

AMERICAN

SUMMER 2020

# FORESTS

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THE FIGHT TO PROTECT  
HIGH MOUNTAIN FORESTS



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AMERICAN FORESTS



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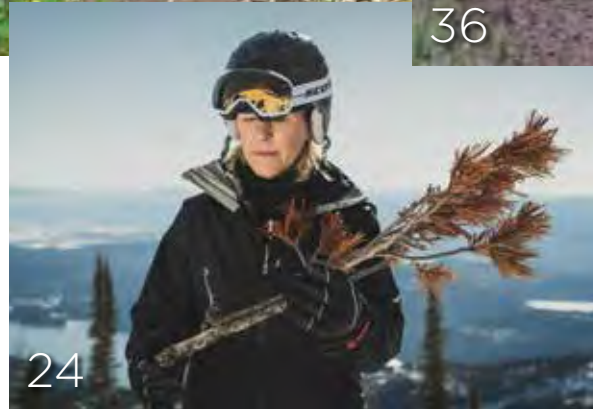
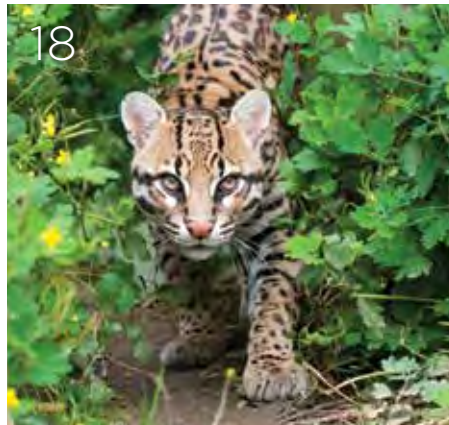
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**CORRECTION:** On pg. 26 of the winter/spring 2020 issue (print edition only), the map representation of both tree canopy and poverty in Detroit were incorrectly inverted.



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## Finding Ourselves in the Forest

BY JAD DALEY

I GREW UP spending my summers on MacMahan Island in Maine, a glorious piece of nature only accessible by boat. There was a wealth of undisturbed forests and coastline to explore. Wandering this island was the defining experience of my childhood, alternately providing peaceful moments of quiet and thrilling new discoveries, such as a surprising wetland hidden in the forest or an osprey nest above a remote cove.

I think back to those memories a lot these days. We have never needed forests more to calm our minds and bring fun into our lives. It feels like American life is spiraling upward in productivity and achievement, but with a cost to our work-life balance. This fast pace seems to touch Americans of all ages — from children in school to executives in the work force.



Many people are so busy that they forget to take a walk in a forest or sit under a tree to read a book. Even many outdoor enthusiasts seem to have increasing difficulty finding time for camping, climbing, skiing, hunting and angling. The COVID-19 pandemic, which has prevented many people from being able to freely go outdoors, has both reminded us of how much we need these experiences

and the increasingly diverse ways in which this is becoming more difficult.

We cannot remove all of these barriers, but I have always yearned for everyone to have maximum possible access to enjoy the outdoors, just as I was privileged to experience on MacMahan Island. I am proud that American Forests is helping to make this possible, particularly our work to

protect and restore public lands that, during normal times, are open to all. Here are some great examples of this work in action:

### 1. Restore Recreation Areas.

We recently did an analysis to see how American Forests' reforestation work in the Sierras, Rockies, Great Lakes, Appalachia and other large forest landscapes aligns with the National Scenic Trail system. Why? When forests along these trails are damaged by wildfire, pests, disease, ice storms and more, recreation experiences also suffer. The analysis confirmed that our tree planting work with partners, such as the U.S. Forest Service, is systematically repairing the National Scenic Trails system and other priority recreation landscapes, especially where we are restoring vulnerable high-elevation forests that are easily lost and slow to recover.

### 2. Bring Habitats Back to Life.

Our reforestation of rural landscapes, such as the Lower Rio Grande Valley of Texas, brings forests back where they have been lost to human actions, such as clearing forests for agriculture. In the Valley, much of this effort is on land purchased by the U.S. Fish and Wildlife



Maine's nearly 3,500 miles of coastal forests offer endless beauty and wonder.

Service to create national wildlife refuges. That helps people enjoy these renewed forests and gives wildlife the freedom to roam. The annual birding festival in the Valley, for example, draws in thousands of birders and wildlife lovers from around the world to explore restored thorn forests we have helped to replant on these refuges.

**3. Create Tree Equity.**

If you live in a leafy neighborhood or a more rural community, you can take for granted the small dose of nature that you experience every time you pass under a tree. You can also take for granted trees' role in cooling recreation areas, like parks and bike paths, and improving air quality in them. But in cities across America, lower income neighborhoods and some communities of color consistently have less tree cover to provide these benefits. That's why we see our Tree Equity work in cities as advancing nature equity and recreation equity along with public health, climate resilience and other goals.

**4. Create More Public Land.**

American Forests advocates for increased public funding to purchase forestland for public ownership and use. Purchasing *more* forestland for

public ownership means there are *more* public forests to enjoy closer to *more* people. Our work includes advocating for the Great American Outdoors Act, legislation to ensure the Land and Water Conservation Fund gets the full \$900 million each year it was promised when the fund was originally established by Congress decades ago. This is approximately double the actual funding levels Congress has provided in recent years. We are also advocating for states and local governments to increase their investment in public land acquisition. Success in these public policy efforts will lead to more public forestland for people to enjoy.

Thank you for making it possible for American Forests to expand and improve forest-based recreation opportunities across the nation. Hopefully, this column has you primed for your next adventure in the woods! ♦

For more news and updates from Jad, follow him on Twitter @JadDaley



AMERICAN FORESTS

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American Forests' mission is to restore threatened forest ecosystems and inspire people to value and protect urban and wildland forests.

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INNOVATION

## Turning Waste to Wealth with a Wood Reuse Economy

LARGE TREE BRANCHES and used timber piled up at Baltimore’s 5-acre forestry waste station called Camp Small.

Many of the branches were from trees in Baltimore damaged during storms. Or, they had been cut from trees to make room for new construction. Nearly 78,000 tons of this type of wood was brought to Camp Small by city crews every year just to be thrown out.

But that was a few years ago. Now, Baltimore, and close to a dozen cities across the country, are reusing this reclaimed wood instead of throwing

it out. They are repurposing it in new construction, residential repairs and remodeling, packaging and shipping, and to make furniture, railroad ties, fencing and other products.

Many are following the guidance on why and how to do so that is captured in the new Urban Wood Reuse Action Guide on the Vibrant Cities Lab website. The guide, derived from a workbook written by the U.S. Forest Service’s Northern Research Station in Baltimore, offers step-by-step instructions on building a wood reuse economy. Topics in it range

from how to form strategic partnerships to identifying methods and tools to count, salvage, sort and produce wood products. It also offers financial strategies to raise capital and increase cash flow. And, it suggests tools for evaluating social, economic and environmental impact.

American Forests incorporated the guide into Vibrant Cities Lab because of the many economic upsides to reusing wood. Jobs — such as hazardous tree removal, lumber processing and building furniture — are created. Cities save money because they don’t have to pay for wood waste to be thrown away, energy costs are reduced and fewer social programs are needed (due to the uptick in jobs created by this new economy). Cities also make money through new revenue streams from offering city-harvested wood products.

*“When recovered wood, like building materials, old furniture or even storm debris are treated as waste, there is a missed opportunity to reap the full benefits of those material resources.”*

— IAN LEAHY, VICE PRESIDENT OF URBAN FORESTRY, AMERICAN FORESTS



A Baltimore-based nonprofit called Humanim salvages old-growth planks, as well as hand-formed bricks and marble steps.



Humanim deconstructs abandoned homes and recovers material for further processing or reuse by architects, furniture makers, artisans and builders.

There are also environmental benefits of this practice, such as sequestering thousands of tons of carbon in the products created with reused wood.

Urban wood reuse operations can be used as a tool for human empowerment, creating a positive feedback loop in cities and helping those most in need of careers by increasing the pool of trained green-collar workers. For example, Humanim, a Baltimore-based nonprofit, trains and pays hundreds of people who would normally be left out of the workforce. One such individual transitioned from being

unemployed to being a homeowner sending his child to college because of this urban wood economy.

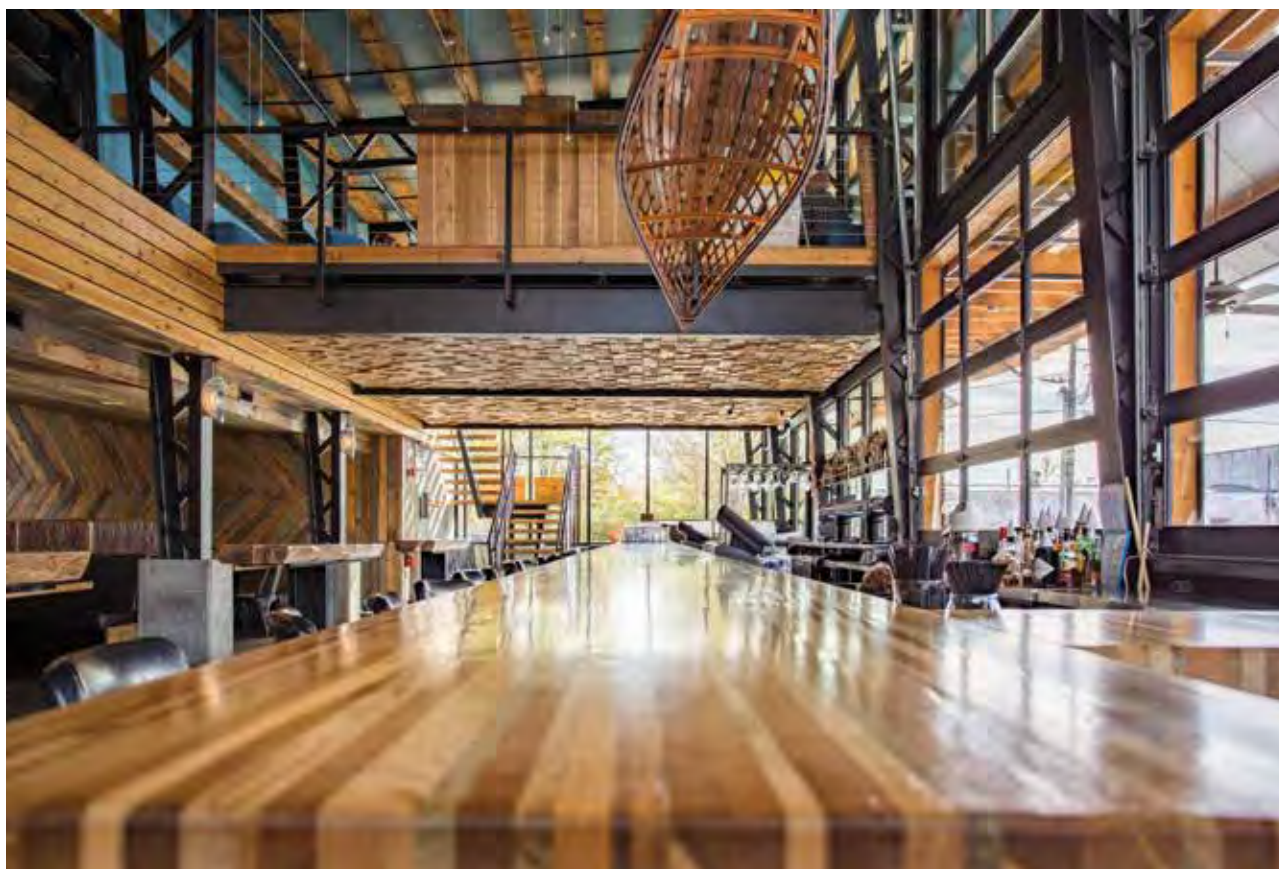
“American Forests believes a healthy urban forest should be managed like a traditional forest, and that includes turning wood into products after their life cycle as a city tree comes to an end,” says Ian Leahy, vice president of urban forestry at American Forests.

