

## PROJECT REPORT

# ACTION FOR THE CONSERVATION OF ENDEMIC BIRDS OF THE SOUTHWESTERN MADAGASCAN SPINY DRY FOREST: STRENGTHENING LOCAL CAPACITY IN SECONDARY SCHOOLS

By

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## **PROJECT SUMMARY**

The southwestern region of Madagascar hosts unique ecosystems with exceptionally rich biodiversity, but is currently experiencing rapid environmental degradation driven by human activities (Seddon *et al.*, 2000; Goodman *et al.*, 2002; Raselimanana & Goodman, 2004; Thomas *et al.*, 2006). The principal objectives were to raise awareness and strengthen the capacities of secondary school students in Southwestern Madagascar regarding the conservation of endemic birds inhabiting the spiny dry forests.

The project was implemented in four schools located near the habitats of the target bird species, between the rural communes of Saint-Augustin and Belalanda in the Toliara II District, Southwestern region of Madagascar. Project activities directly benefited a total of 817 participants, including 773 students, 24 teachers, and 20 community members. Participants acquired practical skills in identifying endemic bird species, understanding their ecological roles, and adopt sustainable practices aimed at protecting their environment.

Implemented activities included teacher training workshops, interactive educational sessions, and field outings for practical bird identification. The production and dissemination of locally adapted educational materials, together with the establishment of nature clubs in schools, constituted key strategies for ensuring the sustainability of the initiative. The methodological approach was based on educational workshops, classroom activities, direct bird observation sessions, and teacher training programmes conducted in collaboration with local educational authorities, ornithologists, and the University of Toliara.

## **INTRODUCTION**

### **1. Background**

The southwestern region of Madagascar represents an ecosystem of exceptional biological importance, characterised by its distinctive spiny dry forest. This habitat supports a remarkable endemic avifauna comprising approximately 160 bird species (WWF, 2021), several of which are endemic to Madagascar. Five endemic Malagasy bird families are represented in this region, including specialised groups such as the Mesitornithidae, Brachypteraciidae, Leptosomatidae, Bernieridae, and Vangidae (Raherilalao & Goodman, 2011; Raselimanana *et al.*, 2012).

Among these taxa, three species exhibit strict local endemism: *Monias benschi*, *Calicalicus rufocarpalis*, and *Uratelornis chimaera*. These three species are classified as Vulnerable (BirdLife International, 2024), highlighting their precarious conservation status.

These bird species play a crucial ecological role in maintaining ecosystem balance and regulating invertebrate populations, particularly insects. However, they face increasing threats resulting from habitat loss, hunting pressure, and other anthropogenic disturbances (Soarimalala et al., 2008). Furthermore, limited environmental education within local communities, combined with unsustainable natural resource management practices, further exacerbates the vulnerability of avian populations in the region.

## **2. Project Objectives**

### **General Objective**

To strengthen local capacity for the conservation of endemic birds in the spiny dry forest of southwestern Madagascar by promoting a culture of environmental stewardship within secondary schools and local communities.

### **Specific Objectives**

- To organise awareness-raising workshops and training sessions for students, teachers, and local community members;
- To develop skills in bird species identification and ornithological observation techniques;
- To encourage the establishment of nature clubs within schools in order to ensure the sustainability of conservation activities;
- To produce and disseminate educational materials adapted to the local context.

This initiative addresses the urgent need to bridge gaps in environmental education through the training of younger generations and local communities. Education is widely recognised as a fundamental mechanism for promoting positive behavioural change and fostering active engagement in biodiversity conservation. The project is also aligned with the objectives of the African Bird Club in supporting high-impact conservation initiatives.

## STUDY AREA

The project was conducted in the southwestern region of Madagascar within the rural communes of Saint-Augustin and Belalanda (Toliara II District). Activities were implemented in schools located near fragments of spiny dry forest, including the Tsinjoriake and PK32 Protected areas. These habitats represent important conservation areas for endemic avifauna.



Figure 1: Location of the study area

## METHODOLOGY

The methodological framework was designed according to criteria of accessibility, sustainability, reproducibility, and cost-effectiveness adapted to the socio-economic realities of rural Malagasy communities.

