

ADVENTURE SCIENTISTS®

EXPLORE. COLLECT. PROTECT.

2018 HIGHLIGHTS

MISSION

Adventure Scientists equips partners with data collected from the outdoors that are crucial to addressing the world's environmental and human health challenges.

GOALS

1. Be the most efficient provider of hard-to-obtain environmental data that would otherwise be unavailable for conservation and human health.
2. Grow a network of informed volunteers who have a deep commitment to conservation after participating in the scientific process.
3. Serve as an invaluable connection between the conservation and outdoor communities.

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Dylan Jones captured this shot of Chelsea Kruse and Michael Gilvin climbing Crazy Horse Buttress in Chiang Mai, Thailand while collecting samples for the Global Microplastics Initiative.

LETTER FROM THE EXECUTIVE DIRECTOR

DEAR FRIENDS AND FAMILY,



Achievement is one of our organizational values at Adventure Scientists. We focus on and incorporate this into our work regularly, and the Annual Review you're about to dig into now is where this really comes to the fore. We had a great 2018 and I'm excited to share its stories with you.

We understand that ideas and efforts are only as good as the results they achieve. Our focus is on accelerating and amplifying impact, and each investment of our time is towards that end. Our Timber Tracking project collected specimens for our partners at the World Resources Institute, the US Forest Service and the US Fish and Wildlife Service from across the range of bigleaf maple. These samples can now be used to prosecute timber thefts and will enable the use of cutting-edge law enforcement technology. As a testament to our first-rate team, volunteers for that project achieved 99.8% accuracy in species identification throughout the field season.

Each year the preparation of this report presents an opportunity for reflection (another of our organizational values). As we do throughout the year, it causes us to take time to pause and look at what we've done, what's gone well, and how we can be better. This process often involves seeking the advice and experience of our advisors. We are infinitely stronger for their insights and are fortunate for their level of care.

Thank you again for helping to make our work possible and for being part of the growing Adventure Scientists family. I hope you enjoy this review of what we've accomplished together this year.



Cheers,

Gregg Treinish

BOARD AND ADVISORS

This year our board saw a changing of the guard as two of our board members, Gib Myers and Christy Chin, transitioned into advisory roles.

Both Christy and Gib contributed countless hours and offered their advice and support to help us achieve our mission. Their leadership has proven invaluable. Their ability to foresee the future effects of current decisions about business structure, vision, and role gave us a significant leg up. From the entire Adventure Scientists family: Thank You Gib and Christy!

OUR 2018 BOARD OF DIRECTORS

Gib Myers, Jim Young, Kate Wing, Page Dabney, Mike Herring, Gregg Treinish

ADVISORY COUNCIL

Jon Bowermaster, Celine Cousteau, Alan Eustace, Trip Jennings, Sy Kaufman, Anthony Lee, Steve McCormick, Christopher Michel, Frazier Miller, Geoff Pampush, Bill Unger

OUR SCIENTIFIC ADVISORS

Enric Sala, Lauren Oakes, Tom Lovejoy, Tim McDermott





THANK YOU, GIB & CHRISTY!

CURRENT PROJECT: TIMBER TRACKING 2018



Ashley Plaga shows off a leaf in one hand and her sample-preserving materials in the other.

Illegal timber harvest impacts us all. Up to 30% of all timber is harvested illegally, making poaching a $100B annual industry on par with the heroin trade. This destroys forests, disrupts ecological processes, increases CO2 in the atmosphere, and provides revenue for other illicit activities.

Port officials, law enforcement officers, corporations, and everyday consumers need new tools to disrupt tainted global supply chains. Cutting-edge genetic technologies, such as handheld DNA sequencers, will require extensive reference materials from high-value timber species in order to deliver on their potential.

To power these new tools, we've launched our Timber Tracking project in partnership with the World Resources Institute and with genetic and chemical analysis to be performed by the U.S. Forest Service, U.S. Fish and Wildlife Service, and others. Adventure Scientists volunteers are collecting thousands of leaf, seed, and wood samples to create databases representing the chemical and genetic signatures of major tree species throughout their ranges.

