

Social Impacts of Human-Wildlife Conflict Resolution: Lessons from Living Walls & the PHE Approach

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Background and Challenge Addressed

Although there are many effective interventions for resolving human-wildlife conflict, very rarely do we attempt to measure the impacts of human-wildlife conflict resolution on human health, economic factors, and gender dynamics. As an intervention that is particularly successful for resolving human-wildlife conflicts (99.9% reduction in wildlife attacks on livestock), Tanzania People & Wildlife's Living Walls provide us with an ideal and unique opportunity to assess such social impacts. Situated within the context of challenges faced by the broader region, and the various efforts of Northern Tanzanian Rangeland Initiative (NTRI) organizations, our goal was to use the Living Walls intervention as a case study of how we may begin to integrate our understanding of environmental and social factors in northern Tanzania and other rangeland ecosystems.

Tanzania People and Wildlife (TPW) is an organization with a mission to create win-win solutions for people and wildlife in Tanzania. Based out of Noloholo on the edge of Tarangire National Park, TPW works with a team of more than 100 Tanzanian program officers, educators, scientists, and community members in a multi-faceted approach to empower Tanzanians economically and socially while achieving lasting ecological and financial benefits.

TPW's Living Walls program may be one of the most successful human-carnivore conflict interventions being implemented in sub-Saharan Africa. The Living Walls are environmentally-friendly livestock corrals that are co-created with community members. There are currently over 750 Living Walls impacting more than 12,500 people every day, and approximately 150 lions protected from retaliatory killings annually due to the Living Walls. Although it is clear that the Living Walls program is effectively preventing livestock from being attacked, we saw a need to more fully understand how the Living Walls and other community based interventions are impacting social factors in the region, such as education, gender roles, and income generation, as well as a need for understanding whether there have been resulting changes in local tolerance of carnivores.

Main Objective

I, along with my colleague, Steven Temu from the University of Dar es Salaam, worked with TPW staff and PHE staff to attempt to determine the social impacts of the Living Walls as well as changing tolerance towards carnivores resulting from the Living Walls, and to contextualize these factors within social and ecological patterns across the larger landscape.

Methods

Methods Overview

- Create and implement a boma-level survey and appropriate sampling design to assess the social impacts of the Living Walls intervention
 - Determine and revise appropriate questions and wording
 - Translate survey into Kiswahili and Kimaasai
 - Train local field assistants to aid in survey implementation
 - Interview one male and one female head-of-boma at both Living Wall and Non-Living Wall bomas, in order to accurately understand gender differences
 - 134 interviewees with Living Walls (67 bomas), 101 interviewees without Living Walls (52 bomas). Randomly sampled Living Wall bomas, with snowball paired sampling to obtain non-Living Wall bomas.
- Interview key informants, such as PHE ‘champions,’ district officials, wildlife experts, EENT partners, and community leaders to gain a wider understanding of the social impacts of community-based conservation and livelihoods interventions in the region
 - Interviewees:
 - Chira Schouten, *NTRI Coordinator*
 - Alphonse Mallya, *TNC Conservation Coordinator*
 - Kennedy, *Honeyguide Human-wildlife Conflict Coordinator*
 - Sylvanus Tairo, *Simanjiro District Education Officer*
 - John Palangyo, *Simanjiro District Natural Resources Officer*
 - Francis Umbu, *Simanjiro District Health Officer*
 - Meslurie Melembuki, *Randilen WMA Manager*
 - Dennis Mgiye, *Monduli District Social Welfare Officer*
 - Fortunata Msoffe, *TANAPA Head of GIS*
 - Edward Lekaita, *Lawyer at UCRT*
 - Angela Joseph, *CoCoBa Trainer of Trainees*
 - Boniface Osujaki, *WCS Research Assistant*
- Compile and analyze results from structured and semi-structured interviews

Additional Notes on Survey Design

The boma-level survey to assess social impacts of the Living Walls intervention was one of the primary activities we conducted this summer. Although this survey was designed to minimize response bias, it is worth noting that due to a lack of a baseline survey (on economic, gender, health, and other social issues), there was bound to be subjectivity in responses to retrospective questions. To attempt to correct for this, we chose to survey a control group of bomas without Living Walls (which we called “non-Living Wall bomas”). For each Living Wall boma interviewed, we used snowball sampling to interview residents of the closest non-Living Wall boma, which provided us with a control for many of our survey questions. However, for questions that were only asked to Living Wall bomas (such as, “How is your boma using money saved from having Living Walls?”), the retrospective bias was unavoidable. This challenge simply reinforces the utility of baseline surveys, and the inherent limitations of qualitative data collection, and should be kept in mind when analyzing and drawing conclusions from our results.

