



COMMUNITIES LIVING AMONG WILDLIFE SUSTAINABLY (CLAWS)

STRATEGIC PLAN

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In 2013, an urgent call was received from Northern Botswana. Desperate villagers were poisoning lions in retaliation for unsustainable livestock losses. Cattle are considered a primary source of financial and social wealth for subsistence farmers in communities within the Kavango-Zambezi Transfrontier Conservation Area. In addition to each poisoned lion pride, there were scores of dead vultures and other scavengers. By the end of the year approximately 50% of the local lion population and hundreds of vultures had perished, causing indiscriminate environmental devastation. Somebody had to help.

We responded in 2014 by setting up a small community-based lion conservation program. We approached with compassion for those people whose livelihoods were under threat and sought to provide innovative strategies to promote coexistence through Technology and Tradition.

Initially, we wanted to individualize the lions so that indiscriminate poisoning would be seen as ineffective. We fitted individual lions with satellite tracking collars and asked villagers to name them. We shared the stories of each lion in hopes of helping livestock farmers understand that not all lions are a threat. By naming lions and learning about them, we hoped

to create a connection that encouraged farmers to care about individual lions. Further, we developed a first-of-its-kind Lion Alert System that provided real-time warnings directly to farmers' cell phones when collared lions approached the village. Farmers use this information to gather their cattle, to put them in livestock enclosures at night and light small fires to deter lion attacks. We have also created a Response Team that follows up on incoming alerts to find the lions and use deterrents to encourage a retreat to safer areas.

We then adapted traditional herding practices for conflict mitigation and environmental restoration. First, we formed community committees who were

elected by the village to direct our planned grazing system and reverse damage from overgrazing. We hired herders and trained them as Ecorangers who monitor cattle health and administer treatments and vaccines to ensure herd health. The ecorangers maintain mobile, predator-proof enclosures that reduce predator conflict to almost zero. With minimal conflict, we require that participating farmers stop persecuting predators as part of their compliance with a Conservation Agreement. These agreements are an iterative process where stakeholders come together to set conservation and environmental sustainability goals agreed to and signed onto by participants. These Wildlife Friendly cattle are placed in mobile quarantines in the field to ensure they qualify for international market access, significantly reducing the cost to farmers and increasing the price by 40%.

While other cattle farming areas in the KAZA TFCA manage lion populations with fences, our approach is holistic and we are ready to scale-up across the broader landscape. We are developing partnerships with area lodges to sell the beef directly, thus creating a circular, local economy based on the best practices for stress free and healthy cattle, improved rangelands, predator friendly beef that help people prosper and wildlife thrive.

Since our inception, we have reduced lion poisoning to only three cases, with the most recent in 2019. Over 30,000 lion alerts have been distributed, contributing to a >50% reduction in conflict. The herding program has been adapted to promote improved cattle health. In 2022, we increased our Eretsha herd and expanded to Gunotosoga in June 2023. We are supporting expansion to Beetsha Village in the coming years. Lion conflict in communal herds is at <1% per year. In early October 2022, we estimated the lion populations to be 50 individuals. Later that month a series of lion killings occurred. Ten lions were killed between October and December, the largest number killed in nearly a decade from increased conflict. This increase amplifies the urgency of our work.

CLAWS has grown from a small project with one graduate student and two field assistants to a field-based organization with 32 essential staff. We expect our growth to continue in the coming years. We are working towards a future where livelihoods are protected, villagers have increased market access for their beef, rangeland health improving, local capacity is increased and wildlife can thrive.

