

AMERICAN

SPRING/SUMMER 2014

FORESTS

Flight to Plight

JOIN US AS WE EMBARK ON A JOURNEY TO MEXICO TO WITNESS THE IMPERILED MIGRATION OF THE MONARCHS ON OUR FIRST FORESTSCAPE.

Join us and experience

HAWAII' WILD

**AN EXCLUSIVE TRIP
HOSTED BY
AMERICAN FORESTS**

Wednesday, October 22, 2014 - Tuesday, October 28, 2014

Come with American Forests as we explore some rarely seen wild sides of Hawai'i.

- ✿ Enjoy a private insider's visit to Hawai'i Volcanoes National Park.
- ✿ Tour a wildlife research facility dedicated to preserving Hawai'i's native birds.
- ✿ See two successful forest restoration projects.
- ✿ Learn about the non-native and invasive animal and plant species on the island.
- ✿ Help replant a native koa forest and hike through lush tropical rainforests.

All while staying in some of the world's best and most luxurious accommodations, the Volcano House at Volcanoes National Park with a view of Halema'uma'u crater and the world-renowned Four Seasons Resort Hualalai at Historic Ka'upulehu.

For more information or to RSVP for this exclusive trip, visit www.americanforests.org/hawaii2014 or email or call Matthew Boyer at mboyer@americanforests.org/202-370-4513.





Departments

2 Offshoots

A word from our president & CEO

4 Ask a Consulting Arborist

Your tree care questions answered

6 Treelines

Saving salamanders and pushing for policy, here's what we've been up to in the field and on the Hill. Plus,

FOREST FRONTIERS: American Forests is pleased to introduce biogeochemist Dr. Jennifer Jenkins, new member of the American Forests Science Advisory Board.

PARTNERS: We team up with Laser Technology, Inc. to bring you a three-part webinar series on tree measurement.

FROM THE FIELD: From planning our October Forestscape in Hawai'i to helping people find that perfect gift, there's never a dull moment.

40 Smokey Turns 70

By Kathiann M. Kowalski

This is not your parents' Smokey Bear. He's changed, and so has fire management.

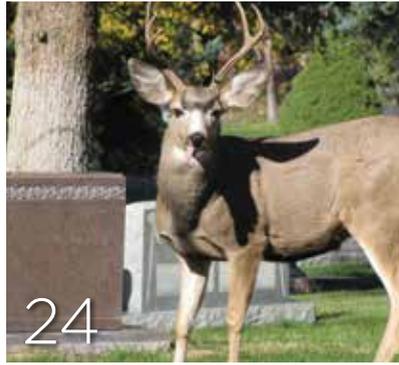
46 Earthkeepers

TREEHAB: THE HEALING POWER OF TREE CLIMBING

John Gathright improves lives with the rehabilitative power of trees.

48 Last Look

By Nicholas A. Tonelli



Features

16 Kayaking the Galapagos of the North

By Chuck Graham

Discover Channel Islands National Park from the seat of a kayak.

24 In the Garden Cemetery

By Tate Williams

Witness the comeback of America's first urban parks.

32 Flight to Plight

By Jill and Harold Draper

Behold the threatened future of monarch migration.



A red fox patrols around its den in Springfield, Va.

Sharing Our World

BY SCOTT STEEN



AS I WALKED BLEARY-EYED THROUGH MY LIVING ROOM one cold, early morning in midwinter, I was greeted by the sight of two red foxes, sitting together on my deck. I stopped in my tracks, suddenly wide-awake. There is something magical about having an unexpected encounter with the natural world, and these beautiful critters were fewer than 10 feet away from where I stood in my robe and slippers.

My suburban community has an interesting relationship with nature. Only 30 minutes outside of D.C., the houses here are set on relatively small lots, but our neighborhood is bordered by a large tidal creek and canals that snake through one side, and by a heavily forested area on the other. Because of this, we share the neighborhood with copious quantities of wildlife — mallard ducks, Canada geese, egrets, great blue heron, osprey, groundhogs, muskrats, deer and several families of red fox.

Neighbors here seem acutely aware that the wildlife is precious and that we are privileged to live among them. People tend plants designed to provide

food sources for the birds and mammals, platforms for osprey nests are maintained in the creek, speed limits are strictly enforced on the roadways and waterways and the foxes are the subject of as much neighborhood gossip as the people.

Recently, the importance of humans sharing the land with wildlife has been brought home to me anew in big as well as small ways. I recently returned from visiting the forest reserves in Michoacán, Mexico, that serve as the migratory habitat of much of North America's monarch butterfly population. American Forests has been funding forest restoration projects in the area since 2006, with

nearly a million trees planted to date. Thousands upon thousands of monarchs fluttered around us as we neared the top of the reserve (nearly 11,000 feet up), and fir trees that, at first glance, looked brown and dead, were actually vibrant green, but covered with so many butterflies that no underlying color was visible.

As amazing and beautiful as this experience was, it obscured a troubling fact that has been widely reported. In



A great blue heron at Great Falls Park in Virginia

J. ROB MCCULLOUGH



AMERICAN FORESTS

EDITORIAL STAFF

Publisher
Scott Steen

Editorial Director
Lea Sloan

Managing Editor
Susan Laszewski

Contributing Editor
Chris Horn

Art Direction and Design
Brad Latham

American Forests (ISSN 0002-8541) is published quarterly by American Forests, 1220 L St. NW, Suite 750 Washington, D.C. 20005. Periodicals postage paid at Washington, D.C., and additional mailing offices.

POSTMASTER: Send address changes to *American Forests*, 1220 L St. NW, Suite 750 Washington, D.C. 20005.

American Forests' mission is to protect and restore forests, helping to preserve the health of our planet for the benefit of its inhabitants.

(202) 737-1944
<http://www.americanforests.org>

AMERICAN FORESTS BOARD OF DIRECTORS

Ann Nichols, Chair
Chevy Chase, MD

Bruce Lisman, Vice Chair
Campaign for Vermont, Montpelier, VT

Rod DeArment, Treasurer
Covington & Burling LLP, Washington, D.C.

Lynda Webster, Immediate Past Chair
The Webster Group, Washington, D.C.

Scott Steen, President & CEO (ex officio)
American Forests, Washington, D.C.

Jim Boulos
Office Environment Services, Jacksonville, FL

Rob Bourdon
Linkin Park, Sherman Oaks, CA

Michael Chenard
Lowe's, Mooresville, NC

Donna Dabney
The Conference Board, New York, NY

Erin Fuller
Alliance for Women in Media, McLean, VA

Steve Marshall
The Davey Tree Expert Company, Kent, OH

Boyd Matson
National Geographic, McLean, VA

Megan Oxman
Amazon.com, Seattle, WA

Susan Sarfati
High Performance Strategies, Washington, D.C.

Jonathan Silver
Third Way, Washington, D.C.

“Today, the very existence of wildlife of all kinds depends on us living more lightly on the land and paying greater attention to the needs of our nonhuman neighbors.”

2014, the migratory population was a fraction of what it was in 2013, which, in turn, had witnessed a significant drop from 2012. The monarch butterfly population is collapsing due to illegal tree harvesting in Mexico and the use of herbicides and farming practices in the U.S. that are obliterating milkweed, the sole food source for monarch caterpillar larvae. And while Mexico has been working on their side of the problem for a number of years, relatively little has been done in the U.S. to stem the loss of milkweed. The monarch's decline is, apparently, attributable to human causes — like the declines of many forest species. If

private industry timber lands used for pine plantations. American Forests has worked for a number of years with the U.S. Forest Service and has planted more than 1 million longleaf pine seedlings in the Osceola National Forest alone, restoring more than 3,000 acres of this typically fire resistant native tree. Osceola's longleaf pine forests provide critical habitat for gopher tortoises, a keystone species in the region that is also seriously threatened by human causes, from loss of habitat to using them as pets or food. These longleaf pine forests also provide critical habitat for endangered red-cockaded woodpeckers, one of the few endemic bird species in North America. The red-cockaded woodpecker also plays a vital role in the ecosystem, creating cavities in trees that serve as nests for other animals. Like the gopher tortoise, this woodpecker is primarily in decline because of loss of habitat to development.

Human actions are at the center of a massive decline in biodiversity worldwide. This is true not just in distant countries, but in our own backyard as well. In fact, according to a NAFTA report, “Half of North America's most bio-diverse eco-regions are now severely degraded and [North America] now has at least 235 threatened species of mammals, birds, reptiles and amphibians.” Today, the very existence of wildlife of all kinds depends on us living more lightly on the land and paying greater attention to the needs of our nonhuman neighbors. We can and must do better, not just out of respect for our wildlife neighbors, but also because of what their health and well-being is telling us about the health of the planet — and what that ultimately means for humans too. ♦

Young gopher tortoise in Florida

we want these butterflies to be around in 20 years, we need to do a better job of sharing the land, of recognizing that our actions have consequences beyond our immediate needs.

Shortly before Mexico, I spent a day at the Osceola National Forest planting longleaf pine with a group of volunteers. In 2007, the huge Bugaboo Fire burned across much of Georgia and Florida, destroying large swaths of formerly

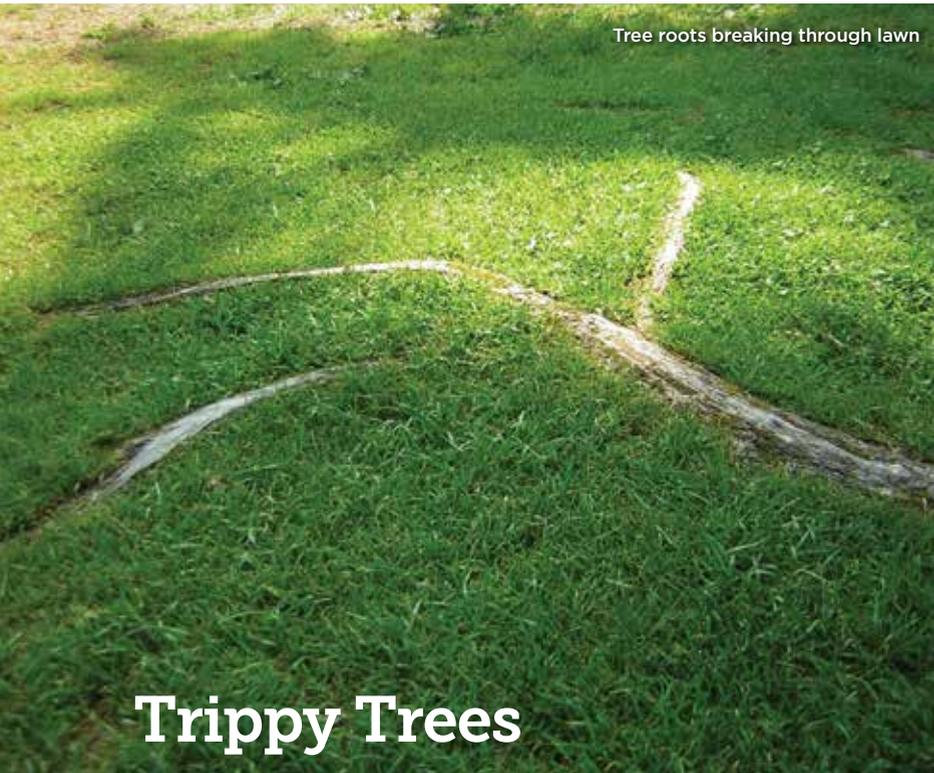


Q&A



ASK A CONSULTING ARBORIST

American Forests would like to welcome the American Society of Consulting Arborists to *American Forests* magazine. If you're wondering about tree care or concerned about the health of your trees, the Consulting Arborists have the answer! Ask away at www.americanforests.org/consulting-arborists.



Tree roots breaking through lawn

TIMOTHY JARRETT

Trippy Trees

Q: I live in Waxhaw, N.C. We have many large oak, maple, elm and sweet gum trees on our property. These trees are 70 feet tall. The problem is the large number of surface roots. There are so many that they damage my lawn mower blades, the kids can't play and we can't even walk without tripping. Can these surface roots be removed without damaging the trees?

A: Surface tree roots are a common source of friction between homeowners and their trees. While some tree species typically have deeper roots, the species on your property have shallow roots. Removing a few surface roots will not hurt your trees significantly, but root pruning in excess can severely damage a tree or make it unstable. Installing mulching materials can help keep out competing weeds and grass (and save your mower blade), while gravel and similar materials can be used to create raised surfaces for pedestrian and other traffic. For high-use areas where tree roots exist, consider designing a pier-supported raised slab. Consult with a certified arborist before removing large roots or significant numbers of roots.

Answered by Consulting Arborist Martin Shaw of Franklin, Tenn.; www.greenseasonconsulting.com

Lightning, Bugs

Q: I have a large live oak that appears to have been struck by lightning. The bark has split about 1 inch wide and 10 feet long. It looks like a wood-boring insect has made its way into the split and is doing damage, because I see sawdust. What can I do?

A: A vertical split in a tree's bark could have a number of causes, such as wind storm damage, disease or lightning. If it's lightning, you should see an exit wound somewhere below the split bark; some charred wood is also typical. No matter the cause of the split, the damage is permanent, and monitoring the tree to observe whether it opens further or begins to callous over is the best recommendation.

Pests are a sign of further decay, so you should have a pest control company do a pest scouting to determine how severe the wood-boring insect damage has become.

Answered by Consulting Arborist John Harris of Hollywood, Fla.; www.landscapeconomics.com



An oak that has been struck by lightning

PENNY MAYES

DOUG MCABEE



Compromised Camellias

Q: I have some mature, 8-foot, multi-stem camellias that have been successfully living in a bed with azaleas in Virginia Beach. The azaleas are thriving and the camellias are in full bloom, but one of the camellia stems has died and another one is showing stress — small buds are not opening and leaves are much smaller than the rest and starting to yellow. Could this be a problem with insects or disease?

