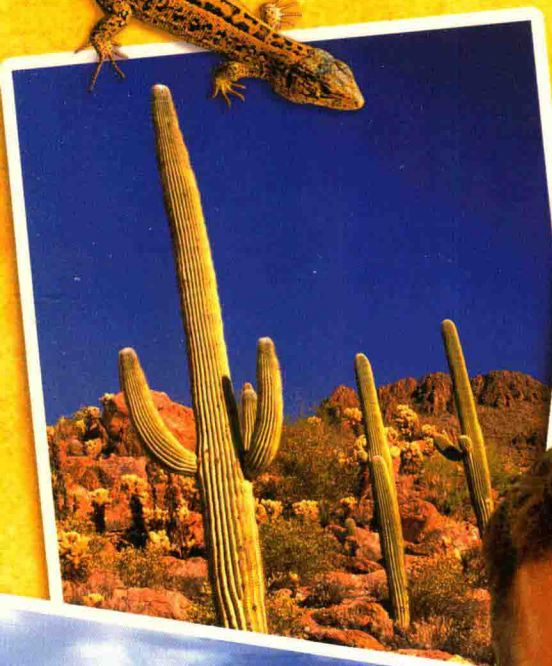




JEFF CORWIN

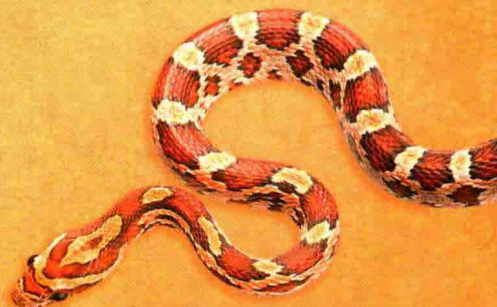
**ANIMALS AND HABITATS OF
THE UNITED STATES**





JEFF CORWIN

ANIMALS
AND HABITATS
OF THE
UNITED STATES



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To Maya, Marina, and Natasha

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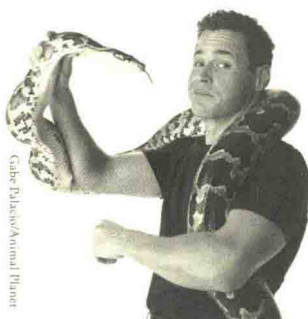
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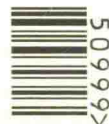
Cable Photo/Animal Planet

JEFF CORWIN has worked for the conservation of endangered species and ecosystems around the globe. He is the host of a variety of popular television shows, including Animal Planet's *Jeff Corwin Experience*, *Corwin's Quest*, *Spring Watch*, and *King of the Jungle*; Disney's *Going Wild with Jeff Corwin*; *Investigation Earth* with the Discovery Networks; NBC's *Jeff Corwin Unleashed*, which was nominated four times for an Emmy and won an Emmy for Outstanding Host; and the Travel Channel's *Into Alaska* and *Into the American West*. His popular television series are seen in 120 countries worldwide. He also cocreated and cohosted CNN's *Planet in Peril* with Anderson Cooper in 2007. *Men's Journal* recognized Jeff as the world's greatest host of a natural history series. In the fall of 2008, Jeff Corwin was named Ambassador of Climate Change for one of the nation's leading conservation organizations, Defenders of Wildlife.

A native of Massachusetts, Jeff has established an interactive museum and environmental education center called EcoZone. Based in Norwell, Massachusetts, EcoZone strives to build awareness for the wildlife and ecology unique to the wetlands of southeastern Massachusetts. When not traveling the world, Jeff can be found at his home off the coast of Massachusetts, where he lives with his wife and two daughters.