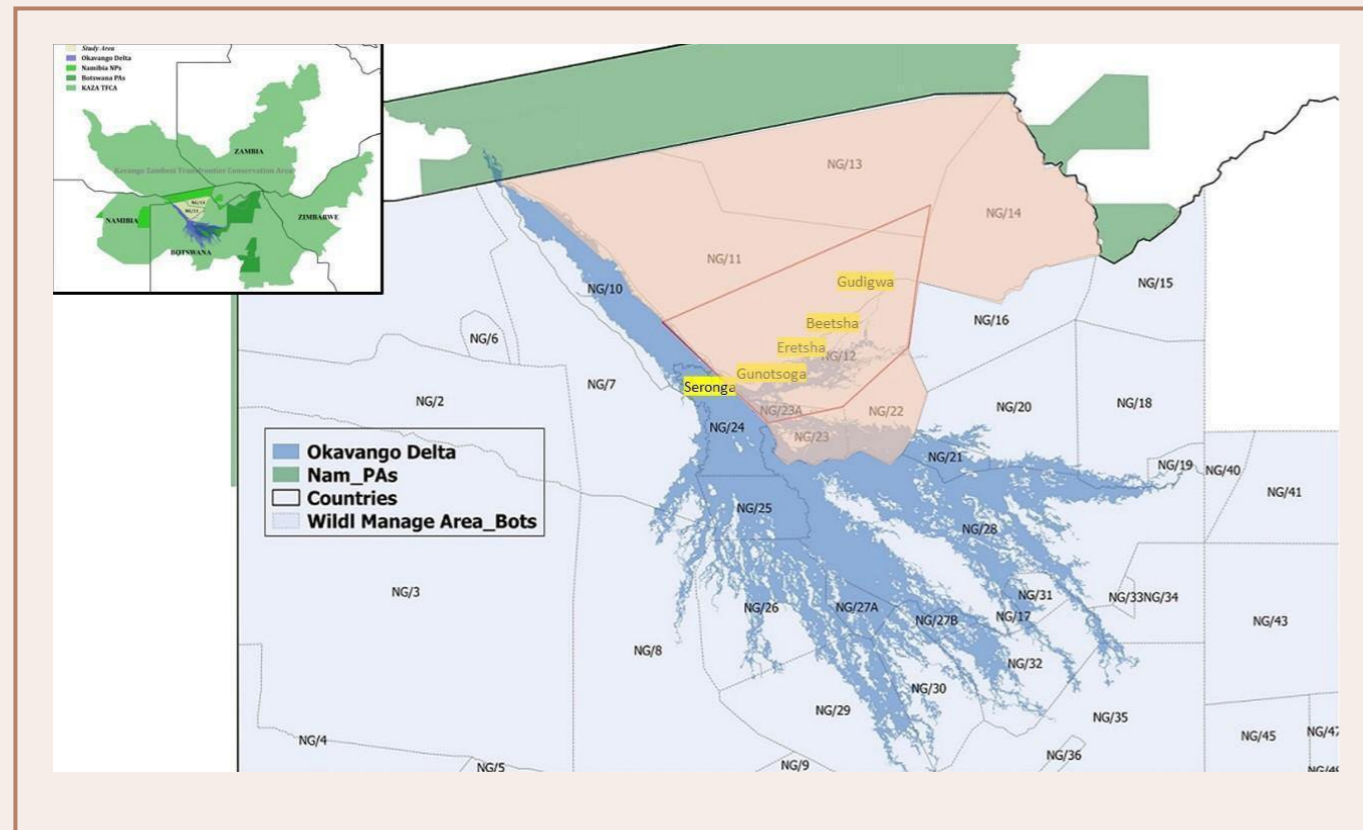


WHERE WE WORK

CLAWS operates along the northern edge of the Okavango Delta, Botswana, near center of the Kavango- Zambezi Transfrontier Conservation Area (KAZA-TFCA) which aims to link conservation of natural resources with strengthened community livelihoods. Our work focuses in Eretsha, Gunotsoga and Beetsha villages which house approximately 8,000 people. We manage 600-740 cattle under three mobile bomas in Eretsha and Gunotsoga. Each bomas has six community herders or “Ecorangers” whose responsibility is to use low-stress cattle herding techniques, monitor cattle health and administer basic veterinary assistance where necessary. Ecorangers assess available forage and water for improved grazing, maintain predator-proof mobile bomas and shift those bomas according to grazing plans drawn up by the Community Grazing Committee.

We are planning to expand our interventions with new herds in our current partner villages and additional herds in new villages over the next 5 years.

Our work focuses in Eretsha, Gunotsoga and Beetsha villages which house approximately 8,000 people



KEY ACHIEVEMENTS

- Since our inception, we have reduced lion poisoning to only three cases in eight years.**
- In 2019, the first communal herd was established in Eretsha, comprising approximately 790 animals.** This constituted the first and largest combined herd in Botswana. Currently, there are roughly 1,750 cattle in Eretsha Village (inside and outside of our program).
- We created a new herd in Gunotsoga Village with approximately 200 cattle in 2023** with plans to support another herd in Beetsha.
- Since the installation of the predator-proof bomas, there has been a significant reduction in lion conflict;** only three cows were recorded to have been taken by lions and cattle owners in the program have agreed not to kill lions. This shows that well-managed livestock herding can reduce human-wildlife conflicts to where people tolerate lions.
- Lion killing has dropped from over 25 lions in 2013 to fewer than three individuals per year** across the region since 2016 with the exception of 2022 where 10 individuals were killed as a result of conflict.
- We developed a first-of-its-kind Lion Alert System that has delivered over 30,000 automated alerts** in real time to more than 250 recipients. Villagers who heeded the warnings on their mobile phones have reduced their conflict by 50%.
- Being a herder in this part of Botswana was once the job of children and considered low status work for adults. **Today, trained herders are proud of their job:** "I am very happy to have this job, because everything I learn here, all the skills I have been equipped with during training and herding, I can apply to my own herd. Knowing about the principles of sophisticated grazing management makes me feel good and safe at the same time", Dimbindo Kuyakenge, CLAWS' trained herder.
- Very little is known about the actual lion population in Botswana, with estimated figures put at 3,500.** However, we have been doing lion research in Northern Okavango, covering an area of 13,250km². We study lion population dynamics to monitor population recovery. We now know the lion population in our study area grew from 20 to 40 between 2013 and 2023, and can contribute to estimating national figures. We now understand regional lion pride home ranges, and we use the knowledge to design our intervention programs.
- Livestock health significantly improved through our rangeland restoration and animal health support.** This led to an improvement in cattle productivity, such as calving rate and survival, with a reproductive rate of 32% in 2022, which meant more livestock wealth and potential income for our farmers. Our farmers have realized premium prices, double the previous P10/kg price. Cattle sales increased to 33 cattle per month, increasing income for participating households.
- In 2021 we worked with school children in our focus sites** to write their own stories about lions which were turned into children's books and published by Amazon.
- We are testing an approach for rangeland management and increasing benefits** from environmentally sound cattle farming that could become a model for wildlife-friendly livestock management (and beef) across KAZA.
- We have conducted two camera surveys for lions to generate population estimates.** These surveys will continue between the Okavango Delta and the border with Namibia.
- Our lion collars have helped us delineate routes of connectivity** between the Okavango and Namibia, helping us to expand the known range of lions in southern Africa for the IUCN Red List.
- We determined after 8 years of study that lion cub mortality is approximately 66%** due primarily to conflict with people that lead to infanticide. This staggering finding shows that lion populations will struggle with stability and improvement until conflict is significantly reduced.

Lion killing has dropped from over 25 lions in 2013 to fewer than three individuals per year



**SITUATIONAL
ANALYSIS**
UNDERSTANDING THE CONTEXT

Our Strengths



Contextual knowledge and strong community relationships. The largest proportion (90%) of the CLAWS team is local, most of whom are from our partner villages and have excellent knowledge of the social and physical landscape. This has been one of the key elements for us to understand the local context. Informants reported that:

“ ... they (CLAWS) speak the language ...”

“ ... CLAWS has become a community programme – for example, eco-rangers bring relatives to cover for them when they are taking emergency off days.”

