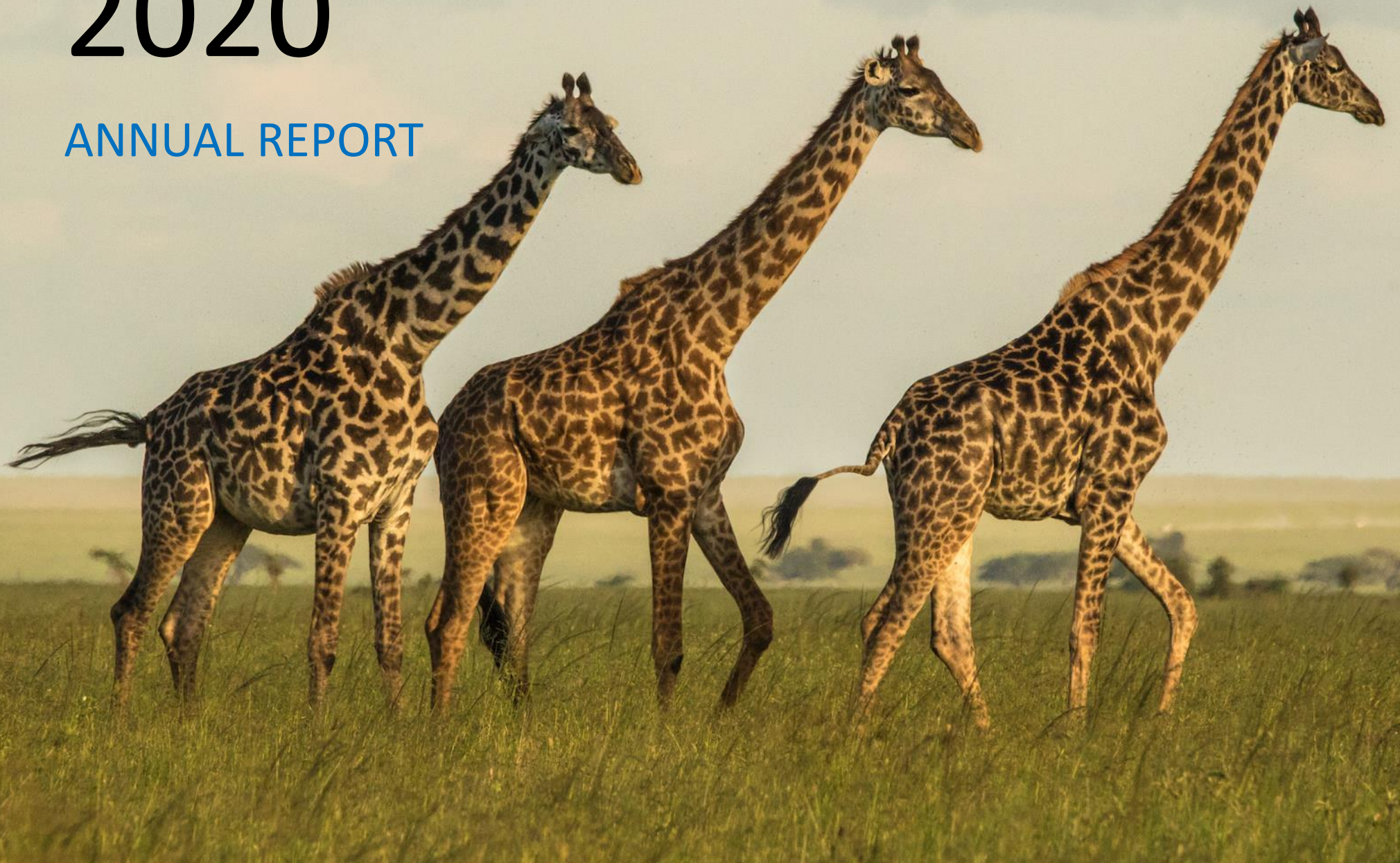


WILD NATURE INSTITUTE

2020

ANNUAL REPORT



From the Founders

In 2020, the Wild Nature Institute continued our long-term science, education, and advocacy work for wildlife in savannas of East Africa and forests of the western U.S.A. Both regions are biologically rich but threatened by human activities.

This year we published three scientific papers about giraffes. We continued and expanded the **world's largest demographic study of giraffes** and started a new giraffe genetics project. We supervised two new Tanzanian Master's students who are conducting giraffe research in our study areas.

We completed our full set of educational materials and activity guides for all three megaherbivores in our Celebrating Africa's Giants program (giraffes, elephants, and rhinoceroses), hired an education officer, and continued our education program at schools across Tanzania. We spread **giraffe conservation messages across Tanzania** via creative multi-media including a gospel song on the radio, a music video on buses, and videobooks of our children's stories on television. We also began scientifically evaluating the impacts of our conservation education work by integrating social perception surveys into our programs.

Lastly, we published a major study of the effects of wildfires on Spotted Owls that showed the **value of burned forests** for this beautiful bird of prey.

We could not have accomplished our goals without your support. As always, we are deeply grateful.

