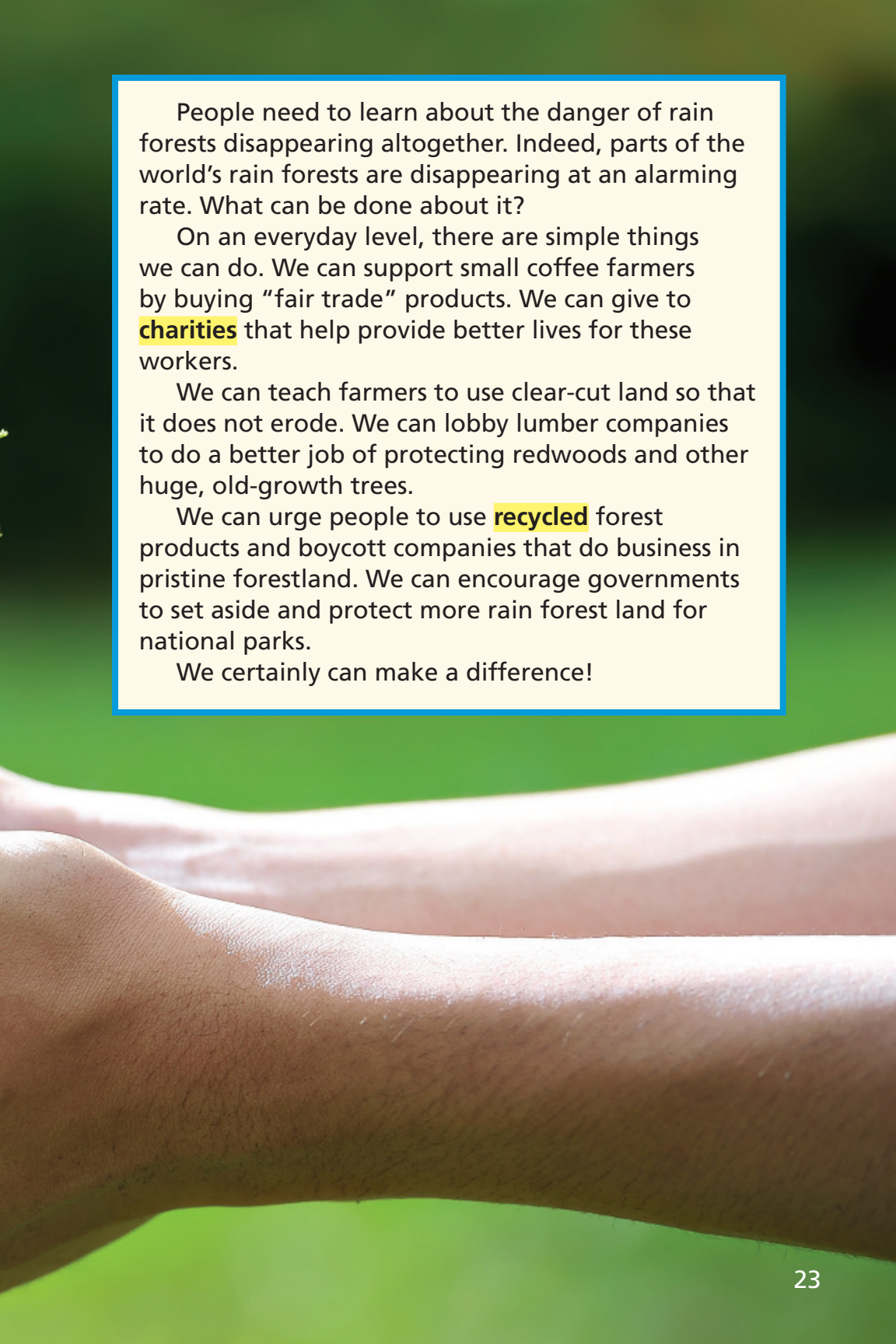
People need to learn about the danger of rain forests disappearing altogether. Indeed, parts of the world's rain forests are disappearing at an alarming rate. What can be done about it?

On an everyday level, there are simple things we can do. We can support small coffee farmers by buying "fair trade" products. We can give to **charities** that help provide better lives for these workers.

We can teach farmers to use clear-cut land so that it does not erode. We can lobby lumber companies to do a better job of protecting redwoods and other huge, old-growth trees.

We can urge people to use **recycled** forest products and boycott companies that do business in pristine forestland. We can encourage governments to set aside and protect more rain forest land for national parks.

We certainly can make a difference!



Glossary

basin *n.* an area drained by a river or tributary.

charities *n.* groups that help or assist.

equator *n.* the imaginary circle around Earth's surface that divides Earth into the Northern and Southern Hemispheres.

erosion *n.* an act or process of wearing away.

evaporates *v.* converts or changes into vapor.

exported *v.* transported or traded abroad.

industrial *adj.* characterized by highly developed industries.

recycled *v.* reused or adapted to another use.

tropics *n.* region of Earth's surface lying between the Tropic of Cancer and the Tropic of Capricorn (23°45' north to 23°45' south latitudes).

Reader Response

1. List three facts and three opinions about rain forests.
2. Use a T-chart like the one below to show both sides of the battle over the rain forests. Why should we:

Cut down the rain forests?	Save the rain forests?

3. Look up the vocabulary word *erosion* in a dictionary. Write down the base word and the ending. Then list other words you know that have *-sion* or *-tion* endings.
4. Look at the map of rain forests on pages 20–21. What do you notice about the location of most rain forests? Why do you think they are located where they are?

Suggested levels for Guided Reading, DRA™, Lexile®, and Reading Recovery™ are provided in the Pearson Scott Foresman Leveling Guide.

Science

Genre	Comprehension Skills and Strategy	Text Features
Expository nonfiction	• Fact and Opinion • Cause and Effect • Important Ideas	• Table of Contents • Captions • Map • Sidebar

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