Team work. At CLAWS, teamwork is one of our key strengths. Team members understand the importance of teamwork and close collaboration to achieve organizational and community goals.

Building collaboration. We are strong in building collaborations and partnerships with other complementary and like-minded organizations and institutions, and at maintaining the relationships.

Research competence. We are competent in lion research, which has been the basis of all our work in Human Carnivore Conflict (HCC) mitigation. Without that kind of competence it would not have been possible to design effective mitigation strategies.

Our Challenges

In spite of our phenomenal achievements in the landscape, we also face a number of challenges stifling our work. The main challenges include the following:

Resources mobilization. One key challenge has been attracting enough financial support for our internal organizational functioning. The current revenue portfolio is less stable because 80-85% of our funding is restricted. Our organizational infrastructure is limiting our ability to have the desired impact.

“... currently struggling securing sustainable long term funding beyond five years, e.g. to pay herders, livestock program material, narrow funding portfolio - two big private donors at the moment.”

Personnel and organizational structure. Our organization is too dependent on a few top level staff, making it vulnerable to collapse in the event that any of the key staff leaves. Critical positions have not been filled. There are also limited opportunities for junior staff to grow and get promoted to higher level positions. Furthermore, our staff salaries do not match the market, and often we lose staff who get better offers. In addition, there have been circumstances beyond CLAWS' control leading to increased staff turnover. In 2023 our organization struggled to recruit and retain management level staff. Our organization is too dependent on a few top level staff, making it vulnerable to collapse in the event any of the key staff leave.

“There is also a need for a few strategic positions, e.g. HR, marketing, fundraising, assistants, (then) a people skills person, Ecoranger manager.”



Community engagement. We have not been consistently communicating our progress to the local communities due to COVID-19 disruptions in our routine outreach. As a result there has been misinformation about our programs. We are actively scheduling monthly meetings with our partner villages to improve this.

“Continuous community engagement has been lacking ... it's been reactive rather than us (CLAWS) going in and engaging.”

Program design. CLAWS provides all the resources for the Communal Herding Program through external funds. Equipment is purchased by CLAWS and ecorangers are full time CLAWS employees. For long-term sustainability, we must shift responsibility to community leadership and regionally available funds - through Wildlife Friendly beef sales and other sources.

Opportunities

The following opportunities exist for CLAWS:

Enterprise development is low in Northwestern Botswana. While at the moment CLAWS does not have capacity to develop enterprises, supporting community tourism and local entrepreneurship can be a game changer for communities. We have supported several entrepreneurship training efforts for the farmers and more can be done.

Local Botswana interns undertake research on our core areas, which informs our interventions. The internship programs are also a critical source for building the future cohort of conservationists.

Investing in relationship building central to our values and essential for conservation success. Further, it strengthens our operations within the broader geopolitical context. We believe we have the capacity to connect more with stakeholders thereby creating and enabling opportunities. “... national and local (traditional) politics can be unpredictable and personal”.



Collaboration with organizations that support areas in which we do not have the skills set, especially around markets and livelihoods. We are partnering with other NGOs - Pabalelo Trust and Ecoexist - to strengthen our enterprise development. We all work with the same communities, offer different skill-sets and pool funds. This will grow small businesses.

Restructuring and growing our local team.

There is an opportunity to grow our local team and have them determine the best solutions to our challenges instead of bringing in external help.

Threats

The economic environment in the country makes it difficult at times to procure critical inputs for our programs. For example, sometimes reliable GPS collars and firecrackers are not available on the market or difficult to import.

Malfunctioning collars are a consistent cause for concern. Collars may become damaged and batteries may run low, requiring re-collaring. When collars malfunction it impacts our lion-alert system, and our farmers will not get warnings on time, disrupting our mitigation attempts.

Politics at all levels have the potential to derail our work. Both modern and traditional leaders at different levels in Botswana are influential and can be unpredictable with their decisions which might negatively affect our goals. “... the political landscape is very unpredictable ...”.

The beef output market can take a long time to pay farmers. Farmers have associated the delay with CLAWS which strains the trust that we would have built. “Botswana Meat Commission does not pay people out on time and this frustrates villagers, which makes us (CLAWS) look bad ...” We are looking at establishing our own abattoir and developing partnerships with nearby tourism companies to buy our beef directly which would cut out the issues with the Botswana Meat Commission.

Bureaucratic government systems tend to delay our programs. Examples include veterinary

clearances, collaring permit processing, high staff turnover within government, and communication channels which are long and complex. In addition, it is difficult to acquire work permits for non-nationals, limiting our ability to recruit experienced staff.

Environmental challenges such as livestock disease outbreaks, flooding and droughts are threats to our operations. Flooding, for example, makes it difficult for us to access parts of the study area, which results in inefficiencies in data collection for our lion research program.

The government Human Carnivore Conflict (HCC) Compensation Scheme pays farmers for livestock lost due to lion predation.

However, the government has no capacity to do assessments for all cases. Some farmers take advantage by claiming losses from lion predation when other carnivores are to blame. This encourages farmers to be complacent, with the potential of derailing the herding culture programs.

Cattle Health is a constant challenge in wild environments. A recent outbreak of skin disease (dermatophilosis) has claimed the lives of hundreds of cattle outside of the program and dozens within it. We refocused our efforts to protect cattle, livelihoods and food security with our partners. While partnering with private veterinarians, government agencies and communities, we hope to reduce the spread and ensure healthy outcomes for all.



Vision

A world where people and wildlife thrive together, through innovation, indigenous and ecological knowledge

Our vision of a sustainable world embraces:

- 🐾 Communities whose safety and livelihoods are not threatened but enhanced.
- 🐾 A world where traditional practices are honored and strengthened by science to ensure that healthy ecosystems are sustained.
- 🐾 A world where wildlife populations are stable, healthy, and thriving.
- 🐾 Where holistic practices engender partnerships with stakeholders that open opportunities for long-term financial, social and ecological sustainability.
- 🐾 Where our partner communities are role models for human and wildlife coexistence across the world.

