



ADVENTURE SCIENTISTS

EXPLORE. COLLECT. PROTECT.

2017 HIGHLIGHTS





PHOTO: JULIE HOTZ

Julie Hotz biked from her front door in L.A. north to Glacier National Park, then hiked west to the Pacific Ocean, contributing to our Wildlife Connectivity and Microplastics projects along the way.

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.
2. Grow a network of informed advocates 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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WILL UPDATE ONCE REPORT IS FINALIZED



PHOTO: JULIE HOTZ

LETTER FROM THE EXECUTIVE DIRECTOR

DEAR FRIENDS AND FAMILY,

I've never been more proud of the work of Adventure Scientists.

Brilliant people in nonprofits, business, and government tell us that the game-changing decisions and breakthroughs they are pursuing often lack reliable data at scale. And that's exactly what we provide.

Since 2011, we have gathered high-quality, large-scale data about the environment on an otherwise impossible scale. We built on that reputation and success in 2017, tightening our focus and strengthening our project criteria to ensure that the results will lead directly to tangible impacts for the health of humans, animals, and ecosystems.

From the U.S. to Indonesia, we're receiving word that our plan is working. Our Microplastics dataset is being used by dozens of researchers, governments and conservationists to address



the plastic pollution crises. We provided the U.S. Forest Service with essential biodiversity data from remote locations, and our Wildlife Connectivity project aided transportation officials in protecting both human and animal lives.

Our ongoing success in 2017 is emblematic of the fact that together, we are accelerating arrival at lasting impacts through grassroots scientific advancement.

And it's only possible because of you. Thank you partners, donors, volunteers, sponsors, and everyone for supporting this adventure.

Cheers,

Gregg Treinish

Joining a National Geographic Expedition to Antarctica, Gregg's seventh continent, he was able to share an incredible experience, and collect data with his father, Alan.

PHOTO: GREGG TREINISH

BOARD AND ADVISORS

We recognize that a strong foundation will be the key to meaningful growth and longevity. So, in 2017 we made it a priority to reach out through our community of supporters, connections, and mentors, in order to expand our board of directors. With proven success in business management, technology, investing, and leadership, this team brings an abundance of skills and understanding into the organization. At the same time, our scientific advisory board brings together influential researchers and some of the most productive conservationists of our time. Together they strengthen our foundation and give us wisdom beyond our years.

SPOTLIGHT



Tom Lovejoy
Senior Fellow at the United Nations Foundation

"Humanity's ability to address the challenges facing the health of our own population and of our living planet depend on broader engagement than scientists alone can provide. By tapping into the skills and geographic reach of the outdoor adventure community and ensuring the scientific integrity of the data they collect, Adventure Scientists is rising to a significant challenge and making a really important contribution to addressing these questions."

PHOTO: DENNIS LINGHOR

OUR BOARD OF DIRECTORS

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

ADVISORY COUNCIL

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

OUR SCIENTIFIC ADVISORS

Enric Sala, Lauren Oakes, Tom Lovejoy, Tim McDermott

2017 Highlights • Adventure Scientists



HOW WE DO IT

Adventure Scientists' and our project partners' success comes down to the simple fact that we are able to get critical data from the outdoors anywhere, at any scale. Here's how we make that happen consistently.

CHOOSING THE RIGHT PARTNERS

We commit to working with scientific partners who are dedicated to minimizing our impact on the planet and who have the reputation to pull it off. Through technological advancements, the innovative use of genetics, and the ability to think big, our partners are on the front lines of addressing the massive challenges we all face.

RIGOROUS DESIGN OF PROTOCOLS

We work hand-in-hand with our scientific partners to determine what data will be collected and to design the protocols that volunteer teams follow. We have an eight-step process to ensure data quality and put our main focus on quality data that will hold up to the toughest scrutiny.

GLOBAL NETWORK OF SKILLED VOLUNTEERS

Those stories attract, awaken, and engage outdoor enthusiasts. By volunteering for projects and encouraging their personal and public networks to get involved as well, they become the living bricks that make up the foundation for all the work we do in the field.

