

**WILD
NATURE
INSTITUTE**

2013

ANNUAL REPORT



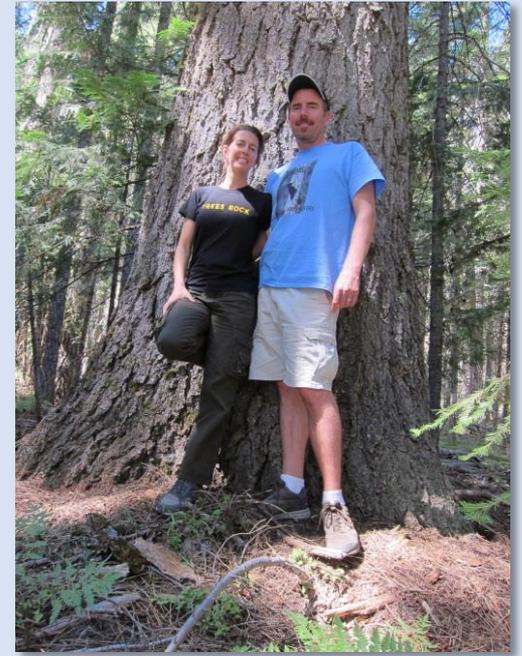
Annual Report Photography

All photos in this annual report by Monica Bond and Derek Lee © 2013 Wild Nature Institute

Cover : Giraffe in Tarangire National Park / Inside cover: Derek Lee in Lake Manyara National Park

From the Founders

2013 was a banner year for the Wild Nature Institute. We continued our ground-breaking research on Spotted Owls in burned forests of the western U.S., and completed our second full year of surveys for Masai Giraffe and other hoofed mammals in the Greater Tarangire Ecosystem. We published a multi-lingual children's book about wildlife migration. And we officially became a New Hampshire non-profit corporation!



The Wild Nature Institute works in two regions of great biological significance: the Greater Tarangire Ecosystem of northern Tanzania and California's burned forests. Both of these regions are rich in biological diversity but are highly threatened by human impacts. We study imperiled wildlife and their habitats in these regions, and use our results to develop and implement protective measures so that these wondrous wild places can survive and thrive.

We made strides in all four of our program areas: Snag Forest Campaign, Masai Giraffe Conservation Project, Tarangire Ungulate Observatory, and Northern Plains Corridor Campaign. Read on to learn about our accomplishments for 2013.

In all of this, we depended on your support. Our heartfelt thanks,

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

Snag Forest Campaign



In 2013 Wild Nature Institute scientists continued studying fire impacts to Spotted Owls in the western U.S., with the ultimate goal of protecting burned and unburned forest habitat from harmful and unnecessary commercial logging.

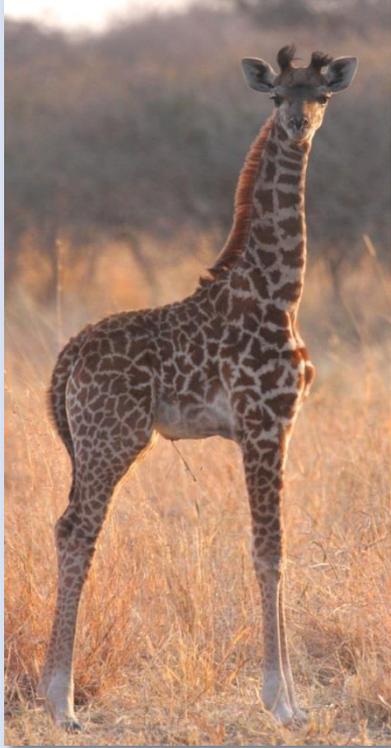
Spotted Owls are synonymous with dense, old-growth western forests. But these birds of prey evolved over millennia with hot fires occasionally sweeping through their territories, especially during drought years. Our research has revealed that severe fire usually does not cause California Spotted Owls to abandon their territories or reduce their reproduction as previously thought. Their home ranges are no bigger in burned forests than unburned. In one study we even found owls hunting in the most severely burned forests. For the Spotted Owl, older unburned forest provides vital nesting and roosting habitat, but food – especially pocket gophers – found in adjacent severely burned areas is also important.

