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by The Nature Conservancy

2025 IMPACT REPORT

Kenya Vulture Conservation Project

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Cover: Rüppell's Griffon Vultures roost on tall vertical cliffs and bring up their young on the relative safety of these perches. © Bobby Neptune; This page: Morning mist rolls up from the valley floor below wind turbines from Kipeto wind farm at sunrise. The wind farm is located on the edge of Africa's Great Rift Valley and on a ridgeline frequented by soaring raptors. © Bobby Neptune

Introduction

Welcome to the 2025 Kenya Vulture Conservation Project Impact Report. Here we provide updates on the conservation efforts and community development initiatives at the Kipeto wind farm and across the five focal communities surrounding Kipeto.

In 2025, we maintained our collaboration with the Kipeto Biodiversity Committee, its local non-profit partners and community groups to balance renewable energy generation at Kenya's second-largest wind farm with vital vulture conservation initiatives. Highlights from the year include reduced vulture poisoning events and bird fatalities. Additionally, we continued shifting towards electronic data collection to identify trends and better focus on-site and off-site programs. The shutdown on demand process continues to be successful with 897 shutdowns and only 5 priority species fatalities in 2025. The Biodiversity Committee continued efforts to reduce bat fatalities and determine the best curtailment methods by installing six acoustic monitoring devices to gather additional data. Educational initiatives in the local communities reached nearly 11,000 people in 2025, raising awareness about human-wildlife conflict and how to reduce impacts on vulture populations. Lastly, the first quarterly vulture census conducted throughout 2025 identified many active nests and growing chicks, indicating a healthier and successful vulture population.

We remain excited to continue our collaboration with the Kipeto Biodiversity Committee and local communities to support local vulture populations while furthering renewable energy generation in Kenya.

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About the Kenya Vulture Conservation Project

The Kenya Vulture Conservation Project, launched in 2020, aims to promote vulture conservation initiatives in the areas surrounding the Kipeto Energy PLC (Kipeto) wind farm by utilizing an innovative investment structure.

Project conservation goals include

- Promote vulture conservation in the area served by the wind farm by ensuring annual funding from Kipeto is provided to community-based vulture conservation initiatives throughout the life of the project
- Provide direction, support, and oversight for community-based vulture conservation activities
- Demonstrate the feasibility of innovative renewable energy investment structures to generate sustainable and scalable long-term funding to support environmental conservation in Africa

Project Background

Kenya Vulture Conservation, LLC was formed to provide a USD 10 million fixed-rate loan to support the construction of the Kipeto wind farm, located in Kajiado County, 45 km southwest of Nairobi, Kenya. Pursuant to the loan agreement, Kipeto must allocate annual funds for vulture conservation initiatives throughout the duration of the loan, which are managed by the Kipeto Board's Biodiversity Committee. Kenya Vulture Conservation, LLC maintains a seat on the Biodiversity Committee to offer technical support to Kipeto and local non-profits engaged in advancing local conservation efforts detailed in the Kipeto Biodiversity Action Plan.

Biodiversity Committee & Biodiversity Action Plan

Located in the Eastern Great Rift Valley in Kenya, the terrain and resulting winds that make an ideal location for a wind farm also attract raptors and other soaring birds. The Biodiversity Action Plan's goal is to provide clean energy in Kenya while making a positive contribution to threatened vultures and other birds of prey in local communities surrounding the wind farm. The Biodiversity Committee is responsible for implementing the Biodiversity Action Plan and is comprised of experts and local stakeholders.

Kipeto's Biodiversity Action Plan focuses on both on-site mitigation efforts aiming to find a compromise between generating renewable energy and protecting vulnerable species from turbine strikes and an off-site mitigation program that seeks to educate locals on human-wildlife conflicts that endanger local vulture populations. The Biodiversity Committee meets four times annually to review the on-site efforts implemented by Kipeto's biodiversity team, as well as the off-site mitigation efforts in the surrounding communities.