In 2018 we trained more than one hundred volunteers from San Diego to Vancouver Island, and collected samples from across the entire range of bigleaf maple.

Why is bigleaf maple in trouble? A stunning grain pattern variation makes many of the trees worth a small fortune—musical instruments and furniture are the most common end products. Forests have been surgically targeted and individual trees have been poached from residential property.

Bigleaf maple is just one species in one part of the world, but the pilot project we conducted this year with the World Resources Institute is paving the way for much broader action. Using the model developed in 2018, we plan to create reference libraries for highly-valued species across the world's most at-risk forest regions.

PROJECT PARTNERS

WORLD RESOURCES INSTITUTE

NICFI
Norway's International Climate and Forest Initiative

DNA4 Technologies LLC

NM STATE UNIVERSITY



A photo of the full leaf in the field allowed us to verify the species of each small sample our volunteers collected.

PARTNER SPOTLIGHT

Meaghan Parker-Forney
World Resources Institute



"Utilizing Adventure Scientists' novel approach of leveraging widely distributed volunteers allows us the opportunity to sample a large geographic region in a fraction of the time it would take a traditional team of scientists."

Each leaf to be sampled was chosen with care to ensure a high-quality DNA sample could be extracted.

VOLUNTEER SPOTLIGHT

Tim Pacific



"[Collecting samples] has provided me with the ability to really slow down and be aware of my surroundings and know what I'm looking at. After doing a few timber projects, I'm actually able to identify multiple tree species while hiking."

Volunteers were trained to use a lightweight, collapsable increment borer to collect a pencil-sized wood sampe from each tree's trunk.



CURRENT PROJECT: CONSERVING BIODIVERSITY–POLLINATORS

Delicate use of forceps revealed the topside pattern of each butterfly's wings for photographing.

You know about the canary in the coal mine. Meet the butterflies in the alpine meadows.

Sensitive to subtle changes in temperature and dependent on the presence of specific plants throughout their life cycles, butterflies are important indicators of larger and more complex ecological conditions.

Since the launch of the citizen science platform eButterfly in 2012, more than 230,000 observations of pollinators have been recorded, predominantly in urban centers and corridors. Researchers have asked for our help to collect data from remote areas unreachable by most citizen scientists.

To meet this critical scientific need, Adventure Scientists has joined forces with Dr. Katy Prudic at the University of Arizona and established the first large-scale dataset that identifies pollinator abundance, diversity, and distribution as well as host plant information across remote portions of their ranges.

Public land managers at the U.S. Forest Service and elsewhere will now use the data we have collected to inform regulatory and management decisions about the timing of prescribed burning, removal of invasive species, and forest planning.

PROJECT PARTNERS

THE UNIVERSITY OF ARIZONA COLLEGE OF AGRICULTURE & LIFE SCIENCE Entomology

1,159
Butterflies representing 162 species

2,372
Wildflowers from 630 species

5
States

5,205
Miles hiked

1,339,287
Vertical feet climbed

=

Equal to climbing Mt. Everest 46 times from sea level

CURRENT PROJECT: CONSERVING BIODIVERSITY—POLLINATORS



At each site in five western states, 263 trained Adventure Scientists volunteers caught butterflies, photographed them from the side and above for species identification, and used the iNaturalist smartphone app to record photos and additional data about the plants they were found to be using.

This ongoing work requires at least three visits per season, and fills a significant data gap around remote ecosystems and their biodiversity.

