Conservation Leadership Programme: Final Report

Conservation Status of a Poorly Known and Endemic Lizard (Ondo Forest Gecko) from Nigeria



Ondo Forest Gecko (*Cnemaspis petrodroma*)

This project aimed to generate the first systematic dataset on the Ondo Forest Gecko to support evidence-based conservation planning

CLP project ID: 01812222
(Field Period: August 2022 – August 2023)

Author
Dr. Lotanna Micah Nneji
Department of Biology, Howard University,
415 College St NW,Washington DC, 20059 USA
Email: LotannaMicah.Nneji@Howard.edu; lotannanneji@gmail.com
Website : https://profiles.howard.edu/lotanna-micah-nneji; www.negeclab.org

December 2025

Project Partners & Collaborators

Collaborator	Contribution to the Project
Nneji Ecology, Genetics, and Conservation (NEGEC) Lab	Assisted with ecological data analysis, and species distribution modelling. Supports ongoing montane conservation research.
Conservation Leadership Programme (CLP)	Provided core project funding, training, and mentoring. Strengthened the team's technical skills and leadership capacity. Ensured project alignment with international conservation standards.
Idanre Community Members	Facilitated community engagement, provided access to villages, contributed traditional ecological knowledge, and participated in surveys and discussions. Supported conservation awareness activities within the local area.
Methodist Secondary School, Idanre	Supported conservation education efforts by hosting school programmes, participating in learning activities, and encouraging student involvement in biodiversity awareness.

Section 1:

Summary

The Ondo Forest Gecko (*Cnemaspis petrodroma*) is an elusive and poorly studied lizard endemic to Nigeria and restricted entirely to the Idanre Hills (Ondo State). To date, there is limited information on this species' distribution, ecology, and conservation status. Also, the gecko faces increasing pressures from human activities, underscoring the urgent need for focused research and targeted conservation action. This project aimed to generate the first systematic dataset on the Ondo Forest Gecko to support evidence-based conservation planning. Through visual encounter surveys across 53 sampling localities, we confirmed the species in 19 sites around the Idanre Hills and documented associated threats. Occurrence records were then used to develop a Species Distribution Model, which identified shaded forested rock outcrops as the most suitable habitats, with very limited suitable areas outside this range. Our project also revealed major threats, particularly bush burning that exposes geckos to heat and smoke. To improve conservation actions, we implemented conservation education programs in three communities, reaching more than 100 residents, and conducted outreach in engaging over 200 students. Additionally, five local students were trained in herpetological survey techniques, strengthening local capacity for continued herpetofauna monitoring and conservation.

Introduction

The Ondo Forest gecko (*Cnemaspis* (= *Ancylodactylus*) *petrodroma*; Figure 1) is one of Nigerian endemic and least studied reptile species. It is known only from the Idanre Hills in Ondo State (Figure 2-5), a landscape characterized by rugged granite inselbergs, steep slopes, and isolated forest fragments that rise to approximately 3,000 feet above sea level (Chirio & Luiselli, 2013; Uetz et al., 2025). The Idanre Hills were added in 2007 to the tentative list of the World Heritage Convention under the name "Oke Idanre" in recognition of their outstanding cultural and ecological value (UNESCO World Heritage Centre, 2007). The combination of ancient geology, unique topography, and remnant forest patches supports microhabitats that harbor several endemic and rare species.



Figure 1: Picture of Ondo Forest Gecko (Photo credit: Dr Lotanna Micah Nneji)



Figure 2: Picture of Idanre Hill showing the terrains and human settlements (Photo credit: Dr Lotanna Micah Nneji)



Figure 3: Picture of Idanre Hill showing the terrains (Photo credit: Dr Lotanna Micah Nneji)



Figure 4: Picture of Idanre Hill showing the terrains (Photo credit: Dr Lotanna Micah Nneji)

