

CONSERVATION  LABS

ANNUAL REPORT
2022



CONSERVATION X LABS IS REINVENTING CONSERVATION

The planet is headed towards a period of extraordinary change: A sixth mass extinction, the first in Earth's history driven by the actions of a single species – our own. Existing conservation efforts are not enough to address this existential challenge. The problems driving the extinction crisis, like pollution and habitat destruction, are increasing exponentially, while our solutions are improving incrementally. Conservation X Labs is creating exponential solutions to achieve our mission to **prevent the sixth mass extinction.**

HUMANS CREATED THIS PROBLEM. HUMANS CAN SOLVE IT.

TABLE OF CONTENTS

4	A Note from our Co-Founders
5	Our Mission
6	The Drivers of Extinction
7	Our Strategy
8	Achieving Exponential Impact
9	Investing in the Future of our Planet
10	Directed Innovation Directed Innovation by the Numbers Sentinel NABIT
14	Open Innovation Open Innovation by the Numbers The Microfiber Innovation Challenge Innovation for the Amazon Amazon CoLab The Fire Grand Challenge Innovation Updates
21	Reinventing Conservation Reinventing Conservation by the Numbers Extinction Solutions Index Protecting Afghan Environmental Defenders
25	Partnerships
26	Stories of Innovation
30	Funders
31	Financial Analysis
32	Board of Directors
33	Contact Us





A NOTE FROM OUR CO-FOUNDERS

The planet is at an inflection point.

The new Living Planet Report has found global wildlife populations have decreased by an average 69% since 1970 and new data assessing invertebrate diversity – the main groups of life that have left evidence for Earth’s five previous mass extinction – has found that these creatures are being lost at such a rate that we may already be entering a sixth mass extinction.

But we are seeing a groundswell of change.

As the world has emerged from the global COVID-19 pandemic, we are seeing solutions to the biodiversity crisis take center stage. At Climate Week 2022, we saw the link between biodiversity and climate change being seriously discussed for the first time. At the Convention on Biological Diversity’s COP-15 this past December, an historic global biodiversity framework was signed, with 190 nations committed to restoring 30 percent of degraded ecosystems, and to preserving 30 percent of the world’s land and sea.

The twin forces of eXponential acceleration and democratization of

technology are producing transformative solutions. Advances in artificial intelligence and machine learning, the merger between biology and technology including through platform technologies like gene editing and synthetic biology, and advances in sustainable materials and circular systems, including for food, feed, and fiber all provide the foundation of a modern economy – one that we are harnessing to prevent extinction.

The Conservation X Labs team, our partners, and global community of innovators have been working at the forefront to push forward breakthroughs, experiment, and take risks that are needed for people and the planet, accelerating the conservation technology field we helped pioneer.

Reversing extinction trends is not only possible – with innovation, technology, and a committed community, it is increasingly probable. But in order to be successful, we need to do this at scale. We are now focused on bringing in more partners, expanding our network of solvers, and making it possible for anyone, anywhere to take a part in creating solutions for the future that awaits us.

Dr. Alex Dehgan,
CEO and Co-Founder

Dr. Paul Bunje,
President and Co-Founder

OUR MISSION IS TO PREVENT THE SIXTH MASS EXTINCTION

The planet is heading towards a period of extraordinary change: A sixth mass extinction, the first in Earth's history driven by the actions of a single species — our own.

Conservation is not succeeding fast enough.

Existing conservation efforts are not sufficient to address this existential challenge. Globally, we are losing species at 1,000 to 10,000 times the normal rate, and the threats they face – climate change, pollution, overharvesting, habitat loss, and environmental degradation – are accelerating. But while the problems driving the extinction crisis are increasing exponentially, our solutions continue to increase incrementally.

Conservation X Labs is implementing a new model of conservation that sources and inspires innovation from around the globe. By bringing together talent traditionally found outside of conservation, CXL leverages unique perspectives, skillsets, and people to create radical solutions for the planet. Our visionary and interdisciplinary team of engineers, scientists, storytellers, and entrepreneurs are at the forefront of the next generation of conservation. And our global community of Planetary Geniuses is driving new solutions and new innovations that our planet urgently needs.

**Humans are driving the sixth mass extinction.
Humans have the power to reverse it.**



WE BEGIN BY ADDRESSING THE DRIVERS OF EXTINCTION

Although it has been more than 40 years since the founding of conservation biology, conservation today is not succeeding fast enough to meet the speed and the scale of the problem. Conservation biology was set up as both a crisis-based discipline and a solutions-based one, but has never truly been either. We need to generate new solutions that take the pressures off wildlife and wildlands, including protected areas.

Conservation X Labs is focusing on supporting solutions that address the drivers — not the symptoms — of extinction, so that we can remove threats to nature and vastly improve the protection and health of ecosystems.



INVASIVE SPECIES

Innovations and programs that address **invasive species** focus on **impact survivability, detection, or spread of invasive species**, which can outcompete native species for space and food, increase predation, or spread disease.



EXPLOITATION

Efforts that address the **exploitation driver** includes those that **lessen the need for species taking via harvest for food, feed, and other purposes**. It captures solutions that may reduce inadvertent effects of our harvesting.



CLIMATE CHANGE

Innovations that contribute to lessening the impacts of **climate change** through both **greenhouse gas elimination** and increased **resilience and adaptation** to the changing climate address the driver of climate change.



LAND AND SEA USE CHANGE

Innovations that address land & sea use change refer to **preventing modifications, driven by humans, of the environment and habitats that species depend on**. This includes solutions that address unsustainable agriculture, logging, or fragmentation.



POLLUTION

Innovations that address **pollution** focus on human introduction of harmful materials into the environment which affect **habitat quality, species survival, and health**. Emissions contributing to climate change are listed separately.



LEVERAGING INNOVATION, TECHNOLOGY, AND ENTREPRENEURSHIP

Technology is advancing everything around us – from food, to banking, to healthcare, and to education. So why not conservation? Technology & innovation can change the reality of what is possible. We have a unique opportunity to prevent human-induced extinction and transform the future of conservation by leveraging the advances in other industries, as well as creating our own breakthroughs.

Conservation X Labs is working at the intersection of conservation, technology, innovation, and entrepreneurship to prevent extinction. We achieve our impact through our own engineering, by harnessing planetary genius through open innovation, and by questioning assumptions and serving as a disruptor for conservation and outdated economies, all to create sustainable economies of the future.

This approach allows us to keep up with (and even get ahead of) the planet's toughest environmental challenges.



DIRECTED INNOVATION

We combine our in-house expertise and experience in technology development – as well as partnerships with the top thinkers and research institutions in science, technology, and engineering – to design new solutions to advance conservation.



OPEN INNOVATION

We lead global innovation competitions – prizes and challenges that are open to anyone and everyone to harness the collective ingenuity of all entrepreneurs, makers, engineers, scientists, and innovators.



REINVENTING CONSERVATION

We are ushering in a new era of conservation technology. Through strong global partnerships, impactful programming, an entrepreneurial mindset, and unique expertise, CXL is co-creating the future of conservation on a global scale.



ACHIEVING EXPONENTIAL IMPACT

HIGH RISK, HIGH IMPACT

Conservation X Labs is creating solutions to prevent extinction and transform the future of conservation. We focus our efforts in places where we can have the greatest impact in protecting and recovering biodiversity, such as the Amazon ecoregion. We are extremely proud of the diversity of solutions – and solvers – that we engage and support. In 2022, CXL saw significant impact of our work through our programs as highlighted below.



238
total partnerships



\$11.8M
awarded to
innovative solutions



47
local partnerships



82
countries engaged



130+
supported projects
and innovations



4500 ha
hectares of
biodiversity
monitored



\$300M
in follow-on
investment after
working with CXL



74
IUCN Red List species
with habitats in areas
affected by operations



INVESTING IN THE FUTURE OF OUR PLANET

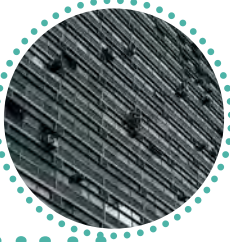
Conservation X Labs has supported over **130 innovative conservation solutions, from 82 countries, on 6 continents. We've provided USD \$11.8M in direct funding to innovators since 2017. With our help, they've gone on to raise nearly \$300 million in additional investment.**

Listed below are some of the impactful solutions we have supported.