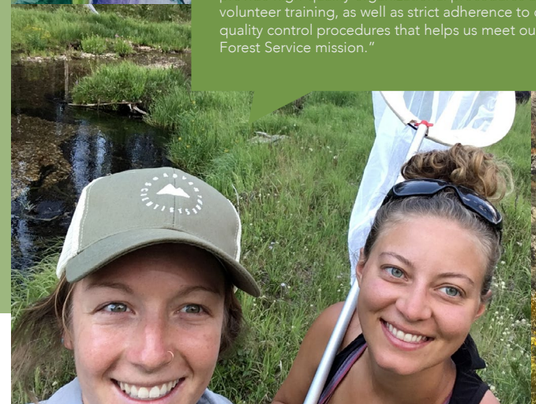




PARTNER SPOTLIGHT

Greg Schroer
U.S. Forest Service

"Adventure Scientists has provided significant additional capacity to the U.S. Forest Service by providing surveys of pollinators in 10 National Forests across 5 National Forest Regions. They provide high-quality organizational procedures and volunteer training, as well as strict adherence to data quality control procedures that helps us meet our U.S. Forest Service mission."





VOLUNTEER SPOTLIGHT: HER ODYSSEY



Bethany Hughes and Lauren Reed at the start of their epic endeavor.

Ten years after our founder, Gregg Treinish, and Deia Schlosberg completed their pioneering trek down the length of South America, Bethany Hughes and Lauren Reed have followed (at times literally) in their footsteps, while still blazing an incredible trail of their own.

The goal of the Her Odyssey project is to traverse the entire length of the Americas through human-powered means. The pair started from Patagonia more than two years ago, and in November they reached a tremendous milestone: the Caribbean Sea.

Along the way they have contributed data to three Adventure Scientists endeavors: Microplastics, Wildlife Connectivity, and the Worldwide Pika Project. From some of the trails where the idea of this organization first took shape, they're bringing the vision of Adventure Scientists full circle.



From south to north, the pair has traveled 8,024 miles, making their way through six countries and 20 pairs of shoes.



VOLUNTEER SPOTLIGHT

Lauren Reed

"As a hiker, often you have this tunnel-vision of wanting to complete things. And so with volunteering for these projects, we were able to expand our horizons and actually learn a lot more and experience things on a deeper level."

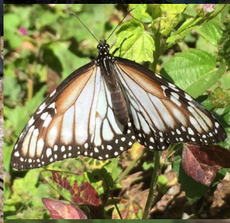
PROGRAMS PARTICIPATED IN:















PROJECT IMPACT UPDATE: EXTREME FUNGUS



At 40x magnification, threads of fungus are visible weaving in and out of the surface of the partner plant.

In both science and adventure, reaching the peak is often just the beginning. That's certainly been the case with the samples collected on the very first Adventure Scientists' expedition.

In 2011, Willie and Damian Benegas, experienced climbers and trip leaders from Patagonia, headed up Mount Everest ready to collect plant samples from extreme elevations. The moss they collected at 22,300 feet is the highest-dwelling plant known on Earth. It helped Rusty Rodriguez, then at the University of Washington, discover a key way plants adapt to extreme conditions.

The answer was not in this moss itself or the other plants Rusty examined, but in fungi living with them symbiotically. Isolating different kinds of fungus allowed Rusty and his team at Adaptive Symbiotic Technologies to develop inoculants that allow crops to become much more tolerant of environmental stress.

"This strategy has allowed us to double crop yields of poor farmers in India, paving a way to decrease poverty and food insecurity," says Rusty. "The most dramatic results so far have been in locations that are experiencing increased droughts and temperature extremes as a result of climate change."

In 2016, they applied fungus-treated seed to test fields in India, North America, Australia, and South America. In 2017 the treatment was commercialized and went onto 230,000 acres worldwide. In 2018 that increased to 900,000 acres and in 2019 they expect crops on 2 million acres of land to benefit from this technique.

PARTNER SPOTLIGHT



Rusty Rodriguez
CEO, Adaptive Symbiotic Technologies

"It's a shame we didn't connect sooner—it would have accelerated our work tremendously."

Bajra (a kind of millet) growing untreated by symbiotic fungi.



Bajra treated with symbiotic fungi on the same farm at the same point in the year.



