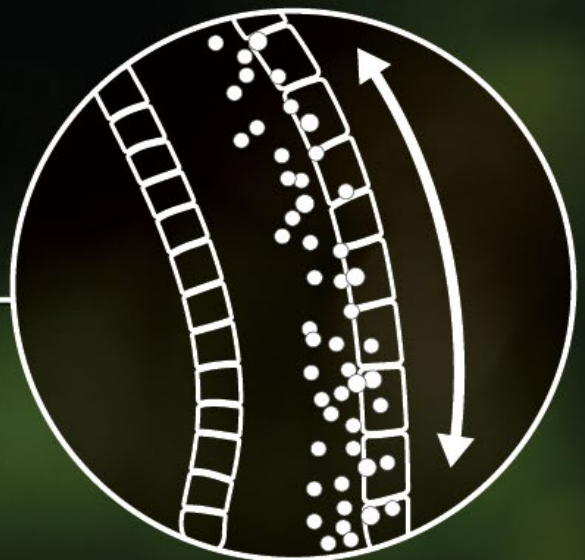


**BIOMIMICRY**  
INSTITUTE

# 2022 ANNUAL REPORT



Growth hormone  
moves to the  
shady side

# A MESSAGE FROM OUR EXECUTIVE DIRECTOR, BETH RATTNER

As I sit here and reflect on 2022, it's clear to me that our little corner of the world has changed in the last decade: nature-positive, nature based solutions, planetary boundaries informing Doughnut Economics—people have woken up to the lessons that nature can offer and are actively seeking biology as the lens for innovation.

Biomimicry has always been a hopeful movement—and now it's a growing one. Eight years ago when we first partnered with the Ray C. Anderson Foundation to define a new generation of nature-inspired entrepreneurs, we were a little worried that we wouldn't have a strong artery of new teams year over year. But the opposite has come to pass: each year there are hundreds more, each more ambitious than the next. When we learned the nuances of getting biomimicry into each school district and, ultimately, each classroom, we wondered how we would ever scale. So we opened it up online to everyone and conservatively, 65,000 students have used our curriculum—and that number leaps each year. When we did the math on how many hours and dollars it took to create a single AskNature strategy page, we wondered how we would ever scale it from thousands to hundreds of thousands of pages. Now we use AI (like everyone else) and our science writers have become science editors to ensure accuracy. When the advisors of our clothing waste project told us to focus on single material type instead of mixed waste (at scale, in region, while emulating a food web), we “quieted our cleverness” as our co-founder Janine Benyus would say and did a deep, deep dive into what it means to manage carbon cycles. It's incredibly hard to force industrially-made stuff into natural systems, and we stumbled a lot, but we have since created a new path for these first and hopefully more pilots, with more actors, creating nutrients from the toxic mess that no one else wanted to tackle.

More of the story: surround yourself with (nature's) genius. This is our moment, when more people than ever before are Asking Nature for advice. Thanks to you and this growing community of ours, we are able to answer the call.

To life,  
Beth









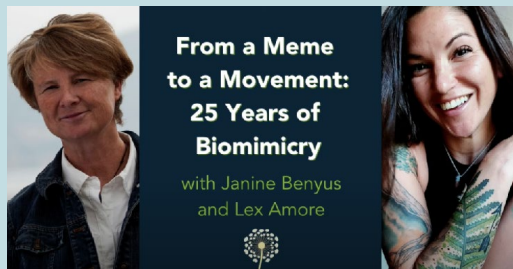
# NATURALIZING BIOMIMICRY AROUND THE WORLD

## 25th Anniversary of Biomimicry: Innovation Inspired by Nature

In May, we celebrated 25 years since the publishing of Janine Benyus's book *Biomimicry: Innovation Inspired by Nature* with a virtual discussion that connected biomimicry learners and practitioners from around the world. Janine shared the journey of how biomimicry started out as a meme and turned into a global movement.

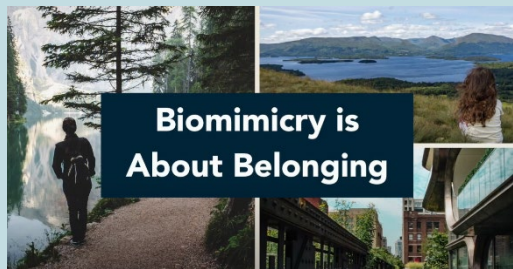
To celebrate the biomimicry movement, 52 collaborators from around the world recently contributed videos sharing what biomimicry has meant to them in their person and professional lives.

