

Report Update: Introducing Advanced Application Technology to African Wildlife Conservation – Phase 1

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Background:

Comprehensive data collection, preservation and analysis plays an important role in wildlife conservation. Since 2006, the Jane Goodall Institute has made vast strides in conservation science “using smartphones, tablets, and cloud technology to design, implement, measure, and monitor the success of conservation actions”.¹ One of JGI’s most effective deployments of this type of technology transpired within the past ten years in forest monitoring projects within Tanzania and Uganda. Using an application referred to as Open Data Kit, JGI has empowered communities in Africa to responsibly monitor and manage their land. Open Data Kit is a Google application in which one can create unique forms making data collection more consistent and efficient. Using the ODK Collect application forms can be downloaded and completed using any Android device. When the forms are completed they can be sent to a secure server from which the data can then be published into an individual’s Google drive in the format of a fusion table not unlike an Excel spreadsheet.

In 2014, the Pan-African Sanctuary Alliance (PASA) began exploring whether using similar technology to compile and analyze information regarding animals being cared for in its member sanctuaries would be beneficial in identifying trends in illegal trade as well as law enforcement and confiscation. PASA surveyed its members and found that there was an overwhelming interest in utilizing ODK. Not only would ODK provide each sanctuary with an avenue for more reliable, readily available and easily searchable records, but having the data in this format would allow the sanctuaries to more easily generate reports that are often required for funding and sustainability. In addition, PASA’s ability to compile the data from multiple sanctuaries would allow PASA to more readily identify larger trends and issues in conservation. Unfortunately, there was also a hesitation by the member sanctuaries to commit because of an inability to train staff and the inability to provide the time or manpower necessary to upload their current data into the database.

In the spring of 2015, Kourtney Stumpe, a volunteer with Children of Conservation and an environment science major about to graduate from Georgia State University proposed to volunteer her time to learn the ODK software so that she could develop forms that would be beneficial to PASA and its member sanctuaries, travel to PASA sanctuaries to teach their staff how to use the application, and develop additional forms specific to their needs. While there, she would also take responsibility for uploading the data on their existing populations. She would do this in 3 phases, visiting 7 PASA sanctuaries in phase 1 so that she could evaluate and make any changes to improve the project before visiting the next group. Kourtney’s travel and

expenses for Phase 1 would be funded by herself as well as Children of Conservation donors who had a common interest in providing a service to the wildlife sanctuaries supported by its programs.

Implementation:

In August of 2015, after surveying its member sanctuaries to determine their interest in participating in the ODK project given the ability to have someone train their staff and input their initial data, PASA selected Kourtney to manage the data collection project that would introduce the ODK application to their member wildlife centers. In collaboration with the Jane Goodall Institute, the Pan-African Sanctuary Alliance and Children of Conservation set out to introduce the Open Data Kit project at the PASA Strategic Development Conference in Nairobi in November of 2015. Prior to the conference, Kourtney traveled to Vienna, Virginia to train with Dr. Lilian Pintea, the Vice President of Conservation Science at JGI USA. During the training session, Dr. Pintea taught Kourtney how to manage and maneuver the application, as well as build customized forms using an Excel technique.

In preparation for the Strategic Development Conference, Kourtney established a PASA ODK server that would house its member sanctuaries' data. She designed a universal form for the member wildlife centers to record essential details in reference to animal intakes, and constructed a presentation that would not only showcase the application, but begin to train individuals on how to use it effectively. She also created the database in a manner that would allow each sanctuary confidential access to its own records within the PASA server. PASA provided the administrative support to coordinate with those sanctuaries that would be participating in the first phase of the ODK installation. A plan developed to have Kourtney visit the seven wildlife centers in and around Nairobi during the months following the conference to assess the centers' data needs, train the staff members on how to use the application, and set up a unique form base that would get them started.

Anticipated Outcomes/Goals:

- Phase 1:
- Work with PASA sanctuary members to develop an animal arrival form that would be comprehensive and gather relevant information while being easy to follow so that it could be utilized by sanctuary staff.
 - Train staff selected by the sanctuary director for each wildlife center on how to utilize the application, enter data and submit completed forms to the on-line database.
 - Collaborate with selected staff to design, build, and implement a dynamic form base that meets the unique needs of each wildlife center.
 - Gather and enter historical data on each animal arrival that occurred up to the present day

Phase 2 & 3: Follow the same strategy as for Phase 1 with the additional sanctuaries after making any modifications indicated by Phase 1.

Follow up with the sanctuaries visited to assess their ongoing use of the ODK application and work with the sanctuaries that were unable to be visited to assist them with implementing the ODK technology remotely.

