Understanding Kenya's Wildlife

Kajiado Rangeland Carbon Project Baseline Biodiversity Monitoring—Bird and Bat Tracking


Taita Fiscal

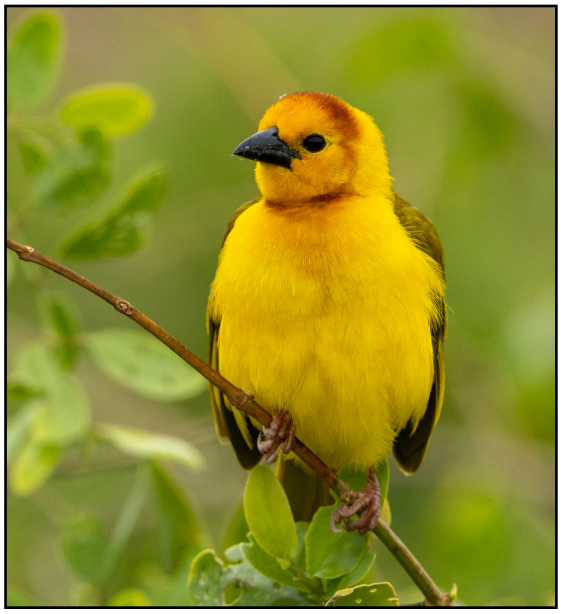

Common slit-faced bat


Tawny Eagle

Research Program Overview

Biodiversity Research Institute (BRI) is a nonprofit ecological research group whose mission is to assess emerging threats to wildlife and ecosystems through collaborative research, and to use scientific findings to advance environmental awareness and inform decision makers. BRI works in partnership with CarbonSolve to advance rangeland carbon projects in Africa.

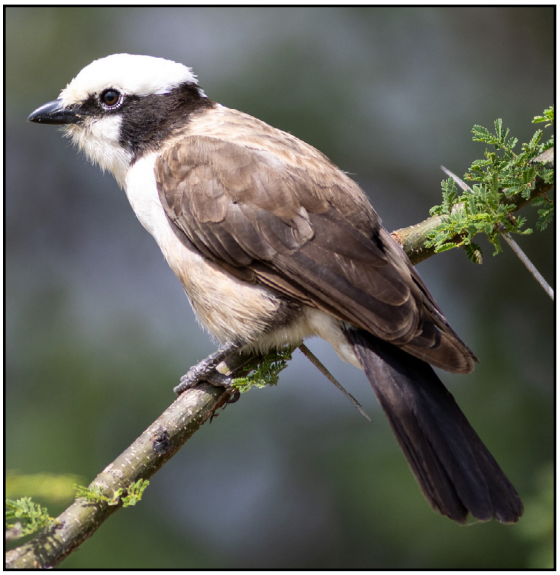
The Kajiado Rangeland Carbon Project (KRCP) is a 1.5 million hectare soil carbon project supported by CarbonSolve and BRI and is managed by Soils for the Future Africa. The project involves working directly with local pastoral communities to develop rotational grazing plans and monitor livestock movements and vegetative response. Carbon projects often focus on trigger species, but we want to broaden our investigations to include other focal species - with an emphasis on birds.



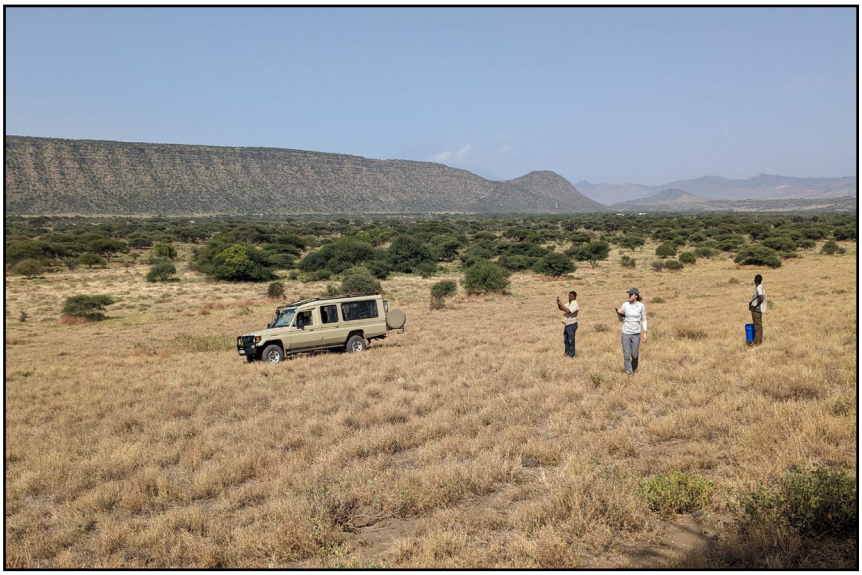
Taveta Golden Weaver. A wetland specialist and possibly at risk from mercury exposure, these birds rely on grasses to build their nests.