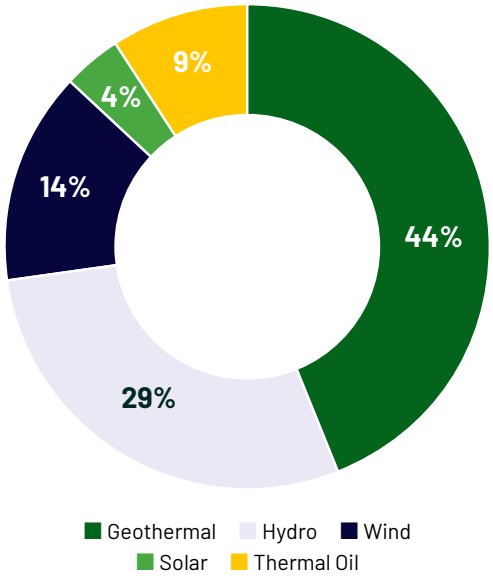
A group of Rüppell's Griffon Vultures squabble during a feeding frenzy.
© Bobby Neptune

A White-backed Vulture spreads its wings while its parents work to keep up the nest by bringing new sticks pulled from nearby Acacia trees.
© Bobby Neptune

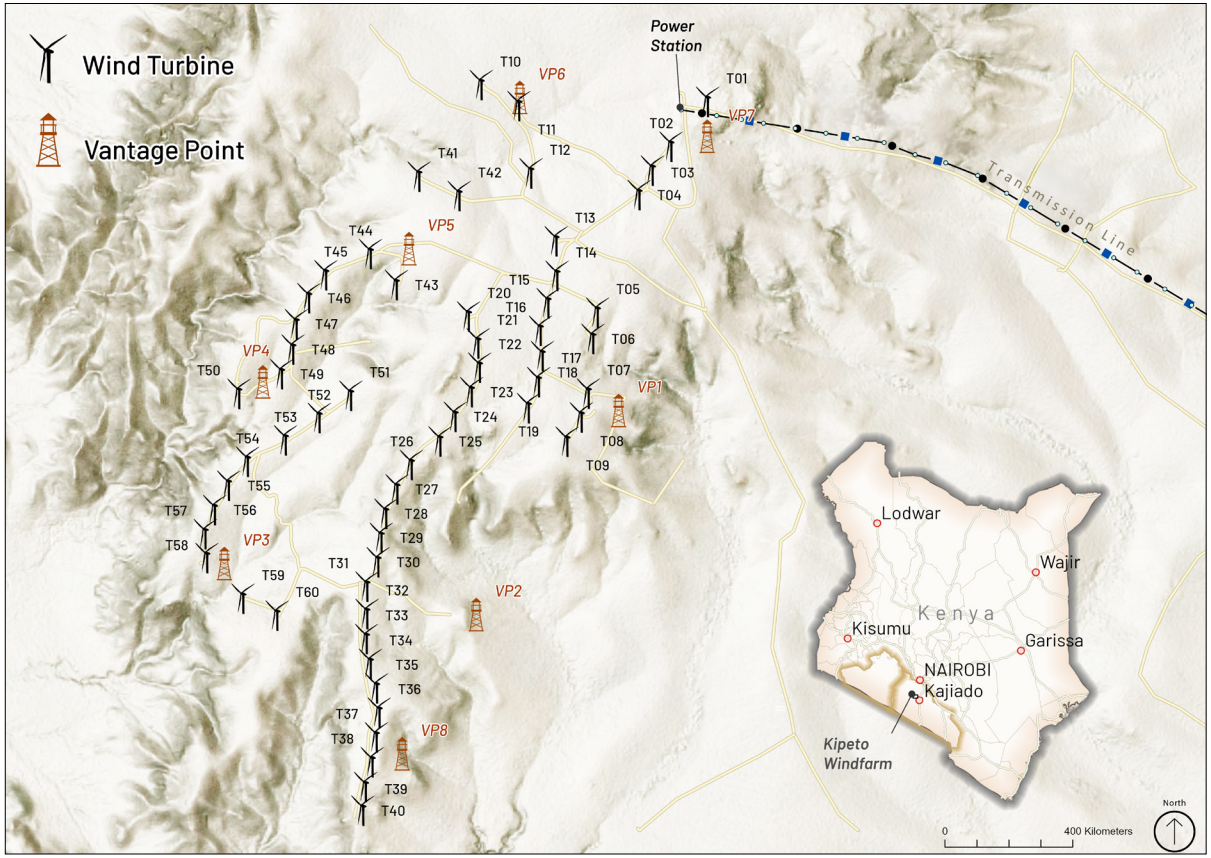
On-site Mitigation

The Kipeto wind farm features 60 wind turbines and a 17km high-voltage transmission line to connect to the national grid via the Isinya substation. Kipeto is capable of generating 100MW of power, enough to power approximately 250,000 households and offsets an estimated 66,500 tonnes of CO_2 per year[1]. Renewable energy production is a focus in Kenya, representing 91% of electricity generation in 2024 with 14% coming from wind power projects[2]. Kipeto remains the second largest wind farm in Kenya.