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INTRODUCTION

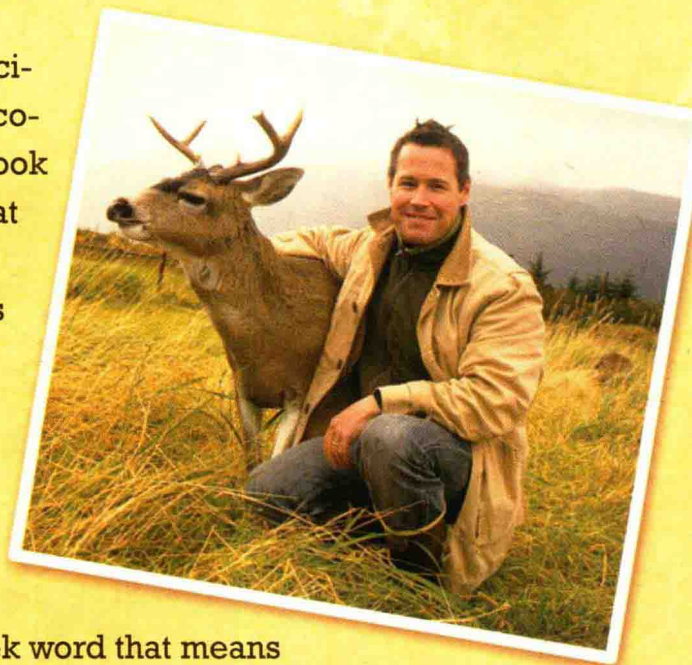
WHAT IS AN ECOSYSTEM?

Welcome to the fascinating world of ecosystems! In this book we'll take a look at four of my favorite ecosystems on Earth. They're as different as night from day, or as a desert from an underwater forest. But in each one, you'll see how living and nonliving things connect as they all struggle to survive.

Eco comes from an old Greek word that means "house" or "household." *System*—well, you know what system means. Something with many parts. Something in which all the parts work together.

A house where all the parts work together?

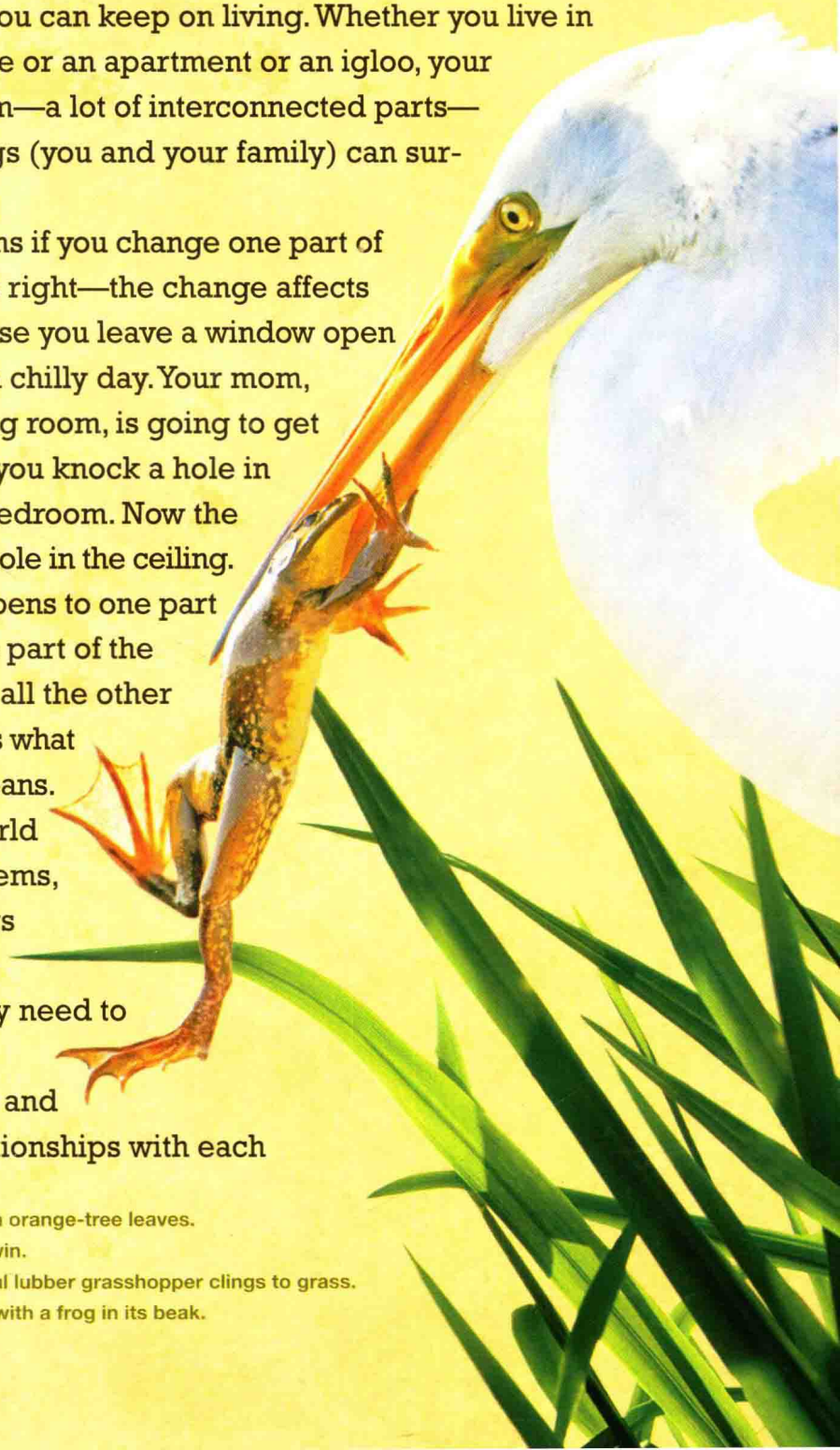
Sure. A house or a home is a place where someone, or something, lives. Think of your home—and all that it has inside it—shelter from the cold and wind and rain, food to eat, a family to take care of you. Your home holds the stuff



