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# **Q&A WITH THE BOARD PRESIDENT**

Nikolai Gates Vetr serves as Board President at Wild Animal Initiative. He also works as a postdoc in computational biology at Stanford University.

## What are some of the biggest scientific challenges that wild animal welfare science currently faces?

To me, the fundamental unsolved questions of wild animal welfare science all revolve around causal inference and variation. If an animal, population, or ecosystem does something, what can we say about the effects that result? If society, nature, governments, or individuals intervene on some aspect of the natural world, what will happen at different timescales and levels of organization? If those interventions are carried out intentionally, how confident can we be that they will elicit the desired effects, and will they be self-sustaining or require continued monitoring and intervention? In very broad terms, those are the central scientific questions I see wild animal welfare researchers facing. But they're in good company, standing beside practitioners from related fields such as ecology<sup>1</sup> and companion, laboratory, farmed, and zoo animal welfare science<sup>2</sup>. Though researchers across these fields may differ in their exact focus, aims, or study systems, many of the challenges they face are one and the same.

## What opportunities are available for researchers to make meaningful progress on these challenges?

Wild Animal Initiative (WAI) maintains a repository of open questions<sup>3</sup> that reflect many of these limitations to present understanding. I personally see several promising opportunities for their resolution in combining low-cost telemetry with recent computer vision and other data-hungry computational methods known for performance at scale. But broadly, the scope of these scientific challenges far exceeds the ability of any one organization to directly address.

For the full Q&A and references, visit our blog:

wildanimalinitiative.org/blog/vetr2023

Instead, WAI can act as a multi-pronged force multiplier: incubating, incentivizing, and galvanizing wild animal welfare research through a combination of direct research, outreach, and regranting. Direct research output by WAI can serve as case studies on how to advance wild animal welfare science in both theoretical<sup>4,5</sup> and applied contexts<sup>6</sup>. The tasks at hand will require decades of incremental progress, and WAI's high-leverage contributions to advancing wild animal welfare science can have outsized effects on future success.

## Which of WAI's accomplishments in 2023 are you most proud of?

I'm most happy with the recent papers<sup>8,9</sup> that have emerged from research funded through WAI's Grants Program. Donors trusted WAI to fund neglected projects in animal welfare science, and formal publication of this research forms an important step in achieving field-building, forcemultiplicative results. Wild animal welfare science is gaining momentum, increasing in size and scope while building a healthy foundation for the monumental tasks ahead!

But there's still a lot to do. That's what keeps us busy.



# **LETTER FROM THE EXECUTIVE DIRECTOR**

fad and a paradigm shift.

seen this year, I really shouldn't be surprised.

Simply having a bunch of researchers isn't enough to decode

the fundamentals of wild animal welfare science, much less

to translate that knowledge into real change for as many

animals as possible. That's a long-term effort that requires

resilient institutions, and a shared sense of what it's all for:

That's what we call "fieldiness" — the difference between a

"Fieldiness" is what Wild Animal Initiative can bring to the

table. It might sound fluffy (the made-up word doesn't help),

so that's part of why we wrote this report: to lay out exactly

what we're doing to define, accelerate, and sustain the field.

I want to take one more moment to celebrate all the progress

we can't take credit for. We've had the honor of meeting so

many people who are determined to understand the world

from wild animals' points of view, and they've already done

so much. I'm so incredibly grateful that we don't have to do

this work alone. Whether you're a scientist, donor, friend,

or even a skeptic, if you're reading this letter, odds are you're

one of those people who has contributed to this community

It was such a pleasant surprise to hear that the people we're

looking for are also looking for us. But after everything we've

social connections, intellectual exchange, consistent funding,

Hi friend,

This year has proven that even though wild animal welfare is far too neglected, we're not the only ones who want to change that.

I was reminded of that as I watched María Díez León give a presentation on the work she's doing with funding from Wild Animal Initiative: studying the welfare of captive-born European mink before and after they're released into the wild through a reintroduction program. She wanted the best for these animals, and she understood how complicated that would be to figure out. She was the kind of scientist we had been looking for, and we found her.

But before I could tell her that, she told me the inverse: "Finding out about you all was like a breath of fresh air." She'd always wanted to research the welfare of wild animals, but for most of her career she couldn't get any funding for it.

