

## Message from the President



Dear Friends,

2018 was a banner year for CLAWS Conservancy across our various field projects! In Botswana we worked with colleagues at the University of Siegen to fully automate our lion alert system. We have fit an additional 5 lions with GPS-Satellite tracking collars to monitor each lion social group and provide warnings when they venture too close to the vil-

lage. We also held our second Herder Training Course in Eretsha Village with the African Centre for Holistic Management. At the conclusion of the course, many of the participants along with other villagers pledged to bring their herds together to reduce the devastating impacts of overgrazing and protect their livestock from predators. Our regional collaborators in the tourism sector have expressed interest in purchasing meat from these communities directly if wildlife-friendly practices are implemented potentially making the program regionally sustainable over the long-term.

We've collected the first scent marks from captive wolves at the Wolf Conservation Center in South Salem, NY and started experimenting with urine collection stations for males. These scent marks will be shipped to Montana to see how wild wolves react to the new scent in their territory. We are collaborating with Montana State Fish and Game and Swan Valley Connections and ranchers for our field test.

The US Fish and Wildlife Service asked for expert comment on the status of leopards to determine whether they require Endangered Species protections. We contacted leopard experts range-wide to provide the most up to date information on leopard population status, threats and human impacts on the species. We hope the new information will guide a cautious policy for intensive monitoring and adaptive management if trophy hunting is continued in the Southern African region.

Lastly, as part of our commitment to working with local experts, we have fully transitioned to a local staff in Botswana. Dr. Edwin Mudonga, an expert on rangeland ecology and climate change will develop our herding program with our partner communities. Dr. Keiokantse Sianga, an expert in animal tracking and computer mapping will now head our lion monitoring and alert program. Dr. Florian Weise, our incredible field coordinator will assist as a scientific advisor on the program. Our project assistant Jenna Brendler will take on the Scent of a Wolf program on Montana ranchlands.

We are also excited to receive support from Wildlife Conservation Network's Lion Recovery Fund, Sacramento Zoo and Wild Cat Education and Conservation Fund. Also, our donors have stepped up this year and provided tremendous support for our work in the field. We are excited to announce a campaign to Adopt-A-Lion to follow the stories of our collared cats in Botswana. It's a fun way to stay involved with our work in the field!

Help support our effort in the field and Stay Sharp!

Andrew Stein, PhD,  
Founder and President of CLAWS Conservancy



*“As part of our commitment to working with local experts, we have fully transitioned to a local staff in Botswana.”*

*Andrew Stein,  
President, CLAWS*



Captive Wolf at the Wolf Conservation Center. Photo credit: Rebecca Bose

## In This Issue

- [Message from the President](#)
- [Lion Alert System](#)
- [Herding Program](#)
- [Scent of a Wolf](#)
- [Are Leopards Endangered?](#)
- [Adopt-A-Lion](#)
- [Meet Our New Team Members](#)
- [Support Us](#)