A: Without more to go on, this sounds like a fungal canker disease common to camellias. You may be able to stop the spread by pruning out stems that start to show symptoms. A professional who is qualified in plant pathology may be able to identify the causal organism and recommend an effective fungicide. Camellias are typically reliable in the Virginia Beach region, so I suspect that other factors are making the camellia more susceptible — much like you are more likely to catch the flu when tired. For example, being planted too deep, buried in mulch or near a gutter downspout outlet are all factors that could weaken the plant, making it more susceptible.

Answered by Consulting Arborist Ed Milhous of Haymarket, Va.; www.TreesPlease.com

Bleeding Birch

Q: It's winter here in Louisiana. Three days ago, I cut three branches off my birch tree, and water is continuously dripping from the cuts. I've tried pruning seal, paint, tape and even plumber's putty. Is this normal or will the tree die?



EVA THE WEAVER/FLICKR

A branch has been cut from a birch trunk.

A: It is not normal, but also not uncommon. This is what we call a bleeder and it may not stop until the entire branch collar covers the cut.

Answered by Consulting Arborist Rick Zampino of Fairview, Texas; www.advancedtreecareinc.com

Ash Odyssey

Q: How can I uproot an ash sapling and safely move it to another location?

A: Transplants are always traumatic for the tree and often fail, primarily due to root loss and/or desiccation. You can minimize this risk by irrigating the tree well ahead of time. A small tree might be moved bare-root (no soil) or including a rootball (with soil). If moved bare-root, soil can likely be removed with minimal root damage by using a strong stream of water from a hose. Keep roots moist and covered and prune them subject to breakage. If transporting by vehicle, wet the tree canopy beforehand and cover it completely. For a long trip, repeat this step, keeping the roots and canopy moist. Avoid pruning before and for one to two years after transplanting the tree. I do not recommend introducing any soil amendments or additives, such as fertilizer or vitamins.

CHESAPEAKE BAY PROGRAM



Tree root ball ready for planting

Answered by Consulting Arborist Torrey Young of Castro Valley, Calif.; torrey@dryad.us

FOREST FRONTIERS

Biogeochemist Dr. Jennifer Jenkins

NEW AMERICAN FORESTS SCIENCE ADVISORY BOARD member Dr. Jennifer Jenkins is a forest biogeochemist specializing in GHG fluxes at the interface between forests and the atmosphere. She has worked in forest, agricultural and urban systems and is currently the director of science and strategy at Applied Geosolutions, a consulting firm that specializes in developing and applying remote sensing, image processing and modeling techniques for environmental decision making.

Why did you decide to join the American Forests Science Advisory Board?

I support American Forests' mission on behalf of forest ecosystems. I also believe in the capacity of objective scientific research to help solve problems and especially in the importance of science-based policy. I am looking forward to being involved with American Forests' work and I think it's terrific that American Forests is looking to science and this group of experts to help inform its programs.

What is your favorite aspect of your field?

I love to tackle a complex problem and break it down into its component parts. The more complicated the better! Lucky for me, the climate change problem has many interlocking and interacting pieces. For example, on the technical side, we talk about land use change, emissions up and down the supply chain, inventories and inventory data, interactions between elements like carbon and nitrogen and so much more. Then, on the policy side, we talk about policy tools like cap and trade, offsets and carbon taxes, not to mention the complicated political dynamics that change from day to day.

Do you have a favorite story from your years in the field?

I was doing fieldwork for my dissertation at study sites in Connecticut. I was using buried bags to measure nitrogen mineralization and, since microbial activity is slow in the winter months, I buried one set of bags in the fall to dig up in the spring, rather than the monthly bags you would use during

the growing season. In the spring, my field assistant and I drove to Connecticut to pick up the buried bags from the first half of the field sites and stopped for the night at a motel outside Hartford. When we woke up in the morning, ready to drive to the rest of the field sites, we found that the car had been stolen, along with all of the buried bags with my overwinter samples! Chasing down that field vehicle was kind of interesting — the police learned that it had been taken on a joyride by some kids. When we got it back, it was filled with random stuff like snacks and clothing. But no soil samples!



Where was the most interesting, most intriguing, most impactful or favorite place you were able to travel to in the name of science and why?

I've been fortunate to travel to some interesting places, usually for meetings rather than field-

work. I've attended IPCC and UNFCCC meetings in places like Geneva, Copenhagen, Bangkok, Moscow, Sao Paulo, Mauritius, Frankfurt, Arona — just outside Milan — and Oslo. But my favorite place by far is Australia. I traveled to Sydney one year and almost didn't come home. 🌿

For an extended interview with Dr. Jennifer Jenkins, visit www.americanforests.org/magazine.



Longleaf pines

GLOBAL RELEAF SHOWCASE

Longleafs for Long Tails

AMERICAN FORESTS is happy to mark the Year of the Salamander with the continuation of our work restoring forest habitat throughout North America, home to the greatest number of salamander species on earth. In fact, 33 percent of the world's salamanders are found in North America and despite their small size, their biomass in North American forests is more than any other animal!

In particular, this year, American Forests is partnering again with the Longleaf Alliance to reforest areas of Georgia and Florida with the longleaf pine that supports the endangered reticulated flatwoods salamander.

Flatwoods salamanders are a type of amphibian often known as “mole salamanders” because they spend much of their life burrowed underground. After undergoing their metamorphosis in the ponds and wetlands of the Gulf and Atlantic coastal plains, they emerge to live their adult life on — and under — land, returning to the ponds to breed.

The lands that await these newly developed adult salamanders as they climb from the water to firm ground are the longleaf pine forests of the Southeast. But, there isn't nearly

as much of this ecosystem as there used to be. Of the 90 million acres of longleaf pine that once grew there, less than three percent remain today. This loss and fragmentation of habitat has led to the decline of the salamanders

as well. There are just 21 known populations remaining of the reticulated flatwoods salamander and 71 percent of these rely on just a single breeding site. First listed as threatened in 1999, the reticulated

flatwoods salamander was declared endangered in 2009 when it was determined to be a separate species from the frosted flatwoods salamander.

That's one of the reasons American Forests and the Longleaf Alliance will be planting 133,200 longleaf pines across 300 acres of the Box-R Wildlife Management Area in Florida. But that's not all. The flatwoods salamander is just one of nearly 600 species supported by this keystone species, half of which are considered rare. The pines also provide erosion control and provide the benefits of trees to areas

where many other trees can't grow due to sandy soil conditions. They are also more resistant to diseases, insects, fires and storms than many other southeastern pines, making them well-suited to withstand increasing incidents of extreme weather associated with climate change.

The periodic fires required by the longleaf pine ecosystem may also be

key to maintaining healthy breeding sites for the flatwoods salamander. The salamanders seem to prefer wetlands with emergent vegetation — plants rooted in the water,

but reaching the air — as opposed to those with thick growth. Wildfire may help maintain such ecosystems.

Salamanders might be small, but they are important indicator species in many ecosystems including longleaf pine forests. Their thin skin helps them breathe and drink, but makes them some of the first to succumb to environmental changes. The health of their populations can tell us a lot about the health of the ecosystem as a whole. 🌱



TODD PIERSON

Flatwoods salamander

For more Global ReLeaf projects, visit www.americanforests.org/global-releaf.



Named after Benjamin Franklin Shumard, a 19th century doctor, paleontologist and geologist, the Shumard oak is a long-living tree in the red oak group. The national champion is estimated to be between 300 and 350 years old.

Larry Mahan's wife, Donna Mahan, with their dog Gert (who has since passed away)



Ron Ellis (left), owner of the Shumard oak, and William McClain (right), retired state forester in Illinois, taking measurements of the national champion

BIG TREE SHOWCASE

Shumard Oak

SPECIES NAME: Shumard oak, *Quercus shumardii*

LOCATION: Anna, Ill.

CIRCUMFERENCE: 328 inches

HEIGHT: 94 feet

CROWN SPREAD: 101 feet

TOTAL POINTS: 448

NOMINATED: 2002

NOMINATED BY: Larry Mahan

Check out the PDF of the spring 2014 *National Register of Big Trees* at www.americanforests.org/bigtrees.

PARTNERS

A Partnership that Measures Up

HAVE YOU EVER WANTED to learn how to measure a tree? Are you a big-tree hunter hoping to improve your measuring technique? Or a gadget-loving naturalist who'd like to get your hands on some of the most sophisticated measuring tools out there? If so, we've got an opportunity for you.

American Forests has teamed up with Laser Technology, Inc. (LTI), world leader in professional measurement lasers, to host a three-part webinar series on tree measurement, and you're invited! The webinar series, Measurement Tools & Techniques, will feature expert guest speakers affiliated with the National Big Tree program. Continuing Forestry Education credits will be granted for each webinar through the Society of American Foresters.

And it gets even better. Attend all three sessions and you'll be automatically entered to win a TruPulse 360 laser! Don't delay — the first webinar is on May 20. Register and learn more at www.americanforests.org/webinar2014.

MAY 20 — Measurement Tools & Techniques Part 1: Crown Spread

Crown spread is often the first sign of a tree's size. Laser rangefinders and clinometers can be used to measure the crown spread of tree, especially trees with high canopies. This webinar will cover the two-diameter method, spoke method and common obstacles when measuring crown spread.

MAY 27 — Measurement Tools & Techniques Part 2: Circumference

In this webinar, you will learn how to measure the girth of a tree on a flat surface, a tree on sloping ground and a tree that leans. This webinar will also go over various considerations and tests of form, such as bark inclusion or pith, when determining if you are measuring a single tree or multiple trees.



JUNE 3 — Measurement Tools & Techniques Part 3: Height

One aspect of a tree's growth that can be hard to measure is tree height. National champion trees may be 30 feet tall or 300 feet tall. In this webinar, you will learn how to measure the height of trees and the best tools for each method. The webinar will cover the simple stick method as well as more advanced tangent and sine methods of measuring height. 🌿



Top: Using the TruPulse laser rangefinder; bottom: Forestry measurement tools by Laser Technology, Inc.

As exciting as the webinar series is, it's not the only reason American Forests is pleased to be partnering with LTI. Together, we have also created a unique grant program to help state big tree program coordinators and certifiers upgrade their equipment to more accurately measure current and potential champion trees. The American Forests - Laser Tech Grant will distribute up to 10 refurbished TruPulse 360 compass laser rangefinders valued at \$1,000 each.

Tens of thousands of professionals, from foresters to electric utilities, use LTI lasers every day to measure heights, clearances, slopes, azimuths, spans between two tree features and much more. All raw measurements and calculated solutions from the laser can import into most GPS and GIS handheld data collectors for remote positioning and mapping purposes.

We're pleased that this partnership will bring this sophisticated technology to programs that need it most. Last year, we assembled the Big Tree Measuring Guidelines Working Group to update the current measuring guidelines and establish techniques everyone can use when nominating national contenders. Equipping state programs with the tools necessary to measure trees accurately and consistently is another important step in our ongoing effort to elevate the scientific foundation of the program. 🌿

To learn more about American Forests' partnership with LTI, including the upcoming webinars, visit www.americanforests.org/forestry-measurement-tools.



Kilauea Iki crater in Volcanoes National Park

FROM THE FIELD

HAWAI'I

Matthew Boyer, Vice President of Individual Giving

LAST NOVEMBER, I traveled to the site of our next Forestscape — Hawai'i — to plan an opportunity for American Forests' members to embark on an exclusive adventure exploring the Big Island of Hawai'i as you've never seen it before!

On my fourth day there, I visited Hawai'i Volcanoes National Park. This is where we will begin our trip this October, enjoying a private dinner with the park's superintendent as we watch the volcano glow in the night through the dining room windows of the Volcano House. We

will spend a few days hiking with the park's head rangers while we learn about their pioneering efforts to restore the lush forests between their boundaries

with native trees and plants. We will also visit the Hawai'i Endangered Bird Conservation Program site, which is closed to the public, to learn about their efforts to reintroduce the Hawai'ian crow back to the forests of Hawai'i.

On the same day, I made a site visit to one of Hawai'i's two vineyards to plan our visit there. We will learn about what it takes to grow wine in Hawai'i before heading to the Kona side of the island and checking into the beautiful Four Seasons Hotel — rated by Travel & Leisure magazine as the No. 1 hotel in the world! We'll learn about Four Seasons' efforts to help with reforestation on the island.

I also visited the site of an American Forests project that is working tirelessly to save Hawai'i's wilderness from the destruction of feral goats, sheep, pigs and cows through fencing and the planting of endemic trees such as Koa. Guests in October will get to see this site and we



STACIBECK/FICKR

will personally help with the reforestation effort as each participant plants a tree in reclaimed pastureland being converted back into a native forest. Not only will you plant a tree but you will be given its exact GPS coordinates so you can come back and visit it in years ahead or watch its growth from home using Google Earth!

There are so many more surprises waiting for you on this trip. Please visit www.americanforests.org/hawaii2014 for more details and to sign up! 🌱

WASHINGTON, D.C.

Leeah Lomax, Member and Donor Relations Manager

IN FEBRUARY, a colleague and I went to the Department of Veterans Affairs for an EarthShare event. EarthShare is a federation of American environmental nonprofits that raises funds primarily through a workplace giving model. At this event, I was able speak with many employees of the Department of Veterans Affairs and tell them about the work that American Forests does. Many people visited my table and were thrilled to learn of our tree planting projects, our Big Tree program and, especially, about giving the Gift of Trees — having trees planted in the name of a loved one.

American Forests has been an active member of EarthShare for more than 20 years. These events allow workplaces and their employees to learn more about different causes and charities before making a choice about their workplace giving. Through EarthShare, American Forests has received funding from more than 20 workplace giving campaigns yearly.

One of my favorite memories is from an event around Earth Day last year at the U.S. Patent and Trademark Office in Alexandria, Va. There were more than 300 employees who visited American Forests' table. I will never forget one particular employee whose

smile brightened as I spoke about some of our work. She was intrigued to learn all that we did at American Forests and that we were the oldest conservation nonprofit in the country. She also admired this award-winning magazine, *American Forests*, as I had taken a sample to showcase one of the benefits of being a member. She shared with me that she had an aunt who was turning 90 years old. For this extraordinary milestone in her aunt's life she wanted to do something special and grand. The very next morning, I received a call at my desk. Sure enough, it was the employee from the day before calling to have trees planted as a birthday gift for her aunt.