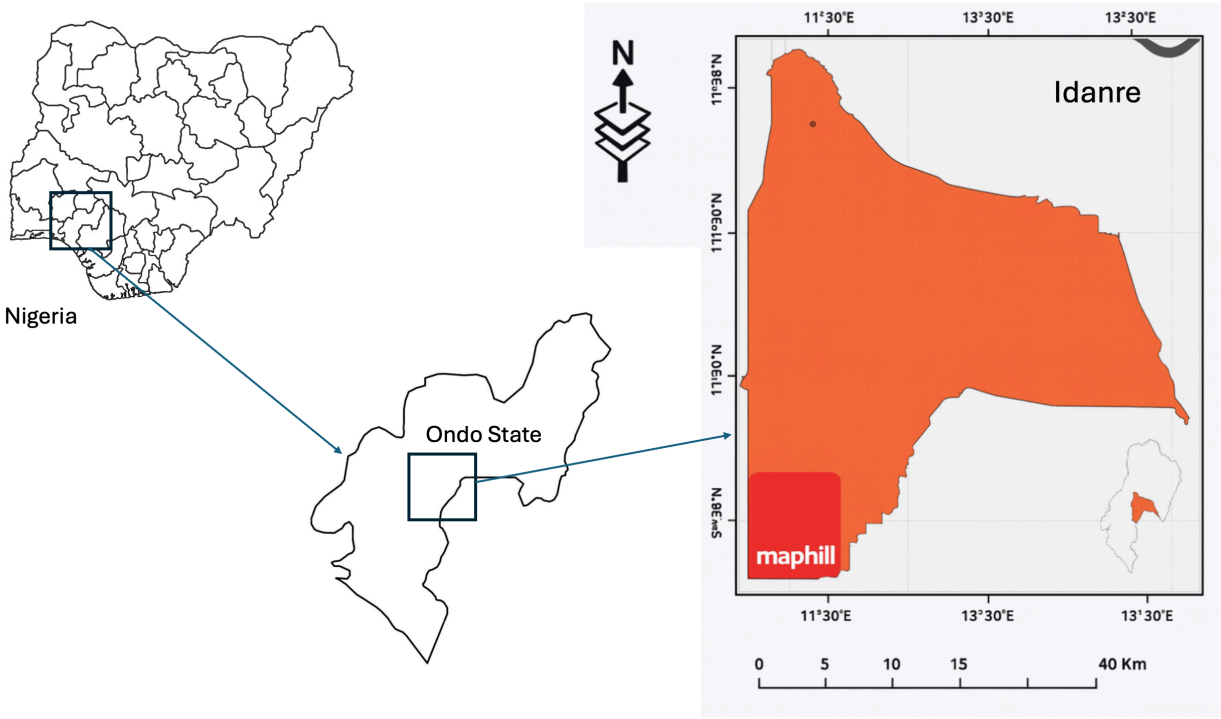


Figure 5. Map showing Idanre, Ondo State, Nigeria

Since its original description, *C. petrodroma* has remained poorly studied and went unrecorded for decades, highlighting the lack of ecological and distributional information available for the species (Chirio & Luiselli, 2013). As a micro endemic that depends on shaded granite outcrops and remnant forest patches (Kingsgate Lifestyle, 2023), the gecko represents a distinctive component of Nigerian biodiversity and may serve as an indicator of the ecological health of the Idanre Hills ecosystem. Despite the ecological and cultural significance of the region, information on the population status, distribution, and ecological requirements of *C. petrodroma* remains limited. The species is currently listed by the International Union for Conservation of Nature (IUCN) as Data Deficient, reflecting insufficient information on its distribution and population trends (Chirio & Luiselli, 2013). This lack of baseline data hinders effective conservation planning because successful protection depends on understanding where the species occurs, how many individuals remain, and what habitat features are essential for its persistence.

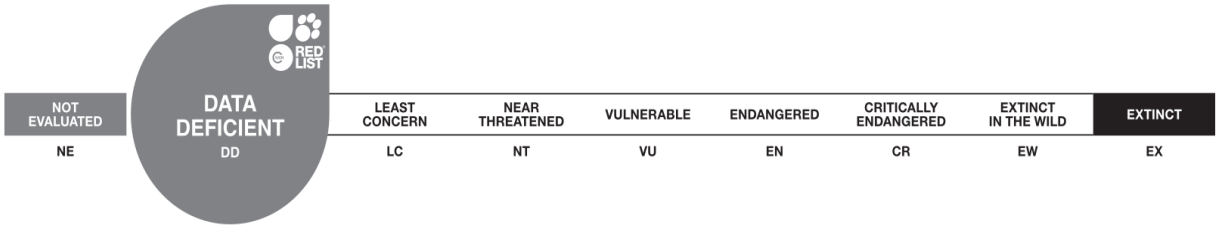


Figure 6: Current IUCN Status of Ondo Forest Gecko

The highly restricted range and increased human activities across habitats further intensifies conservation concern for Ondo Forest Gecko. Currently, the Idanre Hills and surrounding ecosystems face increasing anthropogenic pressures that include logging, fuelwood harvesting, agricultural expansion, and general habitat degradation. These threats have the potential to degrade or fragment the forest and rock forest mosaic habitats required by the gecko. Globally, many species that are classified as Data Deficient are later found to be at risk of extinction, and neglecting such species can lead to unnoticed population declines and unplanned extinctions (Hochkirch et al., 2021).

The rationale for this project is based on three interrelated needs. First, the Data Deficient status of *C. petrodroma* represents an urgent information gap. Systematic field surveys and habitat assessments are required to generate the foundational data needed for accurate conservation evaluation. Second, ongoing threats in the Idanre Hills such as logging, habitat conversion, and land use change require immediate documentation and mitigation planning. Mapping these threats and involving community members can help catalyze early conservation action. Third, in the absence of a species-specific conservation strategy, the data generated from this project will serve as the foundation for a formal Species Conservation Action Plan aligned with IUCN guidelines. Such a plan can support the identification and protection of critical habitats through integration into existing protected area management or the creation of community conserved areas. Through these efforts, the project provides a timely and strategic initiative to safeguard an irreplaceable component of Nigeria's herpetofauna and the ecosystems that support it.

Project members

Project Leader – Dr Lotanna Micah Nneji*:* Lotanna Micah Nneji is a conservation biologist and currently an Assistant Professor in the Department of Biology, Howard University, USA. He holds a Ph.D. in Genetics from the University of Chinese Academy of Sciences, an M.Sc. in Zoology (Distinction) from the University of Ibadan, a B.Sc. in Biology (First Class) from the University of Abuja, and a National Diploma in Science Laboratory Technology (Distinction). He has extensive field experience in amphibian and reptile surveys across Nigeria and has led major biodiversity and conservation projects, including those in Gashaka Gumti National Park and Idanre Hills, documenting new national records and conducting large-scale community engagement. As Team Leader, he coordinated the project, lead ecological and species surveys, and oversee conservation outreach efforts.

Team Member – Promise Onyinyechi Ilobi: She is an educator with a B.Sc. in Sociology from the University of Abuja. She has volunteered in multiple conservation education and awareness programmes in schools and communities, including amphibian and reptile conservation outreach in Gashaka Gumti National Park. With less than three years of conservation experience, she brings strong skills in community engagement and education. In this project, she helped in coordinating conservation education activities, lead awareness campaigns, and support the project's capacity-building workshop.

