

## Example of a Fellows Application

### 1. Summary of the fellowship

- a. **Title:** Engaging the Collaborative Capital of Lion Guardians to Reduce Lost Livestock in Maasailand, Kenya
- b. **Team fellows:**
  - i. Kevin Jablonski, PhD student, FRS-WCNR, Colorado State University
  - ii. Philip Briggs, Lion Monitoring and Media Manager, Lion Guardians
  - iii. Kailey Carlson, Undergraduate, FWCB-WCNR, Colorado State University
- c. **Collaborators:**
  - i. Stephanie Dolrenry, Director of Science, Lion Guardians (fully engaged in project)
  - ii. John Merishi, Field Coordinator, Lion Guardians (fully engaged in project)
  - iii. Paul Meiman, Associate Professor, Colorado State University (project advisor)
  - iv. Kathleen Galvin, Professor, Colorado State University (project advisor)
  - v. Maria Fernandez-Gimenez, Professor, Colorado State University (project advisor)
- d. **Project location:** This project will initially take place on three communally owned Maasai group ranches (Mbirikani, Eselenkei, and Olgulului) in the Amboseli Ecosystem of southern Kenya and expand to an additional three group ranches in Kenya as well as Maasailand in Tanzania where Lion Guardians works.
- e. **Goal(s):** Lost livestock account for >80% of lion attacks on livestock in the Amboseli Ecosystem in Kenya. Livestock predation and the threat of future losses decrease tolerance and increase lion retaliatory killings. Working in partnership with the Lion Guardians and the group ranch communities, the goal of this project is to determine how the tendency for herders to lose livestock relates to grazing management practices and outcomes, and to generate an intervention that effectively reduces the occurrence of lost livestock in the region and thus its associated lion predation.
- f. **Outcomes:**
  - Understand the causes of lost livestock in the Amboseli Ecosystem.
  - Maasai livestock managers make connections between their grazing management choices and outcomes, which include lost livestock but also productivity factors such as vegetation condition and herd health as well as socio-cultural benefits.
  - The interventions will help communities take ownership of decisions about changes to livestock management practices that reduce livestock loss and see those changes as socio-economically beneficial.
  - Further establish a crucial link between herding practices and lion conservation goals.
  - The project will increase the capacity of LG by explicitly incorporating livestock management practices into their conflict mitigation efforts.

- Opportunity for pastoralist knowledge transfer - the Maasai managers can teach the CSU livestock team about how they manage livestock distribution to limit risk of predation by carnivores, a lesson that many North American ranchers are eager to learn.

## **2. Overall Description of the Project**

### a. Introduction to the topic/issue:

Lion Guardians (LG) is a conservation organization working to enact culturally appropriate long-term solutions for people and lions to coexist in the Maasailand of Kenya and Tanzania. The organization employs a team of more than 80 Maasai *ilmurran*, young warriors on whom their communities traditionally relied on to kill problem lions. Instead of hunting lions, these young men now work as “lion guardians” to monitor lions, mediate conflict, and otherwise serve as community liaisons. In combination with extensive community engagement by Lion Guardians (LG) staff, this holistic approach has a ten-year record of significant reductions in lion killing compared to other conflict mitigation strategies. However, in the course of their work, LG staff have identified one persistent cause of conflict that seems to be worsening despite their success- lost livestock. Lost livestock leave the protection of night pens with a herder in the morning but stray at some point during the day and are often lost overnight before (hopefully) being found the next day. LG staff have found that lost livestock account for >80% of lion attacks on livestock in the Amboseli Ecosystem, and the guardians have reported returning 15,000 (and increasing) lost livestock to owners each year. However, the reasons that Maasai lose livestock, and why this phenomenon is growing, are poorly understood and have not been studied.

The effects of livestock predation by lions are manifold. While data are sparse, one study shows that commercial ranches in the region lose an estimated 2.4% of their cattle to carnivores each year, with 86.1% of losses attributed to lions (Patterson et al., 2004). However, as many as 13 cattle were lost in a single lion attack which, given a mean cattle herd size of approximately 30, would represent a devastating loss to many Maasai producers; indeed, it has been shown that those with fewer cattle lose a higher proportion of their herds to lion predation (BurnSilver, 2009; Hazzah et al., 2009). Livestock predation and the threat of future losses also decrease tolerance and increase lion retaliatory killings, though culture can play a mitigating or aggravating role (Hazzah et al., 2009; MacLennan et al., 2009).