Dr. Derek E. Lee and Dr. Monica L. Bond
Founders and Principal Scientists





Masai Giraffe Conservation Science

The goal of our Masai giraffe conservation science is to understand where giraffes are doing well and where they are not, and why, and to protect and connect the places most important for giraffes.

Wild Nature Institute is conducting the world's largest individual-based study of giraffes. We use pattern-recognition software to track more than 4,000 individuals over their lifetimes to understand their births, deaths, and movements.

This year we completed **nine full years** of continuously collected photographic data of individual giraffes in the Tarangire Ecosystem. We completed **two full years** of photographic data collection in the Serengeti-Ngorongoro Ecosystem. We also began collecting photographic data in Arusha National Park.

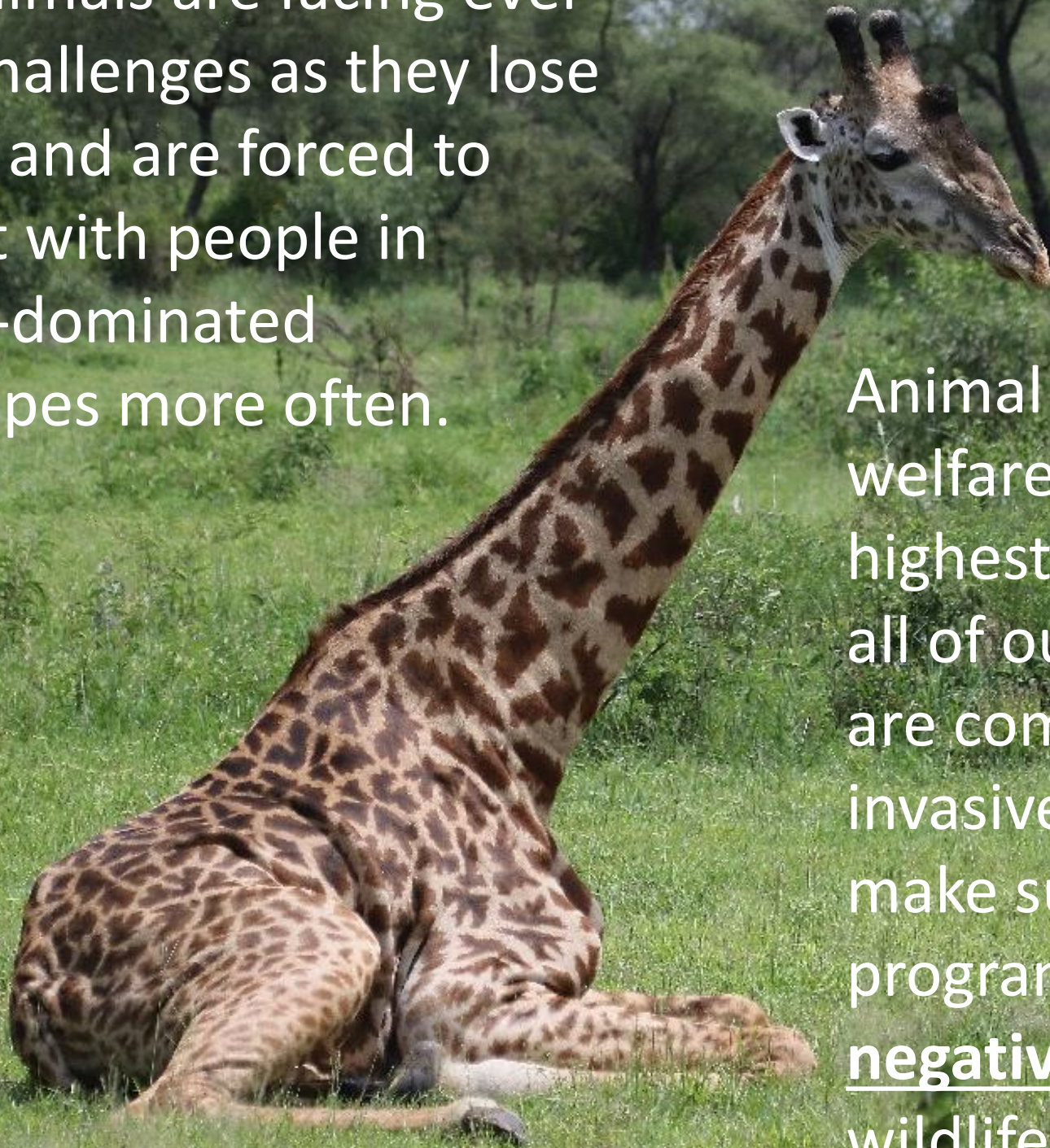


Big Data for Big Animals

← We use an automated program to crop the photos, and a pattern-recognition program to identify each giraffe from their unique spots

Wild animals are facing ever more challenges as they lose habitat and are forced to interact with people in human-dominated landscapes more often.

Animal and human welfare are our highest priorities, so all of our methods are completely non-invasive and we make sure our program has no negative effects on wildlife or people.