Results and PHE Connection

Overall, we found that having a Living Wall means that people save time on boma maintenance, spend less time and energy actively guarding the boma, and use saved money on education, health, businesses, clothing and other needs. People seemed very excited that they were able to sleep at night rather than having to guard their boma. Along with the potential economic benefits, the significant reduction in stress, ability to get more sleep, and less time doing strenuous boma maintenance activities likely contributes positively to health outcomes. Those with Living Walls noted that Living Walls are good for the environment (newfound lack of need for using tree branches and thorn bushes as boma material) and may be influencing habitat regeneration in areas near their bomas. People residing at Living Wall bomas also had more positive attitudes toward and perceptions of carnivores, carnivore risk, and carnivore populations.

Additionally, within our preliminary results (with more detailed results to come in the near future), we found that there are likely gender differences in how having a Living Wall impacts personal activities, spending, and other factors. For example, when asked how they use money saved from having Living Walls, women were more likely than men to say that they used this newly saved money for school fees and supplies, and less likely to say that they used this money to support other family members. There may be some obvious reasons for these gender differences in reported money use (such as women being more likely to look after children and thus their school fees), but some of our preliminary results suggest a few unexpected themes regarding gender, and more analysis is needed. Overall, the top three reported uses for saved money due to having Living Walls were school fees and supplies, supporting other family members, and medication/health.

From the semi-structured interviews, several themes emerged. The most common theme is that it is extremely challenging to integrate environmental goals with health, social, gender, and economic goals. According to the key informants, the biggest challenges in the NTRI region are climate change and drought, the growing livestock population, grassland to agriculture conversion, school accessibility, lack of direct household benefits for many conservation initiatives, the impact of cultural norms on family planning and education, and human-wildlife conflict (crop raiding and livestock attacks).

Despite considerable outreach and networking by TPW and NTRI, some of the key informants didn't know or knew very little about the Living Walls intervention. Additionally, many of the key informants brought up their observations of a disappointing and counterproductive lack of connection and communication between NGOs, people on the ground, local politicians, and district politicians. They expressed that all groups need to be involved and communicating to create sustainable, integrated, and effective conservation and health interventions, and that this full connection between all levels is not happening often.

There were some notable stories and quotes among individual interviewees. For example, when asked about how CoCoBas affect the traditional roles of women in the community, one interviewee said, "[i]nstead of tension it brings love in the family- it makes the bones strong.

Men feel that they are being helped to meet household needs. Some families have both the father and the mother as members of the CoCoBa.” However, the same interviewee, when asked whether the environmental component of CoCoBas translates into a change in peoples’ views of wildlife or human-wildlife conflict, earnestly replied, “[w]hether you’re part of a CoCoBa or not makes no difference- everyone uses the same methods against the wildlife.”

Recommendations

Several recommendations and themes emerged from the key informant interviews and the Living Walls survey.

Overall Themes

- To aid in integration, organizations should implement cross-disciplinary baseline assessments when new projects are initiated.
- There need to be consistent markets for livestock, otherwise every other solution in the rangeland (including health and other solutions) is effectively going to function as a band-aid. If NTRI can more effectively encourage a stable livestock market and mindfulness about breeding (i.e. careful breeding of Maasai cattle that are resilient in drought), a better structure would be in place for the PHE approach to be more successful overall.
- Open dialogue on the environment, health, etc., should be started and continued via children. Education, as well as games and competitions among children, are key, since children often bring the lessons they learn back to their parents and can reach adults in a more intimate and effective way than an organization may be able to.