We provide scientific data to help scientists, land managers, the media, and the public to embrace the ecological value and necessity of severely burned forests.

In 2013, Wild Nature Institute scientists co-authored the following scientific articles:

- Our study of space use and diets of California Spotted Owls (for The Institute for Bird Populations) documented no significant difference between home-range sizes of owls in burned and unburned forests of the Sierra Nevada, countering assumptions that fire forces owls to range farther to find food (Bond et al. 2013, *Western Birds*).
- Our analysis of occupancy rates in relation to habitat variables concluded that >50 hectares of severe fire in owl core areas and post-fire logging reduces occupancy of California Spotted Owl sites in southern California, but the majority of territories did not burn over this threshold (Lee et al. 2013, *Journal of Wildlife Management*).
- The mis-named concept of “ecoforestry” promotes harmful logging under the guise of fire-risk reduction and forest restoration (DellaSala et al. 2013, *Journal of Forestry*).
- A synthesis of the scientific literature about severely burned forests points to the need to identify, classify, and protect these ‘Complex Early Seral Forests’ in the Sierra Nevada (DellaSala et al. in press, *Natural Areas Journal*).
- We created a short film about the ecological value of severely burned forest using original video from California’s forests, called *Forests Born of Fire*. The film is available on our website.

Masai Giraffe Conservation



The Wild Nature Institute is conducting a major study of Masai Giraffe, the national animal of Tanzania and an indicator species for the health of savanna ecosystems.

Giraffe populations have declined throughout Africa by 30% in recent years. The Greater Tarangire Ecosystem is a giraffe stronghold, but is highly threatened. We use pattern-recognition software to track >1,500 individuals in a 1,300-km² area to understand their demography in this fragmented system.

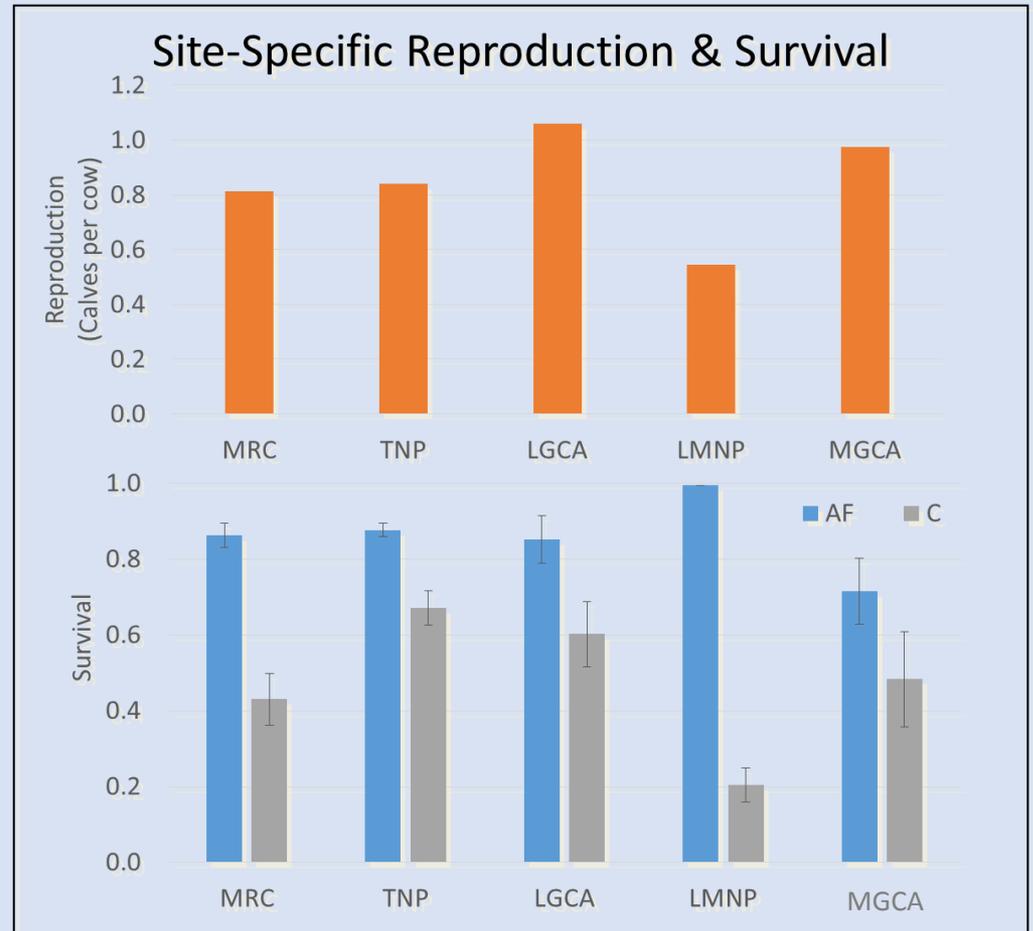
Ours is one of the largest individual-based demographic studies of a large mammal ever undertaken. We are also part of the IUCN Red List Assessment for giraffes, and are spearheading the assessment for Tanzania.