Kenya Energy Generation 2024



Source: IEA Kenya[3]



Priority Species

Of the nine vulture species found in Kenya, four are critically endangered per the International Union for Conservation of Nature's (IUCN) Red List of Threatened Species[4], meaning they face an extremely high risk of extinction in the wild. In the local area surrounding Kipeto, the Biodiversity Committee has identified several priority species of particular concern and has designed the Biodiversity Action Plan to target either net population gain or no net population loss throughout the project's lifespan.

Priority species included in the Biodiversity Action Plan are split into two categories. Category 1 species are critical to the local habitat and are of most concern—the Biodiversity Action Plan sets a goal for these species to achieve a net population gain over the course of the project.

Category 2 species are important components of the local ecosystem and include non-Category 1 resident raptors, all bat species, and certain plant species. The Biodiversity Action Plan sets a goal for these species to achieve no net loss in population over the course of the project.

CATEGORY 1 SPECIES

1. **Tawny Eagle** (upgraded to Category 1 in 2024) © Dominic Kimani
2. **Verreaux's Eagle** © Derek Keats/Pexels
3. **Martial Eagle** © Kenneth K. Coe
4. **White-backed Vulture** © Gautham S.S/Pexels
5. **Rüppell's Vulture** © Dominic Kimani
6. **Augur Buzzard** (upgraded to Category 1 in 2024) © Dominic Kimani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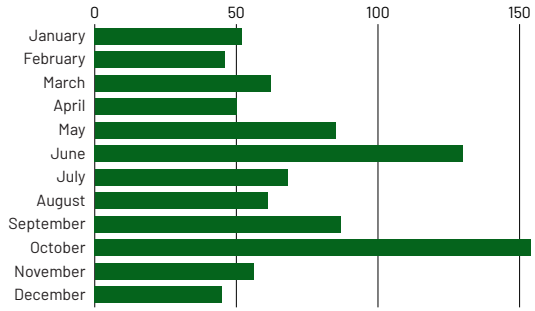
Shutdown on Demand

Although wind farms are a growing source of renewable energy, wind turbines pose a risk to bird and bat populations due to potential collisions with turbines and transmission lines. To reduce the likelihood of turbine-strike deaths among Category 1 species, Kipeto's on-site biodiversity team implements two innovative processes: Shutdown on Demand (SDoD) and daily monitoring and carcass removal throughout the wind farm footprint.

Kipeto's SDoD process is unique. Throughout the wind farm, there are eight vantage towers that allow on-site monitors a view of all 60 turbines.

Daily from 09:00 to 18:00, the primary active period for the Category 1 species, monitors observe the airspace around wind turbines from each tower to identify Category 1 species flying at collision risk height (CRH) (between 30–180 meters) throughout the wind farm. When a Category 1 species enters the yellow (within 2,000 meters of a turbine) or orange zone (within 1,500 meters of a turbine), monitors notify the control room of a potential shutdown. Should the Category 1 species enter the red zone (within 1,000 meters of a turbine), monitors radio the control room with instructions to shut down specific turbines to avoid collisions. Throughout 2025, there were 897 shutdowns, averaging 47 seconds to fully shut down the identified turbine(s). Total downtime for 2025 shutdowns was 59 hours, an average of just under 4 minutes per event, leading to an energy loss of 33,410 kWh, only 0.008% of total energy generated at the wind farm for 2025. In 2025, Rüppell's Vulture and Augur Buzzard's were the species responsible for the highest number of shutdowns, reflecting their high passage rate through the footprint of the wind farm.