## Some of our Favorite Videos of 2022:



From a Meme to a Movement: 25 Years of Biomimicry with Janine Benyus & Lex Amore

[VIEW THE INTERVIEW](#)



Biomimicry is Belonging: Hear voices from around the world share how biomimicry has influenced them

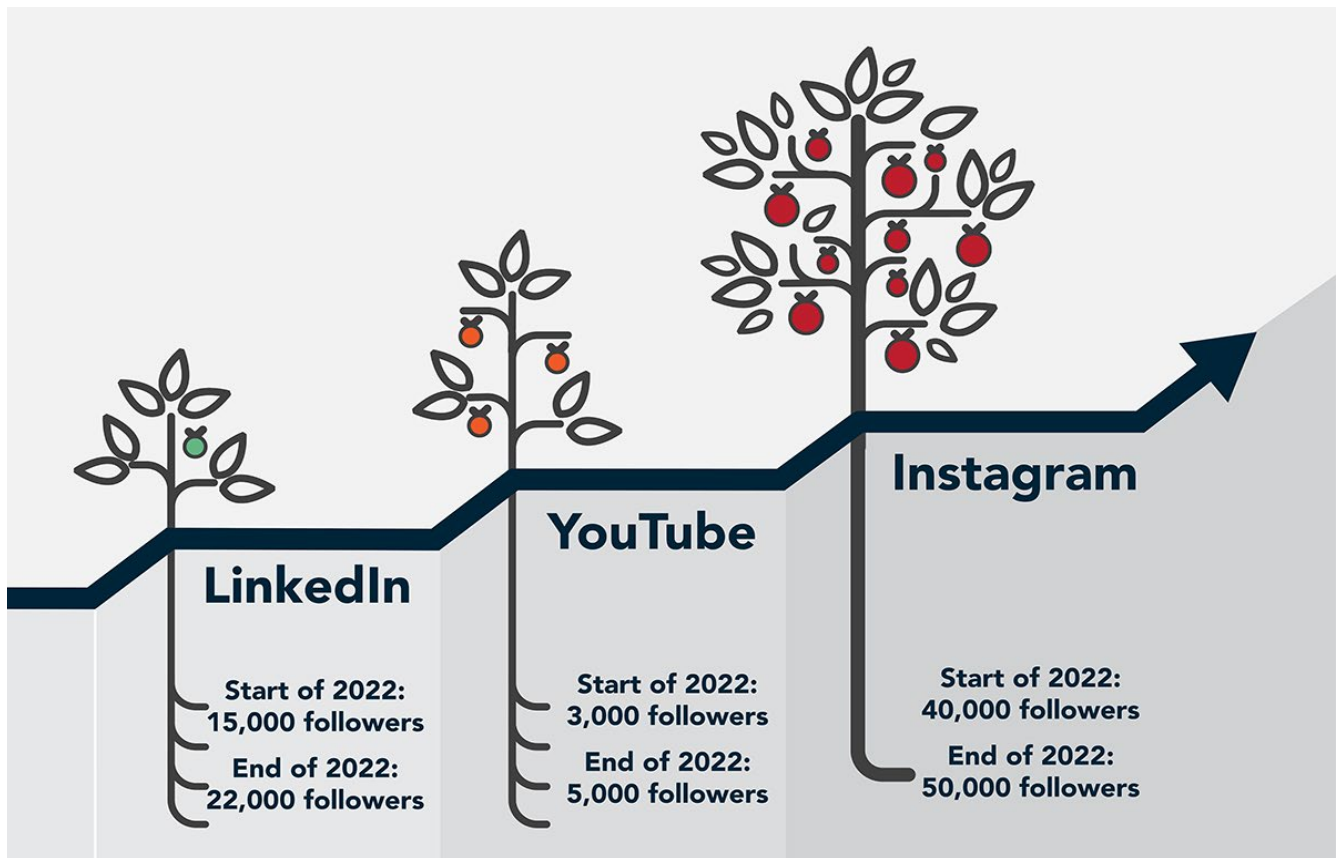
[WATCH THE VIDEO](#)



The Top Nature-Inspired Startups Met in the Redwoods. Here's what happened when they were together.