you need so that you can keep on living. Whether you live in a three-story house or an apartment or an igloo, your house has a system—a lot of interconnected parts—so that living things (you and your family) can survive there.

So what happens if you change one part of your house? That's right—the change affects everything. Suppose you leave a window open in the kitchen on a chilly day. Your mom, sitting in the dining room, is going to get cold. Or suppose you knock a hole in the floor of your bedroom. Now the living room has a hole in the ceiling. Anything that happens to one part of the house—one part of the system—changes all the other parts as well. That's what being a system means.

The natural world has many ecosystems, where living things find homes filled with whatever they need to survive. Within an ecosystem, plants and animals form relationships with each



Opposite top: A ladybug on orange-tree leaves.

Opposite middle: Jeff Corwin.

Opposite bottom: A colorful lubber grasshopper clings to grass.

Right: A great white egret with a frog in its beak.



other. A small fish eats seaweed; a bigger fish eats the smaller fish. And they form relationships with the nonliving things around them, too, like the sunlight that gives the seaweed energy to grow. All these relationships together make up an ecosystem.

You can find ecosystems wherever you go. That oak tree in your front yard? It's an ecosystem. Sunlight shines on the tree's leaves. The tree converts that sunlight into energy. Part of that energy gets stored in the form of acorns. Squirrels come along and eat those acorns. Beetles burrow beneath the tree's bark. Birds make those beetles a tasty snack. They build their nests in the tree to keep their eggs and hatchlings safe from predators. But a raccoon climbs the tree and makes a meal out of one of those precious eggs. And so on. You'd be amazed at the amount of life that can find a home in a simple ecosystem like a tree.

A tide pool in the ocean is an ecosystem, too, even one no bigger than a puddle. Sun shines on the pool, and the seaweed soaks up its energy, changing it into food in a process called **photosynthesis**. Snails graze on the seaweed. As they eat, the energy that the seaweed captured from the sun passes into the snail. A wave slops into the pool, bringing fresh nutrients—delicious plankton and bits of rotting seaweed.





Opposite top: A striped bass.

Opposite bottom: A raccoon.

Below: A crab.

Barnacles sweep this food in with their feathery legs. A crab darts out from a sheltering rock. A sea star stalks a mussel clinging to the same rock. This tiny puddle on the edge of the sea is full of living things doing what living things do—mostly trying to eat and not get eaten. If they succeed at both, they'll survive.

But ecosystems don't have to be small. Consider a pond. Or an ocean. Or a forest. Or a mountain. Each of these is an ecosystem, providing living things with what they need for survival.