2025 Number of Shutdown on Demands



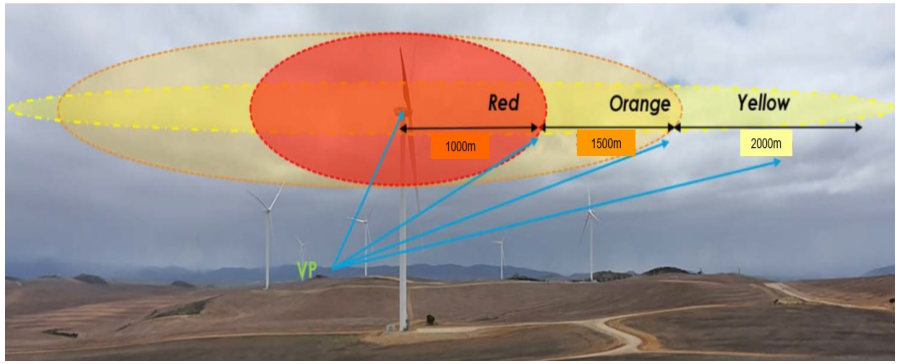


Photo: Bird observers survey for birds from a vantage point at the Kipeto wind farm in Kipeto, Kenya, as part of the Bird Observer Program. © Sarah Waiswa

Both figures source: Kipeto Energy

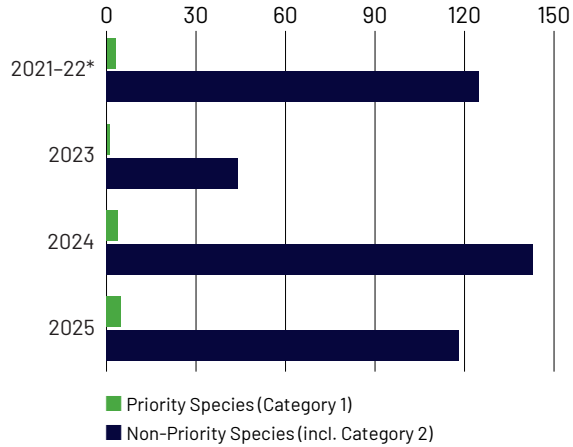
On-site Monitoring & Findings

The Kipeto biodiversity team, supported by landowners across the wind farm's footprint, also monitors the landscape for any livestock carcasses that may attract vultures and raptors. When a carcass is identified, the team quickly disposes of it to reduce vulture activity near the turbines. Given the wide-ranging feeding area for these birds, removing these food sources does not affect their ability to feed. Given high carcass rates observed in previous years due to severe drought, the biodiversity team maintains a contingency budget to retain casual workers in the event of increased events and has acquired a trailer to facilitate prompt removal. Eleven carcasses were observed at the wind farm in 2025 with 66% involving livestock and the remaining 33% involving wildlife.

Despite the speed of the SDoD process and removal of carcasses, there are occasionally Category 1 species fatalities. A study of 10 wind farms in Spain, totaling 244 turbines, found an average of 0.186 deaths per turbine per year of Griffon Vultures[5]. In 2025, there were two Category 1 fatalities due to turbine strikes and three from collisions with the transmission line. In addition, there were two African-Hawk Eagle fatalities which are under consideration for Category 1 designation. Since the start of commercial operations in July 2021, there have been a total of 13 fatalities of Category 1 species, an average of 0.048 deaths per turbine per year and a 67% reduction from the Spain study. In total, 127 bird fatalities were observed in 2025, a 16% reduction from 2024. Analysis of the fatalities shows disbursement throughout the wind farm footprint with no turbines identified as a larger concern requiring additional intervention.

