

## Vexing Vampires

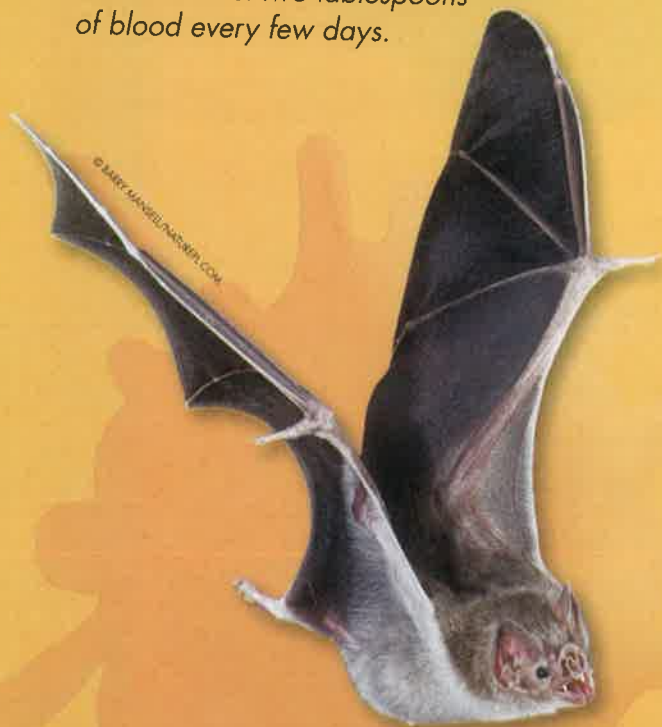
People in the steamy tropics of Central America and South America are familiar with vampires. It's not the Dracula type of vampire, but the bat type. Vampire bats are small, no bigger than a mouse. Don't let their small size fool you, though. A vampire bat's teeth are razor sharp.

The bat uses its teeth to clip away a bit of an animal's hair or fur. That leaves a small patch of skin. The bat then makes a tiny cut in the skin, about the size of a pinprick. The wound bleeds one small drop of blood at a time. With its tongue, the bat laps up about two tablespoons of blood during a feeding. Through all of this, its victim usually sleeps and never feels a thing!

Eating blood may seem like an odd way to survive. Yet vampire bats aren't the only animals that are into **hematophagy**. That means feeding on blood.

While this eating habit may seem gross or downright dangerous, blood is rich in nutrition and easy to find. That's why hematophagy is a way of life for many creatures. Blood feeders live just about everywhere—even near you!

**Hungry Bat.** *A vampire bat hunts only in full darkness. It needs about two tablespoons of blood every few days.*



## Lurking Leeches

While vampire bats live only in the tropics, leeches live all over the world. Freshwater leeches are worm-like animals with a big mouth. Well, two mouths, actually—one at each end of its body. Each mouth is a powerful sucker that attaches the leech to its prey. Fish and reptiles are their usual prey, but a human works fine, too.

The leech uses its sharp teeth or needle-like **proboscis** to pierce skin before it sucks the blood. At one feeding, a leech draws out several times its own weight in blood. Once it is full, the leech drops off.

A leech bloated with blood is not a pretty sight. In fact, it's pretty gross. But they're not all bad news. Just ask your doctor. Doctors sometimes put some kinds of live leeches on a patient's skin to stop swelling.

Also, leeches make a chemical that stops blood from clotting. Scientists are finding ways to use this chemical to treat heart disease. So you see, a leech may be a lot of mouth, but it isn't all bad.

## Bothersome Bugs

Some bloodsuckers, such as mites and bedbugs, can be found in people's homes—ugh. Mites can hide anywhere in the house because they are so small. Most of them are too tiny to see with your eyes.

Though not all mites are bloodsuckers, most are. The good news is that only a few mites bite humans. Most prefer small animals or insects. Still, blood-sucking mites sometimes enter a house on an insect or pet. Their bite isn't dangerous, but it can cause an itchy rash.

Bedbugs prefer warm, cozy places near their prey. Spaces near mattresses make an especially good home for bedbugs. When they come out at night to feed, a sleeping body is right there.

