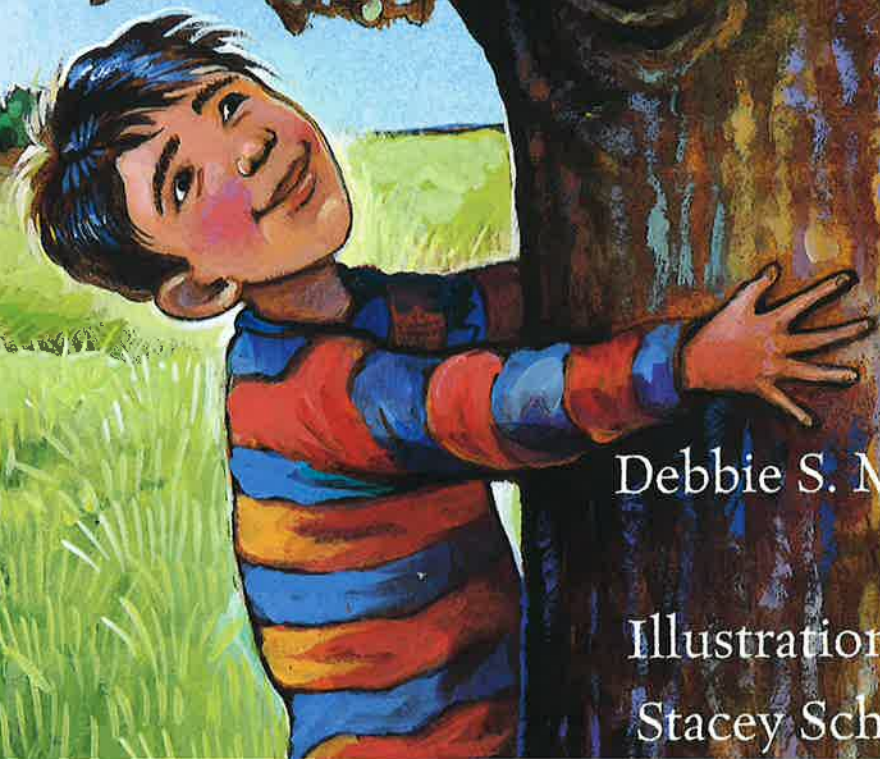


Are Trees Alive?



Debbie S. Miller

Illustrations by
Stacey Schuett



For my daughter, Casey,
with love
—D. M.

For Clare and Ian,
who want to know
—S. S.

Many thanks to all the
foresters, botanists, and naturalists
who provided information about the trees
described in this book.

Text copyright © 2002 by Debbie S. Miller
Illustrations copyright © 2002 by Stacey Schuett

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without permission in writing from the Publisher.

First published in the United States of America in 2002 by
Walker Publishing Company, Inc.

For information about permission to reproduce selections from
this book, write to Permissions, Walker & Company,
275 Fifth Avenue, New York, New York 10001

Library of Congress Cataloging-in-Publication Data

Miller, Debbie S.
Are trees alive? / Debbie S. Miller : illustrations by Stacey Schuett.
p.cm.

Summary: An introduction to trees that compares parts of a tree to parts of the human body, with
illustrations and brief descriptions of trees found around the world.

ISBN 0-8027-8901-7 — ISBN 0-8027-8902-5

1. Trees—Juvenile literature. 2. Trees—Ecology—Juvenile literature. 3. Forest ecology—Juvenile literature.

4. Forest animals—Juvenile literature. (I. Trees. 2. Trees—Ecology. 3. Forest ecology. 4. Forest animals. 5. Ecology.)

I. Schuett, Stacey, ill. II. Title.

QK475.8 .M55 2001
582.16—dc21

2001046584

The art was created with acrylic paint and gouache on Arches watercolor paper.

Book design by Diane Hobbing of Snap-Haus Graphics

Visit Walker & Company's Web site at www.walkeryoungreaders.com

Printed in China by C&C Offset Printing Co Ltd, Shenzhen, Guangdong

10 9

Introduction

One day I hiked near a forest with my four-year-old daughter, Casey. She looked up at a tall spruce tree and asked, "Are trees alive?" I answered yes and explained that trees were living things. She responded, "But how do they breathe; they don't have noses?"