The EarthShare events have allowed me to engage with the public to increase awareness and help make our earth greener. It's a good feeling to meet so many wonderful people and touch people's lives in different ways. Through these events, people become more concerned for our environment and they want to make a difference. When you make a charitable donation with American Forests, it's a gift that keeps on living. 🌱

Learn more about the Gift of Trees at www.americanforests.org/gift-of-trees.

DID YOU KNOW?

Over a year, an acre of forest can consume the amount of CO2 created by driving a car 26,000 miles — about twice the annual mileage for an average driver.

Leeah Lomax brings publications to aide her in introducing American Forests' work to employees across the Washington, D.C. area.

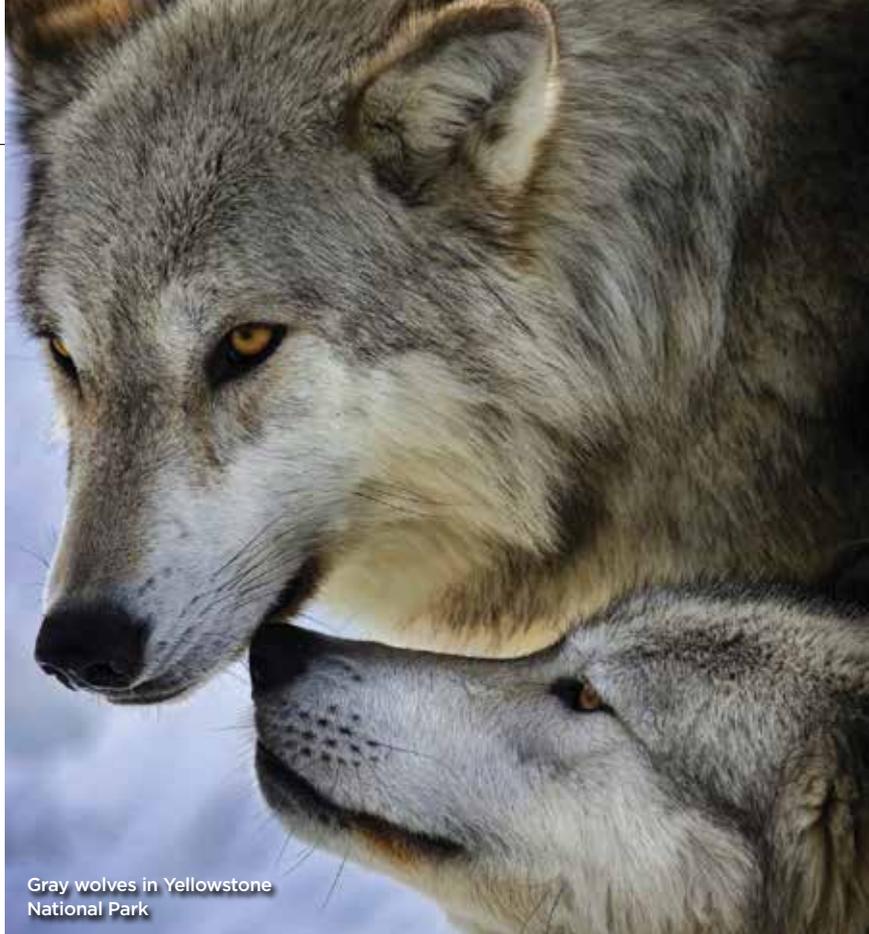


AMERICAN FORESTS

FROM LOOSE LEAF

Top Dogs in Decline

A STUDY published in January in the journal *Science* analyzed 31 large carnivores and found that 75 percent are in decline. The reasons include habitat loss, human persecution and loss of prey. The authors of “Status and Ecological Effects of the World’s Largest Carnivores” discuss some of the cascading effects of predator decline. In North America, the loss of wolves and cougars leads to increased populations of browsers like deer. Over-browsing affects all the smaller animals that depend on those plants. The authors note that it can even affect the course of a stream: When riparian plant life declines due to overbrowsing, it can lead to erosion of the stream bed. 🌱



Gray wolves in Yellowstone National Park

Respect for Elders

CONTRARY TO conventional thought, old growth trees have been found to grow faster as they age, according to a recent study of 60,000 individual trees of 403 species published in January in *Nature*. Furthermore, the study, led by ecologist Dr. Nathan Stephenson of the U.S. Geological Survey, found that as trees age and grow, they sequester atmospheric carbon at an even greater rate than their younger counterparts, leading researchers to believe that old growth forests are even more significant as carbon sinks than previously thought. 🌱

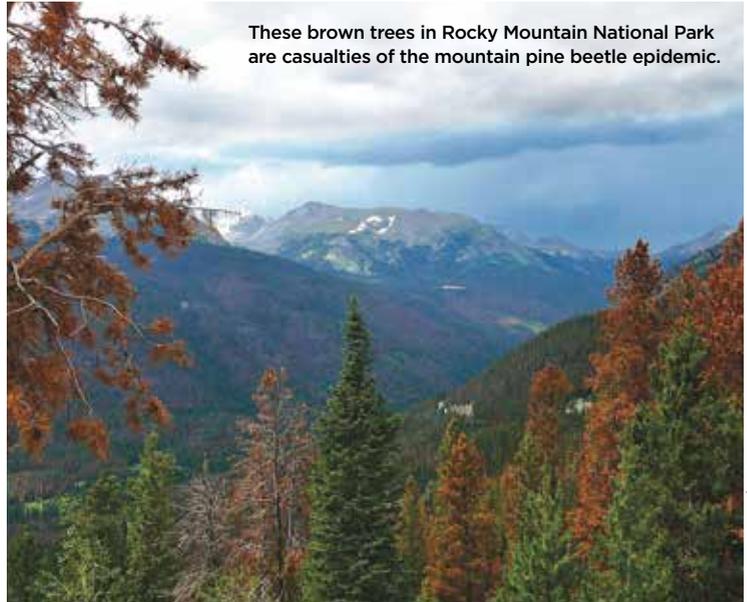


Large, old tree

GUYON MOREE

Fewer Beetles May Not Mean Fewer Concerns

THE U.S. FOREST SERVICE'S annual aerial survey in February indicated that the mountain pine beetle was declining in Colorado, Wyoming and South Dakota. In fact, the beetle infected fewer acres in Colorado in 2013 than in any year since 1998. However, this is not only due to restoration efforts, but also to the beetles' own population boom. There aren't enough numbers of lodgepole, limber or ponderosa pines left for them to infest. With fewer of these trees left, the foundation species whitebark pine may become even more susceptible, which could have tremendous cascading effects in the ecosystem. American Forests continues to work to protect the whitebark pine through our Endangered Western Forests initiative 🌱



These brown trees in Rocky Mountain National Park are casualties of the mountain pine beetle epidemic.

F. DELVENTHAL/FLICKR



WARD STRONG, BC MFLNRO

The mountain pine beetle is the size of a grain of rice.

Tiny Beetles, Huge Consequences

A recent paper published in the journal *Ecosystems* discussed the influence of animal species on carbon storage and exchange — an influence that is often overlooked as the effects of plants are focused on. In “Animating the Carbon Cycle,” the group of researchers from 12 universities cite the mountain pine beetle as an example: As winters shorten and warm weather intensifies, the beetles survive later into the year and at higher elevations. Their exploding population then kills more trees than in previous years. The paper's authors say this increased loss of trees has “decreased net carbon balance on a scale comparable to British Columbia's current fossil fuel emissions.” American Forests has been working to protect whitebark pines in these regions from the beetles. 🌱

The Fruit of Insects' Labor

While wind, artificial or manual pollination of trees by humans is possible, a study published in *Agriculture, Ecosystem, and Environment* found that apple trees pollinated by bees rather than by artificial means grew much larger fruit. This gives a heavier economic incentive to the safekeeping of bee populations and research into the cause of colony collapse syndrome, which has been causing honeybee populations to decline rapidly. 🌱



Bee and apple tree

EMILY MILLS

For *Loose Leaf* every day, follow our blog at www.americanforests.org/blog.

WASHINGTON OUTLOOK ► NOVEMBER 2013 - APRIL 2014

Appropriations FY14

ON JANUARY 17, 2014, the President signed into law the final appropriations bill for fiscal year 2014. Based on the two-year budget agreement forged by Representative Ryan and Senator Murray, this budget reinstates some funding levels above the sequestration cuts that occurred last spring. While funding for forest restoration and protection are not at the levels American Forests would like to see, there are positive aspects of the appropriations bill. The Forest Service Urban and Community Forests (U&CF) was reinstated into the final bill after being excluded from the bill proposed by the House Appropriations Subcommittee on Interior, Environment and Related Agencies. What's more, it was reinstated at a level higher — \$28 million — than originally requested by the president.

The Collaborative Forest Landscape Restoration Program (CFLR) was also fully funded at \$40 million. 🌿

Farm Bill Passes

AFTER MANY YEARS of negotiations, the Agriculture Act of 2014, aka the Farm Bill, was passed. Both of the titles American Forests works on with the Forests in the Farm Bill Coalition — the Conservation Title and the Forestry Title — fared well. The Farm Bill provides more than \$1 billion for conservation, exceeding all other federal sources of conservation funding, and continues to help farmers, ranchers and forest owners care for their lands. Stewardship Contracting was given permanent authority as well, providing much

needed assistance to the Forest Service and the Bureau of Land Management for restoring our forests. 🌿

Fire Suppression Funding

BOTH THE SENATE and the House have introduced, with bipartisan support, the Wildfire Disaster Funding Act which seeks to improve the way the U.S. Forest Service and Department of the Interior funds the response to emergency fires. For the first time, the bill would create an emergency funding process for fire response that operates in a similar way to the funding mechanism FEMA uses to respond to other natural disasters. This structure would prevent “borrowing” from other U.S. Forest Service and Department of the Interior programs that disrupts a wide variety of projects, some of which help reduce the risk of future

Roselle, Ill., is one of many communities to have received funds for urban forest maintenance through the U&CF program.



H. MICHAEL MILEY



The Farm Bill provides more than a billion dollars to help farmers, ranchers and forest owners care for their lands.



Hotshot firefighter Lupe Covarrubias cuts a fire line to help battle the Waldo Canyon Fire in June 2012.

intense wildfires. The president's fiscal year 2015 budget reflects the funding mechanisms within the legislation. 🌱

Appropriations FY15

THE CYCLE for fiscal year 2015 started while it seemed like the ink was still wet on the fiscal year 2014 Appropriations Bill. The President's Budget was released on March 4, 2014 indicating where the administration's conservation priorities lay. In line with his Climate Action Plan, this budget highlighted the efforts across agencies to address the impacts of climate change on our forests. The Land and Water Conservation Fund (LWCF) was fully funded, and a \$1 billion Climate Resiliency Fund was

created to invest in research and help communities plan and prepare for the impacts of climate change. The Collaborative Forest Landscape Restoration Program (CFLR) was allocated \$60 million, \$20 million over its authorized cap, and up to 10 more

landscape-scale projects will be added. American Forests is also pleased that the Bureau of Land Management Public Domain Forest Management also saw an increase from fiscal year 2014 enacted levels, given that recent cuts have reduced their ability to complete much-needed restoration efforts. Of concern is the again-reduced amount allocated to the Urban and Community Forestry (U&CF) program and the Community Forest and Open Space Conservation program, as well as the reduction in funds to Forest Service Research and Development.

American Forests will continue to advocate for our priorities to protect and restore forests, supporting many of the efforts the administration put forward in their budget, as well as requesting more funding for programs where it is needed. American Forests President and CEO Scott Steen testified before the House Appropriations Subcommittee on Interior, Environment and Related Agencies on April 10, 2014 regarding these priorities. 🌱

Rebecca Turner writes from Washington, D.C., and is American Forests' senior director of programs and policy.

For our most current policy work, and to send letters to your elected officials on a range of critical issues, visit www.americanforests.org/policy and our Action Center at www.americanforests.org/action-center.



The LWCF is protecting the Henry's Lake Area of Critical Environmental Concern in Idaho from fragmentation.

ROGER PETERSON/U.S. FOREST SERVICE

Kayaking the Galapagos of the North

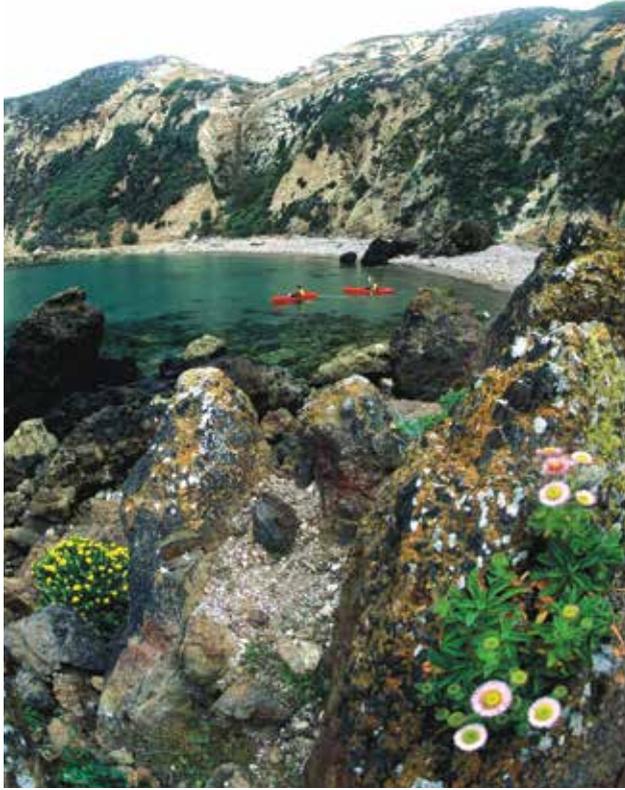
PEERING ACROSS THE SANTA CRUZ CHANNEL,

the day was clear enough to see my destination — the grove of Torrey pines overlooking Bechers Bay on Santa Rosa Island, eight miles west of where I stood on a deserted beach on Santa Cruz Island. To get there, I was going to have to kayak across one of the most treacherous channel crossings in the world, where currents from as far away as Alaska and Mexico collide, creating the roiling underwater eddies that force open ocean waves upward. The crossing is known as the Potato Patch, though the potatoes for which it's named are just one of many cargoes the waves have capsized over the years. Unfortunately, northwest winds were gaining steam and whitecaps swept the Pacific as I set off on my circumnavigation of Channel Islands National Park.