### ***1. School Selection***

Four secondary schools were selected based on their proximity to forest habitats and the approval of school administrations.

### ***2. Field Activities and Practical Bird Observation***

Bird observation activities were conducted during the early morning period (06:00 - 08:30) in order to maximise opportunities for observing active bird species.

Field outings were conducted within fragments of spiny dry forest near partner schools and supervised by the project team, ornithologists, and field assistants. Ornithologists trained students in the use of binoculars and standard bird identification guides.

### ***3. Training Workshops and Seminars***

A two-day workshop was organised for partner teachers. Training covered the ecology of endemic birds, major threats affecting avifauna, and pedagogical strategies for integrating conservation topics into classroom teaching.

Following field excursions, a seminar was organised focusing on general ornithology, ecological importance, and the rationale for bird conservation. Short documentaries on local biodiversity were screened, followed by question-and-answer sessions designed to assess participant understanding.

### ***4. Production and Dissemination of Educational Materials***

Educational materials were produced to support awareness and learning activities, including A3-format tarpaulin posters, A0-format banners, A4 brochures, and observation notebooks allowing students to record field observations.

These materials were distributed within schools and during community outreach meetings.

### ***5. Establishment of Nature Clubs***

A key strategy for the project's sustainability is the establishment of nature clubs in selected schools. Students were encouraged to participate actively in biodiversity conservation and environmental awareness initiatives.

### ***6. Community Awareness Activities***

Meetings were organised with local community members to present project objectives, educational materials, and bird observation results.

## ACTIVITIES AND RESULTS

### *1) Schools and Participants Involved in Awareness and Training Activities*

Project activities engaged a total of 817 participants, including 773 students (94.6%), 24 teachers (2.9%), and 20 local community members (2.5%). Students represented the majority of beneficiaries, confirming the project's focus on youth engagement within four schools situated near protected areas and ecosystems dominated by spiny thickets and dry forests of Southwestern Madagascar.

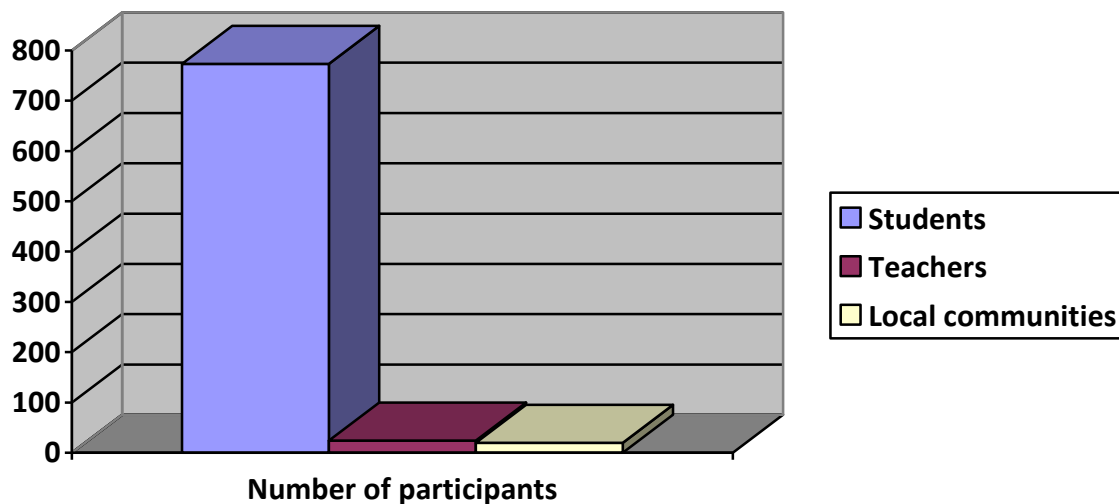


Figure 2: Distribution of the project participants by category

### *2) Changes in Knowledge and Attitudes*

#### ▪ **Among Students**

A positive shift in attitudes was observed, characterised by increased interest in ornithology and a stronger sense of responsibility towards local environmental protection.