Company Name	CXL Involvement	Year CXL Funded	CXL Support	Follow On Investment
	Microfiber Innovation Challenge	2022	\$100k	\$15.4M
	Global Cooling Prize	2021	\$100k	\$1.5M
	Oceans X Labs	2018	technical support	\$20.3M
	Microfiber Innovation Challenge	2022	\$100k	\$85M
	Blue Economy Challenge	2018	technical support	\$5M
	Con X Tech Prize	2019	\$8,500	\$200k
	Global Cooling Prize	2021	\$100k	\$5.7M
	Oceans X Labs	2018	technical support	\$5.3M
	Microfiber Innovation Challenge	2022	technical support	\$5M

“ We have been very impressed with the impact that CXL delivers. In each case, the challenges have brought forth innovative and potentially breakthrough solutions to seemingly intractable conservation problems.

Aileen Lee
Chief of Programs, Gordon and Betty Moore Foundation



Barocal Ltd. is transforming existing air conditioning technology to make it more climate-friendly. Instead of using refrigerant gases with high global warming potential, this solid-state barocaloric cooling technology takes advantage of the properties of solid organic “plastic crystal” materials to provide cooling.



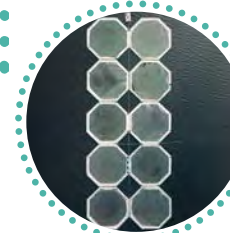
New Wave Shrimp is a sustainable shrimp alternative made from seaweed and other plant-based ingredients. The product is made from sustainably-sourced ingredients coming from a proprietary blend of seaweed, and plant protein.



Natural Fiber Welding (NFW) manipulates hydrogen bonds in natural fibers (such as cotton), to determine their form and shape at the molecular level. The patented technology platform delivers exceptional fabric-level performance without the use of synthetic plastics.



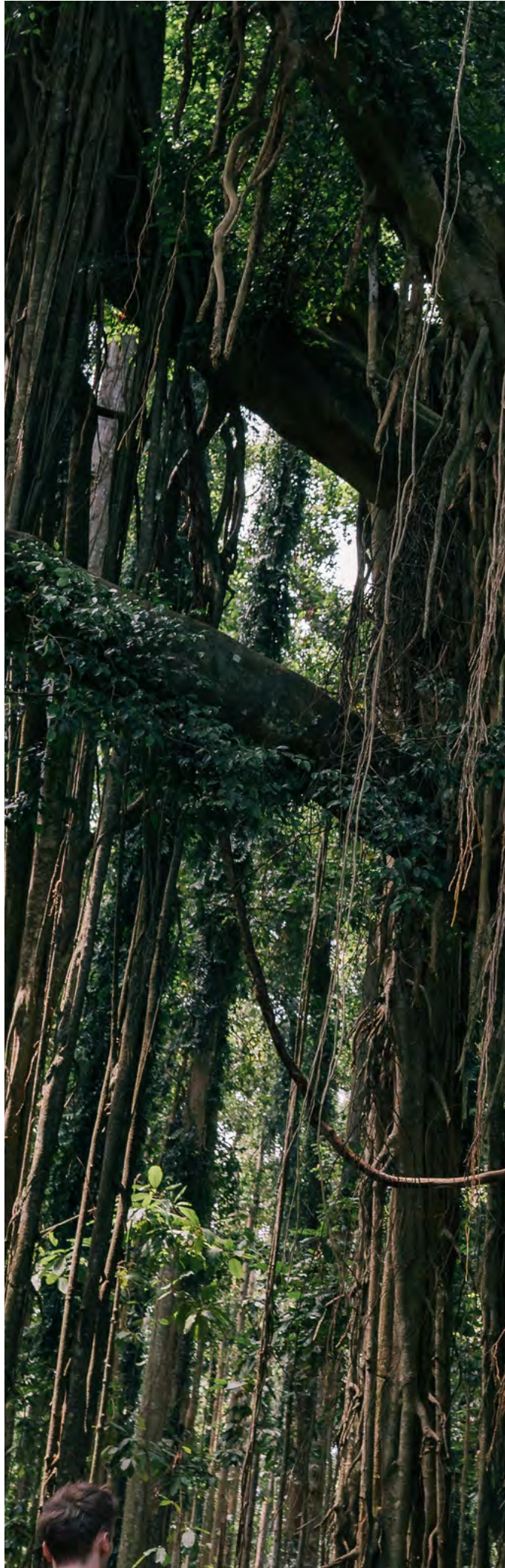
Transaera is developing a new class of affordable, energy-efficient, sustainable cooling systems and residential air conditioners.



KnipBio is a biotechnology company that develops responsible and sustainable commercial feed solutions for the aquaculture industry.



Kintra Fibers has developed a proprietary bio-based and compostable polymer optimized for synthetic textile manufacturing and applications.





IN-HOUSE DIRECTED INNOVATION

We use our in-house science and engineering expertise to invent and scale new technologies that can transform conservation.



DIRECTED INNOVATION BY THE NUMBERS

In 2022, Conservation X Labs continued to advance breakthrough technologies in our labs in Seattle and Washington, DC. Our two key innovations, Sentinel and NABIT, were recognized by awards, catalytic funding, and deployment partnerships in 2022.

Sentinel is approaching an exciting period as the device reaches v1.0 with the hardware and software becoming more stable and field-tested. Larger orders are incoming with upcoming deployments on Kaho'olawe Island, Hawaii (with Island Conservation) to address invasive rodents and cats on the important albatross nesting site. Initially a bespoke solution, this remote data retrieval capability has received interest from other users such as arboreal cameras (from Osa Conservation in Costa Rica), anti-poaching to prevent human sign (Krueger National Park in South Africa), and more. And as members of the 100+ Accelerator Program, we are doing a pilot with one of AB InBev's Colombian subsidiaries who are seeking to assess the re-establishment of keystone species such as the spectacled bear.

The NABIT is on track to detect the DNA & RNA of pathogens and invasives anywhere in the world, without specialized training or equipment. With validated technology, the NABIT is now both improving performance and rapidly scaling partnerships. The team has been recognized through many awards, including being named winners of the USFWS Theodore Roosevelt Genius Prize, finalists of the Roddenberry Prize, and one of the five teams invited to participate in the second phase of consideration for the Bill & Melinda Gates Foundation's APOLLO diagnostics platform project.



40+ POWERFUL PARTNERSHIPS

Both of Conservation X Labs' in-house devices used 2022 to build out critical corporate, foundation and nonprofit testing partnerships to continue their work in new and important applications

4 DEPLOYMENTS AND PROJECT SITES

Sentinel is gearing up for deployments in 2023 in new geographies, focused on new applications.

450+ DEVICES AND TEST KITS MANUFACTURED

Sentinel and NABIT teams have manufactured more than 450 devices and test kits.

4 EVALUATIONS WITH TRUSTED PARTNERS

Both Sentinel and NABIT are working with trusted partners to evaluate the devices and determine technology effectiveness

6 PRESTIGIOUS AWARDS

In 2022, Thylacine was recognized as a winner of the USFWS Theodore Roosevelt Genius Prize, and Sentinel was awarded as winners of 100+ Accelerator for Biodiversity.