VERIFIED TRAINING OF ALL VOLUNTEERS

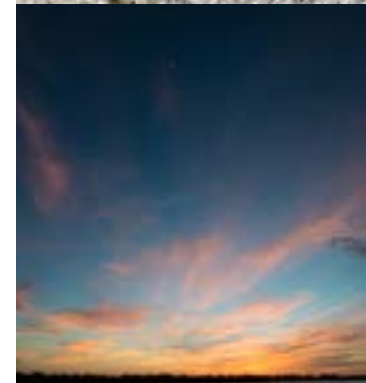
We don't send anyone blindly into the field. We screen every participant for the necessary outdoor skills and verify their project preparedness with online and sometimes in-person trainings and tests. Volunteers record data using industry-leading mobile apps and regularly talk with our staff to review their execution of protocols. Because of this, all the data we collect is consistent and reliable no matter how many hundreds of participants are involved and no matter where the collecting takes place.

COMPELLING STORYTELLING

Whether it's a documentary film making its way through the festival circuit, an ambassador volunteer posting a personal reflection on social media, or an inspiring conversation between our Project Creation team and a potential partner, Adventure Scientists' success begins with the skills and passion to tell a compelling story well.

OPEN-ACCESS DATA

Getting the word out and promoting further use of the data are critical steps in unlocking the power of the knowledge gained through research. When possible, we open up access to our raw datasets to allow other researchers to learn from them what they can, and to put their own work into broader context.



CURRENT PROJECT: WILDLIFE CONNECTIVITY



Our long-term survey of wildlife mortality from vehicle collisions continues to draw participants all around the world. From dense coverage in Texas to scattered observations in Europe and Southeast Asia, Adventure Scientists volunteers moving at human-powered speeds are revealing the toll our roads take on wildlife.

These observations give government officials the precise, reliable, real-world data they need to develop a clear strategy

to address a well known but poorly defined problem. The results guide the implementation of mitigation efforts to reduce collisions, including the placement of wildlife overpasses and underpasses, and strategic changes to speed limits and signage.

Our data empower officials to make wildlife road safety a priority for the protection of humans and the animals whose lands we share.

PHOTO: LAUREN REED

SPOTLIGHT



Bethany Hughes
Wildlife Connectivity Volunteer

"Participating in Adventure Scientists' Wildlife Connectivity Survey shifted my attention from simply practicing a macabre passtime of many slow travelers to contemplating the effects of human activity on wild animal movements. It has been an opportunity for growth on many levels, deepening my personal perspective and broadening our scientific understanding as a community."

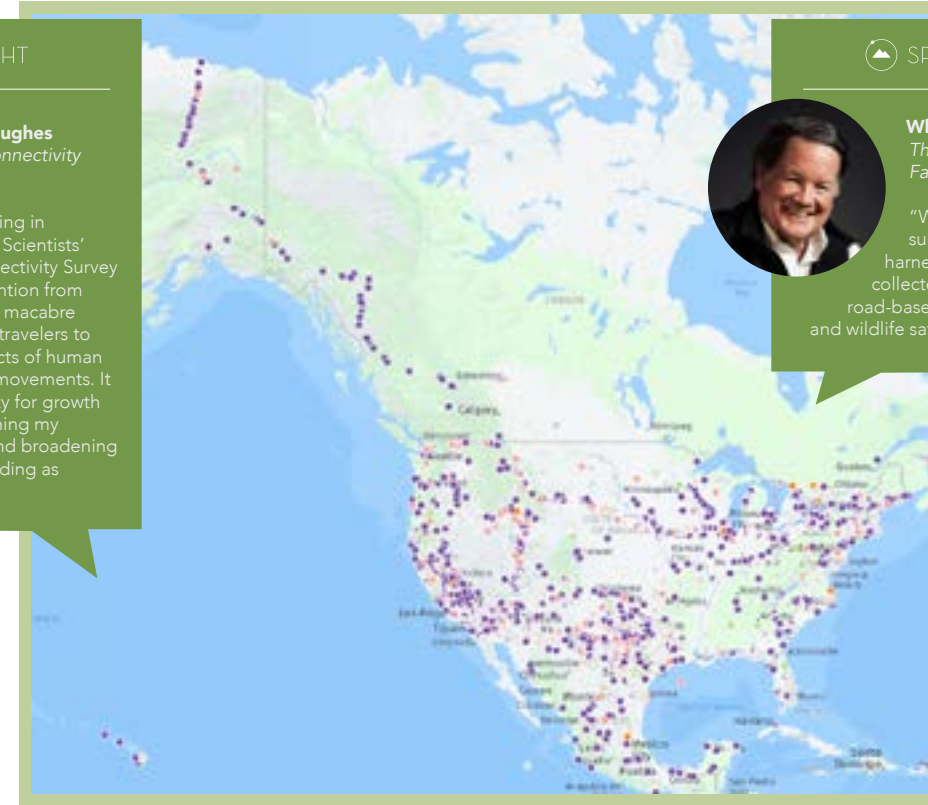
With light purple for mammals, dark purple for reptiles, and pink for birds, this map of volunteer data gives a snapshot of the nearly 700 animals killed by vehicle collisions in the U.S. every minute.