It was such a pleasant surprise to hear that the people we're looking for are also looking for us. But

after everything we've seen this year, I really shouldn't be surprised. Eleven conferences gave us a platform to offer workshops on methods for wild animal welfare research. We then announced our virtual workshop series on the same topic and hit our max capacity of 50 people within a few days; another 51 joined the waitlist. And it's not just Wild Animal Initiative gaining momentum in the quest to develop the field. As a major indicator of broader interest, this year our colleagues at New York University launched the world's first academic program on wild animal welfare.

in one way or another. Thank you for that.

All my best,

Cam

# **OUR PROGRAMS**

Wild Animal Initiative's three programs work in tandem to support the growth of an academic field dedicated to wild animal welfare research.

### RESEARCH

Allows us to produce and distribute research outputs such as papers and conference presentations, thereby increasing **knowledge** of wild animal welfare.

## **GRANTS**

Allow us to allocate **resources** to the field. This is important because scientists require sufficient funding to conduct their research and sustain their careers while they work.

## **OUTREACH**

Allows us to provide continuity, support, and exchange of ideas throughout the greater **community** of scientists.



## HOW OUR PROGRAMS WORK TOGETHER



Build connections



Reach scientists



Increase knowledge



Advance the field



# THIS YEAR'S RESEARCH

Wild animal welfare is showing up in more research papers than ever before. We're excited that scientists are more deeply understanding how to measure welfare in the wild, how to identify the major sources of suffering for wild animals, and how humans can help.

Here we highlight some of the relevant biology papers published in 2023. Although the progress so far is great, in future years we hope to see more studies that consider the experiences of a wider range of animal species (including invertebrates), and studies that consider natural sources of suffering in addition to ones caused by humans.

## WILD ANIMAL INITIATIVE STAFF AND GRANTEES

**Capturing wild animal welfare: A physiological perspective** Michaël Beaulieu

Biological Reviews online (August 2023)

Figuring out how to measure welfare is a critical barrier to understanding the welfare of wild animals. While animal welfare science has established methods for doing so, this review illustrates that the vast majority of such work focuses on animals under human care. Beaulieu reviews the

connections between physiology and welfare, and provides researchers interested in the emerging field of wild animal welfare science with tools to validate physiological markers of well-being.

## Assessing negative welfare measures for wild invertebrates: The case for octopuses

Michaella Andrade, Charles Morphy Santos, Mizziara De Paiva, Sylvia Medeiros, C.E. O'Brien, Françoise Lima, Janaina Machado, Tatiana Leite *Animals* (September 2023)

Andrade et. al. collected and studied still photography and video footage of wild octopuses to identify metrics of welfare that can be used in the wild. In the paper, they compare these observations with published data on octopus welfare in captivity, and estimate the effects of low welfare conditions

on the wild octopuses. The researchers also identify two new measures of negative welfare unique to wild octopuses. Paired with existing methods from captivity, the metrics in this paper represent the first set of criteria that can be used to non-invasively assess octopus welfare in the wild.



## OTHER RESEARCHERS IN RELATED FIELDS

Validating indicators of subjective animal welfare Heather Browning Philosophy of Science (February 2023)

Developing indicators for the measurement of an animal's internal experience (their "individual emotional state") represents a particular challenge: Although we can use indicators to assess individuals' physiological and psychological states and thereby infer emotional experiences, their emotions are not directly measurable.

As a result, validation of indicators to assess wellbeing by directly measuring the correlation with emotional state is not possible. In this article, Browning outlines a four-step approach using the concept of robustness that can be used to validate indicators of animal welfare.

Using wildlife rehabilitation and postmortem data to identify key causes of morbidity and mortality impacting the health and welfare of free-living wild animals in Canada

Meagan King, Jolene Giacinti, Sara Dubois, Stéphane Lair, E. Jane Parmley, Claire M. Jardine *Journal of Wildlife Diseases* (April 2023)

Despite the growth in recent interest, large-scale data on causes of mortality and morbidity in free-living wild of morbidity and morbidity an

the Canadian Wildlife Health Cooperative to identify causes of morbidity and mortality among animals brought to the centers. They estimate implications for the welfare of free-ranging wild animals, particularly focusing on human-caused sources of suffering.