Anticipated Difficulties:

The main difficulty anticipated was the unavailability of consistent power or internet connection at several of the member sanctuaries. It was also difficult to estimate the amount of time that would be needed at each sanctuary to accomplish the desired goals. It wasn't clear of what format each organization kept their animal arrival records, so it was assumed that a variety of methods had been used and would have to be understood before proceeding with data entry.

Progress:

Kourtney made a presentation on the ODK project at the November conference in Nairobi attended by almost all of the PASA member sanctuaries. The sanctuary directors accepted the project proposal with enthusiasm. The wildlife centers that had not been included in the first phase of the project requested to be included in the second phase. During the conference, a committee of sanctuary directors and managers was formed to work with Kourtney to finalize the animal arrival form. The committee collaborated to simplify and improve its format based on the desired outcomes and anticipated uses of the data that would be collected. Over the next two months, Kourtney travelled to seven sanctuaries to introduce the ODK Project - Colobus Conservation, Ngamba Island, Sweetwaters, Chimfunshi, Lilongwe, and Chimp Eden. The original plan was to also visit J.A.C.K. in DR Congo, however, difficulties in obtaining a Visa rendered that impossible and the time originally planned for J.A.C.K. was added on to the other sanctuaries.

Colobus Conservation, Diani, Kenya:

The staff at Colobus Conservation had already developed a form base using ODK during the 2014 initial exploration of the project. As such, only a few days was allocated for Colobus. Upon arrival, Kourtney introduced the staff to the new PASA animal arrival form, and reviewed the status of Colobus Conservation's intake records. After meeting with the Colobus director, Kourtney also began assisting Colobus in developing an incident report form that could be used to electronically enter data recorded after the initial intake. Due to the nature of Colobus Conservation's work and the large number of animals cared for by the facility, Kourtney quickly realized that she would not be able to enter all of the 1,000+ animal intakes from the past three years in the short time she was there. She trained one of Colobus Conservation's seasoned volunteers on how to fill out the animal arrival form so that she could begin entering the data

until documents could be scanned or other arrangements could be made that would allow for Kourtney to work on additional entry.

Chimpanzee Sanctuary & Wildlife Conservation Trust, Ngamba Island, Uganda:

At Ngamba Island, Kourtney held a group ODK training session as well as multiple individual sessions for primary staff members. She also met with key staff members to gather feedback regarding specific additional data needs for Ngamba. During her six days on the island, Kourtney created seven additional forms specific to Ngamba's needs. These additional forms were modeled after some paper forms already utilized by the staff and included a daily parameters form and four non-primate species monitoring forms. In addition, Kourtney created an escape incident form and a chimpanzee integration form. Kourtney also retrieved the historical data pertaining to all the animal arrivals that Ngamba Island had had since their establishment. Joshua Rukundo, one of Ngamba Island's most established veterinarians, also took Kourtney to visit the Chimpanzee Sanctuary and Wildlife Trust headquarters on the mainland. There she met several of Ngamba Island's administrative employees. She was able to discuss the project with the office staff, and exchange contact information to potentially work with them to expand the utility of the application via e-mail and Skype. Due to the need for multiple additional forms, it was impossible to also enter the historical data into the ODK data bank. As such, Kourtney downloaded the raw data to be entered remotely upon her return to the United States.

Sweetwaters Chimpanzee Sanctuary, Nanyuki, Kenya:

Kourtney continued on to Sweetwaters Chimpanzee Sanctuary, a part of the Ol Pajeta Conservancy in Nanyuki, Kenya. Kourtney worked with the chimpanzee staff manager to plan a training session. There, she explained the Children of Conservation scholarship to the team. She later taught them how to apply for the scholarship using ODK Collect. During her remaining days she collaborated with the chimpanzee staff to create four different types of forms including a daily parameters form for each enclosure, a menstrual chart, a fence inspection form, and a walkway inspection form. The staff spent some time each day filling out forms, and growing accustomed to using ODK Collect.

Chimfunshi Wildlife Orphanage, Copperbelt, Zambia

From Kenya, Kourtney's original plan included a visit to Jeunes Animaux Confisques au Katanga also known as J.A.C.K. in the Democratic Republic of Congo. Unfortunately due to some visa complications, Kourtney was unable to receive legal authorization to enter the country despite great efforts. From Kenya she traveled to Chimfunshi Wildlife Orphanage in Zambia where she worked alongside Thalita Calvi, the project veterinarian, to introduce the ODK application to their record keeping processes. During her time at Chimfunshi, Kourtney met with several administrative staff members to train them on how to make use of the ODK application. Kourtney left Chimfunshi with seven different types of forms including an escape incident form, a birth and death form, a feeding form, an infant development form, a

menstrual chart, and two non-primate species research forms. Chimfunshi also shared their animal biographies in order to allow the PASA animal arrival data bank to grow.