Bedbugs are about as big as apple seeds, but expand as they drink several times their weight in blood. Their bites leave itchy bumps on the skin, but they do not carry disease. Even so, no one wants to share a bed with a bug!

## Tag-Along Ticks

Hikers cannot say enough bad things about ticks! Ticks are **arthropods**, like spiders and scorpions. Ticks thrive in wooded areas, clinging to the bottom of plant leaves or blades of tall grass. Ticks cannot jump or fly. They can only crawl—and wait.

A tick waits for days, even years, for a **host**. When an animal or person brushes past, the tick grabs on and goes to work. It burrows its small head under the skin to feed. A tick takes several days to drink its fill. The host may not even know the bug is there.

A tick bite can be dangerous. Ticks may carry diseases that they pass on to their hosts. So take care! When you go hiking, try not to brush against tall grass or bushes. Wear white socks over your pants, because ticks are easy to spot on white. Check your clothes for these unwanted hitchhikers after a hike. You don't want to bring a tick home!



**Good News.** *A few bloodsuckers are helpful. Doctors sometimes use leeches to stop swelling.*

**Biting Bug.** *A tiny bedbug can be a big pain. Its bite causes an itchy bump.*





## Mama Mosquito

If you live near water, you know about mosquitoes. Did you know that mosquitoes actually feed on fruit and nectar? Most of the time, they glide from flower to tree, just as harmless as butterflies.

Once the female has mated, watch out! *Buzz-z-z-z-z*. She turns into an attack missile, out for blood. Not for herself, but for her growing eggs. Blood has valuable protein that her eggs need.

A mosquito's proboscis has six fine needles. Some are sharp and used to pierce skin. Others have edges like saw blades. They make the cut bigger. The mosquito sucks the blood up a long tube through her proboscis. Through a second tube, she spits saliva. The saliva has a chemical that keeps the wound from closing.

## Dangerous Bite

You can protect yourself from mosquitoes. Get rid of standing water in your yard. Wear long clothing when you are outside at sunrise or sunset. That's when mosquitoes are active. When you hear *buzz-z-z-z-z*, take aim and slap!

For Americans, mosquitoes are mainly a nuisance. They used to be much worse. You see, mosquitoes can carry disease from person to person. Mosquito-borne diseases include malaria and West Nile virus. Not long ago, malaria was the number-one killer in the United States. Today, though, Americans rarely get malaria.

In Africa and other places, however, malaria remains a huge problem. It kills at least a million of people each year. Health workers are struggling to fight this dread disease.



**Unwanted Visitor.** An oxpecker nibbles blood from wounds on its prey, such as the zebra here.



**Dangerous Diner.** The bite of certain mosquitoes is more than just annoying. It can also carry disease.

## And There Are More . . .

It's impossible to describe all blood feeders. There are too many. About 14,000 kinds of arthropods are blood feeders, including fleas and some moths. Even some birds, such as the oxpecker and vampire finch, feed on blood.

Don't get creeped out, though. Just use your common sense outdoors. You'll keep your body safe from creatures that are out for blood!

### Wordwise

**arthropod:** animal without a backbone that usually has many legs

**hematophagy:** feeding on blood

**host:** plant or animal that another plant or animal lives on

**proboscis:** long, tube-like body part



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## The Menace of Malaria

You may think a mosquito is just a pest. It buzzes. It bites. The bite stings and itches. That's it—nothing too bad. But sometimes, a mosquito bite may do more than sting. It may carry serious diseases. One of these diseases is malaria.

Worldwide, malaria has been the top killer in history. Most of the deaths are in Africa. A child dies of malaria in Africa every 30 seconds. Other children become too sick to go to school. Medicines can help, but many people can't afford them.

Recently, people have been working to end malaria in Africa. They hand out medicine and other simple things. One group is called Malaria No More (MNM). It gives out a basic yet lifesaving item: bed nets. The nets have a chemical on them to keep mosquitoes away at night.

A bed net may seem like a little thing. It isn't. One net can keep a mother and child safe for five years. These simple nets cost only ten dollars.