Mental experiences in wild animals: Scientifically validating measurable welfare indicators in freeroaming horses

Andrea Harvey, Ngaio Beausoleil, Daniel Ramp, David Mellor *Animals* (April 2023)

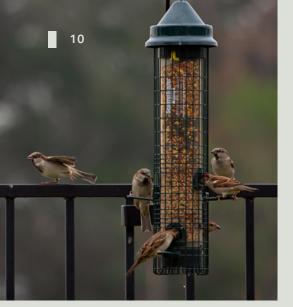
This review uses the Five Domains model to evaluate how indicators of physical and functional states in free-roaming wild horses are linked to inferred mental experiences. The researchers demonstrate that these indicators can be assessed for insight on a broad range of negative mental experiences

for free-roaming horses to infer mental states relevant to their welfare. As methods for estimating overall welfare in wild groups and individuals are generally understudied, we are particularly interested in how the protocol used in this study might be transferable to other free-living species.

Mitigating human impacts on wild animal welfare David Macdonald Animals (September 2023)

This paper presents a very thorough overview of the many ways human activity influences wild animal welfare. The author provides several examples from sectors such as "pest" management, wildlife tourism, and biodiversity

conservation. Macdonald illustrates several ways negative human impacts on wild animal welfare might be reduced and highlights the neglected nature of this research area.







Research spotlight

# LITTLE BIRDS WITH **BIG POTENTIAL**

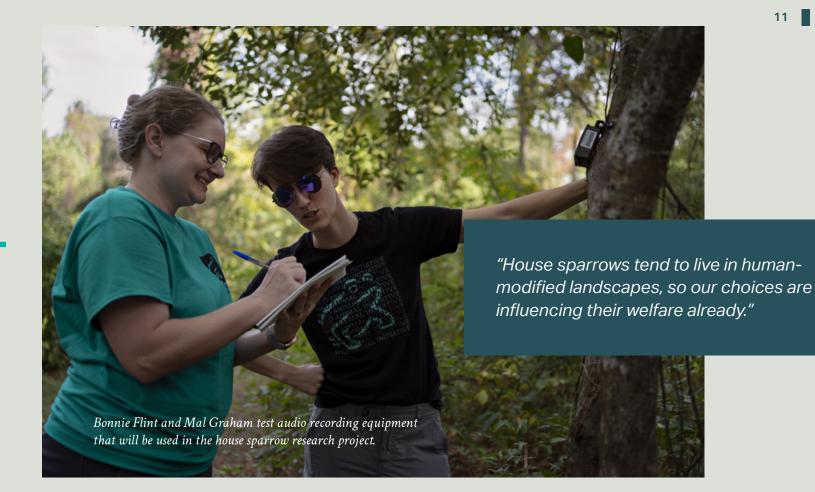
This year, Wild Animal Initiative launched its first field research project. Our team will examine how varying environmental conditions such as water availability, noise level, and land use affect the welfare of a common animal, the house sparrow (Passer domesticus).

> The team has started with a pilot study to identify a reliable way to measure welfare in house sparrows, using both observational and experimental methods. With a solid measurement method in hand after that, they will then measure welfare under various environmental conditions for a year. We hope this will be not just an isolated study on house sparrow welfare, but that the results will become a resource for others working in urban ecology and related fields, and could be transferable to studies on other species as well.

> "I hope it gives an example of how other researchers outside of Wild Animal Initiative can continue this kind of work," says Physiology Researcher Bonnie Flint, the project lead. "And for Wild Animal Initiative, I hope it opens up new questions and new hypotheses we hadn't thought of before, that we can pursue in future research."

#### WHY STUDY HOUSE SPARROWS?

The numerosity of house sparrows — one of just three bird species with populations estimated to be more than one billion — makes them particularly interesting to us. If we can identify data-backed ways to improve welfare for a common species, then we have the potential to do good for a huge number of individuals within that species. "When you're doing science to try to understand animals in general, it's easier if you have an abundant and very visible species," Bonnie says. "Plus, if you want to maximize welfare, you want to think about species with abundant individuals. A study like this one can get that approach into the foundations of this field right as it's developing."



## **RESEARCH METHODS AND GOALS**

The pilot study is in Bonnie's home city of Houston, Texas, and the full study will expand to a multi-scientist effort in additional cities in 2024.

The main goals of the pilot study will be to identify a reliable method for measuring the welfare of house sparrows, and to make sure all the planned types of data collection are feasible. To find a valid way to assess house sparrow welfare, the team will first record video footage of sparrows in many different scenarios (some of which will be experimentally induced). Then they'll assess and score the sparrows' posture, vocalizations, and physical activity in each scenario to see which behaviors correlate with the positive or negative conditions the birds were experiencing.