Chuck Graham has circumnavigated the Channel Islands before, but this time, he's bringing American Forests' readers along on the journey. BY CHUCK GRAHAM





Potato Harbor on Santa Cruz Island offers relief from the rolling waters of the Potato Patch.

I look at the Channel Islands every day from my home in Carpinteria, Calif., and have been kayaking there for the past 20 years. I've made several circumnavigations around the islands, but never tire of exploring this unique archipelago. Each trip is unique. As I stood on the beach on Santa Cruz Island, steeling myself for the Potato Patch, I wondered what this next trip around the volcanic chain, with its diversity of flora and fauna found nowhere else in the world, would have in store.

Known as “the Galapagos Islands of the north,” the chain is best explored from the seat of a kayak. Hidden coves holding freshwater springs, more toothy sea grottos than anywhere else in the world and perfectly groomed golden sand beaches are just a few of the natural wonders found throughout the Channel Islands. Sometimes, it's difficult to imagine the windswept archipelago is only 90 miles west of the megalopolis of Los Angeles. In fact, paddling the approximately 200 miles of coastlines and channel crossings is like experiencing California before Europeans arrived. During one blustery five-day stretch, I didn't see or speak to anyone.

Of the eight California Channel Islands, five comprise the national park that was ratified by Congress in 1980. Anacapa, Santa Cruz, Santa Rosa and San Miguel Islands make up the northern chain. The southern chain consists of tiny Santa Barbara Island — the fifth and final island in the national

Kayaking Channel Islands National Park





Chuck Graham's circumnavigation of Channel Islands National Park begins on Santa Cruz Island (1) and continues to Bechers Bay (2) and Sandy Point (3) on Santa Rosa Island, to Cuyler Harbor (4) on San Miguel Island, a hike past Caliche Forest to Point Bennett (5), crossing back to Santa Rosa Island (6) to hike up Arlington Canyon before returning across the Santa Barbara Channel to his home in Carpinteria, Calif.

park system — as well as San Nicholas, Santa Catalina and San Clemente Island. My circumnavigation this time would consist of the northern chain and take nine days to complete. I was particularly interested in exploring the islands' forests.

Santa Cruz and Santa Rosa Islands possess the chain's only forests, some of the most unique in North America, while San Miguel Island's petrified forest attests to the windswept isle's distant past as home to a grove of trees.

These forests are important habitat for the archipelago's wildlife, several species of which, like the bald eagle, have been restored following local extinction or, like the endemic island fox, have been listed as endangered. Santa Cruz Island is the only place in the world to see the island scrub jay foraging for acorns amongst dense groves of island oak trees. Along my pelagic journey, I had many memorable encounters with these creatures and others while kayaking along wave-battered cliffs and teeming reefs and hiking up boulder-choked canyons on this Galapagos of the north.

WHERE EAGLES DARE

From my salt-encrusted kayak, I could hear a majestic bald eagle's high-pitched whistles carrying down Pelican Canyon on the north shore of Santa Cruz Island. The canyon, shaped like an open book,

is shaded by a forest of bishop pines. One tree stood out like no other, though. Its top was flat, browning and shaped like a giant mushroom. An eight-foot-wide bald eagle nest — successful for the past five years — was once again active with a rambunctious eaglet hopping around the periphery of the nest, its protective parents watching over it.

Santa Cruz Island is the southernmost region for bishop pine forests and important nesting habitat for bald eagles, which were returned to the islands in 2002, following a 50-year local extinction due to DDT pesticides polluting the pelagic food web.

Bald eagles were restored to the islands in the early 2000s.





The bishop pine forest on Santa Cruz Island provides nesting opportunities to bald eagles.

The Montrose Chemical Corp. in Los Angeles was responsible for dumping millions of tons of the pesticides into the ocean along the Southern Californian coast after the substance was banned in 1972. The dump resulted in bald eagles, California brown pelicans and peregrine falcons laying thin-shelled eggs that were crushed before they could hatch. After 25 years of litigation, Montrose was court-ordered to pay \$140 million in restitution, with \$40 million going toward restoring natural resources like the bald eagle population on the Channel Islands. From 2002 to 2006, Channel Islands National Park partnered with conservation nonprofits to release bald eaglets on the islands. Today, there are approximately 60 bald eagles reestablishing old territories across the islands, successfully breeding, nesting and rearing their chicks without human intervention.

During one memorable encounter, I was paddling along the south shore of Santa Rosa Island in challenging northwest winds. To avoid the biting winds, I paddled inside of Cluster

Point, a deep cove that provided shelter from the northwest, ducking out of the winds to eat and drink. There was a colony of northern elephant seals wallowing on a windblown beach. An opportunistic bald eagle approached the periphery of the group looking to scavenge on what it thought to be a marine mammal carcass. Just as it went to taste test a 3,000-pound bull elephant seal, the massive animal reared upward. Wings outstretched, the bewildered raptor was instantly blown away by the whistling winds all the way to the next secluded cove eastward. This natural moment caught by a lone kayaker was one that, just a decade ago, had not been seen for 50 years.

OUT FOXED

After negotiating heaving surf and powerful currents in the Potato Patch, I finished crossing the Santa Cruz Channel to Santa Rosa Island. I landed my kayak below the steep sand dunes at Water Canyon, tucked inside Bechers Bay. After pitching my tent, I went for a hike into the Torrey pine forest. There are only two Torrey pine forests in the world. The other is located in San Diego, Calif. These slow-growing pines require sandy soil in coastal sage scrub communities. Due to the conditions they live in and low genetic diversity, they are rare — the rarest pine in North America. Torrey pine numbers on Santa Rosa Island have been further reduced by cattle grazing. In the early 20th century, there were only about 100 trees in the wild, but through conservation efforts, there are roughly 3,000 Torrey pines today. These amazing pines have broad, open crowns and can grow anywhere from 25 to 50 feet tall. Their cones are heavy and stout but the pine nuts are edible.

Northern elephant seal pups





- DGIES/FICKR

Top left: Island fox; top right: The Torrey pines of Santa Rosa Island are one of only two communities of Torrey pines in the world; bottom: The non-native golden eagle hunted the island fox population to near extinction in the 1990s.

A lone island fox sitting atop the picnic table in my campsite was the only other soul in the campground.

catch: The smallest *Canis* in the world had never been preyed upon and could not have anticipated the aerial assault.

Santa Cruz Island is the largest island off the California coast and has historically possessed 1,500 island foxes. Golden eagles eventually colonized the island in the late 1990s and quickly brought that number down to just 50. Populations on Santa Rosa and San Miguel Islands were at critical lows as well, with only 15 individuals on each islet.

In 1999, Channel Islands National Park began captive breeding of island foxes. In 2002, the diurnal island fox was placed on the U.S. Fish and Wildlife Service's Endangered Species List. During captive breeding, the national park began trapping and removing 43 golden eagles, returning them to northeastern California with GPS tags. They also hired a company from New Zealand that specialized in eradicating non-native animals from islands to help with the feral pigs, who were uprooting native groves of island oak and ironwood trees and destroying other island flora.

By 2008, the tide had turned. Golden eagles had been removed and were kept at bay by the return of the bald eagles — who eat fish, not foxes — and by the eradication of the feral pig population. Captive breeding on each island helped to solidify the island fox population. Today, those populations are at or near historical counts, with much of the island flora healing on its own, returning more of a natural balance to the volcanic archipelago.

I began my hike along an old ranch road, making the steep ascent into the forest from there. About halfway up the grove, I came upon three playful island foxes clambering and jostling on the lowest limbs and chasing each other up and down the thick trunk of a Torrey pine tree.

Native island foxes inhabit three islands in the national park. Santa Cruz, Santa Rosa and San Miguel are the only islands with year-round water sources, and the tiny, 3-to-4-pound island fox is the apex land predator on each of them. However, 14 years ago, the house cat-sized fox was nearly extinct — a casualty of 150 years of ranching across the chain from the early 1830s through the late 1980s. Toward the end of the ranching era, the feral pig population exploded to approximately 5,000 animals on Santa Cruz Island, eventually becoming a reliable food source that lured non-native golden eagles from the California mainland. Unfortunately, the raptors soon learned the island fox was a much easier



Above left: skull of a pygmy mammoth; above right: Arlington Canyon, where the oldest human remains in North America — known as Arlington Man — were discovered; left: Caliche Forest, the petrified forest of San Miguel Island

GHOSTLY TREES

Hunkered down near Sandy Point on the western tip of Santa Rosa Island, I was contemplating when to paddle across the San Miguel Passage to San Miguel Island and continue my journey to its westernmost point. San Miguel, with its natural history, 12 types of seabirds and massive seals and sea lions crowding quiet beaches, is my favorite

Whoever Arlington Man was, he decided to break away from the mainland and venture across the channel in his own makeshift watercraft, possibly constructed from driftwood, willows and deer sinew.

isle. I scanned the channel with my binoculars, hoping to gauge the difficulty of my crossing. Northwest winds were on the rise, but it was only a three-mile paddle across the passage to San Miguel. I chose to go for it, hoping to reach the inside of scenic Cuyler Harbor before darkness fell.

I reached the island in less than an hour, but the winds increased as I approached the breathtaking cove, and it became an arduous struggle to beach my kayak where the sweeping sand dunes at Cuyler Harbor awaited. From there, I gathered my gear and gratefully trudged up Nidever Canyon to the rustic campground. It felt good to be on my feet, marveling at the native flora like island poppies and buckwheat. A lone island fox sitting atop the picnic table in my site was the only other soul in the campground.

The next morning, I lit out on the trail to Point Bennett located on the northwest tip of the island. Along the way, I stopped at Caliche Forest,

a ghostly grove of sand casts made up of calcium carbonate encrusted around ancient tree trunks and roots. The combination of perpetual wind, fog, sand and other particles coming together to create this thick, paper mache-like layer around each gnarled stump gives this petrified forest a ghostly appearance.

Scientists theorize that these trees may have been food for mammoths before they went extinct 10,000 years ago. The Channel Islands were created by volcanic upheaval about 25 million years ago, when a large mass of land broke away from what is today San Diego. At its closest, the resulting super-island scientists have dubbed Santarosae was just five miles from the mainland. Columbian mammoths could smell food on the island and, Pachyderms being good swimmers, could make the channel crossing. There were minimal but sufficient food sources for the 14-foot-tall herbivores. However, when the polar icecaps melted roughly 12,000 years ago and sea levels rose, the chain was formed and the distance to the mainland doubled, stranding the mammoths for good. Due to isolation and increasingly scarce food sources, the mammoths evolved over time into a pygmy species only 4 feet tall at the



The islands beckon.

shoulder. What happened to them next was a question whose answer awaited me back on Santa Rosa Island, near the end of my journey.

THE FIRST ISLANDER

The bow of my kayak eased atop a dense flotsam of tangled kelp and splintered driftwood where cool spring water fed a freshwater estuary at Arlington Canyon on the north shore of Santa Rosa Island. After dragging my kayak above the high tideline, I put on my trail shoes and hiked up the narrow canyon to one of the most important anthropological sites in North America.

Scientists theorize that the pygmy mammoths may have eventually been hunted to extinction by the first humans on the Channel Islands. The oldest human remains in North America were discovered at Arlington Canyon in 1959 by anthropologist and paleontologist Phil Orr. Known as “Arlington Man,” the two femurs found above the creek are 13,200 years old.

As I stood where Orr unearthed his monumental discovery, I understood why Arlington Man chose this spot to live. He had a year-round water source and advantageous view of his surroundings and could live off what the sea provided. Whoever Arlington Man was, he decided to break away from the mainland and venture across the channel in his own makeshift watercraft, possibly constructed from driftwood, willows and deer sinew.

The northwest winds had become a mere whisper and, with them, the swell had vanished too. As I completed the remaining 32 miles across a now-glassy channel back to the mainland where I live in Carpinteria, Calif., I couldn't imagine paddling something as likely unseaworthy as Arlington Man did so long ago. But Arlington Man may not have been thinking about that when he built his watercraft and made his journey. His thoughts may even have been similar to mine: When looking across the channel at the islands, all I wanted to do was paddle around them. They simply beckoned. I like to think that's what was going through Arlington Man's mind as he gathered all the natural materials available to him to build his craft. Called by the islands, he paddled to a unique ecosystem rich in biodiversity — so close to the mainland yet worlds apart — eking out a life on the sea. ↓

Chuck Graham is a freelance writer and photographer based in Carpinteria, Calif., and editor of DEEP Surf magazine. Learn more at www.chuckgrahamphoto.com.



MATTHEW HULL

Bald Eagles, Sea to Shining Sea

Agile and powerful, the majestic bald eagle — national bird of the United States — has long symbolized independence and freedom. This amazing bird is the second largest North American bird of prey, holds the record for the weight they are able to carry in their talons and builds the largest tree nest of any species — reaching up to one ton as successive generations of eagles build upon existing nests. For such a large and formidable bird, the bald eagle's cries are relatively weak — the strong, high screech so often associated with them is actually that of the red-tailed hawk. The monogamous bald eagle preys mostly on fish and ranges from Alaska to Florida to the Channel Islands — sea to shining sea.