AI FOR THE FRONTLINES OF THE BIODIVERSITY CRISIS

SENTINEL

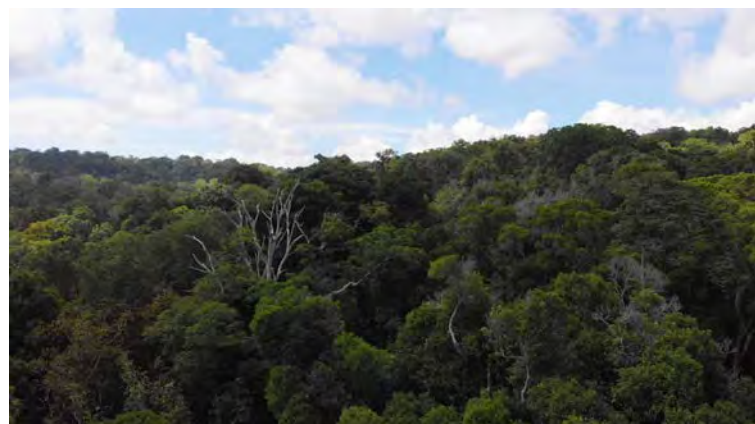
X FIRST INTERNATIONAL DEPLOYMENT

Osa Peninsula, Costa Rica

CXL's Sentinel, which upgrades wildlife monitoring tools like camera traps and acoustic recorders with AI technology, was first deployed internationally in the tropics in Costa Rica in May 2022.

Working in partnership with Osa Conservation, the team connected Sentinel to their existing trail cameras, which are being used to monitor and protect endangered species and the rainforest.

In Costa Rica, Sentinel AI automatically detects and identifies jaguars and white-lipped peccaries, sending real-time alerts to rangers at Osa Conservation when a species is threatened.

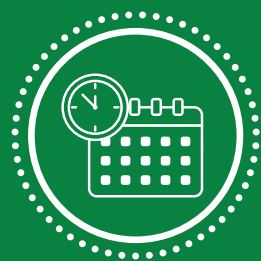


A device like Sentinel that can identify species and notify us in real-time can be game-changing.

Eleanor Flatt
Conservation Tech & Wildlife Monitoring Manager, Osa Conservation



4,500 ha
targeted rainforest under surveillance



1440x
faster reaction time to threats and events



3
endangered species monitored

DEMOCRATIZING GENETIC INTELLIGENCE

NABIT

X THEODORE ROOSEVELT GENIUS PRIZE WINNER

Seattle, Washington

The NABIT, CXL's portable, easy-to-use, battery-powered genetics lab that can rapidly identify a species or pathogen anywhere, was one of six technologies awarded as a leading innovation in conservation through the Theodore Roosevelt Genius Prize, winning in the "Prevention of Wildlife Poaching and Trafficking" category.

The team is now building opportunities to pilot and implement the technology in partnership with conservation organizations, federal and state agencies, Indigenous tribes, private entities, and research institutions.

The NABIT can be used by enforcement officials to quickly test a sample suspected of being poached or part of illegal trade. Timely genetic results are clearly delivered on the screen of the device, allowing officials to make decisions and act on what they have uncovered. This eliminates the need to send samples to labs and wait days or weeks to receive results and could transform how genetics are used in conservation by enabling routine DNA sampling directly on-site. The team has also been working to expand the NABIT to serve disease monitoring needs, in humans as well as plants and animals, and protect planetary health.



It is not possible to overstate how powerful it is for community members to be offered a tool that grants them first sight and comparatively immediate knowledge of data that would profoundly affect them.

Celina Gray
Executive Assistant,
Indigenous Visions



<40min

to deliver results, compared to days or weeks



10x

lower cost than competing devices



4

species or pathogen test kits in development



THE POWER OF OPEN INNOVATION

Planetary Genius is one of our most powerful tools. We inspire and incentivize out-of-the-box thinking and innovative approaches from solvers around the world to solve the world's toughest conservation problems through our prizes and challenges.



OPEN INNOVATION BY THE NUMBERS

In 2022, Conservation X Labs led open innovation programs to address environmental challenges ranging from microfiber pollution to fire management, and artisanal and small-scale gold mining in the Amazon. Each of the challenges we worked on reached new partners, connected innovators to critical funding, and are beginning to make an impact on the large-scale environmental problems these innovations seek to address.

In June, CXL celebrated the winners of the **Microfiber Innovation Challenge**, an effort to create solutions to prevent microfiber pollution from clothing and textiles. The Microfiber Challenge leveraged powerful partnerships with organizations ranging from Under Armour and North Face to the Biomimicry Institute and Queen of Raw to support sustainable innovations in the fibers we wear.

Through the Amazon CoLab and the Innovation Xchange, CXL supported 18 innovators in new mining solutions in the Amazon. While not widely known, this form of gold mining is the largest source of mercury pollution in the world and is one of the leading causes of rainforest deforestation. The **Artisanal Mining Grand Challenge: The Amazon** inspired applications from 18 countries and Twelve Challenge finalists were invited to participate in the Amazon CoLab to validate solutions and determine the four winners.

In 2022, our team began designing the **Fire Grand Challenge** which is an effort to braid Indigenous and traditional knowledge with cutting edge technology to address fire and fire management in the Amazon, Indonesia, and Western North America.



68 IMPACTFUL PARTNERSHIPS

In 2022, CXL partnered with corporates, foundations, and non-profit partners to help support innovations that address the toughest environmental challenges.

36 COUNTRIES THAT INNOVATIONS WERE SOURCED FROM

Innovations were sourced from a cumulative 36 countries across all of the challenges run in 2022.

22 SUPPORTED PROJECTS AND INNOVATIONS

CXL supported impactful and promising innovations in both the Microfiber Innovation Challenge and the Artisanal Mining Grand Challenge: The Amazon. Both Challenges had additional cohorts of innovators that awarded further funding for development after the close of the challenge.

\$1M+ AWARDED TO INNOVATIVE SOLUTIONS

In 2022, Conservation X Labs awarded over 1 million dollars to promising innovations that participated in our open innovation challenges.

3 GRAND CHALLENGES

CXL facilitated, launched and implemented three challenges over the course of 2022: the **Artisanal Mining Grand Challenge: The Amazon**, the **Microfiber Innovation Challenge** and the **Fire Grand Challenge**.





THE BIG CHALLENGE TOO SMALL TO SEE

MICROFIBER INNOVATION CHALLENGE



Through the Microfiber Innovation Challenge, we were able to vet and gain access to 26 high-quality and innovative start-up companies addressing fiber shedding through a variety of solutions.

Lorin Hamlin
*Head of Open Innovation,
Under Armour*

X SOLUTIONS FAIR *Baltimore, Maryland*

Entrepreneurs, scientists, investors, and environmentalists from around the world came together in June 2022 to Under Armour's global headquarters for the Microfiber Innovation Challenge Solutions Fair to work towards creating a more sustainable textile industry.

The Solutions Fair was a networking event that showcased some of the top solutions to prevent microfiber pollution, as selected through the Microfiber Innovation Challenge, which was funded by the Flotilla Foundation and The Arthur Vining Davis Foundations.

The highlighted innovations featured at the Solutions Fair were selected for their potential impact to reduce or prevent microfiber pollution, and ultimately, prevent the sixth mass extinction. They included companies using biotechnology to create textiles and processes to alter the surfaces of fibers within a fabric to prevent microfiber shedding.



210
novel submissions
representing
18 countries



32
powerful industry
partnerships



\$650K
awarded to innovative
solutions addressing
microfiber pollution



ARTISANAL MINING GRAND CHALLENGE: THE AMAZON



The Innovation XChange was a unique space for collaboration and information exchange; to learn about innovations, raise awareness about the critical problems facing the Amazon, and also to share dreams and emotions.

Dino Delgado
Biodiversity & Natural Resources PMS, USAID

X INNOVATION XCHANGE

The winners of The Artisanal Mining Grand Challenge: The Amazon were announced at our Innovation Xchange, held in Lima, Peru in December 2022.

Attended by more 350 people in-person, the Innovation XChange explored innovation and creativity in the global effort to conserve the Amazon rainforest and awarded winners in a prize ceremony for the Artisanal Mining Grand Challenge, a global competition to make artisanal and small-scale gold mining more responsible and sustainable.