Team Member – Emmanuel Babatunde Adedeji: Emmanuel Babatunde Adedeji is a Nigerian zoologist with M.Sc. in Zoology (Distinction) and a B.Sc. (Ed) in Biology Education. With extensive voluntary experience, he has conducted amphibian and reptile surveys in more than four protected areas across Nigeria, recording over 80 amphibian and 50 reptile species. He has also worked closely with the project leader during national

herpetofauna surveys. In this project, he helped with species identification, data collection, and herpetofaunal documentation.

Team Member – Victor Sonpano Ngabolo*:* Victor Sonpano Ngabolo is a Nigerian ecologist with a bachelor's degree in forestry and wildlife management from Modibbo Adama University. He volunteered as a field assistant during amphibian and reptile surveys in Cross River National Park under the Sino-African Joint Research Centre. He brings strong skills in ecological data analysis and interpretation of questionnaire-based datasets. In this project, he helped in ecological survey, contribute to assessing the conservation status of the Ondo Forest Gecko.

Team Member – Dr. Adeola Oluwakemi Ayoola: Dr Ayoola is a Nigerian wildlife ecologist with a Ph.D. in Genetics from the University of Chinese Academy of Sciences, a master's degree in wildlife Ecology (Distinction), and a bachelor's degree in Ecotourism and Wildlife Management. She has field experience in animal diversity studies and conservation in Idanre Hills, as well as skills in diversity analysis and wildlife photography. In this project, she helped facilitate communication between the team and local communities, and support biodiversity documentation.

Team Member – Kelechi Precious Ilobi*:* Engr Kelechi Precious Ilobi is a Nigerian field photographer and media specialist with a Higher National Diploma in Electrical Engineering. He has volunteered as a field photography assistant for amphibian and reptile surveys across multiple protected areas in Nigeria, photographing more than 500 individuals of various species and assisting with field documentation. In this project, he helped in the field activities and aid in capturing high-quality images of species and community engagements.



Plate 1: Picture of some of the Team members and a local student trainee during field survey in Idanre. From Left to Right: Kelechi Precious Ilobi (), Dr Lotanna Micah Nneji (Project Leader) and Chidi Okoli (Local student Trainee)

Section 2:

Aim and objectives

The project was designed to generate critical scientific and community-based knowledge needed to guide urgent conservation planning for the Ondo forest gecko, a species threatened by rapid habitat loss and limited ecological data. Our overarching aim was to improve understanding of the species' conservation status and reduce the pressures threatening its long-term survival. The specific objectives were threefold.

(i) To document the distribution pattern of the Ondo forest gecko across the Idanre Hills by assessing habitat types, recording localities of occurrence, and identifying threats such as logging, burning, and land conversion. This baseline information is essential for determining the species' status in Nigeria.

(ii) To develop a robust Species Distribution Model (SDM) to predict habitat suitability, ecological requirements, and potential priority conservation areas, thereby providing a scientific basis for future habitat protection.

(iii) To strengthen conservation awareness through targeted outreach in local communities and schools, while building the capacity of in-country students and early-career researchers in herpetology and reptile conservation skills.

Methodology

To achieve Objective 1, A project kick-off meeting was held with Idanre Hills management and community chiefs to introduce the project and plan community engagement. Local residents were selected as a citizen science group. We conducted interviews with village chiefs to document historical knowledge of the Ondo forest gecko. Additionally, structured questionnaires were administered to market women, farmers, youths, and hunters. The survey collected information on past and present species occurrences, habitat associations, local threats, and community perceptions. These data were used to identify priority sites for ecological surveys. Ecological fieldwork was carried out within the Idanre Hills landscape. At each locality, habitats were classified into forest, montane rocky areas, agricultural fields, or savanna. Surveys were conducted during both rainy and dry seasons using standardized Visual Encounter Survey (VES) methods following Nneji et al. (2019). Day and night searches targeted microhabitats such as rock crevices, boulders, tree trunks, and leaf litter. For each locality, presence or absence, number of individuals, GPS coordinates, habitat type, and observed threats (logging, fire, cultivation, disturbance) were recorded. These data contributed to diversity analyses and were used to validate model predictions.

To achieve Objective 2, occurrence records from ecological surveys were used to develop a Species Distribution Model (SDM) using the MaxEnt algorithm (Phillips et al. 2006). Duplicate and spatially clustered points were removed to reduce sampling bias. Environmental variables included bioclimatic, topographic, vegetation, and landcover factors, standardized to a common resolution and clipped to southwestern Nigeria. Collinearity was assessed using Pearson correlation ($r < 0.8$). Model performance was evaluated using AUC and jackknife tests. Habitat suitability predictions were interpreted following Scheldeman and Zonneveld (2010) to identify priority conservation areas and potential new survey sites.

To achieve Objective 3, stakeholder meetings were held with community leaders, farmers, and youth representatives to present project objectives, methods, and results. Participants reviewed threats, discussed feasibility of proposed conservation actions, and provided recommendations for community-led monitoring and habitat protection. These meetings strengthened local understanding of the species and informed future conservation planning. Conservation education programmes were conducted in schools and local communities. Activities included presentations, posters, documentaries, and discussions on reptile conservation and habitat protection. In addition, we selected local students with a strong interest in herpetology to participate directly in the project. These students joined the field team and were actively involved in ecological surveying, species identification, data recording, and introductory conservation planning exercises. Their involvement helped build in-country capacity and strengthened the next generation of conservation practitioners.