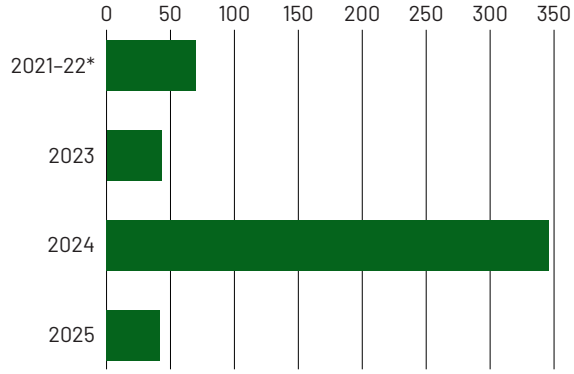
In addition to monitoring bird fatalities at the wind farm, Kipeto's biodiversity team also monitors bat fatalities as a Category 2 species. As bat fatalities increased throughout 2024, the Biodiversity Committee, in conjunction with the Kipeto biodiversity team, supported a study to collect local bat population data to identify the most effective bat strike mitigation strategy. The Committee has determined that acoustic-triggered curtailment using near-real-time activity is the best option for managing bat fatalities. In October 2025, six bat detectors were installed to collect acoustic data. Analysis will be conducted in 2026 to develop a bat mitigation plan. Since the launch of commercial operations in July 2021, there have been 526 bat fatalities identified. As noted below, 66% of total bat fatalities occurred in 2024 with 2025's 42 fatalities returning to similar levels as previously observed. The primary species of concern is the Harrison's Large-eared Giant Mastiff Bat (*Otomops harrisoni*), listed as vulnerable on the IUCN Red List of Threatened Species, which has seen 119 fatalities since the launch of commercial operations.

Kipeto Bird Fatalies



*2021–2022 data is from July 2021 (launch of commercial operations) to December 2022

Kipeto Bat Fatalies



*2021–2022 data is from July 2021 (launch of commercial operations) to December 2022

Rüppell's Griffon Vulture © Jesús Esteban San José/Pexels;
Both figures source: Kipeto Energy