SPOTLIGHT



Whitney Tilt
The Arthur M. Blank Family Foundation

"We are proud to support this effort to harness the power of citizen-collected data to reduce road-based threats to human and wildlife safety."



CURRENT PROJECT: GLOBAL AND GALLATIN MICROPLASTICS INITIATIVES

FRESHWATER



~ 1
microplastic
per liter, global average

MARINE



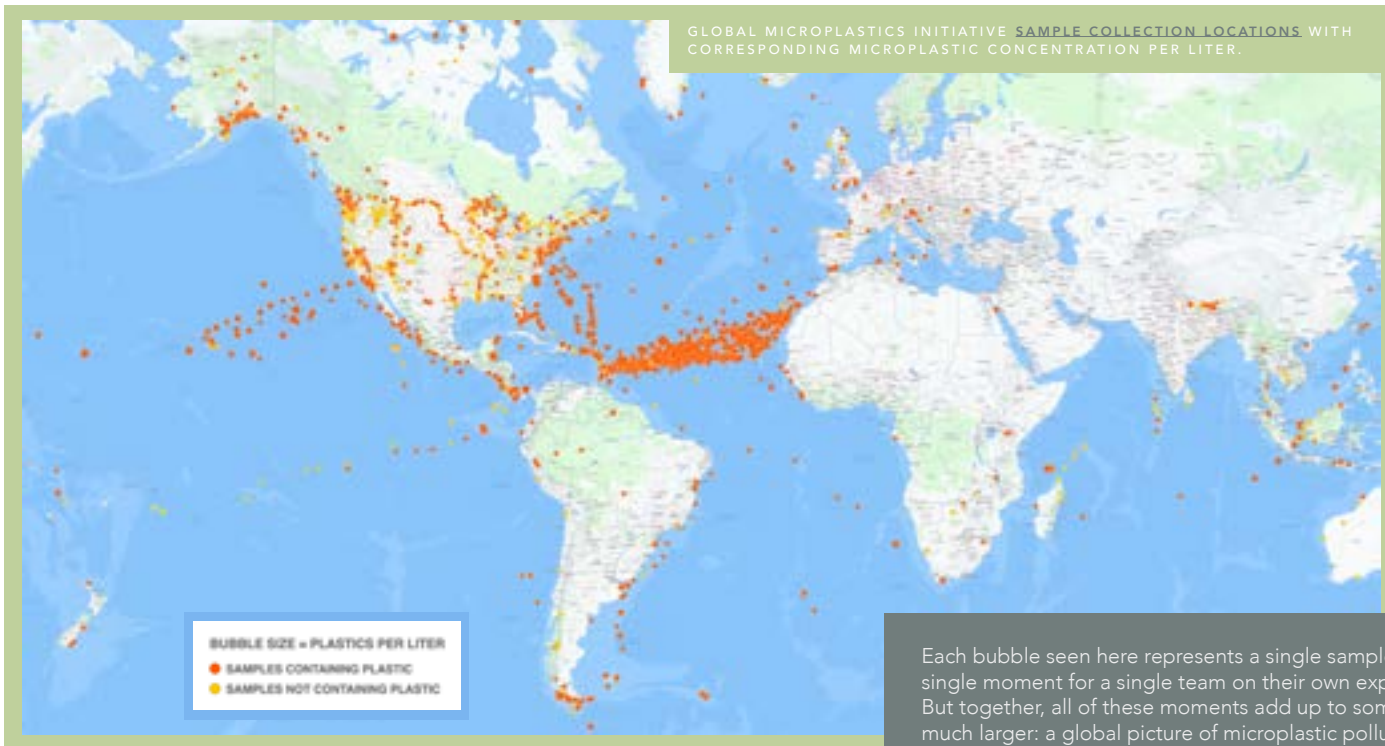
~ 12
microplastics
per liter, global average



