Monthly Report

February 2025

Slit-faced bat (*Nycteris* sp.)

Contents

Lighting Experiment in Kuti Wildlife Reserve

By Lewis Absalom, ABC Student

Urbanisation and artificial light at night (ALAN) are emerging threats to biodiversity, particularly for nocturnal species such as bats. In Malawi, one of Africa's most densely populated countries, habitat loss and increasing artificial illumination pose significant risks to bat populations. While ALAN can attract insect prey and create new foraging opportunities for some bat species, it can also increase predation risk, disrupt orientation, delay emergence, and even lead to roost abandonment. However, research on ALAN's impact on African bats remains limited.

To address this knowledge gap, myself, alongside the ABC team, continued conducting research at Kuti Wildlife Reserve to assess how varying light intensities influence bat emergence behavior. The study is focusing on three closely related species of free-tailed bats: *Mops condylurus, Mops niveiventer,* and *Chaerephon pumilus*. The experiment was carried out over three nights and at three different sites around Kuti (Figure 1), with the first night serving as a control (natural darkness) and the second and third nights involving artificial light exposure at 5 lux (low-intensity) and 80 lux (high-intensity), respectively.

Figure 1. The three sites chosen for the lighting experiment: bat box KTIBBOX09, old CRA office, and Landirani communal area.

Each night, bat emergence was recorded from 45 minutes before sunset until the last bat had left the roost or if no activity was recorded for a period of time. Lux measurements were taken every 15 minutes to ensure consistency in illumination levels. Environmental variables such as temperature, humidity, and weather conditions were also monitored to account for external influences on bat behavior.

Preliminary observations suggest that artificial lighting may lead to earlier emergence times and increased clustering at roost entrances. Such behavior could heighten predation risk by making bats more conspicuous to predators and exposing their roost locations. Data analysis is still ongoing, with collected

data currently being processed and interpreted to determine the extent of ALAN's impact on bat emergence behavior.

The results of this study will provide crucial insights into the impact of light pollution on bats in Malawi and contribute to the development of conservation strategies aimed at mitigating urbanisation pressures on bat populations. Findings will be shared upon completion of the study, offering valuable guidance for biodiversity-friendly urban planning and conservation efforts.

Bat Box Monitoring Programme

By Luisa Auletta, Senior Research Assistant

Figure 2. A free-tailed bat found in one of the bat boxes located in Kuti.

Malawi is home to over 64 species of bats and has been recognised by the International Union for Conservation of Nature (IUCN) as a critical area for bat conservation in Africa, noted for its high levels of endemism and species diversity. However, Malawi is also facing significant conservation challenges, particularly for its bat populations. Habitat destruction, especially of suitable roosting sites, poses a severe threat to bat populations, a problem often exacerbated in regions where wildlife protection laws are under-resourced or insufficiently enforced.

As part of its ongoing conservation efforts, African Bat Conservation conducts bat box monitoring in Kuti Wildlife Reserve, where 25 artificial bat boxes have been installed to provide roosting sites for bats and support biodiversity (Figure 2).

In fact, bat boxes play a critical role in bat conservation by offering alternative roosting sites, mitigating habitat loss, and fostering coexistence between bats and human communities. They also serve as valuable research tools, enabling scientists to study bat colony formation, reproductive behavior, and species distribution over time.

Bat boxes not only offer safe refuge but also contribute to the study of bat populations and their ecological roles.

On **7th February 2025**, the ABC team conducted a systematic bat box survey to assess occupancy rates and overall condition. The survey revealed that:

- **Three bat boxes were occupied by bats**, indicating successful colonisation.
- **Four bat boxes were inhabited by other species**, highlighting their value for broader biodiversity.
- **Two bat boxes showed signs of damage**, likely caused by adverse weather conditions.

Among the bat boxes surveyed, **KTIBBOX09** emerged as the most successful, housing a **colony of 12 free-tailed bats (family Molossidae)**. This bat box has also been selected for **the lighting experiment**, allowing further research on the effects of artificial illumination on bat behavior and roost selection. The successful occupation of this bat box provides valuable data on the effectiveness of artificial roosts in supporting bat populations.

Creating New Outreach Material

By Luisa Auletta, Senior Research Assistant

Figure 3. The two new posters designed for Kuti Wildlife Reserve.

The ABC team developed educational materials at Kuti Wildlife Reserve to inform visitors about local bat species, their ecological roles, and conservation importance. These materials, that will be displayed at the reception area, aim to dispel misconceptions and promote awareness.