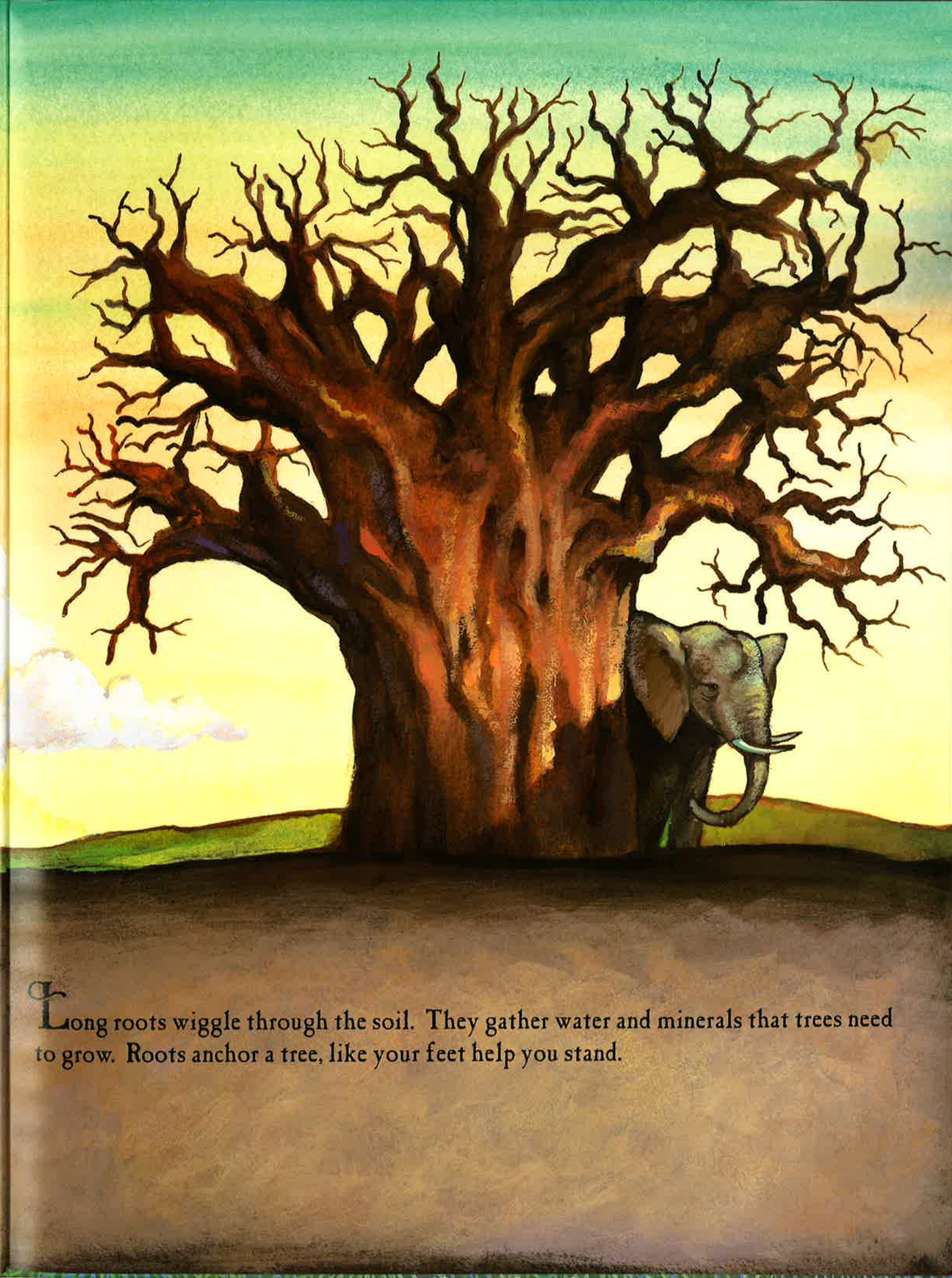
Her question inspired me to look closely at the features of trees and compare them to humans. Although trees are plants and humans are animals, we have many similar characteristics. This book describes those characteristics, and celebrates some of the magnificent trees that grow on our planet, along with the diversity of life that surrounds them. Trees are special. They are fun to climb and dream beneath. They shade us on hot summer days. They release oxygen for us to breathe. They drop beautiful autumn leaves. They give us fruits, wood, paper, medicines, and foods like chocolate and maple syrup. They provide habitat for countless animals. They help clean pollution from the air. When you walk through a forest, take a close look at the trees around you, and say thank you.

Remember to treat trees with respect, use them wisely, and recycle.