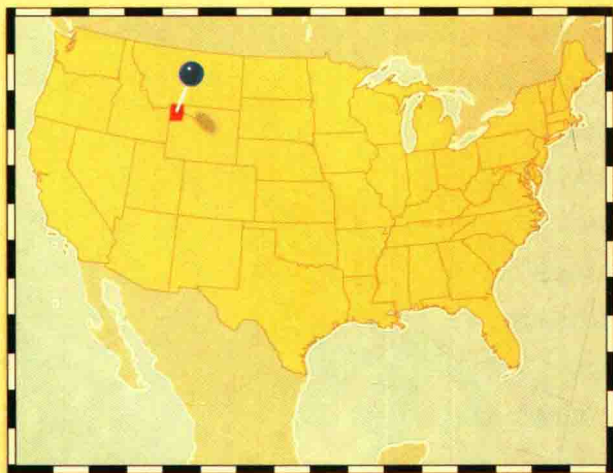


YELLOWSTONE

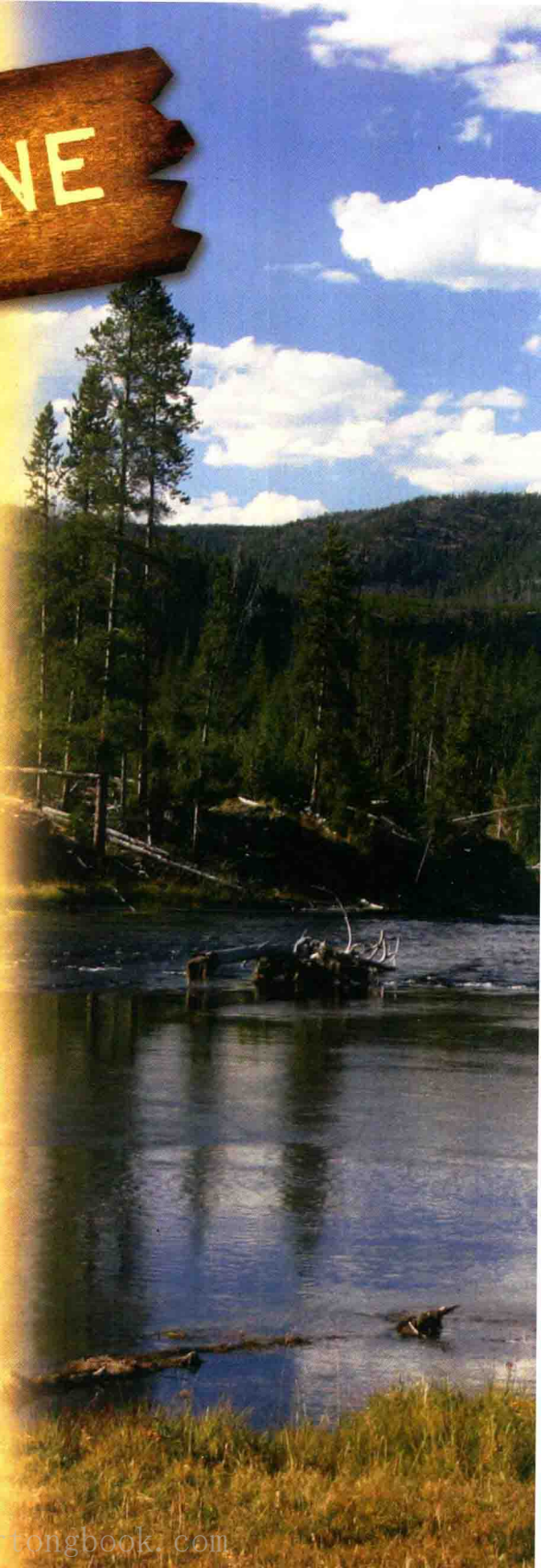


Imagine a place where mud boils and stinks like rotten eggs. Where wolf packs howl and bald eagles swoop down to catch cutthroat trout. Where steam bursts from the ground and trees have turned to stone.

That's Yellowstone National Park. The park covers about 2.2 million acres, mostly in Wyoming, overlapping a little into Idaho and Montana. It was the first national park in the world, created in 1872 by President



Right: A bull elk walking along a river in Yellowstone National Park.





