



A herd of elephants stampeded through the dry terrain of the Okavango. Photograph courtesy of Amanda Stronza.



LAND OF THE ELEPHANTS

BY: KARA SLAUGHTER

In the floodplains of northern Botswana, there is a conflict that occurs each and every day of the year. A fight for space. A fight for food. A fight for control. A colossal sized battle between the people and the elephants.

OF MAMMOTH CONCERN

The largest population of elephants – close to 200,000 – roams freely through the waterways, forests and grasslands of northern Botswana. In an area called the Okavango Delta Panhandle, there is a turf war between approximately 15,000 elephants and 15,000 villagers. The main point of conflict in this region of Botswana is tied to competition for space, the availability of water and access to resources.

Throughout the months of April to June, pools of water to the north in the woodlands dry up and the elephants make a migration south to the permanent waters of the Okavango Delta. As they migrate south, the elephants encounter the fields and people living in the area. This is also the peak harvest times for the villagers. Despite the pools of water drying up, the elephants still need resources from the northern region. During these dry months they will make multiple trips, sometimes daily, between the northern area of the Okavango Panhandle and the southern area.

As the elephants make the migration, they have to pass through fields and settlements. In one day, a herd of elephants can destroy an entire field of crops and imperil the livelihoods of the village people. The people in these areas use whatever methods they can, making lots of noise and burning fires, to scare the elephants away from their homes. When the elephants near a village or settlement, they pack closely together and barrel through to ensure their safety in a dangerous area.

ECOEXIST

Anna Songhurst, Ph.D., a conservation biologist, Graham McCulloch, Ph.D., a conservation ecologist, and Amanda Stronza, Ph.D., an anthropologist, saw the conflict happening and wanted to develop a solution: The Ecoexist Project. Stronza's research prior to teaming up with Songhurst and McCulloch focused on community-based conservation and sustainable development in the Amazon. Stronza met Songhurst and McCulloch in Botswana in 2011. The Ecoexist Project stems from the foundation of Songhurst's doctoral studies on this topic in the area since 2008, McCulloch's 20 years of experience working with conservation projects in Botswana and Stronza's leadership in creating the Applied Biodiversity Science NSF-IGERT Program at Texas A&M University. The three of them came together to answer one question: how do you address human and elephant conflict with the big picture in mind?

The Ecoexist team consists of the three project directors – Stronza, Songhurst and McCulloch – who lead the effort. The team also includes, three field coordinators, six support staff, 13 community officers and seven



Olebogeng Solomon, Boineelo Kayenda, and their children, from the Village of Ngarange, walk the road at dusk, carrying bundles of fuel wood. People are always on the watch for elephants crossing the same road. Photograph courtesy of Amanda Stronza.