Last year, MNM gave 110,000 bed nets to people in Madagascar. One man told an MNM worker he had malaria many times. But thanks to the bed nets, his sons have never had the disease.

So far, MNM has given out nets to protect over three million people in Africa. It takes many donors and lots of caring people to make a difference.



# A Trail to Sail

Four hundred years ago, Captain John Smith made history by exploring the Chesapeake Bay. Now a new national trail allows you to retrace his adventures.

By Lana Costantini

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**I**t is no surprise that Native Americans chose to live along the shores of the Chesapeake Bay. Flowing in Maryland and Virginia, the bay is alive with wildlife. Underwater meadows of sea grass provide homes for tiny shrimps and giant fish called sturgeons. The waters teem with blue crabs, oysters, and clams. Deer, gray foxes, and minks live in forests along its riverbanks.

All those animals meant that Native Americans had plenty of food. Lush forests also provided wood for houses and cooking. So the population grew. About 100,000 Native Americans lived near the bay 400 years ago. The tribes' names were Powhatan, Piscataway, and Nanticote. Their villages dotted the land all around the Chesapeake.

You've probably heard of one of those Native Americans. Her name was Pocahontas. She was the daughter of a powerful chief. Her world changed forever in 1607.

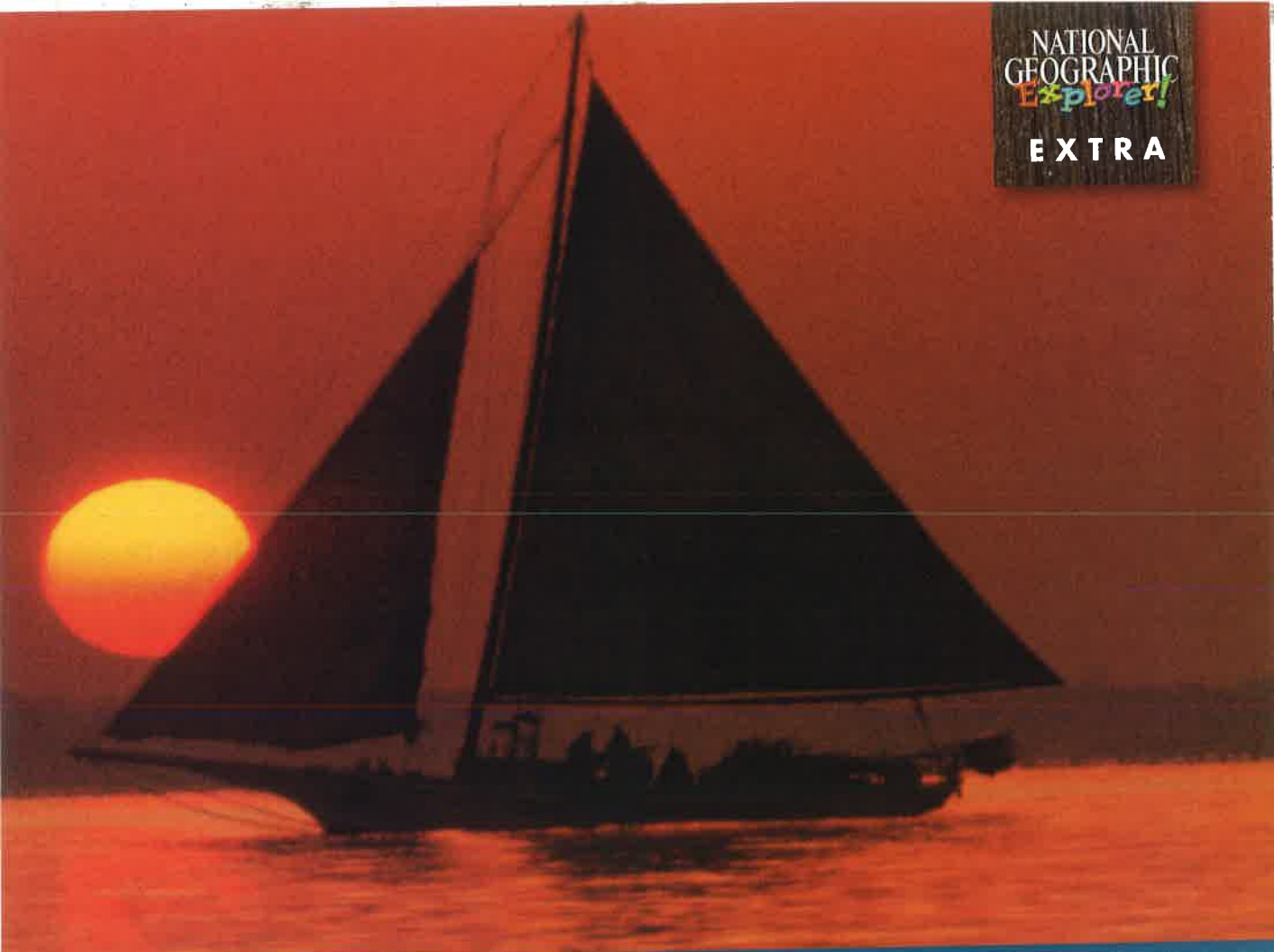