"We already have multiple lines of evidence that house sparrows have different vocalization types that reflect welfare, but we need to make sure that vocalizations are truly a valid way to assess welfare," Bonnie says. Once the team completes the pilot study, they will set up systems such as temperature loggers and audio recording units to remotely capture the data they need on the birds' welfare.

We hope other scientists will use the primary research produced in this study as a starting point and proof-ofconcept for their own future wild animal welfare research, and that the data from this growing field will ultimately be used in conservation and urban wildlife management.

"House sparrows tend to live in human-modified landscapes, so our choices are influencing their welfare already," says Strategy Director Mal Graham. "If we study what makes their lives good or bad, then we can stop making decisions about urban management in ignorance of their impacts on our neighbors."

## **READ THE FULL STORY**

wildanimalinitiative.org/blog/house-sparrow-research

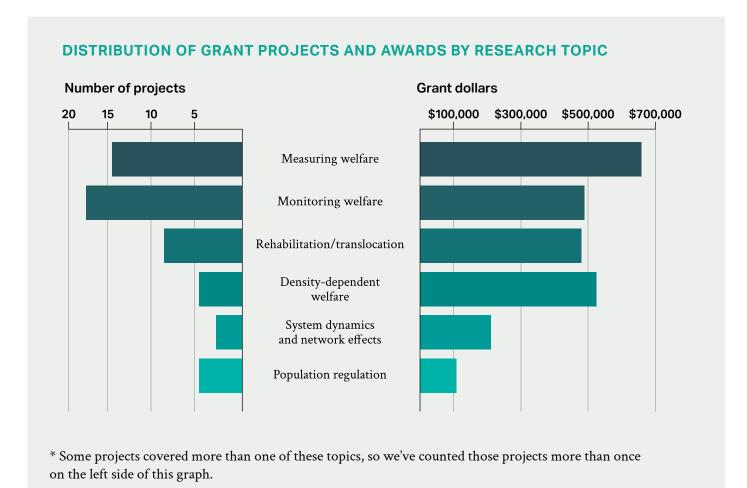
# **2023 GRANTEES**

Wild Animal Initiative funds academic research on high-priority questions in wild animal welfare.

The goal for our grants program is to fund research that deepens scientific knowledge of the welfare of wild animals in order to better understand how to improve the welfare of as many wild animals as possible, regardless of what causes the threats to their well-being.

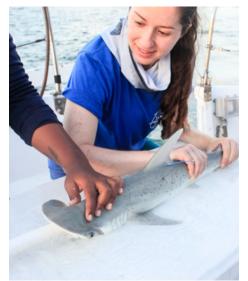
Our grants empower wild animal welfare researchers to explore topics that are typically neglected by other funders. **In 2023, we provided funding for a total of 38 projects across the world.** 

Learn more at: wildanimalinitiative.org/grants



## A look at some of our grantees in the field













Top row, left to right: Akshay Bharadwaj, Indian Institute of Science, holds a Sikkim wedge-billed babbler caught during mist-netting in the Himalayas. Meghan Holst, University of California, Davis, holds a juvenile hammerhead shark in the San Francisco Bay. Members of Emma Stone's research team check the photos from their camera traps in the field in Malawi, Africa.

Bottom row, left to right: Lauren Stanton, University of California, Berkley, sets up puzzles for raccoons to solve. Morteza Naderi weighs brown bear fecal samples with his graduate student in Turkey. Veterinary students with Vets4Welfare in Indonesia take samples from monkeys who died in car collisions.

\$2,468,280

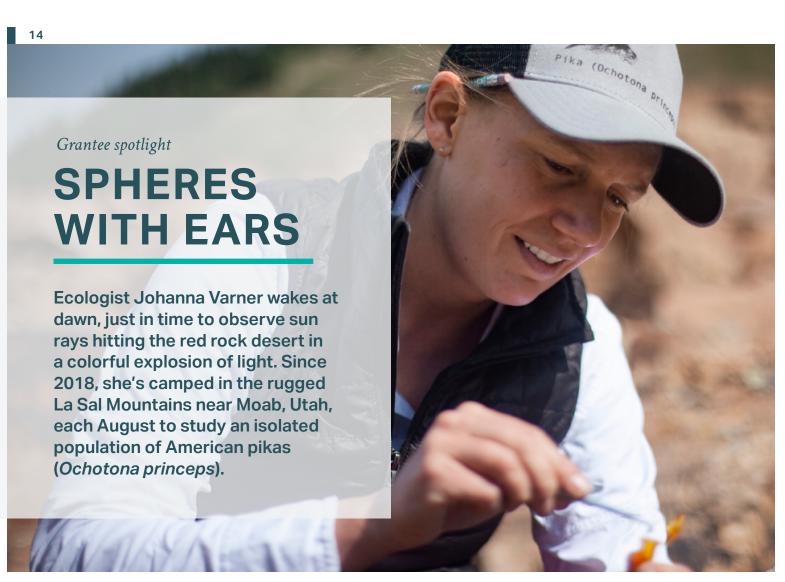
Total amount we distributed in research grants and fellowships