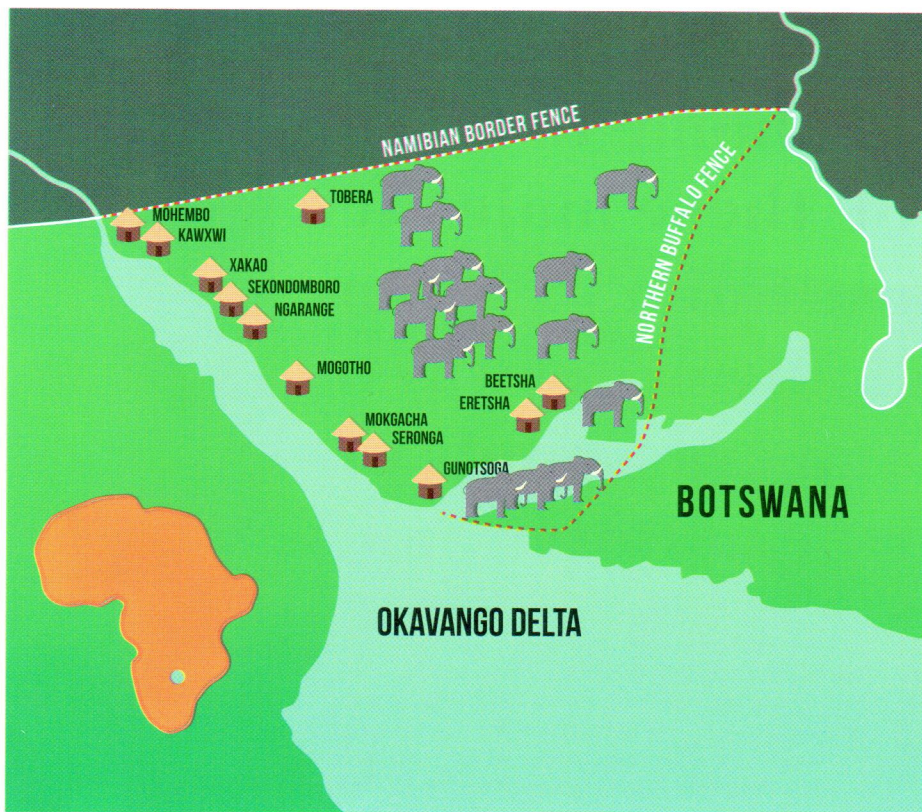


ILLUSTRATION BY REMINGTON MAY

BOTSWANA

The largest population of elephants in the world, nearly 200,000, roam freely across the lands of Botswana.

The land that is shared between humans and elephants forms a shape similar to that of a triangle. The triangle is inverted and the base is the shared border between Namibia and Botswana. The countries are separated by a double electrified veterinary fence. The right side of the land is Botswana's Northern Buffalo Fence – keeping livestock and wildlife from coming in contact. On the left side of the land is the Okavango River. This part of the panhandle is where the Okavango River comes through Botswana before spreading through the alluvial fan of the Okavango Delta.

In the area of northern Botswana, 15,000 elephants compete for space, food and resources with 15,000 people. The area they are living in is just over 8,000 square kilometers – roughly the size of Yellowstone National Park.

graduate students attending Texas A&M or Oxford University. These students are from Botswana, Chile, the Netherlands and the United States. This project is funded by a grant from The Howard G. Buffett Foundation. Their dedicated teamwork supports the lives of the people sharing space with elephants, while also ensuring the safety of both.

There are five major goals of The Ecoexist Project.

The first is to follow the herds. Tracking their movement helps researchers understand how many are in the herd, where they are going and their preferred routes of travel. Knowing this will allow the researchers to better control the intersection of humans and elephants.

"We have identified 13 important corridors that have been incorporated into land use planning models by the government land boards, in order to protect them from conversion to agricultural land and ultimately reduce future conflict," Songhurst said.

There are 109 main pathways that elephants use in the panhandle, however, these 13 see the most traffic. By working with the government and having these 13 corridors incorporated into land use planning models, officials can avoid allocating new fields and other developments in high elephant traffic areas.

Songhurst and the Ecoexist team have collared 28 elephants – 18 males and 10 females – across the Okavango Panhandle. Data from the collars is allowing the team to grasp a better understanding of the elephants' seasonal movements, behaviors and habitats. This data has shown that the elephants prefer areas away from people and are not intentionally moving through villages.

The second aspect is to plan for shared space. A major part of this is knowing the main areas of travel for elephants and avoiding new development along those pathways. It is important to figure out how to make the land available for both the humans and elephants. The team gathers social, biological and ecological information to create a better understanding of the big picture. This information will help the Ecoexist team build opportunities

for shared space and reduce the conflict.

The people are angry, frustrated and stressed, and the elephants are just as afraid – this causes a dangerous situation. Zoning the area will help separate the settlements and fields from the elephant pathways. The Ecoexist team has set out to alleviate the root of the conflict in order to make coexistence possible.

"You can't understand the mindset of the people until you can understand what it is like living in their situation," McCulloch said.

The third and fourth parts of the project go together, protecting the fields and harvesting the crops earlier. The team is implementing a combination of different mitigation techniques to help prevent elephants from entering farmers' fields, such as solar powered electric fences, noise producing structures and solar lights. Although there are techniques to help avoid crop raiding, it is equally

important to figure out how to develop sustainable, productive and resilient farming strategies.

"Most of the people in the Panhandle rely on crops to sustain their families," McCulloch said. "They wait for the rains and hope for the best."