## Exploring the Chesapeake

That's the year an explorer named John Smith crossed the Atlantic Ocean. He sailed in a creaky English ship. In spring 1607, Smith helped build an English settlement at Jamestown, Virginia. It was the first successful English settlement in North America.

Smith was the first European to explore the Chesapeake. He led his crew on several major trips. Altogether, they traveled more than 4,800 kilometers (3,000 miles). They faced hunger, heat, storms, and mosquitoes. Now and then, Native Americans attacked them.

Early in his travels, Smith was captured by the Powhatan people. He refused to accept their chief as his ruler. So the chief ordered Smith killed. Then the chief's favorite daughter, Pocahontas, got involved. She begged her father to let John Smith live. The chief agreed and later set Smith free.





## Mapping the Journey

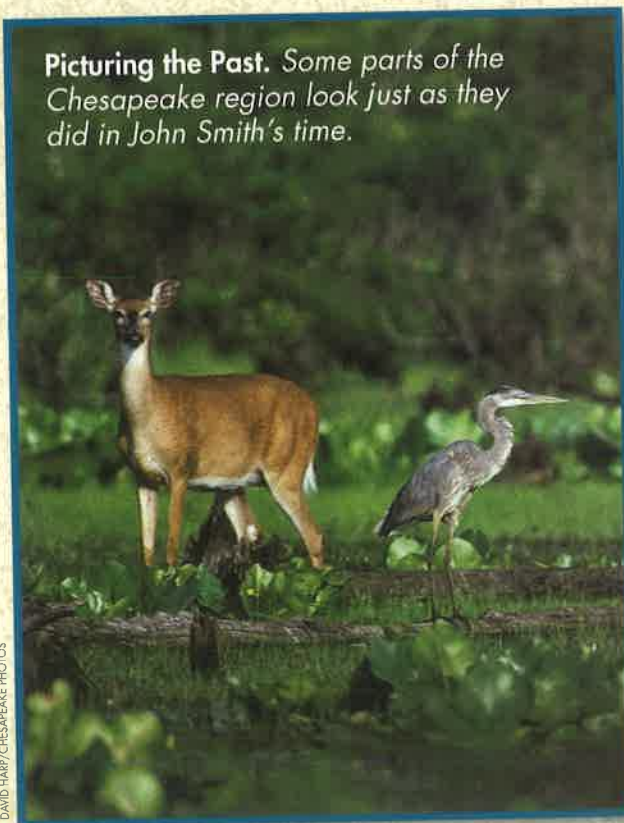
Smith's brush with death didn't keep him from exploring. He and his men went searching for gold and silver. They also tried to find the Northwest Passage. That, Europeans thought, was a way to sail across America to Asia.

Instead, Smith found a different treasure. It was "a very goodly bay" surrounded by a "fruitful and delightful land."

Smith took careful notes about the land and water. He made sketches of what he saw and a map of the region. Throughout the 1600s, English settlers used Smith's map. It helped them explore the bay and decide where to live.