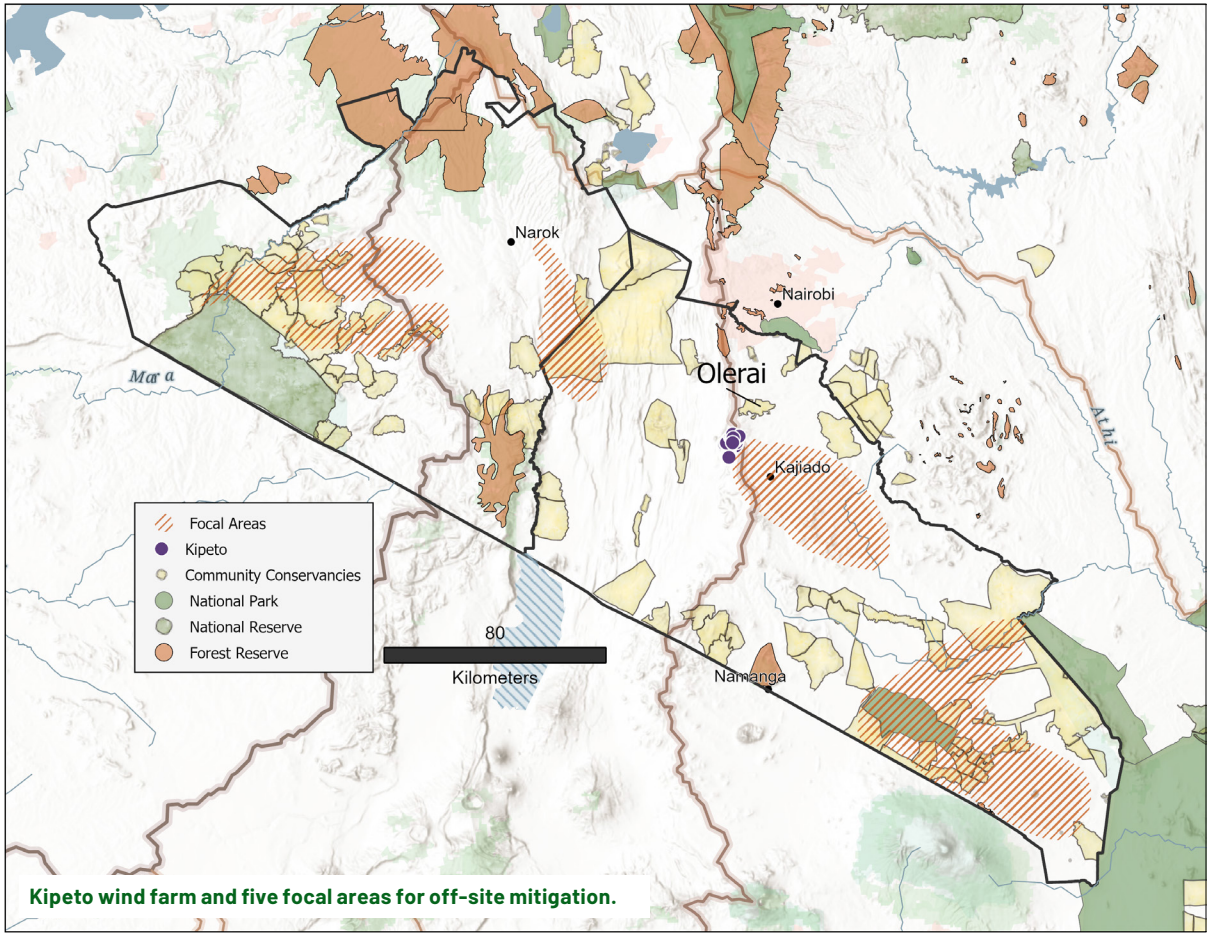
Off-site Mitigation

Reducing fatalities on-site at the wind farm supports the project's conservation goals. However, the majority of negative impacts on local vulture populations stem from human-wildlife conflict in the surrounding communities, requiring off-site mitigation to meaningfully support local vulture populations. The funding provided by Kipeto, and managed by the Kipeto Biodiversity Committee, focuses on five focal areas surrounding the wind farm and covering a total of approximately 8,000 km^2. These areas were chosen because these communities have large populations of wildlife and livestock. Human-wildlife conflict arises when wildlife attacks livestock. Since many families in this region rely on livestock for their livelihoods, many predation incidents are followed by herders lacing the carcass of their livestock with poisons in an attempt to kill the predators. An unintended consequence of these events is that local vulture populations are poisoned and killed as they feed on the poisoned carcass.

Education

With over 60% of reported vulture deaths in Sub-Saharan Africa linked to poisoning[6], education around human-wildlife conflict is of critical importance to supporting the local vulture populations. The Biodiversity Committee works with local non-profit partners on a comprehensive educational program in the focal areas surrounding the wind farm. Starting with the importance of the local vulture population, educational programs often include discussion of retaliatory poisoning events and alternatives. A single poisoned carcass can kill dozens of vultures. The education programs provide local herders with adjustments to herding practices to avoid predation such as the best grazing times, ideal ratios of herders to livestock, benefits of group herding, and signals of wildlife behaviors to be mindful of. Educational events also detail the benefits of information sharing, including recent locations of predators and reporting any suspected poisoning events.

A team of 5 conservation officers and 65 field volunteers educate local community members and respond to predator attacks and wildlife poisoning incidents. This team has been trained

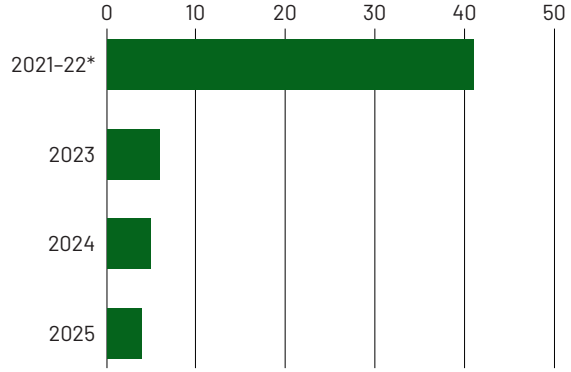


Kipeto wind farm and five focal areas for off-site mitigation.

Photo: Market outreach at Bisil Market. © Fridah Kalekye

in rapid response techniques to reduce the impact of poisoning events and works with partner organizations to rehab poisoned birds. In 2025, 10,977 people were reached through the educational outreach programs, bringing the total to 135,537 attendees since the July 2021 launch of Kipeto commercial operations. We believe these educational programs have contributed meaningfully to reducing the number of poisoning incidents; only four incidents were identified in 2025, a 90% reduction from the first 18 months of the project. In addition, three poisoned high-priority bird species were rehabilitated in 2025.