Mission

We partner with people to develop and implement creative solutions to promote human-wildlife coexistence, restore rangelands and conserve wildlife in northern Botswana.

This is done by partnering with communities and scientists to find sustainable and lasting resolutions to human-wildlife conflict, for the benefit of people, wildlife and society. We design

and implement solutions that help wildlife and local communities thrive together. Community based conservation is complex and requires integrated, holistic approaches. Local knowledge is incorporated with the latest science and the ecological needs of a sustainable system to develop lasting solutions to the most pressing issues in human-wildlife conflict. In doing so, we are entrepreneurial problem-solvers who adapt our approach to the local circumstances of people and the environment to ensure that both can thrive on the landscape together.

Our Values



Respect: Meaningful partnerships begin with respect for other perspectives. Researchers, conservationists, community members, wildlife and nature all play a role in healthy environments. We believe that lasting conservation outcomes can only arrive through respectful discourse and collaboration.

Compassion: Our lion work began from witnessing local communities in a place of desperation when it came to managing predators. Such fear and desperation are not forgotten and we work hard to help develop and deploy better, lasting solutions to human and predator conflict. It is acknowledged that living with wildlife is challenging and can be dangerous to lives and livelihoods. We put people and healthy communities at the core of our work.

Holism: The natural world, human communities and conservation techniques are inherently complex and interconnected. Instead of being inhibited by this web, it is honored and kept in mind in both what we do and how we do it. For people and wildlife to thrive, we must consider and incorporate challenges and benefits in a holistic way. Curious thinking, collaboration and the integration of diverse perspectives are incorporated in all that is done.

Listening: Our greatest opportunity is to listen deeply to others - both indigenous communities and innovators in the fields of science. We see ourselves as facilitators and problem-solvers, connecting the dots and the opportunities, and acting in service to local communities and wildlife. Available knowledge to develop, adapt and deploy approaches to each challenge is employed.

Ingenuity: We work with communities who are suffering through devastating conflicts with wildlife populations on the brink of extinction. Success is not achieved by treating just one of these issues - or by only addressing the symptoms of a problem - but rather by tackling the root cause, with ingenuity and heart. By incorporating the latest science and technology, indigenous knowledge, local skills, and an entrepreneurial spirit, we develop and deploy adaptive solutions to the greatest conservation challenges of our time.

Optimism: Overarching, is a belief in the power of all of us. We are working towards a world where people and wildlife not only coexist, but flourish. We believe that this is possible - with good science, existing knowledge, new ideas, lots of people, learning from failure and the unwavering belief in a better tomorrow.

Our Theory of Change

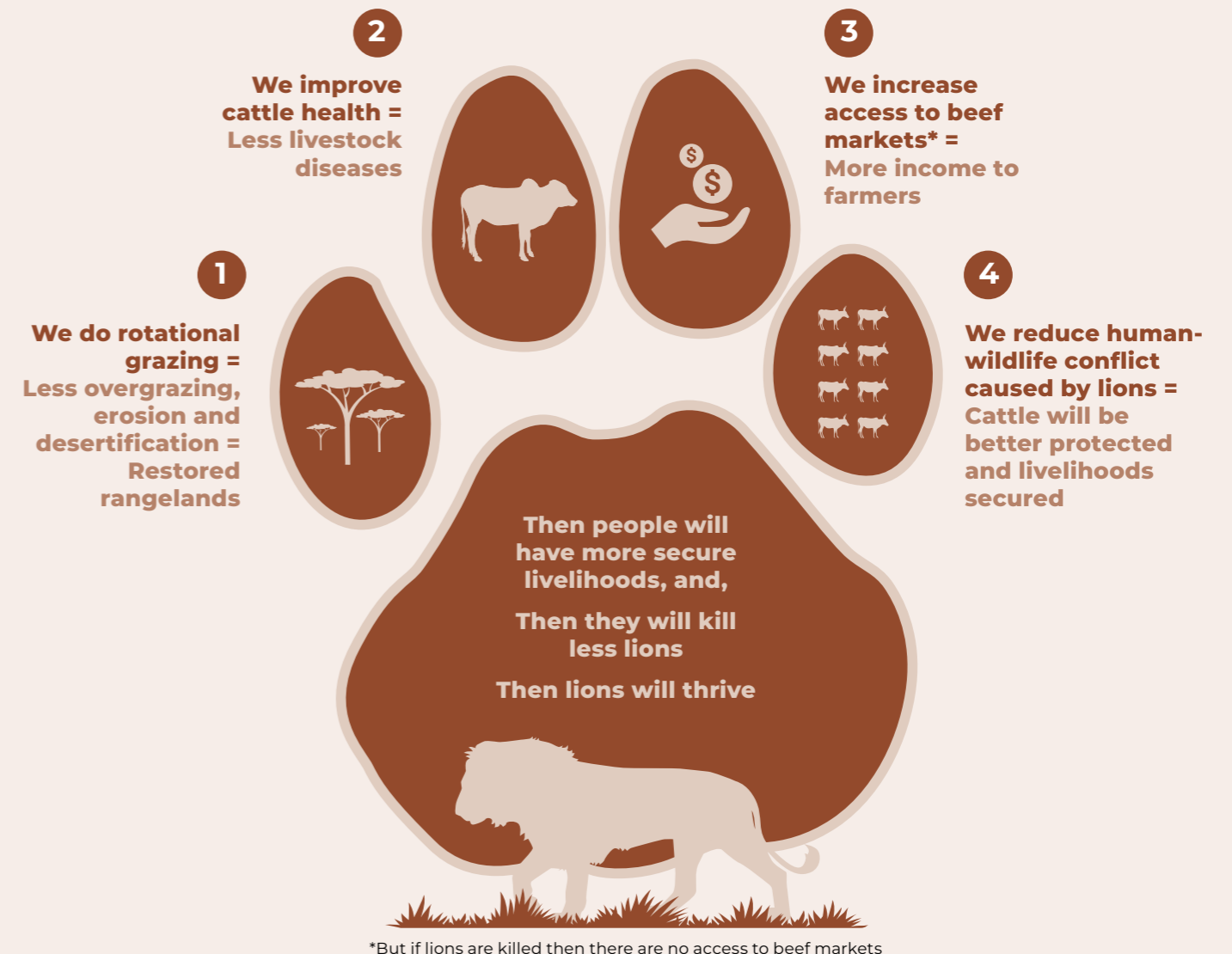
We believe that if we can engage communities in building pride in their local lion populations, it will help mitigate human-wildlife conflict. Through technological and scientific innovations, as well as improved herd health and management, communities will experience less HWC and improved livelihoods, retaliatory killing of lions will decrease, and lion populations will thrive.