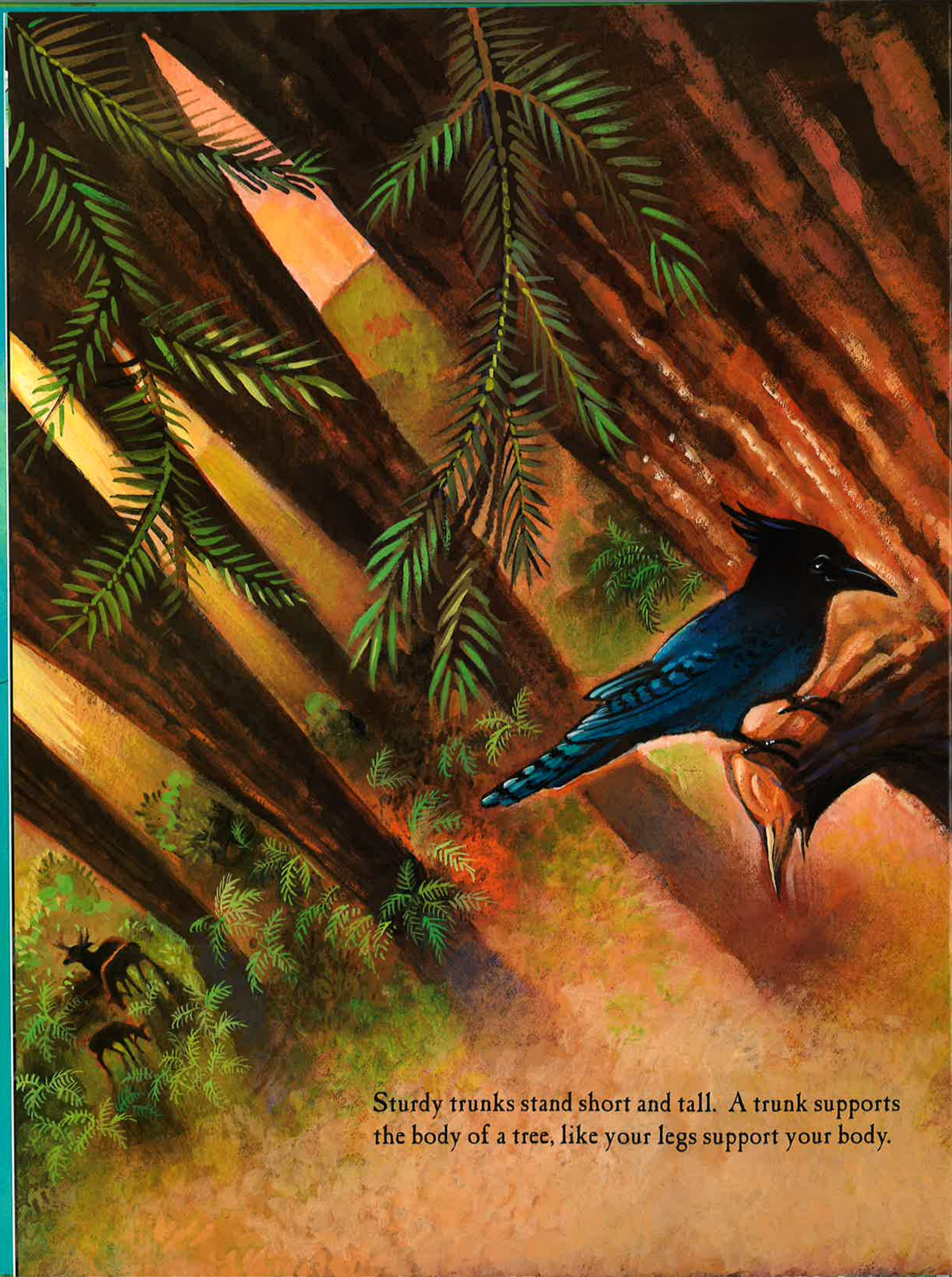
Plant a Tree

Each year more and more trees are cut down. After you read this book, find a good place to plant a tree with your family or class. Give your tree a special name, watch it grow, and see what kind of animals visit it. If you send me a digital picture of your tree, I'll place it in a tree photo album on my Web site. I wonder how many different trees will be planted? How many animals will find a new home? Visit my Web site at www.debbiemilleralaska.com for more information.

To learn more about planting trees in your state visit the National Arbor Day Foundation's Web site at: www.arborday.org




Long roots wiggle through the soil. They gather water and minerals that trees need to grow. Roots anchor a tree, like your feet help you stand.



Sturdy trunks stand short and tall. A trunk supports the body of a tree, like your legs support your body.