Poisoning Events Reported



*2021–2022 data is from July 2021 (launch of commercial operations) to December 2022

Source: Kipeto Energy

Photos from top: A traditional boma made of sticks and branches. © Dominic Kimani; A predator-proof boma, built with metal supports, fencing and blinds covering the lower portion. © Dominic Kimani

Bomas

Despite protecting livestock while grazing by implementing improved herding practices throughout the day, livestock remain susceptible to attacks overnight. Livestock are typically housed overnight in a boma (an enclosure). Traditional bomas are made of branches and are used throughout parts of Africa to keep livestock safely contained overnight; however, their effectiveness at preventing wildlife attacks is limited as they can be easily penetrated by predators. The Biodiversity Committee works with local organizations to build predator-proof bomas for local community members. Predator-proof bomas are much more durable, typically constructed with steel supports and chain-link fencing and have blinds on the lower sides to impede visibility of the livestock inside.

In 2025, 20 predator-proof bomas were built for selected community members, bringing the combined total to 107. There were no attacks reported in 2025 in the predator-proof bomas and only fourteen reported since construction started, where goats and sheep have been injured or killed. These bomas have safeguarded 5,352 cows and 8,418 smaller livestock (e.g., goats and sheep) owned by the beneficiaries. As there is a limited number of predator-proof bomas that can be funded by the Biodiversity Committee annually, community members who have been selected for a predator-proof boma have contributed to expanding these efforts by sharing their experiences and building techniques with their neighbors, leading to community-built programs focusing on both new predator-proof bomas and reinforcing traditional bomas using some of these methods. To complement the predator-proof bomas throughout the local community, predator deterrent lights were installed at an additional 182 households in 2025.

Vulture Monitoring

Throughout 2025, the first quarterly vulture colony census was conducted across four identified colonies in the area surrounding the wind farm; a fifth colony was added beginning with the Q3 2025 count. These colonies are known breeding / roosting sites for the Rüppell's Vulture, which often nest on cliffs, or White-backed Vultures, which often nest in large trees. The census was conducted in the early morning before these birds typically leave the nest to feed around 09:00, and counted the number of adults and juveniles observed. On average, 178 Rüppell's Vultures and 186 White-backed Vultures were identified during this census, including an average of 6 Rüppell's Vulture juveniles and 9 White-backed Vulture juveniles, which will be a key input into ongoing efforts to quantify the net population gain and no net population loss goals of the Kipeto Biodiversity Action Plan.

In addition to ongoing vulture population census reviews, the Biodiversity Committee has worked with a local non-profit organization to radio-tag vultures and raptors to track their movements and nesting locations. The number of radio tags deployed over the last several years has remained low due to delays in obtaining additional permits. However, in late 2025, permitting delays were resolved, and the team is now working to deploy the newly approved tags. One of the 2025 African-Hawk Eagle fatalities occurred among the raptors equipped with a radio tag for tracking. This raptor was part of a breeding pair with a dependent chick, which was rescued and transferred to a rehabilitation center. Foster parents are now caring for the chick and it is intended to be released into the wild at an appropriate age.

A White-backed Vulture in Olerai Conservancy's vulture sanctuary in southern Kenya looks over a juvenile in its nest. White-backed Vultures will roost in colonies in the tops of trees. © Bobby Neptune

Community Development

The communities around the Kipeto wind farm are key to supporting local vulture populations. As part of the Biodiversity Committee's efforts, promoting community development and varied income sources remains a secondary focus. During this project, several local groups received training in modern beekeeping, and 230 beehives were donated. Many of these hives are still in use, with communities adopting methods to handle challenges like honey badger attacks, ant and termite problems, and illegal harvesting. Previously, all honey was consumed locally, but in Q1 2025, two groups in the Olerai Conservancy offered 25 kg of honey for local sale with plans to broaden market access and gradually increase profits as honey production increases.

To complement these income diversification efforts and support conservation, Kipeto also aims to reduce logging activities in the area that threaten vulture populations. Kipeto has previously donated energy-saving jikos, clay stoves that use less firewood than traditional methods. In 2025, an additional 70 stoves were distributed to households heavily dependent on firewood; we estimate this will reduce their firewood consumption by ~60% per household.

Real-Time Biodiversity Monitoring Dashboard

Throughout 2024 and 2025, The Nature Conservancy's Africa Science and GIS team provided technical support to the Kipeto biodiversity team to enable a transition from paper data collection and manual data entry to the ArcGIS Survey 123 platform. The Kipeto biodiversity team as well as non-profit and community partners now utilize the ArcGIS Survey 123 platform on-site and in the five off-site focal areas to collect information. This transition is important as it enhances data accuracy, enables real-time monitoring, and improves decision-making for biodiversity conservation efforts.