3,400+
Water samples collected

With your help, we have put the world's largest and most uniform dataset on microplastics directly into the hands of scientists, conservationists, and educators around the world. Nonprofits, universities, and government agencies from New York to Indonesia are using our volunteers' data to guide conservation decisions, establish new policy, and put their own research into a global context.

Now, after four years, the active volunteer stages of our Microplastics Initiatives are complete and they have been a resounding success. Look forward to learning more about our findings in a final report, a tool-kit that will enable others to replicate our work, and multiple peer-reviewed articles, including one in the scientific journal *Environmental Pollution* in 2018.



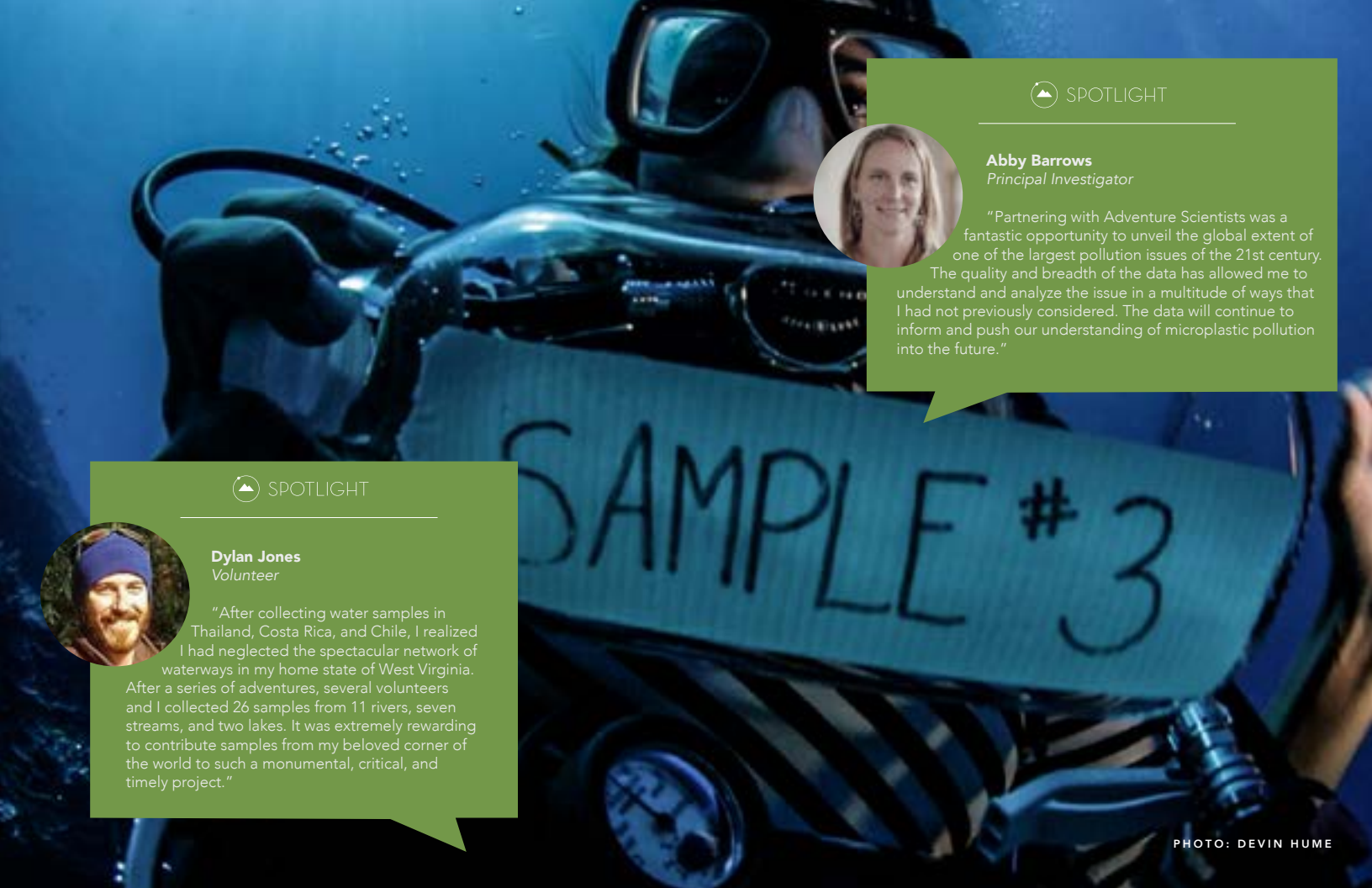
Each bubble seen here represents a single sample—a single moment for a single team on their own expedition. But together, all of these moments add up to something much larger: a global picture of microplastic pollution on a scale few imagined possible