Smith's map of the bay has become a historical treasure. It is surprisingly accurate. Modern geographers can easily recognize the rivers and shorelines. The map also provides a valuable picture of Native American life. It marks the locations of dozens of villages.

**Picturing the Past.** Some parts of the Chesapeake region look just as they did in John Smith's time.



© DAVID HARP/CHESAPEAKE PHOTOS



## The "Goodly Bay" Today

The Chesapeake region has drawn many more people since Smith's day. Today, about 16 million people live near the bay. Large cities stand along many of its waterways.

Over the years, chemicals from farms and factories have polluted some of the rivers that flow into the bay. Laws such as the Clean Water Act have started to reverse some of the damage. Despite its problems, the bay is still home to 348 kinds of fish and 173 types of shellfish.

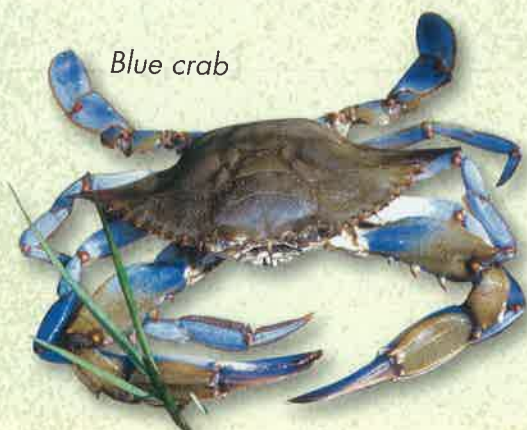
Exploring the Chesapeake the way John Smith did may seem impossible. Yet it's really easier than you may think. The reason is a new nature trail that is the first of its kind.

## Sailing the Trail

In 2006, the U.S. government created America's first national water trail. It is the Captain John Smith Chesapeake National Historic Trail. The new trail follows the same path as John Smith's historic journeys.

The trail starts in Jamestown, Virginia. That's where Smith began exploring 400 years ago. The trail traces the routes he took up the James and York Rivers in 1607. It also follows his trips around the Chesapeake Bay in 1608. Along the way, visitors learn about the plants and animals of the Chesapeake and the people who settled along its shores.

The best way to experience the trail is by canoe or kayak. You can also drive to some of the places Smith explored on land. In this modern age, you can even begin exploring without ever leaving home!



Blue crab

© DAVID HARP/CHESAPEAKE PHOTOS

## High-Tech Tour Guides

On the John Smith trail, visitors will find "smart buoys." These high-tech tour guides can help you get the most out of your journey. The buoys float at three points along the water trail.

The buoys have recorded messages that give facts about the history and geography of the Chesapeake Bay. The buoys also send out up-to-the-minute facts about weather and water quality. Boaters and people planning a trip can get the information by calling a toll-free number or logging onto the Internet.

John Smith never found much gold. People following the Captain John Smith Chesapeake National Historic Trail probably won't find gold either. Yet they'll find the real treasures Smith found: natural beauty and abundant wildlife. Or, in Smith's own words, "a very goodly bay" worth exploring, enjoying, and protecting.

*You can visit the Chesapeake Bay buoys and learn more about the bay at [buoybay.org](http://buoybay.org).*

## Happy Anniversary!

What's the best way to see America's natural beauty? Try walking, biking, and running its trails. Exactly 40 years ago, in October 1968, Congress passed the National Trail Systems Act. Its purpose was to create beautiful and historic trails for Americans to enjoy and learn from.

Today, national trails cover 80,000 kilometers (50,000 miles) in every part of the United States. They include the famous Appalachian Trail and the Pacific Crest Trail, which stretches all the way from Canada to Mexico.