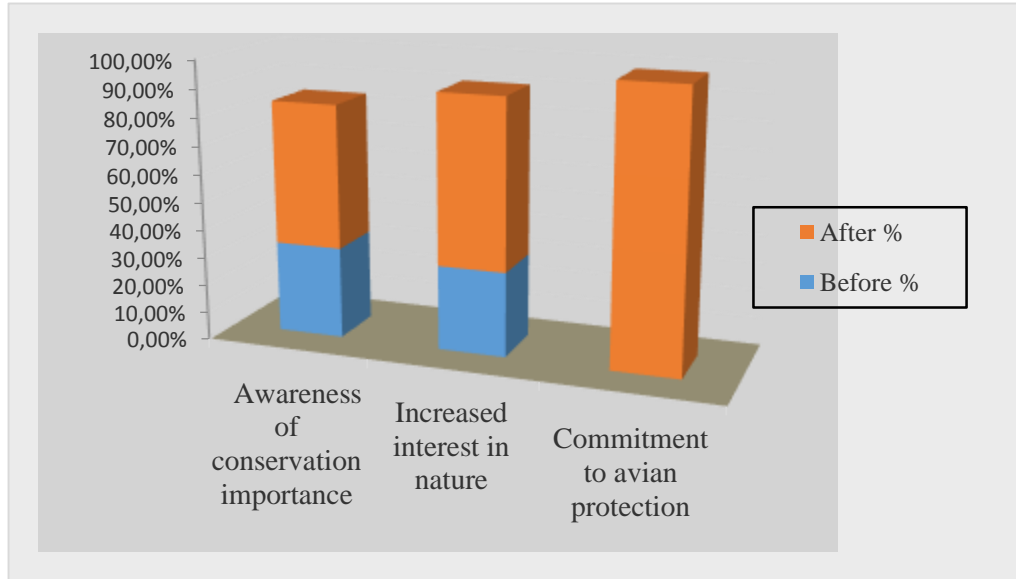


Figure 3: Changes in students' attitudes before and after activities

▪ **Among Teachers**

Post-training evaluations indicated improvements in teachers' environmental knowledge (45.83%), increased use of educational materials (54.17%), and more frequent integration of environmental topics into their lessons (62.50%). These findings indicate that the workshops effectively strengthened teachers' pedagogical capacities and facilitated the progressive integration of environmental themes into educational activities.

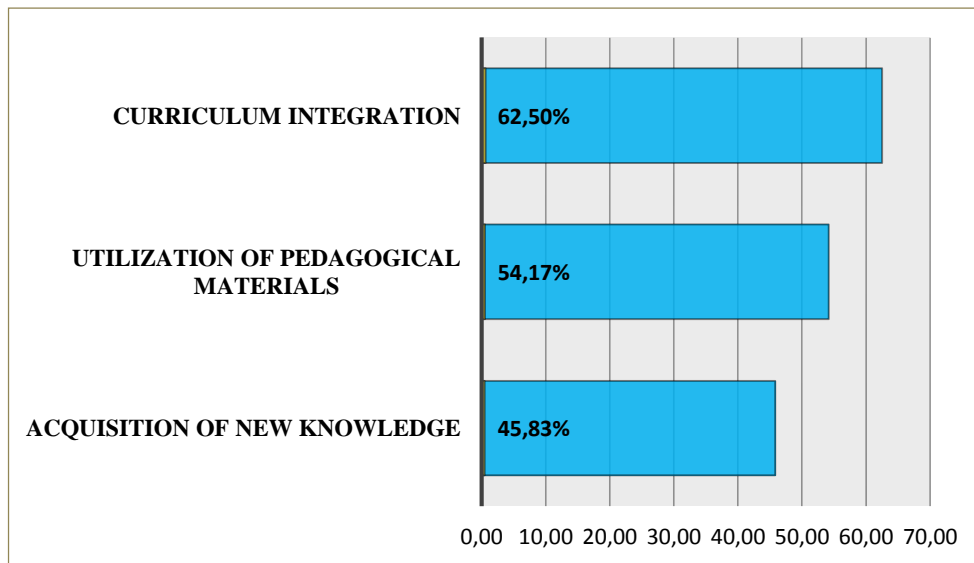


Figure 4: Pedagogical impacts on teachers

- **Within Local Communities**

Following the project interventions, an increase in knowledge concerning avian species and their habitats was observed among community members (measured at 65%). Furthermore, the recognition of conservation value and project acceptance were reported at 55%, while a willingness to adopt sustainable practices was noted at 75%.

