

## ABS Outreach Grant Project Description

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### **Superb Stories and Games: Engaging Kenyan students in the unique behavior of a local bird**

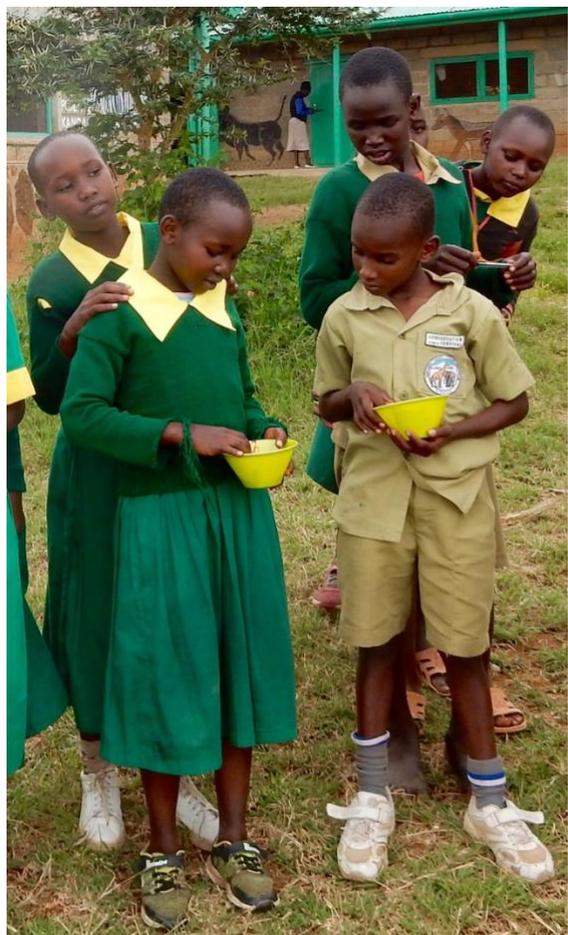
Superb starlings, a species of bird found in East Africa, have shimmering, iridescent feathers, are ubiquitous in cities and villages, as well as in the wild, and are cooperative breeders. Cooperative breeding is a mating system in which non-breeding individuals help feed and protect the offspring of breeding individuals in a social group. It is a puzzling evolutionary strategy, as it means delaying or foregoing one's own reproduction to help raise another individual's offspring. In superb starlings cooperative breeding behavior seems to be adaptive because it increases the chances of chicks surviving to adulthood in an environment with extremely high predation (> 90% of nests get predated). Additionally, helpers pitching in takes some of the load off of the parents, reducing the number of feeding visits they have to make. Altogether, superb starlings are a perfect candidate species for teaching schoolchildren the evolutionary principles behind cooperative breeding behavior and the benefits of group-living. The story of this backyard bird will encourage them to be curious about the animals they encounter daily and observe and understand their behavior.

Our project involves developing an active learning program to teach children in central Kenya about the behavior and evolution of this local species. This program will be taught through the Northern Kenya Conservation Clubs (NKCC), an after-school program for elementary children based at the Mpala Research Centre in the Laikipia district in Kenya. NKCC currently encompasses 14 schools, reaching over 400 students, and aims to connect children to their environment to foster greater local knowledge and understanding of the relationships between the environment, wildlife, and their own lives.

First, we will use the grant to create and self-publish a children's book on the benefits and evolution of cooperative breeding, using superb starlings as the central characters. We will tell the story through a combination of hand-painted, colorful drawings and an engaging narrative. This story will be translated into Kiswahili and feature numerous aspects of local Kenyan ecology to enhance its relevancy and connection to the



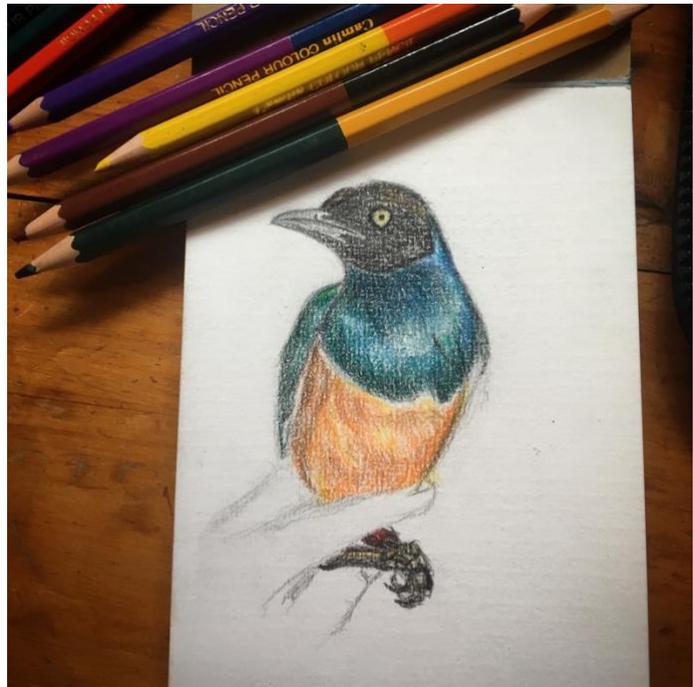
A superb starling foraging for food



NKCC students play a game that demonstrates the benefits of group-living in birds

students. Second, we will combine this story with a game on superb starling social living. The game involves splitting the children into groups of various sizes and giving them a “nest” (plastic bowl with boiled eggs) to defend from “predators” (i.e. activity leaders) while also “foraging” for “food” for their nest (crayons scattered across the playing field). This interactive activity demonstrates how larger groups are better able to provide for offspring and allows students to personally explore the benefits of group living. A prototype version of the game was successfully tested at select clubs in 2018.

This multi-faceted approach utilizes active learning and is meant to capture a multitude of learning styles in order to engage student learning at multiple levels. Studies have shown that particularly in STEM, active learning, a technique that engages students in the learning process, improves student comprehension. This project will enable us to teach a complex behavior to young students to further their understanding, appreciation, and curiosity of the local environment around them.



Working on our illustration skills – more to come for the children’s book!



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