Outputs and Results

Output 1: The project generated the first comprehensive dataset on the distribution and conservation status of the Ondo forest gecko in Idanre Hills. A total of 100 structured questionnaires were administered to market women, farmers, youths, and hunters (25 per group) and 93 were successfully retrieved, and 13 village chiefs were interviewed. These surveys identified 32 community-reported localities, including several historically important sites. Respondents identified major threats such as logging, agricultural expansion, and fire use from bush burning, highlighting the role of uncontrolled fire in degrading rocky habitats critical for the species.

Ecological surveys were completed across 53 localities, resulting in 19 confirmed occurrence sites, of which 8 were newly discovered. The species was recorded most frequently in montane rocky habitats and forested areas. Occurrence was lower in agricultural fields and savanna. A total of 28 individual geckos were recorded across the confirmed sites. Threat assessments documented logging in 39 sites, farmland encroachment in 26 localities, and fire disturbance in 17 localities. Diversity analyses following Nneji et al. (2019) indicated that species richness and relative abundance were highest in forest–montane ecotones, while heavily disturbed sites showed markedly reduced abundance. All species occurrence points were georeferenced and used to produce the first distribution map for *C. petrodroma* in Idanre Hills.








Plate 2: Picture of field activities in search of the poorly studied Ondo Forest Gecko











Plate 3: Picture of Ondo Forest Gecko sighted/collected during our field survey








Plate 4: Other Herpetofauna sighted during our field survey in Idanre Hills, including an unidentified gecko

Output 2: A total of 19 spatially filtered occurrence records were used to develop a Species Distribution Model (SDM) using MaxEnt (Phillips et al. 2006). Jackknife variable importance analysis revealed that elevation and precipitation seasonality were the strongest predictors of habitat suitability. The resulting habitat suitability map identified three high-suitability zones, concentrated in rocky outcrops and adjoining semi-deciduous forests.