# Saving Lions with Technology and Tradition

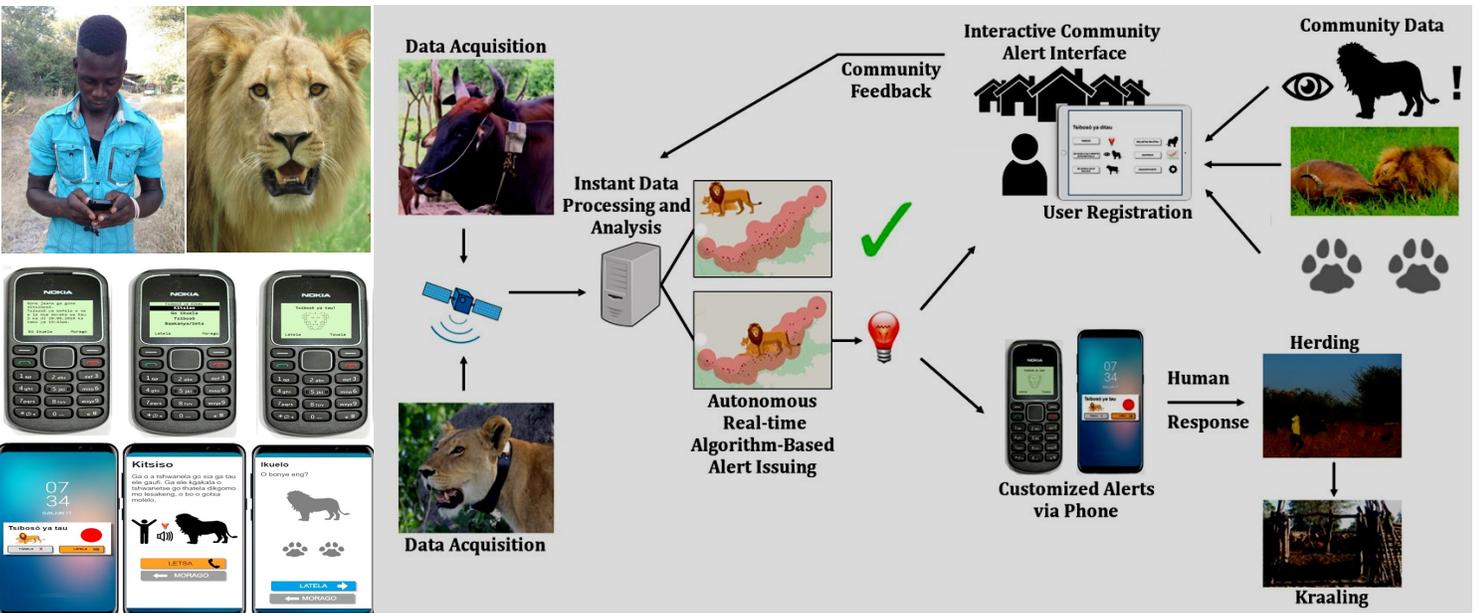
## Technology– Bringing Coexistence into the Future

Lions and communities have tenuously lived together for millennia. By monitoring tracks, listening for roars in the night, many people adapted their movements to avoid confrontation with the cats. As pastoralists move into the villages and seek jobs, the livestock have wandered without protection. When conflicts invariably occur the livestock owners exact revenge by killing lions and other predators, but what if this could be avoided. If people knew roughly where the lions were, they could redirect their livestock or keep them in a safe enclosure at night to reduce the conflict in the first place- saving the lives of livestock and lions alike. Satellite tracking collars have been developed with a new feature to help with this process a “geofence”. A geofence is a programmed line of coordinates that gets triggered when the collared animal crosses sending a special warning message. We have been working with geofences for several years now and provided 1,017 warnings to villagers via text message. Those that take heed have reduced conflict by 50%!

This system is labor intensive for us. We receive the warning message, check the location on Google Earth, determine the affected village and send text messages to the village leadership hoping they will pass on the alert to their neighbors. Now we are working with colleagues from the University of Siegen who specialize in Socio-Informatics (systems for dispersing information to groups of people). They came to Eretsha Village to conduct workshops to learn what types of technology people use and how they use it in order to deliver the most effective alerts. For example, if you are illiterate we will send a voice message or picture of a lion. If the person doesn't speak English we will send the message in Setswana or a local dialect, this will increase the chances of villagers acting on the message to protect their livestock.

Further, the University of Siegen team is designing an adaptable, cloud-based algorithm that integrates real-time lion movements, cattle distribution and seasonal changes in water availability– the drivers of conflict hotspots– to send alert messages to affected individuals automatically! No more checking Google Earth and hoping that neighbors warn each other. The whole system is streamlined and seasonally adapted.

Now the only problem is coverage. We need to collar at least one lion in each social group to ensure that villagers receive messages when lions are nearby. We believe that there are at least 50 lions in our study area in 13 social groups. In December our field team deployed 6 collars on 5 new study lions bringing our total up to 9 collared lions including 4 males and 5 females. We have an additional 3 collars that we plan to deploy early in 2019. We hope this system will act as template for alert systems worldwide– whether wolves on Montana ranchlands, Tigers near villages or other applications.