[GET INSPIRED](#)





## MORE SOCIAL THAN EVER

We are bringing biomimicry to you, and having a blast in the process. In 2022, we upped our production and sharing on Instagram, LinkedIn, YouTube, and Medium, answering the call for nature-inspired and innovation solutions. Best of all, when you engage with us on these networks, you (and the algorithms!) help spread the message of biomimicry as well.

[LINKEDIN](#) | [INSTAGRAM](#) | [YOUTUBE](#) | [MEDIUM](#)

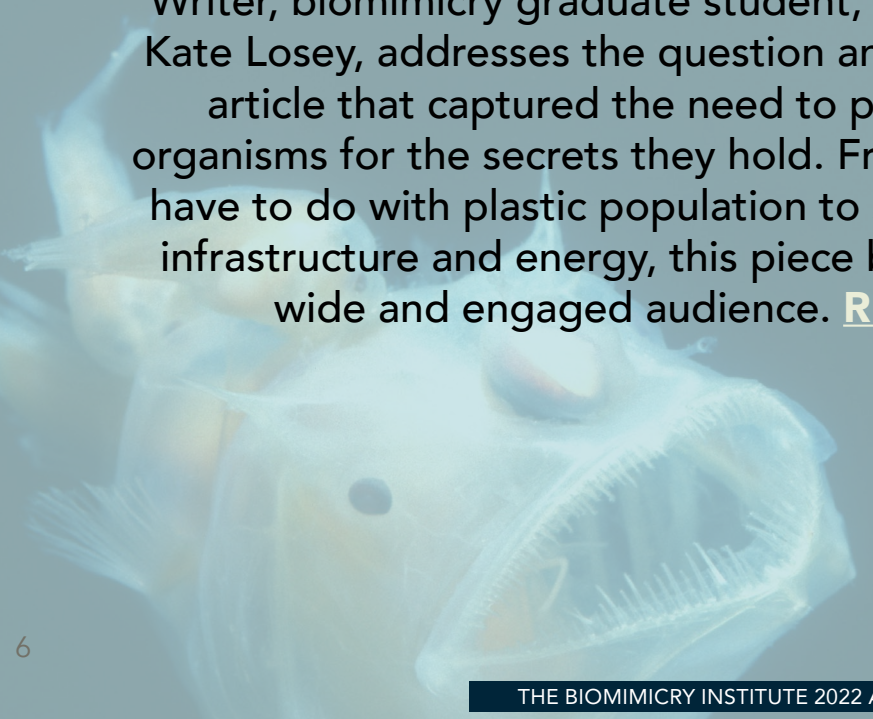




OUR  
MOST  
POPULAR  
BLOG  
POST OF  
**2022**

## Disappearing Freaks of Nature

Could we be obsessed with death and indifferent about extinction? Writer, biomimicry graduate student, and Director at Fragile Earth, Kate Losey, addresses the question and more in her hugely popular article that captured the need to protect even the scariest of organisms for the secrets they hold. From learning what killer worms have to do with plastic population to sloth spines and the future of infrastructure and energy, this piece brought biomimicry to a very wide and engaged audience. [READ THE BLOG POST](#)





# TARGETED NEWSLETTERS REACH OUR UNIQUE AUDIENCES

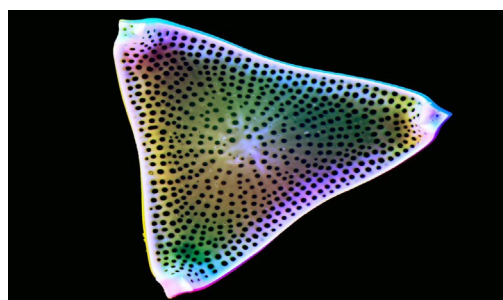
## Introducing the New AskNature Newsletter

Now you can receive new biological strategies and biomimetic innovations straight to your inbox, including the latest from our ever-growing library of adaptations, discoveries, and diverse perspective of nature from cultures around the world. [SIGN UP HERE.](#)



## Biomimicry Innovation in Your Inbox

Our Innovation team brings you the latest in nature-inspired innovation including industry news and best practices, cutting edge research, and updates from our Ray of Hope Prize participants. [SIGN UP HERE.](#)