Reclaimed wood from trees in cities could comprise nearly 30 percent of the annual hardwood consumption in the United States. There’s a lot of wood from which to choose. Approximately

17 percent of municipal waste nationwide is from some form of wood. And remarkably, a little more than a decade ago, the amount of urban tree and woody yard waste generated nationally exceeded the volume of timber harvested from U.S. national forests.

“When recovered wood, like building materials, old furniture or even storm debris are treated as waste, there is a missed opportunity to reap the full benefits of those material resources,” says Leahy. 🌱

To download the Urban Wood Reuse Guide, go to [vibrantcitieslab.com](http://vibrantcitieslab.com).



Reclaimed wood is repurposed for such things as new construction and remodeling.



An intense wildfire ripped through this canyon in California, killing all the trees and leaving behind patches of barren land.

PLACE-BASED PARTNERSHIPS

## American Forests and Intel Commit to King Fire Restoration

THE DISASTROUS KING FIRE ravaged huge tracts of California’s Eldorado National Forest, leaving a landscape of smoldering stumps. The month-long blaze in 2014 incinerated an estimated 100,000 acres, an area as large as Atlanta. That grim toll is a footnote to a decade of devastation in the state: Since 2010, more than 162 million California trees, across 10.5 million acres, have died.

Like many fires in recent years, the King burned hotter and longer due to dry conditions and excess fuel on the ground. It killed all or most of the adult trees in its path. In response,

American Forests doubled down on its commitment to California, pledging to work with the U.S. Forest Service (USFS) to restore 10,000 acres of the most severely burned areas in the next 10 years. In 2019, Intel, the multinational technology company headquartered in California’s Silicon Valley, became a partner in this effort, providing capacity-building and financial support to help revive the forest.

“At Intel, we recognize the importance of our impact on the planet, and we saw an opportunity to help reforest a fire scar located near our headquarters,”

says Fawn Bergen, global water stewardship manager at Intel. “This partnership with American Forests not only allows us to support reforestation efforts but to also dive into more complex issues around forest health and changing conditions, like climate change.”

Intel’s commitment helped American Forests secure an additional grant from the Bella Vista Foundation, which boosted resources for restoration, including securing a Sierra Corps Fellow to dive into complex climate questions. Brittany Dyer, California state director for American Forests, notes that the resources Intel provided will have a major impact for both the forest’s long-term health and ongoing benefits to Californians.

“Fire scars can serve as a blank canvas,” Dyer says. “They give us an opportunity to ‘paint’ — to get creative and develop climate-smart forests that meet today’s challenges.”



One of the ways to do this is through climate-smart reforestation.

Gary Cline, who manages the USFS' local tree nursery, says that successful regeneration can take centuries, but planting seedlings speeds things up, saying "It's probably shaving a hundred years off the process."

As part of this project, Intel has demonstrated its commitment to long-term forest health by agreeing to provide employee volunteers to help with a technique called "release" — where competing vegetation is removed from the seedling site, promoting seedling success.

"Our work on the fire scar allows us to intentionally create the best forest conditions possible," Dyer says.

**"This partnership with American Forests not only allows us to support reforestation efforts but to also dive into more complex issues around forest health and changing conditions, like climate change."**

— FAWN BERGEN, GLOBAL WATER STEWARDSHIP MANAGER, INTEL

After the King Fire, American Forests set out to restore thousands of damaged acres — and this partnership with Intel is a key part of the equation. The effort is especially critical for the health of the American River, a major source of drinking water for many Californians, because tree root systems prevent landslides, filter rainwater and keep sediment out of sensitive streams.

"One way or another, whether through active management or neglect, we are *all* creating — or 'painting' — the landscapes of tomorrow," Dyer says. "Working with public and private entities, such as the USFS and Intel, to help create tomorrow's masterpiece is *our* responsibility." 🌱



After a wildfire, shrubs (such as those in the foreground) come back quickly. But they compete for sunlight with pine seedlings. A good forest restoration plan would prevent this from happening.



Left: Daley discusses the FCWG Policy Platform with members from both U.S. political parties in March. Below: Rita Hite, co-chair of the FCWG, works with other members to create a list of priorities for the FCWG to focus on in 2020.



**MOVEMENT BUILDING**

## Creating a Movement for Forest-Based Climate Solutions

THIRTEEN YEARS AGO, the idea that healthy forests are one of the best solutions to climate change was barely on anybody's radar.

It was top of mind, though, for the relatively small cadre of people advocating independently for the creation of a federal program — what was referred to as “cap and trade” — that would limit the emission of carbon dioxide from industrial activity.

They were not successful. But the experience of fighting for the program made them understand the value of working together, not individually.

That's when American Forests President and CEO Jad Daley came up with the idea of creating the Forest-Climate Working Group (FCWG). It is the only coalition in the country working to advance state and

federal policies that recognize forests, forestry and forest products as a climate change solution. A strength of the coalition is its diverse membership — more than 50 entities representing forest sector businesses, conservation nonprofits, academic institutions, carbon markets, government agencies, state foresters and private landowners.

The role of the coalition is twofold: provide policymakers with innovative, science-based ways to leverage forests as a natural climate solution and serve as a powerful unified voice to support policymakers seeking to make an impact on the climate crisis.

The need for the coalition has never been more important, given that forests in the United States are at a pivotal inflection point. They are simultaneously impacted by climate

change (and conversion from forests to other uses, such as development) and an important solution to climate change. We cannot solve climate change without at least sustaining the current contributions of forests. Our chances will improve dramatically if we take action to realize the scientifically-demonstrated potential to nearly double today's natural carbon capture in forests.

The FCWG has been successful in getting bipartisan policies created and funding allocated so U.S. forests and forest products can reach the full potential they have to slow climate change.

But more work is needed. That's why American Forests has made it a priority to fund, staff and lead the FCWG. 🌱

Join the movement. Learn how at [www.forestclimateworkinggroup.org](http://www.forestclimateworkinggroup.org).



Timberland's 13-foot-tall boot brought crowds of people to American Forests' booth in New York City to learn about the benefits of trees.

#### PARTNER PROFILE

## American Forests Named Timberland's North American Tree Planting Partner

WHEN YOU THINK of Timberland, an image of a classic 6-inch rugged work boot is likely to come to mind. But one that is 13-feet tall and dropped in New York City's Flat Iron Plaza? That's just what happened last October when the brand popped up in the plaza to support its bold new commitment to plant 50 million trees around the world by 2025.

American Forests is proud to serve as Timberland's North American partner to help reach this goal. Together, American Forests and Timberland will plant hundreds of thousands of trees

throughout the United States and Canada, starting with a special focus on areas of high need. One of them is Paradise, Calif., where the Camp Fire burned nearly 155,000 acres in 2018.

Members of the American Forest staff attended the event in New York to speak directly with consumers about the benefits of trees, their overall impact on our health and climate and how consumers can make small changes that will have a big impact on the environment.

Timberland and American Forests also launched a campaign

in Timberland's stores and on Timberland.com that invites consumers to join the movement. Customers can donate \$1 to plant a tree when they check out at any Timberland store. Or, when shopping online at Timberland.com, customers can choose ground shipping, and the company will donate \$1 to plant a tree.

To date, funding to plant more than 200,000 additional trees has been committed in the U.S. through the partnership. By the time the trees planted in these forests are 50 years old, the forests will have stored in their roots, stems and trunks the equivalent of greenhouse gas emissions from 14,912 passenger vehicles being driven for an entire year. The trees will also capture, store and filter 70 Olympic-sized swimming pools worth of water every year. 🌱

YOUTH PROFILE

## Girl Scout Alex Herr Trailblazes Project to Get Youth Hiking

ALEX HERR was just 5 years old when she embarked on her first hike and attempted to climb the 4,006-foot Mount Tecumseh in New Hampshire with her mother.

“The snow was deeper than expected, and we had to turn around,” she recalls. Bigger hiking adventures followed. Herr tackled the Camino de Santiago trail in Spain at 10, and the John Muir Trail in California a year later. Now 17, she has summited all 48 of New Hampshire’s 4,000-plus-foot peaks.



Above: Alex Herr designed the 13 Before 13 patch to award to pre-teens who complete the challenge.

Right: Herr summiting Mt. Carrigain via the Signal Ridge Trail in November 2019.

Over the past few years, she’s channeled her enthusiasm for the outdoors into a project she created for fellow Girl Scouts in the White Mountains of New Hampshire. Called 13 Before 13, it’s a primer for beginning hikers, with a list of 13 easy-to-difficult walks that pre-teens can complete with their families. Featuring a website, a Facebook page and a patch she designed herself, the initiative earned Herr the Gold Award, Girl Scout’s highest honor.

Girl Scouts approved the list in November 2019, and already several New Hampshire troops are tackling the hikes, and parents of younger

children say they plan to make the list a family project.

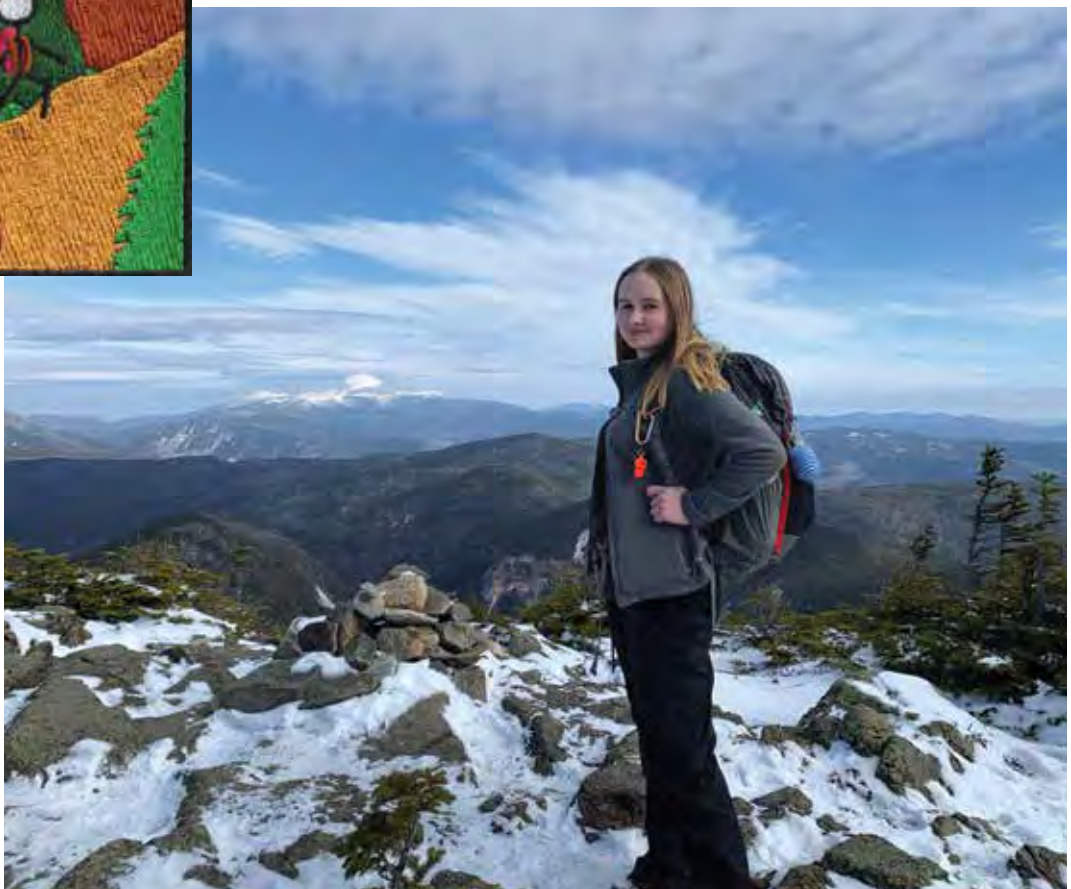
Herr enthusiastically supports American Forests’ efforts to reforest and protect existing forests.