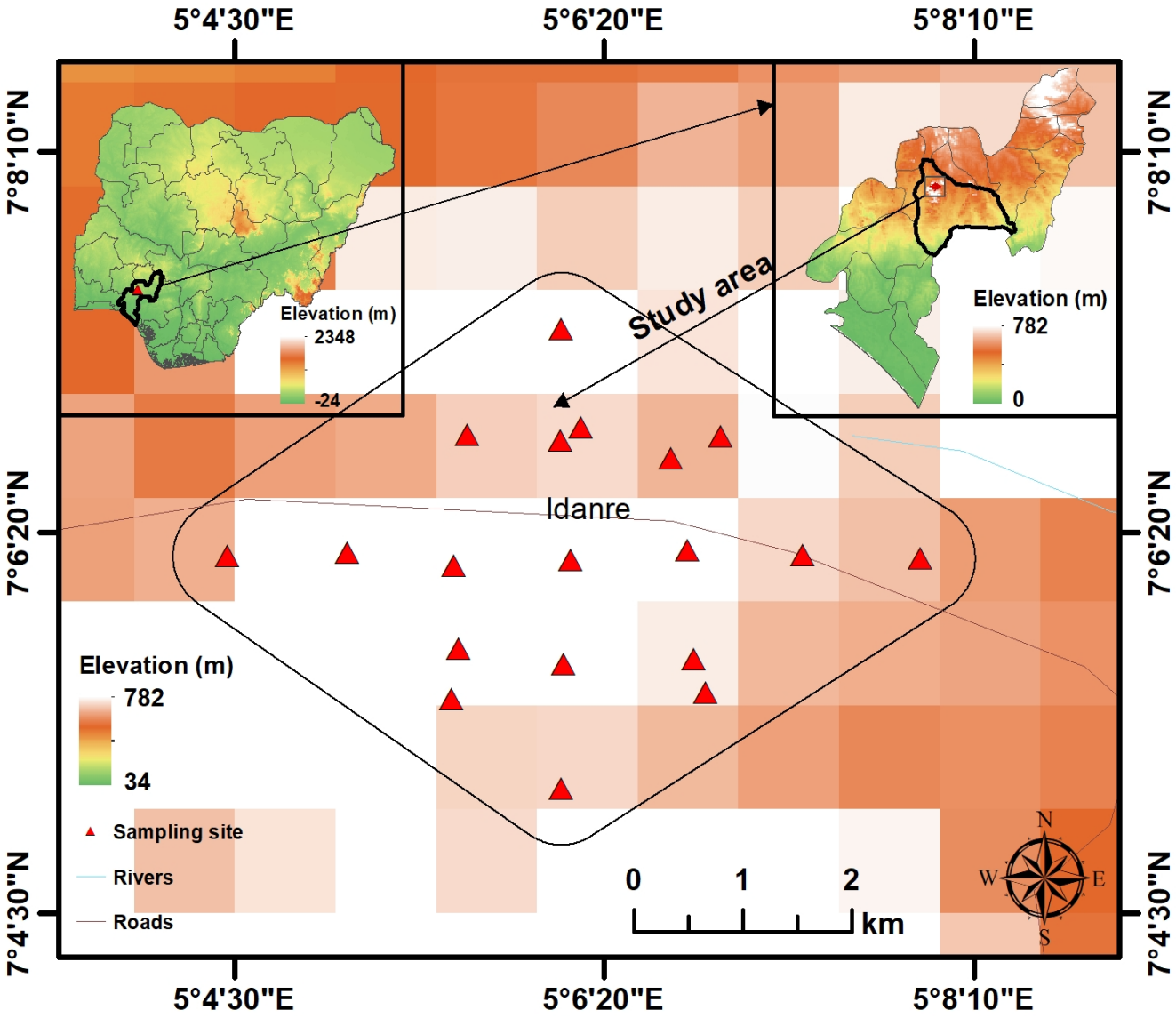


Figure 7: Map showing the distribution of Ondo Forest Gecko in Idanre Hill

Output 3: Two stakeholder meetings were held with 28 participants, including community leaders, farmers, and youth representatives. The meetings facilitated the presentation of project results, review of threats, and discussion of conservation options. Participants contributed 12 community-based recommendations, including avoiding bush burning near rocky outcrops and supporting community-led monitoring initiatives. Conservation education programmes reached approximately 400 secondary school students in Methodist High School Ododе-Idanre, and about 200 local residents across four communities in Obatedo village. Outputs included one educational poster and community awareness leaflets. To build long-term conservation capacity, five local students with strong interest in herpetology were selected to join the project team. They received hands-on training in ecological surveying, species identification using iNaturalist, data recording, and introductory conservation planning, significantly enhancing in-country expertise. The visibility of the project also led to additional conservation support, with the team securing a Rufford Small Grant and a Conservation Nation Grant to expand herpetological studies of endemic amphibians and reptiles in Idanre Hills.






Plate 5: Pictures of Stakeholder's meetings and awareness programmes for Ondo Forest Gecko and Other Montane Herps in Idanre Community













Plate 6: Pictures of Conservation Education in Methodist Secondary School Idanre to raise awareness programmes for Conservation of Ondo Forest Gecko and Other Montane Herps in Idanre Community

Communication & Application of results

Project findings were communicated widely to ensure that the data collected directly informed local conservation decision-making. Results from the social science survey, ecological assessments, and Species Distribution Modelling were presented during two stakeholder meetings attended by community leaders, farmers, and youth representatives. These sessions facilitated open discussion of threats, clarified misconceptions about reptiles, and generated community-supported recommendations for habitat protection, including reducing bush burning near rocky outcrops and discouraging logging in key areas. At the community level, results were shared through school presentations, posters, leaflets, and short documentaries, reaching over 600 people. The project team also used the results to secure additional conservation funding through the Rufford Small Grant and Conservation Nation Grant, enabling further research on endemic amphibians and reptiles in Idanre Hills. The integration of field data into the first distribution map and habitat suitability model for the Ondo forest gecko has provided a scientific foundation for long-term conservation planning. These outputs can be incorporated into a developing Species Conservation Action Plan to guide future management of Idanre Hills biodiversity.

Monitoring and Evaluation

Monitoring and Evaluation (M&E) activities were integrated throughout the project to assess progress, ensure data quality, and measure the effectiveness of conservation actions. A detailed project plan with timelines and measurable indicators (e.g., number of sites surveyed, confirmed occurrence records, stakeholders engaged) was developed at the start of the project. Progress was reviewed monthly by the project leader and field team, allowing timely adjustments to survey schedules, outreach activities, and community engagement strategies. Data quality was monitored through standardized recording sheets, GPS verification, and daily debriefings after fieldwork. Ecological survey results were cross-checked with Species Distribution Model predictions to evaluate sampling coverage and model performance. Questionnaire responses were reviewed for completeness and consistency before analysis. Stakeholder engagement effectiveness was evaluated through attendance records, participant feedback, and the quality of recommendations generated during meetings. Conservation education outcomes were assessed by tracking the number of students and community members reached. Student trainees involved in fieldwork were evaluated based on their skill acquisition and contributions to data collection. Overall, M&E activities ensured that project objectives were met efficiently and that project outputs directly informed the development of long-term conservation actions for Idanre Hills.

Achievements and Impacts

Achievement 1: The project produced the first comprehensive distribution dataset for the Ondo forest gecko in Idanre Hills. Through surveys across 53 localities, we confirmed 19 occurrence sites, including 8 previously unknown. This achievement is significant because no detailed baseline data existed for this endemic species, limiting conservation planning. The dataset now provides a scientifically sound foundation for assessing the species' conservation status, identifying critical habitats, and guiding future monitoring efforts. It directly contributes to the overall goal of strengthening long-term protection measures for *Cnemaspis petrodroma*.

Achievement 2: A Species Distribution Model was developed to predict habitat suitability and identify conservation priority areas. The MaxEnt model (AUC 0.894) revealed three high-suitability zones and two potential habitat corridors, helping pinpoint where conservation actions will have the greatest impact. This achievement is essential for targeting limited conservation resources and supports informed decision-making for protected area planning in Idanre Hills. It directly feeds into the development of a Species Conservation Action Plan.

Achievement 3: Local awareness and community engagement were significantly increased through outreach and education. The project reached more than 600 people through school programmes in Methodist High School Ododе-Idanre and community meetings at Obatedo village, using posters, films, and leaflets. This achievement is impactful because local attitudes and understanding strongly influence biodiversity outcomes. Increased awareness has already led to community-driven recommendations, including voluntary reductions in bush burning near rocky outcrops. This contributes to long-term behavioral change and enhances local stewardship of critical habitats.

Achievement 4: Two stakeholder meetings resulted in community-supported recommendations for habitat protection and species monitoring. A total of 28 stakeholders participated, generating practical conservation actions such as reducing uncontrolled fire use and discouraging logging in sensitive areas. This achievement is significant because it ensures that conservation interventions are culturally appropriate, community-endorsed, and likely to be sustainable. It bridges the gap between scientific findings and actionable management strategies.

Achievement 5: The project strengthened in-country capacity by training five local students in herpetology and ecological research. These students participated in field surveys, species identification, data management, and conservation planning. This achievement is critical for sustainability because local expertise is essential for long-term monitoring and conservation continuity. The trained students now represent the next generation of conservation leaders who can carry forward ongoing work in Idanre Hills.