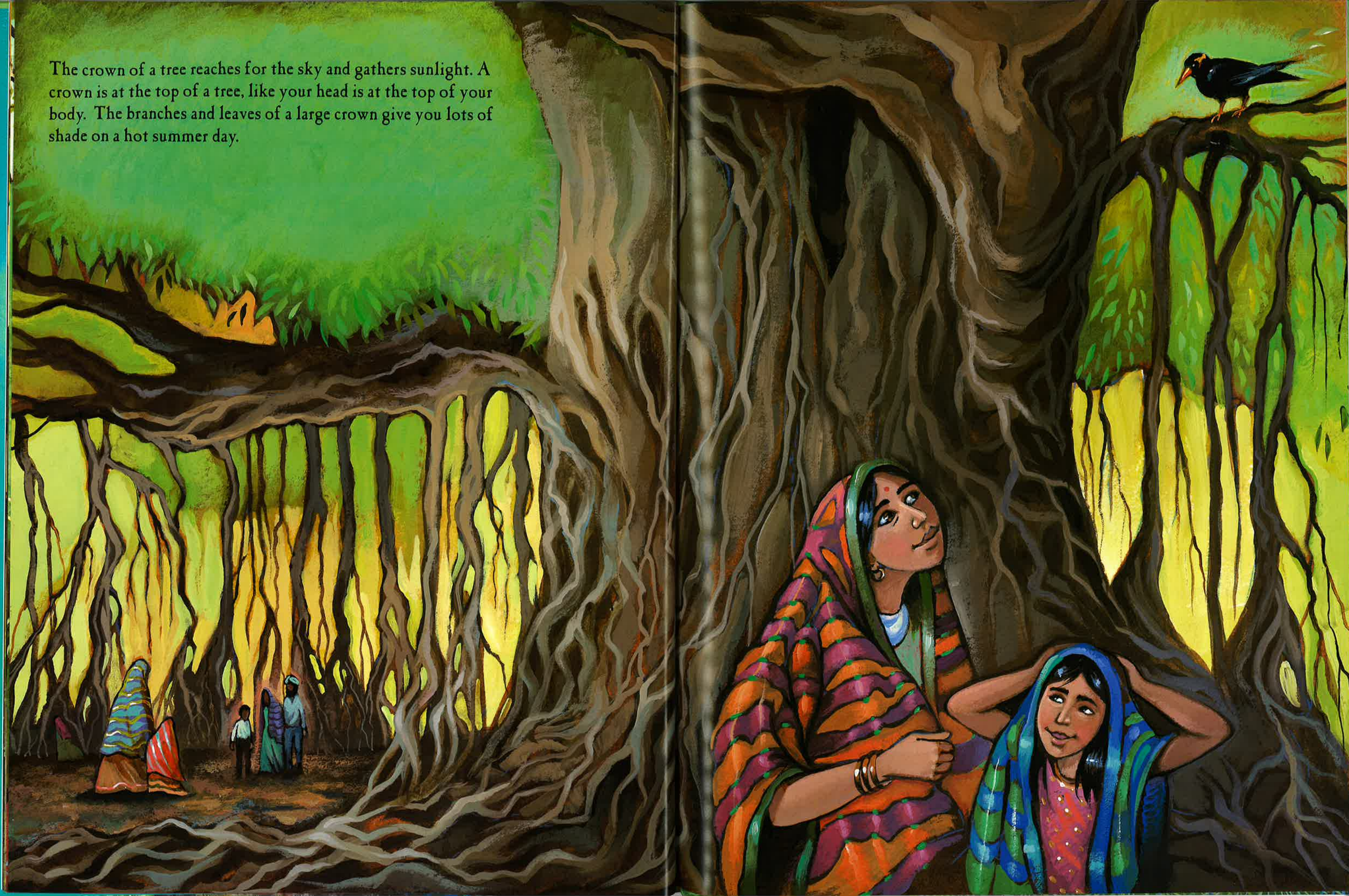


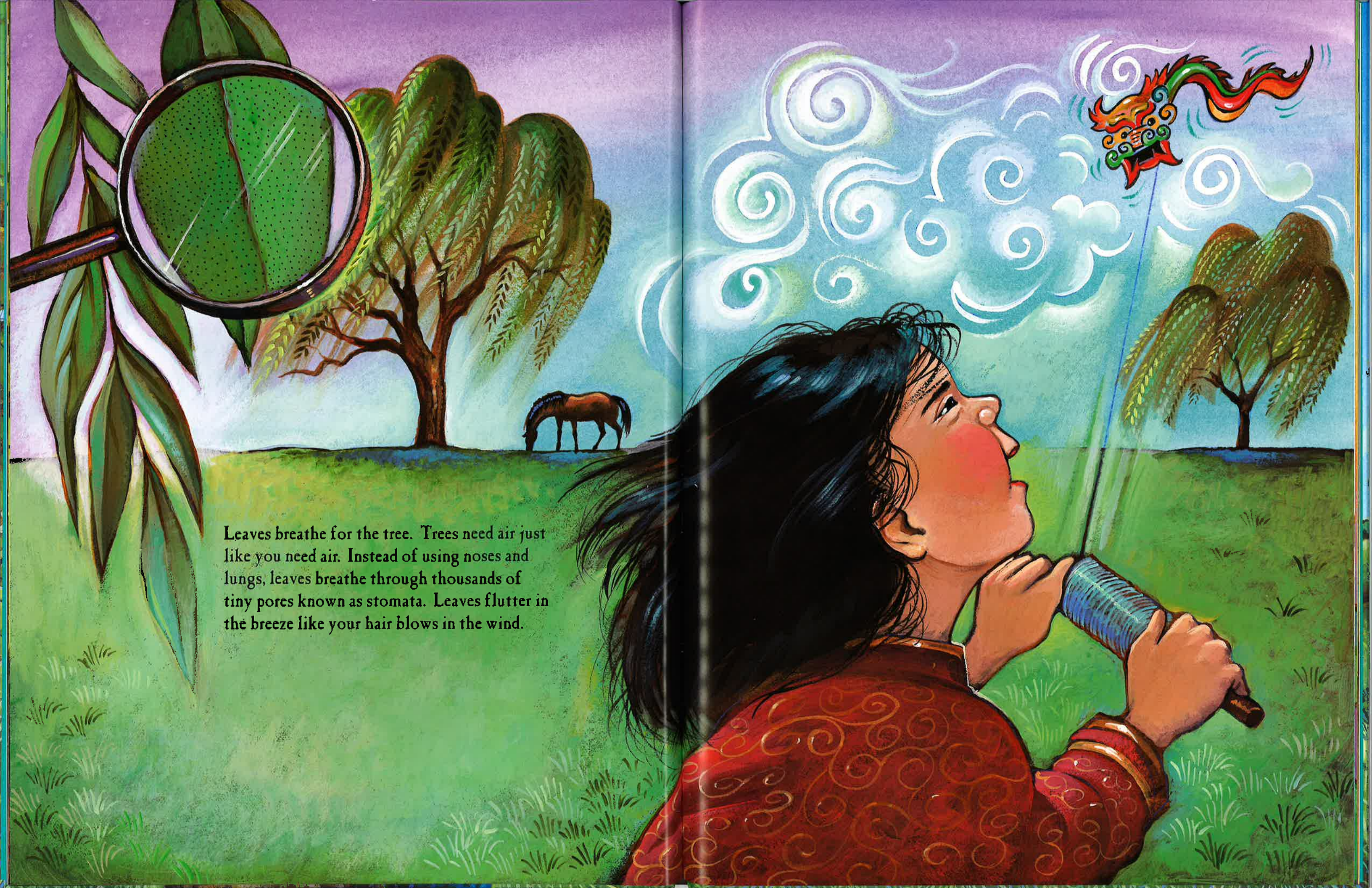
Branches hold animals, the nests of birds, swings, and tree houses. They sway gently in the wind, like a mother's arms rocking a baby.