Goals of the research program include:

- **Adding additional data streams to our understanding of baseline biodiversity**-- We will use camera and acoustic data to further examine nocturnal mammal and bat species diversity.
- **Delving into connections among different aspects of the biodiversity sampling** -- We seek to better understand how different habitat, environmental, and land use conditions may be influencing the distribution, abundance, and diversity of species.
- **Diving deeper into potential focal species** -- We will further identify species that may respond more quickly or strongly to changes in graziing practices.
- **Improving our ability to detect change over time** -- We will incorporate environmental covariates and distance sampling methods to conduct spatial explicit modeling of bird species occupancy over time.
- **Understanding the ecology and demographics of trigger species** -- We propose to build on the first-year baseline monitoring of birds and conduct tracking studies using various methodologies (e.g., capture and unique banding/marking and use of telemetry).



White-rumped Shrike. Found in dry savannas, these birds perch conspicuously and swoop down on their prey.

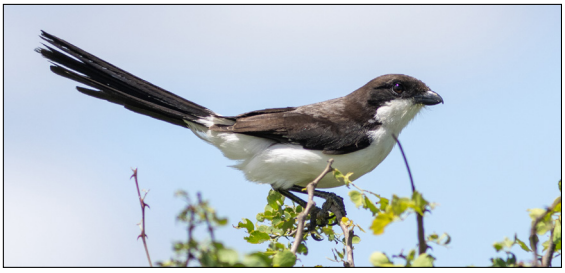


Fieldwork in Africa. Biologists collecting camera traps, pitfall traps and autonomous recording units in remote east Africa.

Current Research Projects

1. Defining raptor, fiscal, and shrike home range size

Objective: Determine home range size of territorial raptors, fiscals ,and shrikes in Amboseli National Park and on surrounding Maasai Group Ranches. Measurements of home range size will be used over time as an indicator of improvements in rangeland habitat quality outside Amboseli National Park in response to changes in livestock grazing.



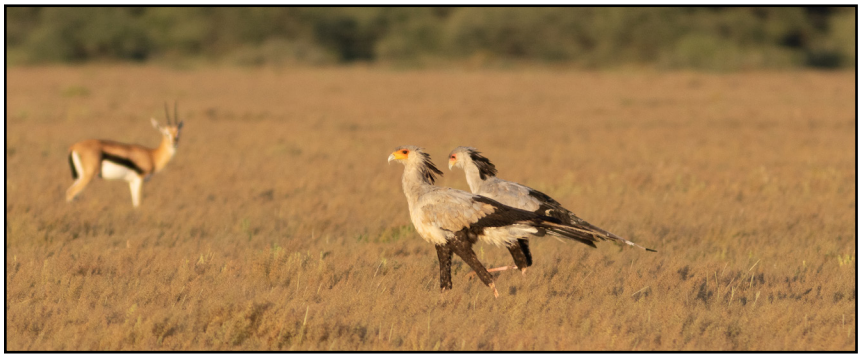
Long-tailed Fiscal. A member of the Shrike family, this bird is usually found in small groups with other individuals.

2. Understanding passerine abundance and age patterns of seed-eating and grass-use-for-nesting species

Objective: Determine passerine abundance and age patterns of seed-eating and grass-use-for-nesting species in Amboseli National Park and on surrounding Maasai Group Ranches. Measurements of abundance will be used over time as an indicator of improvements in rangeland habitat quality outside Amboseli National Park in response to changes in livestock grazing. BRI plans to use an established U.S. Program called Monitoring Avian Productivity and Survivorship (MAPS) Program.

