COMMUNITY CAMERA TRAPPING IN TANZANIA

*Conservation biologist **Dr Amy Dickman** on the success of this innovative and inclusive approach to encouraging human-wildlife co-existence on village land.*

A lone baobab in Ruaha National Park © RICHARD MORTEL, WIKIMEDIA COMMONS

Tanzania's Ruaha landscape is a vast, mixed-use complex, centred around the spectacular Ruaha National Park which, at over 20,000km^2, supports some of the world's most important remaining populations of large carnivores. Immediately adjacent to the unfenced park is village land, where many people live in severe poverty, heavily reliant upon livestock and subsistence agriculture. This convergence of dangerous wildlife and vulnerable communities creates intense human-carnivore conflict, imposing major costs on both people and wildlife.

When we established the Ruaha Carnivore Project in 2009 we found extensive, indiscriminate snaring, spearing and poisoning of wildlife on village land, with devastating consequences for lions, critically endangered vultures and many other species. We also saw and appreciated the intense local anger as wildlife devastated crops, killed livestock and even people.

Relationship building

Initially, people were extremely hostile towards us, seeing us as outsiders who were there to prioritise wildlife over them. It took years to build even the foundations of community relationships, but gradually we worked with people to better protect their livestock, using strategies such as using dogs to guard livestock, fortifying enclosures and engaging young warriors as 'Lion Defenders' to chase away lions when they come close to local households. Such approaches can be effective – and have been in Ruaha – but no-one will conserve wildlife just because the threat it poses is slightly reduced. For long-term conservation, people need to recognise tangible, meaningful and locally desired benefits from protecting wildlife and its habitats.

Discussions with communities revealed their most-desired benefits were investments in education, healthcare and veterinary medicine for livestock. Over time, we developed multiple programmes around these themes: school twinning, investments in local clinics, school feeding, building veterinary capacity and others. People grew to like the project, and would engage enthusiastically with us on a surface level at least. However, it soon became clear that the benefits were associated with the project, not the presence of wildlife itself. People were doing what any one of us probably would – appreciating the benefits, but still killing the wildlife because the two seemed disconnected. Meanwhile, our initial attempts at using camera traps to monitor village wildlife were being stymied as they were frequently damaged or stolen.

A light-bulb moment

Anyone who runs a field conservation project will be wearily familiar with multiple things going wrong simultaneously – but in this instance these problems emerging at the same time led to a lightbulb moment, which in hindsight seems painfully obvious. What if, instead of us monitoring wildlife and handing out seemingly random benefits, the communities themselves monitored the wildlife, and the results of their monitoring were directly tied to the benefits? After promising initial discussions with villagers, our 'community camera trapping' concept was born.

The first step was round after round of community meetings so the idea could be co-developed with the villagers. We all agreed the basic concept: that locals should own the process of monitoring wildlife, and the more wildlife they recorded on their land, the more community benefits they should receive. But the details were challenging: how would each species

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and individual be valued, to provide a genuine incentive but one we could afford as a small, grassroots project? How would we budget for it, if we had no idea how much wildlife they would record? How could we fairly engage multiple villages with very different environments? How could we ensure that villagers were not unfairly penalised for issues such as reduced wildlife numbers because of drought, when they would need benefits more than ever? How should benefits be distributed, and how would it be fair and transparent? These issues dog virtually every wildlife benefit initiative, but must be openly considered. There are rarely perfect solutions, but honestly and openly discussing such issues between the project and the villagers was key to finding ways we could at least move forwards.

We decided that we would group villages into units of four, based on relatively similar attributes such as distance to the park. Each village would select two 'community camera-trapping officers', who the project would train and pay to manage, place and monitor the camera-traps. Every wild animal captured on those camera traps would receive a number of points, with more points for more threatened and more conflict-causing species. This caused intense discussions: we originally suggested a simple scale from one to five points per animal, but this was deemed far too cheap: people wanted thousands or even millions of points per individual. A compromise was found: small, innocuous animals like genets or dik-diks were allocated 1,000 points each, while larger herbivores (up to and including elephants) generated 2,000 points each. Primates received 1,500 points each: they can cause conflict with villagers by raiding crops, but are often seen in very large groups, so we did not want one sighting to completely dominate the results.