Bark is dark or light, rough or smooth, thick or thin, just like people's skin. Bark protects the inside of a tree from harsh weather and insects, like your skin protects you.

The crown of a tree reaches for the sky and gathers sunlight. A crown is at the top of a tree, like your head is at the top of your body. The branches and leaves of a large crown give you lots of shade on a hot summer day.





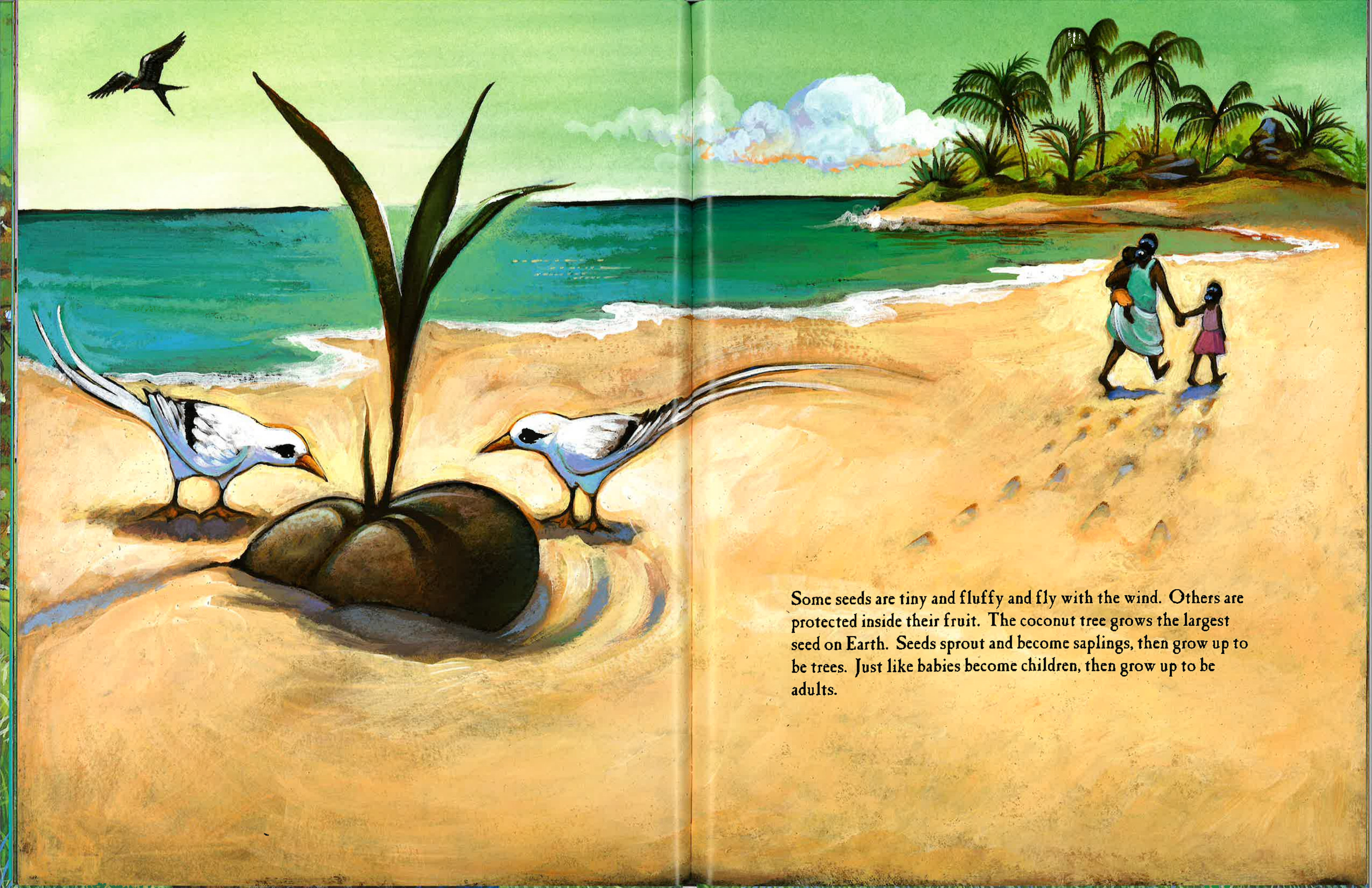
Leaves breathe for the tree. Trees need air just like you need air. Instead of using noses and lungs, leaves breathe through thousands of tiny pores known as stomata. Leaves flutter in the breeze like your hair blows in the wind.