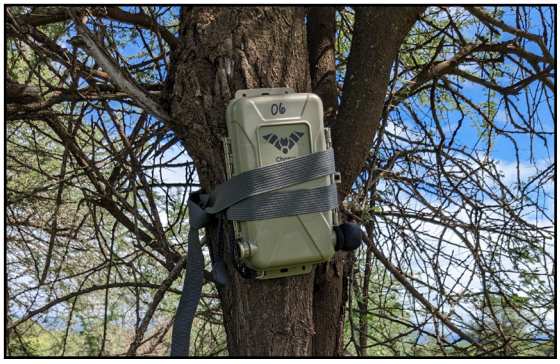
3. Understanding availability of methylmercury in at-risk bird and bat species

Objective: Determine mercury exposure in at-risk species in Amboseli National Park. Measurements of mercury will be determined in high trophic level species that are associated with areas with standing water and wetlands.



Pair of secretarybirds. Endemic to Sub-Saharan Africa, the secretarybird is the only bird of prey to hunt exclusively on the ground.

Damara woolly bat. Damara woolly bats often use abandoned weaver bird nests as roosting sites.



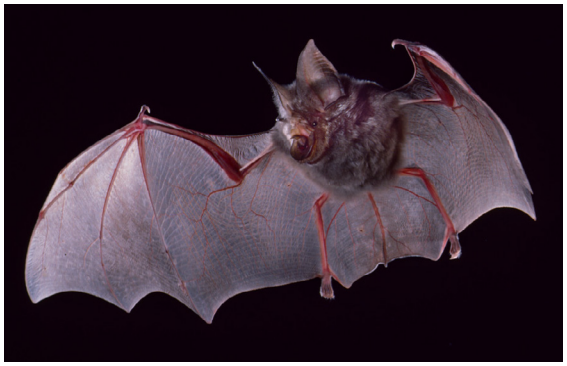
4. Development of a bat call library for acoustic monitoring in Amboseli National Park

Objective: Develop a bat call library for Amboseli National Park which will allow researchers to track the presence and landscape use via acoustic recording units (ARUs) in the Park and across Kenya. BRI is working closely with its partner group Bat Conservation International, which includes researchers in Kenya.

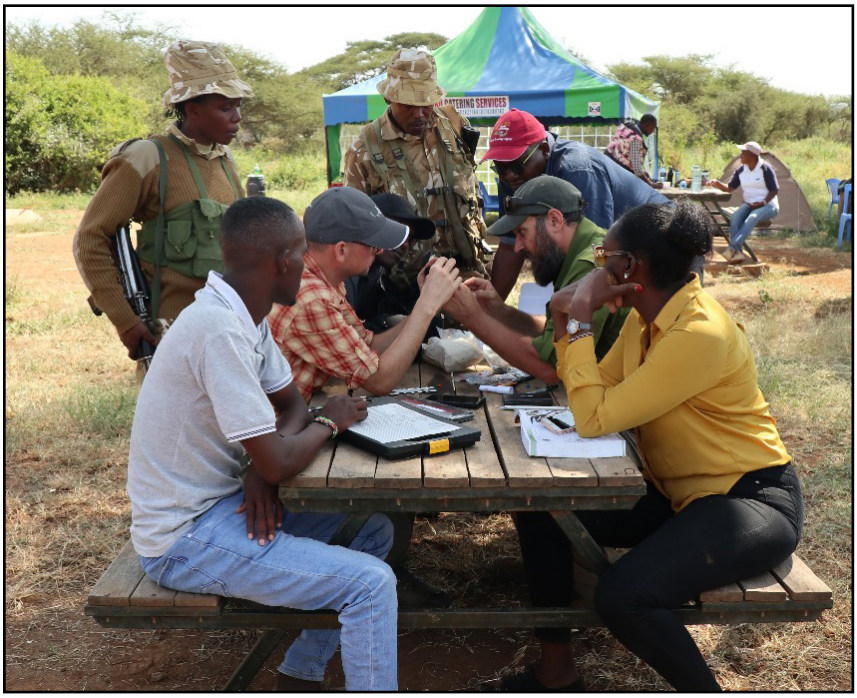
Left: Acoustic Recording Unit (ARU). ARUs are often deployed on trees to obtain acoustic and ultrasonic data about nocturnal birds and mammals.