The focus was on two key bat families: Nycteridae (Slit-faced bats) and Molossidae (Free-tailed bats) (Figure 3).

Slit-faced bats, identified by their deep facial groove aiding echolocation, roost in various structures, including long-drop toilets and security buildings. A new roosting site was discovered in collaboration with Conservation Manager Armel and Mr. Munga, revealing cohabitation with porcupines, which was

later confirmed through camera trap footage. This interaction contributes to a broader understanding of interspecies habitat use.

Free-tailed bats, known for their fast flight and powerful echolocation, roost in crevices within buildings, roof spaces, and bat boxes. They are highly vocal, with social calls often heard during the day. Surveys confirmed their presence in visitor accommodations and staff housing, and since many juveniles were still dependent on their roosts, exclusion measures were postponed to ensure ethical wildlife management. These efforts reflect the ABC team's commitment to conservation and public education, fostering appreciation and protection of bats within Kuti Wildlife Reserve.

Restoring the Bat Trail for Kuti Wildlife Reserve

By Luisa Auletta, Senior Research Assistant

Figure 4. One of the old panels found damaged and on the ground.

The Kuti Wildlife Reserve has long featured an educational bat trail designed to inform visitors about bat ecology and conservation. Initially established in the Landirani area, the trail included interpretive panels detailing bat species, their ecological roles, and common threats. However, by 2024, the trail had deteriorated significantly due to weather exposure and maintenance activities, leaving many panels damaged or missing, and the route difficult to navigate.

Recognising the need for improvements, the ABC team initiated a comprehensive restoration project. They retrieved all remaining interpretive panels and directional signs, repainting and refurbishing them for better visibility. Additionally, the team GPS mapped a revised trail route, ensuring a clearer and more structured path for visitors. The new trail will include an updated map panel and informational leaflets about bat conservation efforts both at Kuti Wildlife Reserve and across Malawi.

Figure 5. ABC student Lewis taking off from the tree one of the wooden signs of the bat trail.

The restoration project aims to enhance visitor engagement by providing a more informative and accessible experience. By

reviving the bat trail as an educational resource, the ABC team hopes to strengthen public awareness of bat conservation and ensure the long-term sustainability of this initiative within Kuti Wildlife Reserve.

Summary of Work

Bat surveys carried out in February 2025

Date	Type	Site code	Location	Total bats caught	Species caught / encountered
15/02/2024	Opportunistic	KTMI9	Kuti	13	*Chaerephon pumilus*, *Epomophorus labiatus*, *Scotophilus dinganii*, Vespertilionidae sp.

Biosamples collected February 2025

Date	Survey type	Sample type	Site code	Location	No. samples	From which species
15/02/2025	Opportunistic	Wing punch	KTMI9	Kuti	8	*Chaerephon pumilus*, *Epomophorus labiatus*, *Scotophilus dinganii*
15/02/2025	Opportunistic	Hair	KTMI9	Kuti	8	*Chaerephon pumilus*, *Epomophorus labiatus*, *Scotophilus dinganii*
15/02/2025	Opportunistic	Faecal	KTMI9	Kuti	2	*Chaerephon pumilus*, *Scotophilus dinganii*
15/02/2025	Opportunistic	Parasite	KTMI9	Kuti	1	*Chaerephon pumilus*

Acoustic samples collected February 2025

Date	Survey type	Site code	Location	Total no. recordings	Species caught / encountered
28/02/2025	Opportunistic	LLW039	Lilongwe	5	*Chaerephon pumilus*, *Mops* (A), *Scotophilus dinganii*

Helpline calls received February 2025

Date	Type	Location	Details
14/02/2025	Phone call	Lilongwe – Likuni	Following the talk ABC gave at CCAP Likuni Church in January, the caller contacted the helpline to learn more about bats and what ABC does.
19/02/2025	WhatsApp message	Lilongwe – Area 43	The caller reported problems with bats at one of their houses. The tenant is allergic to bats and bat guano and have asked ABC to remove the bats which roost in one of the trees in their garden. The team will plan a visit as soon as possible.
20/02/2025	WhatsApp message	Lilongwe – Area 43	Same caller following up from their call on the 19/02/2025.
24/02/2025	WhatsApp message	Lilongwe – Area 44	ABC were visited and received a message from a homeowner who has bats in their ceiling.