Part of our strategy for reducing lion killing is that participants in our communal herding program will not receive the benefits if they kill lions. We believe that with all the incentives and livestock protections for reducing losses, there would be no reason to kill lions. Therefore, if we incorporate rotational grazing practices this will result in less overgrazing, erosion and desertification which in turn restores rangelands.

We also believe that if we improve cattle health, we will see less livestock disease. Furthermore, if we increase access to beef markets, we believe that farmers (who do not participate in the retaliatory killings of lions) will have more income.

Finally, if we reduce human-wildlife conflict caused by lions (i.e. alert system, kraaling and other innovative HWC mitigation measures), there will be fewer cattle losses from lion predation.

This ultimately means that people will have more secure livelihoods, and will kill fewer lions which results in lions thriving alongside people.



Overarching 5-year Measurable Goals

By 2029, our lion monitoring, herding, human wildlife, conflict management, and education strategies will lead to the following long-term impacts:

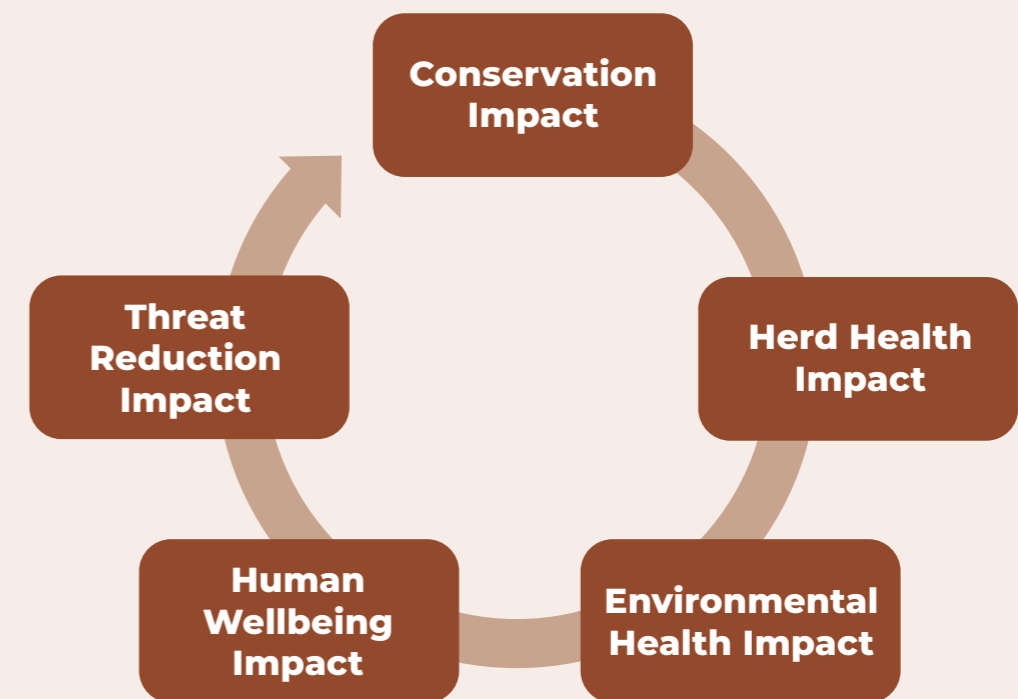
Type	Goal statement	Measurement of Success
Conservation impact	Lion populations in our landscapes remain stable or increase	Population viability/size/health
Human wellbeing impact	The number of long-term jobs in our partner villages will increase from 32 in 2023 to 50 in 2029	# of jobs
Environmental health impact	An improvement in the rangeland ecological health in our priority landscapes	Rangeland health index
Cattle/herd health impact	The production rate will increase from an average of 32% in 2021 to 73% in 2029 and an increase in average cattle sales per herd from 2% in 2023 to 15% in 2029	Calving percentage, number of cattle sales per annum and individual herd size (for cultural value)
	Cattle mortality from disease or environmental causes will be reduced to <1% by 2029.	# of cattle dead from disease or environmental causes



Target Communities & Landscapes

The northern edge of the Okavango Delta is a critical interface between people and wildlife. The Okavango is one of the jewels of African wilderness, yet conflict between communities and roaming wildlife has the potential to disrupt ecological processes that all life depends on. At the heart of this conflict is lion predation on unattended livestock that provokes devastating poison use, killing lions plus a variety of non-target species as collateral damage. Further, unattended livestock overgraze the area, resulting in desertification and erosion.

Through a series of workshops and training, one village, Eretsha, came forward to try a new approach using a communal herd system to begin intentional grazing plans for rangeland restoration and livestock conflict mitigation. Other nearby communities have been watching our progress with skepticism and anticipation. With four years of development now behind us, we have multiple communities interested in joining the program.



With limited resources and a commitment to responsible scaling, we have developed criteria that we believe ensures our success. As we expand, we plan to include the five major villages in rotational grazing systems to ensure rangeland health and safe habitats for people, livestock, lions and their prey within the Okavango region and the greater Kavango-Zambezi Transfrontier Conservation Area.