Kourtney's visit coincided with a visit from Chimfunshi's new school teacher. Since Chimfunshi built their own school for the children of their staff, the number of students had increased drastically. With the promise of a second school teacher, Children of Conservation has developed an interest in helping Chimfunshi construct a second school building. Kourtney took the opportunity to introduce herself to the Chimfunshi school teachers, and some of the students. She explained what Children of Conservation does, and discussed ways for them to get involved with improving the educational setting for Chimfunshi families.

Lilongwe Wildlife Centre, Lilongwe, Malawi

Kourtney proceeded to Malawi to work with the Lilongwe Wildlife Centre. Upon arrival the goals of the visit were discussed with Jasper Lepema, the project manager. Because Lilongwe had documented over five hundred animal arrivals since 2010, Kourtney began working on data entry immediately. Having more animal arrivals than most other wildlife centers she had visited, Kourtney saw the importance in training the Lilongwe staff on how to successfully maintain the animal arrival data using the ODK application. During her time at Lilongwe, Kourtney bore witness to two arrivals and used the opportunity to observe how animal intakes are handled at the center. She exchanged contacts with one of Lilongwe's key data managers in order to expand Lilongwe's use of the ODK application further in the future.

Jane Goodall Institute Chimpanzee Eden, Nelspruit, South Africa

Jane Goodall Institute's Chimpanzee Eden marked the last stop of the first phase of the ODK project. The Chimp Eden staff showed a lot of enthusiasm about the application as they had been trying to come up with a more efficient, organized way of saving information. Kourtney built six forms for Chimp Eden including an anesthetic record, a daily parameters form, a health check form, a procedure form, a screening tests form, and a tuberculosis test form. In addition, Kourtney met with one of CofC's scholarship recipient's parents to discuss the perpetuation of his child's funding. Because of a change in Chimp Eden's management the father did not clearly understand how to apply each year. He was delighted to find out that his child had not lost eligibility and would continue to get funding once submitting an application.

Unanticipated Outcomes

As anticipated, the retrieved data came in many various formats which presented its own challenge. In some cases, organization of the data was necessary to properly understand it and use it to create the PASA animal arrival data bank. Working with the animal arrival form at Lilongwe Wildlife Centre helped Kourtney determine the final changes that needed to be made in the form that would structure the PASA animal arrival data bank. Ultimately, it was a better use of time to train and work with staff first hand during these visits, and dedicate time to data entry upon return.

Overall Accomplishments of Phase One:

Training and form building were the top in situ priorities for this project. Each sanctuary visited had their staff successfully trained to use the ODK application to improve their efficiency. Despite inconsistencies in connectivity and power, five or more additional forms each were created for four of the wildlife centers. In addition, animal arrival data was retrieved from five of the six sanctuaries for entry by PASA staff at a later date. Upon returning to the US, Kourtney has continued her work on the ODK project by consistently following up with sanctuary directors and managers, creating new forms as requested remotely, organizing animal arrival data as preparation for its entry, acting as a liaison for new PASA team members, and planning for phase two.

Lessons Learned for Improvement in Phase Two:

It was determined that setting aside five or six days for each visit didn't leave enough time to accomplish every allocated task. As the lives of sanctuary staff members remained busy it was not uncommon for personal and project introductions to last up to two days. Unfortunately, it was often the case that the employees would really start getting invested in the project in the final days of the visit. In addition, because of the variations in the way data is currently being captured and maintained – as well as the need for additional forms at several of the sanctuaries, the initial goal of having each wildlife center's animal arrival data entered proved unrealistic. Although a solution was reached as Kourtney has volunteered to extend the project and retrieve data so it could be entered from the US, more time will need to be allocated at each sanctuary in future visits.

Plans for Phase Two:

Phase Two involves incorporating the information gathered during Phase 1 into an improved animal arrival form that was revised upon Kourtney's return to serve as a better format for the data bank. As part of Phase Two, the data for Sweetwaters Chimpanzee Sanctuary, Ngamba Island, and Chimpanzee Eden is also being entered into the ODK database. Once this data is entered, some initial analysis will be applied to develop insight to determine whether any changes need to be made in the way the data is being entered for the remainder of the project.

In the meantime, a plan and budget are being set for visits to the next group of sanctuaries. The plan is to visit at least six more wildlife centers (and up to nine) before the end of 2016. For the next phase of the ODK project, it has been determined that spending a few more days at each place will be beneficial to maximizing the wildlife center's full capabilities using the application. Efforts will be made to ascertain the status of each sanctuary's current historical data prior to these visits in an effort to better assess the time it will take to enter the data. Kourtney has already personally raised \$1,200 from private sources to go towards the travel expenses for Phase Two.