But, just a few decades ago, we were on the verge of losing bald eagles, not just in the Channel Islands, but across the nation. Historically, the most damaging of the many threats faced by the eagle has been the use of DDT. This pesticide thinned the eagles' eggshells, causing them to break during incubation. DDT was banned in the 1970s — the first step in the bald eagle's recovery. By 1978, the bald eagle was listed as endangered in 45 states and threatened in five others.

But, our national bird's problems did not begin and end with DDT. In fact, the Bald and Golden Eagle Protection Act had recognized the dwindling numbers of eagles in 1940, several years before DDT became available for agricultural uses. One of the culprits was habitat loss. Eagles need stands of trees relatively close to a body of water for nesting, so that they can rear their young close enough to their hunting waters to carry heavy fish back to the aerie.

American Forests has done our part over the years to help bring these captivating raptors back from the brink. In the past few years alone, we've planted hundreds of thousands of pine and spruce for bald eagles in places like Superior National Forest and Chippewa National Forest, home to the country's largest population of nesting bald eagles. Through projects like the North Shore Collaborative Restoration and the Blowdown Reforestation, we aim to restore eagle habitat in forest areas damaged by fire, storms or infestation.

The widespread publicity of impact of the pesticide ban and its positive effect on the nation's wildlife has made the eagle a symbol of the power of endangered species protection. On July 12, 1995, the U.S. Fish & Wildlife Service reclassified the Bald Eagle as threatened in most places, and, in 2007, the bald eagle was removed from the List of Endangered and Threatened Wildlife altogether, though they are still protected under the Bald and Golden Eagle Protection Act of 1940. Given current projections, the species is well on its way to recovery throughout the nation.

In the Garden

The Revival of

BY TATE WILLIAMS

IN THE 1820S, AMERICA'S CITIES HAD A PROBLEM:

People kept dying, and church burial grounds were filling up. Fortunately, a group of horticulturists in Massachusetts had a solution and, in 1831, Mount Auburn Cemetery in Cambridge became the first modern cemetery. Other cities began to follow suit, dedicating rolling, scenic tracts of land on the outskirts of town to honor the deceased. This "rural cemetery," or "garden cemetery," movement not only temporarily solved the problem of where to put the dead, but it also gave us the nation's very first parks.

Over the decades, cemeteries fell out of vogue as cultural centers, but their fall from favor was not to be permanent. Today, the practice of using cemeteries for outdoor recreation is bubbling up once more, as urban dwellers seek out nature in the city.

Right: Enjoying some fresh air at Oakland Cemetery's Sunday in the Park Festival in Atlanta.

Cemetery:

America's First Urban Parks





NATIONAL GALLERY OF ART

Left: "Mount Auburn Cemetery" by Thomas Chambers; below: Early rural cemeteries were largely inspired by the Victorian-style gardens of Europe, such as Waddesdon Manor Gardens in Buckinghamshire in the United Kingdom, shown here.

The Victorian culture, with its romanticized poems, songs and rituals surrounding death and mourning, had contributed to the elaborate rural cemeteries and their popularity.

THE RISE AND FALL OF THE GARDEN OF GRAVES

In the early 19th century, as cities like Boston grew, inner-city burials were no longer cutting it. Land prices were rising and the small church burial grounds were overcrowding. Storms would flood the grounds with gruesome results. Outbreaks of diseases like cholera and typhoid fever had communities fearing urban burials.

In response, the Massachusetts Horticultural Society presented a vision that would solve the city planning problem, while carving out a piece of land they would turn into a horticultural wonder to rival the gardens popular in Europe at the time.



BOSTON PUBLIC LIBRARY

King's Chapel burial ground in Boston, 1929

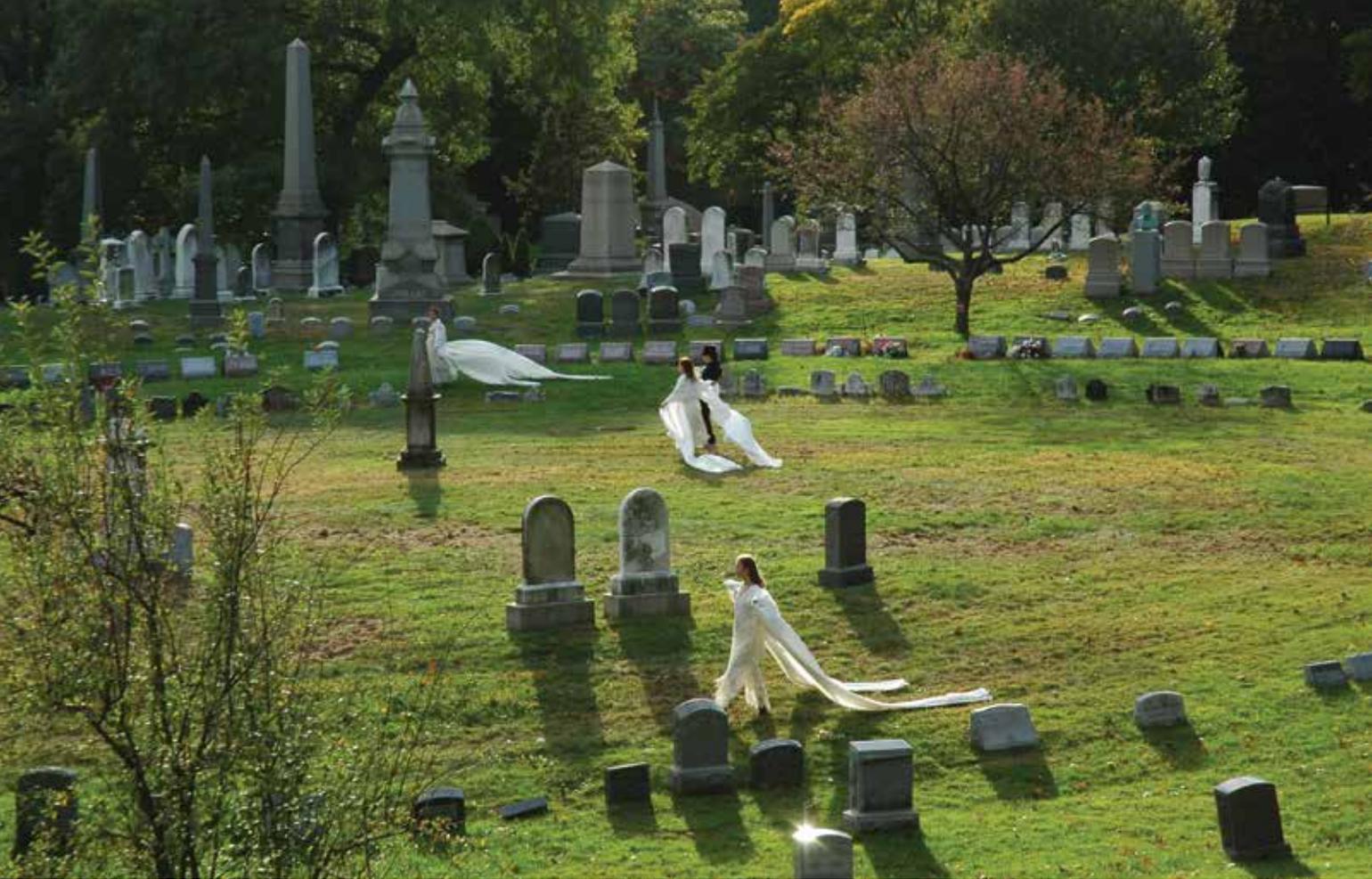


UKGARDENPHOTOS/FLICKR

It was dubbed a "garden of graves" or a serene "city of the dead." Mount Auburn Cemetery grew into a feat of landscape design, sculpture and meticulously manicured Victorian-style gardens. The rural cemetery movement spread as other cities established their own garden cemeteries, from Green-Wood in Brooklyn to Laurel Hill in Philadelphia. They were extremely popular among locals and visitors alike, becoming regular gathering places for strolling and picnicing.

"In a country sorely lacking in public green spaces, these cemeteries provided these graceful, elegant places," says Keith Eggenger, architectural historian and author of the book "Cemeteries." "They were all-around recreational and artistic centers for people. They became seen as major urban amenities."

But it was the cemeteries' success that inspired the competition that edged them out — city parks. The popularity of the rural cemeteries, especially Green-Wood in Brooklyn, was an inspiration to landscape architect Andrew Jackson Downing, an early proponent for a central park. Early cemetery topography, with its rolling hills and gently curving paths, also highly influenced the first large city parks designed in the mid-19th century. As urban destinations like Central Park and Prospect Park became more popular, they edged their forerunners out.



The time was ripe for these parks' rise over the cemeteries: Attitudes toward death were shifting. In the Victorian Era, high mortality rates, especially among children, had meant that mourning and death were very much a common presence in peoples' lives. That culture, with its romanticized poems, songs and rituals surrounding death and mourning, had contributed to the elaborate rural cemeteries and their popularity.

Over time, as burial became more sterile and efficient, cemeteries followed suit. Eggener writes: "Increasingly, they became places of the dead almost exclusively, as the living preferred to avoid them except when absolutely necessary."

Of course, the cemeteries themselves didn't go anywhere. As our cities continued to grow, they engulfed these plots of land until the cemeteries — once on the edges of town — were massive chunks of green space often smack in the hearts of our major metropolitan areas. Thanks to perpetual care agreements and historic preservationists, many of these historic cemeteries remain today, protected from development. The result is a generation of gated, astonishing landscapes lying comfortably in the hearts of major American cities, ready for their comeback.

REOPENING THE GATES

If you had walked up to the entrance of Green-Wood Cemetery in Brooklyn as recently as the 1990s, unless you were there to leave flowers with a

loved one, you were more or less turned away, says cemetery president Richard Moylan.

"We realized that that could be the end of us," says Moylan, in light of the increasing number of people opting for alternative arrangements like cremation. "Because as we bury less, people will visit their loved ones less. They might visit their parents a few times year, but are they going to visit their grandparents or their great grandparents?" he asks. "So, that's when we started welcoming people in."

This summer, you're not only invited to tour the grounds, you can also sign up for yoga classes or gather in the historic chapel to watch old movies and drink a hot toddy.

Performance of "Angels and Accordions" at Green-Wood Cemetery in Brooklyn



RICK HARRIS

Central Park was inspired by the early rural cemeteries.



NICKMICKOLAS/FLICKR

They're places where life meets death, nature meets city, present meets past.

more of that — using the space for different things at different times, while still showing respect for our permanent residents.”

Green-Wood is now seeking arboretum status, considering how to draw more birders and building up the cemetery as a historic attraction. Trolley tours are selling out, says Moylan.

Even so, Green-Wood is relatively conservative when it comes to public use. Some cemeteries — often the publicly owned, the less active or those lacking a perpetual care fund — are more forward. One striking example is Oakland Cemetery in Atlanta. Oakland’s story is similar to that of many historic cemeteries: Founded in 1850 on farmland, it now neighbors two of Atlanta’s up-and-coming neighborhoods, just five blocks from the state capitol.

In the 1970s, the neighborhood and the cemetery fell into disrepair, but in the last five to 10 years, largely thanks to the Historic Oakland Foundation, the cemetery has stepped up its public use and restoration efforts. Oakland is explicitly trying to revive the Victorian garden cemetery experience. Along with regular tours, major annual events draw about a third of Oakland’s operating revenue, says Mary Woodlan, director of special events and volunteers.

“We feel that it’s important to bring the public in; otherwise how are they going to know about this place?” Woodlan says. “We say, once we get them through the gates, they’re hooked.”

VIGE/FLICKR

Atlanta band Mermaids plays at Oakland Cemetery’s “Tunes From the Tombs” event.

Green-Wood is one of many cemeteries embracing more public use. While a lot of the old cemeteries are still selling plots and burying the deceased, even those with healthy endowments are increasingly aware that their days as just a cemetery are numbered. Not only are cremation and other arrangements increasing in popularity, but cemeteries eventually begin to run out of space. Public use can mean the difference between succumbing to degradation and becoming a thriving part of the community.

The results of embracing more and varied uses of these spaces can be memorable. Last October, for example, parts of Prospect Park were temporarily closed to public traffic when President Obama helicoptered into the park to visit a local school in Brooklyn. The president’s stop was just before the New York City Marathon, so for the day, Green-Wood suspended its no jogging rule. The New York Post criticized the move, but Moylan says it was a hit, with no complaints from plot owners.

“I walked out of my office at 10 to six and I looked up on the hill, and there was a runner with her phone in her hand taking photos,” Moylan says. “And it was just a great day. I’m hoping we can do



Lantern lighting festival at Spring Grove Cemetery and Arboretum



Leaves changing at Green-Wood Cemetery in Brooklyn

Oakland is planning the fourth annual “Tunes From the Tombs” event, a music festival that draws around 4,000 people. They hold an annual 5k run, “Run Like Hell,” and a Halloween tour, a practice that has become popular in many cemeteries.

The question of dogs is a tough one for cemeteries, with many prohibiting man’s best friend from the grounds. But in Forest Hills Cemetery in Boston, dogs are welcome and quite common. They have even offered “Dogwalk” tours of the cemetery’s animal sculpture for guests and their dogs. At Congressional Cemetery in Washington, D.C., they go so far as to sell memberships specifically to permit dog walking. There’s a waitlist for membership, and income from that covers groundskeeping contracts.

The decisions are not always cut and dry, and most cemetery staff interviewed say they have fielded complaints, either in response to existing activities or requesting to do more. Occasionally, people are offended by a screening of “Dracula,” a rock concert or a Halloween tour. Cemeteries feel their way toward what the community finds appropriate.

But people who find it odd to hang out in a cemetery usually understand once they’re through the gates, says David Barnett, president and CEO at Mount Auburn Cemetery. He recalls one family that tragically lost a son telling him a number of

times how much they appreciate their time at Mount Auburn, specifically because it’s such a vibrant place.

“If there’s only one reason to come, and that’s to bury someone — that seems like the wrong way to go,” Barnett says.