Clockwise: Villager receiving lion text alert, Young Male Lion, Graphic of Cloud-Based Algorithm (Weise et al. in press), Example of alert messages (from Weise et al. in press)

# Saving Lions with Technology and Tradition

## Tradition– Returning to Cultural Practices for Environmental Health and Lion Conservation

In July livestock owners from Eretsha village came together to share their experiences and learn about ways to improve their practices. Our colleagues from the African Centre for Holistic Management facilitated a week long course that dove into the ecology of grasslands and how well managed livestock can help the recover the landscape from overgrazing through holistic practices. Many of these practices are ingrained in thousands of years of pastoralist culture that have been lost in recent generations. Pastoralism has given way to village-centered life and with it the schooling of traditional herdboys. Herding is considered an unskilled job for children, not for adult men. Many of the elder participants shared their experience as young boys walking with their livestock, monitoring the healthy grass and keeping predators away. By reintroducing traditional herding practices the days of tall, nutrient-rich grasses and flowing streams can return! We discussed how to read the environment to assess the health of the landscape. Today, however, our participants walked the veld giving low scores to many of the overgrazed paddocks and designed a grazing regime that could not only reduce the impact of the livestock but RESTORE the landscape! First, the small individual herds are wandering the landscape with little direction. They feed on grasses close-by until the ground is bare. Overtime this creates desertification and the land does not retain water and grasses don't grow.

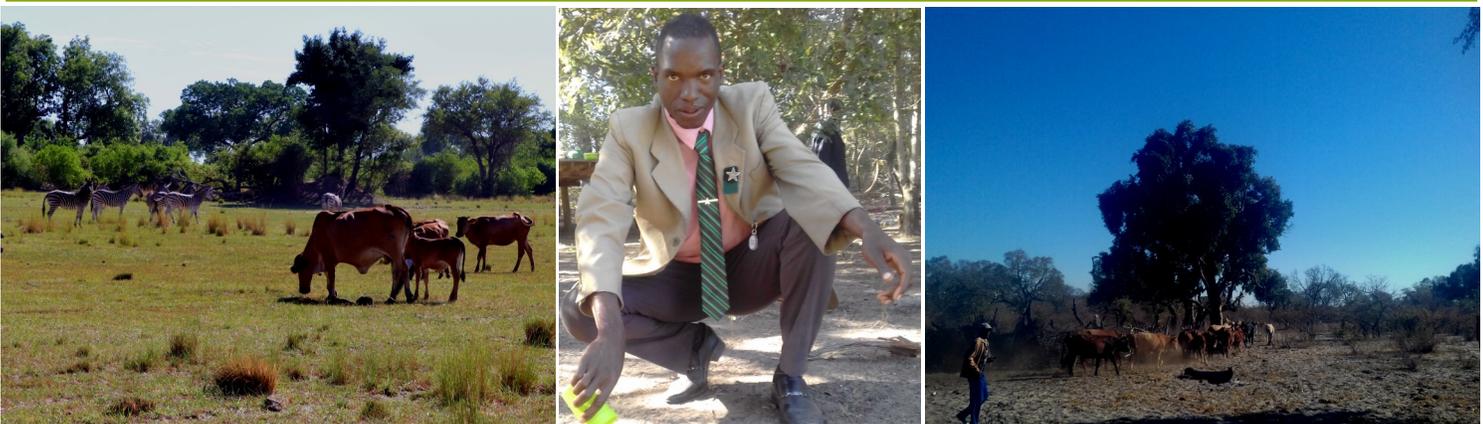


Eretsha Resident with his cattle

We proposed bringing the herds together with a team of herders that could keep the livestock moving to reduce overgrazing, break up the soil for water retention and leaving their dung for fertilizer. The younger participants rallied around the idea and with the blessing of the community, we will organize the first communal group herd in Botswana incorporating 75% of the livestock in Eretsha Village. We will continue training and supporting a team of 6 herders. Dr. Edwin Mudongo, our newest field coordinator and rangeland expert, will mentor the herders, develop grazing regimes and monitor our progress over time.