McCulloch and the Ecoexist team work closely with the farmers to explore the best farming and harvesting techniques in an area. Both McCulloch and local farmers are working together to find ways to make their tactics more intensive, improve the soil quality by adding manure and mulch and implement crop rotation. He is working with the villagers toward conservation agriculture, which is a technique where farmers can produce more crops in smaller plots that are easier to protect using mitigation techniques. Conservation agriculture also means they do not have to clear more land in elephant habitats in search of better soils. This will ultimately help improve the food security of the farmers and their vulnerability of crop loss to elephants.

The remaining component of the project is to build an elephant economy. The team is working on elephant-friendly and elephant-themed commerce for the Okavango Panhandle. They are striving to bring positive

"We have taken the paradigm of reducing human-elephant conflict and turned it on its head to aim for coexistence."

- Amanda Stronza

Botswana, Land of the Elephants, is home to more than 200,000 of these majestic beasts. These animals roam freely through the waterways, forests and grasslands of northern Botswana.

economic benefits to the area and hopefully spark tourism diversification.

"The biggest challenge has been to change the perception of elephants in the villages," McCulloch said. "We've built up an amazing trust with the villagers and it has allowed us to work better with the community."

The Ecoexist team strives to have the villagers benefit from living so close to the large numbers of elephants. They are developing small-scale community based tourism that will showcase local cultural traditions, elephant-themed products and talents of the villagers. With this final step of the project, Ecoexist works to develop a place where people and elephants benefit each other.

Many conservation projects focus on species preservation. Development projects tend to focus on improving the livelihoods of people. Ecoexist is unique in striving to do both and enable coexistence between wild elephant populations and people, making the floodplains of northern Botswana hospitable for both.

"We have taken the paradigm of reducing human-elephant conflict and turned it on its head to aim for coexistence," Stronza said.

HOLISTIC SOLUTION

Ecoexist has taken a new holistic approach to human-wildlife conflict. They have combined mitigation strategies that meet the immediate needs of the farmers suffering from the conflict with a research program and practical interventions. These involve various government sectors in finding solutions to the underlying causes of human-elephant conflict. While their work has been seeing great strides of progress, they are still facing many challenges.

"Unlike elephants that are in safari areas, where they are relatively comfortable around people, elephants in the Panhandle are afraid of the people," Stronza said. "They tightly pack together and run fast when they move through the villages."

When an elephant or family of elephants come into a field, they can trample or ruin crops in an instant. Crop raiding is a huge issue for the villagers because it destroys their livelihood. However, through Songhurst's studies, she has learned that the elephants try to stick to their natural pathways. Songhurst encourages farmers to plant their fields farther away from the pathways, where they will be less likely to have their crops raided. With that being

said, there are a few male elephants that seek out crops, such as maize, to eat. Fortunately, most elephants are opportunistic and raid the fields only if they have to pass through them on their way to water or other resources.

Songhurst and the team have worked with the farmers to start growing chili peppers to create "Chili Bombs." A chili bomb is made by drying and crushing the peppers and mixing them with elephant dung. Then, it is dried out and lit using a coal from the fire so that it smokes. When the elephants get a whiff of the potent smell, they tend to avoid the area.

"The farmers are already very vulnerable," McCulloch said. "And then you add elephants on top of that."

Finding solutions to human-elephant conflict also requires working very closely with the people of the panhandle, as well as the government and other stakeholders. The Ecoexist Team emphasizes the importance of close working relationships with community members, building trust and wide-scale participation by all stakeholders in the implementation and success of their project.

ADDRESSING THE ELEPHANT IN THE ROOM

Ecoexist has approached human and elephant conflict with a holistic approach. Their goal is to work on policy within the government to find long-term solutions to the conflict. They will use the social, economic and ecological data from research and practical interventions to fully understand the causes of the human-elephant conflict and identify the consequences it brings. Then, they connect the political, social, economic and ecological aspects together to create a holistic approach to solving human-elephant conflict.

"Botswana is a shining ray of hope," Stronza said. "In a world of pain and conflict where there is little hope."