The Importance of Baseline Surveys in NTRI

Overall, the Living Walls intervention seems to have numerous positive impacts other than reducing carnivore attacks on livestock. However, although human-wildlife conflict resolution can have major impacts on social factors, organizations face various constraints that may make it difficult for them to measure such impacts. If NTRI would like to encourage integration, and make the PHE approach more successful and impactful, it may be useful to develop and implement baseline assessments consistently at the household or boma level before interventions are put into place. For example, before bomas receive their Living Walls, a gender/health/economics baseline assessment should be implemented in order to do a more comprehensive and accurate social impact assessment about that boma in the future. However, organizations such as TPW have very limited bandwidth to develop and conduct baseline assessments, which is where NTRI’s strengths come in. NTRI should create a team in charge of creating and conducting such baseline assessments, and include on this team a social scientist who is experienced in effective survey design and implementation.

Model Bomas as a Tool for Integration

An excellent example of integration can be seen in the recent decision of Pathfinder to include having a Living Wall as part of the criteria for a model boma. With this integration of Living Walls as criteria, model bomas seem to be an important educational tool for bringing multi-disciplinary thinking directly into peoples’ homes and lives, and have the potential to help

families to see the connections between social factors and the environment. Along with facilitating evaluation of PHE effectiveness by way of baseline assessments for model bomas, additional factors and interventions related to wildlife and human-wildlife conflict should be incorporated into the model boma criteria.

Furthermore, NTRI should devote more resources to encouraging development of sustainable livestock markets for Maasai breeds, and Pathfinder should work with communities in a culturally-sensitive manner, to discover how to include livestock population-related criteria into the model bomas.

Conclusion

In conclusion, this summer's work showed us that cross-disciplinary baseline assessments are crucial to effectively implement the PHE integrated approach, and evaluate success of the PHE approach. Many people and organization leaders in the region don't find the direct and indirect linkages between social, health, economic, and gender issues to be intuitive, and NTRI should be a more active leader in educating local and regional politicians, as well as residents, on these connections. Lastly, it seems to be important (and currently somewhat lacking) for Pathfinder and other groups within NTRI to better communicate with each other and with local leaders, regional leaders, *and* communities. This will ensure long-term sustainability of PHE initiatives, as well as aid in deep regional and community understanding of the connections between environmental, economic, social, and health factors. It appears NTRI can be on the forefront of a paradigm shift in such integrated thinking and action on the ground, if focus and funding is placed on some of the recommendations provided above and from our key informants.