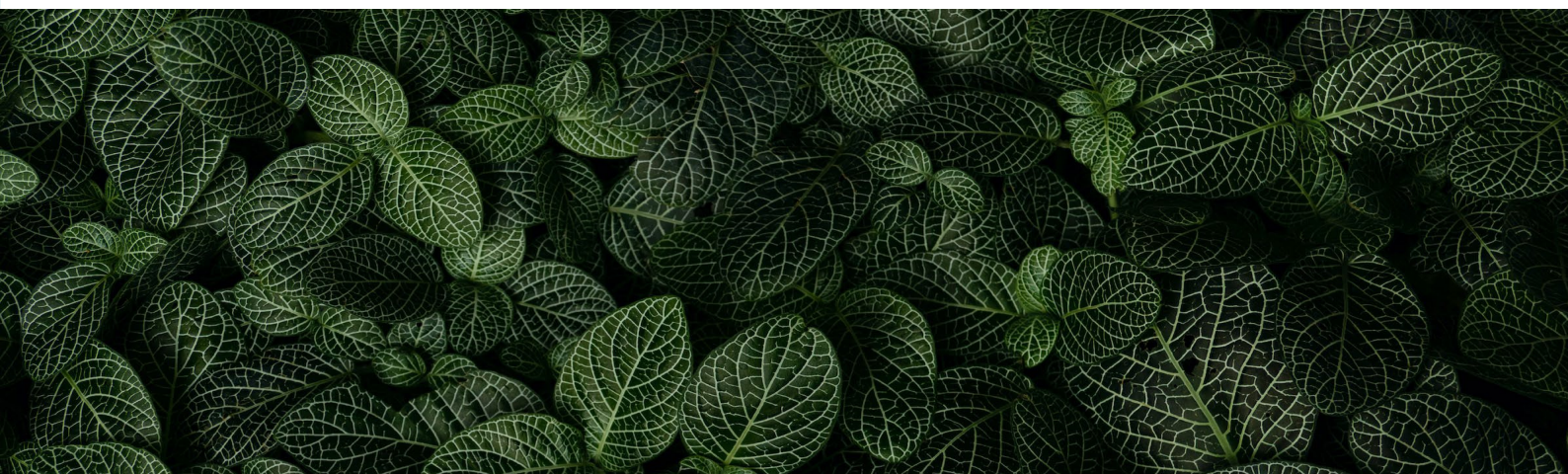
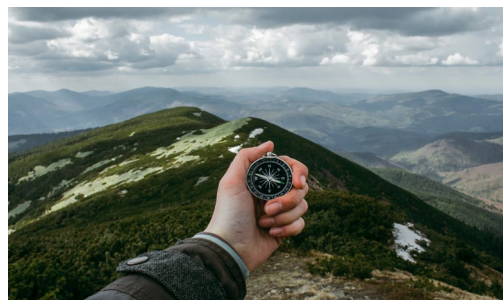
## Youth Education News Delivered to You

Stay inspired, engaged, and connected to the latest in biomimicry education, the Youth Design Challenge, and other relevant education news! [SIGN UP HERE.](#)



## Biomimicry Inspiration in Your Inbox

We'll keep you up-to-date with the latest trends in biomimicry as well as news, events, trainings, and conferences you won't want to miss. [SIGN UP HERE.](#)







I CHOOSE  
A SUSTAINABLE  
LIFESTYLE.  
ASK ME HOW!

sustainability  
initiatives

Truly  
Living Well

TRAPPED BY  
NATURE

Human bone  
Bone and Bone Marrow  
Large Air Pockets  
Bird bone





# YOUTH EDUCATION



## Biomimicry Biographies Inspire Youth

In January, we launched the Biomimicry Biographies series. This series features leaders in the biomimicry movement providing sound advice for young learners to make a difference. [VIEW MORE](#)



## Youth Design Challenge Winners

Every year, our Youth Design Challenge engages thousands of students around the world with biomimicry curriculum and the challenge of using nature-inspired ideas to solve environmental and social issues most important to the students. In May, we were proud to announce the 2022 winners! [MEET THE WINNERS](#)

12,000+

Students exposed to the Biomimicry Youth Design Challenge curriculum in the 2021-2022 school year.

484

Educators and coaches signed up for the curriculum to introduce to their middle and high school students.

12

Countries total represented the 2021-2022 Youth Design Challenge submissions.

95/30

95 national submissions and 30 international submissions.