In 2020, we published three scientific articles about our giraffe research:

- M.L. Bond, B. König, D.E. Lee, A. Ozgul, D.R. Farine. 2020. “Proximity to humans affects local social structure in a giraffe metapopulation.” *Journal of Animal Ecology* doi.org/10.1111/1365-2656.13247
- Z. Muller, D. E. Lee, C. P. J. Scheijen, K. D. Carter, M. Strauss, F. Deacon. 2020. “Giraffe translocations: A review and discussion of considerations.” *African Journal of Ecology* doi.org/10.1111/aje.12727
- D. E. Lee, E. Fienieg, C. Van Oosterhout, Z. Muller, M. Strauss, K. D. Carter, C. P. J. Scheijen, F. Deacon. 2020. “Giraffe translocation Population Viability Analysis.” *Endangered Species Research* doi:10.3354/esr01022

Our results inform conservation and land management and help ensure a future for giraffes.



Giraffe Science 2020 Media Highlights

- “Human Presence Weakens Social Relationships of Giraffes” in Science Daily and EurekAlert
- “Menschen Beeinträchtigen das Sozialleben von Giraffen” in natureschutz.ch and shattenblick.de
- “Nearby Humans Disturb Giraffe Social Networks” in Futurity
- “Giraffe Social Networks” radio interview at BYU Radio

The image shows a screenshot of a news article from IDW (Informationsdienst Wissenschaft). The article is titled "Menschen beeinträchtigen das Sozialleben von Giraffen" (Humans impair the social life of giraffes) and is dated 9 June 2020. The article is categorized under "Umwelt & Leben" (Environment & Life). The main image shows a group of giraffes in a savanna landscape. The article is attributed to the University of Zurich, specifically Kurt Bodenmüller. The article text is partially visible, mentioning "Beeinträchtigte soziale Netzwerke: Giraffen in Tansania in der Nähe eines Dorfes der einheimischen Maausi. Christian Kiffner".

(idw) Nachrichten
Informationsdienst Wissenschaft
Pressemitteilungen von über 1.000 Wissenschaftseinrichtungen

Sperrfristmeldungen (idw)

Technik & Industrie Gesellschaft & Kultur Gesundheit Umwelt & Leben Wirtschaft & Politik Fachunabhängig

9. Juni 2020, 9:00
Forschungsergebnisse, Wissenschaftliche Publikationen

Menschen beeinträchtigen das Sozialleben von Giraffen

Dies ist eine Pressemitteilung von:
Universität Zürich
Kurt Bodenmüller
Tel: +41446344439
Fax: +41446342346
Mail: kurt.bodenmueller@kommunikation.uzh.ch
Weitere Pressemitteilungen dieser Einrichtung

Sachgebiete der Pressemitteilung:
Biologie

f t

Beeinträchtigte soziale Netzwerke: Giraffen in Tansania in der Nähe eines Dorfes der einheimischen Maausi. Christian Kiffner

Giraffe Science: Building Collaborations

We collaborate with institutions around the world to maximize the impact of our research and education programs.

- **Zoos:** Dr. James Danoff-Burg and Alexandra Ocañas of The Living Desert are helping us assess the ways our work is influencing community knowledge, perceptions, and behaviors.
- **Nelson Mandela AIST:** We are advising two Tanzanian M.Sc. students, Matana Levi and Thomas Terosi, to study giraffe foraging ecology in Tarangire and giraffe demography in Arusha National Park.
- **Penn State University:** We are working with Dr. Doug Cavener and Dr. George Lohay to conduct genetic studies of giraffes.
- **University of Glasgow:** We are advising a Tanzanian M.Sc. student, Vicki Mkessa, to quantify giraffe parasites in Tarangire.
- **University of Seville and Estación Biológica de Doñana:** We are collaborating with Dr. Maria Paniw and M.Sc. student Marta Garrigós López to understand savanna ungulate species interactions and project population persistence under global change.
- **University of Zürich:**
 - We are advising M.Sc. student Kin Morandi to study how spot patterns influence social behavior of giraffes.
 - We are collaborating with Vet Suisse to develop a body condition score for zoo and wild giraffes.

We are supporting and increasing the capacity of Tanzanians to study and conserve their national animal and ensure the long-term sustainability of our Masai giraffe conservation science.



George and Emma collect giraffe dung for DNA samples in Manyara Ranch



Emmanuel extracts DNA in the lab at Nelson Mandela AIST



James, Philip, and Emma conduct giraffe photographic surveys in Tarangire National Park



Thomas photographs a giraffe in Arusha National Park



Matana is studying giraffe foraging ecology

Tarangire Ungulate Observatory “TUNGO”

The Wild Nature Institute’s landscape-level population research program for ungulates (hoofed mammals)



Grant's gazelle



Kirk's dik-dik



Impala



Common waterbuck

The savanna habitat of the Tarangire Ecosystem is a **global hotspot for ungulates.**

Our TUNGO surveys provide reliable data for scientific management, land-use planning, anti-poaching enforcement, and conservation. **Two M.Sc. students from University of Zürich, Nick James and Lukas Bierhoff, are analyzing habitat selection and population trends using our 7 years of TUNGO data.**

Northern Plains Campaign

We shared our data and maps about wildebeest and giraffe movements in the Tarangire Ecosystem at two technical workshops organized by several government institutions: “Prioritizing Wildlife Movement Corridors in Tanzania.” In 2020 the Tarangire corridor we have been advocating to protect was categorized as a **top 5 highest priority for conservation in Tanzania** in the resulting report. We will continue working with these government institutions to secure conservation of threatened movement corridors in the Tarangire Ecosystem, so wildlife in the region can roam as they have for millennia.