PROJECT IMPACT UPDATE: MICROPLASTICS

With the publication and dissemination of our Microplastics Toolkit, researchers and communities around the world are able to replicate or adapt our methods to collect microplastics samples wherever they are. By the end of 2018, more than 270 organizations were using the toolkit.

In addition, government agencies—including the EPA, WHO, and the Slovenian Ministry of the Environment—nonprofit organizations, businesses, researchers, and schools at every level in more than 40 countries have accessed our completed dataset to inform their own research, practices, and policies.

The world clearly has awakened to the scale and importance of the microplastics issue, as indicated by the growing number of single-use-plastic bans, press coverage, and corporate-led changes. We remain committed to getting these data into the hands of those who are working to prevent the flow of plastics into the environment.

2018 SCIENTIFIC PUBLICATIONS

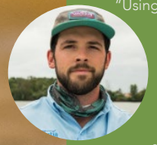
The impact that our data collection has on conservation and human health doesn't happen by itself. We work closely with our partners to ensure that the data are analyzed and published in peer-reviewed journals—and that those papers are put into the hands of environmental decision makers.

Barrows, A.P.W., S.E. Cathey, C.W. Petersen, 2018. " Marine environment microfiber contamination: Global patterns and the diversity of microparticle origins" Environmental Pollution 237: 275-284.

Barrows, A.P.W., K.S. Christiansen, E.T. Bode, T.J. Hoellein 2018. "A watershed-scale, citizen science approach to quantifying microplastic concentration in a mixed land-use river" Water Research Volume 147: 382-392.

We collected the largest dataset on Earth concerning microplastics, which is informing decisions by the WHO, EPA, and more than 200 governments, NGOs, and businesses around the world.

DATA USER SPOTLIGHT



Robbie O'Donnell
Anacostia River Keepers

"Using the Adventure Scientists data helped us to realize the scale of microplastic contamination in the Anacostia, which according to our sampling was higher than a lot of the waters sampled in the Adventure Scientists dataset. Having the access to data from waters all over the U.S. really helped to put our Anacostia data into perspective."

DATA REQUESTS

We collected the largest dataset on Earth concerning microplastics, which is informing decisions by the WHO, EPA, and more than 200 governments, NGOs, businesses, and research facilities around the world.


Indian Institute of Technology Bombay


National Oceanography Centre Southampton


Chesapeake Bay Foundation

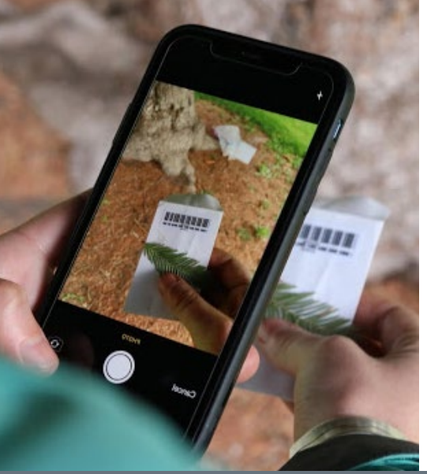

Slovenian Water Agency, Ministry of the Environment and Spatial Planning


City of Austin, Texas


University College Dublin


British Antarctic Survey


Shahid Beheshti University, Tehran



LOOKING AHEAD: TIMBER TRACKING 2019

Following on our success with bigleaf maple, we'll conduct comprehensive sampling of western redcedar, Alaska yellow-cedar, and coast redwood to give agencies the data they need to battle the illegal logging of these ecologically and culturally significant species.

Additional samples we collect will help partners at Save the Redwoods League understand that species' genetic diversity to improve forest management and help guard against the negative impacts of climate change.

PROJECT PARTNERS

LOOKING AHEAD: WILD AND SCENIC RIVERS

There are 226 rivers flowing more than 13,000 miles in the U.S. Wild and Scenic Rivers system; the vast majority have an unknown or impaired water quality status. Using cutting-edge technology and their unmatched outdoor skills, our volunteers will test the waters in all of them on one of our largest-scale projects yet. We'll fill data gaps that currently inhibit our understanding and management of these rivers, enhancing decision-making capacity and river protection nationwide.