GALLATIN PARTNERS



PROJECT SPONSORS

ROGER AND ROSEMARY ENRICO FOUNDATION, PATAGONIA, NORCROSS WILDLIFE FOUNDATION, DOROTHY JORDAN CHADWICK FUN, CRUTCHER FAMILY FOUNDATION, LINDBLAD EXPEDITIONS-NATIONAL GEOGRAPHIC FUND, KLEAN KANTEEN, GAIA GPS, YELLOWSTONE CLUB COMMUNITY FOUNDATION, BOZEMAN AREA COMMUNITY FOUNDATION, US BANK NATIONAL ASSOCIATION-BOZEMAN, CLIF BAR, PEAK DESIGN, CROAKIES, BRIDGER BREWING, ADVENTURE SCIENTISTS' GENERAL OPERATING FUND.



SPOTLIGHT



Abby Barrows
Principal Investigator

“Partnering with Adventure Scientists was a fantastic opportunity to unveil the global extent of one of the largest pollution issues of the 21st century. The quality and breadth of the data has allowed me to understand and analyze the issue in a multitude of ways that I had not previously considered. The data will continue to inform and push our understanding of microplastic pollution into the future.”

SPOTLIGHT



Dylan Jones
Volunteer

“After collecting water samples in Thailand, Costa Rica, and Chile, I realized I had neglected the spectacular network of waterways in my home state of West Virginia. After a series of adventures, several volunteers and I collected 26 samples from 11 rivers, seven streams, and two lakes. It was extremely rewarding to contribute samples from my beloved corner of the world to such a monumental, critical, and timely project.”

CURRENT PROJECT: CONSERVING BIODIVERSITY: POLLINATORS

Butterflies flutter by us in even the most densely-inhabited urban areas, so it's easy to think their status is well known and understood. But get a few miles from human habitation and the picture changes dramatically.

The U.S. Forest Service wants to gain a better understanding of biodiversity in the backcountry. Our data are helping them design species monitoring plans and fine-tune the makeup of seed mixes used for ecological restoration.

Project scientist Dr. Katy Prudic and her colleagues at the University of Arizona utilize the data to create predictive models of at-risk butterfly species under different climate change scenarios.

To gather data our volunteers hiked, biked, and ran to some of the mountain west's most beautiful and remote alpine meadows. They were trained in how to handle butterflies in order to get quality images that could be used in conjunction with a machine learning algorithm for identification.