MEETING THE NEED FOR GREEN

In a landlocked city, management of open space is a delicate balance. That balance becomes even more pronounced when it comes to cemeteries, where the land in question also happens to be hallowed. But if done right, cemeteries have tremendous potential to meet the demand for open space.

“Today, some cities have hundreds or thousands of acres of public cemetery lands, both with and without gravestones, which could theoretically help with parkland shortage,” writes Peter Harnik, director of the Center for City Park Excellence with the Trust for Public Land, in his book, “Urban Green: Innovative Parks for Resurgent Cities.”

He describes the pendulum swinging from mass migration to the suburbs post-World War II, back toward a growing desire to live in city centers. Many cities are experiencing a resurgence of central city neighborhoods as active residential communities and the trend is expected to continue. As Harnik points out, when



BRYANT OLSEN

Salt Lake City Cemetery is home to deer, foxes, owls and other wildlife.

people migrate back from the suburbs to cities, they continue to crave the open space.

It's not just a matter of recreation, either. Research has shown the profound effect that the presence of urban green space has on city dwellers' health and well-being. People with regular access to urban green spaces experience less stress, lower levels of fear and aggression

and a lower incidence of childhood asthma than those who lack such access. Given these benefits, access to cemeteries can be as important for the living as for the deceased.

In the 1990s, Mount Auburn Cemetery made a decision to prioritize the natural landscape, focusing on some native restoration, sustainable groundskeeping and more discreet burials to increase their longevity as a functioning cemetery with space for new plots, but also to keep the environment pleasant for visitors and customers alike. The 175-acre arboretum boasts nearly 5,000 catalogued trees, an enviable collection of maple, pine and flowering dogwood, with a stand of restored native woodland as the natural centerpiece.

Other historic cemeteries are even wilder. Publicly owned Evergreen Cemetery is the largest open space in Portland, Maine, by a good margin. About 100 of its 239 acres are undeveloped woods, complete with hiking paths. In 2007, the city hired a forester to inventory the wooded area, which he noted had "one of the better stands of red oak that I have seen in Maine in a 35-year career."

In Brooklyn, Green-Wood Cemetery is almost the size of nearby Prospect Park, boasting 478



A small dog checks out the shore of Lake Hibiscus in Boston's Forest Hills Cemetery.



Mount Auburn's Washington Tower

acres of hilly land in the heart of the city, with views of the Statue of Liberty in New York Harbor. Even larger than Greenwood is Spring Grove Cemetery and Arboretum in Cincinnati. More than 300 of its 733 acres are undeveloped, including a wooded preserve. The cemetery boasts 23 state champion trees. In Utah, publicly owned Salt Lake City Cemetery spans 250 acres with a 300-foot elevation change. Snug in the foothills of the city, it's home to owls, birds of prey, foxes, deer and amazing views of the city, says Sexton Mark Smith.

LIMINAL SPACE

While it's important to discuss how a cemetery is like a park, it's just as important to highlight what sets it apart from your typical urban green space.

Central Park on a sunny day will be bustling with sporting events, skateboarders, rows of sunbathers. Even as cemeteries become more popular, on their busiest days they retain a certain tranquility. Eggener, author of "Cemeteries," discusses the value of cemeteries as liminal space — space at the joining together of different states. They're places where life meets death, nature meets city, present meets past. They offer a unique experience.

At Mount Auburn, even on a cold winter day after a snowstorm, visitors strolled the grounds quietly, leaving winding trails in the snow. Steve Pinkerton and Vicki Slavin were one of a few couples perched at Washington Tower — the observation tower that is perhaps Mount Auburn's best known feature — overlooking Boston. They've been coming here since the 90s, when they first came for a funeral. Pinkerton now volunteers as a docent. But on this day, they were just visiting.

"It's a nice place to walk," he says. "It's a peaceful place." ↓

Tate Williams writes from Boston on a variety of subjects related to science, art and culture. Read more of his work at www.tatewilliams.org.

From Garden Cemeteries to American Forests: The Legacy of J. A. Warder

It was just seven years before his death that John Aston Warder led a group of early conservationists in Chicago to found what would become the oldest conservation nonprofit in the country, American Forests, in 1875. He was 63 years old.

What path led Warder into forest conservation later in life? As a child, he had enjoyed wandering the woods of his Pennsylvania home — an adventurous young naturalist, fascinated by the plants and animals he discovered. But he didn't wait six decades to harness his passion for the betterment of nature. Long before he was known for his work with forests and forestry, he had left his mark on the world of horticulture. In fact, Warder was enjoying an established career as a horticulturist just as the rural cemetery movement was taking root across the nation.

In the mid-1850s, he was presented with an opportunity to landscape one of the early rural cemeteries — Spring Grove in Cincinnati — in a more organic fashion as a way to promote the growth of nature within the city. He worked with Robert Buchanan, Spring Grove's first president, to plan the plantings of what would become Spring Grove Cemetery and Arboretum. He not only selected materials and plants, but also did much of the actual labor of tree planting, along with volunteers, before leaving the cemetery in the hands of Superintendent

Adolph Strauch. Warder's ideas to use a catalpa tree hedge and unfenced lots were considered highly original for the time.

Today, Spring Grove Cemetery and Arboretum remains one of the nation's most breathtaking garden cemeteries, with more than 300 acres of undeveloped green space. And, decades after his death, Warder's legacy continues to leave its mark on Spring Grove: The cemetery is now home to 23 Ohio state champion trees. Around the country, state champion tree programs have been inspired by the American Forests National Big Tree Program.

John Aston Warder is buried at Spring Grove. A large scarlet oak, a seedling planted from his home farm, grows by his grave.

Learn more about Spring Grove Cemetery and Arboretum at www.springgrove.org.

DAVE GRESSLEY/SPRING GROVE CEMETERY AND ARBORETUM



Ohio state champion western white pine at Spring Grove Cemetery and Arboretum



FLIGHT TO PLIGHT

Witnessing the Imperiled Migration of the Monarchs

BY JILL AND HAROLD DRAPER



BREATHING HARD IN THE THIN MOUNTAIN AIR, we reached the trail's end at the top of Sierra Chincua, a 10,000-foot-high biosphere reserve and world heritage site in central Mexico. Stepping into a sunny clearing, we looked about in wonder. Hundreds — no, thousands — of monarchs warmed by the noonday sun were swooping and swirling around us in lazy circles.



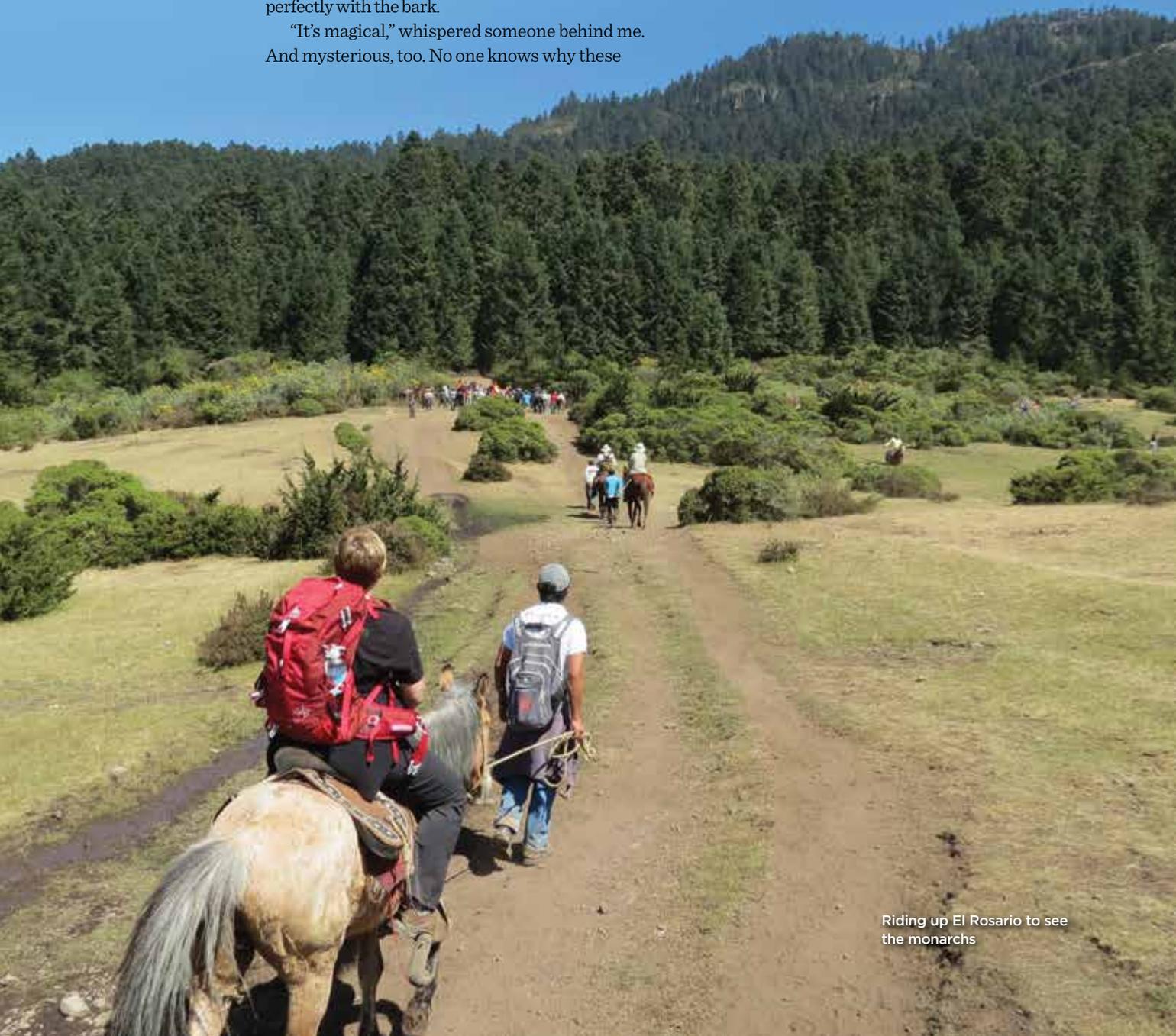
Monarchs
clustering on
fir trees

A few steps further took us back into the shade where even more butterflies could be seen, like orange sparks rising and falling against dark green fir needles and even darker tree trunks. The Vigilante Ecologico, rangers who monitor these woods, have roped off the most concentrated areas and keep a watchful eye on the scattering of tourists who come in mid-February to witness the annual overwintering of millions of the monarchs, which have traveled as far as 3,500 miles to this spot. With binoculars we could see deeper into the forest where huge clusters of monarchs huddled together for warmth, bending the boughs of trees or lined up in rows on trunks, the patterned brown undersides of their wings blending perfectly with the bark.

"It's magical," whispered someone behind me. And mysterious, too. No one knows why these

fragile-looking insects travel so far in a migration pattern that stretches from the Great Lakes region of the United States and Canada to the Mexican highlands. But we do know that things are changing. Monarch numbers have been dropping steadily for the last 10 years.

That's one reason American Forests has organized this trip for 26 members. We've come to learn more about what's happening to these creatures and to witness what some call the most complex animal migration in the world. And if the numbers continue to drop, it's an opportunity that may not arise again in the future.



Riding up El Rosario to see the monarchs



THE FLIGHT IN FLIGHT

Two days later, we found ourselves on a higher mountain, the 12,000-foot El Rosario, where the monarchs gather at the end of a path that includes nearly 800 steps. It was Sunday, and though a dozen of us had joined the crowds of Mexican tourists enjoying a weekend excursion, the rest of our group were riding up the steep hillside on horseback. The monarchs in this reserve are even more populous, and along a quiet fork of the main trail where they had gathered to sip water from a rivulet, we could actually hear their wings fluttering like a soft rainfall.

Mexican Indians have long known where the monarchs overwintered, but it wasn't until 1975 that the wider world learned the stunning details of their thousands-of-miles migration. The monarchs arrive in late autumn and spend the next five months or so resting and eventually mating. By mid-March, the females begin flying north, scouting out milkweed patches in Texas and the southern states where they will lay eggs that hatch into caterpillars.

But here's where the story gets weird. The migration of the monarchs happens in generational waves. The first-generation caterpillars change into butterflies, mate and advance north. Some make it all the way to Canada while others reach the lower Midwest, again searching out milkweed — the only plant their caterpillars can eat. Again, they lay eggs, hatch, metamorphose, mate and some continue north. After three to five short-lived generations, the last wave of pregnant females lays eggs. Then, the strangest part of all: The caterpillars from this last group become a long-lived "super generation" of butterflies that head south and migrate all the way back to central Mexico in the fall, in one long swoop. How they know to return to the same overwintering spots over a gap of several generations is still a mystery.

"There's nothing else like this on the planet," says Chip Taylor, an insect ecologist at the University of Kansas and director of Monarch Watch, a conservation and outreach program that promotes growing milkweed. "Lots of other butterflies migrate, but none of them cluster like

this and have such an intriguing life story." It was that life story that first surprised and captivated the world.

The public was shocked again in the 1980s when images of logging trucks filled with butterflies still clinging to freshly cut trees were televised. In 1986, the government established the Monarch Butterfly Biosphere Reserve, a 139,000-acre area that spans the states of Michoacán and Mexico. That designation and reforestation efforts have helped, but logging — both legal and illegal — remains the primary commercial activity

Center left: Monarch caterpillar on milkweed, their sole food source; below: Monarchs alight on the trunk of a tree.



VICKI'S NATURE/FICKR



J. DANIEL HAMMOND



**Gazing in wonder
at monarchs**

in these remote highlands where ancient volcanic mountaintops rim the landscape.

In addition to concerns about forest loss in Mexico, a sharp decrease in milkweed in the United States is another huge problem. This decline is largely attributed to an increase in the use of the herbicide glyphosate, used widely in sprays for controlling roadside vegetation and in a variety of genetically modified crops like corn, soybeans and cotton.

“I keep getting asked, what happens if the monarchs disappear?” Taylor says. “That’s not

the point. They’re one of those really conspicuous natural phenomena. We have to keep the pollinators healthy. When their numbers go down, it’s an indication of some serious things going wrong.”