The goal of our Masai Giraffe research is to estimate population size, survival, reproductive success, and movement among different management areas of the Greater Tarangire Ecosystem so places with high survival and reproduction can be identified, protected, and connected.

Our giraffe research has revealed that unprotected areas outside the national parks have relatively high reproduction and calf survival, whereas one park (Lake Manyara) has low reproduction and calf survival but the highest adult survival. There appear to be interesting source-sink meta-population dynamics in this system.

We also documented previously unknown connectivity of all areas through long-distance giraffe movements. Our discovery that the most productive calving grounds are in completely unprotected village lands means we should be prioritizing conservation efforts in these areas as well as maintaining connectivity.

We are working towards that goal in our campaign to implement land-use planning in the northern part of our study area: see Northern Plains Campaign.





Standing Tall for Giraffes

RESEARCH AND CONSERVATION OF AN OVERLOOKED AFRICAN ICON

By Derek E. Lee, Julian T. Fennessey, and Monica L. Bond

From the shade beneath a flat-topped acacia tree, a tall and elegant Maasai giraffe (*Giraffa camelopardalis rippelskirchii*) serenely chews a wad of cud as she watches our Land Cruiser bump slowly toward her across the savanna. We swing the vehicle around to her right side and stop about 80 meters away to photograph her, record her exact distance with a laser rangefinder, and mark her GPS location. As we drive off, she stares after us, chewing intermittently, but otherwise completely unfazed as we depart with another data point in our growing set of thousands of photographic giraffe "captures" that we are using to investigate the species' demography in the Tarangire Ecosystem of northern Tanzania.

Despite being iconically African, the giraffe remains largely understudied in the wild—unlike most of the continent's other large megafauna. In part, this is because giraffes were not heavily hunted until recently: they don't produce tusks or horns that are coveted as trophies or medicine and they are not an aggressive species. Sadly, the Giraffe Conservation Foundation (GCF) now estimates that giraffe numbers have plummeted across Africa by 40 percent in the last decade to less than 80,000 individuals due to increasing habitat fragmentation and a surge in bushmeat poaching driven by human population growth, economics, and war. Despite this precipitous decline, giraffes are not high on the conservation agenda of most countries, research groups, or NGOs.

The shortage of demographic and taxonomic information on the giraffe is now an impediment to its conservation. Most of what we know about giraffe ecology and demography comes from research conducted entirely within protected areas

such as national parks. Meanwhile, most of the giraffe's historical range—which once encompassed all savanna habitat south of the Sahara Desert—is unprotected and increasingly fragmented due to the conversion of savanna ecosystems into farms and permanent settlements to support growing human populations and booming economies. Disconnected giraffe populations are now sprinkled across the African continent, from Niger in the west, through the northern savannas of Central Africa, east into Ethiopia, Kenya, and Tanzania, and down throughout Southern Africa (see map on page 37). Nearly all of these populations are in decline.