5. Conducting biodiversity surveys in Amboseli National Park

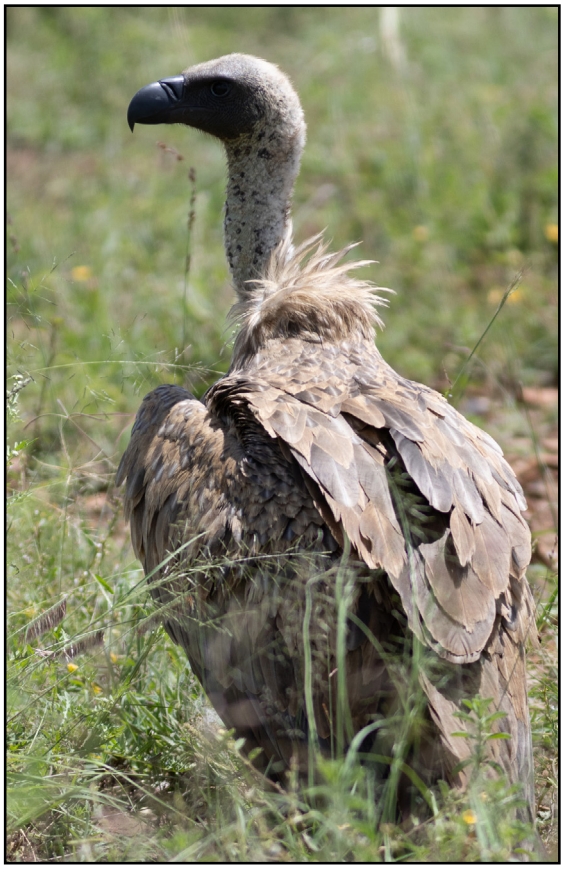
Objective: Conduct biodiversity surveys in Amboseli National Park that mimic the methodologies and field design for the Kajiado Carbon Project on the surrounding Maasai Group Ranches. Biodiversity will be examined with a focus on species richness and diversity indices, examining change in forage quality and quantity (e.g., vegetation cover and species composition), and change in the abundance and distribution of focal taxa over time, including dung beetles, birds, and mammals.



Hildebrandt's horseshoe bat. These bats are characterized by their distinctive horseshoe shaped noseleaf, which aids in echolocation.



Bird Banding Workshop. BRI and Soils for the Future Africa staff at a bird banding workshop in Amboseli National Park gaining hands on experiencing with the sampling and capture of birds.



White-backed Vulture. One of the most widespread vultures in Sub-Saharan Africa, this bird is a key trigger species in Amboseli National Park.

Photo credits: Front: Taita Fiscal © BRI staff-Ed Jenkins; Tawny Eagle © BRI staff-Ed Jenkins; Common slit-faced bat © Merlin Tuttle. Page 2: Taveta Golden Weaver © BRI staff-Ed Jenkins; White-rumped Shrike; © BRI staff-Ed Jenkins; Fieldwork in Africa © BRI staff-Ed Jenkins. Page 3: Long-tailed Fiscal © BRI staff-Ed Jenkins; Pair of Secretarybirds © BRI staff-Ed Jenkins; Damara Woolly Bat © Merlin Tuttle; Acoustic recording unit © BRI staff-Ed Jenkins. Back: Hildebrandt's horseshoe bat © Merlin Tuttle; White-backed Vulture © BRI staff-Ed Jenkins; Bird Banding Workshop © BRI staff.

SOILS for the FUTURE AFRICA

New solutions for healthy ecosystems

WWW.SOILSFUTURE.COM

carbon SOLVE

New solutions for healthy ecosystems

bri

Biodiversity Research Institute

innovative wildlife science

In its over 25-year history, BRI has applied these techniques and a multitude of others across North America, Central and South America, East and southern Africa, and Southeast Asia for funding partners including the United Nations and several U.S. federal agencies.

276 Canco Road
Portland Maine 04103
www.briwildlife.org