Numbers of monarchs are hard to calculate, but the average number is thought to be 350 million. This year’s number is estimated at 60 million — an 80 percent decline. Their overwintering colony sizes are easier to measure. In 1996, the monarchs occupied a peak of 52 acres; in recent years their clusters take up barely three acres. We’re lucky to be here to witness them while we still can.



WITNESSING THE WONDER WITH AMERICAN FORESTS

Each day of our trip, after our outings, we returned to the small town of Tlalpujahua, one of several former mining communities in the region. The mines here produced gold and silver until 1937 when a major landslide occurred. Now much smaller, the town has come to rely on tourism and blown-glass Christmas tree ornaments for much of its economy.

Our hotel, the five-year-old Mansion de San Antonio, is built into the hillside, and when our full-sized coach bus pulled up each afternoon, we would hold our breath as the driver expertly maneuvered between the entrance and a vertical rock wall. Greeting us in the lobby, the hotel owner offered rounds of cocktails: margaritas, mojitos, wine, shots of tequila and bottles of Corona and Victoria beer. A visiting chef cooked delicious native dishes for breakfast and dinner. We started each morning with fresh papaya, pineapple and cantaloupe, followed by eggs scrambled with chorizo, salsa-topped Mexican cheese or pancakes and mangoes. Nearly every evening, we climbed the steps to the hotel's open-air rooftop event space to be entertained by musicians and dance groups.

American Forests used to organize trips for members, usually in the form of overnight horseback rides in the American West. From 1933 through the 1980s, the Trail Riders of the Wilderness program gave members the opportunity to learn about our forests first-hand. When Matthew Boyer, vice president of individual giving, joined the organization in 2012, he decided to renew the tradition. Our trip to see the monarchs is the first recent venture, or "Forestscape"; other trips to Hawai'i and Yellowstone National Park are being planned for this fall and next winter.

"I'm a huge fan of the outdoors and I think there's no better way to engage members than to get them into the woods to see the impact of our forest restoration work," Boyer says. He arranged the monarch trip with the help of Rebeca Quiñonez-Piñón, a former university professor who grew up in Mexico and now directs Forests for Monarchs, based in Austin, Texas.

A project of the nonprofit La Cruz Habitat Protection Project, Forests for Monarchs has partnered with American Forests Global ReLeaf program for almost a decade to restore crucial butterfly habitat as well as provide local jobs, protect watersheds and encourage responsible lumber industry practices. Since the partnership began in 2006, American



DEPARTMENT OF THE INTERIOR

Forests and Forests for Monarchs have planted 1 million trees together, bringing Forests for Monarchs' total to 7 million trees.

Trail Riders in Rocky Mountain National Park, 1938

One morning, we visit a nursery and Quiñonez-Piñón explains how seeds gathered by local residents from two species of native pines are planted in the fall and cared for until the rainy season in late summer. When transplanted during this wet period, the seedlings have an extremely high success rate.

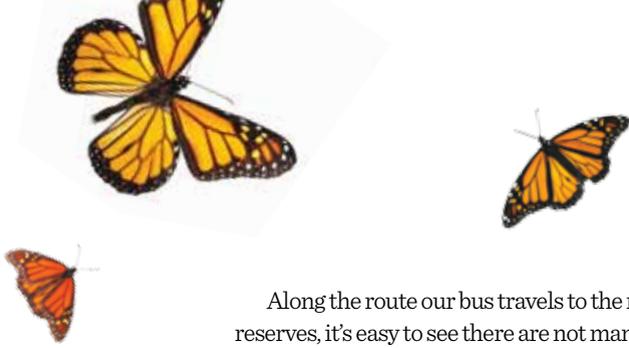
"It's understandable that there's a conflict between the monarchs and the logging industry because they need the same habitat," Quiñonez-Piñón says. "We're hoping to open more nurseries in the area and expand the number of seedlings being produced. We need more people to know about this problem."

The hotel Mansion de San Antonio



JILL DRAPER

JILL DRAPER



Along the route our bus travels to the monarch reserves, it's easy to see there are not many other jobs available. Clusters of small houses painted yellow, orange, blue and green dot the landscape between plots of iron-rich red volcanic dirt and rolling hills covered with cactus, agave and grasses. Occasionally we see a small herd of sheep or goats, or men with tractors or horse-drawn plows cultivating fields for spring plantings of corn, alfalfa, oats and fava beans. In higher elevations, agriculture is less common on the steep terrain. When traveling through Angangueo,



Below: Handpainting dishware at Estanzuela Ceramics Studio; right: Rebeca Quiñonez-Piñón of La Cruz Habitat Protection Project with Matthew Boyer and Scott Steen of American Forests



another former mining town that welcomes butterfly tourists, we encounter homes and stores stacked nearly vertically in a mountain canyon. We clap and yell “bravo!” as our driver twice backs down a narrow road for a quarter mile before finding passage for our 40-foot-long bus through the twisty streets.

Our trips to the two monarch reserves were bookended around a “cultural heritage day.” First, we visited Estanzuela Ceramics Studio where we browsed hand-painted dishware and ate a sack lunch in a sunny courtyard amid pink and red geranium flowers. Later, we toured Tlalpujahua, named by the Mazahua people and established as a formal Spanish settlement in 1603. We explored the slanting stone streets and admired the Sanctuary of the Virgen del Carmen, an eclectic half-Baroque, half-Neoclassical church that combines Catholic symbolism in its papal hat-shaped rooftop with indigenous images like the native jaguar.

A GREATER CAUSE

During our trip, it was announced that President Obama would meet with the president of Mexico and prime minister of Canada in Toluca to discuss, among other things, the monarchs. Later, the leaders agreed to create a working group to study ways to protect the butterfly.

Scott Steen, president and CEO of American Forests, was part of our tour group. He also emphasized the need to get governments working together with biologists, foresters, entomologists and general citizens — not just on the monarch situation, but on all types of environmental problems. “We can’t be satisfied with winning small battles, while we are losing the war,” he says. “The monarchs, like nearly 80 percent of the animal species in North America, are dependent on healthy forests. But if we want to have diverse wildlife populations for future generations, we also have to stop destroying their food sources with our chemicals and carving their habitat into smaller and smaller disconnected pieces.”

On one of our last nights in the mountains, we gathered on the hotel rooftop to witness the ceremony of El Palo Volador, “the pole flyer.” One by one, to the sound of a pan flute and a slow drumbeat, four young men dressed as eagles climbed a tall cedar pole to a small platform and wound loops of rope around their waists. A narrator below explained how this prayer-like tradition originated with the Mazahua people, later incorporating a tribute to a local saint, San Pedro Tarimbaro.

“We hear an ancient call that brings hope to the modern earth,” the narrator said. “A call to places



JILL DRAPER



NICOLE DE NARAY

where the earth ends, to places where nothing is impossible. All of this enriches and renews the earth, as the cycle of life continues.”

Suddenly, the men launched themselves backwards and dangled upside down, spinning around the pole in wider and wider circles until just before reaching the ground, they flipped upright again.

We were mere bystanders for this centuries-old event, but as American Forests supporters, we echo the sentiments expressed: Let us bring hope to the modern earth by advancing causes that enrich and renew it. And let us protect places like the deep fir and pine forests, thick with orange and black butterflies, where maybe still, nothing is impossible.

Jill Draper is a freelance writer at jilldraperfreelance.wordpress.com. Harold Draper blogs about ecoregions at enviromble.net. They live in Kansas City, Mo.

To learn more about American Forests Forestscapes, including our upcoming trip to Hawai'i, visit www.americanforests.org/events.

Top: Performers in the ceremony of El Palo Volador, “the pole flyer”; bottom: Monarch butterflies

70 SMOKEY TURNS

BY KATHIANN M. KOWALSKI

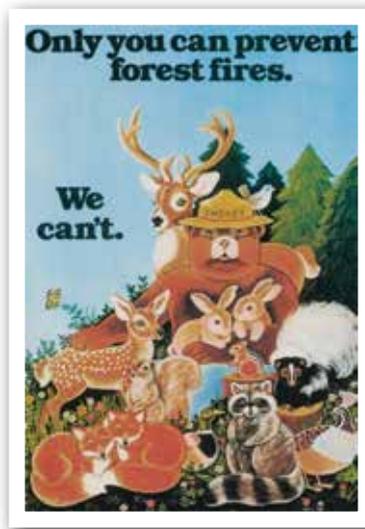
A NEW SMOKEY

Seventy years ago this summer, Smokey Bear's first public service ads appeared. Since then, his main message has stayed basically the same: "Only YOU can prevent wildfires."

Yet Smokey is no stodgy septuagenarian. Smokey has "evolved with the times," stresses Ellyn Fisher, a vice president at the Ad Council, which creates Smokey's ads. Early images of Smokey seemed somewhat stern. In one 1944 ad, he looks at us out of the side of his eye as he douses an unattended campfire. His grim looks seems to ask, "Did you leave this fire unattended?"



U.S. DEPARTMENT OF AGRICULTURE



BOTTOM THREE PHOTOS: AD COUNCIL

Left: An early Smokey Bear ad from 1944; Center: A 1979 Smokey Bear ad; Right: Smokey Bear in 2011



Smokey warns of extreme fire danger near Hailey, Idaho.

Newer Smokey Bear Hugs ads show Smokey's softer side as he rewards people with bear hugs for practicing fire safety. In one recent ad, a young couple stares awe-struck after Smokey after receiving a hug for properly extinguishing their campfire.

Smokey's not the only thing that has changed with the times. The ways we manage — and think about — the wildfires he urges us to prevent have changed too.

NEW CHALLENGES

"Natural climate variability always gives us a wild ride," notes Bill Patzert, a climate scientist with NASA's Jet Propulsion Laboratory in California. For example, much of the West is currently in a drought linked to the Pacific Decadal Oscillation, a climate pattern that causes climate swings every 20 to 30 years.

Today, though, longer-term worries come from climate change linked to greenhouse gas emissions. "The real concern is that we're going to have more extremes," notes climate researcher David Peterson at the Forest Service's Pacific Wildland Fire Sciences Laboratory in Seattle. "We anticipate by the middle of the century, we'll be burning two to three times as much area in the West as we do now," he says. So expect to see Smokey warning of red alerts at parks and forests more often.

Meanwhile, about 70,000 American communities now abut natural areas. "More people are building in the wildland-urban interface than ever before," says Loren Walker, acting national fire prevention manager for the U.S. Forest Service. Residential spread increases risks for accidental wildfires. As Patzert puts it, "People equal fire."



IAN GROB, U.S. FOREST SERVICE

The Forest Service's new helicopter rappel descent device aims to deliver firefighting crews to the scene of wildfires more safely.

NEW UNDERSTANDING

Smokey urges us to prevent wildfires, and that's because people are still the No. 1 cause of wildfires in the United States. Generally speaking, the less often accidental fires occur, the better.

The smaller percentage of fires that start naturally by lightning are another story. "Fire isn't necessarily a bad thing," says Alex Gavrishchik at the Forest Service's Missoula Technology and Development Center in Montana. Instead of preventing all fires, he says, "we try to manage fire." Thus, agencies can now let naturally caused fires burn as long as lives aren't at risk.

Historically, fire has been a regulating agent for forests, explains Brandon Collins at the Forest

Service's Pacific Southwest Research Station in California. "It kept tree densities fairly low and it also kept a lot of fuel from accumulating on the forest floor." More fuel means hotter burning fires, which are harder to contain.

Now, prescribed burns help remove excess fuel. Other projects clear brush or thin trees in dense areas that haven't burned in a while.

NEW MANAGEMENT

Meanwhile, Smokey's prevention message still matters, and accidental human-caused fires require a response. In 2012, fire-related activities ate up more than 40 percent of the Forest Service budget, leaving funds for other important conservation programs diminished.

But there is hope on that front. A group of 160 conservation, recreation, forestry and other groups, including American Forests, continue to fight for the successful passage of the Wildfire Disaster Funding Act. This act ensures funding for both wildfire first responders and for land managers, creating an emergency funding process for fire response that mirrors the funding process FEMA depends on to respond to other natural disasters. This process works to reduce the amount of emergency firefighting funds being borrowed from other important Forest Service programs. As fires continue to burn more frequently and with greater intensity, it is increasingly important to have a funding strategy to meet the challenges.

Of course, fighting wildfire cannot be done in Washington alone. Things have changed for the boots on the ground as well.

Agencies use updated helicopters and aircraft. The Forest Service has also invented a new descent device that lets firefighters slide down safely from helicopters, even in the ever-changing conditions of a wildfire.

As workers build fire lines, other crews slow the fire's spread with foams, gels and retardants. Recent developments include more effective and environmentally safer products.

Foam chemicals decrease water's surface tension. That process "allows water to penetrate into real dense fuel, like a smoldering log or thick dust layers," says Shirley Zylstra at the Forest Service's Missoula Technology & Development Center.

Gels make water thicker. "They're the same types of chemicals that they use in baby diapers," says Zylstra, so they hold lots of water to protect nesting trees, cabins, or other sensitive areas. With consistencies like mayonnaise or Vaseline, gels get applied



Smokey Bear tweets. He is on Facebook, Instagram and YouTube. He's even on LinkedIn. "We have him out there," says Walker.

from the air or ground very shortly before a fire arrives. In a pinch, they can go on active flames too.