On the Trail of Giants

After decades of almost no research on the wild giraffe, wildlife biologists are showing renewed interest in these gentle giants because of recently declining numbers. Representing Dartmouth College and the Wild Nature Institute—a science and education NGO that advocates for wildlife conservation—we began employing photographic mark-recapture methods in 2011 to build an extensive database of demographic data on giraffe populations across the vast and heterogeneous Tarangire Ecosystem. This region is known for its extraordinary diversity and abundance of large mammals but is threatened by habitat fragmentation and severe poaching. The Tarangire Ecosystem is second only to the Serengeti in giraffe density (0.2 and

A female Maasai giraffe lends a ride to a red-billed oxpecker. These birds often perch on ungulates, feeding on ticks and bugs and even warning of approaching danger.

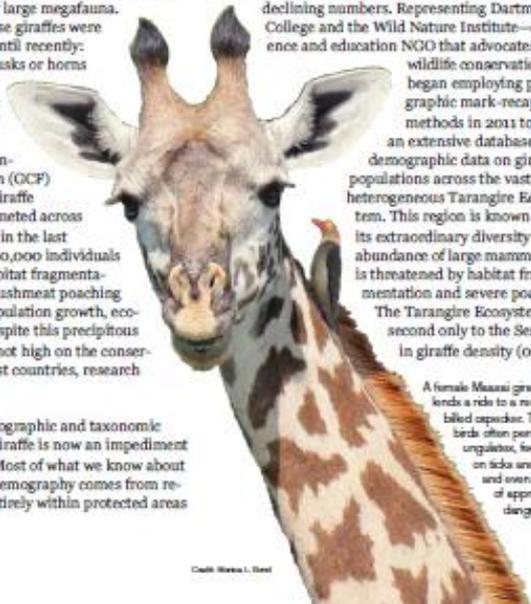


Derek E. Lee is a Founder and Principal Scientist for the Wild Nature Institute based in Hanover, New Hampshire and Anaba, Tanzania, and a Ph.D. candidate in Ecology and Evolutionary Biology at Dartmouth College.

Co-author Affiliations

Julian T. Fennessey, Ph.D., is Conservation Scientist and Trainer for the Giraffe Conservation Foundation based in Windhoek, Namibia, and Co-Chair of the IUCN SSC Giraffe and Okapi Specialist Group.

Monica L. Bond, CNV, is a Founder and Principal Scientist for the Wild Nature Institute based in Hanover, New Hampshire, and Anaba, Tanzania.



In June 2013, we published an article describing our Masai Giraffe research, the evolution and ecology of this iconic species, and the challenges facing its conservation throughout Africa.

The article was published in *The Wildlife Professional*, a magazine geared towards professional wildlife biologists. Our co-author was Dr. Julian Fennessey, one of the world's foremost experts on giraffe and a founder of the Giraffe Conservation Foundation (one of Wild Nature Institute's partners). We are working with Dr. Fennessey to assess the population status of Masai Giraffe in Tanzania for the IUCN.

Tarangire Ungulate Observatory (TUNGO)



The Wild Nature Institute's TUNGO Project developed and implemented the first ever landscape-level population research program for 22 species of ungulates (hoofed mammals) in the Greater Tarangire Ecosystem.