38
Total number of grant and fellowship projects

30+ species studied across our funded projects







"The La Sals are one of the most beautiful study sites I've ever been to," says Johanna, an associate professor of biology at Colorado Mesa University and a Wild Animal Initiative grantee. "You're camping in the forest next to these beautiful alpine meadows, and you have to get up early, because the pikas are most active in the morning."

Johanna has studied this population of pikas for several years. On her most recent visit to the study site, she resighted a pika she'd marked as an adult five years earlier.

"The world was a different place in 2018 for us humans, but that whole time she'd been up here, living out her life," Johanna says.

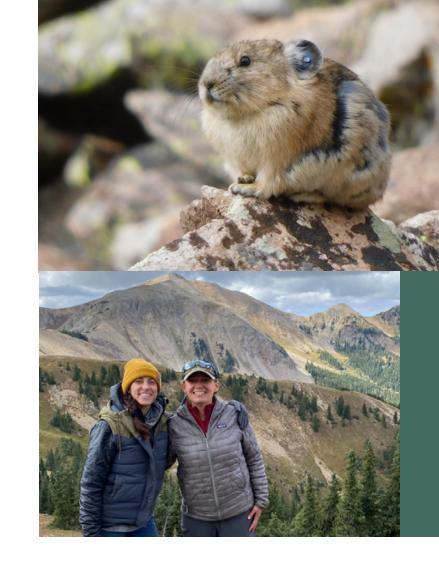
But little is known about what that life is like, and how the pikas in that area are faring in response to environmental pressures such as introduced species and climate change. With grant funding from Wild Animal Initiative, Johanna and PhD student Mallory Lambert will study individual pikas and track their welfare over time to better understand how the pikas' environment affects

their well-being. Mallory will also study introduced mountain goats (*Oreamnos americanus*) along with the pikas to determine the nature of interactions between the two species.

#### **ABOUT THE STUDY**

Johanna describes pikas as looking "like a guinea pig and a potato had a baby." She says, "They're cute and round and fluffy, but they can be pretty fierce about defending their space. If one pika enters another pika's territory, they can get grabbed by the scruff of the neck and thrown down on the rocks."

Rather than hibernating or migrating like other alpine residents, pikas spend their summers building enormous caches of food to last them through the winter months. The potato-sized pikas amass haypiles that weigh 65-75 pounds. For humans, Johanna says, this would be the equivalent of 25,000 pounds of food, gathered from about 5,000 trips to the grocery store.



"They're cute and round and fluffy, but they can be pretty fierce about defending their space."

Opposite: Johanna Varner collecting samples for testing. Clockwise from top left: Pikas are small mammals who live in mountain habitats. Johanna gently releases a pika after collecting samples. Mallory Lambert and Johanna Varner at the study site.

Pikas have experienced population declines in some parts of their range, but they appear more resilient in other places. One hypothesis suggests that at lower elevations in isolated mountain ranges like the La Sals, rising daytime temperatures give heat-sensitive pikas smaller windows of time to collect food in the morning and evening, which reduces their ability to build sufficiently large haypiles. This could lead to declines in welfare, due to starvation or malnutrition. With her study, Johanna seeks greater clarity on the complex ecological forces at work and hopes to find out how this unique population is faring overall.

Since Johanna has marked and observed pikas in the La Sals for the past six years, she and her students have pre-existing data on survival and longevity that will support the new data they plan to gather. To assess welfare going forward, Johanna and her team will mark individual pikas with unique colored ear tags. She will collect scat to measure stress hormones, and she'll perform assessments of each pika's body condition, parasite load, and body mass. Year over year, Johanna and her team will return to observe the pikas and monitor annual survival.