A NEW AGE

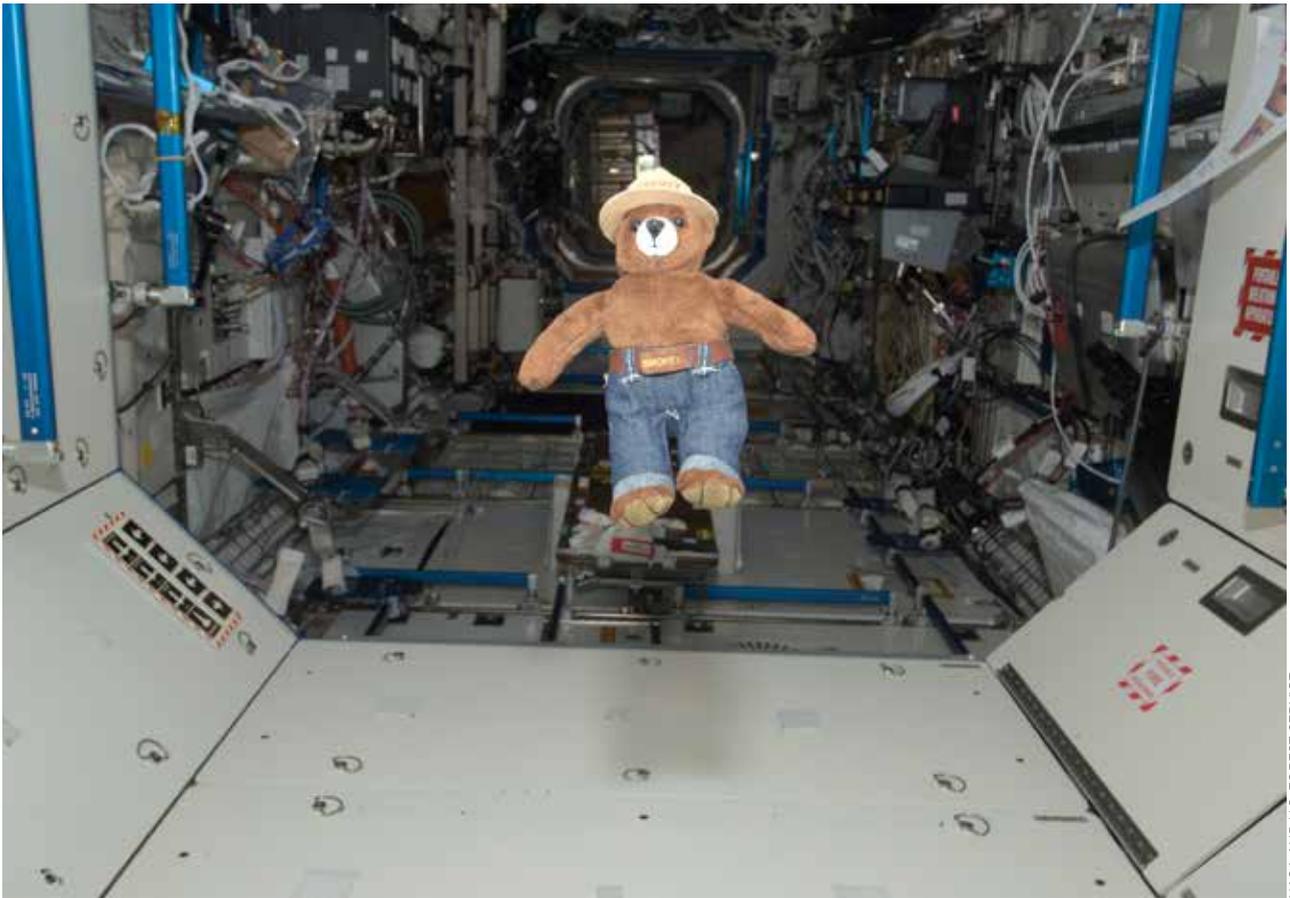
In 2012, Smokey Bear went to the International Space Station in the form of a plush toy, as a symbol for wildfire prevention, to help draw

awareness to the research related to plant growth and combustion and materials sciences being conducted on the space station.

"Satellites are the first to detect some of these fires as they're started," says Doug Morton at NASA's Goddard Space Flight Center in Maryland. He describes the satellite as "the tallest fire tower around."

Satellites also help with planning. "Areas that have not burned during the satellite era might be at greater risk," adds Morton. That's because the longer it's been since a fire, the more fuel is likely to be built up. Agencies can use that information to position firefighting resources. The information also helps with fuel reduction programs,

A National Guard aircraft equipped with the Modular Airborne Firefighting System drops retardant over trees in the mountains above Palm Springs as part of the response to the 2013 Mountain Fire in California.



NASA AND U.S. FOREST SERVICE

Smokey Bear has entered the Space Age, as shown by this 2012 photo captured aboard the International Space Station.

such as tree thinning or prescribed burns, by indicating areas in need of such measures.

Space is not the only frontier Smokey has explored. He now has a huge digital presence too. Smokey Bear tweets. He is on Facebook, Instagram and YouTube. He's even on LinkedIn. "We have him out there," says Walker.

Smokey's not alone in going digital. More and more, computer modeling plays a role in fire management. Weather forecasts from local radio or TV stations might cover a whole county or more. When wildfire breaks out, forecasts on that large scale aren't good enough. "For fighting fire, what we really need is a very small scale [forecast]," says Shyh-Chin Chen at the Forest Service's Southwest Pacific Research Station. Crews need to know precisely where fire will go and how fast it will spread. For example, says Chen, "wind is one of the most important factors that affects the fire spread." But in hilly areas like southern California, terrain can cause very local shifts in wind and other factors.

The winds of wildfire management have certainly shifted over the last 70 years, and 2014 will be a befitting year to look back and learn from our mistakes and successes, as Smokey Bear himself

Greater success in restoring forests and removing excess fuel can lower the risks of devastating fires and habitat loss.

turns 70. Smokey will make lots of appearances this summer as he celebrates his anniversary. Watch for him on TV, at parks, around county fairs and elsewhere. "Smokey is communicating that personal responsibility message — that everyone can do something to prevent wildfires," says Fisher.

Meanwhile, government agencies and groups like American Forests are doing their part. Greater success in restoring forests and removing excess fuel can lower the risks of devastating fires and habitat loss. That's something Smokey and all of us can celebrate. 🍀

Kathiann M. Kowalski has written 25 books and more than 600 articles, including many features on science and technology. She lives and writes near Cleveland in northeast Ohio.

LASER MEASUREMENT TOOLS AND TECHNIQUES

- + Learn how LTI lasers can simplify field measurements
- + Attend webinar series to win a laser
- + Visit www.lasertech.com/af

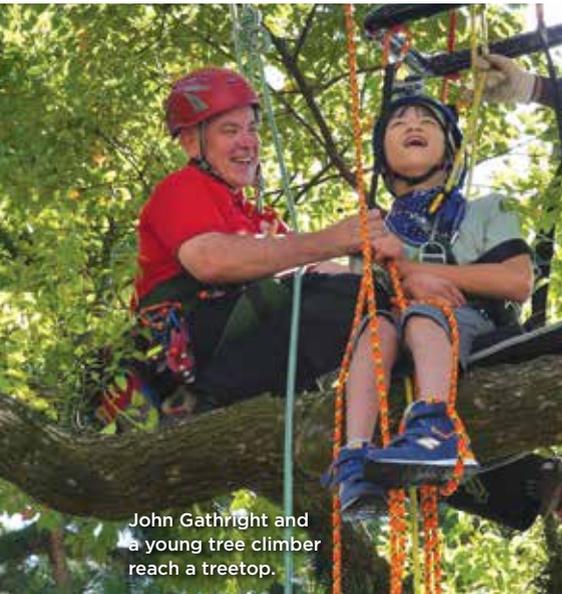


TruPulse® 360°

Calculates horizontal distance, height and contains a built-in compass for 3-D missing line values, azimuth measurements and mapping applications.



Treehab: The Healing Power of Tree Climbing



John Gathright and a young tree climber reach a treetop.



John Gathright helps a young tree climber discover her potential.

WHAT WOULD YOU DO if you knew that climbing trees could lower pain sensitivity and stress in people with disabilities? If you knew that it could increase the experience of positive emotions while decreasing negative ones?

For Dr. John Gathright, founder of Tree Climbing Japan, the answer to those questions is simple: Get more people into trees!

Gathright had already been leading tree-climbing expeditions for children with disabilities for close to a decade when he began pursuing a self-designed doctorate in the physiological, psychological and societal benefits of purpose-specific tree climbing programs. After searching in vain for an expert who could help explain and quantify the amazing benefits he'd observed in the course of his work, he realized he'd have to do it himself. By the time his story was presented at the 2013 Partners in Com-

“Little miracles
were happening
all over Japan
up in the trees.”

— DR. JOHN GATHRIGHT

munity Forestry Conference in Pittsburgh, it was a story that could bring tears to the eyes of American Forests' staff, already well aware of the emotional and psychological benefits of trees.

It had all begun in 1997 when 57-year old Toshiko Hikosaka set out to climb a giant sequoia tree in California. In 2001, with Gathright and Tree Climbing Japan's help, she became the first paraplegic person to do so. The expedition to the top of the 243-foot Stagg tree — the fifth largest giant sequoia — culminated in triumph, wonder ... and exhaustion.

With Hikosaka too tired to climb down safely, the group spent the night in the boughs under the stars.

But the finish line of Hikosaka's climb up the Stagg tree was just the beginning of another dream. Her strength and resilience is inspiring and uplifting, but not, as Gathright would discover, unique. Later, after they had returned to Japan, he found that a documentary of Hikosaka's climb had left people all over Japan hankering to follow in her footsteps. In particular, he met many children who wanted to experience “treehab” — rehabilitation therapy through tree climbing — the adaptive tree climbing techniques that Gathright had developed with Hikosaka. So Gathright led the founding of the nonprofit Treehab, specializing in tree-climbing rehabilitation and therapy.

Soon, Gathright and the others at Treehab were seeing tremendous changes in the children's moods and



Toshiko Hikosaka (left) and John Gathright (right) with Treehab participants



Dr. John Gathright giving a TED Talk in Kyoto, Japan

TEDKYOTO

outlooks. As Gathright puts it, “Little miracles were happening all over Japan up in the trees” as the little climbers felt less pain, as their depression eased and as more smiles and laughter rang through the treetops.

And so Gathright soon found himself working with other researchers at Nagoya University, asking the question, “How do people change when they climb trees?” They measured pulse and stress hormone levels on the ground and again in the trees. They studied

pain sensitivity. Time and again, their research showed the positive effects tree climbing was having on the kids. Even more interesting, they collected the same data while climbing concrete towers and discovered the effects were not as strong — not even when the tower was in the same forest. It wasn’t just the climbing. It was the trees.

Today, Treehab has helped thousands of children with physical disabilities and emotional trauma discover their inner tree climber and boost their confidence.

Gathright found that the more you learn about how trees can help people — he calls trees our friends, teachers and doctors — the more you’re compelled to harness their power. American Forests continues to protect and restore forests so that future generations can also experience their healing presence. 🌱

Learn more about John Gathright and Treehab in the TED Talk “Out on a Limb — The Healing Power of Trees,” available on www.youtube.com.



WE PROTECT SOME OF AMERICA'S MOST VALUABLE ASSETS.

Clean air. Clean water. Health. Wildlife habitat. The environment. Our great, outdoor heritage.



AMERICAN FORESTS

Learn more about today's American Forests. Visit americanforests.org

last look



NICHOLAS A. TONELLI



Propelled

This cascading stream, sometimes called Beech Bottom Run, is among the most picturesque to grace the remote, rugged depths of north-central Pennsylvania's Allegheny Plateau. Found at the Forrest H. Dutlinger Natural Area, the stream forms a memorable setting: a deep mountain hollow with eroded, mossy rocks and towering stands of old-growth hemlock and hardwood trees.

An amateur naturalist and self-taught photographer, Nicholas A. Tonelli combines his passion for photography with his enjoyment of hiking and the outdoors. From deep forests to sweeping vistas of land and sky, he'll shoot whatever catches his eye.

Tonelli enjoys exploring the extensive but often little-known wild and natural areas found in his native Pennsylvania as well as in neighboring states. By showcasing these areas, he hopes to dispel the myth that the region is nothing more than a crowded, paved-over, heavily industrialized stretch of land. Nature abounds; each hike, in fact, presents the opportunity to experience nature in a uniquely different way.

Eddie Bauer EST. 1920

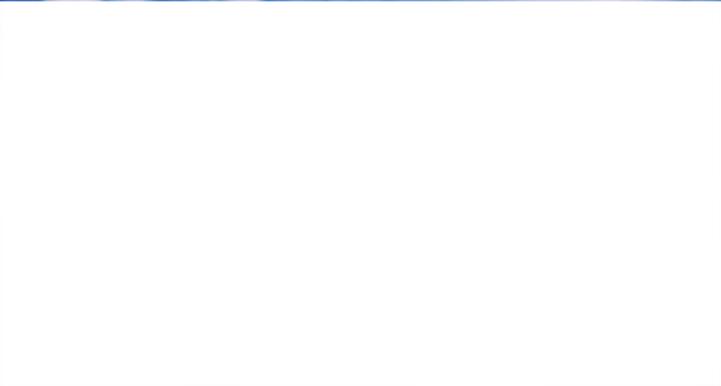
EDDIEBAUER.COM / © 2013 EDDIE BAUER LLC



TOGETHER WE MAKE A DIFFERENCE

With each purchase, Eddie Bauer encourages customers to donate \$1 to plant a tree through American Forests' Global ReLeaf program. Since 1990, American Forests' Global ReLeaf program has planted more than 40 million trees across the country and around the world, and more than five million of those trees have been planted thanks to Eddie Bauer and its customers.

LIVE YOUR
ADVENTURE



TREES ARE CHAMPIONS OF THE ENVIRONMENT.

Champion trees are the trophy trees of their species. To wear their crown, they survive disease and pests, mistreatment, and the forces of nature.

By nationally recognizing the biggest trees of their species, we draw attention to the key role all trees play in sustaining a healthy environment.

Trees enhance the environment by providing clean air, pure water, shade and shelter, as well as beautiful vistas and landscapes.

Davey's skilled arborists can help to make sure that the trees we live with thrive, and make our communities greener, cleaner places to live, work, play and grow.



The Davey Tree Expert Company

Long-time supporter of American Forests and the premiere sponsor of the National Register of Big Trees
1-800-445-TREE • www.davey.com