Lion killing resulting from livestock predation is one of the chief causes of the drastic and ongoing decline in lion populations (Ogada et al., 2003; Woodroffe and Frank, 2005). This decline is a threat not only to the species itself but also to the significant tourism that has developed around lion viewing in East Africa, which brings money into an impoverished region, though income derived from tourism still constitutes, at best, a small part of the livelihood of the average Maasai household (BurnSilver and Mwangi, 2007). Nevertheless, conservation-based income does represent an opportunity for a more diversified livelihood, not only via

direct employment but also through payments to producers in recognition of their valuable ecosystem services.

Livestock predation by lions, therefore, commences a vicious cycle in which pastoralists lose livestock that are essential to their livelihoods and culture, then kill the offending lions, propelling the species closer to extinction, which in turn damages the wildlife tourism industry which has potential to assist the Maasai in sustainably diversifying their income, which in turn makes losses of livestock to predation even more threatening. Halting this kind of vicious cycle at one step or another has been the aim of every human-carnivore conflict program or study.

The holistic approach of Lion Guardians aims to address needs at each step of this vicious cycle. The program has demonstrated the ability to decrease livestock predation, interrupt retaliatory killing, diversify Maasai livelihoods, and increase tolerance by demonstrating the value of a viable lion population. However, for reasons that are unclear, lost livestock have been increasing rapidly, and LG has made them a research priority. To be effective, however, any attempt to reduce lost livestock must fully engage Maasai pastoralists as livestock managers and ensure that they can still effectively pursue livestock-based livelihoods.

This project will therefore pair the collaborative capital and knowledge represented by the lion guardians and other LG staff (most of them Maasai, including JM) with the transdisciplinary grazing management expertise at CSU to answer the question: *How does the tendency to lose livestock relate to grazing management practices and outcomes?* The answer to this question will point toward solutions that work for both Maasai and lions.

#### b. Objectives and Evaluation

1) In Nov.-Dec. of 2017, **conduct an assessment of LG's knowledge and experience related to lost livestock**, including ideas about causes and potential solutions, through semi-structured interviews with Amboseli-area guardians and other LG staff.

Evaluation: We will meet this objective when the knowledge assessment is completed, and the data is compiled and analyzed by March of 2018. At this time, we will have an initial full team meeting to assign tasks for different members, including potential sub-teams, and discuss if other stakeholders or experts should be incorporated into the project.

2) **Determine which additional data (e.g., related to herd composition, herding practices, vegetation characteristics, etc.) are needed** to better understand and move toward a viable intervention to reduce lost livestock, and collect this data through the Fall of 2018.

Evaluation: We will meet this objective when this data has been compiled and analyzed by November of 2018. Fellows will also conduct a second field visit to lead a community

engagement process to assess perceptions of lost livestock and overall grazing management as related to interventions.

3) Based on the results of the above data collection, **generate an intervention** (whether it be an education program, community engagement, collaboration with other conservation organizations, or a combination of practices) **that effectively reduces the occurrence of lost livestock in the region, as monitored by LG.**

Evaluation: We will meet this objective when 1) a second full team meeting is held in December 2018 to finalize the intervention program and determine if additional community input is needed prior to the launch of the intervention, and 2) the intervention is launched by February of 2019. The ultimate measure of success will be a reduction in the number of lost livestock, as measured by Lion Guardians in the latter half of 2019.

The application of the intervention will follow from and be strengthened by the participation of the broader community of 27,000 Maasai residents of the three group ranches, expanding outward to the other areas that LG works. The nature of this inclusion will depend on the initial analysis, but will be modeled on the Appreciative Participatory Planning and Action (APPA) approach established for mitigating conflict between pastoralists and snow leopards (Jackson and Wangchuk, 2004). The APPA has a demonstrated record of success in reducing conflict and generating community ownership of solutions, and LG has already laid much of the foundation for its application.

#### c. Project Stakeholders

Lion Guardians, Colorado State University, 80 Maasai *ilmurran*, Maasai livestock producers, Maasai communities, Kenya wildlife tourism industry, Kenya Wildlife Service, other pastoralists beyond the region, and of course, African lions.

#### d. Communicating Findings or Results of the Project

LG staff and the CSU research team have a substantive history of connecting science to livelihoods and extending usable results to practitioners. We will communicate our findings in a variety of ways appropriate to the stakeholders. To begin, we will verbally communicate the findings of the initial assessment to the guardians (who are non-literate), who are important conduits of information to and from their communities. Once we have clear information on the relationship between management practices and lost livestock, we will use the relationships of LG (including with the Kenya Wildlife Service) to communicate that information to Maasai producers and communities. This will likely consist of initial meetings with group ranch leaders and other respected elders, followed by announcements at various community meetings and perhaps LG-hosted *barazas* if the findings are of great interest. The research process itself, including interventions, will also serve as a valuable means of stakeholder communication.