“Planting trees is so important,” Herr says. “It’s a great response to tragedies, like wildfires, which are so damaging and cause suffering for people and animals. It makes you want to focus on preserving the forests we have left.”

Herr built 13 Before 13 to encourage that conservation ethic and get young people outdoors. The guide highlights some of her favorite hikes, including Bald Mountain in Franconia Notch.

“It’s very small and short but fun, with lots of rock scrambles and pretty views,” Herr says. “And the trees are gorgeous in every season.” 🌿

Find the 13 Before 13 guide at [www.13before13.com](http://www.13before13.com).



COURTESY OF ALEX HERR

**ACTION CENTER**

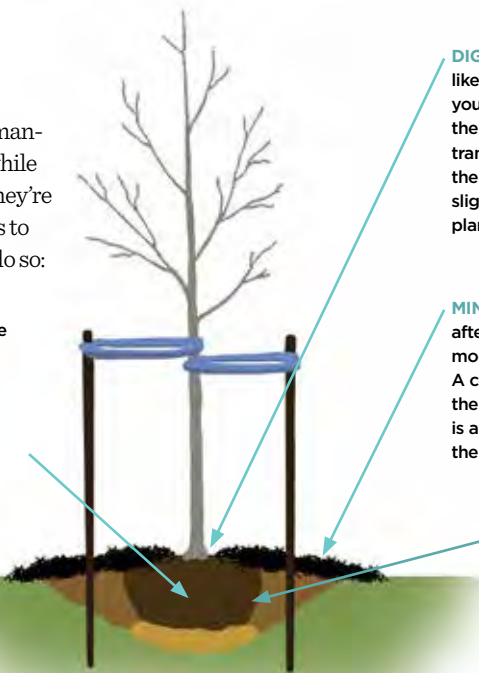
## Show Your Love

**PLANT TREES.** That is an American Forests' mantra. But trees won't survive without some love while they are being planted, growing and even after they're fully mature. So, the second part of our mantra is to take care of trees. Here are a few tips on how to do so:

**LET YOUR TREE DRINK:** They need water, either from the sky or a hose. Trees need up to 15 gallons of water per week through at least their first growing season to help their roots establish.

**HANDLE WITH CARE:** When removing a tree from the container or sack it came in, hold onto the container or sack, not the trunk or branches. Once the tree starts to come out, hold it at the bottom by the mass of roots.

**CHOOSE THE RIGHT SPOT:** Select a site that is far enough away from your neighbor's property so the branches don't extend into their yard. Also, plant at least 15 feet away from buildings so there is enough room for roots and branches to reach full size.



**DIG, BUT NOT TOO DEEP:** Tree roots, just like humans, need oxygen. So, when filling your hole with soil, don't go any higher than the root flare — the spot where the trunk transitions into the roots at the base of the tree. The flare should be exposed and slightly above ground. It's always better to plant your tree too high than too low.

**MIND YOUR MULCH:** Mulch is great to add after a tree is planted. It looks nice and, more importantly, helps keep the soil moist. A common mistake is piling mulch against the trunk of the tree. Following the 4/4 rule is a good guide: Mulch 4 inches away from the trunk of the tree and 4 inches deep.

**PREVENT GIRDLING:** Roots often grow in a circle when they are in containers or sacks for too long. If you loosen and cut the exterior tree roots, you will prevent the roots from girdling the tree, which can restrict the flow of water and nutrients from the soil to the tree.

# BE A GIANT

## JOIN THE SEQUOIA CIRCLE

Your annual leadership gift of \$1,000 or more makes you a giant for American Forests.

Forests rely on keystone tree species — such as the giant sequoia — to stay healthy and resilient. In the same way, American Forests relies on our keystone supporters — Sequoia Circle members — to advance our mission with leadership-level gifts.

Become a Sequoia Circle member today at [americanforests.org/sequoiacircle](https://americanforests.org/sequoiacircle)  
Questions? Contact Emily Russell, director of major gifts,  
at [erussell@americanforests.org](mailto:erussell@americanforests.org) or 202-370-4522.



AMERICAN FORESTS



With increasing funds for more trees in cities, more people will be able to experience the many benefits trees provide.

WASHINGTON OUTLOOK

## Support for City Trees Grows

CITY TREES are having their moment — especially on Capitol Hill. Their value in lowering utility costs, keeping people healthy, and so much more is generating bipartisan support for federal legislation that will make cities nationwide greener.

Healthy trees reduce utility costs — nearly \$4.7 billion in electricity and \$3.1 billion in heating use nationwide annually — by shading buildings and blocking strong winds.

Current federal funding, for example, includes the largest ever allocation for creating comprehensive urban forestry plans, as well as planting and caring for

trees in cities. There is \$32 million, representing a \$2.5 million increase over last year, for the United States Forest Service’s Urban and Community Forestry Program.

Complementing this funding increase is bipartisan legislation to help homeowners plant trees to reduce residential utility costs and flood risks, as well as mitigate other negative impacts associated with climate change. The Residential Energy and Economic Savings (TREES) Act will, if passed, create a federal program that will

award grants to utility companies so they can partner with local tree planting organizations to provide free or reduced trees to homeowners. Money also will be available to take care of the trees after they are planted. Healthy trees reduce utility costs — nearly \$4.7 billion in electricity and \$3.1 billion in heating use nationwide annually — by shading buildings and blocking strong winds. The shade also helps keep people cool. That’s important, given that a 10-fold increase in heat-related deaths is expected in the eastern U.S. by 2050. Last, trees act like a sponge, absorbing water that could otherwise flood buildings. 🌿

To learn how you can help make the TREES Act a reality, visit our online Action Center at [www.americanforests.org/actioncenter](http://www.americanforests.org/actioncenter).

**“As we start a new decade, it is imperative that we commit together to co-create a forest-positive future.”**

JUSTIN ADAMS, DIRECTOR, NATURE BASED SOLUTIONS, WORLD ECONOMIC FORUM, *FORBES*

**“I think everybody realizes we’re in a planetary emergency and we need to make changes, and business is the greatest platform for change.”**

MARC BENIOFF, CEO, SALESFORCE, *TWITTER*

**“We’re having a moment in our field right now, a sudden awakening.”**

IAN LEAHY, VICE PRESIDENT OF URBAN FORESTRY, AMERICAN FORESTS, *REUTERS*

**“Sometimes in the presence of trees, I try to appreciate their beauty without wondering about their future. I fail, repeatedly. There is an element of passion and heart in any research I do today, and I think that is what this warming world requires. It doesn’t make me biased; it makes me human. Time is ticking away.”**

LAUREN OAKES, ECOLOGIST, STANFORD UNIVERSITY, *EMERGENCE MAGAZINE*

**“This is our moment to bridge all that divides us and rediscover our common bonds. To solve climate change. To invest in equity and opportunity across our communities. Let’s embrace the power of trees and plant hope together.”**

JAD DALEY, PRESIDENT AND CEO, AMERICAN FORESTS, *MEDIUM*

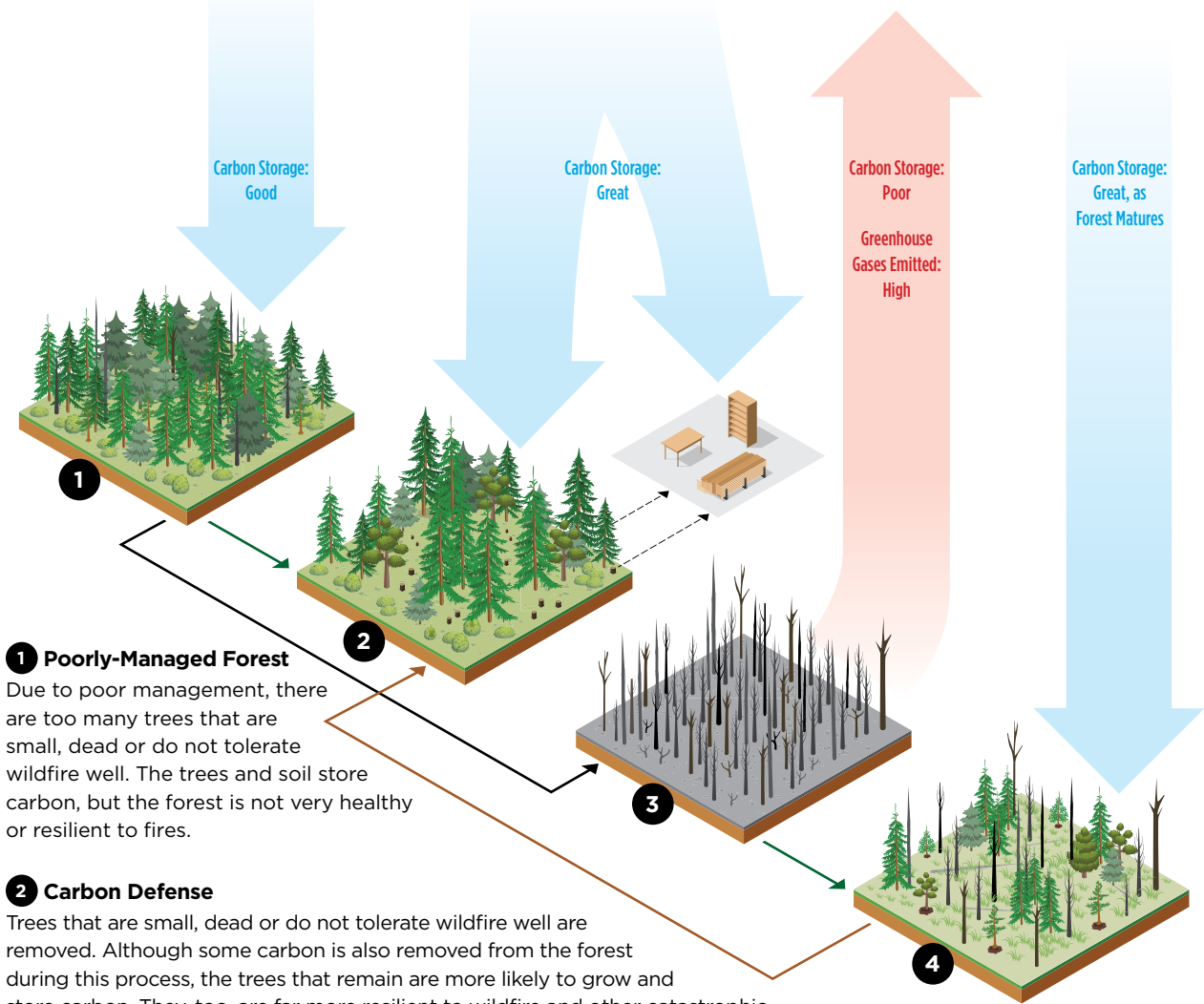
**“I left (the American Forests workshop on Career Pathways) inspired to advocate for equitable job training opportunities here in the Bay Area.”**

MAYA BRIONES, COMMUNITY FORESTRY COORDINATOR, CANOPY, *EMAIL MESSAGE TO AMERICAN FORESTS*

THE UNDERSTORY

# Playing Carbon Defense

Trees are gaining momentum as a climate change solution, given the role they play in capturing carbon. This is often done by planting trees, which American Forests refers to as playing “carbon offense.” But forests release carbon if they are not cared for and, as a result, degrade. These forests need to be actively managed or restored so they can optimally capture and store carbon, limiting the risk of its release when large and intense wildfires, as well as other events, occur. This is known as playing “carbon defense.”