Appendix: Sample Maps & Figures from Preliminary Results

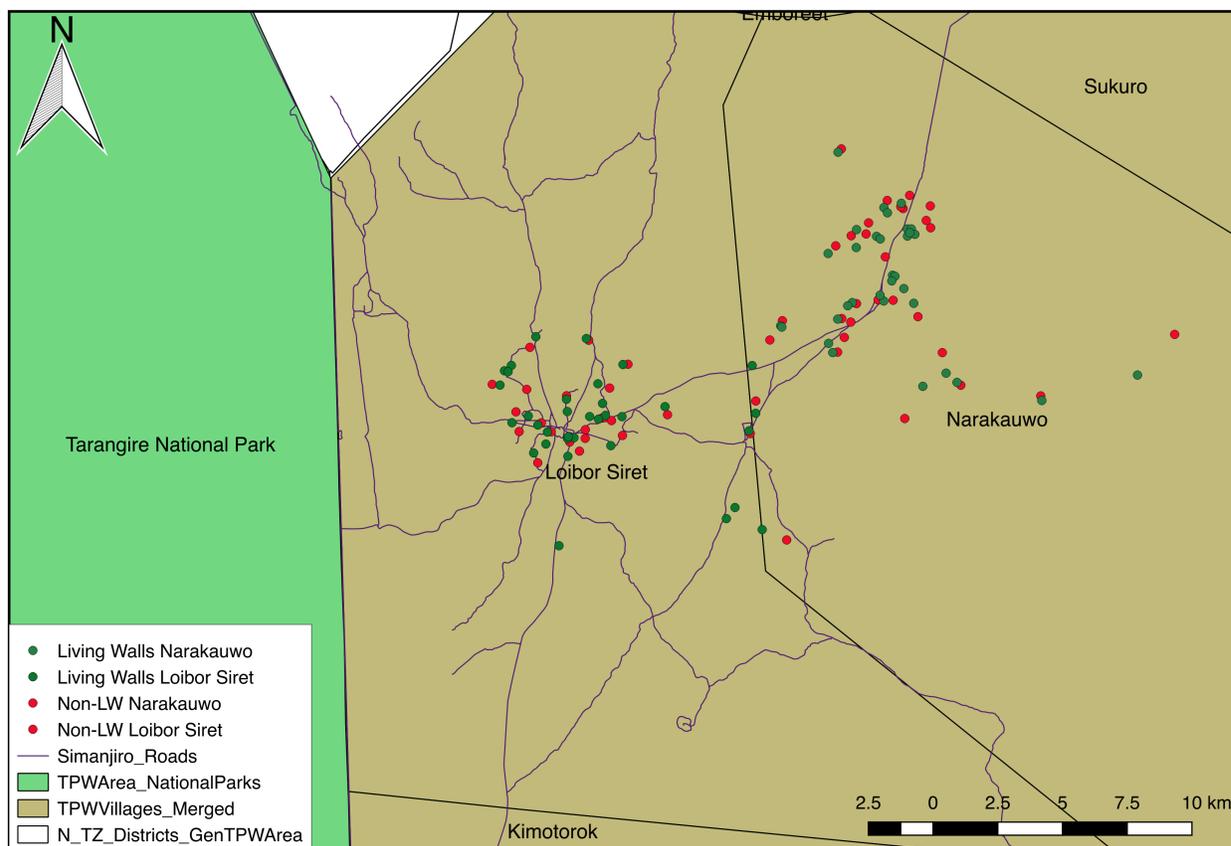


Figure 1. Map of bomas surveyed in Loibor Siret and Narakuwo villages.