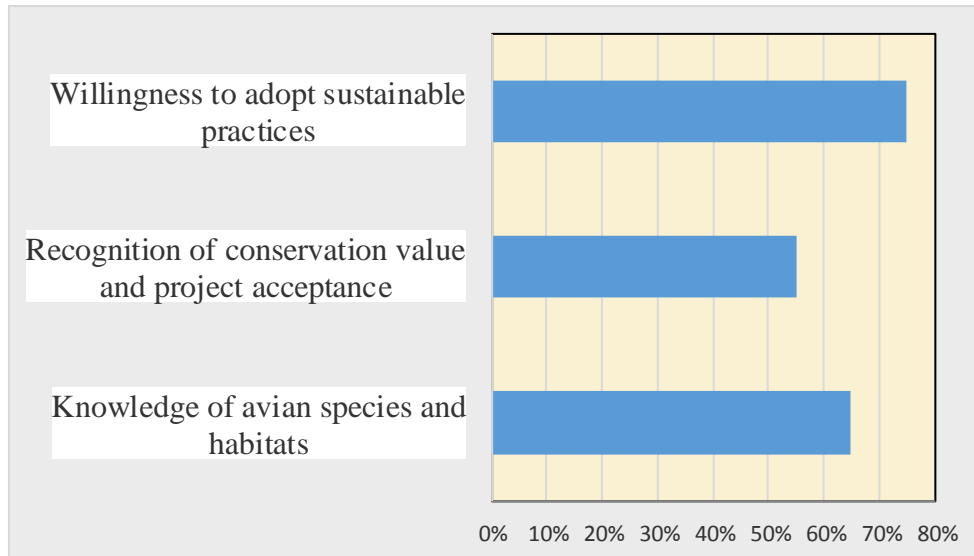


Figure 5: Evolution of community knowledge and attitudes

### 3) *Observation of Bird species during field activities*

- **Species Richness**

The four field outings involving students, teachers, and local guides resulting in the identification of 40 bird species within the surveyed fragments of spiny dry forest, contributing to the documentation of local biodiversity.

- **Key Species and Conservation Status**

Several endemic and threatened bird species listed by the IUCN were recorded during field observations, including:

- *Accipiter madagascariensis* (Madagascar Sparrowhawk), classified as Near Threatened (BirdLife International, 2024);
- *Uratelornis chimaera* (Long-tailed Ground Roller), classified as Vulnerable (BirdLife International, 2024);
- *Monias benschi* (Subdesert Mesite), classified as Vulnerable (IUCN, 2021);

- *Calicalicus rufocarpalis* (Red-shouldered Vanga), classified as Vulnerable (BirdLife International, 2024).

#### ▪ Skills Development

Practical assessment during field activities revealed that 65% of participating students were able to correctly identify four key bird species, their threats, and their natural habitats.

#### Tableau 1: List of birds observed during nature outings

**Distribution and status:** **D:** Species endemic to the southern domain; **W:** Species endemic to the western region; **M:** species endemic to Madagascar; **R:** Species endemic to the Malagasy region; **L:** Wide-ranging species; **I:** Introduced species.