The twelve Challenge finalist teams tested their innovations in Peru, Ecuador, and Colombia. For six months, innovators worked with local communities and partners to demonstrate their potential in the field. Challenge finalist teams also received bespoke acceleration support services – including technical workshops, mentor sessions, demo days and networking sessions to advance their innovations.

The four winning teams represented the USA, Scotland, and Colombia, and included new materials to replace mercury in gold processing, low-cost technology to remediate mercury-contaminated mining tailings, and digital systems to make due-diligence and responsible mining certifications more efficient and accessible.



\$300K

awarded to 4 innovator teams addressing ASM in the Amazon



8

teams secured follow-on sales



22

new partnerships for innovator teams

UNLEASHING INNOVATION IN THE AMAZON

THE AMAZON COLAB

X FIELD-TESTING WITH LOCAL PARTNERS IN THE REGION

Peru, Colombia, Ecuador, and Guyana

In January 2022, Conservation X Labs launched the Amazon CoLab, a field-testing and acceleration program to support innovator teams developing, testing, and advancing solutions to protect people and ecosystems in the Amazon.

The inaugural cohort of Amazon CoLab was made up of innovators identified through the previous, global round of the ASM Grand Challenge. The second cohort included finalists from the ASM Grand Challenge: The Amazon. Innovator teams tested their innovations in the field with miner, users, and customers in Colombia, Ecuador, Guyana, and Peru.

Innovator teams also received acceleration support services – including technical workshops, mentor sessions, demo days, and networking sessions to advance their innovations

CXL believes the Amazon can be the basis for thriving economies that value and sustain cultural and natural resources. By building on the foundations of our work in the Amazon, we are excited to expand our work in the region in the coming years.



Great range of training which gives those not used to commercializing technologies the basic skills to develop an investable pitch and business plan.

Dr. Leigh Cassidy
*DRAM Technology ,
SEM Energy Ltd. Team*



18

innovator teams supported over two cohorts



\$780K

field-testing grants



\$4M

additional funding raised by innovators

TRADITIONAL KNOWLEDGE AND CUTTING-EDGE TECH FOR FIRE IN A CHANGING WORLD



FIRE GRAND CHALLENGE

X BRINGING TOGETHER EXPERTS TO DESIGN OUR NEXT GRAND CHALLENGE

Colombia and California

As fire frequency and severity increases worldwide, how can we braid together technology and Indigenous knowledge to better live with and manage fire? In 2022, our team began designing a Fire Grand Challenge to answer this question, bringing together diverse communities at the forefront of the fire crisis – from Indigenous leaders and technologists to firefighters and ecologists – to work together to protect our environment and each other.

CXL is hosting four ideation workshops to define the most pressing issues for addressing fire across three geographies – the Amazon, Western North America, and Indonesia – and to develop and shape the focal areas of the Fire Grand Challenge.



“ This opportunity will make Indigenous people more visible to others. I think this space opens an opportunity for us, the Indigenous, to have recognition. ”

Bitaté Uru-eu-wau-wau,
President of the Associação do Povo Indígena Uru-eu-wau-wau



3
unique geographies identified for innovations



27
identified challenges for fire management



80+
participants ranging from Indigenous leaders to fire scientists

THE CXL NETWORK INNOVATION UPDATES

Conservation X Labs continues to work with innovators from its open innovation programs and provide support. We are proud of these innovations for their progress beyond CXL's involvement and celebrate their successes.

Listed to the right are quotes from our greater community of innovators about the support they received from CXL.

“
Conservation X Labs is proud of its network of brilliant, groundbreaking innovators seeking new solutions to complex environmental problems and we look forward to supporting them as they scale their impact.

Taylor Berry
Head of Advancement and Impact, Conservation X Labs

17

TOTAL OPEN
INNOVATION
PROGRAMS

2,032

INNOVATORS IN
CXL'S NETWORK

11.2M

IN SUPPORT FOR
BREAKTHROUGH
INNOVATIONS

238

POWERFUL
INSTITUTIONS
ENGAGED



“ **MANGO MATERIALS**
Microfiber Innovation Challenge 2022 Alumni

We won funds from the Microfiber Challenge. The additional supplement allowed us to do biodegradation testing over this summer - which was incredibly helpful.



“ **KNIP BIO**
Oceans X Labs 2017 Alumni

We received valuable feedback, expanded our network and evaluated our business model.



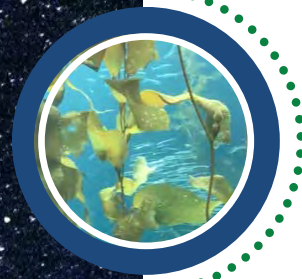
“ **LOBSTER LIFT**
Con X Tech Prize 2019 Alumni

Without the Conservation X Labs prototyping competition, this project would have never started.



“ **DRAM TECHNOLOGIES**
Amazon CoLab 2022 Alumni

[The Innovation XChange was a] fabulous event from which I think many future collaborations will arise. Great range of training which gives those not used to commercialising their technologies the basic skills to develop an investable pitch and business plan.



“ **KEEL LABS**
Microfiber Innovation Challenge 2022 Alumni

We have had great networking calls post-event that have enabled us to talk with executives about the importance of regenerative fibers, and how collaboration will enable both of us to achieve market leadership.



REINVENTING CONSERVATION

At the forefront of environmental technology and innovation, we are advancing the field through powerful partnerships, experimentation, unique expertise, and impactful programming to co-create the future of conservation.

REINVENTING CONSERVATION BY THE NUMBERS

CXL has built and leveraged over 200 impactful partners, including on-the-ground partners to test new solutions, corporations seeking to transform the way business is done, researchers putting their insights into practice, and organizations at the frontlines of conservation. These partnerships are the powerful engine helping us achieve our mission to prevent the sixth mass extinction.

CXL team members attended and spoke at several key events in 2022 including UN Biodiversity Conference (COP-15), Global Futures Summit, Tactical Fire Remote Sensing Advisory Committee, Devex, at universities including the Blue Economy Summit at Duke, and more.

In 2022, CXL published several thought leadership pieces around microfiber pollution, artisanal mining, and conservation technology, including in Applications in Plant Sciences.

In partnership with the Wildlife Conservation Society and other partners, CXL supported the extraction and relocation of Afghan environmental defenders that were under threat for their lives. These environmental defenders are heroes for our planet and ensuring their security is critical.



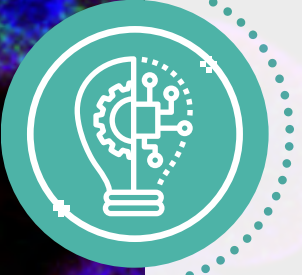
216+ POWERFUL PARTNERSHIPS

CXL has built and leveraged over 200 impactful partners, some of which are on-the-ground and others are corporate but all are powerful in helping us achieve our mission to end extinction.



46 REPRESENTATION AT GLOBAL EVENTS

The Conservation X Labs team attended and spoke at several key events in 2022 including UN Biodiversity COP 26, Global Futures Lab Earth Week, TFRSAC, DevEx, Ohio University, Blue Economy Summit at Duke and more.



6 THOUGHT LEADERSHIP PIECES

In 2022, CXL published thought leadership pieces around microfiber pollution, artisanal and small-scale gold mining, and conservation technology.



6 IMPACTFUL EVENTS

Conservation X Labs hosted several events around the world in 2022 including the Innovation XChange, Extinction Solutions Index Little Think, Microfiber Solutions Fair, CoLab Connect, and two Fire Grand Challenge Little Thinks.



20 ENVIRONMENTAL DEFENDERS RELOCATED TO SAFE REGIONS

In partnership with WCS, CXL supported the extraction and relocation of Afghan environmental defenders in the midst of the country-wide crisis in 2022.



CREATING THE FRAMEWORK TO SOLVE THE EXTINCTION CRISIS

EXTINCTION SOLUTIONS INDEX



The solutions the ESI will identify hold the potential to catalyze disruptive change across both public and business sectors at the scale required for true global impact.