Mallory, a graduate student collaborating with Johanna, will tackle another interesting question related to this alpine environment: What impact, if any, do introduced mountain goats have on pikas? State wildlife management agencies have brought wild mountain goats to Utah and Colorado for sport hunting, but it's unclear how these newcomers affect native plants and animals.

Ecological interactions are an important aspect of welfare, "but first we have to know if there is even an interaction happening, and whether that interaction affects the pikas," Johanna points out.

Johanna says she's grateful for Wild Animal Initiative's support, and she's excited to think this work could help wild pikas live better lives. Seeing the pika she'd tagged in 2018 brought tears to her eyes. That pika had survived so much adversity year after year, successfully collecting food and likely having litters of babies.

"In some respects, it really puts my problems in perspective," she says. "I find it really inspiring."

## **SCIENCE IN SESSION**

In the fall, Wild Animal Initiative hosted a five-part virtual workshop series on methods in wild animal welfare science.

Forty-eight researchers from a variety of backgrounds participated in the free program, which included presentations from Wild Animal Initiative scientists and guest speakers, plus an interactive exercise in which participants designed their own wild animal welfare study.

"The methods workshop was a unique opportunity to connect a group of people interested in wild animal welfare science and give them the tools and knowledge they need to collaborate," said Services Coordinator Grey Fernández. "I'm excited to see how the projects they designed will continue to develop and contribute to the field."

#### **GUEST SPEAKERS**

**Saskia Arndt,** Utrecht University

DAWCon - The Dynamic Animal Welfare Concept: A Guideline to Assess, Safeguard, and Promote Animal Welfare

Gareth Arnott, Queen's University Belfast Considering Animal Welfare in Study Designs: A Worked Example Using Animal Contest Research

**Melissa Bateson,** Newcastle University *Types of Validation* 

**Don Broom,** Cambridge University Animal Welfare: Theories and Frameworks

**Heather Browning,** University of Southampton What is Wild Animal Welfare?

**Dave Daversa,** University of California Los Angeles Applying Animal Welfare to Wild Animals

Andrea Harvey, University of Technology Sydney
Application of Animal Welfare Assessment Methodology to Wild
Animals: A Case Study in Wild Horses

Paul Jerem\*, University of Groningen

Exploring thermal imaging as a non-invasive method to investigate physiological welfare parameters in altricial nestlings

**Sam Sonnega\***, University of Massachusetts Dartmouth Developing a consensus profile of wild animal welfare

**Patrick Tkaczynski\*,** Liverpool John Moores University *Paying to Play?* 

Claudia Wascher\*, Anglia Ruskin University
Assessing animal welfare from bioacoustic monitoring in redbilled choughs

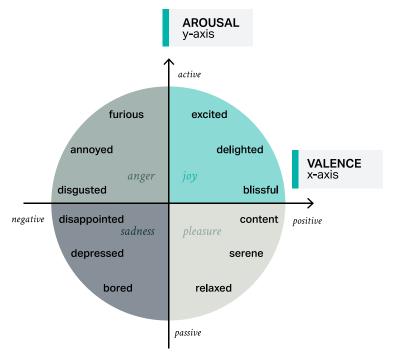
Miriam Zemanova, University of Fribourg
The Importance of Wild Animal Welfare: Applying the 3Rs to
the Field

\* Wild Animal Initiative grantees

#### THE WORKSHOP SESSIONS COVERED:

- An introduction to Wild Animal Initiative and our field
- The history of wild animal welfare
- How to define welfare

- Why scientists should study welfare
- Relevance to and from other fields, such as animal welfare science or behavioral ecology
- Identifying<sup>1</sup> and validating<sup>2</sup> welfare indicators and metrics



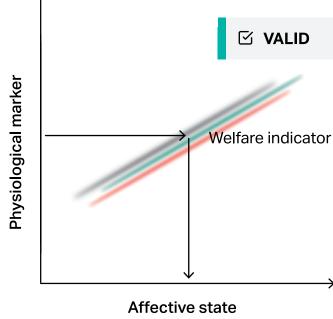


Figure 1. The Valence-Arousal Space wheel, based on concept by Valenza, G., Lanata, A., and Scilingo, E. (2011)

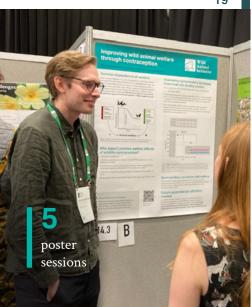
Figure 2. When a physiological welfare marker is valid, there is correlation between measurements of that marker and affective state. Valid welfare markers vary in response to the change in valence associated with given conditions, and not in response to the nature of these conditions.