PROJECT PARTNERS



LOOKING AHEAD: WILDLIFE CONNECTIVITY

For several years, our volunteers have catalogued roadkill wherever they found it all around the world. In 2019 we'll apply our experience and expertise to our home state of Montana, with hundreds of road cyclists performing seasonal surveys of 11,000+ miles of state and county roads. The result will be a comprehensive portrait of the hot spots where wildlife-vehicle collisions are happening. Our partners will use these data to apply effective mitigation measures to save both wildlife and human lives.

PROJECT PARTNERS

MEET OUR TEAM



Gregg Treinish
Executive Director
This year, Gregg experienced the thrill of watching his son Anden learn his first bird calls. He's a budding young naturalist!



Katie Christiansen
Projects Team Lead
Katie has taken on a new role after leading the Microplastics Initiatives, and has now changed locations as well, setting up our de facto satellite office in Boulder, Colorado.



Aisling Force
Project Creation Manager
How is project creation like a wild river? Aisling can navigate them both with style.



Nina Paige Hadley
Project Creation Director
Nina helped take our project creation process to new levels, cultivating partners and developing potential projects. She has now moved back to Seattle full time where she shares her skills as an independent consultant.



Andrew Howley
Communications Director
During Andrew's first full year with the organization, he got a good taste of all aspects of our work while developing a significant side project as well—he and his wife welcomed a baby boy in October.



Ricky Jones
Technology Coordinator
The volunteer who became an intern. The intern who became an employee. The employee who collected timber samples and starred in our short film about the project!



Jessie Kay
Adventurer Coordinator
Perhaps the person the greatest number of volunteers interact with directly, Jessie has exceptional adventure credentials that help her know just how to speak to her audience, on the phone or on the slopes.



Marcus Pearson
Director of Program Investments
A father of 5-year-old twins, Marcus is well-prepared to juggle his double duties leading new projects and partnership development, and serving as our in-house legal counsel.



Michelle Toshack
Pollinator Project Manager
If you ask her whether leading a second season of this project makes her feel like a butterfly emerging from a cocoon, Michelle will partially agree but point out that butterflies make chrysalises.



Hannah Rasker
Operations Coordinator
Hannah was born in Bozeman, studied dance in New York City, and did wildlife field research in Zambia. This all perfectly prepared her to tango with the challenges of Adventure Scientists' operations.



Jennifer Shoemaker
Operations Manager
Jen's skills and can-do spirit have quickly made her an invaluable part of the team, and her stories from NASA have taken water-cooler conversations to new heights.



Anya Tyson
Timber Project Manager
How do you get 1,000 samples from across the range of a single tree species in a single field season? Anya knows. And she just might write a catchy little song to tell you about it.



Merrill Warren
Development Manager
Merrill has the ability to see the whole landscape and understand the role of each actor in it, whether surveying wildlife on the prairie or building strong relationships with our corporate partners and private donors.

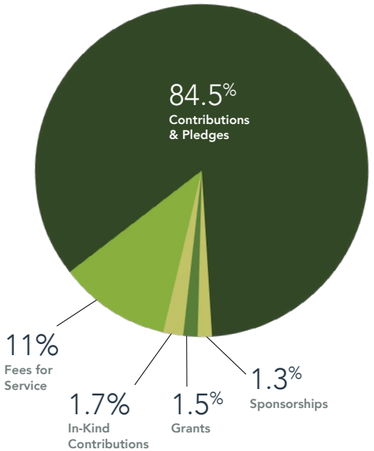


Nicholas "Rusty"' Rustigan
Technology Systems Manager
In addition to giving great guidance on all things bike- and ski-related, Rusty helps the whole team get the most out of our powerful contact management system.

