

Project Update: September 2024

Project progress

Milestone	Activity	Situation	Estimated completion date
1	Conclusion of the 1st, 2nd, and 3rd field expeditions in Colombia.	100% completed	April 2024
2	Conclusion of the 1st, 2nd, and 3rd field expeditions in Brazil	100% completed	August 2024
3	Conclusion of the 1st, 2nd, and 3rd environmental education workshops in Colombia	100% completed	April 2024
4	Conclusion of the 1st, 2nd, and 3rd environmental education workshops in Brazil	100% completed	August 2024
5	Visit to mammal collections	60% completed	December 2024
6	Take skulls photos	60% completed	December 2024
7	DNA extraction, PCR and Sequencing	30% completed	June 2025
8	Data analyses	30% completed	July 2025
9	Social Media	Advancing	All Project
10	Presentation of the project's results to various stakeholders (researchers, conservationists, protected areas staff, and the general public).	0% completed	August 2025
11	Preparation of reports (3)	66% completed	April 2025
12	Final Report	0%	October 2025

Milestone 1,2: We have successfully concluded our field expeditions, during which we captured a total of 125 bats from 24 different species, including several specimens from the target genus for our project, *Lophostoma*. Each bat was carefully measured, photographed, and had blood samples taken to ensure a comprehensive dataset. Importantly, we ensured that all bats were handled with the utmost care, using appropriate protective equipment to minimize stress and avoid any harm. After the necessary data and samples were collected, all bats were released back into their natural habitat at the capture site.

In each study area, we actively involved the local communities, including young researchers from these communities and students from local universities. This collaboration not only enhanced the research process but also fostered a greater understanding and appreciation of bats among the local population. The data collected during these expeditions are invaluable, providing a foundational database that will help us to better understand the diversity of bat species in these regions. Notably, **we were able to obtain tissue samples from *Lophostoma* specimens**, which are currently being analysed as part of our ongoing research. This comprehensive approach, combining local involvement and rigorous scientific methodology, is pivotal in shedding light on the bat diversity within these study areas and in advancing our understanding of these important yet often misunderstood creatures.



Forests of Colombian Pacific coast and the principal investigator releasing bats from mist nets.

Milestone 3,4: We conducted environmental education workshops that reached more than 70 young people from schools in the study areas. Throughout environmental education workshops, we observed a remarkable shift in the young participants' perceptions of bats, reflecting the effectiveness of our efforts to demystify these misunderstood creatures. Initially, many of the attendees harboured a deep-seated fear and suspicion of bats, rooted in common myths and misconceptions. A significant number of the young participants believed that all bats were dangerous and blood-feeding, reflecting the widespread but incorrect notion that every bat is a vampire bat. This belief was compounded by the idea that bats were

malevolent creatures, posing a threat to humans and other animals alike. However, as the workshops progressed, it became clear that the children's innate curiosity was piqued, leading them to question and eventually dispel these long-held beliefs. Through interactive discussions and hands-on activities, we were able to convey the incredible diversity within the bat order, explaining that only a small fraction of bats are hematophagous, while the vast majority have diets ranging from fruit and nectar to insects and even fish. This newfound understanding sparked a sense of wonder among the participants, as they began to appreciate the complexity and ecological importance of these nocturnal animals.



Environmental education activities

By the end of the workshops, there was a noticeable change in the way the young participants spoke about bats, indicating a significant paradigm shift. Where they once viewed bats as dangerous pests, they now understood them to be vital components of the ecosystem, essential for functions such as pollination, seed dispersal, and insect population control. The workshops were particularly successful in correcting the false notion that bats are inherently dangerous to humans, instead highlighting their crucial role in maintaining ecological balance. This shift in perspective was further solidified as the participants engaged in discussions about the various species of bats present in their own country and region, learning how to identify them and recognising the specific contributions each species makes to the environment. The enthusiasm displayed by the youth, coupled with their eagerness to share their newfound knowledge with peers and family members, suggests that these workshops have not only dispelled myths but also fostered a generation of young conservationists who will carry forward the message of bat conservation and the importance of biodiversity. We conducted these environmental education workshops aimed at young people in the region aged between 10 and 17 years. In the workshops, we discussed various topics to demystify bats. Subjects such as what bats are, where they can be found, how to recognise them, how many species there are in our country and region, what bats do for us, and why we should conserve them were thoroughly explored through interactive activities.



Activity: bat masks!



Activity: learn about bats!



Activity: night silhouettes!

We also managed to talk about bats with undergraduate biology students at EAFIT University in Medellín.



Milestone 5: We have visited ten scientific collections in Brazil and Colombia, collecting data from more than 400 specimens. Among the museums visited are those located in Rio de Janeiro, Sao Paulo and Porto Alegre in Brazil, as well as Popayan, Villa de Leyva, Manizales and Bogota in Colombia. From September to December 2024, we will be visiting collections in the USA, such as the AMNH, USNM, and FMNH.



PI checking bats in scientific collections

Milestone 6: We have taken photographs of the dorsal, lateral, and ventral views of the skull, as well as the lateral and dorsal views of the mandible, of more than 250 specimens of *Lophostoma* during our visits to the scientific collections. We hope to increase this number with our next visits to museums in the USA.



Photos for geometric morphometry analysis.

Milestone 7: We have successfully extracted DNA from over 30 specimens of bats from the genus *Lophostoma*. We are still gathering samples from various collections and expect to complete DNA extraction, PCR and Sequencing by April 2025.

Milestone 8: We have conducted some preliminary analyses of external morphology, geometric morphometrics, and molecular data using the data generated by our team. In general, these analyses indicate some geographical delineations that support our initial hypotheses but highlight the need for further data collection.

Milestone 9: Our social media platforms will begin creating content about cryptic bat species, including what they are, where they are found, how to study them, and their impact on conservation. By the end of 2024, we hope to gain more followers and raise awareness of this topic in the region.

Milestone 10: This milestone will only be completed upon the definitive conclusion of our project.

Milestone 11, 12: This constitutes our second report. A third report will be submitted in April 2025. A final report with all our results will be submitted along with publications in October 2025.