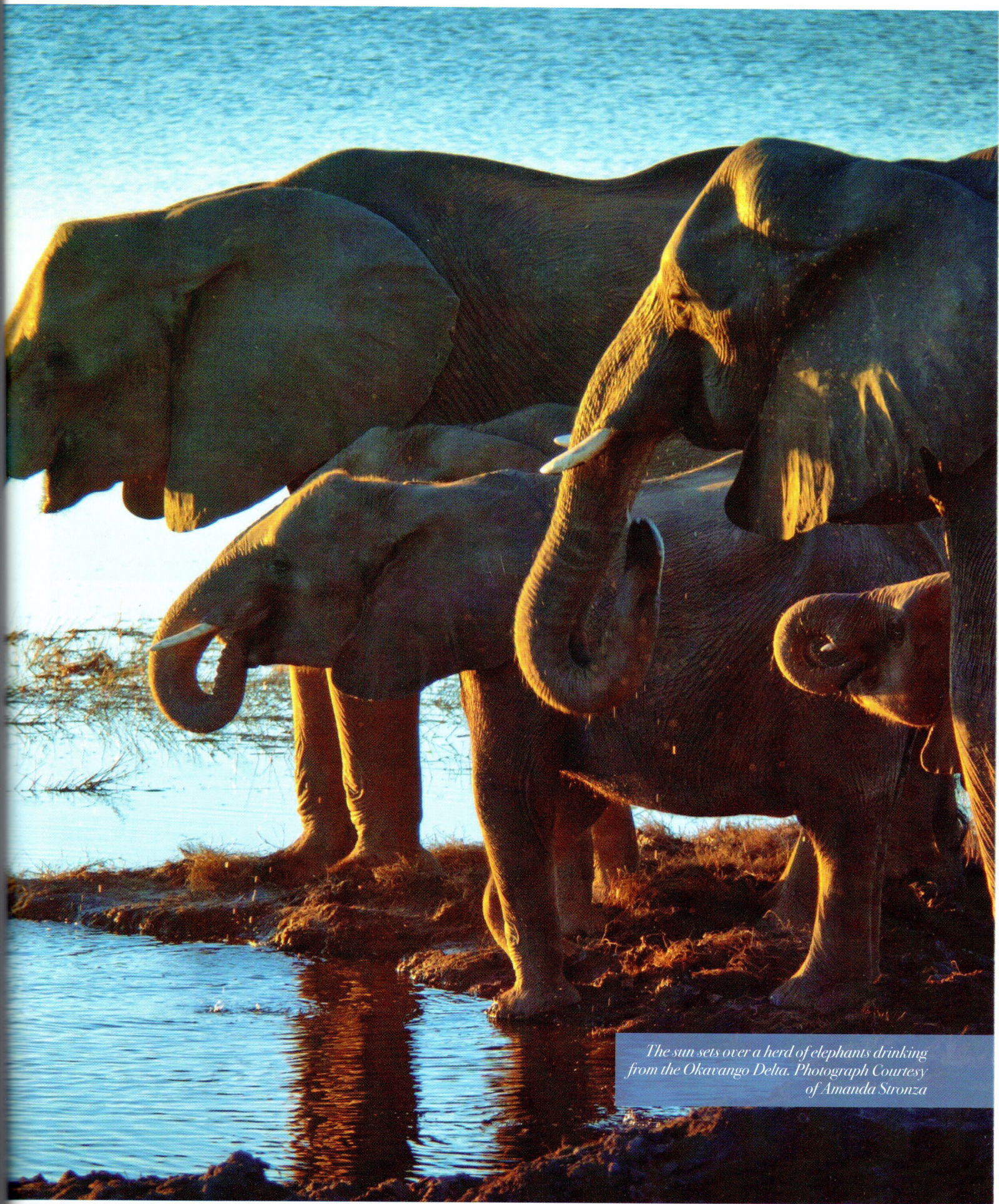
For more information on Ecoexist, visit <http://www.ecoexistproject.org/>



KARA SLAUGHTER '16

Kara was born and raised in Aggrieland. She enjoys reading a good book while sipping on a hot cup of tea.





The sun sets over a herd of elephants drinking from the Okavango Delta. Photograph Courtesy of Amanda Stronza