Barney Long, Ph.D.
Senior Director, Conservation Strategies, Re:wild

X SOLUTIONS FOR THE BIODIVERSITY CRISIS

Washington, DC

In July 2022, we launched the Extinction Solutions Index, a program to evaluate, compare, and rank the most effective and efficient solutions to the biodiversity crisis, by hosting a Little Think to co-design key pieces of the program. We convened world-class conservation experts and leaders in behavioral and social science, innovation, climate, and technology.

The Little Think consisted of two key ideation sessions. In the first session, we worked to develop a metric, and determine the indicators that could represent the health of species and ecosystems, as well as the impact of humans. The second ideation session put the metric into action, asking for an approach and framework for measuring solution effectiveness.



135K

threats to species analyzed from the IUCN Red List



100

biodiversity indicators identified



50

expert insights provided for programmatic and research developments



PROTECTING AFGHANISTAN'S ENVIRONMENTAL DEFENDERS

AFGHAN DEFENDERS

X ENVIRONMENTAL DEFENDERS SAFELY RELOCATED

Afghanistan, Pakistan, Mexico City, Tajikistan

CXL has supported a grassroots effort to protect environmentalists and their families that were in immediate danger from the Taliban when the United States departed Afghanistan.

The individuals we have helped include former and current staff of the Wildlife Conservation Society (WCS), Afghan environmental NGO staff, senior Afghan government officials, and members of their parliament, former staff of the United Nations Environment, and the Food and Agriculture Organization.

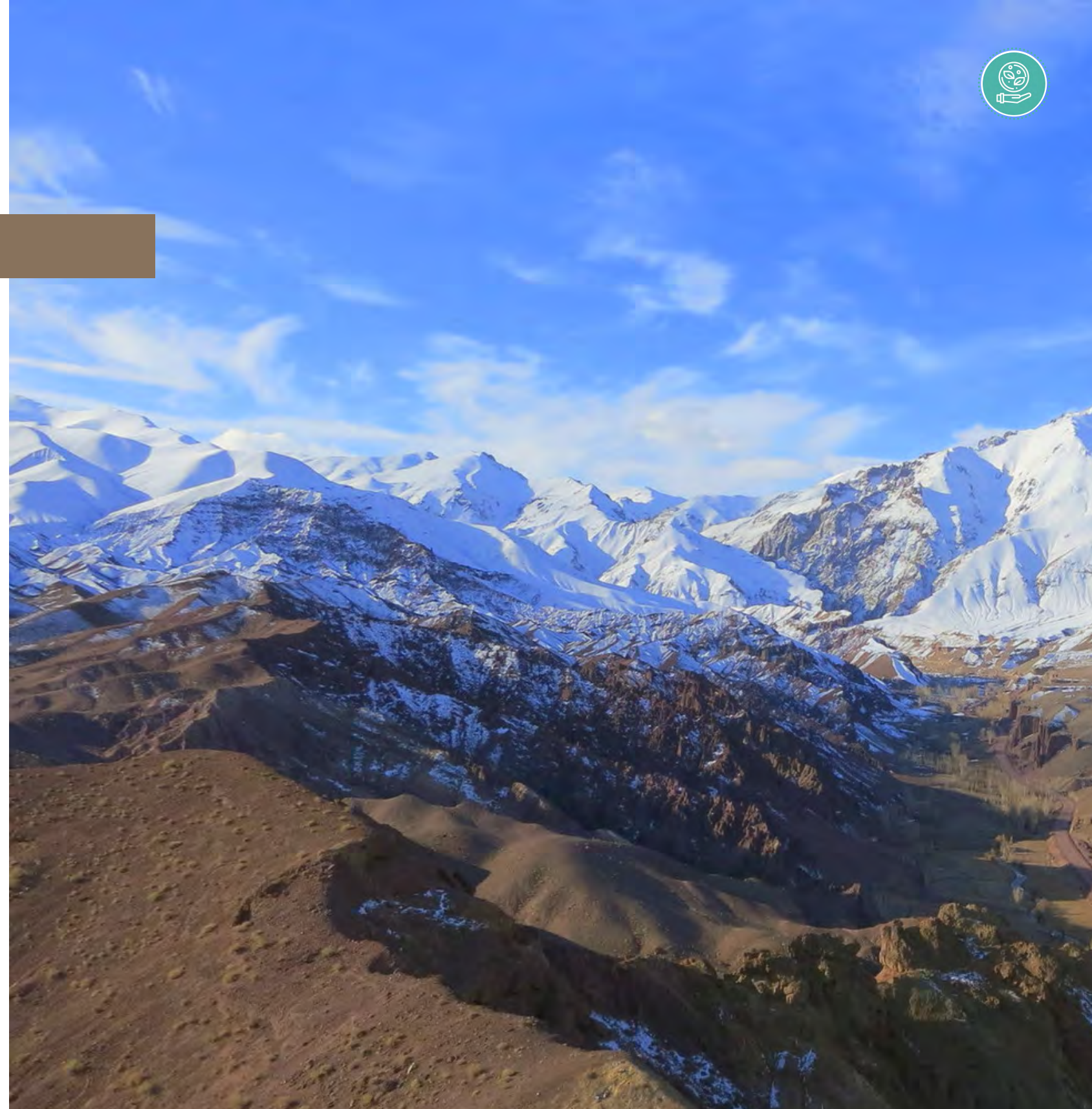
The program received generous donations from over 170 individuals around the world, and over 19 Afghan environmental defenders made it to a safe haven in Mexico.

CXL is committed to seeing 100% of the funds used only for the purpose of securing safety, protection, and empowerment of the Afghan Environmental Defenders.



I worked for many years in Afghanistan and want to support all of my colleagues and friends who are now at risk.

David Jensen
Coordinator of the Digital Transformation Task Force, the United Nations Environment Programme (UNEP)



20+

families relocated to safe locations



\$1M+

in funding raised for Afghan defender relocation



150+

individual supporters engaged

PARTNERSHIPS

We are grateful to the many valued individuals and organizations who share our vision and partnered with us over the last year.



The Conservation X finalists are charting an alternate course for our future with scalable solutions that address microplastics as a system. I'm honored to be a part of this process to catalyze the funding needed to achieve scale.

Vanessa Barboni Hallik
Founder and CEO,
Another Tomorrow

4

CONTINENTS
REPRESENTED

238

POWERFUL
INSTITUTIONS
ENGAGED

47

LOCAL
PARTNERSHIPS

50+

PARTNERS
PROVIDED CRITICAL
TECHNICAL AND
SCALING SUPPORT



ARTISANAL MINING GRAND CHALLENGE

Alliance for Responsible Mining • Amazon Aid Foundation • Amazon Andes Fund • Chambers Federation • Center for Amazonian Scientific Innovation (CINCIA) • Universidad de Ingeniería y Tecnología • CITE Minero • Conservation International - Guyana • Engineering for Change • Esri • Foros LATAM • Gordon & Betty Moore Foundation • Innpulsa Colombia • Levin Sources • Mercury Free Mining • Microsoft • Ministerio de Energía y Minas Peru • Pan American Development Fund • Planet Gold • Pure Earth • Swiss Better Gold Initiative • Tecsup • US Agency for International Development • USAID/Peru PREVENT Project • Wildlife Conservation Society • World Wildlife Fund

MICROFIBER INNOVATION CHALLENGE

Another Tomorrow • Around the World in 80 Fabrics • Biomimicry Institute • Bolt Threads • Canopy • Circle • Ereks Garment Blue Matters • Fashion for Good • Finisterre • Flotilla Foundation • Ghost Network • Greenport Harbor Brewing Company • Ignite Social Impact • La Caserne • Lonely Whale • Materevolve • Material Innovation Initiative • Ocean Wise • Oceanic Global • Paradise Textiles • Plastic Soup Foundation • Queen of Raw • Schmidt Marine Technology Partners • SeaAhead • Techstyler • The Arthur Vining Davis Foundations • The Center for Advancing Innovation • The Microfibre Consortium • The North Face • The Ocean Foundation • Think Beyond Plastic • Under Armour