## Meet the NEW Youth Design Challenge

We are excited to introduce the new and improved Youth Design Challenge. Not only will educators find a simplified and streamlined process for lesson planning, they'll find the flow of the MIMIC curriculum to be enhanced—all based on educator feedback from the 2021 Challenge. You'll also find clearer alignment with the 5E instructional model, updated worksheets, and activities to guide you along the way.

[SEE THE NEW CHALLENGE CURRICULUM](#)



# INNOVATION

## 2022 RAY OF HOPE PRIZE

In order to discover the most promising nature-inspired startups in the world, we worked with over 50 pipeline partners and the global biomimicry community. Each of the participating startups have the potential to reduce or eliminate many current extractive industries and practices, while revitalizing degraded ecosystems—a prize we can all celebrate.

## BY THE NUMBERS

**212**

Applicants from **54**  
different countries

**40%**

Half of these  
applicants have a  
founding team that is  
at least 40% female

**16%**

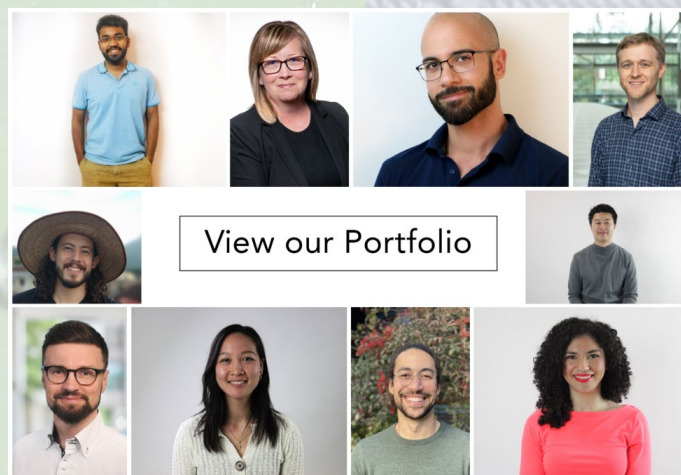
Of applications have a  
founding team of at least  
40% identifying as members  
of groups that are historically  
underrepresented in tech &  
entrepreneurship

### MEET THE 2022 RAY OF HOPE PRIZE WINNER

An agriculture biotechnology startup based in India, GreenPod Labs is focused on tackling food loss problems in developing countries. By learning how fruits and vegetables naturally resist pest and fungal pathogens, GreenPod Labs showcases how learning from nature can solve both climate and societal problems.

### MEET THE 2022 RUNNER-UP

Inspired by nature's surface textures, Fusion Bionic GmbH have developed a novel laser technology capable of integrating functional micro- and nanostructures to replace today's ecologically harmful surface finishing and manufacturing technologies.





# BRINGING NATURE-INSPIRED STARTUP LEADERS INTO NATURE

In September, we brought the 2022 Ray of Hope prize Finalists into the Redwoods of Northern California for a week-long expedition to reconnect with nature. Over the years, we've found that most researchers and nature-inspired innovators have not had deep experiences in nature. More importantly, they've lacked experiences in nature with like-minded nature-inspired leaders who face similar challenges. This expedition has become a key part of our program and is unique among accelerators. [READ THE BLOG POST](#)



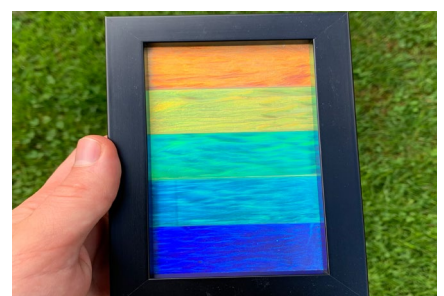
## Ray of Hope Prize Finalist Success Stories



SpotLESS Materials experiences growth selling super slippery coating technology.



Fusion Bionic selected to EU-funded project to advance functional, bio-inspired surfaces made with lasers



Better Ventures back Cypris Materials in their pursuit for safe, high-performance colors







# DESIGN FOR DECOMPOSITION

Coming out of our new Systems Change initiative, Design for Decomposition launched with a milestone [announcement](#) and [microsite](#). Hear from scientists and biomimetic design expert Ellie Banwell on how and why we're bringing decomposition into the systems change conversations. [WATCH THE VIDEO](#)

## THE OR FOUNDATION

...our partner in Ghana, completed a Waste Landscape Analysis, exploring how waste from the Global North comes to an end up in Accra (15 million garments a week). They also documented the many pathways the textiles took once they are off-loaded from container, including what happens once textiles are deemed "waste" by secondhand clothing sellers, often because they cannot store the textiles or sell them fast enough.