Our research permit covers approximately 13,250km² (map on page 6 - orange shaded area), with an effective operational study area of 2,500 km² (red polygon). Partner villages (highlighted in yellow)

contain 8,000 people from three different ethnic groups (Hambukushu, Bayei and Khwe). Due to accessibility, willingness to work with us and resources we started our programs with outreach to all five communities but have focused primarily on the central three villages of Gunotsoga, Eretsha and Beetsha. As we plan our growth, we have assessed the important factors that guide our scaling and five-year plan for achieving this.

Criteria	Gudigwa	Greater Seronga
Willing Owners	Low	Medium
Environmental problem	Medium	Medium
2 year minimum commitment from cattle owners	Unknown	Unknown
Willingness to sign Conservation Agreement	Unknown	Unknown
Proximity to our program	Low	Medium
Minimum of 150 cattle and maximum 500 per starter herd	Medium	High
Willingness to contribute (money/ in kind support)	Low	Unknown

Time frame

Community	2022	2023	2024	2025	2026	Beyond
Beetsha			*	*	X	
Gudigwa			*	X		
Greater Seronga						X

* Start new herds if funding is available. X Target for herd expansion. Expansion timeframe to neighbouring villages



PROGRAMS & STRATEGIES



Herding Program






Background Summary

Herding is the solution to the greatest environmental issues of the rangeland system. We began our Herding Program to mitigate livestock depredation from lions but quickly realized that if we were to address the broader environmental issues, herding would have to be at the center of our approach. We started by facilitating workshops with the African Centre for Holistic Management in Beetsha (2017), Eretsha (2018) and Gunotsoga (2019). In these training courses, we brought together 20 villagers who vary in ages from 20s to 80s, including both men and women. They discussed eco-literacy, water cycles, impacts of overgrazing, how rotational grazing can restore rangelands, low stress herding and data collection.

In 2019, Eretsha Village decided to try these principles with our guidance. The village formed a Community Committee of 10 elders who hired six herders from the village. Initially nearly 900 cattle were brought into the program. As we worked through logistical challenges including herder performance, purchasing equipment, impacts of drought, our program lost favor with many members of the community removing their cattle. At our lowest point, our herd had over 200 cattle missing.

We started rebuilding with the smaller herd of 140. Dr Erik Verreynne, our program veterinarian, became even more active in helping us monitor the cattle for disease and injuries. The herd started to increase. We gained more support from partners such as Herding 4 Health, our program received training, equipment and much needed funding to stabilize and build our work. Now we have over 450 cattle in Eretsha and plan to accept up to 500 more. Further, in 2023, we expanded to Ndorotsha (a sub-village of Gunotsoga) where a community committee was formed and 150 cattle brought in. Next, Beetsha Village hopes to join with 700 cattle as part of the Green Climate Fund. CLAWS will play an advisory role in Beetsha.

More broadly, the next steps are:

-  Get the communal herds certified as Wildlife Friendly.
-  Erect an Abattoir in the village.
-  Develop partnerships with nearby lodges to deliver high quality, free range, disease-free beef at market value plus a 10% premium.

In doing so, we will enhance livelihood security, build local capacity, increase market access, restore rangelands, sequester carbon in topsoil, reduce disease and carnivore conflict and stop the killing of lions.

Herding program SMART objectives to achieve organizational goals:

GOAL TYPE	SMART OBJECTIVE	MEASUREMENT OF SUCCESS
HERD HEALTH	The minimum body condition threshold increases from 2 in 2023 to >2.5 in 2029	Minimum body condition threshold
	The incidents of significant disease per year will decrease from an average of 50% in 2023 to <10% in 2029 per herd.	Incidents of significant disease
	An increase in calving success per herd from an average of ~32% in 2023 to 75% in 2029.	Calving percentage
	Cattle mortality in our priority landscapes decreases from 32 in 2023 to < 4% per herd by 2029	Cattle mortality/herd
HUMAN WELLBEING	The number of cattle sales will increase on average from 15% in 2023 to 30% in 2029.	# of cattle sales on average
	Expand the herding program from 3 herds in 2 villages to at least 4 herds in 2 more villages	# of herds and villages practicing herding and kraaling
ENVIRONMENTAL HEALTH	By 2025, set up systems for monitoring changes in rangelands from our rotational grazing intervention	Veld Condition Score
THREAT REDUCTION IMPACT	Maintain a policy of no lion mortalities and sign stewardship/ conservation agreements	# of lion mortalities and number of participants that sign conservation agreements



Lion Program

Background Summary

In 2013, approximately 50% of the known lion population was killed through shooting and poison in retaliation for livestock losses. Poison not only kills the target species - lions - but also many others, causing significant ecosystem disruption. People were using poison because they saw no alternatives and poison was easy, cheap, and hard to trace. Also, villagers felt that all lions were a problem. Individualizing the lions was our best chance for addressing the use of poison. We fitted five lions with GPS collars in 2015.

Their movements were charted for patterns and their prides were monitored. At this stage, we have collared 25 lions in 8 years. Since inception, we have seen a steady increase of the lion population to pre-poisoning levels.

Our biggest challenges have been study area inaccessibility during floods, malfunctioning collars, vehicles and covid-19 restrictions on tourism that reduced our ability to call on safari guides for updates.