Ulysses S. Grant to be “a public park or pleasuring ground for the benefit and enjoyment of the people.” Nestled in the eastern edge of the Rocky Mountains, Yellowstone has peaks and plains, forests of lodgepole pine trees and meadows of wildflowers, rivers and lakes, and some of the coolest animals around—elk, wolves, bison, bears, bald eagles, and mountain lions, to name a few.

And as most people know, Yellowstone also has geysers. In fact, Yellowstone has two-thirds of the geysers on the entire planet—more than the rest of the world put together! It has boiling mud pots and steaming hot springs, too. All of Yellowstone’s **geothermic** wonders happen because it’s a place where the crust of rock and dirt that makes up the surface of the planet is thin—in places it’s only about three miles deep. Underneath that crust is a layer of hot liquid rock called **magma**.

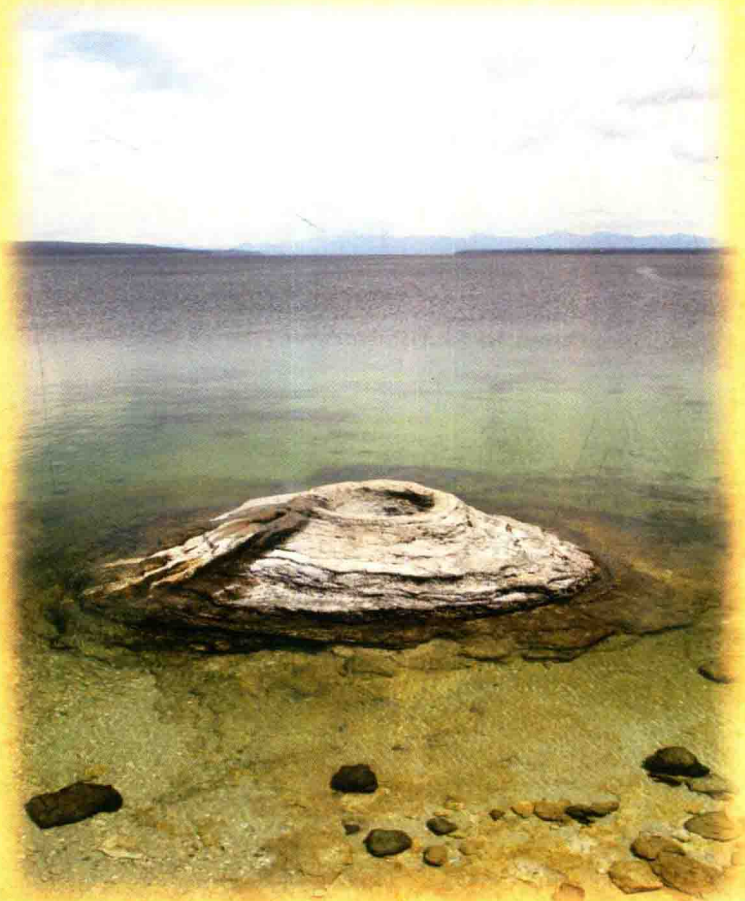
That thin crust of earth and the boiling magma not far underneath mean that Yellowstone is actually a giant volcano, so big it’s called a super volcano. It’s one of the most geologically active places on the planet—which means that cool stuff happens when that magma under the ground finds ways to the surface.

In the past, the volcano that is Yellowstone erupted more than once. Lava (which is what magma



A portion of a petrified tree trunk.

is called once it’s no longer underground) and hot ash spewed into the air to rain down on nearby trees, sometimes burying forests fifteen feet deep. These trees then died, but they didn’t fall over. The ash held them upright. Slowly the trees rotted away, and minerals in the ash took their place.



A geyser in Yellowstone Lake.

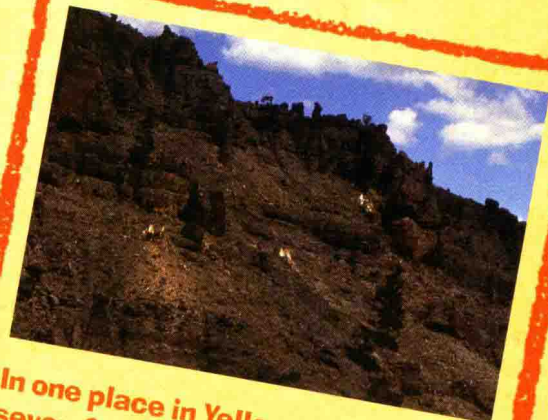


Mammoth Hot Springs in Yellowstone National Park.