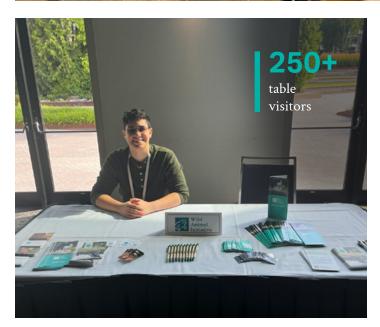




Above from top: Outreach Manager Janire Castellano Bueno and Christopher W. Miller from Newcastle University run a workshop at the International Student Symposium on Animal Behavior and Cognition in Mexico City, Mexico. WAI staff collaborate on a review of our digital resources.









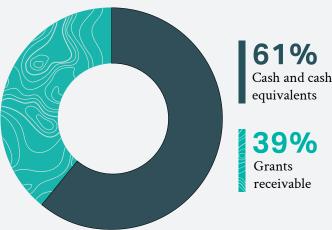


Above, clockwise from top left: Physiology and Behavior Researcher Bonnie Flint presents at the Ecological Society of America's conference in Portland, Oregon. Researcher Simon Eckerström Liedholm presents his poster on wildlife contraception and welfare at the British Ecological Society's annual meeting in Belfast, Northern Ireland. Scientific Events and Outreach Coordinator Anne Clay presents at The Animal Behavior Society's conference (ABS) in Portland, Oregon. Services Coordinator Grey Fernández hosts our expo table at the ABS conference.

# **FINANCIAL SUMMARY**

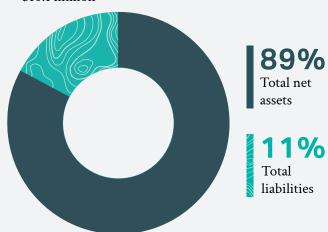
## **CURRENT ASSETS**

\$9 million



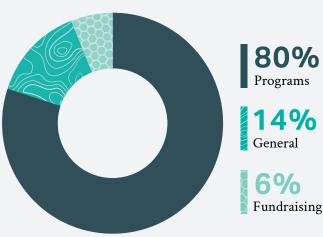
## LIABILITIES AND NET ASSETS

\$10.1 million



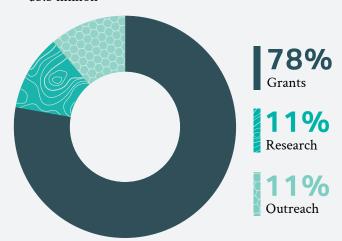
## **FUNCTIONAL EXPENSES**

\$4.4 million



## **PROGRAM EXPENSES**

\$3.5 million

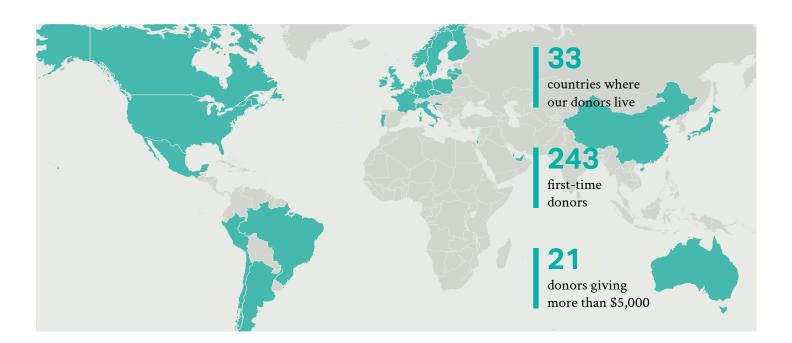


We distributed more than \$1.7 million of the \$3.5 million grant we received in 2021 from Open Philanthropy, which was restricted specifically for wild animal welfare research grantmaking. 38 grantees received funds for wild animal welfare research projects, and we'll continue to select new grantees throughout 2024. Our team continued to grow, adding 5 employees to our payroll. We also expanded our development team by hiring Development Director Casey Darnley to lead our fundraising strategy.