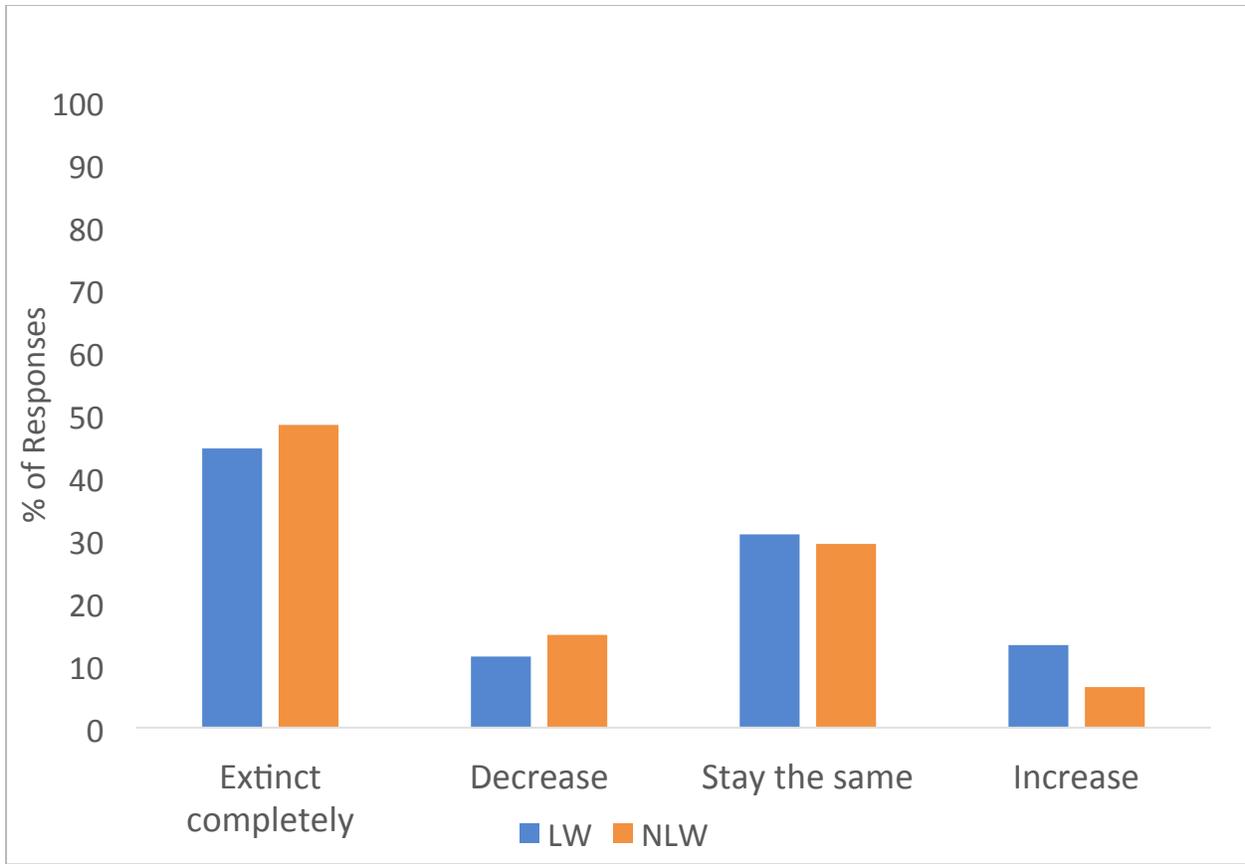


Figure 2. Responses to the survey question “What should happen to the following carnivore populations?”, compiled responses about lion, hyena, cheetah, leopard, wild dog, and jackal. ($\chi^2 = 20.003$, $df = 3$, $p < .001$)

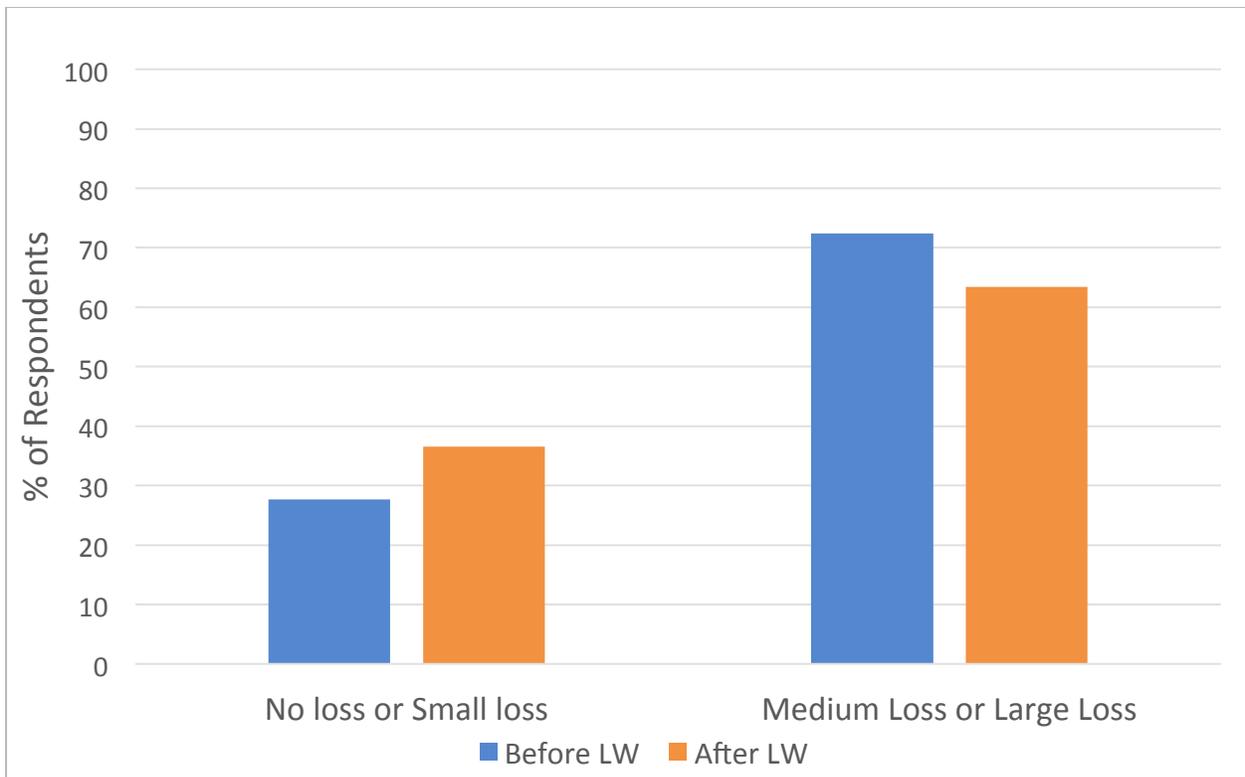


Figure 3. Economic loss due to carnivore attacks at the livestock enclosure before and after having Living Walls. (McNemar's $\chi^2 = 15.13$, $df = 1$, $p < .001$)