**1 Poorly-Managed Forest**  
 Due to poor management, there are too many trees that are small, dead or do not tolerate wildfire well. The trees and soil store carbon, but the forest is not very healthy or resilient to fires.

**2 Carbon Defense**  
 Trees that are small, dead or do not tolerate wildfire well are removed. Although some carbon is also removed from the forest during this process, the trees that remain are more likely to grow and store carbon. They, too, are far more resilient to wildfire and other catastrophic events. Bonus: A lot of carbon is also stored in products made out of wood removed from the forest as part of restoration efforts.

**3 Burned Forest**  
 Carbon dioxide and other greenhouse gases were emitted from this poorly-managed forest during a wildfire. Few of the remaining trees (dead or alive) can sequester carbon. Natural regrowth of new trees is delayed or never happens. Some of the carbon in dead trees eventually returns to the soil. But some is slowly released into the atmosphere as trees decompose.

**4 Restored and Resilient Forest**  
 Recently destroyed in an intense wildfire, this forest is being restored in accordance with climate-smart practices — such as planting a variety of (but not too many) trees that are climate resilient. As the forest matures, a lot of carbon is stored in the trees and soil. Also, the forest can better withstand fire, which can be reintroduced as a management tool.





#### DID YOU KNOW?

The whitebark pine is considered a “keystone” species in high-elevation forests because it helps increase biodiversity.

#### CHAMPION TREE SHOWCASE

## Whitebark Pine

**SCIENTIFIC NAME:** *Pinus albicaulis*

**LOCATION:** Mono, Calif.

**NOMINATED:** 2014

**NOMINATED BY:** Adam Rich and Nicolette Nelson

**LAST MEASURED:** 2018

**HEIGHT:** 54 feet

**CIRCUMFERENCE:** 235.6 inches

**CROWN SPREAD:** 37.33 feet

**TOTAL POINTS:** 299

FOREST FOOTNOTES

## New Program Launches Amid Push for Stronger Urban Forestry Presence in Academia

Although the need to maintain and plant more trees is growing across urban landscapes, the forestry workforce is declining. What’s more, there is just one university — Southern University and A&M College in Louisiana — that offers bachelors, masters and doctoral degree programs in urban forestry. Compared to traditional forestry program offerings, there needs to be a stronger presence of urban forestry in academia. In an effort to stimulate interest and grow the field of urban forestry, the University of Connecticut will launch a new Urban Forestry and Arboriculture associate degree program this fall, with support from a local industry group, the Connecticut Tree Protective Association. “This is an opportunity for individuals from urban centers who may not have thought of forestry as an option for them to work in the industry, with opportunities for employment right back in their home communities,” says Jason Vokoun, professor and head of the Department of Natural Resources and the Environment. Preparing the next generation of leaders in urban forestry is paramount for our communities and the wildlife we share it with to thrive today and into the future.



The country’s second urban forestry program will be part of the University of Connecticut’s Ratcliffe Hicks School of Agriculture.

## After Washington’s Biggest Wildfire, Tree Thinning and Prescribed Burns Prove Their Worth

The Carlton Complex wildfire was, at the time, the biggest “megafire” in Washington State history, ultimately burning more than 250,000 acres in 2014. Despite the fire’s unprecedented ferocity, not all forests were equally hard-hit. The first major study of the Carlton’s aftermath was recently published in the February 2020 edition of Ecological Applications. The study revealed that more trees survived in areas where foresters had previously thinned crowded trees and used prescribed burns to clear thick, flammable underbrush. These findings add to the growing body of evidence that fuel reduction strategies can help forests withstand the western United States’ increasingly extreme wildfires.



The lightning-sparked Carlton Complex Fire in July 2014 was the largest in the state’s recorded history, burning 256,108 acres and destroying 322 residences.

BOTTOM: WASHINGTON DNR VIA FLICKR; TOP: RAFAEL MEDINA VIA FLICKR



Bark beetles devastated the forest lining the shore of Grand Lake in Colorado's Rocky Mountains.

## Colorado's Mountain Forests Are Bouncing Back from Bark Beetles

High-elevation forests in Colorado are rebounding from more than a decade of severe, overlapping bark beetle outbreaks, according to a recent study in the journal *Ecology*. Nearly 90 percent of the stands researchers surveyed were on their way to recovery, with the most species-diverse areas showing the highest resilience. However, with the good news, the study's authors added a dose of reality: With hungry deer and elk slowing saplings' growth, full recovery from the beetle epidemic isn't expected for decades.

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## Reminders Help Increase Community Engagement in Urban Forestry Initiatives

Residents' participation in urban forestry projects and programs is essential to their success. Since 2012, TreePhilly has hosted tree giveaway events for city residents who registered to receive a free tree, but many residents did not show up to get their tree. A recent study tested whether phone call reminders would help close the "intention-action" gap for the TreePhilly program. Of the 251 people who registered to attend, 125 received phone call reminders. Reminder phone calls increased attendance by 16 percent. That's significant, given the program's low attendance record over the past eight years. Researchers are exploring whether text reminders might be even more effective. One of the study authors, Dexter Locke, suggested at the Sustainable Urban Forests Coalition's 2020 annual meeting that forestry programs in other cities could benefit from the lessons learned in this intervention, encouraging the exploration of similar or different interventions to enhance community participation in urban forestry.



Members of the community pick up their tree at one of TreePhilly's fall yard tree giveaway events.

COLORADO



NEW  
MEXICO

TEXAS

RIO GRANDE RIVER

MEXICO



# Two Threatened Cats, 2,000 Miles Apart, with One Need: A Healthy Forest

BY KATHERINE GUSTAFSON

**DEEP IN THE RIO GRANDE NATIONAL FOREST** in southwest Colorado, a Canada lynx steps across a meandering stream, its pointed ears tipped with black tufts poised like antennas for any sign of snowshoe hare, its preferred prey. The stream's cold water nourishes not only this threatened feline, but also the high-elevation spruce forest of the area, which is fighting to recover from beetle infestation and fire.

The stream grows as it rolls down the slopes of the Rockies. And as it continues to flow, becoming the Rio Grande River, it makes a bee-line through New Mexico and eventually barrels along the border between Texas and the Mexican states of Chihuahua, Coahuila, Nuevo León and Tamaulipas. Finally, 1,885 miles from where it began, it spills into the Gulf of Mexico.

There, at the great river's mouth, is another type of cat: one of the few dozen ocelots that remain in the wild in the United States. It crouches to drink, its leopard-like spots rippling, then moves to return to the thorn forest where it

lives. But, there isn't much thorn forest left — less than 10 percent of its original coverage, mostly along fence rows, canals and highway right-of-ways that break up the habitat and present threats to these endangered cats.

These two felines, tied together by the lifeline of the mighty river, live in very different environments. Yet, they share a similar difficulty: the shrinking, damage and fragmentation of the forests upon which they each depend. And they share a source of hope — American Forests and others working to restore and reconnect their habitats so they can thrive for years to come.

“Our goal is to quickly replant spruce in those areas which could otherwise take as long as 300 years to return to forest cover. Not only will this effort promote habitat, it will also help reestablish the carbon storage function of the landscape.”

— MICHAEL TOOLEY, SILVICULTURIST, RIO GRANDE NATIONAL FOREST

### KEEPING THE CANADA LYNX IN COLORADO

Canada lynx have long resided in the remote spruce-fir forests of Colorado. They were extirpated completely in the area during the first half of the 20th century, after which Colorado Parks and Wildlife implemented an effort to reintroduce them into the area’s San Juan Mountains. From 1999 to 2006, 218 lynx were captured in Alaska and Canada and released in Colorado, an effort that brought the population in the area from zero to as many as 250 individuals today.

The Canada lynx is characterized by its long, dense fur, triangular ears with black tufts at the tips and broad, snowshoe-like paws.



That success doesn’t mean the survival of this federally-listed threatened species in Colorado is assured, however. They need snow, due to their dependence on the snowshoe hare, which thrive in high-altitude spruce forests that are particularly impacted by climate change.

Also, in the early 2000s, drought in the San Juan Mountains created perfect conditions for an outbreak of spruce beetles, which killed more than 98 percent of the mature Engelmann spruce across approximately 600,000 acres of the Rio Grande National Forest. The beetles left only small trees and subalpine fir in their wake, raising concern that reduction in the overstory might affect the habitat of snowshoe hare and secondary prey species.

Then things got worse. In 2013, the West Fork Fire Complex burned almost 80,000 acres at high elevation and killed huge areas of smaller trees and subalpine fir. Michael Tooley, silviculturist for Rio Grande National Forest, says restoration of the spruce forests devastated by the beetles and fire is important for the future of the lynx, as well as other aspects of the forest.

“Our goal is to quickly replant spruce in those areas which could otherwise take as long as 300 years to return to forest cover,” says Tooley. “Not only will this effort promote habitat, it will also help reestablish the carbon storage function of the landscape.”

The priority is to reestablish a conifer seed source and forest cover in burned areas to promote recovery. Since 2015, the U.S. Forest Service and partners, including American Forests, have planted more than 800 acres of spruce trees in the fire zone, where both spruce and aspen were decimated. Forest managers have also certified nearly 1,000 acres of aspen regeneration and continue to look for new areas where planting spruce can help restore forest cover at elevations too high for aspen.

The team will continue to plant selected areas for several more years with the goal of creating a landscape of mixed aspen patches, grass openings and native conifer stands that will provide seeds for forest recovery.

Researchers from the Rocky Mountain Research Station, in cooperation with the Rio Grande National Forest, Colorado Parks and Wildlife and Montana State University, have taken the opportunity to study the question of how the beetle infestation has impacted the lynx.

“Preliminary results are suggesting that lynx are continuing to inhabit, and are doing well in, our spruce-fir forests, where we continue to have a subalpine fir component and a younger

LEFT: ADOBE; TOP RIGHT: SIMON FOOT VIA FLICKR; BOTTOM RIGHT: TOM DRIGGERS VIA FLICKR



Two views of the 1,885-mile long Rio Grande River (above, in Colorado; below, in Texas).