The project will continue through 2018 and expand to additional sites.



PHOTO: ZAC VELARDE



526

Butterflies representing
70 species



676

Wildflowers from
126 species



810

Miles hiked



=

497,380

Vertical feet climbed



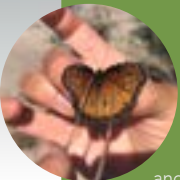
Equal to climbing Mt. Everest 17
times from sea level

PROJECT PARTNERS



THE UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE & LIFE SCIENCES
Entomology

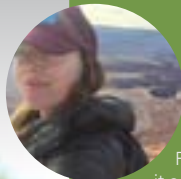
SPOTLIGHT



Justina Dumont
HLC Forest Botanist

"The additional data on butterfly species present on the Helena-Lewis and Clark National Forest will be used to support decision-making, forest project planning, and land management strategies to promote biodiversity in ways such as monitoring efforts of at-risk plant or pollinator populations, planning future restoration projects, and/or influencing native plant material collection and seed mixes."

SPOTLIGHT



Stacey McClure
2017 Pollinators
Volunteer

"The best thing about participating in the Pollinators Project was that it added this additional layer to my sight as I was out hiking. No longer was I just seeing 'some butterflies.' I was now noticing their frequency, color, species, and relationship to the land. It awakened this whole other realm within the environment I was passing through. And I loved that."

LOOKING AHEAD: TIMBER TRACKING

SPOTLIGHT



Meaghan Parker-Forney
Science Officer at the World
Resources Institute's Forest
Legality Initiative

"We hope to apply the lessons learned next year [on bigleaf maple] to tropical timber species that experience a high incidence of illegal logging and trade around the world."

In partnership with the World Resources Institute, Adventure Scientists is headed into the field to gather tree tissue samples to develop a genetic reference library that will one day enable on-the-spot assessment of the origin and legality of timber products.

PROJECT PARTNERS



PROJECT SPONSOR

CLIFF BAR FAMILY FOUNDATION

PHOTO: JOHN B. HANLE

LOOKING AHEAD: FOREST LISTENING DEVICES



PHOTO: COLLEEN FERRIS



If a tree is cut down in the forest and a cellphone is there to hear it, can authorities catch more poachers in the act? You bet they can. Rainforest Connection's solar-powered forest listening devices have proven their worth at several small-scale implementations in the wild. Adventure Scientists volunteers will deploy this game-changing tech in the field, vastly improving the scale and the rate that they are able to reach impact.

PROJECT PARTNERS



LOOKING AHEAD: EXTREME FUNGUS FOR AGRICULTURE

Next year will also see us reuniting with one of our first scientific partners, Dr. Russell Rodriguez. In 2011 Adventure Scientists volunteers collected a sample of the world's highest known plant life, at 22,300 feet on Mount Everest. Lab analysis revealed that a symbiotic fungi played a key role in allowing the moss to survive at such high altitude and low temperatures. Subsequent experiments showed the fungi can increase the survivability of cultivated species, too. We will now take the search for life-sustaining fungi to other extremes of heat, dryness, salinity—any challenging environment our planet offers up.

PROJECT PARTNERS



SPOTLIGHT



Dr. Russell Rodriguez
CEO of Adaptive
Symbiotic Technologies

"The opportunity to analyze these symbiotic associations in high-stress habitats around the globe will allow us to develop microbial tools to mitigate the impacts of climate change in agriculture, expand agriculture onto marginal lands, decrease crop requirements for fertilizer and water, and decrease poverty and famine among poor farmers globally."



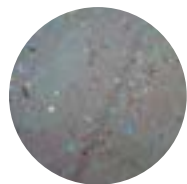
PHOTO: HARI MIX

SCIENTIFIC PUBLICATIONS

We had one of our most scientifically productive years in 2017, with four journals publishing papers incorporating our work. This reflects our focus on ensuring that the data our field volunteers collect is of the highest scientific standards, is applied to real research, and is useful to scientists and conservationists alike.