The figure to the right shows the December 2025 on-site dashboard data. Data points for December 2025 are compared to the mean monthly values for January 2020 to December 2025 (in italics and parenthesis). Observations at CRH represent Category 1 species identified at collision risk height (CRH), between 30 and 180 meters. Carcass incidents observed on-site provide insight into potential drivers of increased observations, SDoD's and fatalities. Over time, the dashboard will be augmented with a wide range of remote sensing ancillary data, including monthly vegetation and water index and monthly precipitation data, to provide greater insight into supporting priority bird species activity in the area. This data will allow the Biodiversity Committee to implement more targeted education and outreach activities in the five focal areas to ensure vulture and raptor populations are properly safeguarded.

All Observations		Observations at Collision Risk Height (CRH)	
Vultures	Other Category 1	Vultures	Other Category 1
491 (*776*)	2,399 (*2,350*)	67 (*68*)	372 (*255*)

Carcass Incidents	Shutdown on Demand (SDoD)		
	No. events	Total turbine-hours	% generation lost
4 (*7*)	45 (*72*)	3 (*5*)	0.006 (*0.011*)

Recorded fatalities		
Category 1 species	All birds	All bats
0 (*0*)	8 (*8*)	1 (*10*)

Sample on-site dashboard from December 2025. Values listed are for December 2025 compared to mean monthly values for January 2020 to December 2025 in parenthesis. Source: Kipeto Energy

A Rüppell's Griffon Vulture joins the feeding mob on a carcass. Soaring above the carcass until they see other birds on the ground, vultures will often wait until they feel safe to land. Once a critical mass is reached, the mob will descend all at one time and a feeding frenzy will begin. © Bobby Neptune

Shaping the Future of Responsible Wind Energy

The Kenya Vulture Conservation Project continues to demonstrate how wind farms can balance renewable energy generation with the protection of vulnerable and important vultures and raptors.

As the Kenyan government recently lifted its moratorium on new power purchase agreements and new renewable wind energy projects are approved and built, the approach at Kipeto serves as a blueprint for other project developers to consider ways to mitigate impacts on local communities and ecosystems.

Kipeto's biodiversity team actively shares insights into both on-site and off-site mitigation efforts through presentations and peer-reviewed publications. We are committed to not only meeting the Project's conservation goals but also advancing the Kipeto Biodiversity Action Plan. Our goal is to inspire others by showcasing how to implement practices that benefit local communities and safeguard the natural environment.

A view of a wind turbine from the ground at the Kipeto wind farm. © Sarah Waiswa

ENDNOTES

1 kipetoenergy.co.ke/2021/10/20/elementor-837/

2 Understanding Kenya's Evolving Energy Mix and Its Implications for Reliability—IEA Kenya

3 Same as #2

4 IUCN Red List of Threatened Species

5 Griffon vulture mortality at wind farms in southern Spain: Distribution of fatalities and active mitigation measures

6 Vulture poisoning in Sub-Saharan Africa and its implications for conservation planning: A systematic review—ScienceDirect

NOTICE

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FORWARD LOOKING STATEMENTS

All statements in this Impact Report other than historical facts are forward-looking statements, which rely on a number of estimates, projections and assumptions concerning future events. Such statements are also subject to a number of uncertainties and factors outside TNC's control. Such factors include, but are not limited to, uncertainty regarding and changes in global economic or market conditions, including those affecting industries related to the material presented in this Impact Report, and changes in US or foreign government policies, laws, regulations and practices. Opinions expressed are current opinions as of the date of this Impact Report. Should estimates, projections and assumptions or these other uncertainties and factors materialize in unexpected ways, actual results could differ materially from the forward-looking statements in this Impact Report. While the assumptions underlying these forward-looking statements may be reasonable under current circumstances, readers should bear in mind that such assumptions are inherently uncertain and subjective, and that past or projected performance is not necessarily indicative of future results. No representation or warranty, express or implied, is made as to the accuracy or completeness of the information contained in this Impact Report, and nothing shall be relied upon as a promise or representation as to the performance of any investment in Kenya Vulture Conservation, LLC.

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