An American Forests project site in Rio Grande National Forest, where one focus is to restore the spruce forests that were killed by beetles and then burned in a massive fire. The Canada lynx relies on these spruce forests in order to thrive.

In 2000, the habitat for the Canada lynx experienced more than 98 percent mortality of mature Engelmann spruce across approximately 600,000 acres of the Rio Grande National Forest.

age class of spruce-fir in the understory,” says Dale Gomez, a wildlife biologist for Rio Grande National Forest.

The Canada lynx’s continued thriving in Colorado is far from assured, but with restoration work underway, this species may well continue to live happily in this southern reach of its range.

#### ENABLING THE OCELOT IN TEXAS

Almost 2,000 miles south of the charred trunks of the Rio Grande National Forest, ocelots are also dealing with habitat loss and fragmentation. This critically endangered cat is likely to go extinct in the U.S. within 50 years if major changes aren’t made to its habitat, which straddles the Rio Grande River at the Gulf of Mexico.

Ocelots only thrive in extremely dense thorn forest. But over the last century, the original forest has been whittled down — mainly because of development and the expansion of farms and ranches onto forest land — to cover less than 10 percent of the Lower Rio Grande Valley. They now live in isolated islands of habitat, suffering from limited prey and inbreeding. Trying to reach others of their species often results in deadly

“For us, it’s about being strategic in how we handle it. Restoring a patch of thorn forest 20 miles from the nearest occupied habitat is not strategic. When these guys bump into a road, they don’t fare very well.”

—HILARY SWARTZ, WILDLIFE BIOLOGIST, THE LAGUNA ATASCOSA NATIONAL WILDLIFE REFUGE

car-related accidents. Seven animals — almost 10 percent of the U.S. ocelot population — have become roadkill in just the last two years.

Ocelots’ coat patterns are like fingerprints, and over time biologists have identified as many as 55 individuals in South Texas. Based on that number and their dispersal patterns, it’s likely that there are 60 to 100 ocelots now living in the area.

Their long-term survival here depends on the restoration of thorn forest habitat, in particular, prioritization of forest connectivity. The Laguna Atascosa National Wildlife Refuge, run by the U.S. Fish and Wildlife Service (USFWS), has a three-pronged approach for this type of restoration: increasing habitat through land acquisition and restoration, reducing the risk of death on the roads by building safe crossing structures, and boosting genetic diversity by connecting the population or translocating female cats from Mexico. With support from the Wildlife Conservation Society’s Climate Adaptation Fund, American Forests is developing a regional climate adaptation strategy that will complement these long-standing efforts. The hope is that these measures will collectively provide lifelines





to this rare animal as drought intensity increases along the U.S.-Mexico border.

“For us, it’s about being strategic in how we handle it,” says Hilary Swartz, a wildlife biologist with the Ocelot Monitoring and Recovery Program at the refuge. “Restoring a patch of thorn forest 20 miles from the nearest occupied habitat is not strategic. When these guys bump into a road, they don’t fare very well.”

American Forests has partnered with the USFWS to discern where to acquire and restore land so green corridors that connect ocelot habitat can be created.

“You’re looking at a variety of factors,” says Swartz. “Where are ocelots already? Where is there restorable land? Are there landowners in that pathway who are interested in conservation and want to be part of that? It may be that the fastest point from A to B is not a straight line. You’re figuring out the best model fit for the factors you’re considering.”

The project of restoring thorn forest is not a simple exercise of planting trees wherever you can, according to Jon Dale, American Forests’ senior manager in the Lower Rio Grande Valley.

“It’s about analyzing spatial relationships and ocelot distribution on a landscape scale,” says Dale. “The key question is ‘What would move the needle in terms of connectivity?’”

Only a portion of the refuge is ocelot habitat, so even though they’re thriving within its boundaries, they face challenges in the private ranchlands to



the north. Ranch practices, such as keeping some portion of land in thorn forest to maintain game, can facilitate ocelot survival. But the connectivity problem still exists: How to ensure ocelots can pass safely from the refuge to the nearest ranchland, and from one ranch to another.

Like the Canada lynx, the ocelot is uniquely habitat-specialized and in dire need of a robust and connected forest home. American Forests and its partners are working aggressively to restore and maintain habitats that will nourish these two cats for generations to come. ↓

**Thorn forest, shown here in Laguna Atascosa National Wildlife Refuge, is a dense cover of small trees and shrubs, mostly with thorns. Branches interlock to form a canopy 6 to 10 inches above ground, and ocelots move generally undetected.**

Katherine Gustafson is a freelance writer specializing in helping mission-driven changemakers like tech disruptors and dynamic nonprofits tell their stories.



Ocelots’ coat patterns are like fingerprints, which biologists have used to estimate that there are likely only 60 to 100 ocelots living in the Lower Rio Grande Valley.



# SAVE OUR SUMMITS

The Fight to Protect High  
Mountain Forests

BY JILL SCHWARTZ



**SHE STARTS OUT ALONE.**

She prefers it that way, given that she is not as tall and slender as the others. She's a bit unkempt, in fact, as evidenced by her relatively scraggly extremities.

She's so unassuming that you might not even notice her amidst the beauty that eventually surrounds her.

But, without her, we would struggle.

Melissa Jenkins of the U.S. Forest Service inspects a whitebark pine tree in Montana. This tree species is essential to ensuring that high-elevation forests in the western U.S. are healthy.



**Above: Skilled tree climbers place cages around the cones of whitebark pine trees in the summer to prevent animals from eating the cone seeds. The cages and cones are removed in the fall. Right: Skiers enjoy the abundant snow that whitebark pine trees help to retain at The Whitefish Mountain Resort.**

“She” is whitebark pine, a type of tree only found upwards of 6,000 feet, mainly in the western United States. “We” are people, particularly those who live and work in that part of the country or like to visit there to ski and hike. It’s also animals — some as charismatic as grizzly bears and others that are lesser known but critical to the health of the forest, such as Clark’s nutcracker birds, which consider the pea-sized whitebark pine seeds a staple in their diet. And “we” includes other trees — those that can’t grow to full size unless there is a whitebark pine nearby to block the wind.

Given the value of this tree species, it’s troubling to know there are more dead whitebark pine trees than live ones in this country, according to the U.S. Forest Service. There are so few left that whitebark pine is a candidate species under the U.S. Endangered Species Act and is listed as endangered in Canada.

Many of the forests where the gnarly trees once grew are referred to as “ghost forests,” given the large number of standing dead trees.

They have fallen victim to a non-native fungus, white pine blister rust, that prevents

## SAVE OUR SUMMITS

the flow of nutrients within the tree. They also have been hit hard by climate change, which has brought longer periods of dry, warm weather — ideal conditions for intense wildfires and an insect, mountain pine beetle, that attacks mature whitebark pines. Under normal conditions, this tree would live for more than 200 years. Some have lived for more than 1,000 years.

Nowhere is the plight of whitebark pine more evident than the Crown of the Continent, the 18 million-acre mountainous region that spans northern Montana, as well as Canada’s southern Alberta and British Columbia provinces, and includes Glacier National Park. Only one in 10 whitebark pine trees in this region is untouched by blister rust.

There are five other “Hi5” tree species — so named because they only grow at high elevations and their needles are attached to branches in groups of five — in the western U.S. that are in decline. But whitebark pine is in the most danger and is the canary in the coal mine for other Hi5s.

ALL IMAGES COURTESY MORGAN HEIM AND JENNY NICHOLS UNLESS OTHERWISE NOTED





On the Montana side, Melissa Jenkins is a leader in the fight to restore whitebark pine. In some ways, she is like the tree. Unassuming. Doesn't want or need attention drawn to herself. She doesn't even offer up in an interview that she won the 2019 U.S. Forest Service National Excellence in Silviculture award.

Yet again, much like the tree, we would be lost without her. Jenkins is on top of all the latest science related to whitebark pine. She has spent countless hours in the woods, studying the tree. She's so entrenched in the issue that she can explain, in detail, how blister rust attacks a tree.

"The rust spores come into the needle and work their way down the needle to the branch," Jenkins says, while holding a small piece of a whitebark pine branch that has started to die. "This raised bark is where the canker [dead section of the bark] is. You can see there was a rodent chewing on the branch because the sugar is concentrated there. We don't know if the rust creates the sugar or if the tree fighting the rust creates the sugar. The rust then goes down the branch and reaches the main trunk of the tree. The tree can't take up water or nutrients, so it dies."

She's been at this longer than anybody — since the early 1990s, when blister rust started to become noticeable in the Greater Yellowstone Area, where she then worked.

"Just thinking about this tree makes me smile," says Jenkins, a longtime lover of trees, as evidenced by the "Plans to go into forestry" caption under her name in her high school yearbook. "I wish more people knew how special it is. And how in trouble it is."

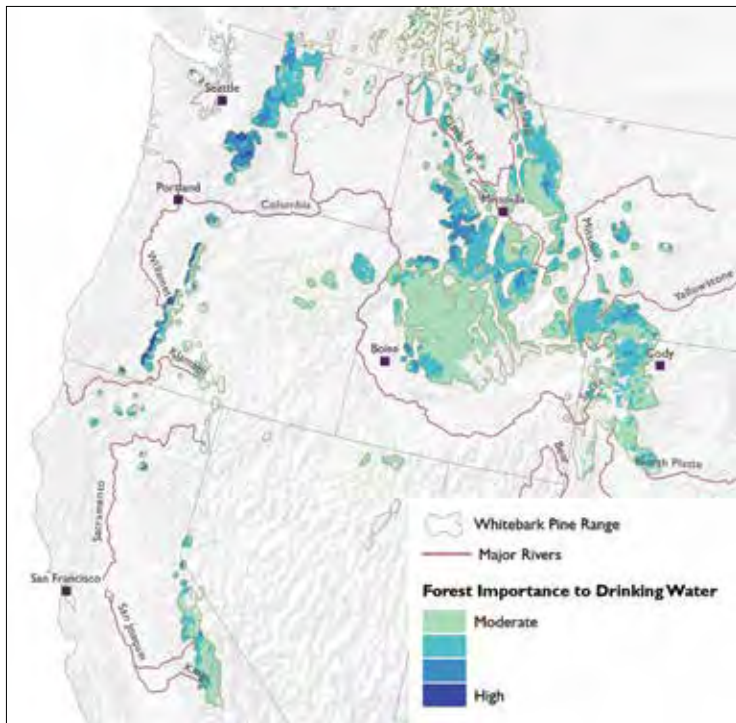
Perhaps most important, the mild-mannered and confident forester has a knack for bringing people together to build consensus. That's one of the reasons why the first-ever whitebark pine restoration plan for the Crown of the Continent is in the final stage of development and already has buy-in from a diverse group that includes tribal members, skiers, federal and state agencies, conservationists, academics and others.

"For the first time ever, we are going to have a plan that prioritizes what parts of the forest need to be restored and the climate-smart practices we need to use to restore them," she says. "That's huge."

**Above: The red arrow points to a whitebark pine tree. It's the first tree species to grow in western U.S. high-elevation forests. They block the wind, allowing other trees, such as the subalpine firs pictured here, to grow to full size.**

**"Just thinking about this tree makes me smile."**

— MELISSA JENKINS, FOREST SILVICULTURIST, U.S. FOREST SERVICE



Above: More than 2 million people get their drinking water from watersheds within the range of whitebark pine.