With the herders in place and livestock managed to reduce environmental damage and conflict with predators, we have begun develop a model for long-term sustainability. To date, villagers in our region could not sell their livestock at market value because of the possibility of disease transmission between wildlife and cattle. Hoof and Mouth and Bovine Tuberculosis were the biggest threats. However, recently developed techniques in field based disease testing and treatment will allow villagers to increase their profits. With our regional partners in the tourism sector across the Okavango Delta, we are developing plans to sell this grass-fed, pasture-raised, wildlife-friendly meat to area lodges at a premium which would support regional herders and encourage restorative practices across the landscape.

This could change everything!



Left to Right: Overgrazed patch with cattle in poor condition and zebra still in good condition, Participant in the water exercise, Participants practicing low stress cattle handling

## Scent of a Wolf: First Scent Station!



In the last newsletter we discussed the complexities of scent marking and scent collection. Scent marks are critical for our study in Montana where we plan to deploy these scents as a deterrent to keep wolves out of high conflict areas. In December, we installed the first scent collection station at the [Wolf Conservation Center \(WCC\)](#) in South Salem, NY. Since captive wolves tend to mark new objects around their enclosure, we hung a 3-square-foot metal sheet with a slanted bottom on the exterior fence. When curious male wolves mark the sheet metal, the urine will run down to the bottom and into a collection jar at the base of the slant. These samples will then be labeled and frozen before they are shipped to Montana

for deployment early next year. In addition, we have installed 3 motion-sensor cameras to record how the wolves interact with the sheet metal. We want to know who is marking, how often and when. As for the females, we are still considering a variety of collection techniques that won't become toys that the wolves either overturn or destroy. Wolves are very clever and often test, prod and bite new things in their enclosure. Luckily for us, we can collect yellow snow during the winter months while we design collection methods.

In the meantime, we have our first batch of samples that were taken by WCC staff during sperm collection activities earlier in the year!

Thank you [WCC](#) and [Landmark College](#) for supporting this pilot study.



## Leopards Without Borders: Are Leopards Endangered?

Of all the big cats, the Leopard is the least studied. With Tiger populations in peril and Lion populations shrinking across Africa, the Leopard is often considered too adaptable and secretive to fall prey to the same pressures of their cousins. Often Leopards do persist in suburban and urban regions where smaller predators can't. In recent years, Dr. Andrew Stein has been working with colleagues across Leopard range to assess their [status](#) and the results are alarming. Most Leopard sub-species across Asia are Endangered despite the best efforts of local researchers. Amur Leopard populations in the Russian Far-East are strengthening as they come back from an estimated 45 individuals. Javan Leopard populations are stabilizing despite persisting on the most developed island on Earth. Still estimates remain around 250 individuals across a highly fragmented landscape. The North China Leopard has seen the most dramatic habitat loss where it is currently found in a few protected regions but likely absent from the rest of the landscape. In southeast Asia, deforestation has ravaged the wild landscape and with it the best Leopard habitat. The remaining forests have Leopards but numbers are reduced from just decades ago. Sri Lanka has small Leopard populations in protected areas such as Yala National Park where they are seen frequently, however, the size of the island and degree of fragmentation threaten the remaining populations. With intensive efforts India and South West Asia (Caucasus, Iran) have seen positive results in some areas and challenges in others. Leopards in the Middle East are restricted to remote mountain ranges in Yemen, Oman and possibly Israel. With the exception of India, these sub-species qualify for Endangered or Critically Endangered status.