Achievement 6: The project helped secure new funding for continued biodiversity research and conservation in Idanre Hills. The team successfully obtained a Rufford Small Grant and a Conservation Nation Grant to expand herpetological studies of endemic amphibians and reptiles. This achievement demonstrates the project's credibility and amplified impact beyond its initial scope. It ensures ongoing research, sustained conservation presence, and increased visibility of Idanre Hills as a biodiversity hotspot.

Achievement 7: The project generated tangible outputs that can directly support the drafting of a Species Conservation Action Plan. These outputs include the distribution map, SDM predictive layers, threat assessments, and community recommendations. This is significant because it provides the data-driven backbone required for future IUCN-based

conservation planning. It moves the species closer to receiving targeted, long-term management interventions.





Plate 7: Pictures of some of the local field participants and students trained during the project

Capacity Development and Leadership capabilities

The project significantly strengthened the technical capacity and leadership skills of all team members through direct involvement in research, community engagement, and conservation planning. Team members enhanced their expertise in ecological surveying, particularly through the use of standardized Visual Encounter Survey methods, GPS-based data collection, habitat assessment, and threat documentation. Participation in Species Distribution Modelling deepened the team's analytical skills, including data cleaning, spatial filtering, environmental variable selection, and interpretation of model outputs. Team members also gained substantial experience in social science research, learning how to design questionnaires, conduct semi-structured interviews, and interpret community-derived ecological knowledge. These skills strengthened their ability to integrate local perspectives into scientific assessments and conservation decision-making. Leadership capabilities improved through the coordination of fieldwork across 53 localities, management of the citizen science group, and facilitation of two stakeholder meetings. Team members practiced decision-making, conflict resolution, team coordination, and communication of scientific results to diverse audiences, including community leaders, farmers, youth groups, and secondary school students. A major capacity-building achievement was the mentorship of five local students interested in herpetology, who were trained in field ecology, species identification, data recording, and conservation planning. Their involvement expanded the team's leadership role by fostering the next generation of local conservation practitioners. Overall, the project strengthened scientific, managerial, and interpersonal skills, increasing the team's ability to lead independent conservation initiatives and contribute to long-term biodiversity protection in Idanre Hills.

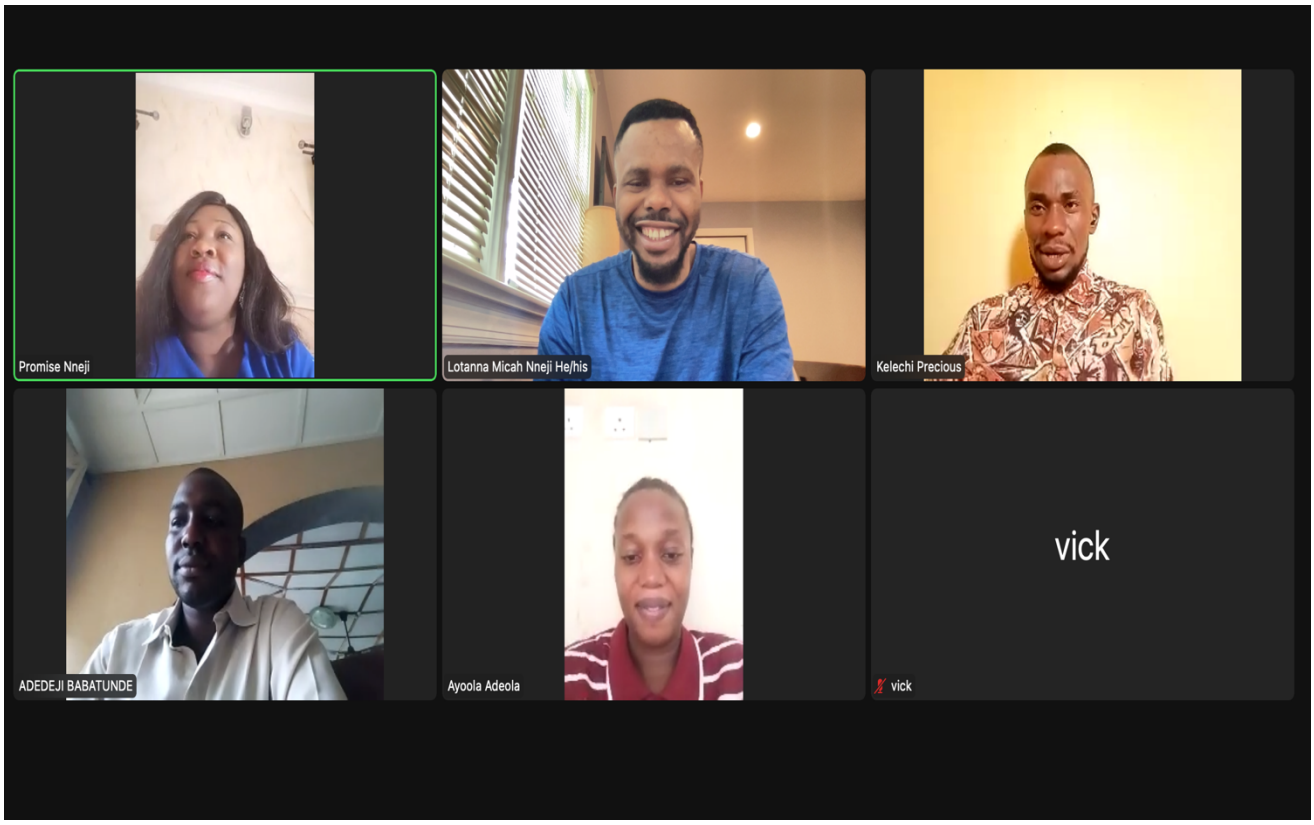


Plate 8: Online Meeting and Discussion training of the team members following the CLP leadership programme