During the rigorous peer-review process experts of various levels and disciplines provide input that allows our scientific partners to anticipate questions readers and end-users will have. It gives confidence in our data to decision-makers like our partners at the U.S. Forest Service and our sponsors at Croakies, and empowers them to make bold moves for conservation.

Bold moves need to be based on good science. We're proud to make good science possible.



MICROPLASTICS

Waller, Catherine L. et al. 2017. "Microplastics in the Antarctic marine system: an emerging area of research" *Science of the Total Environment*.

Researchers from the British Antarctic Survey, University of Hull in the U.K., and Cientifica de Sur University in Peru reviewed the relevant information on marine microplastic pollution and concluded that "standardised monitoring of microplastic in Antarctic waters is needed urgently." The authors make particular mention of Adventure Scientists' preliminary results showing similar concentrations of microplastics in this remote region as those found around far more densely populated areas.

POLLINATORS

Prudic, Kathleen L. et al. 2017. "eButterfly: Leveraging Massive Online Citizen Science for Butterfly Conservation" *Insects*.

While our data collection on pollinators has just begun, our project design and parameters are already contributing to published research. Principal Investigator Dr. Katy Prudic led this paper highlighting the way public data collection can "address scientific problems at regional, continental, and even global scales otherwise impossible for a single lab [or small team]." Adventure Scientists' unique contribution is called out as a way to acquire data from remote areas far from the population centers where most citizen science data is clustered.



LICHEN

Onuț-Brännström, Ioana. 2017. "The Puzzle of Lichen Symbiosis : Pieces from Thamnolia" (PhD dissertation) *Acta Universitatis Upsaliensis*.

Onuț-Brännström, Ioana, Leif Tibell, and Hanna Johannesson. 2017. "A Worldwide Phylogeography of the Whiteworm Lichens Thamnolia Reveals Three Lineages with Distinct Habitats and Evolutionary Histories" *Ecology and Evolution*.

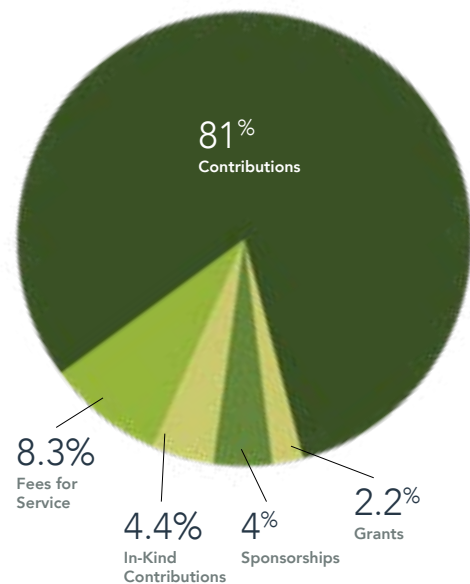
As a result of one of our earliest projects was a global collection of whiteworm lichen samples in 2012. Principal Investigator Ioana Onuț-WBrännström has now published her PhD dissertation and an associated journal article documenting her resulting discoveries. Genetic analysis of both the fungal and algal components of this symbiotic organism revealed that there are three lineages: one in Siberia and Alaska, one in the Alps and Carpathian mountains, and one with global distribution. While the first two contain only one kind of algae, the global lineage makes use of several different kinds, which it shares with unrelated lichen nearby. And while they all seem to only reproduce asexually, there are indications that some sexual reproduction has occurred rarely or in the deep past. These insights into such a little known organism were made attainable to an emerging scientist only through the global reach of our volunteer network.