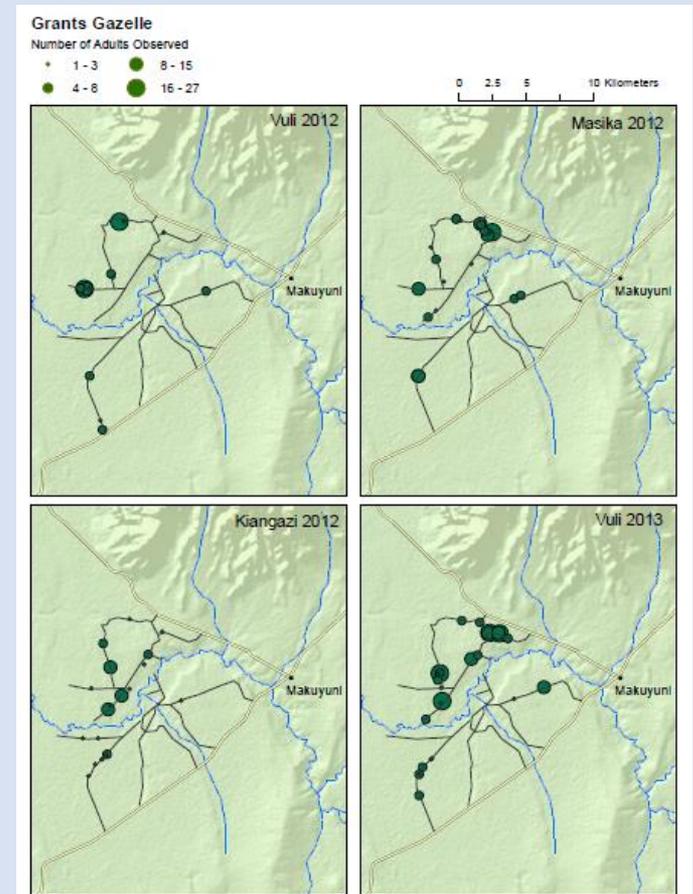
The dry savanna habitat of the Greater Tarangire Ecosystem is one of the richest areas on the planet for large mammal diversity and abundance, and is a global hotspot for ungulates and carnivores.

Between 1988 and 2001, wildebeest, hartebeest, and oryx populations declined in the Greater Tarangire Ecosystem by 88%, 90%, and 95%, respectively. The goal of TUNGO is to gather population parameters for all ungulates in this Ecosystem, along with environmental data that may reveal reasons for observed trends, and to provide the means to reverse population declines.

Our TUNGO surveys ensure that reliable data are available for scientific management, land-use planning, anti-poaching enforcement, and conservation. The Greater Tarangire Ecosystem lacks robust, comprehensive monitoring, and reliable data are urgently needed to guide management and supply the metrics necessary to evaluate the success of regional conservation strategies. This year we completed our second year of three surveys: each survey takes one month and consists of two rounds of sampling along every road in our study area, and recording GPS location and perpendicular distance of every ungulate.

Ungulate species we are monitoring with TUNGO include:

Masai Giraffe	Greater Kudu	Gerenuk
Eland	Lesser Kudu	Bush Duiker
African Buffalo	Steenbok	Klipspringer
Fringe-eared Oryx	Bushbuck	Impala
Coke's Hartebeest	Thomson's Gazelle	Cow
Burchell's Zebra	Grant's Gazelle	Goat
Bohor Reedbuck	Common Waterbuck	
Kirk's Dik-Dik	Eastern White-bearded Wildebeest	



Northern Plains Campaign



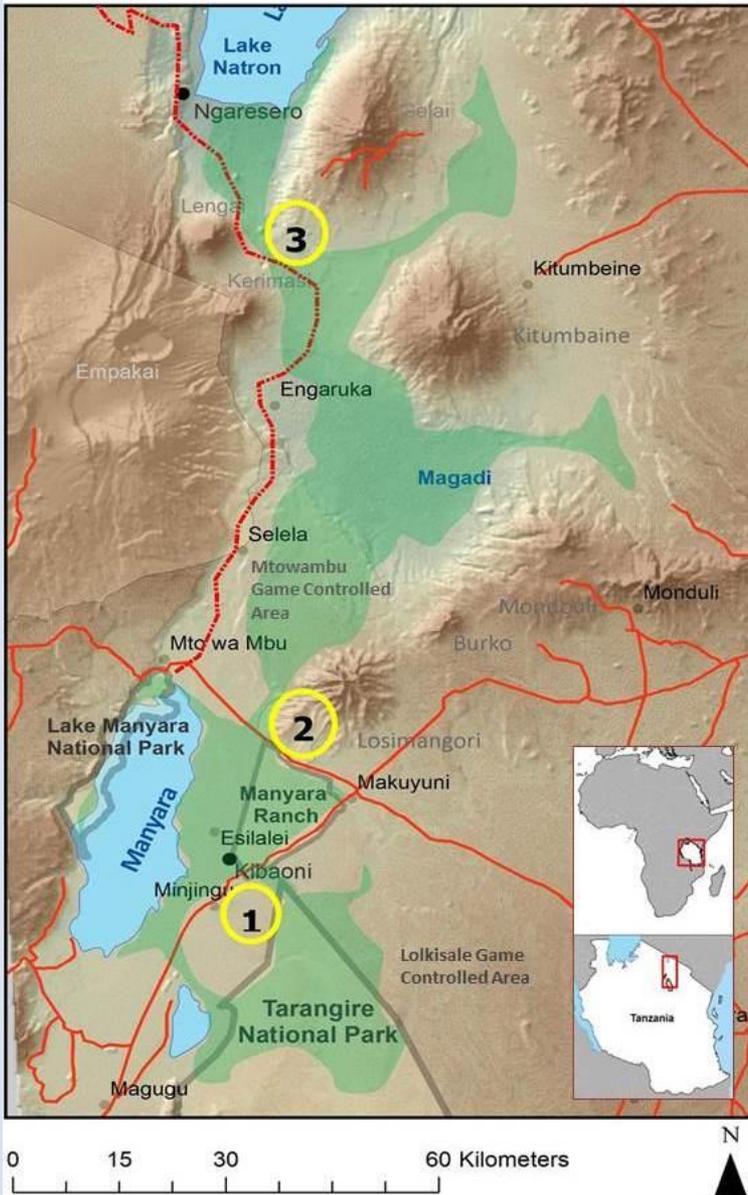
The Wild Nature Institute is not just collecting scientific data—we are putting our results into action to conserve savanna wildlife. Our Northern Plains Corridor Campaign is an integrated research, education, and advocacy initiative to catalyze community conservation of threatened wildlife in the Greater Tarangire Ecosystem of Tanzania.