## THE METABOLIC INSTITUTE

...worked with us to identify over 160 decomposition technologies that could be used to break down textiles, including identifying specific inputs and outputs. These technologies were matched to a specific geographical location and turned into a system map in order to identify missing geographical location and turned into a system map in order to identify missing connections. We found several opportunities where D4D thinking might combine technologies to improve the efficiency of existing textile recycling infrastructure.

## CENTER FOR GREEN CHEMISTRY & GREEN ENGINEERING AT YALE

...completed a review of existing biodegradation standard protocols. This work will be used to add to and recommend alternatives to the existing flawed standardized tests for biodegradation.

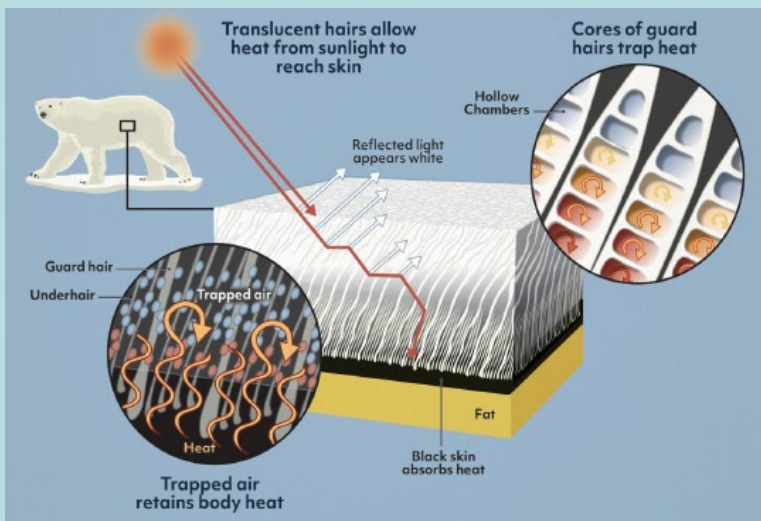






# IMPROVING LEARNING ON AskNature

In 2022, AskNature users began to see a new wave of custom diagrams on updated biological strategy pages. These illustrations synthesize information from diverse sources to quickly and accurately convey the information most relevant for the practice of biomimicry. Their clear, consistent style has been designed to increase engagement and understanding on the platform for all users—and especially for young learners. [VIEW THE STRATEGY DIAGRAMS](#)



Why *custom* illustrations?  
Because they simply don't exist otherwise.

[SEA OTTER](#)

[CAMEL FUR](#)

[POLAR BEAR FUR](#)

We are also adding the custom animations created from Ray of Hope Prize finalist videos. These quick animations demonstrate the “how” behind biological strategies. Another great way to learn. Check out these examples:

[Morpho](#) | [White Beetle](#) | [Pitcher Plant](#) | [Mantis Shrimp](#)

**NEW  
PRINTABLE  
STRATEGY  
PAGES**

We are always working to make [AskNature](#) the most educational and inspirational platform it can be. To make in-class or at-home easier, we've created a set of our most popular biological strategies in a print-friendly format.

[GET YOUR PRINTABLE STRATEGIES HERE](#)







# NEW FACES

We've been growing our mighty team in order to meet the growing demand for biomimicry and nature-inspired solutions.



Brian Oliva (he/him)  
Youth Education  
Program Assistant



Sarah McInerney (she/her)  
Ray of Hope Prize  
Manager



Dave Hutchins (he/him)  
Launchpad Program  
Manager



Kelli Young (she/her)  
Human Resources  
Generalist



Jen Fredette (she/her)  
Website & Visual Design  
Manager



Katia Hardgrave (she/her)  
Design for Transformation  
Project Assistant

We envision a world in which people view nature not as a warehouse of goods but as a storehouse of knowledge and inspiration for regenerative solutions.



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Kent Snyder  
Jim Bunch  
Erin Rovalo  
Billy Almon  
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Ray C. Anderson Foundation  
VF Foundation  
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Benevity Community Impact Fund  
Google Matching Gifts Program  
Montana State License Plates  
Network for Good

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