As a carnivore project we were biased towards large carnivores: those classed as Vulnerable by the IUCN such as cheetah and lion were awarded 15,000 points each, while the Endangered African wild dog was the top spot at 20,000 points per individual. Each species was discussed and eventually agreed on, with some additional conditions. No points were awarded for animals with presumed snare injuries (such as missing lower limbs), while double points were given for collared animals, as an additional benefit to the community from that programme. Pangolins generated unusually high numbers of points, to try to encourage people to conserve them rather than traffick them.

Every month, the community camera-trapping officers go with project staff to download images and tally up the points. The images are shared locally at community meetings and film nights, increasing awareness of wildlife on village land. Every three months, the group of four villages congregates, and community benefits are awarded: the village with the most points gets US$2,000 worth of benefits, the second US$1,500, the third US$1,000 and the fourth US$500. These

are distributed equally across the agreed priority areas of education, healthcare and veterinary medicines. Village requests are discussed and signed off in community meetings, all purchase and receipt records are recorded and displayed on signboards at the village centres, and it is all openly discussed at the celebratory event each quarter. The points are then reset to zero and the process restarts.

A shift in attitude

Almost immediately after the programme started, there was a notable shift towards people recognising that it was their wildlife – and their actions – that determined the level of community benefits they received. We have seen villages engage and act in ways we never could: introducing village by-laws to protect their camera traps, placing community bans on killing lions and elephants; stopping people burning African wild dog and spotted hyena dens, and placing camera traps there instead.

As with any conservation approach, it has endless challenges and there is no silver bullet. People often placed camera traps on streams at village boundaries, leading to arguments about 'whose' wildlife was being photographed, so a decision was made that camera traps could only be placed at least 1km from the village boundary.

That revealed disputes over village boundaries that often took months to clarify. People often want cash instead of benefits, governance and transparency remains challenging, and the community benefits are unlikely at this level to offset the costs of carnivore attack, so maintaining livestock-protection initiatives remains critical.

People always ask about sustainability, as this is clearly dependent on external funds. Happily we have found this one of our easier programmes to fund, as people see the clear importance for both people and wildlife. Fundamentally, given the crises facing wildlife and impoverished rural communities, we feel that expecting those communities to bear disproportionate costs of wildlife presence is unrealistic and unjust. Therefore, we think that sustainable models should include approaches where richer stakeholders pay to offset those costs, whether through a model like this or another way. We are extremely grateful to all our donors who have recognised and supported this, and the resilience of their funding has been particularly highlighted through the Covid-19 pandemic, when the fragility of funding from tourism and other user-based models was exposed.

Despite all the challenges that remain, community camera trapping has proved to be one of our most successful and enduring approaches, and has demonstrably led to greatly improved conservation engagement and action across the communities. It has now been implemented across 16 villages around Ruaha, and we are working with colleagues in Kenya, Zambia, Mozambique and elsewhere to use insights from our work to help them develop similar programmes. Conflict and coexistence is always complex, and perhaps one of the real strengths of this programme is not even the benefits generated (locally significant as they are), but the continual discussions, engagement and partnership that it fosters between villagers and a project like ours. We hope that our experiences and insights from Ruaha can help inform and shape similar approaches elsewhere, and ultimately move towards a situation where coexistence between humans and wildlife is beneficial for both.

Dr Amy Dickman is the Kaplan Senior Research Fellow at Oxford University's Wildlife Conservation Research Unit. The Ruaha Carnivore Project aims to improve human-carnivore coexistence in southern Tanzania and is part of Lion Landscapes, which implements innovative approaches to carnivore conservation in Kenya, Tanzania and Zambia.