**IUCN:** **LC:** Least concern; **VU:** Vulnerable; **NT:** Near Threatened

French name	English name	Scientific name	Endemism	IUCN Status
Martin triste	Common Myna	<i>Acridotheres tristis</i>	I	LC
Inséparable à tête grise	Grey-headed Lovebird	<i>Agapornis canus</i>	M	LC
Vanga à épaulettes	Red-shouldered Vanga	<i>Calicalicus rufocarpalis</i>	W	VU
Engoulevent malgache	Madagascar Nightjar	<i>Caprimulgus madagascariensis</i>	R	LC
Coucal toulou	Malagasy Coucal	<i>Centropus toulou</i>	R	LC
Cisticole malagasy	Madagascar Cisticola	<i>Cisticola cherina</i>	R	LC
Shama de Madagascar	Madagascar magpie-Robin	<i>Copsychus albospecularis</i>	M	LC
Corbeau pie	Pied Crow	<i>Corvus albus</i>	L	LC
Coua huppé	Crested Coua	<i>Coua cristata</i>	M	LC
Coua de Verreaux	Verreaux's Coua	<i>Coua verreauxi</i>	W	LC
Coua de coquerel	Coquerel's Coua	<i>Coua coquereli</i>	W	LC
Coua coureur	Running Coua	<i>Coua cursor</i>	W	LC
Coua à tête olive	Olive-capped Coua	<i>Coua olivaceiceps</i>	W	LC
Drongo malagasy	Crested Drongo	<i>Dicrurus forficatus</i>	R	LC
Crécerelle malgache	Malagasy Kestrel	<i>Falco newtoni</i>	M	LC
Falculie mantelée	Sickle-billed Vanga	<i>Falcula palliata</i>	M	LC
Foudi rouge	Red Fody	<i>Foudia madagascariensis</i>	M	LC
Bulbul de	Malagasy Bulbul	<i>Hypsipetes</i>	R	LC

Madagascar		<i>madagascariensis</i>		
Vanga de chabert	Chabert Vanga	<i>Leptopterus chabert</i>	M	LC
Guêpier de Madagascar	Olive bee-eater	<i>Merops superciliosus</i>	L	LC
Alouette Malagasy	Madagascar Lark	<i>Mirafra hova</i>	M	LC
Souimanga malagasy	Souimanga Sunbird	<i>Cinnyris sovimanga</i>	R	LC
Petite éroesse	Common Jery	<i>Neomixis tenella</i>	M	LC
Newtonie commune	Common Newtonia	<i>Newtonia brunneicauda</i>	M	LC
Pintade de numidie	Helmeted Guineafowl	<i>Numida meleagris</i>	I	LC
Tourterelle masquée	Namaqua Dove	<i>Oena capensis</i>	L	LC
Tisserin sakalava	Sakalava weaver	<i>Ploceus sakalava</i>	W	LC
Epervier de Madagascar	Madagascar Sparrowhawk	<i>Accipiter madagascariensis</i>	R	NT
Perroquet vasa	Vasa Parrot	<i>Coracopsis vasa</i>	R	LC
Baza malgache	Madagascar cuckoo-hawk	<i>Aviceda madagascariensis</i>	R	LC
Kiritika malagasy	Subdesert brush-warbler	<i>Thamnornis chloropetoides</i>	D	LC
Colombar maïtsou	Madagascar green-pigeon	<i>Treron australis</i>	R	LC
Pigeon de Madagascar	Malagasy turtle-dove	<i>Nesoenas picturatus</i>	M	LC
Turnix de Madagascar	Madagascar Buttonquail	<i>Turnix nigricollis</i>	R	LC
Huppe de Madagascar	Madagascar hoopoe	<i>Upupa marginata</i>	R	LC
Vanga écorcher	Hook-billed Vanga	<i>Vanga curvirostris</i>	M	LC
Vanga de Lafresnaye	Lafresnaye's Vanga	<i>Xenopirostris xenopirostris</i>	D	LC
Brachyptérolle à longue queue	Long-tailed Ground Roller	<i>Uratelornis chimaera</i>	W	VU
Mésite monias	Subdesert Mesite	<i>Monias benschi</i>	W	VU

#### 4) Production and distribution of educational materials

Educational resources produced to support awareness and learning activities included:

- 24 A3-sized tarpaulin posters and 4 A0-format tarpaulin banners, illustrating endemic bird species and their habitats;

- 180 A4-sized brochures, providing information on biodiversity in two protected areas in southwestern Madagascar and associated conservation practices;
- 1000 observation notebooks enabling students to record field observations.