That leaves sub-Saharan Africa, in many ways considered the last stronghold for Leopards as they were considered widespread throughout. As we began to dig, colleagues working in West, Central and East Africa were reporting precipitous drops in Leopard populations due to habitat fragmentation, loss of prey base from bushmeat hunting, illegal harvesting for the skin trade and retaliatory killing from livestock losses. Each of these regions, with detailed analyses, could argue for Endangered status. That leaves Southern Africa which has also been impacted by these pressures but has weathered them better than most. Individual countries have seen worrying trends due to prey base loss from bushmeat hunting, poorly regulated trophy hunting, and range loss outside of protected areas. Populations are generally decreasing, but they remain Vulnerable.

US Fish and Wildlife Service, under the Department of the Interior, is debating whether to list Leopards as an [Endangered Species](#) to regulate imports from trophy hunting. We provided expert comment synthesizing current knowledge of the species and addressing the key factors for consideration. If skins from Leopard hunts are to be imported into the US, we recommend that the exporting countries employ an adaptive system to determine the impacts of hunting on the populations beyond superficial analyses. If they can not provide such information then we suggest that imports should cease. Leopards are at a critical point even in southern Africa. If currently trends continue, Leopards will be the next Endangered big cat—unthinkable just a few years ago.

## We need your help! Your support keeps us going.

CLAWS Conservancy is a registered 501(c)(3) non-profit organization. Our programs are dependent upon support from grants and donors.

Our work is our passion, our expertise, and our calling. Your funding makes all of our efforts possible. We thank you for choosing our conservancy to support, and congratulate you for doing your part for wildlife conservation!

Please follow our programs and help support our work at:

**[CLICK HERE to DONATE](#)**

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## Team News



Dr. Edwin Mudongo (pictured right) is the new research coordinator for Pride in Our Prides. He recently finished his PhD on Rangeland Ecology and Climate Change at the University of Cologne, Germany. He has experience working with communities as part of his work with the Department of Wildlife and National Parks. He will head up the Herding Program.

Dr. Keiokantse Sianga (pictured left) is heading our Lion Program for Pride in Our Prides. He studied Buffalo and Zebra ecology at for his PhD at the University of Botswana. A native of Eretsha Village, he is keenly aware of the challenges within our study area and speaks the local dialects. He is also a specialist in computer mapping system which will

come in handy for integrating our Lion Alert System

Jenna Brendler graduated from Landmark College with an Associates in Life Sciences. She is currently a Bachelors Degree student at the University of Montana Missoula where she is studying Wildlife Ecology. She is working with several stakeholders north of Missoula to develop the field pilot study for Scent of a Wolf.



Dr. Florian Weise has moved on from running the field operations for



Pride in Our Prides in Botswana. Under Flo's leadership our program has grown tremendously leading to the automation of the Lion Alert System, the first couple Herder Training Courses ever in Botswana and laid the groundwork for the group herd in Eretsha which is the starting point for the Herding Program. Flo is an exceptional field biologist and brought together colleagues from a variety of disciplines to maximize our work in the field. He has also worked well with communities, government and supporters. He will be sorely missed in the field but will continue as a scientific advisor. Thank you Flo for your tremendous dedication and innovation for Pride in Our Prides!



## Adopt-A-Lion

Lions are individuals— some are shy, some are curious and some cause trouble. To stop poisoning, we have the villagers name the individual cats and learn about their habits. Now is your opportunity to learn more about our lions too! By symbolically adopting a lion you will receive a certificate, photo and regular updates about your lion. Your adoption pledge will directly support our lion conservation efforts in the field. We have 5 lions to choose from and 5 newly collared animals awaiting names from the community. Check in for the new lions soon!

Maleherehere

Wetu

Shishatiya

Gombo

Mayenga



## Thank you for your Support!

We run on funding from private donors and the following organizations:

[National Geographic's Big Cat Initiative](#), [Lion Recovery Fund](#), [Great Plains Foundation](#), [WWF Netherlands INNO](#), [Landmark College](#), [SPOTS Foundation](#), [Experiment.com](#), [Wild Cat Education and Conservation Fund](#), [Sacramento Zoo](#)