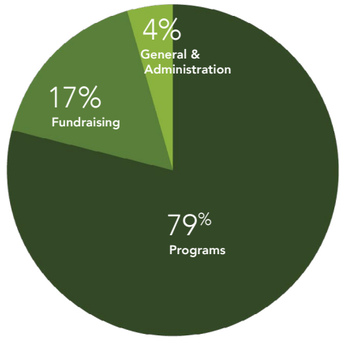
We'd also like to thank our intern, Karissa Mielke, for all her work this past summer, setting up each volunteer for success in the field.

FINANCIALS

2018 SOURCES OF REVENUE & SUPPORT



2018 EXPENSES



INCOME	
Contributions & Pledges	$1,458,811
Fees for Service	$187,900
In-Kind Contributions	$29,300
Grants	$25,000
Sponsorships	$22,676
Total	**$1,723,687**
EXPENSES	
Programs	$841,447
Fundraising	$179,288
General & Administration	$45,375
Total	**$1,066,110**
Beginning 2018 Net Assets	$795,450
Change in Net Assets	$659,577
End 2018 Net Assets	**$1,455,027**

OUR DONORS

$100,000+
Elizabeth R. and William J. Patterson Foundation
High Meadows Foundation
Lyda Hill Philanthropies
Simons Foundation
The William H. Donner Foundation

$25,000 - $99,999
Gib and Susan Myers
Norway's International Climate and Forest Initiative/World Resources Institute
Pearl and Seymour Moskowitz
The Arthur M. Blank Family Foundation
USDA Forest Service

$10,000 - $24,999
Ashoka
Bill Unger
CLIF Bar Family Foundation
George and Susan Matelich
HerRay Foundation
Lindmor Foundation
National Geographic Society
Patagonia
Peak Design
Pettit Foundation
Scott and Karen Amero Family Fund
Sunski
The Dorothy Jordan Chadwick Fund
Tomchin Family Foundation

$5,000 - $9,999
Dorene and Lee Butler Family Foundation
Fairfield County's Community Foundation - Donor Advised Fund
Gaia GPS
Houston Family Foundation
Kaufman Family Foundation
Paskho

$1,000 - $4,999
Amatics CPA Group
Chris and Nora Hohenlohe
Eaglemere Foundation
Garry Weber
Gianna Savoie
Google
Gregg Treinish and Whitney Metzger
Grendel Burrell
Kate Wing
Marcie Rothman
Mike and Lisa Herring
Page Dabney and Sheri Blackwood
Roam Media
Ronna and Alan Treinish
Sarah and Joshua Dickinson
Teresa Luchsinger
The Draper Richards Kaplan Foundation
YETI

$100 - $999
Andrew Johnson
Angela Bohlke
Barbara Garcia
CLIF Bar and Company
Croakies
Darren, Ari, and Lazer Leva
Greg Symmes
Jane and Gene Kay
Jim and Carole Young
Klean Kanteen
Mark and Sally Rutman
Mary Margaret E. Jenkins
Nathaniel and Leah Shoaff
Noa Bruhis
Richard Warren
Solomon Leftin
The Benevity Community Impact Fund
The Douglass Foundation
The Mountain Project
Tim and Trish Preheim
Urs Hölzle and Dr. Geeske Joel

<$100
AmazonSmile
Andres Durstenfeld
Anne Lewis
Anthony Hartshorn
April Fong
Benedetta Asselin
Brent Schimke
Brian Himes
Daniel Gregory
Elizabeth Wilkening
James Holmes
Janet Kempff
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Kevin La Rue
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Linda Shafran
Maria F. Mijangos
Marianne Harding
Martin Cermak
Matt Nelson
Matthew Crommett
Maureen Raymo
Maya Higgins
Melissa Soltero
Molly O'Connor
Network for Good
Murray Kornberg
Molly Fredyma
Whitney Thurrott
James Wight
Paul Kornberg
Paula Daniels
Robert Anderson
Sebastien Petillon
Shea Quinn
Spencer Plumb
Stephanie Lynn
Trevor Bollmann
Wendy Yun
William Steele


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