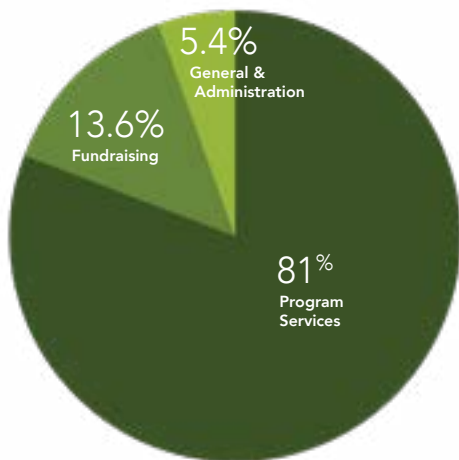
PHOTO: HANNAH PORTER

FINANCIALS

SOURCES OF REVENUE AND SUPPORT



2017 EXPENSES



INCOME

Contributions	\$748,298
Grants	\$20,406
Sponsorships	\$37,325
In-Kind Contributions	\$40,725
Fees for Service	\$76,687
Total	\$923,441

EXPENSES

Program Services	\$741,827
Fundraising	\$125,042
General & Administration	\$49,383
Total	\$916,252

Beginning 2017 Net Assets	\$788,261
Change in Assets	\$7,189

End 2017 Net Assets \$795,450

Adventure Scientists has outlying signed fee-for-service contracts for \$755,945, which will be recorded as revenue as work is completed in future years.

OUR DONORS

\$100,000 - \$600,000

The Draper Richards Kaplan Foundation
High Meadows Foundation
Lyda Hill
Simons Foundation
The Enrico Foundation

\$20,000 - \$99,999

Anonymous
HerRay Foundation
Peak Design
William and Elizabeth Patterson Family Fund
Gib & Susan Myers
William H. Donner Foundation

\$10,000 - \$19,999

Bill Unger
Fairfield County's Community Foundation - Donor Advised Fund
George & Susan Matelich
Mike & Lisa Herring
Patagonia
Pearl & Seymour Moskowitz
Sunski
The Dorothy Jordan Chadwick Fund
Tomchin Family Foundation

\$5,000 - \$9,999

Bodhi Surf School
Alan Eustace & Kathy Kwan
CLIF Bar Family Foundation
Klean Kanteen
The Houston Family Foundation

\$1,000 - \$4,999

Amatics CPA Group
Alan & Ronna Treinish
Apple, Inc.
Chris & Nora Hohenlohe
Croakies
Eaglemere Foundation
GoPro
Grendel Burrell
Hydaway Bottle
Kaufman Family Foundation
Marcie Rothman
Outdoor Research
Roam Media
Stace Lindsay & Lisa Ceremsak
Teresa Luchsinger

\$500 - \$999

Gregg Treinish & Whitney Metzger
Jewish Federation of Cleveland
Jim & Carole Young

Kate Wing
Leslie Taylor
Maria Vecchiotti
Micah Kalscheur
Page Dabney & Sheri Blackwood
Sally & Josh Dickinson
Tony Stayner & Beth Cross
Urs Hölzle & Geeske Joel

\$100 - \$499

Bridger Brewing
Clif Bar and Company
Daniel & Mel Steindler
David Taube
Felis Gallues
Garrett Finney
Greg Symmes
Jane & Gene Kay
Jenny Chatman
Laurel Harkness
Linda Shafran
Marianne D'Angelo
Mason White
Morgan Owen
Nels Johnson
Phil Bruckner
Phyllis Gunn
Robert & Janie Rutman

Rochester Area Community Foundation
Stacey Carr & David Sick
Stephen Durbin
Trish & Tim Preheim

<\$100

AmazonSmile
Amy Brown
Andres Durstenfeld
Benevity Community Impact Fund
Carrie Carter
Christy Quinn
David Taube
Felis Gallues
Garrett Finney
Greg Symmes
Jane & Gene Kay
Jenny Chatman
Laurel Harkness
Linda Shafran
Marianne D'Angelo
Mason White
Morgan Owen
Nels Johnson
Phil Bruckner
Phyllis Gunn
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Katie Plumb
Laurie Bader
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Meghan McNulty
Mike Deas
Molly O'Conner
Network for Good
Nigel Tansley
Peter Roop
Rebecca Kurnick
Regan Nelson
Talal Sadeh
Tammy Swinney
Wendy Yun



ADVENTURE SCIENTISTS

EXPLORE. COLLECT. PROTECT.



COVER PHOTO: DAVE FREEMAN

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