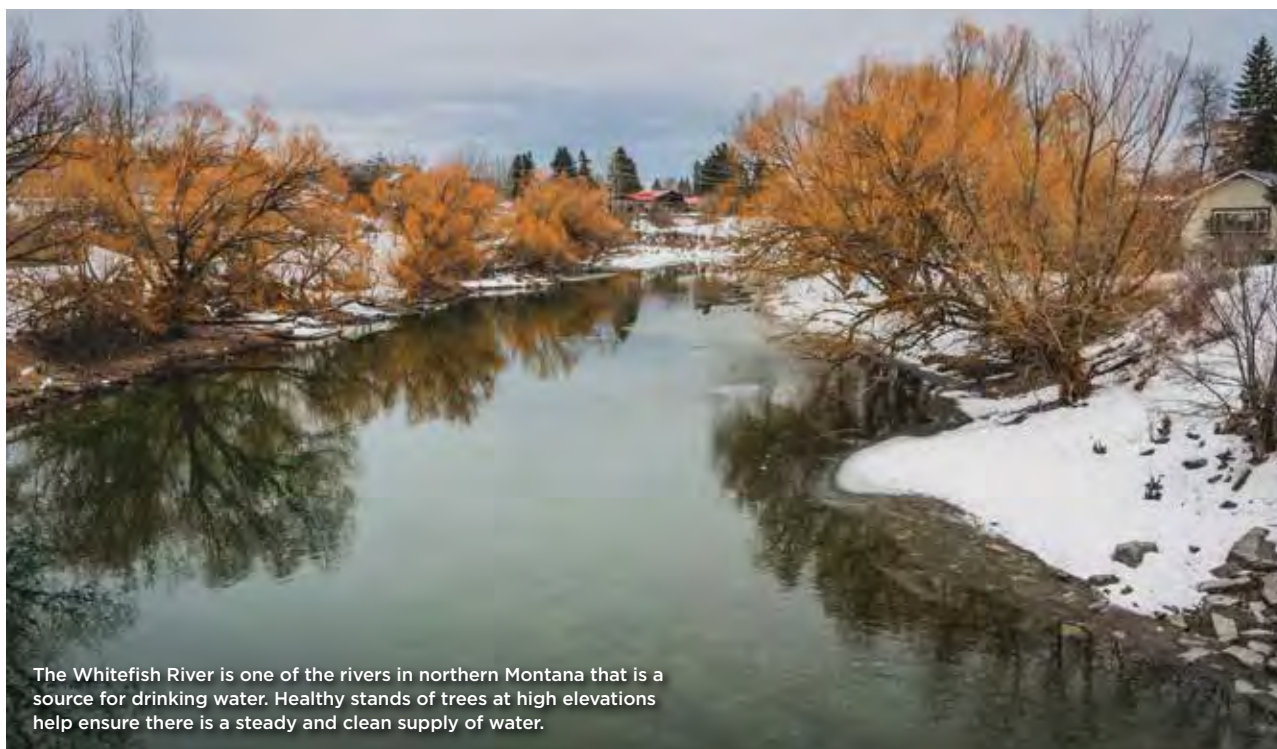
The U.S. Forest Service, Whitebark Pine Ecosystem Foundation and American Forests are collecting data from the Crown of the Continent, and other regions throughout the west, to develop a national plan for whitebark

pine restoration. Doing so is a natural next step for American Forests, which has been active in the region for 20 years. It has planted more than 500,000 whitebark pine trees over 2,000 acres in the U.S. and Canada, contributed to scientific research related to this species, helped teach people how to restore the species, and more.

“We’ve made saving whitebark pine, and all the Hi5s, a priority because we know that, without them, our western U.S. forests would be much diminished and provide less benefits to people and wildlife,” says Eric Sprague, vice president of forest restoration at American Forests.



A central component of the recovery plan is speeding up the natural selection process, wherein the Clark’s nutcracker disperses whitebark pine seeds throughout the forest. This starts with trained climbers carefully crawling to the tops of whitebark pine trees at the start of summer to install cages around whitebark pine cones — those that have shown genetic resistance to blister rust — so the seeds within the cones are not eaten by animals. There are approximately 100 animals that would like to get their paws



The Whitefish River is one of the rivers in northern Montana that is a source for drinking water. Healthy stands of trees at high elevations help ensure there is a steady and clean supply of water.



Scenic views from Whitefish Mountain Resort, located in a region called the Crown of the Continent that is prime habitat for whitebark pine trees.

and beaks on those seeds. (Enough cones are left uncaged so there is food for the wildlife that depend on them.)

The climbers make their way back up the trees, referred to as “plus trees,” in the fall to remove the cages and detach the cones from the trees. It’s good the cages were used, given that whitebark pine trees only produce cones once every 50 to 75 years.

The cones are then taken to a nursery, where a combination of hands and machines are used to remove the seeds, which are then put in containers and grown for two years. When they eventually get planted in the forest, they are not 100 percent blister rust-resistant. But their genetics give them a good chance of survival.



A key partner in this undertaking is northern Montana’s Whitefish Mountain Resort, one of the top-rated ski resorts in the country and a popular spot for hiking and mountain biking in the warmer months. The resort might seem like an unusual bedfellow for an endangered forest, but it’s a perfect fit. Scientists, conservationists, forest service staff and others use the resort’s chairlifts in the winter to get to the top of the mountain, where they then ski to stands of whitebark pine trees to do their work. In the warmer months, the backcountry roads and

trails managed by the resort make it easier for them to drive into the forests.

In 2016, Whitefish was the first resort in the country to become certified by the Whitebark Pine Ecosystem Foundation as a whitebark pine-friendly resort. It was recognized for how it helps the U.S. Forest Service and others, as well as what it does to educate the general public about whitebark pine. People learn about it at the

**Below: Riley Polumbus skis at the Whitefish Mountain Resort, the first in the country to become certified as a whitebark pine-friendly resort.**



resort's nature center, which has displays about whitebark pine and the forest restoration project, and in more casual settings.

"The chairlift is a great opportunity to teach people about whitebark pine," says resort Public

Relations Manager Riley Polumbus. "They can see it when we are riding up the lift together."

What many people are interested in learning from her, after she tells them about the dire circumstances this tree species faces, is what this means for them. Without whitebark, skiers would be

more likely to get lost when skiing in foggy conditions, as whitebark pines — one of the few trees at high elevations — help guide the way. And they would be less likely to quench their thirst, given that much of the drinking water from watersheds within the range of whitebark pine comes from snow that has melted and run into several major river systems. Whitebark pine holds the snow in place (its candelabra-shaped wide crown provides shade,

which slows snow melt) in the winter and gradually release it in the warmer months.



Under normal conditions, whitebark pine trees would live for more than 200 years. Some have lived for more than 1,000 years.

The Confederated Salish and Kootenai Tribes of the Flathead Nation also is a key player. It manages the 1.3 million-acre Flathead Indian Reservation — 10 percent of which is whitebark pine forest.

The tribal members' deep and centuries-old connection to the land is what motivates them to invest time and money in caring for the forest.

"We must remember that, before people were here, the animals and trees were here," says Tony Incashola, Sr., who leads the tribe's Culture Committee. "They prepared the land for us, so it's our responsibility to take care of them."

Whitebark pine is particularly important in the tribe's culture. The high fat, high protein seeds from the tree are sustenance. Just eat a few when you are in the forest for the day and that's enough to keep you going, Incashola says.

He and other tribal members cannot divulge their traditional dances, rituals and stories related to nature — including whitebark pine — to outsiders. They keep that information to themselves. The



Bags containing seeds harvested from whitebark pines. A single cone can yield upwards of 100 seeds.

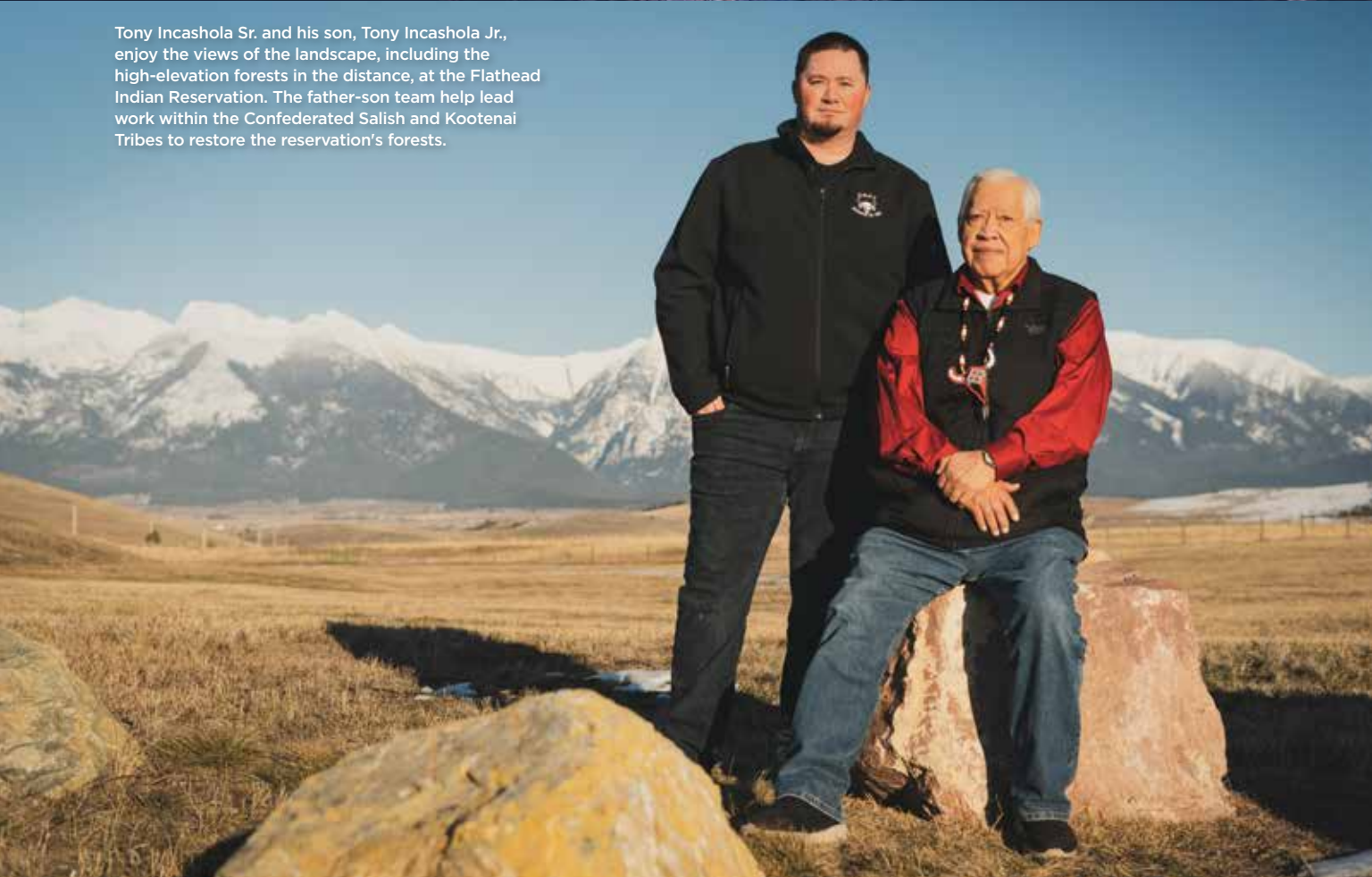


James Lozeau sorts through seeds collected from trees that grow in the high-elevation forests of the Flathead Indian Reservation. The seeds are kept cool in a storage area until they can be planted.