Lion program SMART objectives to achieve organizational goals:

GOAL TYPE	SMART OBJECTIVE	MEASUREMENT OF SUCCESS
CONSERVATION IMPACT	By 2029, update and maintain a comprehensive lion population database for the Northern Okavango	Full database including whisker spot patterns for all lions within the study area
	By 2025 complete lion populations surveys in NG11,12,13	Three lion surveys completed with full analysis and population estimates Determination of whether there are resident lion prides in NG11, 13.
	Annually until 2029, document all causes of lion mortality	Comprehensive report on causes of lion mortality (by demographic category)
	Maintain working collars on at least one individual in each lion social group across areas of most intensive conflict	A full year with functioning collars for monitoring
CONSERVATION IMPACT	By 2027, map out the dispersal patterns of lions from the Okavango to neighboring regions to determine routes	Collaring and tracking of > 5 dispersing lions Comprehensive map of dispersal
	By 2024, Build a joint Earthranger account with collaborators in neighboring programs to monitor connectivity and dispersal trends.	Quarterly communication with neighboring programs to ensure comprehensive regional monitoring
CONSERVATION IMPACT	By 2029, lion population growth by 20% from 2023	Reduce lion killing by humans to less than 3% of the population each year
		Expand monitoring to all prides within the study area to collect detailed information about our study prides
		Share stories of lions to our partner communities, at least quarterly
THREAT REDUCTION IMPACT	Annually until 2029, maintain working collars on at least one individual in each lion social group across areas of most intensive conflict	Collect information on all lion social groups each week to ensure their safety and share information with communities

Conflict Mitigation Program

Background Summary

In 2013, the communities of the northern Okavango were fed up with lion conflicts. They decided to actively eradicate them, the perceived primary source of their livestock losses. Approximately 50% of the known lions in the region were poisoned and killed that single year.

We began our intervention based program in the following year with the primary goal of ending poison use. It started with conducting questionnaires in the five regional villages to assess the scope of the issue and local perceptions. By 2019, we were sending individual warnings to villagers when lions were detected within a large geofence polygon surrounding the villages. We would send warnings

via text to the closest village leaders who were then asked to warn others. Using this method, we determined that conflict was reduced by 50% for those who heeded the warnings and took action.

In 2019, we hosted workshops with villagers and implemented the first fully-automated Lion Alert System that delivered real-time messages directly to individuals when lions entered a 5km radius. Currently over 250 households are signed up to receive alerts according to their personal preferences (text vs. voice message, English or Setswana). Lastly, we built the first communal herd in Botswana as a conflict mitigation tool against lion predation as well as environmental degradation.

Conflict mitigation program SMART objectives to achieve organizational goals:

GOAL TYPE	SMART OBJECTIVE	MEASUREMENT OF SUCCESS
THREAT REDUCTION IMPACT	Reduce lion conflict by 5 cases per year	<5 cases reported per year
	Maintain current levels of conflict at 1% or less to lions in communally managed herds	<1% cattle losses to lions in communally managed herds
	Deploy and maintain tracking collars on at least 10 individual lions in high conflict areas through 2029	At least one working collar within every lion social group
	Expand the Lion Alert System to at least 50% of all households in all partner villages by 2029	Increase the number of participants from 250 to 400
	Sample responses of people who receive alerts and those who don't annually until 2029	# of livestock losses for people who receive alerts

Education Program

Background Summary

Education has many layers and objectives. It can be used to inform children about the behaviors of animals or train farmers in the best practices for mitigating wildlife conflict.

Starting in 2015, we trained a local team to build lion-proof livestock enclosures from locally sourced, sustainably harvested branches. In 2016 a series of herding workshops began with the African Centre for Holistic Management where 20 people in each village were trained in Holistic Rangeland Management and low stress livestock handling. We started in Beetsha

in 2017, Eretsha in 2018 and Gunotsoga in 2019. This led in 2019 to the formation of the first communal herd in Botswana. In 2020 we sent two villagers to the Herding Academy in South Africa who were then employed by the program.

We have partnered with Herding 4 Health to hold three to four training sessions with our herders per year in field practices, data collection, disease and injury management and enclosure building and maintenance. In 2021 we facilitated workshops on illegal wildlife trade in three partner villages.

Education program SMART objectives to achieve organizational goals:

GOAL TYPE	SMART OBJECTIVE	MEASUREMENT OF SUCCESS
THREAT REDUCTION IMPACT	By 2029, provide continuous feedback on conflict mitigation strategies to villagers experiencing livestock losses	Training at least 10 people per village
	BY 2029, 200 members of our target communities are aware of best practices for mitigating carnivore conflict.	One workshop per year in each village to share best mitigation practices, conduct trainings/ workshops for those in the alert program for best mitigation practices
	By 2029, 25 trained community members have started implementing best practices for carnivore conflict mitigation practices including kraaling and herding	
	By 2029, 400 villagers from partner villages receive warnings from Lion Alert System	Hold two workshops in each village to discuss the benefits and feedback from the Lion Alert System
ALL GOALS	By 2029, discuss, design and establish the operations for the community abattoir	Hold two workshops and deliver agreement on location and operation of the abattoir
	Annually train people from partner villages about the benefits of livestock herding in conflict mitigation and environmental restoration	At least one training per village per year
CONSERVATION IMPACT	By 2029, facilitate annual conservation programs in each school within our five partner villages	Create the enabling conditions for families to support lions and conflict mitigation practices (through young people).
	By 2025, discuss and receive feedback on Conservation Agreements	Hold two workshops and sign Conservation Agreements

Our partners

🐾 University of Siegen

Together with computer and social scientists from the University of Siegen, Germany, we have developed a first-of-its kind automated, customized Lion Alert System.

🐾 Herding 4 Health (Conservation International)

Conservation International has provided the funding and technical support through their Herding 4 Health Initiative. We adopted the H4H model in 2019. It was developed over many years to incentivize farmers to improve the herding of their livestock, which improves cattle health and rangelands and so unlocks the beef value chain.

🐾 Herding 4 Hope

Herding 4 Hope utilizes the Herding 4 Health model to create an investable environment for donors and investors with various return expectations. Good practice linked to compliance unlocks opportunities for communities and enterprise driven sustainability enables human wildlife coexistence for the long term. They believe in investment and not donation funding support and aim to build long term buy-in from the community.