The sustainability of the Tarangire wildebeest population is critical to the ecological function and economic value of Tarangire National Park.

Environmental Education

CELEBRATING AFRICA'S GIANTS

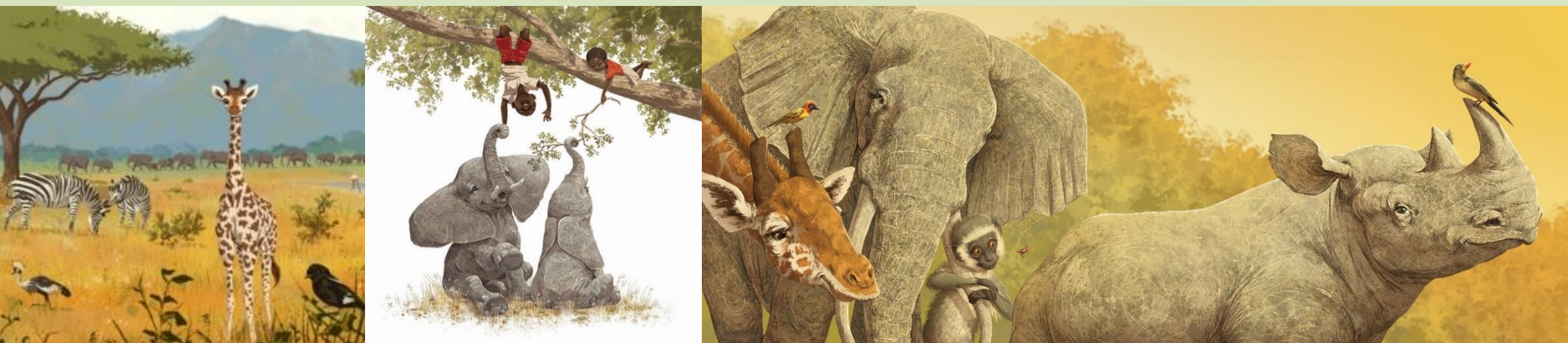


Giraffes, elephants, and rhinoceroses are Africa's giants. These large mammals play critical ecological roles in the places where they live, but their numbers have plummeted because of conflicts with humans.

With Celebrating Africa's Giants, our team of researchers, educators, illustrators, and designers has developed innovative educational materials and activities for children in Tanzania and abroad.

The materials use Africa's Giants to teach biology, geography, science, math, language skills, art, and conservation.

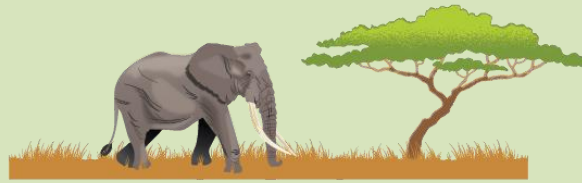
In Tanzania our program has **trained more than 200 teachers** and **reached over 26,000 school children** across the country.



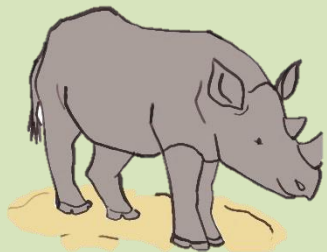
Special Thanks to Chris Barela, David Brown, Kayla Harren, Lise Levy, Megan Strauss, and Sophie Tremblay

Environmental Education

CELEBRATING AFRICA'S GIANTS



- Full-color bilingual (Swahili and English) story books about giraffes, elephants, and rhinoceroses.
- Swahili Africa's Giants activity book.
- Giraffe, elephant, and rhinoceros educational posters.
- A conservation career guide, containing interviews and advice from people involved in conservation-related work in Tanzania (e.g. researchers, safari guides, wildlife rangers, NGO staff, solar technicians).
- A website—www.AfricasGiants.org—where materials, lesson plans, and activities are freely available.
- Educator training on how to develop and implement innovative, effective, conservation-oriented teaching strategies.
- A mobile education program “Giraffe/Elephant/Rhinoceros in a Box” to implement the lesson plans and activities in Tanzanian classrooms and provide the necessary supplies.



www.AfricasGiants.org





Environmental Education

CELEBRATING AFRICA'S GIANTS

The classroom education program in Tanzania was put on hold for the first half of 2020 due to the pandemic and school closures. However, things picked up again in August, when Wild Nature Institute held training workshops with teachers from four primary schools and one secondary school in the Tarangire region, to introduce the new Trunk Talk elephant-themed lessons and learning activities that accompany the storybook *Our Elephant Neighbours*.