Tony Incashola Sr. remembers being able to see trees cover almost the entire stretch of the mountains that overlook the Flathead Indian Reservation.



Tony Incashola Sr. and his son, Tony Incashola Jr., enjoy the views of the landscape, including the high-elevation forests in the distance, at the Flathead Indian Reservation. The father-son team help lead work within the Confederated Salish and Kootenai Tribes to restore the reservation's forests.

## SAVE OUR SUMMITS

Tribal members have collected thousands of seeds from the cones they have caged in the last few years and have already planted 2,000 trees from those seeds on 9 acres.

stories can only be told when there is snow on the ground, which Incashola sadly notes is happening less and less as the planet warms.

He can reveal, though, that one of the most sacred whitebark pine trees for the tribe is the “great, great, great grandmother tree,” known to the tribe as “ILawye.” She is believed to be 3,000 years old. Taking a day to hike to the tree is a treasured opportunity.

To protect ILawye and other trees, the tribe created a forest management plan in the 1990s that includes goals for whitebark pine. They have been following the plan ever since it was approved in 2000. But the true relevance and urgency behind the plan did not become apparent until 2013, when people on the reservation started to visibly notice changes in the forest, many of which they attributed to climate change. For example, trees that typically grew at low elevations were moving up the mountain, to cooler climates, where they were outcompeting trees that were already there.

Back at the U.S. Forest Service office, Karl Anderson and Melissa Jenkins review the priority locations for whitebark pine trees.



That’s when they decided to create a climate change strategy to supplement the forest management plan.





The strategy incorporates forestry practices similar to those being used by the U.S. Forest Service, such as caging cones on “plus trees.” Tribal members have collected thousands of seeds from the cones they have caged in the last few years and have already planted 2,000 trees from those seeds on 9 acres.

But their work goes beyond planting trees, an approach American Forests refers to as “carbon offense” because the new trees capture carbon. They also play “carbon defense” to prevent forests from degrading and, then, releasing carbon when large and intense wildfires, as well as other events, occur.

For this tribe, the best carbon defense play is purposefully setting fires — called controlled burns — that eliminate trees that naturally would not be in a certain part of the forest. For whitebark pine, a tree that does not grow well in shade, that means removing other types of trees that block the sun. The fires, which are low intensity and only at ground level, also prevent a build-up of vegetation that is essentially fuel for what can become an out of control and intense wildfire.

Controlled burns were common on the reservation until 100 or so years ago, when fire got a bad name and, therefore, suppressing fires became the norm.

“Our elders have been telling us for years to stop putting out fires,” says Tony Incashola, Jr., who oversees the tribe’s forestry agency. “Fire is natural. Back in the day, people did not have tools. Fire was their only tool for managing forests. People knew how to burn, what to burn and when to burn.”



She seems un-phased as the wild high mountain wind blows around her. Her long needles barely move. She’s used to holding her ground, staying strong so life can spring up around her.

But she has limits. There’s only so much she can take.

Fortunately, she has fans — Melissa Jenkins, Riley Polumbus, Tony Incashola Sr. and his son, and Eric Sprague, to name a few — who provide hope that she, healthy and resilient whitebark pine, will become the norm again in the west. ♣

Jill Schwartz writes from Washington, D.C., and is American Forests’ vice president of marketing and communications.

**ShiNaasha Pete and James Lozeau, working on whitebark pine restoration for the Flathead Indian Reservation, approach a young whitebark pine tree emerging from the mountaintop’s snowpack.**

## The Clark's Nutcracker + Whitebark Pine

It's a good thing the Clark's nutcracker likes to eat. The small bird uses its short, hard, pointy beak to peck at whitebark pine tree cones so it can extract seeds, then push them into a hole under its tongue so they drop into the carrying pouch in its neck. Once it has filled the pouch with up to 100 seeds, the bird flies down to the forest floor and buries the seeds about an inch below ground — nearby and as far as 20 miles away. And then it repeats this, until it has hidden nearly 100,000 seeds each year.

The bird invests so much time and energy in this because the pea-sized seeds are one of its most important food sources. They are high in fat and calories, making them a staple for a bird that spends most of the year living near the tops of high mountains in the western United States, where there are not many food options from which to choose. Whitebark pine is one of the few things growing at high elevations in this part of the country.

Here's the catch. The Clark's nutcracker does not have a perfect memory. It can't always find the seeds it buried.

But that's good. Whitebark pine trees are the only pine trees whose cones don't open to release their seeds.

And the Clark's nutcracker is the only animal that buries the seeds in such a way that they can germinate and, ultimately, become full grown trees that are essential to life.

People, for example, benefit from the fact that whitebark pine holds snow in place in the winter (thanks to its candelabra-shaped wide crown that provides shade, which slows snowmelt) and gradually releases it into rivers in the warmer months. The melted snow eventually makes its way to people, in the form of water to drink, to use for showering and more. Other tree species benefit, as whitebark pines — usually the first trees to grow at high elevations — block the wind and sun so other trees can grow.

And nearly 100 other animals win too, as they also like the heartiness of the seeds. Grizzly bears feed almost exclusively on whitebark pine seeds in years when the seeds are available, which they get to by crushing the cones, before denning in the fall.

So, don't lose your appetite, Clark's nutcracker. Our forests — and people and animals — need you.



ABOVE, INSET: KENNAN & KAREN WARD/ADOBE; FACING PAGE: OLEG MAYOROV/ADOBE





People who spend time in nature often say they feel less stressed, are better able to concentrate and generally experience a lift in mood.

The background of the page is a photograph of a lush forest. In the foreground, a rocky cliff face is visible, with a stream flowing through it. The trees are dense and green, with some showing hints of autumn colors. The sky is bright and clear.

# tree think

## How Forests Are Good for the Mind and Soul

BY CATHERINE ARNOLD

**STRAPPED INTO A ROCK-CLIMBING HARNESS**, Dr. Kathleen Wolf and her adventurous partner soared up an old Douglas-fir that stood taller than the Statue of Liberty. The evergreen swayed like a sapling, and hawks flew in the urban park below them. At the top, the pair lingered, just to breathe it all in.

Wolf, a University of Washington and U.S. Forest Service researcher, spent several days as a volunteer ushering people into the Oregon treetops so they could experience the old beauties up close. Given her background, she had expected to field questions about tree ecology. But instead, the participants — apparently altered by the massive tree — spoke about deaths in their families, celebrations and other emotional life events.

## tree think

Right: The search for deep emotional connections to trees has led some people to seek more intense and personal outdoor experiences.



Wolf studies and appreciates the many benefits being in nature provides for one's psychological health.

“It was remarkable to me,” Wolf says, “what this tree experience evoked.”

A growing body of research confirms what Wolf innately knows: exposure to trees and forests can have profound benefits for psychological health. Whether climbing a majestic old-growth tree or simply walking through a foliage-filled park, people who spend time in nature often report they feel less stressed, are better able to concentrate and generally experience a lift in mood. Some even say it helps heal trauma.

At a time when our screen-obsession is increasingly linked to anxiety and COVID-19 has left many feeling isolated and distressed, it's no wonder doctors are urging patients to unplug and spend time outside. Some physicians are writing “nature therapy” prescriptions. And “forest bathing,” a practice from Japan in which people use all of their senses to immerse themselves in nature, has become one of the hottest wellness trends.

“Arborists tell wonderful stories about connecting in a mental-health way with trees,” says Wolf, director of the University of Washington’s Human Dimensions of Urban Forestry and Urban Greening Project. “I’m suggesting that they try to enable people who aren’t climbers to have these experiences.”

Trees are vital to everyone’s health. They filter our air and water, provide shade and mitigate climate change. But they also help us feel better. That’s one reason American Forests is leading a movement to reforest cities in a way that brings equity, especially to lower income areas that historically have had fewer trees.

Wolf, who as a research social scientist gathers studies from around the world about nature

BOTTOM LEFT: COURTESY OF KATHLEEN WOLF; TOP: ROYALTY-FREE STOCK; FACING PAGE, TOP: ROYALTY-FREE STOCK; FACING PAGE, BOTTOM: JOEL CLARK





Left: Trees are vital to everyone's health, filtering our air and water, providing shade, mitigating climate change and overall helping us feel better. Below: Children who spend time outside are happier, less stressed, perform better academically and are more socially engaged.

in culture, says the association between exposure to green environments and psychological health is clear. She points to a 2012 study in Chicago in which participants showed significant improvements in mood and memory after walking in nature,

“It was remarkable to me what this tree experience evoked.”

— KATHLEEN WOLF, RESEARCH SOCIAL SCIENTIST, UNIVERSITY OF WASHINGTON





Above: Mundo Verde, a school in Washington, D.C., incorporates trees into its curriculum, allowing students to sit among them and journal. Right and below: A dying willow oak, which was slated to be cut down in a nearby neighborhood, is now a focal point for Mundo Verde's playground.



and a 2015 study that found time in nature can reduce rumination, the pattern of repetitive thought associated with depression.

More research appears on the mental health section of [VibrantCitiesLab.com](http://VibrantCitiesLab.com), a website American Forests helped create with the U.S. Forest Service to provide research and tools for building effective urban forestry programs. In one 2015 study, people with views of greened vacant lots experienced lower heart rates than those who only walked by buildings or vacant properties. A 2013 study concluded that access to a certain amount of greenspace within 3 kilometers can reduce symptoms of anxiety disorder, depression and aggression.

Children who spend time outside are happier, less stressed, perform better academically and



Above left and right: The willow tree serves as a natural jungle gym for kids during recess.

are more socially engaged, according to many studies. A green view from a classroom can improve student performance on attention-oriented tests and reduce aggression, according to a 2016 University of Illinois study. Being within 1,000 meters of accessible greenspace reduced aggression in adolescents, according to research in Southern California the same year.

“We often talk about ecological and physiological concerns, like air quality and extreme heat,” says Ian Leahy, American Forests’ vice president of urban forestry. “But one of the major reasons this organization is working so hard to bring Tree Equity to under-resourced communities is to help alleviate the crippling psychological stress of poverty. Such communities often don’t have other proven means to improve self-discipline in youth, reduce anxiety and depression, or increase classroom focus.”

Despite this, many urban schools across the country lack greenspace. In Washington, D.C., public, private and charter schools in 2015, on average, had only around 14 percent tree canopy.

“I like to make trees my jungle gym. I swing on them.”

— JUNO JEHAN NYKYFORCHYN-CLARK, STUDENT, MUNDO VERDE

More than 180 schools had only 5 percent tree canopy or less, while 21 of them had none at all, according to the D.C.-based tree-planting and restoration nonprofit Casey Trees.

But places like Washington, D.C., are now working to increase their tree canopy. The city plans to cover at least 40 percent of its area with a healthy tree canopy by 2032. And one charter school, Mundo Verde, which previously had paved grounds, now models itself as the district’s first “green-focused” educational institution. The school received 40 new trees in 2015, which students and faculty helped plant.

For Mundo Verde students, trees provide lessons in ecosystems, an opportunity to connect with nature and even an outlet for physical play.



Christy Thomson helps lead others in the practices of nature therapy and forest bathing.

“There was something about being outside in the snow, watching the ice drip.”