EXTINCTION SOLUTIONS INDEX

Adventure Scientists • IUCN Green Status of Species • Project Drawdown • Re:wild • Researchers at the University of Oxford • Wildlife Conservation Society • Adventure Scientists

SENTINEL

100+ Accelerator (AB InBev) • Arribada Initiative • Bear ID • Blues Wireless • Conservation Metrics • Duke University • Duke University Marine Lab • Earth Ranger • Edge Impulse • Florida Wildlife Commission • Hasso Plattner Institute • Irnas • Island Conservation • Massachusetts Institute of Technology • Osa Conservation • Q42 • S.P.E.C.I.E.S • Swarm Satellite • Texas Advanced Computing Center (TACC) • Wildlife Protection Solutions • WildMe • Zamba Cloud

THYLACINE

Cornell University - Vet School • EnVesT • Exulans • Feasibility of Novel Diagnostics for TB (FEND) • Johns Hopkins University • Microbiologics • North Carolina State University - Jean Ristaino Lab • New England Biolabs • NIH RADx Executive Team • National Oceanic and Atmospheric Administration • Oceankind • Pipestone • Plug and Play • Salmon Innovation Fund • Seafood Harvesters of America (SHA) • Society for Wildlife Forensic Science (SWFS) • The RnD Group • Thomas Scientific • University of California, Davis • USDA-APHIS • U.S. Fish and Wildlife Service (USFW) • United States Geological Survey (USGS) • Washington Department of Fish & Wildlife (WDFW) • Yukon Biomedical

CONSERVATION X LABS STORIES OF INNOVATION



NFW



In April 2022, NFW (Natural Fiber Welding) raised \$85 million in Series B funding to scale production of high-performance, all-natural, circular materials products coming to market with a wide array of global brand partners.

NFW was recognized as a top prize winner in our Microfiber Innovation Challenge in 2022 for their technology that can manipulate bonds in natural fibers to deliver exceptional fabric-level performance without the use of synthetic plastics – helping to meet the Challenge's goal of preventing microfiber pollution.

NFW also partnered with Allbirds to launch the “Plant Pacer” in September, its first plastic-free plant-based leather sneaker. The Plant Pacer is made made with MIRUM®, containing rice hulls, which are one of the most prevalent sources of agricultural waste in the world. Because MIRUM is made only from natural materials instead of petroleum and requires no tanning, it has an extremely low carbon footprint — an order of magnitude lower than conventional leather or plastic alternatives.

Picoyune

Picoyune's portable mercury monitoring device, which includes an alarm system to indicate when air is harmful to breathe due to mercury pollution, was tested and launched in 2022. The innovation was a grand prize winner in the global round of the ASM Grand Challenge, and the team participated in the first Amazon CoLab cohort beginning in January 2022.

Through the Amazon CoLab, they tested their device with gold shops regulated by the Guyana Gold Mine Comision. In Guyana, they discovered that gold shop workers were being exposed to 10 times higher mercury concentrations in their work station compared to what had been monitored by a fixed device in the area. Due to exemplary performance in the CoLab, Picoyune was awarded an additional \$30,000 field-testing grant to test in additional countries after their participation in the Amazon CoLab.

In December 2022 at the Innovation XChange, Picoyune officially launched their handheld, wearable personal mercury monitor. There are about 50,000 gold shops worldwide that could use this device to monitor the mercury air pollution in and around the shops at low levels. Public authorities may also use the tool to develop and enforce regulations.



CONSERVATION X LABS STORIES OF INNOVATION



Transaera

Transaera is developing a cooling solution is designed to operate a high-efficiency room air conditioner in parallel with a novel dehumidifier to provide optimal comfort, especially in regions with hot and humid climates. By separating the temperature and humidity control processes, this air conditioner has the potential to reduce energy consumption by as much as 70 percent as compared with standard air conditioners.

Transaera was a finalist in the Global Cooling Prize, which was launched in 2018, and was looking for technologies to provide cooling for all without warming the planet. In 2022, Transaera closed a seed funding round led by Energy Impact Partners (EIP). The round infused \$4.5 million into their work to bring an affordable and energy-efficient air conditioner to market that can cool, heat or dehumidify.

The team has been focused on expanding their capacity on staff as well as their lab space at Greentown Labs. They noted, "This year will focus on solidifying our team while improving our technology and building partnerships to a point where we can start raising additional investment to scale up and deploy in 2024."



Spinnova



Spinnova is a Finnish innovation of creating textile materials in a completely new way. Their innovation mechanically refines wood or waste into a textile fiber without any harmful chemicals in the manufacturing process. The fiber is 100% biodegradable and natural origin, and Spinnova's textile materials do not shed any polluting microfibers into the environment. The materials could be used instead of cotton, polyester and other synthetic materials.

In 2022, Microfiber Innovation Challenge finalist Spinnova was named among the extraordinary innovations listed in TIME's annual Best Inventions List , which recognizes groundbreaking products and innovations that change how we live.

Spinnova also was recognized as the Engineer Invention of the Year by the Union of Professional Engineers in Finland. The competition was looking for companies, communities or individuals whose inventions promote the societal impact of technical industries, accelerate significant changes in work life, or promote global wellbeing.

CONSERVATION X LABS STORIES OF INNOVATION



DRAM

An expert in environmental toxicology and lead scientist at SEM Energy in Scotland, Dr. Leigh Cassidy has spent her career developing low-cost, practical technologies for environmental remediation. Contemplating Scotland's beverage of choice, she long suspected that spent whiskey grains may have properties to remediate contaminants.

Her suspicions were eventually confirmed through rigorous testing and resulted in the DRAM technology, a field-ready filtration technology utilizing spent whiskey grains for environmental remediation. As part of the Artisanal Mining Grand Challenge: The Amazon, Dr. Cassidy proposed to adapt this technology to the Amazon context and experiment with a new, locally available filter media: cassava husks.

Over six months in 2022, Dr. Cassidy worked closely with local miners and the CITE Minero, a nonprofit in Madre de Dios, Peru, promoting cleaner mining technologies, to test DRAM in the field. The on-site testing delivered impressive results, removing up to 95% of contaminants measured, and resulted in the DRAM team taking home one of the Challenge \$100,000 grand prizes for its demonstrated potential in December 2022.



Gold Eco-Leaching

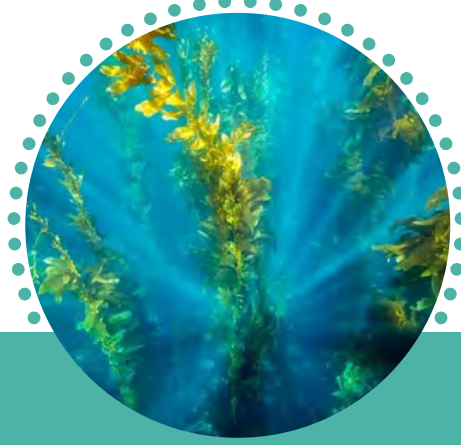


A tenured Chemistry professor at the National University of Engineering in Lima, Peru, Dr. Adolfo La Rosa-Toro has long been concerned about the impact of toxic chemicals on the environment and believes chemists can be part of the solution.

As a finalist for the Artisanal Mining Grand Challenge: The Amazon, Dr. Toro and his team proposed Gold Eco-Leaching, a system that utilizes readily available materials (such as salt and bleach) and an agitation system to replace toxic mercury in the gold extraction process.

Through CXL's Amazon CoLab program, the team worked closely with local miners and the CITE Minero, a nonprofit in Madre de Dios, Peru, promoting cleaner mining technologies, to refine their prototype, test the system in the field, and gather feedback from miners. The team experimented to reduce the extraction time to less than an hour, increasing efficiency by 88%. Dr. Toro cites the CoLab in helping him hone the language around his innovation to communicate its benefits for society and potential customers, as well as a more viable business & distribution model. After promising results, the team aims to establish an entire extraction circuit, designing a system that is accessible and affordable for miners.