We expect that the results of this project will also hold relevance to pastoralists elsewhere, so we will also aim to communicate our findings beyond the region, to both practitioner and researcher stakeholders. To do so, we plan to generate reports aimed at both groups. For practitioners, we will present our collaborative process in detail to serve as a model for similar efforts. For researchers, we will publish journal articles aimed at demonstrating not just the outcomes but also the importance of the process to the effectiveness of the work.

#### Literature cited

- BurnSilver, S., 2009. Pathways of Continuity and Change: Maasai Livelihoods in Amboseli, Kajiado District, Kenya, in: Homewood, K., Kristjanson, P., Trench, P. (Eds.), *Staying Maasai? Livelihoods, Conservation, and Development in East African Rangelands, Studies in Human Ecology and Adaptation*. Springer.
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- Hazzah, L., Borgerhoff Mulder, M., Frank, L., 2009. Lions and Warriors: Social factors underlying declining African lion populations and the effect of incentive-based management in Kenya. *Biol. Conserv.* 142, 2428–2437. doi:10.1016/j.biocon.2009.06.006
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- Ogada, M.O., Woodroffe, R., Ouge, N.O., Frank, L.G., 2003. Limiting Depredation by African Carnivores: the Role of Livestock Husbandry. *Conserv. Biol.* 17, 1521–1530. doi:10.1111/j.1523-1739.2003.00061.x
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### **3. Outcomes**

In the short-term, we aim to help Maasai pastoralists in the region reduce the number of lost livestock while maintaining or improving other indicators of livestock management success and resilience. This will not only reduce conflict with lions (and other carnivores) but also demonstrate that conservation and production goals can coexist synergistically. We hope that this evidence will grow to become part of a larger conversation on the economic and ecological benefits of proactive herding practices, such that over the long term this work will grow organically to engage questions beyond that of lost livestock.

Other outcomes are:

- Understand the causes of lost livestock in the Amboseli Ecosystem.
- Maasai livestock managers make connections between their grazing management choices and outcomes, which include lost livestock but also productivity factors such as vegetation condition and herd health as well as socio-cultural benefits.
- The interventions will help communities take ownership of decisions about changes to livestock management practices that reduce livestock loss and see those changes as socio-economically beneficial.
- Further establish a crucial link between herding practices and lion conservation goals.
- The project will increase the capacity of LG by explicitly incorporating livestock management practices into their conflict mitigation efforts.
- Opportunity for pastoralist knowledge transfer - the Maasai managers can teach the CSU livestock team about how they manage livestock distribution to limit risk of predation by carnivores, a lesson that many North American ranchers are eager to learn.

#### **4. Potential for Impact on You or Your Team, the CCC, and the Field**

For fellows Kevin and Philip, the opportunity to participate in the CCC training and engage in the broader conversation on collaborative conservation presents a priceless educational opportunity, and a chance to learn from others pursuing similar work. For both, as well as for collaborator John and undergraduate fellow Kailey, this will be an excellent chance for growth as they advance in their careers in conservation. For our other collaborators, this fellowship will add a new dimension to their already-established careers.

The requested funds will provide essential bridge funding to the work, which otherwise is only funded in an ad-hoc manner for the initial visit by Kevin. These funds will make it possible to clearly establish the usefulness of the transdisciplinary research approach and begin to see results, after which we will seek external funding (including donations through LG's network) to see it through to the next stages.

For the Fellows Program and the CCC, this work will provide a partner in Lion Guardians, and demonstrate the effectiveness of the team fellows approach in achieving practical conservation solutions. Especially notable for CCC is the inclusion of Philip Briggs, a well-regarded photographer, videographer, and graphic designer, as a fellow. For CSU, this is also an opportunity to establish a research collaboration with LG, where Kevin would be the first external research collaborator to use the resources of the CSU Research and Training Centre, executing a key element of their research agenda. For the broader collaborative conservation community, where the LG program has already demonstrated the benefits of participatory

research, this will add an additional element to that success. Lastly, we anticipate that there will be mutual benefit from knowledge sharing with the growing community interested in transhumant herding in Europe and North America and will seek collaboration and impact with that community.