— CHRISTY THOMSON, DIRECTOR, WILD COMMUNION

A few months ago, a Mundo Verde parent arranged for a dying willow oak, which was slated to be cut down in a nearby neighborhood, to be hauled to the school’s property. In no time, students began climbing all over its sprawling branches, giving the tree a second life and the students a new inspiration.

“I like to make trees my jungle gym,” says 7-year-old Juno Jehan Nykyforchyn-Clark, a Mundo Verde student, who knows all about

how trees clean the air but would just as happily discuss their playground usefulness. “I swing on them.”

The school has also worked trees into its curriculum. Each classroom adopted a few to sit near, and students track seasonal changes in foliage and appearance. Kids may journal, contemplate the trees or practice solitude and reflection.

Staff members recall several classmates gathering around one of the new trees and pledging to return after their high school graduation eight years later to check its progress.

The search for such deep emotional connections to trees has led some people to seek more intensely personal outdoor experiences.

Christy Thomson realized she’d achieved a newfound calm when she was in her late 30s and grappling with anxiety and post-traumatic stress disorder.

During cold Indiana winters, Thomson would spend daytime breaks from child-raising admiring the nature around her. After realizing that “there was something about being outside in the snow, watching the ice drip,” she Googled “nature therapy” and found the practice of forest bathing, also known as *shinrin yoku*.

Now director of the company Wild Communion and a trainer/mentor with the Association of Nature & Forest Therapy, Thomson leads contemplative nature walks, encour-

aging people to slow down and “sink into the moment, with senses open.” At some point, people sit by themselves or take in a tree or other part of nature for 15 to 20 minutes.

“It results in lots of psychological shifting,” Thomson says. “People let go of things a lot easier. It can be as simple as watching leaves fall from trees. As humans, we don’t often let life move and go through seasons, so this allows us to start letting go.”

While such deeply immersive experiences can have a profound effect, Wolf stresses that everyday interactions with the outdoors are powerfully effective, too. She swears by daily nature breaks.

“I am a bike commuter,” Wolf says. “For me, that has not only a mental-health benefit, but helps me think through little puzzles and get ideas.”



Deeply immersive experiences, as well as everyday interactions, with nature can have profound benefits.

ROYALTY-FREE STOCK

Wolf advocates for making policy changes that help provide nature to everyone, no matter where they live and work.

“We have thousands of studies and 40 years of research — and while dosage (how much, how often, what kind of nature) is important to learn more about, we know enough to act,” Wolf says. “We need

to create policy recognizing the need for greenspaces in our cities — so people have green places to go just outside their door, just outside their office.” 🌱

Catherine Arnold is big on nature and has been published in the *Washington Post*, *Bicycling* and *NBC.com Health*.

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**Questions?** Contact Jennifer Broome, vice president of philanthropy, [jbroomer@americanforests.org](mailto:jbroomer@americanforests.org), 202-370-4513.



AMERICAN FORESTS

# Returning to a Land That Owns Us

BY IAN LEAHY

**“WHY DO YOU WORK WITH... TREES?”** That last word singed with disappointment. I already felt somewhat infantilized, sitting in the backseat as my close friend from college and his wife deftly navigated Los Angeles traffic for what would turn out to be a laughably bad night of theater.

He was that friend who unlocked my latent intellect in college, introducing me to arthouse cinema and late-night musings on the meaning of existence. These days, his mind is far more grounded in a successful entertainment industry

career and wonderful family. Mine kind of got stuck on that whole “meaning of existence” thing.

My response to his query could have come from a press release. I rattled off some of the benefits of urban trees and told him to check out Vibrant Cities Lab.

“I ... probably won’t do that,” he said flatly.

I understood what he was really asking. He once knew a version of me that had seemingly loftier ambitions than city infrastructure. After college, I would walk away from offers many dream of, from New York publishing to Hollywood. Yet, if I had that backseat moment to do again, I would have spoken from a deeper place: “Trees are a gateway to... everything.”

## LISTENING TO THE TREES

Maybe the woods near my childhood home had a deeper impact than I realize, embodying that first taste of unsupervised freedom and the intoxicating impulse to subdue nature with trails and bike jumps. But trees were not always my driving passion.

What really drew me into urban forestry was watching, just to the south, the collapse of Detroit, a city that generations of family stonemasons, clockmakers and autoworkers helped build. Each Devil’s Night, the once dubious evening of mischief before Halloween, we would gather to watch the city aflame.

Meanwhile to the north, fields and forests where I once trailed my brother and his friends as they waged epic battles between kingdoms, turned into



Ian Leahy enjoys a park in Pittsburgh on a weekend getaway.



subdivisions and strip malls. The night sky that once split our yard — starry to the north, faded to the south — became washed with city light.

As a teenager immersed in this landscape of extremes, it struck me that we're missing something big. That compelled a life-defining question: How do we build a civilization that actually works?

Soon after, I committed my life to an experiment following intuition regardless of outcome. It kept pulling me back to trees as if they held an answer I couldn't yet grasp. My first urban forestry position after college, at American Forests, was both a baptism in federal policy and a revelation that what we're missing doesn't reside in politics or economics, but rather our psyches.

So, I left D.C. and spent five years on Lake Superior exploring frontiers of the mind, testing each new idea in the visceral world of my landscaping business and live theater. That journey culminated on the edge of a forested city park, where I instinctively responded to seemingly random occurrences in nature — a spider crawling, bird flying, leaf flickering, among thousands. Before my rational mind could negate the sense, I moved toward each. The first time, I was guided to the largest tree in the park. The second, an image flashed in my mind of a compost pile to which I was then guided.

It felt like nature was communicating with me. As if the seemingly separate components of a forest actually function as a singular, sentient entity. While this ability has proven to be fleeting for a primitive, modern mind like mine, a recent trip to speak in the Australian Outback revealed that such a connection to nature has long been fundamental to Aboriginal cultures.

While there, I met Dr. Monica Gagliano, who has published research revealing plants make decisions long assumed to only occur in organisms with brains. Her “phytobiography”, “Thus Spoke the Plant”, boldly tells how dreams guided her to a specific tree and Indigenous shaman in Peru where she spent weeks communicating with that tree.

Today, only a single trail slices through my childhood woods, trodden by dutiful joggers heading elsewhere. At a time when our impact on nature has never been more evident, our connection to it seems most severed. Yet, Dr. Gagliano claims that trees and plants are trying to communicate with us before it's too late.

#### WE MIGHT BE TRYING TO LISTEN

Detroit's narrative today is one of unbalanced resurgence largely in mixed-use areas. The lack of any real economic drivers compelling that shift points to a culture yearning for integration. My calling is to help people have nature wherever they live and learn to engage at this unified, enchanted level. From there, we might create economies that rise above both competition and regulation. Politics could transcend partisanship, accounting for both the individual and collective simultaneously. Even technologies could harness this connection. In short, we could build a civilization that actually works. 🌱

Ian Leahy writes from Washington, D.C., and is American Forests' vice president of urban forestry.

Ian Leahy's nephews play among the trees in the woods behind his childhood home in Royal Oak, Mich.

“Trees are a gateway to ... everything.”

— IAN LEAHY, VICE PRESIDENT OF URBAN FORESTRY, AMERICAN FORESTS



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# earthkeepers



## A Return to His Initial Passion

GLACIER NATIONAL PARK changed Brian Kittler's life. On a family road trip from his home in Massachusetts to the western U.S., at 13 years old, a stop in Glacier exposed Kittler to mind-boggling sights: glacial valleys, bighorn sheep and enough snow in July to make snowballs.

"I think it was our first hike. By the time we turned around and walked back to the car, I was pretty much changed forever," Kittler recalls. "I knew that caring for such places is what I wanted to do."

Kittler's first job out of college landed him back west, doing wilderness stewardship for the U.S. Forest Service in Oregon's Mt. Hood National Forest — a job which cemented his desire to work in policy to protect forests, like those blanketing Mt. Hood.

He returned east, where his work took him into watershed restoration with the Environmental Protection Agency's Chesapeake Bay Program and the National Fish and Wildlife Foundation, and into forest policy with the Pinchot Institute for Conservation. At Pinchot, Kittler moved to Oregon in 2011, as the Western Regional Office's director, where key successes included helping family forest owners access carbon markets and documenting innovative approaches to collaborative restoration of National Forests.

Kittler is now the senior director of forest restoration at American Forests, where his main responsibility is directing the planning and implementation of the organization's regional forest policy and landscape-scale restoration initiatives in the western U.S. He was drawn to American Forests by the leadership of

the organization's president, Jad Daley, and by "the global momentum building around forests and climate," he explains.

In many ways, Kittler's work at American Forests is a return to his initial passion for forestry and conservation. Among his duties, he is overseeing American Forests' involvement in a landmark plan to restore whitebark pines across the Cascades, Rockies and Sierra Nevada mountain ranges. The pines, a keystone species whose protein-rich seeds are essential for animals from mountain songbirds to grizzlies, are slipping away as an exotic fungus decimates their ranks.

Kittler is securing funding, disease-resistant seedlings and critical partnerships to scale up recovery of whitebark pines across their range — including in areas within sight of Glacier National Park.

"Climate change is fundamentally resetting how we people, as part of forest ecosystems, grow in our caring for nature," Kittler says. "If we do not care for nature, can nature continue to care for us?" 🌲

To learn more about efforts to protect high-elevation forests in this region, read [Save Our Summits](#) on page 24.

**"By the time we turned around and walked back to the car, I was pretty much changed forever."**

— BRIAN KITTLER, SENIOR DIRECTOR OF FOREST RESTORATION, AMERICAN FORESTS



Kittler recently traveled to northern Montana, just outside Glacier National Park, to meet the partners American Forests works with in the area.

# last look



OUR VIEW

It's been a strange spring, as most Americans have been sequestered in their homes because of COVID-19. But the experience has led many to appreciate the trees and, more broadly, the nature that surrounds them. Here, in words and pictures, is how four of the writers and photographers for this magazine issue see the natural world from their home offices.



**"My sliver of a D.C. yard boasts a tree swing that my kids go crazy for. How did I string the rope over the branch, you might ask? I used my drone which has brought me hours of boasting rights. I can now sit in my home office on the second floor, or, more often than not lately, on the back patio and watch my kids laugh as they push one another. Having access to this tree and this swing has helped bring sanity to a world gone mad."**

— JOEL CLARK, WASHINGTON, D.C.



**"The view from my home office, which is the front porch of my parents' farm, reminds me of one of the few constants in life right now — that spring will come. For me, part of the joy is seeing one of my favorite goats graze amongst the budding trees in the front field."**

— JENNY NICHOLS, GREAT FALLS, VA.



**"A stand of chestnut oaks, as erect as Greek columns, rises beside a river outside my window. It's the first sight I see each morning, and it reminds me that nature is miraculous, with a timeline far different than my myopic, deadline-driven routine. Before the clamor of the day begins, the view reminds me, gently, that there's a wisdom that exists outside of human experience."**

— CAROL DENNY, ANNAPOLIS, MD.



**"I am a creature that likes to nestle. Tucked in the crook of a hill, bordered by the beautiful backyards of my neighbors and hills that often ebb and flow with coastal mist, it wraps me in a hug. A coastal redwood rises above our property, one of only a few of these trees in Astoria, a secret haven."**

— MORGAN HEIM, ASTORIA, ORE.

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