Sticky sap travels through small tubes inside the tree, between the roots and the leaves. Without sap, the tree could not live, just like your body could not live without blood. Look at the veins in a leaf and compare them to the veins in your hand. Some tree sap is harvested by people.

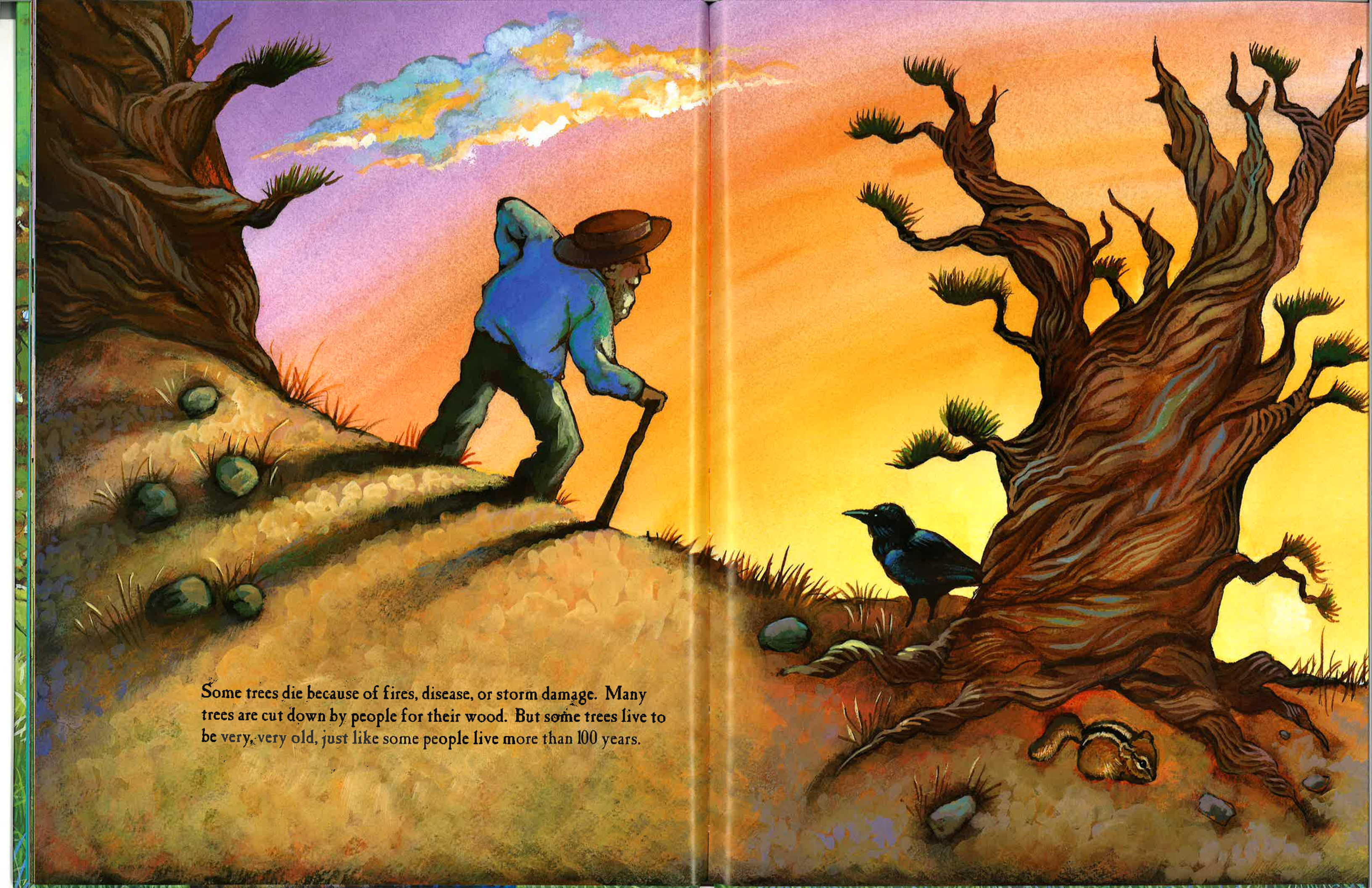


Trees grow flowers of all shapes and sizes, of bright and soft colors. A pretty flower can attract insects and birds, just like your smiling face can attract a new friend. Animals feed on the nectar and pollen of the flowers. They help spread the pollen so that trees can make seeds and grow fruits.






Some seeds are tiny and fluffy and fly with the wind. Others are protected inside their fruit. The coconut tree grows the largest seed on Earth. Seeds sprout and become saplings, then grow up to be trees. Just like babies become children, then grow up to be adults.