Total events / leaflets distributed February 2025

Date	Type	Location (incl. district)	Total people	Materials distributed	Outcomes
22/02/2025	Farmers Market	Lilongwe - Woodlands	-	14 leaflets with bat boxes installation information. 1 bat box sold.	We engaged with the local community at the Farmers Market, which takes place on the last Saturday of each month, to showcase ABC's research and conservation efforts focused on African bat species. We were also able to sell one bat box during the event.

ABC Project Species List

Latin Name	Common Name	Liwonde NP	Lilongwe City	Nyika NP	Vwaza Marsh	Kasungu NP	Kuti WR & Salima	Other
Chaerephon sp.	Free-tailed bats		X					
Chaerephon ansorgei	Ansorge's free-tailed bat	X						
Chaerephon pumilus	Little free-tailed bat	X	X		X	X	X	X
Eidolon helvum	Straw-coloured fruit bat		X					X
Epomophorus crypturus	Peters's epauletted fruit bat	X	X		X	X	X	X
Epomophorus labiatus	Little epauletted fruit bat	X	X		X	X	X	X
Epomophorus wahlbergi	Wahlberg's epauletted fruit bat	X	X		X		X	X
Epomops dobsonii	Dobson's epauletted fruit bat		X		X			
Eptesicus hottentotus	Long-tailed serotine	X						
Glauconycteris variegata	Variegated butterfly bat	X	X		X		X	
Hipposideros caffer	Sundevall's leaf-nosed bat	X	X		X	X	X	X
Hipposideros ruber	Noack's leaf-nosed bat	X						
Kerivoula lanosa	Lesser woolly bat				X			
Laephotis botswanae	Botswana long-eared bat	X	X		X	X		X
Lissonycteris goliath	Harrison's soft-furred fruit bat							X
Macronycteris gigas	Giant leaf-nosed bat	X	**X**					X
Macronycteris vittatus	Striped leaf-nosed bat							X
Mimetillus thomasi	Thomas's flat headed bat	X						
Miniopterus sp.	long-fingered bats	X						
Mops condylurus	Angolan free-tailed bat	X			X	X	X	X
Mops niveiventer	White-bellied free-tailed bat		X					X
Miniopterus inflatus		X						
Miniopterus natalensis		X						
Myopterus whilteyi		X						
Myotis bocagii	Rufous myotis	X	X		X			X
Myotis tricolor	Temminck's myotis	X			X			X
Myotis welwitschii	Welwitsch's myotis	X	X					
Neoromicia sp.*	Pipistrelles	X	X		X			X
Neoromicia nana	Banana bat	X	X	X	X		X	

Neoromicia capensis								
Neoromicia rendalli	Rendall's serotine	X			X			
Neoromicia zulensis								
Nycteris grandis	Large slit-faced bat	X						
Nycteris hispida	Hairy slit-faced bat				X		X	
Nycteris macrotis	Large-eared slit-faced bat	X	X				X	
Nycteris nana		X						
Nycteris thebaica	Egyptian slit faced bat	X	X		X		X	
Nycticeinops schlieffeni	Schlieffen's twighlight bat	X			X		X	
Pipistrellus sp.*	Pipistrelles	X	X	X	X			X
Pipistrellus grandidieri		X						X
Pipistrellus hesperidus		X						
Pipistrellus rueppellii	Ruppell's pipistrelle	X			X		**X**	
Rhinolophus sp.*	Horseshoes							
Rhinolophus clivosus	Geoffroy's horseshoe bat		X					
Rhinolophus fumigatus	Ruppell's horseshoe bat	X	X		X	X		
Rhinolophus hildebrandtii	Hildebrandt's horseshoe bat	X			X			
Rhinolophus lobatus	Lander's horseshoe bat						X	
Rousettus aegyptiacus	Egyptian rousette	X						
Rousettus lanosus	Hairy rousette			X				
Scotoecus hirundo	Dark-winged lesser house bat	X	X		X			X
Scotophilus dinganii	Yellow-bellied house bat		X		X	X	X	X
Scotophilus leucogaster	White-bellied house bat	X	X		X	X		X
Scotophilus viridis	Green house bat	X	X				X	
Scotophilus nigrita	Giant yellow house bat	X						
Tadarida aegyptica	Egyptian free-tailed bat	X						X
Tadarida ventralis	Giant free-tailed bat							X
Taphozous mauritianus	Mauritian tomb bat	X	X		X	X	**X**	
Triaenops afer	African trident bat	X						X

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