## 5. Fellowship products

- 1) Quarterly blog posts for CCC, including three by Kailey Carlson. Some or all of these will be coordinated with the blog of Lion Guardians.
- 2) Final storytelling video. Philip Briggs will use his extensive experience and expertise to develop a high-quality film documenting the collaborative work and its successes. Examples of PB's work can be seen at <http://www.philipjbriggs.com/>.
- 3) Documentary and publicity photographs, for both CCC and LG.
- 4) Quarterly journal notes on project progress.
- 5) Research products: With the adaptive research process, exact topics are difficult to define, but we will target at least two academic papers to emerge from the work: one from a grazing management perspective and one focused on the collaborative process and results. Additionally, the CSU team will present the results at appropriate conferences, while LG staff will discuss the results when appropriate in their various presentations.
- 6) Practical products: Because the Maasai stakeholder population is largely non-literate, our first priority for practical products is that they be suited to this audience. This will likely take the form of community meetings and educational initiatives, though we may also produce maps, charts, and pictorial checklists if appropriate. We will also seek to make the process and results of the application of the APPA available to others through a white paper or guide.
- 7) Final reports (including undergraduate report) and evaluation, with specific measurable impacts of the work on lost livestock and other measurable livelihood and conservation indicators.

## 6. Information on Your Collaborators

Stephanie Dolrenry  
Director of Science  
Lion Guardians  
[stephanie@lionguardians.org](mailto:stephanie@lionguardians.org)  
Role: engaged in all aspects of project

John Merishi  
Field Coordinator  
Lion Guardians  
[merishi@lionguardians.org](mailto:merishi@lionguardians.org)  
Role: engaged in all aspects of project

Paul Meiman  
Associate Professor  
Department of Forest and Rangeland Stewardship  
Colorado State University  
[paul.meiman@colostate.edu](mailto:paul.meiman@colostate.edu)  
Role: project advisor, some data collection, connection to CSU extension

Kathleen Galvin  
Professor  
Department of Anthropology  
Colorado State University  
[kathleen.galvin@colostate.edu](mailto:kathleen.galvin@colostate.edu)  
Role: project advisor, deep knowledge of pastoralist households, and she also brings decades of experience working with Maasai communities in this region.

Maria Fernandez-Gimenez  
Professor  
Department of Forest and Rangeland Stewardship  
Colorado State University  
[maria.fernandez-gimenez@colostate.edu](mailto:maria.fernandez-gimenez@colostate.edu)  
Role: project advisor, and her record of success in participatory research and transdisciplinary understanding of social-ecological systems

Center for Collaborative Conservation  
 Fellows Budget

Kevin Jablonski  
 kevin.jablonski@colostate.edu

<b>Personnel</b>	<b>Subtotal</b>
Fellow salary	\$ -
Undergrad wages	\$ 1,320
LG Staff Wages (JM)	\$ 772
Subtotal	\$ 2,092
<b>Services</b>	
Publications	\$ 1,000
Meeting costs	\$ 600
Communications	\$ 600
Subtotal	\$ 2,200
<b>Supplies</b>	
Field supplies	\$ 575
Office supplies	\$ 225
Subtotal	\$ 800
<b>Travel (to Kenya- 3 R.T.s)</b>	
Local transport	\$ 1,250
International transport	\$ 3,750
Accommodations and food	\$ 1,440
Fees	\$ 300
Other	\$ 500
Subtotal	\$ 7,240
<b>Travel (to US for PB)</b>	
Local transport	\$ 200
International transport	\$ 1,250
Accommodations	\$ 630
Food	\$ 400
Other	\$ 160
Subtotal	\$ 2,640
<b>Grand total</b>	<b>\$ 14,972</b>

## 7. Budget Justification

**Current funding:** The initial visit and knowledge assessment (Nov.-Dec. 2017) is funded through ad-hoc funds from the Department of Forest and Rangeland Stewardship (airfare) and LG (in-country costs). There are no other current sources of funding for the work.

**Personnel:** Undergraduate research assistant paid at \$11/hr for 120 hours of labor. Two-months' salary (40,000 Kenyan Shillings per month) for John Merishi to cover his time on the project.

**Services:** Funds requested to partially pay for one academic publication. Meeting costs will cover incidentals for team meetings, as well as some costs of holding community meetings in Kenya. Communications costs will cover cost of materials for communicating results with stakeholders, and some of the costs for the development of the film documenting the project.

**Supplies:** Funds requested for supplies and incidentals when doing fieldwork away from LG base and when compiling results.

**Travel:** Funds requested for two 3-week trips for Kevin J. to conduct fieldwork, and a single 1-week trip for Paul M. As he has not visited the region before, PM's trip will enable him to better apply his grazing management expertise to the project. Accommodations and local transport fees are to minimally cover costs at LG's Research and Training Centre and for vehicle rental. Travel funds for Philip B. are for a 1-week trip to Colorado to attend the CCC trainings and meetings.