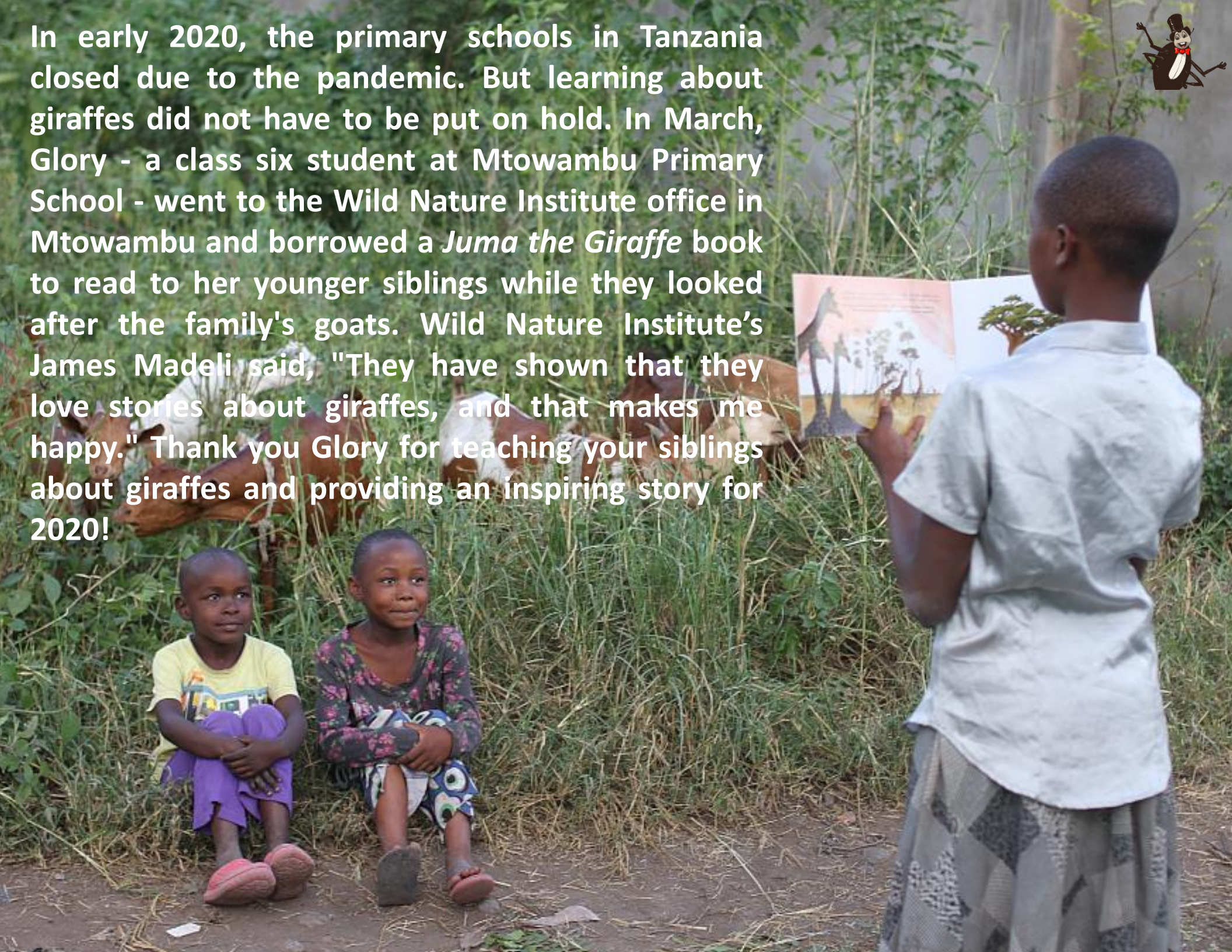


Elephant in a Box mobile education program and Trunk Talk lessons

Wild Nature Institute's Lise Levy hosts a workshop for teachers in Mtwambu



In early 2020, the primary schools in Tanzania closed due to the pandemic. But learning about giraffes did not have to be put on hold. In March, Glory - a class six student at Mtowambu Primary School - went to the Wild Nature Institute office in Mtowambu and borrowed a *Juma the Giraffe* book to read to her younger siblings while they looked after the family's goats. Wild Nature Institute's James Madeli said, "They have shown that they love stories about giraffes, and that makes me happy." Thank you Glory for teaching your siblings about giraffes and providing an inspiring story for 2020!





In November 2020 Wild Nature Institute welcomed another member to our team, **Veila Makundi**. As our new Education Coordinator, Veila hit the ground running, **visiting schools** in the Tarangire-Manyara region **15 times** to meet teachers and students and implement the Celebrating Africa's Giants education program!

Veila's position is made possible thanks to our partnership with the **Anne Innis Dagg Foundation**.