Due to severe poaching (illegal hunting) and lack of land management (natural habitat being converted into agriculture), the wildebeest population in Greater Tarangire has declined by 88% in just the last 20 years. Eight migratory corridors for wildebeest, zebra, gazelle, eland, and oryx in the Ecosystem have been lost since 1964 due to habitat conversion and permanent settlements; only two linkages remain and neither are protected. A timely intervention over the next few years will make a huge difference in saving Tarangire's genetically unique population of wildebeest and other savanna wildlife, and will allow continued access to forage and water for traditional Masai pastoralists as they roam this landscape with their cattle.

Northern Plains Land-Use Planning

With our conservation-organization partners, we are implementing land-use planning in seven Masai villages in the migration linkage between Tarangire National Park and the Northern Plains near Lake Natron (see map). This community-based conservation will protect wildlife populations and pastoralist culture, and create a grassroots ecotourism economy.

The aim of this campaign is to devolve control over tourism and wildlife protection to the local villagers, and the villagers in turn can earn direct monetary compensation from the ecotourism businesses. Otherwise the local people receive no economic benefit from the wildlife on their lands, so they have no incentive to protect them. We are helping the Masai people, whose traditional livelihoods are threatened by the same external forces that are causing the disappearance of the great wildlife herds, to benefit economically by protecting their grazing lands from outside poachers and unscrupulous land-grabs.



Migratory linkage between Tarangire National Park and the Northern Plains. Circled numbers are pinch-points.