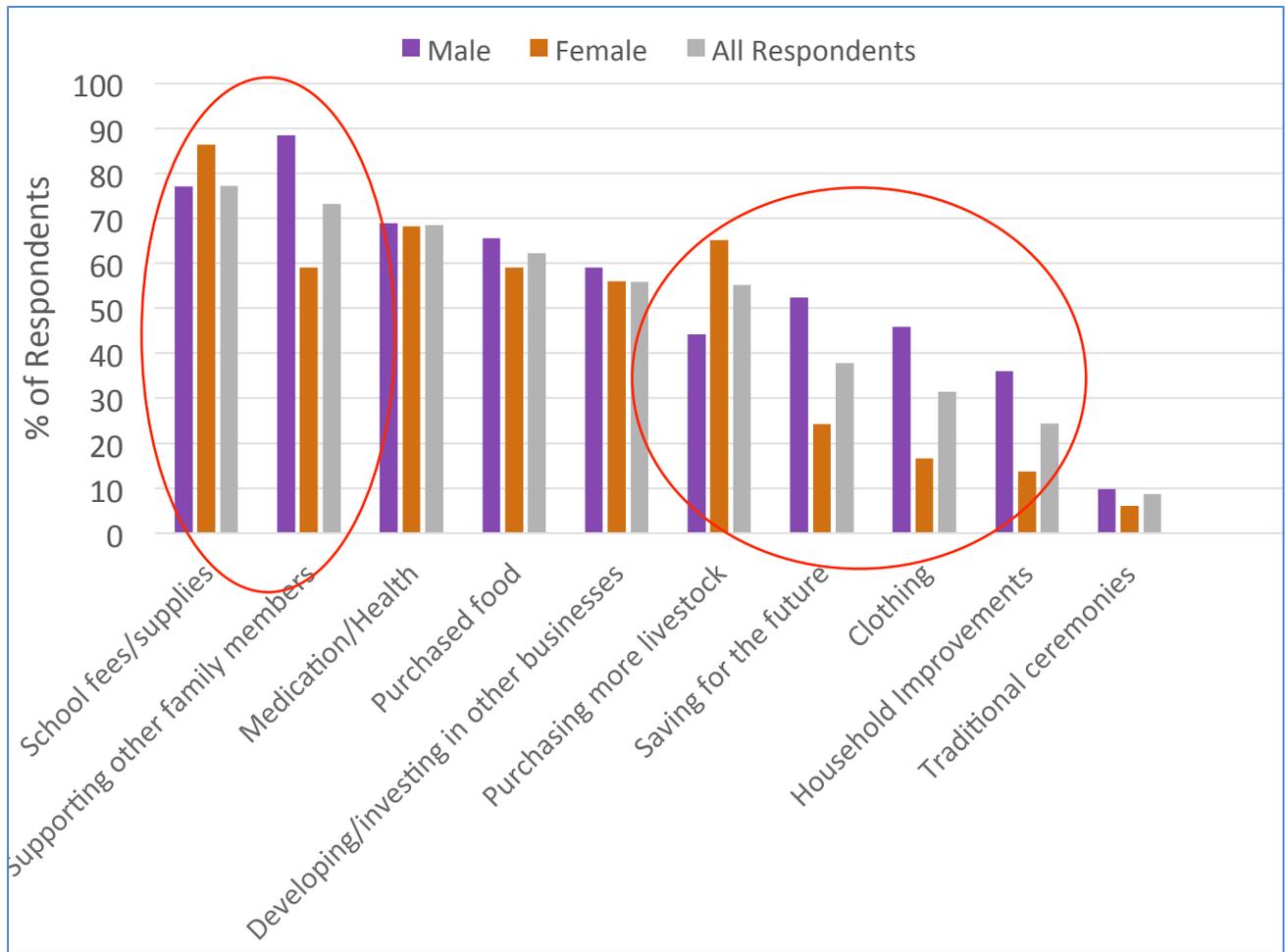


Figure 4. Reported uses for money saved from having Living Walls. Red ovals highlight major gender differences in responses.