Veila Makundi is seated on the left



Environmental Education

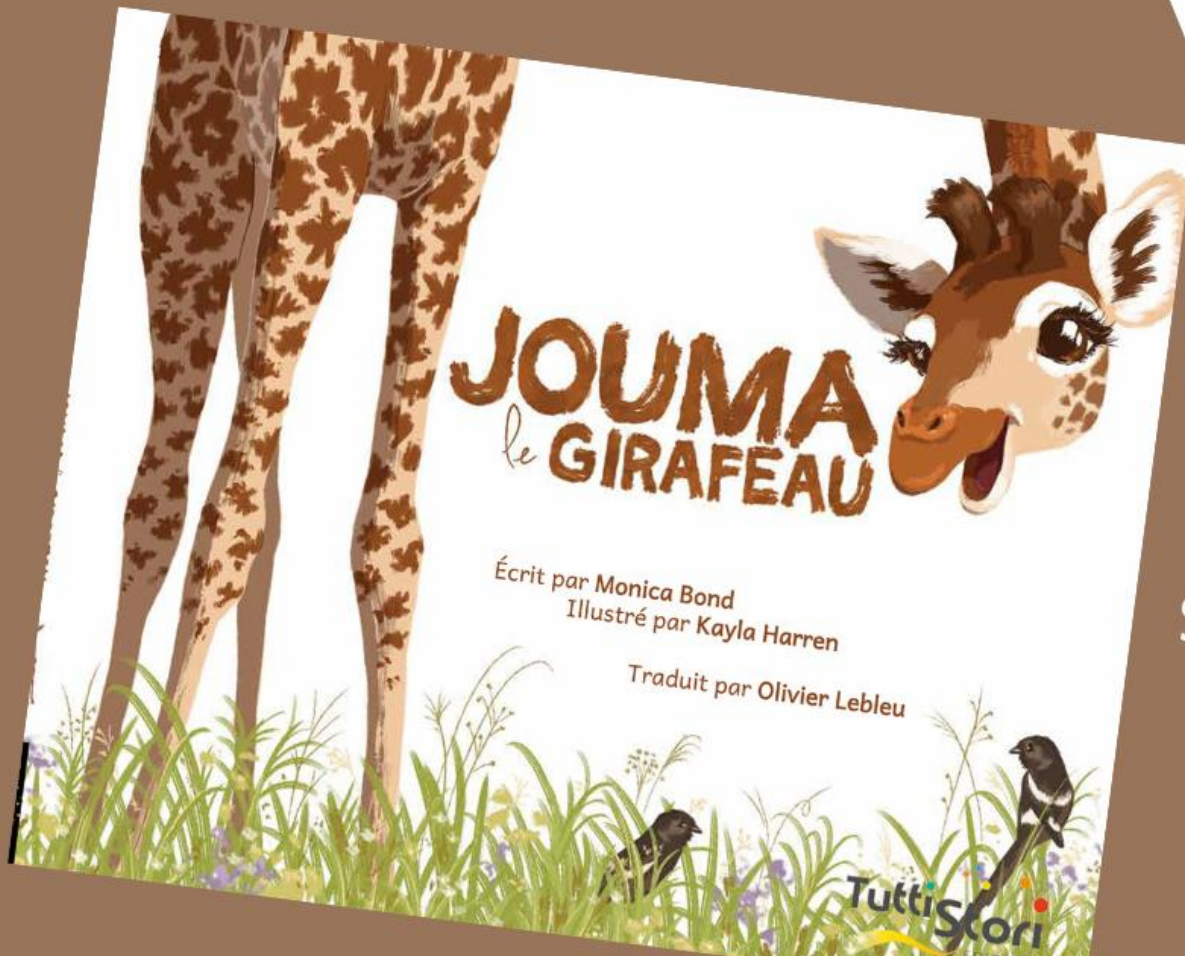
CELEBRATING AFRICA'S GIANTS

Wild Nature Institute's Education Coordinators brought children to Lake Manyara National Park 5 times in the last month of 2020, with 4 boys and 4 girls on each trip. One group included children from an orphanage, the others were from primary and secondary schools near Mtowambu. In just one month, **40 children were able to experience giraffes** and other wildlife for the first time in a fun, relaxed setting, and learned by directly observing animal behavior in the wild.



These activities teach and inspire children, parents, and teachers to care for giraffes and other wildlife in fun, exciting, and innovative ways.

La girafe Sophie
est sympa!
Mais les vraies
sont encore mieux!



Sauvons-les!



This year
*Juma the
Giraffe* and
*Helping
Brother
Rhinceros*
were
published in
French and
are available
for purchase
in France,
French-
speaking
Switzerland,
and Quebec.

Wild Nature Institute donated copies to Lycées Françaises in Los Angeles, San Francisco, and Chicago

Outreach and Advocacy

Multimedia Conservation Messages

Wild Nature Institute produces and shares multimedia that celebrates giraffes and urges Tanzanians not to eat giraffes and other bushmeat.

This includes playing our giraffe gospel song 'Tuwatunze Twiga' (We Protect Giraffes) on the radio; playing the hip-hop song and video 'Okoa Twiga' (Save Giraffes) on television and on buses; and playing our children's story videobooks on television.