CONSERVATION X LABS STORIES OF INNOVATION



Marine Permaculture



In June 2022, after participating in CXL's Blue Economy Challenge and Oceans X Labs, Marine Permaculture Seaforestation won \$1M from XPRIZE for scaling restorative seaweed forests. They were awarded through XPRIZE for Carbon Removal from a field of 1,100 registrants.

The Climate Foundation team developing the solution was selected through the Blue Economy Challenge and later was one of six participants in CXL's Oceans X Labs accelerator to further develop and secure investment for the solution.

Marine Permaculture Seaforestation regenerates seaweed ecosystem services offshore using modular seaweed platforms providing deepwater irrigation to sustainably provide food security, ecosystem regeneration and carbon balance. Floating, open-ocean kelp ecosystems placed in the oceanic deserts around the world could sequester atmospheric carbon and attract and grow fish, filtering out their waste and recycling nutrients. The kelp could be harvested to be used as biofuel, fertilizer, livestock feed, superfood and countless biomass applications and high-value extract.

Ocean Eye

Ocean Eye was a product conceived at the 2018 Make for the Planet Borneo and was a 2019 Con X Tech Prize finalist developed to help protect marine wildlife and ecosystems. Ocean Eye is a direct payment system from tourists to local communities to support marine conservation efforts and prevent the harvest of vulnerable species. Tour leaders log marine life sightings with tourists who pay a small fee per selected animal sighted (e.g. 50 cents), which is then transferred securely and directly to local communities.

In July 2022, Ocean Eye was selected as a World Economic Forum (WEF) Uplink top innovator in the Sustainable Coastal Tourism category together with 11 other innovations working towards making tourism greener and more beneficial for coastal communities.

The team also officially launched V2 of the Ocean Eye platform in 2022, integrating Stripe technology with Ocean Eye for ecosystem service payments and also added a tourist dashboard, which makes it easier for tourists to contribute funding to local conservation projects. They also launched a series of 10 NFT photographs in a collection called 'Ocean Eye - Chasing the Beauty' - taken by the Award Winning photojournalist Paul Hilton.



A POWERFUL NETWORK OF DEDICATED SUPPORTERS

Conservation X Labs believes that extinction is our only competitor and our community is our greatest ally. It is only by working together that we can solve problems of planetary proportions, and create the kind of sustainable change that is needed for the future of conservation.

Our sincerest thank you to the funders who believe in our work, share our vision, and are committed to creating meaningful efforts to prevent the sixth mass extinction.

Our work is possible because of you.



FINANCIAL ANALYSIS

In 2022, Conservation X Labs Inc. recorded its highest revenue totals in the 8 years of our existence, receiving **\$7,165,168** in contributions and revenue. Since 2017, CXL has seen an average yearly growth in revenue of 47% per year.

For every dollar spent on fundraising, CXL raised \$39.10 dollars in revenue.



\$7,165,168

total consolidated revenue in the past fiscal year



IN 2022, CXL RAISED

\$2,500,000 for Directed Innovation
\$450,000 for an Extinction Solutions Index
\$248,000 to relocate Afghan Wildlife Defenders
\$1,300,000 for Open Innovation

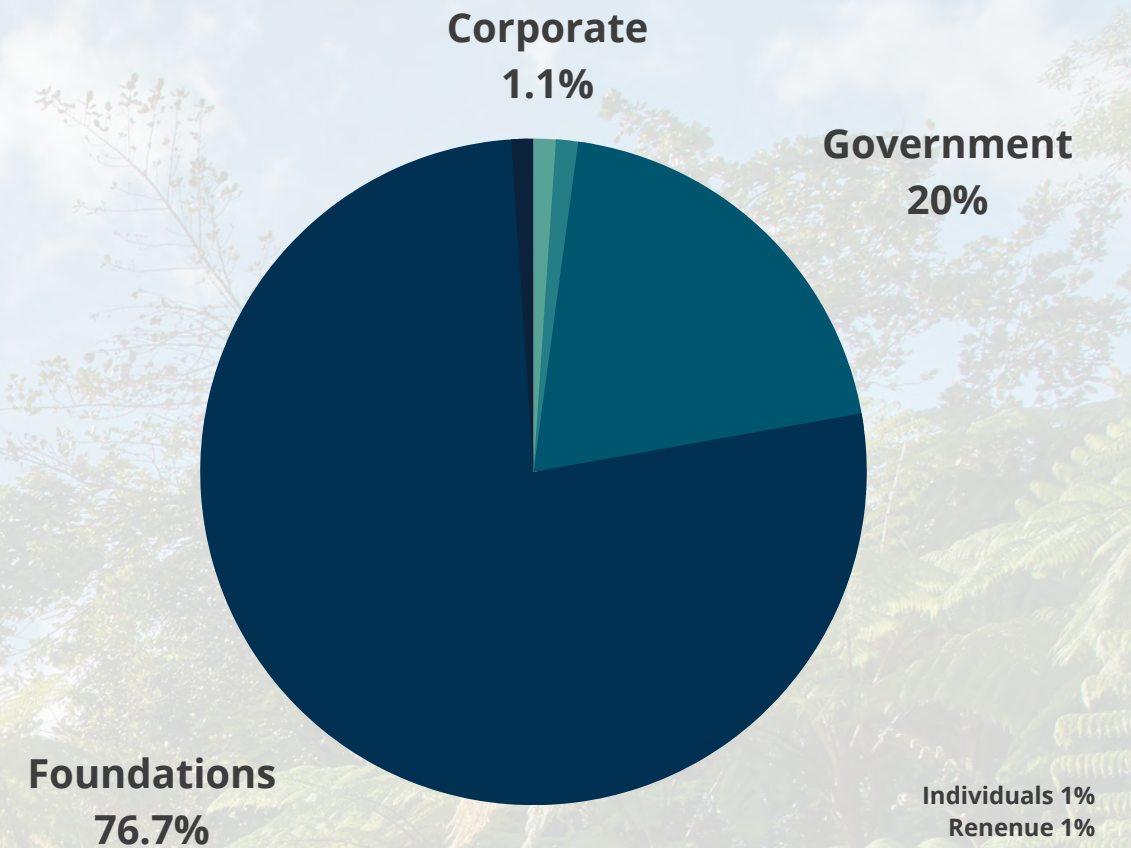


87%

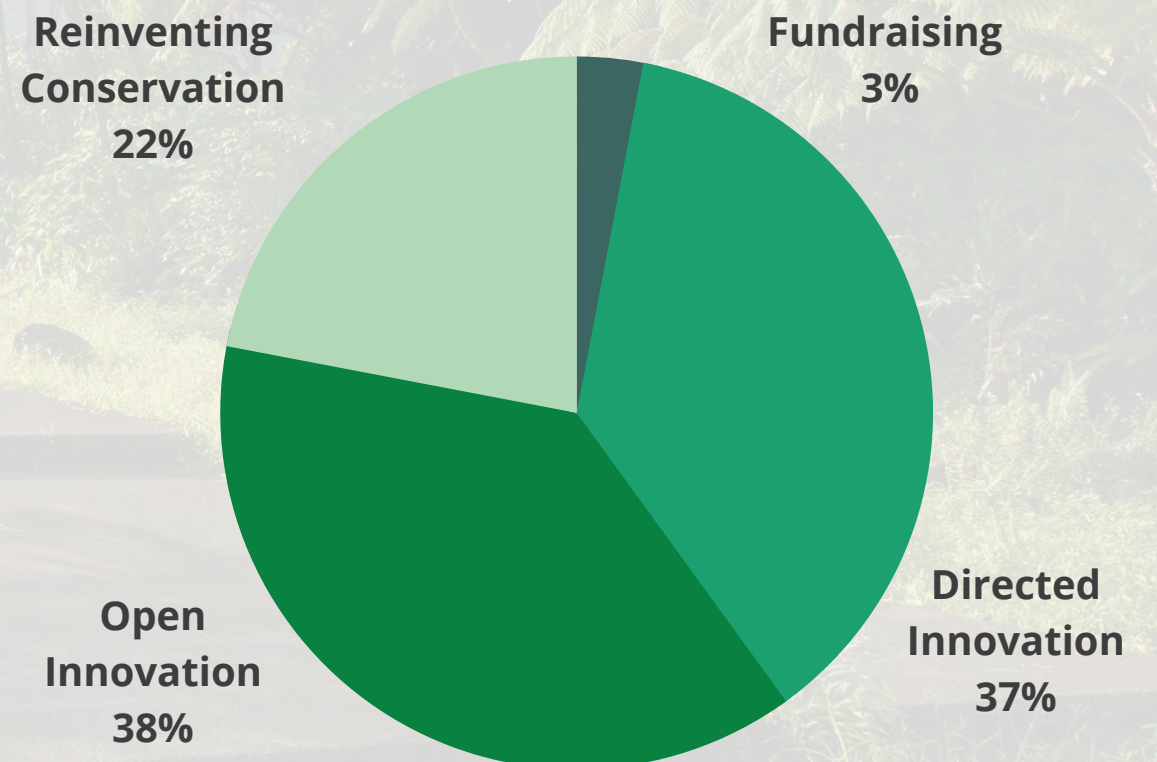
of expenses went to direct programmatic costs