Northern Plains Land-Use Planning

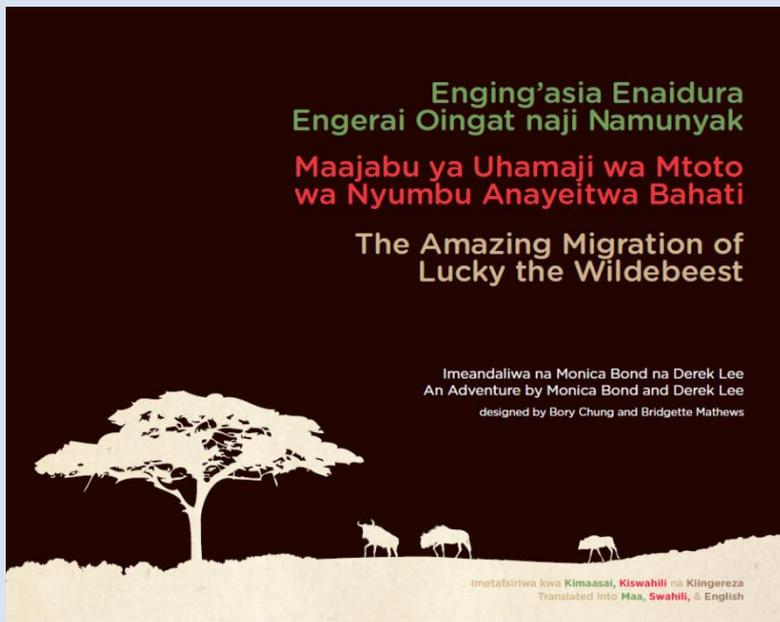
In December 2013 we organized a meeting with leaders from the seven villages to begin the process of creating and implementing land-use plans within the Northern Plains migratory linkage. Our primary goal is to provide scientific data augmented with traditional ecological knowledge to enable effective and comprehensive planning that protects migratory and resident wildlife resources (for example, wildebeest and giraffe) and allows traditional Masai pastoralists to continue moving freely with their cattle across the landscape.



Environmental Education

As part of our Northern Plains Campaign, in December 2013 we published a trilingual children's book educating young and old about migration, wildlife, and the ecological and economic benefits of conservation in the Greater Tarangire Ecosystem. The books are being distributed in rural schools and villages in the area.

By presenting an interesting story simultaneously in Masai, Swahili, and English, *The Amazing Migration of Lucky the Wildebeest* promotes literacy and instills conservation values in a generation of Masai people to provide greater understanding of the linkages between ecology, economy, and culture. All writing, translation and design were done *pro bono* – thanks to all who helped!



In March 2013, we gave a presentation to 500 Tanzanian girls at St. Ann's Secondary School in rural Mang'ola. We spoke about giraffes and other hoofed mammals. We were the first foreigners to ever give a guest lecture at this school!



We also presented results from our giraffe research at the 9th biennial conference of the Tanzanian Wildlife Research Institute (TAWIRI) in December 2013.

Our Donors, Supporters, and Partners

Sacramento Zoological Society

Rufford Foundation Environment Now

Columbus Zoo USAID

Dave & Pat Gibbons

Dartmouth College

African Wildlife Foundation

Asilia Africa

American Association of Zoo Keepers

Burners Without Borders

Center for Biological Diversity

Conservation Congress

EarthSticker LLC

ESRI, Inc.

Explorer's Club

Fund for Wild Nature

Giraffe Conservation Foundation

Google Grants

John Muir Project

Inyua e MAA

Manyara Ranch Conservancy

Norcross Wildlife Foundation

PAMS Foundation

The Institute for Bird Populations

Tanzania National Parks

Tanzania Wildlife Research Inst.

Tarangire Lion Project

Wild Lens, Inc.

Thanks also to all the private donors who supported our work!

Statement of Activities 2013

INCOME

Grants	\$26,387
Individual Donations	<u>\$13,594</u>
Total Income	\$39,981

EXPENSES

Field Research	\$20,788
Travel (to Tanzania)	\$4,348
Meetings	\$1,995
Services	\$3,521
Office and Mailing	\$2,060
Conferences	\$75
Contract Fees	<u>\$9,500</u>
Total Expenses	\$42,287

Starting Balance (carryover from 2012)	\$19,193
Income - Expenses	-\$2,304
Ending Balance	\$16,889



Officers

Derek Lee, Board President

Monica Bond, Secretary-
Treasurer

Board of Directors

Carmen Mauk

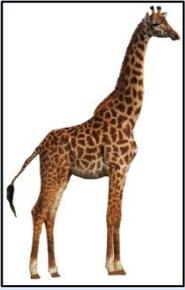
Dr. Rodney Siegel

Dr. Shaye Wolf

The Wild Nature Institute is a New Hampshire Non-profit Corporation.

The Fund for Wild Nature, a 501(c)3 corporation, acts as fiscal sponsor for Wild Nature Institute.

To learn more about the
Wild Nature Institute, visit
us online at
WildNatureInstitute.org



WILD NATURE INSTITUTE

PO Box 165, Hanover NH 03755

www.wildnatureinstitute.org