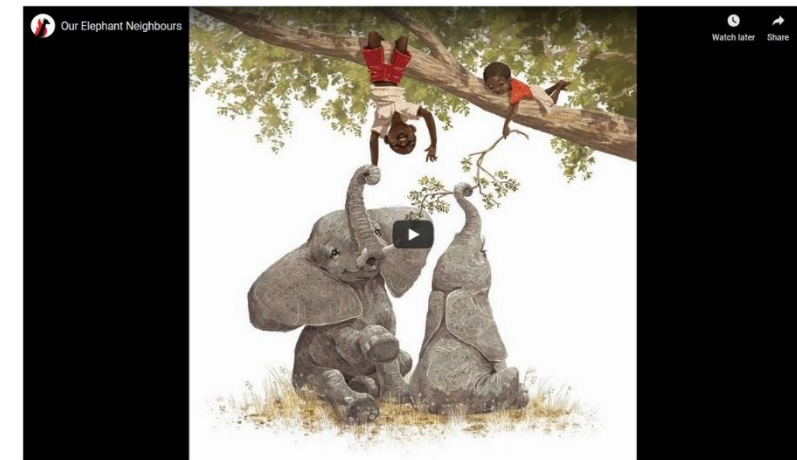
We promote 3 conservation actions for Tanzanians:

- (1) Plant trees
- (2) Use cooking gas (to save trees)
- (3) Do not eat bushmeat

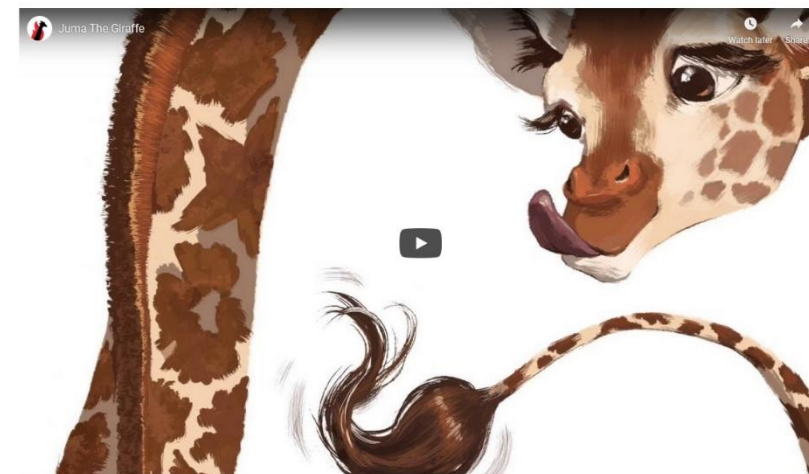
(6) Helping Brother Rhinoceros videobook



(6) Our Elephant Neighbours videobook



(6) Juma the Giraffe Videobook



Outreach and Advocacy

Multimedia Conservation Messages

Last year, Music for Conservation's talented singer-songwriter Shubert Mwarabu made a music video for the hip-hop song 'Okoa Twiga' (Save Giraffes) which Wild Nature Institute produced and financed. This year, the video was played on television and on buses throughout Tanzania, reaching **thousands of people**. Shubert also gave 7 radio and television interviews about the song and about Wild Nature Institute's *Juma the Giraffe* children's book and education program.



Outreach and Advocacy

Assessing The Impacts Of Our Work

Wild Nature Institute strives for social perception surveys to be integrated into all facets of our work to objectively gauge whether and how people's knowledge, perceptions, and behaviors are affected by our programs, and how we can improve.

In 2020 we scientifically measured the impacts of two of our environmental interventions: the giraffe-themed gospel song Tuwatumze Twiga, and the giraffe-themed education program in Celebrating Africa's Giants.

- We systematically surveyed people on the streets of three communities in the Tarangire region before and after the Tuwatumze Twiga song was played on the radio. We found 33% of people had heard the song. Most respondents agreed that giraffes are beautiful, enjoyed having them live nearby, recognized they are threatened by poachers, and supported continued or improved efforts to protect the species and other natural resources. Respondents who heard the song were significantly more likely to agree with the statement that God urges people to protect giraffes.
- The Celebrating Africa's Giants classroom education program increased students' knowledge that giraffes are endangered. Most students did not correctly identify that the biggest threat to giraffes is people, suggesting more emphasis should be given to this part of the lesson.

Very Special Thanks to Dr. James Danoff-Burg and Alex Ocañas from The Living Desert

Outreach and Advocacy

We presented our giraffe conservation science and education programs at several online forums in 2020.

- April: We presented our giraffe research to 20 students from the Animal Behavior class at Pennsylvania State University.
- May: We discussed our giraffe research and education program with Friends of Serengeti Switzerland.
- May: We presented our giraffe sociality research at the Animal Behavior seminar at the University of Zürich in Switzerland, with more than 80 scientists in attendance.
- June: We participated in a Giraffe Day panel with the extraordinary Dr. Anne Innis Dagg and other female giraffe-ologists – the theme was Women in Conservation.
- June: We spoke about our giraffe research with 40 scientists at the Pennsylvania State University Biology Seminar.
- November: We discussed our giraffe science and community conservation work at the International Desert Conservation Summit hosted by The Living Desert, with more than 80 people in attendance.
- December: We presented our giraffe conservation science and education program at a Sacramento Zoo event attended by more than 100 people.