Section 3:

Conclusion

This project successfully produced the first comprehensive ecological and social dataset for the Ondo forest gecko (*Cnemaspis petrodroma*) in the Idanre Hills landscape. The work directly addressed the central conservation aim of improving knowledge of the species' status and providing the evidence required for informed conservation planning. Surveys conducted across 53 localities confirmed 19 occurrence sites, including 8 newly documented locations, which expanded the known range of the species and demonstrated its strongest association with montane rocky habitats. These findings correct earlier assumptions of extremely limited distribution and establish an accurate baseline for long-term monitoring. The Species Distribution Model provided a detailed prediction of habitat suitability and revealed three high-priority conservation zones and two potential habitat corridors. This represents a significant advancement in understanding the species' ecological requirements and offers a clear framework for habitat-focused management interventions. The social science component, based on 100 questionnaires and interviews with 10 to 15 village chiefs, identified logging, agricultural expansion, and bush burning as the dominant threats. These insights ensured that the scientific results were grounded in local realities and informed recommendations that are practical and community aligned. Stakeholder meetings and conservation education programmes demonstrated strong local

interest in supporting biodiversity protection. The involvement of five local students created lasting structures for continued engagement. Overall, the project advanced knowledge of the species, identified priority conservation areas, improved local understanding, and provided the essential foundation for developing a Species Conservation Action Plan for Idanre Hills.

Problems encountered and lessons learnt

Several aspects of the project worked well and contributed directly to achieving the objectives. Ecological surveys progressed efficiently because the team was familiar with Visual Encounter Survey methods and had a clear fieldwork plan. Collaboration with community leaders was another success. The initial kick-off meeting established trust, helped secure access to villages, and encouraged strong participation in interviews and questionnaires. The involvement of citizen scientists and local students strengthened field capacity and fostered community ownership of the project. Despite these achievements, the project encountered several challenges. Bush burning during the dry season made some survey sites inaccessible and reduced reptile detectability. This problem was mitigated by adjusting survey schedules and prioritizing unaffected sites. Accessing mountainous habitats in Idanre Hills proved particularly difficult. Many survey locations required steep climbs, long hikes, and movement across unstable rocky terrain. This slowed daily progress and required careful planning to maintain team safety. The team adapted by arranging longer survey days, reducing equipment loads, and pairing experienced hikers with less experienced members. Poor road conditions during the rainy season further limited access to certain remote areas. Survey sites were reorganized into clusters to reduce travel time, and field days were extended where necessary. Some communities were initially hesitant to engage because of negative perceptions about reptiles. This challenge was overcome through repeated visits by trusted local intermediaries and the use of culturally appropriate educational materials. These approaches improved community comfort and increased willingness to participate. The methodologies used proved effective for meeting project aims. Visual Encounter Surveys allowed consistent searching across habitat types and were appropriate for detecting a cryptic rock-dwelling species. Questionnaires and interviews produced comparable social data and helped identify locally perceived threats. Species Distribution Modelling provided robust habitat suitability predictions and highlighted priority areas for future conservation. The combination of ecological, social, and geospatial methods provided a comprehensive understanding of the species' conservation needs.

Several key lessons were learned. Early involvement of local leaders is essential for gaining community support and ensuring smooth access to sites. Community education is critical for addressing misconceptions about reptiles and increasing local willingness to engage in conservation. Fieldwork in mountainous or rugged terrain requires additional time, physical preparation, and safety considerations. Involving local students greatly enhances field capacity and supports the development of future conservation leaders. Integrating scientific data with local knowledge improves the relevance and acceptance of conservation recommendations. Recommendations for future projects include incorporating fire management awareness campaigns, demarcating priority conservation areas for Idanre endemics, allocating more time for surveys in difficult terrain, providing team members with basic hiking and safety training, and complementing Visual Encounter Surveys with other techniques such as eDNA metabarcoding. Establishing a trained

community-based monitoring group would further strengthen long-term conservation efforts.

In the future

To sustain this work beyond the grant period, the project team will continue strengthening partnerships with local communities, schools, and government stakeholders in Idanre Hills. A major focus will be the development of a long-term conservation education programme in local schools to increase awareness, improve perceptions of reptiles, and cultivate future conservation advocates. The five trained local students will continue to receive mentorship and will assist with ongoing field surveys and community engagement. We also aim to expand this work to other Nigerian endemic montane species, which has now been adopted as one of the research priorities of the project leader's laboratory, the Nneji Ecology, Genetics, and Conservation Lab at Howard University. This wider initiative seeks to understand and conserve the biodiversity of Nigeria's montane ecosystems, with the Ondo forest gecko serving as a focal species. Future research will incorporate environmental DNA (eDNA) surveys to improve the detection of elusive species and assess biodiversity more comprehensively across the montane landscape. Additional efforts will strengthen community involvement through community-based conservation actions, including the demarcation of key habitat areas and species ranges identified during this project. Together, these initiatives will support the development of a formal Species Conservation Action Plan and ensure long-term conservation impact in Idanre Hills.