# **FUNDRAISING SUMMARY**

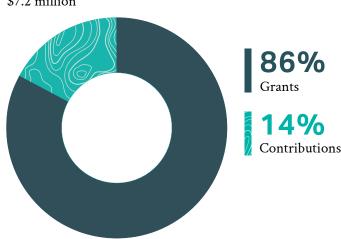
As a nonprofit, we rely on the generous contributions of individual donors and grantors who help make our work possible.

We're grateful to all who support our mission to accelerate science that helps wild animals.



## **UNRESTRICTED SUPPORT**

\$7.2 million



## **TRANSPARENCY**

We make our financial information public so you can see how your donations are used. See more at: wildanimalinitiative.org/transparency

<sup>\*</sup>Please note that these figures are in draft form and will be updated once audited figures are available.

# **OUR TEAM**

## **EXECUTIVE**

**Cameron Meyer Shorb** 

**Executive Director** 

Mal Graham

Strategy Director

Mitch Neugebauer

**Executive Assistant** 

**SCIENCE** 

Vittoria Elliott

Science Director

Michaël Beaulieu

Physiology Researcher

Janire Castellano Bueno

Outreach Manager

**Anne Clay** 

Scientific Events & Outreach

Coordinator

Simon Eckerström Liedholm

Researcher

Grey Fernández

Services Coordinator

**Bonnie Flint** 

Physiology & Behavior Researcher

**Kelly Forsythe** 

Grants Coordinator

Luke Hecht

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Tanya Payne

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Amy Klarup

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**DEVELOPMENT** 

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Development Director

**Ryan Torres** 

Development Coordinator

**OPERATIONS** 

Jason Orlando

Operations Director

Erin Bohmbach

Finance Operations Coordinator

Isaac Esparza

People Operations Coordinator

Mark Onley

Project & Impact Manager

**Emily Sharp** 

Hiring Manager

**FELLOWS AND INTERNS** 

Suzanne Van Arsdale

Law & Policy Fellow

**BOARD** 

Nikolai Gates Vetr

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**Board Secretary** 

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Ignacio Moore

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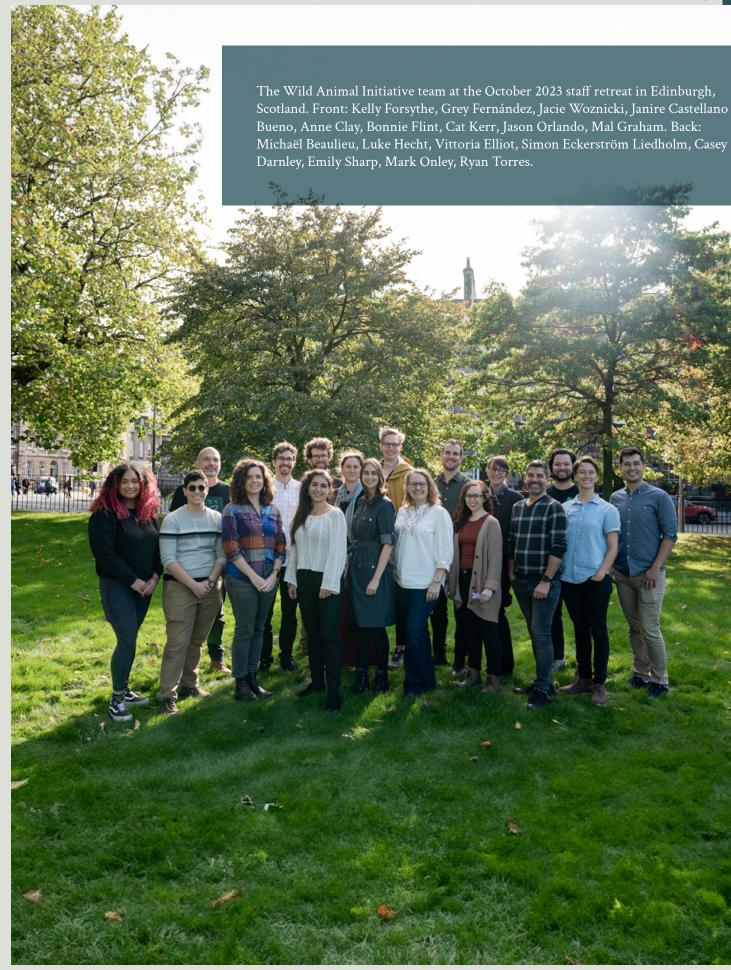
**Christine Perry** 

Director

### **IMAGE CREDITS**

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