The trees became petrified, meaning they turned to stone.

And then a new forest grew on top of the old one—and it happened again. And again.

The most recent huge eruption happened 630,000 years ago. A massive volcano in the center of what's now the park erupted in an explosion a thousand times more powerful than Mount St. Helens in 1980. The volcano's peak collapsed, creating a crater, or **caldera**, that became the Central Plateau and that is now the location of Yellowstone Lake. From several spots inside the park, you can see the curving line of mountains that mark the edge of this ancient caldera.



In one place in Yellowstone, twenty-seven forests grew in layers, one on top of the other, each one buried in ash as volcanoes erupted time and time again.

FASCINATING FACT



Lava flowed and cooled, creating rock formations that cracked and shifted from the heat of the magma still trapped below the earth.

One day, volcanoes could erupt in Yellowstone once more. But the lake of magma under the thin crust of earth is better known for making **geysers**—bursts of hot water and steam that explode from holes in the ground.

This is how a geyser happens.

Rain falls and soaks into the ground. It trickles and drips down until it reaches a layer of rock just above the pool of magma. Here's the thing about magma—it's hot. So rocks right above it are hot, too, hot enough to turn some of that water into steam and send it rising back up toward the surface. Then a couple of things can happen.

If the water gets blocked, it builds up more and more pressure until it can burst loose in a plume of water and steam called a geyser. You've probably heard of the most popular geyser in Yellowstone—Old Faithful. It goes off “faithfully” approximately



Above: Old Faithful geyser erupting at sunset.

Below: A geyser in Yellowstone Lake.

Opposite: Yellowstone's Beehive geyser erupting.

ASCINATING FACT

One geyser in Yellowstone is named Radiator geyser. It first burst out of the ground in a parking lot, right under a parked car. People thought the car's radiator was boiling over.



Fascinating Fact: Algae and other creatures that can live in very hot temperatures are called thermophiles—which means “heat loving.”

every seventy minutes. It needs that time to build up enough pressure for the hot water and steam to be forced up to the surface.

In other places around Yellowstone, water that's heated by the magma underground doesn't get blocked on its way to the surface. Then it bubbles out of the ground in a hot spring. If that spring doesn't get enough water, it becomes a mud pot—a puddle of boiling goop. Some of the hot springs in Yellowstone smell of sulfur—a stench like rotten eggs—because of minerals and bacteria that the water picks up while deep underground.

You wouldn't think that anything as hot, and smelly, and just plain weird as a hot spring could be an ecosystem. But living things can survive in the strangest of places. You won't find fish or frogs or water lilies in Yellowstone's hot springs. But algae thrives. In fact, you can tell the temperature of a hot spring just by looking at its algae. If the pool is green, it's at a temperature of 120 degrees Fahrenheit or less—it's full of an algae that

doesn't grow if the water gets any hotter. Orange algae means the water is about 145 degrees, yellow means it might be up to 160 degrees, and a clear blue pool means it's too hot for algae to grow there at all.

The geysers and hot springs and petrified forests were what first got people interested in protecting Yellowstone as a national park. But there is a lot more to this ecosystem than boiling mud pots and colorful algae. Yellowstone was also home to some fascinating animals. And soon people realized that these animals needed protection, too.

Here's the thing—those animals didn't live in a park. (They still don't.) They live in an ecosystem, and that ecosystem stretches far beyond the boundaries of Yellowstone National Park. It's called the Greater Yellowstone Ecosystem, and it stretches far

Right: Water falling on sulfur steps of Mammoth Hot Springs in Yellowstone National Park.

Top, far right: A geyser in Yellowstone National Park in the Old Faithful area.

Middle, far right: A geothermal area in Yellowstone National Park boils and bubbles, occasionally spitting out water and steam.

Bottom, far right: A stream of hot water colored by bacteria and algae formations.