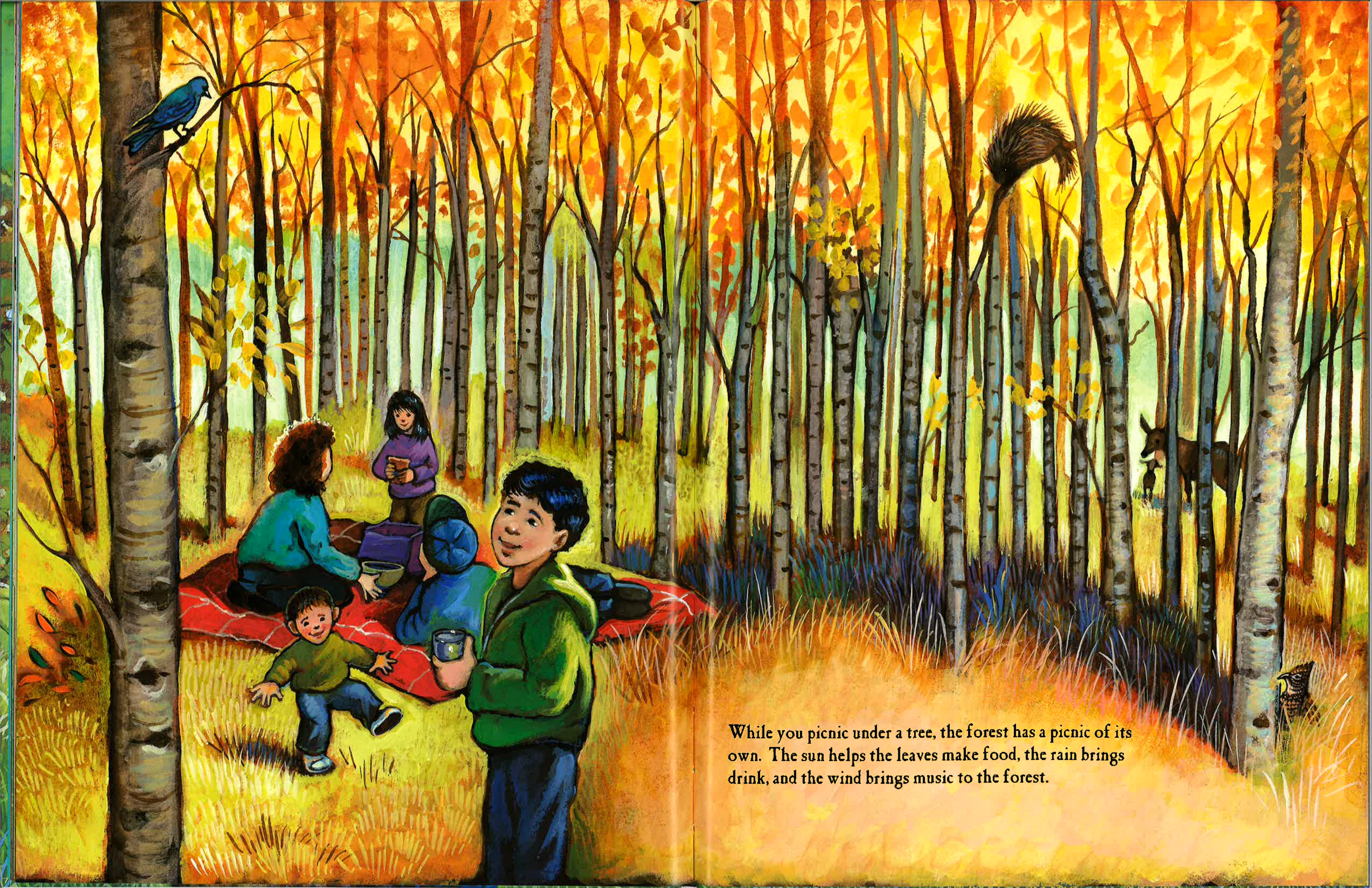
Some trees die because of fires, disease, or storm damage. Many trees are cut down by people for their wood. But some trees live to be very, very old, just like some people live more than 100 years.



During winter some trees have bare limbs and twigs that lace the cold sky. This is the time when many trees rest without their leaves. Trees rest too, just like you.



When spring comes, the trees awaken from their winter's rest. Leaf buds swell on the branches. Cherry trees blossom. With more sunshine the trees burst with new life, just like you burst out the door with your friends to play and celebrate spring.



While you picnic under a tree, the forest has a picnic of its own. The sun helps the leaves make food, the rain brings drink, and the wind brings music to the forest.



Steller's jay



African elephant



baboon

About the Trees

Baobab Tree of Africa *Adansonia digitata*

There are a number of African folktales about the baobab tree, also known as "the upside-down tree." One story describes a hyena that accidentally planted the baobab tree upside down, and this explains why its branches look like twisted roots. During rainy periods, the baobab's shallow roots absorb as much water as possible. The massive trunks have spongy wood that can store as much as 25,000 gallons of water, enough to fill about 625 bathtubs!