🐾 Natural Selection (NS)

Natural Selection, a tourism company, has funded our Ndorotsha boma and supported its ecoranger salaries. NS is committed to environmental conservation and the need to protect Africa's important wildlife areas for the benefit of future generations. NS is equally committed to community outreach and implementing community outreach projects in villages in close proximity to our camps, which reflects our goal of improving the livelihoods of communities living alongside wildlife.

🐾 Jumbo Junction

Jumbo Junction was CLAWS' HQ for a number of years. We still have a strong relationship with the lodge owners. Often our visiting guests are accommodated at Jumbo Junction and the team gives us logistical support when needed.

🐾 Great Plains Conservation

Great Plains Foundation gave us initial funds to start herder training workshops that developed into our Communal Herding Program. GPF also hosts Kids Camps for communities in the region where we are invited to share our work with children. They have been supporters of community initiatives for many years.

🐾 Southern African Wildlife College (SAWC)

Through our partnership with the SAWC we have been able to train young people from the community to become specialized herders, whom we call ecorangers. They have done basic ecoranger training at site and more specialized Team Leader training in South Africa.

🐾 Afrivet

Afrivet trains our ecorangers in Primary Animal Health Care. This gives them the confidence to diagnose and treat common livestock diseases in our area. They will also alert the Department of Veterinary Services (DVS) if there is something more serious like Foot and Mouth Disease (FMD). Afrivet also supplies our veterinary products at costs.

🐾 Wilderness Safaris

We have an MoU with Wilderness Safaris. They support our lion program by offering lion monitoring support with lion trackers (previously rhino trackers) and available vehicles support. They are also committed to buy our Wildlife Friendly Beef at a premium.

🐾 Maliasili

We have an MoU with Maliasili. This NGO has helped support our expansion and organizational development to ensure we are clear on our vision and the direction we are taking as CLAWS.

🐾 University of Botswana

We have collaborated with colleagues at the University of Botswana's Okavango Research Institute over a number of years, covering a variety of topics relevant to our program including community engagement and environmental assessments of planned grazing systems.

🐾 Veterinary & Agriculture Consultants

Dr Erik Verreyne is our partner veterinarian. He has worked with our team from the beginning and is actively involved in the lion program and also provides technical support on our herding program.

🐾 Helicopter Horizons

Our partnership with Helicopter Horizons allows tourists the opportunity to experience first-hand what our herding program is all about. Visitors are flown in by helicopter and guided by our ecorangers through the cattle boma to learn more about the work CLAWS does.

🐾 Department of Wildlife & National Parks (DWNP)

We work closely with DWNP. Not only do they approve our research permits, we also work together by sharing conflict reports and supporting field work.

🐾 Department of Veterinary Services (DVS)

DVS is an important partner in our herding program. We support them during vaccination campaigns & encourage farmers in our program to register on the Botswana Animal Identification and Tracing System (BAITS). DVS supports us in quarantining our cattle and getting them to market.

🐾 University of Oxford's Wild Conservation Research Unit (Wild CRU)

Wild CRU established the Trans Kalahari Predator Programme to assess lion population trends and dispersal in the northern Kalahari region of Botswana into western Zimbabwe. Their work includes extensive camera surveys, establishing wildlife corridors and human-lion conflict mitigation. Wild CRU assists us with designing, implementing and analyzing lion camera surveys.

🐾 Ecoexist

Ecoexist takes a holistic approach to finding practical, affordable, effective and lasting ways for people and elephants to coexist. We have partnered with Ecoexist to develop local enterprises and support food security.

🐾 Pabalelo Trust

Pabalelo Trust supports sustainable, environmentally conscious rural livelihoods in the Okavango Panhandle region. We have partnered with Pabalelo Trust to train our farmers in conservation agriculture and enterprise development.

🐾 World Wildlife Fund for Nature (WWF)

- With a regional approach to conservation, WWF has supported regional lion surveys. In addition, WWF has facilitated collaborations with regional colleagues to understand lion population connectivity.

🐾 Lion Recovery Fund - Lion Recovery Fund (LRF)

is the leader of lion conservation efforts across Africa. Their funding and network of lion research programs are a resource for our contributions to species-wide conservation.

🐾 Tusk Trust - Tusk Trust has supported our lion conservation efforts, in particular for our Lion Alert System. Tusk supports conservation efforts across the globe and facilitates the development of partnerships across programs for idea-sharing and broader conservation outcomes.



RESOURCES

Organization structure and staffing needs

CLAWS has grown from a small project with one graduate student and two field assistants to a field-based organization with 32 essential staff. Building a strong team that lives out our organizational culture is a priority for us in the next five years. We are creating an organogram to map out our current staffing, identify gaps in our staffing needs and plan the expansion of the team over the next three years. Position descriptions with the current employees or vacant positions for planning purposes have been drafted.

It is challenging to secure the funds to offer market-based salaries that are necessary to retain

experienced and skilled staff and we plan to revise our compensation scales to reduce this imbalance. A further challenge is that despite offering our core team various facilities, we are remotely-based and skilled staff may need to live far from their families.

We have established extensive collaborations with partner institutions to help us implement our programs. Oxford University's Wild CRU provides staffing for lion camera surveys and opportunities for graduate students. We are collaborating with graduate students from Yale University and University of Botswana to learn about how planned grazing influences soil health, rangelands and wildlife.



Resource needs & budget

The CLAWS program is comprehensive and holistic in approach. In order to acquire the resources necessary to build and sustain our vision, we have developed a five-year budget for our specific projects in Botswana. Much of the budget has been raised through multi-year partnerships with Conservation International's Herding 4 Health and WWF. In addition to programmatic funding, we aim to raise more flexible or unrestricted funding that would allow CLAWS to be more agile and responsive.

Conservation International and Peace Parks Foundation have committed \$150 million to support sustainable grazing and other climate resilience initiatives. We hope that some of that funding will be allocated to local organizations that are already well-established and have a strong track record in delivering results.



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