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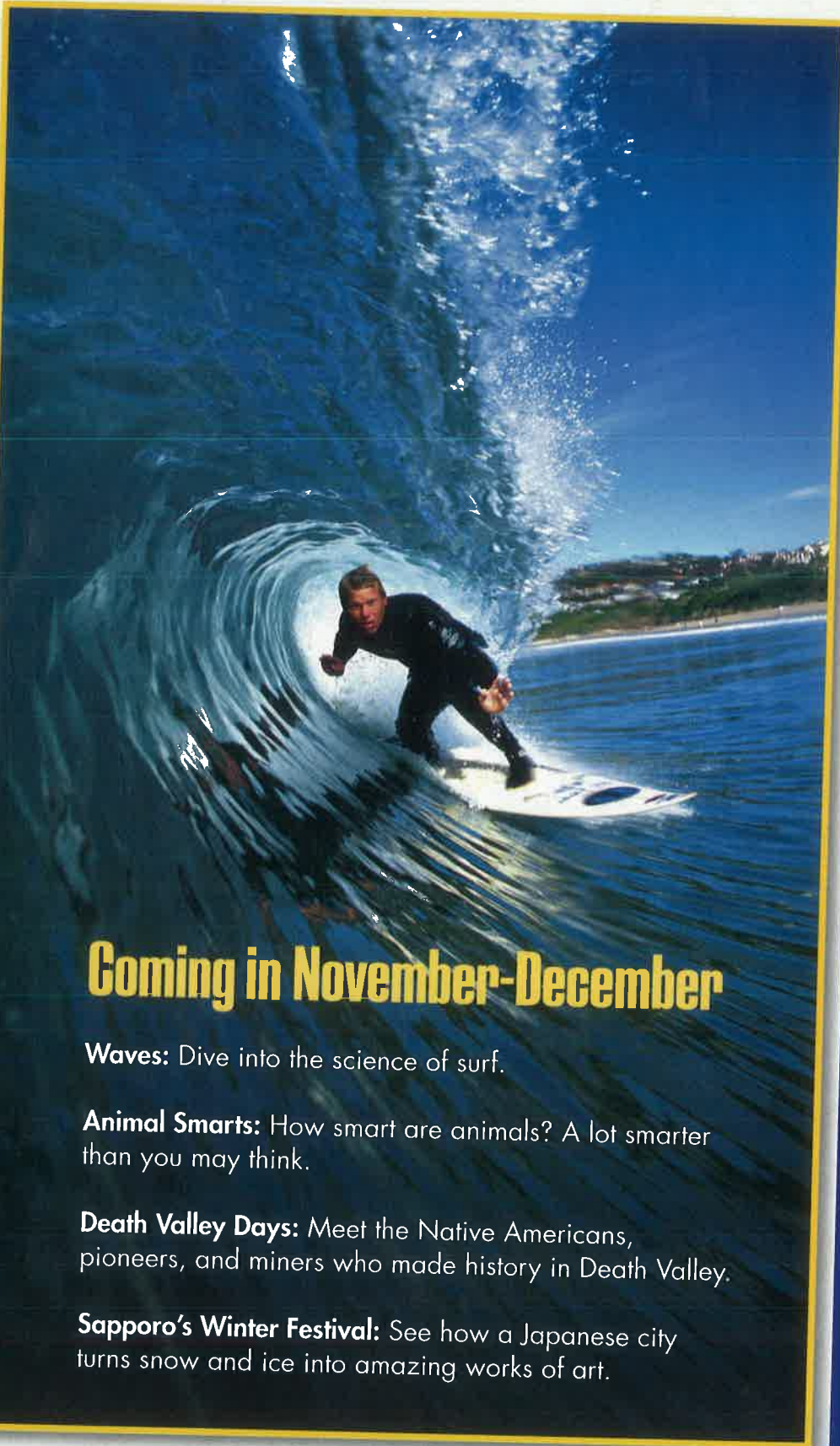


# John Smith's Journeys

See where John Smith traveled in 1607 (blue) and 1608 (purple and green).







## Coming in November-December

**Waves:** Dive into the science of surf.

**Animal Smarts:** How smart are animals? A lot smarter than you may think.

**Death Valley Days:** Meet the Native Americans, pioneers, and miners who made history in Death Valley.

**Sapporo's Winter Festival:** See how a Japanese city turns snow and ice into amazing works of art.

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**Cover:** Gray wolf in evergreens

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