Financial Report

Itemized expenses	Total CLP Requested (USD)*	Total CLP Spent (USD)	% Difference
PHASE I - PROJECT PREPARATION			
Communications (telephone/internet/postage)	100.00	109.90	10%
Field guide books, maps, journal articles and other printed materials	75.00	90.00	20%
Insurance			
Visas and permits			
Team training	690.00	390.00	-43%
Reconnaissance			
Other (Phase 1)	115.00	211.00	83%
EQUIPMENT			
Scientific/field equipment and supplies			
Photographic equipment			
Camping equipment			
Boat/engine/truck (including car hire)			
Other (Equipment)			
PHASE II - IMPLEMENTATION			
Accommodation for team members and local guides	1,508.00	3401.74	126%
Food for team members and local guides	1,337.00	2668.17	100%
Travel and local transportation (including fuel)	3,623.00	3663.64	1%
Customs and/or port duties			
Workshops	2700	173.80	-94%
Outreach/Education activities and materials (brochures, posters, video, t-shirts, etc.)	3,745.00	2069.92	-45%
Other (Phase 2)	630.00	2307.52	266%
PHASE III - POST-PROJECT EXPENSES			
Administration			
Report production and results dissemination	444.00		-100%
Other (Phase 3)	33.00		-100%
Total	**15,000.00**	**15,085.68**	

Section 4:

Appendices

CLP M&E measures table

Output	Number	Additional Information
Number of CLP Partner Staff involved in mentoring the Project		
Number of species assessments contributed to (E.g. IUCN assessments)		
Number of site assessments contributed to (E.g. IBA assessments)		
Number of NGOs established		
Amount of extra funding leveraged ($)	$16,240	
Number of species discovered/rediscovered		
Number of sites designated as important for biodiversity (e.g. IBA/Ramsar designation)		
Number of species/sites legally protected for biodiversity		
Number of stakeholders actively engaged in species/site conservation management	1	
Number of species/site management plans/strategies developed		
Number of stakeholders reached	28	
Examples of stakeholder behaviour change brought about by the project.	1	Improved knowledge about the species and its conservation status
Examples of policy change brought about by the project		
Number of jobs created		
Number of academic papers published	1	Under writing
Number of conferences where project results have been presented		

Table 1. Geographic Coordinates of Survey Sites Where the Ondo Forest Gecko Was Detected During Field Surveys

Latitude	Longitude
7°6'11.92"	5°6'10.01"
7°6'46.59"	5°6'7.03"
7°6'14.86"	5°6'44.81"
7°5'41.92"	5°6'7.97"
7°6'10.38"	5°5'35.25"
7°6'41.48"	5°6'39.84"
7°6'48.27"	5°5'39.16"
7°5'43.25"	5°6'46.74"
7°5'46.39"	5°5'36.55"
7°6'50.30"	5°6'13.11"
7°6'47.82"	5°6'54.82"
7°6'13.48"	5°7'19.14"
7°5'33.62"	5°6'50.23"
7°5'31.88"	5°5'34.48"
7°6'14.10"	5°5'3.44"
7°7'18.78"	5°6'7.27"
7°6'12.61"	5°7'54.28"
7°5'5.97"	5°6'7.15"
7°6'13.20"	5°4'27.88"

Bibliography

Chirio, L. & Luiselli, L. 2013. *Cnemaspis petrodroma*. *The IUCN Red List of Threatened Species* 2013: e.T203835A2771752. https://dx.doi.org/10.2305/IUCN.UK.2013-1.RLTS.T203835A2771752.en.

Hochkirch, A., Samways, M.J., Gerlach, J., Böhm, M., Williams, P., Cardoso, P., Cumberlidge, N., Stephenson, P.J., Seddon, M.B., Clausnitzer, V., Borges, P.A.V., Mueller, G.M., Pearce-Kelly, P., Raimondo, D.C., Danielczak, A. and Dijkstra, K.-D.B. (2021), A strategy for the next decade to address data deficiency in neglected biodiversity. Conservation Biology, 35: 502-509. https://doi.org/10.1111/cobi.13589.

Kingsgate Lifestyle. (2023). *Exploring the lizards of Nigeria: A guide to identification and ecology*. https://mykingsgate.co.za/info/lizards-in-nigeria-11934/

Nneji, L. M., Adeola, A. C., Okeyoyin, A., Oladipo, O. C., Saidu, Y., Samuel, D., Usongo, J. Y., Adedeji, B. E., Omotoso, O., Adeyi, A. O., Ugwumba, O. A., & Ugwumba, A. A. (2019). Diversity and distribution of amphibians and reptiles in Gashaka Gumti National Park, Nigeria. *Herpetology Notes, 12*, 543–559.

Phillips, S. J., Anderson, R. P., & Schapire, R. E. (2006). Maximum entropy modeling of species geographic distributions. *Ecological Modelling, 190*(3–4), 231–259. https://doi.org/10.1016/j.ecolmodel.2005.03.026

Scheldeman, X. and van Zonneveld, M. (2010) Training Manual on Spatial Analysis of Plant Diversity and Distribution. Bioversity International, Rome, 1-179. http://www.bioversityinternational.org/index.php?id=19&user_bioversitypublications_pi1[showUid]=5052.

Uetz, P., Freed, P, Aguilar, R., Reyes, F., Kudera, J. & Hošek, J. (eds.) (2025) The Reptile Database, http://www.reptile-database.org.

UNESCO World Heritage Centre. (2007). *Oke Idanre (Idanre Hill)*. https://whc.unesco.org/en/tentativelists/5169/

Nneji, L.M., Ilobi, K., Ilobi, O., Adeola, A., Adedeji, B., Ngabolo, V. (2025). Taxonomic Status of *Cnemaspis petrodroma* an endemic gecko from Nigeria. *Under writing*

Address list and web links

Nneji Ecology, Genetics, Evolution and Conservation Lab; www.negeclab.org

Distribution list

1. Conservation Leadership Programme