Tax returns and audited financial report are located on our website.

FUNDING BREAKDOWN BY TYPE



PROGRAM EXPENSES





ADVISORS AND BOARD OF DIRECTORS

John Elkington

President, Volans, Inc.

John is a writer, thought-leader, business strategist, a serial entrepreneur and, at heart, an environmentalist. He is the Founder and Chief Pollinator at Volans, a certified B Corporation driving market-based solutions to the future's greatest challenges. He has written 19 books, and his latest is co-authored with Jochen Zeitz, former CEO of PUMA and now co-chair, with Sir Richard Branson, of The B Team.

Ali Hartman

Chief Sustainability Officer, Tiger Global

Ali joined KKR in 2011 to support the firm's growing work on Environmental, Social, and Governance (ESG) issues and stakeholder engagement across its investment portfolio. In 2016, she was named the Head of Global Citizenship. Previously, Ali worked at Coca-Cola where she oversaw a range of social and environmental issues in North America and Europe. Prior to this role, she studied worker rights at the International Labor Organization (ILO) in Paris and completed fieldwork in child labor issues at the Working Boys Center in Quito, Ecuador.

Don Karl

Perkins Coie, LLP

Don Karl, a partner with the law firm Perkins Coie LLP, has practiced business law for more than 35 years, acting as a general business advisor to private and public companies, entrepreneurs, and institutional investors across a wide range of industries, including entertainment, media, and technology. Karl is a trustee of the Hollywood Canteen Foundation and a member of the board of directors of Spirit of America. He received a BS in physics from the University of Michigan and a masters in public policy from the Kennedy School of Government at Harvard University.

Thane Kreiner

Miller Center, Santa Clara University

Thane Kreiner, PhD, is Executive Director of Miller Center for Social Entrepreneurship and Howard & Alida Charney University Professor at Santa Clara University. Thane was Founder, President, and CEO of Second Genome and Presage Biosciences, Inc. and President and CEO of iPierian, later acquired by Bristol-Myers Squibb. Thane spent 14 years at Affymetrix, Inc., the DNA chip industry pioneer. Thane earned his PhD in Neurosciences and his MBA from Stanford University and his BS in Chemistry from the University of Texas, Austin. His memoir on science and spirituality Composition of Life was recently published.

Alex Dehgan

Conservation X Labs

Dr. Alex Dehgan is the CEO and co-founder of Conservation X Labs. Alex is also a Professor of the Practice of Sustainability and the Global Futures Fellow at Arizona State University. He previously served as the Chief Scientist at the U.S. Agency for International Development (USAID), with rank of Assistant Administrator. Alex founded and led the Office of Science and Technology (OST), and creating the vision for and helped stand up the Global Development Lab, the Agency's DARPA for Development. Alex was also part of the founding team of USAID's Policy Bureau. Alex was the founding country director of the Wildlife Conservation Society Afghanistan Program and helped create Afghanistan's first national park. Alex is the author of the book, The Snow Leopard Project, which describes the effort, which was selected by the journal Nature's book editor as one of the top five science books of 2019.

Marcia Marsh

Former COO, World Wildlife Fund

Marcia served as one of WWF global network's lead change managers, helping to align people, processes, and technology with an ambitious strategy to bring conservation to scale. With a personal passion for community service, she helped to launch and drive the CARE/WWF Alliance, an innovative partnership that is creating new models of addressing poverty alleviation, food security, and conservation in one holistic approach. She was also a Price Waterhouse partner, practice leader for integrated solutions and international consulting at Watson Wyatt, and the vice president for government transformation for the Partnership for Public Service.

Jahan Moslehi

Founder, Bridge33 Capital

Jahan Moslehi is a Managing Principal and Co-Founder of Bridge33 Capital. Prior to Bridge33, Mr. Moslehi worked at Morgan Stanley in New York and London for nine years. From 2006-2008, Mr. Moslehi was responsible for developing the firm's securitization business in the Middle East and North Africa. Prior to that, he held various roles within the CMBS and Fixed Income Management groups at Morgan Stanley. Mr. Moslehi holds an MBA from the Stanford Graduate School of Business and a Bachelor of Arts in Biological Sciences from the University of Chicago.

Raymond McCauley

Singularity University

Raymond McCauley is a scientist, engineer, and entrepreneur working at the forefront of biotechnology. Raymond explores how applying technology to life -- biology, genetics, medicine, agriculture, manufacturing -- is affecting every one of us. Raymond is Founding Faculty and Chair of Digital Biology at Singularity University, Co-founder and Chief Architect for BioCurious, part of the team that developed next-generation DNA sequencing at Illumina (NASDAQ: ILMN), with past positions at Ingenuity Systems, Genomera, NASA, and other organizations.

Dan Vermeer

Duke Fuqua School of Business

Dr. Daniel Vermeer is founder and director of Duke University's Center for Energy, Development, and the Global Environment (EDGE), an initiative that harnesses the power of business to meet the global demand for energy, resources, and improved quality of life. Vermeer is an Associate Professor of the Practice at Fuqua School of Business and Nicholas School of the Environment. Dan joined Duke from The Coca-Cola Company, where he led the Global Water Initiative, an industry-leading effort to protect the quality and availability of the company's primary ingredient. Vermeer did extensive fieldwork and research in the Himalayas as part of his Master's thesis.

Paul Bunje

Conservation X Labs

Paul Bunje is the co-founder and COO/CSO of Conservation X Labs. Paul was formerly the Chief Scientist at the XPRIZE Foundation, where he led the impact strategy across grand challenge domains at XPRIZE, spanning civil society, environment, energy, health, and exploration. Dr. Bunje is a global thought leader in bringing innovation to solve environmental grand challenges. Paul was formerly the founding Executive Director of the UCLA Center for Climate Change Solutions, the Managing Director of the Los Angeles Regional Collaborative for Climate Action and Sustainability, and served on the World Economic Forum's Global Agenda Council for Oceans. The American Association for the Advancement of Science selected Paul as one of 40 individuals that exemplify the thousands of AAAS Science and Technology Policy Fellows who are dedicated to applying science to serve society. Paul is trained in biology, with a B.S. from the University of Southern California and a Ph.D. from the University of California, Berkeley.

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For more information or to learn more about CXL,
contact CXL's Head of Advancement and Impact, Taylor
Berry at taylor@conservationxlabs.org or (215) 290-9018



An aerial photograph showing a lush green forested shoreline on the left, meeting a dark body of water on the right. The water is covered with numerous bright green lily pads. The text is overlaid on the water area.

REINVENTING CONSERVATION TO PREVENT THE SIXTH MASS EXTINCTION

CONSERVATION **X** LABS