Snag Forest Campaign

We study wildfire and wildlife to protect biodiversity in burned forest habitats.

Wild Nature Institute's research has revealed that forest fires usually do not harm Spotted Owls, and fires create more benefits than costs.

Problems arise for the Spotted Owl when people cut down the trees, living or dead, that owls need for nesting, roosting, and perching while hunting.

In 2020, Wild Nature Institute scientists:


- Published a scientific paper in the journal *Ecosphere*: **Spotted owls and forest fire: reply.** <https://doi.org/10.1002/ecs2.3310> The paper found forest fire provides important benefits to owl populations, with significant positive effects in recruitment, reproduction, and foraging habitat selection in burned forest, and with reproduction increasing as the amount of high-severity fire increased.
- Visited the site of a logging project in the Shasta-Trinity National Forest in northern California that would harm Northern Spotted Owls, and provided an expert declaration in opposition to the logging.



GREENWIRE
AN E&E NEWS PUBLICATION

ENDANGERED SPECIES
Research claims wildfire may benefit spotted owls

Jacob Wallace, E&E News reporter
Published: Tuesday, December 22, 2020



The Fish and Wildlife Service said this month that reclassifying the northern spotted owl as endangered is warranted but precluded by higher priorities. *Share Jefferson/PWS*


A new study pushes back on claims that wildfires have negative impacts on the threatened spotted owl, findings that are likely to augment controversy over logging practices.

Derek Lee, a professor and researcher at Penn State, analyzed all available studies on the impact of wildfires on spotted owls in 2018. In his [review](#), he determined that wildfires may

Why The Spotted Owl is Ready For 'Endangered' Status

The Jefferson Exchange

Why The Spotted Owl Is Ready For 'Endangered' Status



Environmental groups are fighting the claim that the loss of the northern spotted owl. This article says that forest fire and power line has been used as the enemy of the timber industry since it first went on the federal endangered species list as "endangered" 30 years ago.

The northern forest logging, and the forest recently admitted the owl about now is listed as "endangered". But it won't be, because other creatures are in even greater danger.

We assembled a team of experts who know forests and owls. Dominic DeLuca of Wildfire News, Maria Diaz of Wildfire Institute, and Peter Stone University researcher Derek Lee. They talk about the state of the owl and what needs to change to improve it.

Spotted Owl 2020 Media Highlights

- Greenwire/E&E “Research Claims Wildfire May Benefit Spotted Owls”
- Jefferson Public Radio “Why the Spotted Owl is Ready for Endangered Status”

WILD NATURE INSTITUTE IN THE NEWS

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&Beyond Asilia Africa Tarangire Safari Lodge Nomad Tanzania

Thanks to all the additional wonderful individual donors who supported our work during this especially challenging year!

Our Partners

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Conservation Congress

John Muir Project

Manyara Ranch Conservancy

Microsoft AI for Good Research Lab

Music for Conservation

Nelson Mandela AIST

Ngorongoro Conservation Area Authority

University of Zürich

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Tanzania Wildlife Research Institute

The Living Desert

University of Glasgow

University of Seville and Estación Biologica de Doñana

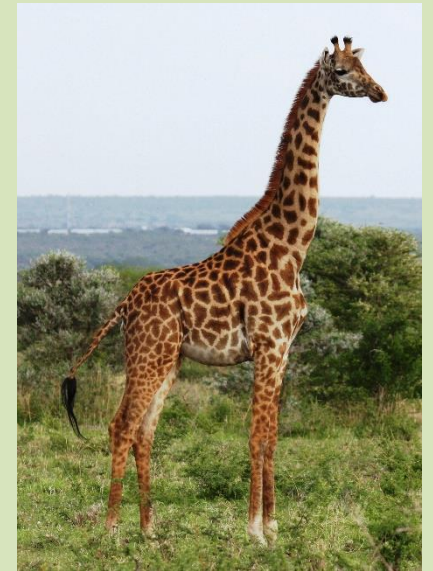
Statement of Activities 2020

INCOME

Grants from Foundations	\$ 31,960
Individual Donations/Family Trusts	\$ 18,867
Other (Travel Reimbursements, Book Sales)	\$ 15,800
Total Income	\$ 66,627

EXPENSES

Field Research (Permits, Vehicles, Equipment, Food and Fuel, Tanzanian Field Assistants, Lab Fees)	\$ 43,880
Travel	\$ 9,078
Conferences/Meetings/Membership Fees	\$ 466
Services (Educational Activities, Printing Books)	\$ 9,972
Mailing and Office Expenses (Rent, Phone, Utilities)	\$ 6,910
Total Expenses	\$ 70,307
<hr/>	
Starting Balance (carryover from 2019)	\$ 64,239
Income - Expenses	\$ -3,680
Ending Balance	\$ 60,559



Officers

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Dr. Monica Bond, Secretary-Treasurer

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**WILD
NATURE
INSTITUTE**

WILD NATURE INSTITUTE

15 North Main Street, Suite 208

Concord, NH 03301, USA

www.WildNatureInstitute.org