

## **Lewa Wildlife Conservancy – Pioneering Technology In Conservation And Conservation-led Development**

*By*

*Geoffrey Chege*

*Head of Conservation and Wildlife*

*Lewa Wildlife Conservancy*

*Kenya*

*July 2017*

### **Introduction to Lewa Wildlife Conservancy**

Situated in the northern foothills of Mount Kenya, The Lewa Wildlife Conservancy is globally recognised as a UNESCO World Heritage Site. Lewa's mission is to work as a catalyst and model for the conservation of wildlife and its habitat. It does this through the protection and management of species, the initiation and support of community conservation and development programmes, and the education of neighbouring areas in the value of wildlife.

Lewa serves as a safe refuge for rhino, elephant, Grevy's zebra and other iconic species of global conservation significance. The Conservancy is home to 14% of Kenya's rhino population, provides landscape connectivity to 6,500 elephant that migrate from the high altitude areas of Mount Kenya in the south to the expansive, low-lying wild lands of northern Kenya. In addition, Lewa provides refuge to 14% of the wild global population of Grevy's zebra as well as healthy populations of predators, ungulates and over 440 bird species.

What makes Lewa unique is our long-term commitment to partnering with our neighbours to care for the delicate ecosystem on which we all depend. To local people, Lewa represents much more than the wildlife it protects. Lewa provides neighbouring pastoral communities with an opportunity to maintain their traditional way of life in a modern and sustainable context through progressive and innovative livelihood initiatives. Lewa offers families living near its boundaries improved economic opportunities with our comprehensive education and women's microcredit programmes, community-managed water projects, and access to health care within four health clinics. Lewa benefits thousands of children in local schools by opening doors to a future with more possibilities than those available to their parents and grandparents.

### **The use of technology to support conservation on Lewa Wildlife Conservancy**

Lewa collaborates, through technical partnerships, with other like-minded players in strategic programmes to sustain many conservation, livelihood and tourism programmes while securing the land for wildlife and people. Gathering updated data is vital in ensuring informed and timely decisions are made to support these programmes. Today, we have continued with some of our traditional conservation and environmental education strategies. However, we have also invested heavily in modern technology to address escalated threats facing wildlife and the environment in Kenya. These technologies can be scaled and replicated across other similar landscapes across the globe. Some of the technologies we use consist of:

1. GPS-GSM and Satellite tracking our communication radios, vehicles, aircrafts and wildlife to provide users with a real-time dashboard that depicts the wildlife are being protected, the people and resources protecting them, and the potential illegal activity threatening them. In the past, some of these

technologies were hosted in different reactive platforms. They were minimally used and rangers sometimes relied on their dedication and good luck. However, today, these technologies have been advanced and integrated in a singular visualisation platform known as the Domain Awareness System (DAS). This system alerts teams to threats instantaneously and supports immediate tactical decision making to efficiently deploy resources for proactive management. DAS is a brainchild of the Vulcan Inc. USA team, Save The Elephants and the Lewa Wildlife Conservancy.

The DAS system's impact on anti-poaching and conservation efforts includes:

- Creates a single operational picture for a protected area with an integrated data platform
- Allows real-time tactical decision making using algorithmic analysis of data
- Team field operations are more effective in distributing more accurate and targeted information to rangers
- Provides data to inform strategic intelligence and trafficking analysis
- Provides a platform for a scalable and extensible system deployable within protected areas across Africa

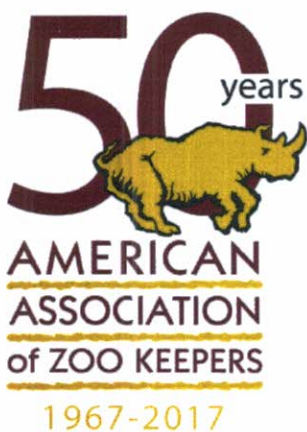
2. Using camera traps to better understand the lives of some key wildlife species to inform ecosystem health. Lewa is home to several indicator wildlife species including Grevy's zebra, giraffe, lion and hyena. In the past, these species have been monitored using different methods. To understand their status, demographics, survival, reproductive success, behaviour, as well as how they utilise the range, we have created databases to individually identify animals using their natural body spots and stripes. Images are captured using camera traps and other digital enabled cameras.

Grevy's zebra are digitally photographed every month and the information stored in stripe-based identification databases. Data derived from the system include individual identities, population performance, recruitment and survival rates of the young, and movement patterns. Overtime, our understanding of the predator guild was limited only to the lion population. However, recently, we started monitoring the understudied hyena to elucidate their impact on the environment as well as their dietary and spatiotemporal patterns in relation to the lion. We deployed GPS tracking collars on individuals from six clans. In addition, we identified the hyena using photographs from camera traps fixed at all the dens. So far, we have identified almost 150 hyena in the landscape. This is vital information that is shaping our effective, long-term predator management strategies.

3. Lewa on Virtual Reality. Lewa has partnered with Virry VR to become the first wildlife area to feature on Virtual Reality. This is an experience that takes players on a virtual safari in the African savannah represented by the landscapes and wildlife at Lewa. This is the first virtual reality experience of its kind where players literally and virtually interact with real animals in their natural habitat. Earlier in the year, Virry partnered with Sony PlayStation and this is the vehicle in which the public can experience Lewa in VR form. Footage is derived from three live cameras installed in strategic areas on Lewa.

Virry VR immerses players in the lives of real animals, encouraging discovery, empathy, and problem solving, while helping them to better understand nature, conservation, and the world around them," explains Virry and Fountain Digital Lab CEO, Svetlana Dragayeva. Research has shown that positive interaction with non-threatening nature fosters empathy and caring. Interspersed with the gaming elements are important facts about the animals, as well as lessons about conservation and endangered species.

# Proceedings of the 44th Annual National Conference of the American Association of Zoo Keepers, Inc.



August 27<sup>th</sup> – 31<sup>st</sup>

Papers