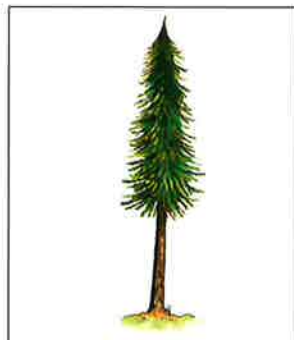
Scattered across Africa's savanna, these trees provide habitat for animals such as yellow-billed hornbills, baboons, and elephants. African people eat the baobab fruit, collect honey from hives within the trunk, make rope from its bark, and use the roots and leaves for medicine.



Coast Redwood Tree of California and Oregon *Sequoia sempervirens*

The majestic coast redwood lives in foggy, moist areas along the coast of California and Oregon. This evergreen grows taller than any other tree in the world—some redwoods reach heights of nearly 370 feet. That's as high as a thirty-seven-story building. The coast redwood is a long-lived tree and can grow for more than 2,000 years.

Redwoods provide shade for ferns and mosses. At dusk, animals such as the endangered spotted owl and black-tailed deer feed in the redwood forest. During the day, listen for the noisy call of the Steller's jay.



Ribbon Gum Tree of Australia *Eucalyptus viminalis*

The ribbon gum, also known as the manna gum, is one of 500 species of eucalyptus trees that grow in Australia. The leaves of the ribbon gum are a favorite food of the koala. Yellow-bellied sugar gliders eat the gummy sap beneath the bark of the trunk and branches. Birds, such as the kookaburra and the roseate cockatoo, can be spotted in the ribbon gum.

The wood of the ribbon gum is used for building, flooring, and paneling.



Paper Birch of North America *Betula papyrifera*

The paper birch has beautiful white bark that grows in paper-thin layers. Native American people had many uses for this water-resistant bark. Northeast tribes used it to make food containers, baskets, wigwam coverings, and canoes. A 17-foot birch bark canoe was light enough to be carried by one person, yet it could hold up to 1,000 pounds.

Today, Alaska's Athabaskan Indians continue to make baskets, bowls, and other items out of birch bark. Many animals depend on Alaska's northern forest, such as hairy woodpeckers and moose, the largest deer in the world. There are many types of birch throughout the Northern Hemisphere.



black-tailed deer



spotted owl



koala



kookaburra



sugar glider



roseate cockatoo



moose



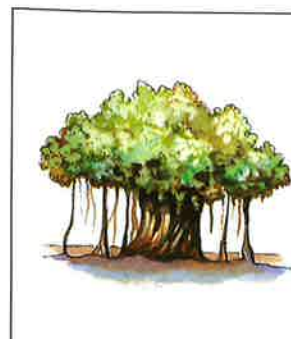
hairy woodpecker



yellow-billed hornbill

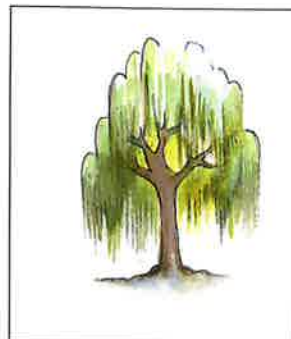


deer mouse



Banyan Tree of India *Ficus benghalensis*

The banyan tree is considered sacred to many people in India. This tree has the biggest crown of any tree in the world. A banyan tree is often located in the center of a village or town. The tree has many spreading branches that send out aerial roots. When the roots reach the ground, they turn into pillars that help support the huge branches. When you walk in the shade of a banyan tree, you feel like you are walking in a forest. A single banyan tree can shade as much as five acres of land, about the size of four football fields.



Weeping Willow of China *Salix babylonica*

The weeping willow has long, thin branches that cascade to the ground. Originating in China and central Asia, the weeping willow is one of the first trees to show green in the spring. Weeping willow leaves are different than those of other trees. Most trees have tiny breathing pores, or stomata, on the underside of their leaves. Willows have stomata on both sides. Each stoma is about the size of a pinprick.

There are about 300 species of willows that grow on Earth. Willows are an important source of food and shelter for many animals. The bark and leaves of willows were used by people in early times to relieve pain. Willows contain salicin, the source of aspirin.



Sugar Maple of Canada *Acer saccharum*

The sugar maple is Canada's national emblem. A red maple leaf appears on the country's flag. Sugar maples are spectacular during autumn when the leaves turn brilliant colors. Maples are tapped for their sugar. One sugar maple might produce as much as 40 gallons of sap. It takes about 35 to 40 gallons of sap to make one gallon of pure maple syrup. As temperatures warm in late winter, the sap begins to run up the sapwood of the tree. This is when people drain some of the sap into buckets.



Cocoa and Kapok Trees of South America *Theobroma cacao* and *Ceiba pentandra*

The cocoa tree, or chocolate tree, produces big fruit pods that each contain as many as 60 seeds. The seeds are roasted and ground into cocoa powder. It takes about 400 seeds to make one pound of pure chocolate!

Kapok trees produce long, leathery fruits with seeds that are contained in thick masses of cottonlike fibers. The fibers, known as kapok, are used to stuff pillows, mattresses, and toys. The kapok tree is one of the tallest trees in the rain forest. At night the white flowers of the kapok tree open, and nocturnal bats feed on the nectar.



red squirrel



blue morpho butterfly



red fox
kit



emerald tree boa



bee



fruit bat