These materials were distributed to workshop participants, schools, and local communities.

#### ***5) Establishment and operation of nature clubs***

Four nature clubs were officially established in partner secondary schools, thereby achieving the initial objective of setting up clubs in all partner institutions. These clubs involved an active core group of 80 volunteer students, averaging 20 students per club.

On average, each club organised two monthly activities, including bird observation outings and local awareness campaigns. Each club received a basic resource kit containing identification guides, posters, educational displays, and shared observation notebooks to ensure continuity of activities.

### **CHALLENGES ENCOUNTERED AND SOLUTIONS IMPLEMENTED**

- Time constraints within schools occasionally limited participation in activities. Flexible scheduling and close collaboration with school administrations helped overcome this challenge.
- The limited number of binoculars required rotational organisation during field excursions. Greater emphasis was therefore placed on direct observation and the use of visual identification guides.
- Access to certain field sites required careful logistical planning and the assistance of local guides.
- Differences in students' levels of understanding were addressed through adapted pedagogical approaches and individualised support.

### **FUTURE PERSPECTIVES AND RECOMMENDATIONS**

- Continue advocacy efforts with educational authorities to ensure that biodiversity, local ecology, and environmental conservation themes are formally integrated into secondary school curricula;

- Establish long-term support mechanisms for school nature clubs through supplementary training, improved access to materials, and methodological guidance for autonomous activities;
- Organise refresher and advanced training sessions for teachers already trained and extend the programme to additional schools within the region;
- Strengthen collaboration among educational institutions, environmental authorities, ornithologists, non-governmental organisations, and local communities to promote coordinated natural resource management;
- Encourage students and communities to participate actively in citizen science programmes through the collection and sharing of biodiversity observation data with national and international scientific networks;
- Expand the programme to additional schools within the Southwestern Region and potentially to other regions of Madagascar facing similar conservation challenges.

## **CONCLUSION**

This project has successfully achieved its objectives by raising environmental awareness among 773 students, 24 teachers, and 20 community representatives across four secondary schools regarding the critical importance of conserving endemic birds of southwestern Madagascar's spiny dry forest.

The project highlighted the relevance and effectiveness of targeted environmental education as a major tool for the conservation of rare endemic species and their threatened habitats, particularly within fragile ecosystems such as the spiny dry forests of Southwestern Madagascar. The establishment of nature clubs, together with strengthened environmental awareness and capacity-building within secondary schools, laid the foundations for a culture of environmental responsibility and engagement among young people.

These activities also contributed to positioning students as future custodians of Madagascar's natural heritage, capable of promoting conservation values within their communities and across the wider region. Financial support provided by the African Bird Club was fundamental to the implementation of these important conservation actions.

The long-term success of these initiatives will depend on their sustainability and on the integration of conservation into local educational and community development processes.

Continued efforts remain essential for safeguarding this exceptional biodiversity and promoting a more sustainable future.

## **ACKNOWLEDGEMENTS**

I extend my sincere gratitude to the African Bird Club (ABC) for providing the financial support that made this project possible. My gratitude also goes to the regional educational authorities, the administrations of the partner schools, local ornithologists, the University of Toliara, the TAMIA association, the DREN Atsimo Andrefana, the DREDD Atsimo Andrefana, as well as the local communities for their invaluable collaboration and commitment.

## **PROJECT TEAM**

- TIANDRAZA Guiaume : Project Coordinator/ principal investigator
- MAHAVILAHY Chrysanth Henri : Ornithologist / Facilitator
- RAZAFINDRETORO Lucien : Project Assistant (Observation / Documentation)
- MBEHOTREA Jean Marcel : Project Assistant (animation)

## **LITERATURE**

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## PROJECT BUDGET

Category	Item	Quantity	Cost (MGA)	Cost (£ GBP)
Local Transport	Transportation to site, Fuel, motorcycle taxi	240	3437500	625
Support	Local printing of posters, brochures, and species sheets	1000	1815000	330
Support for personnel	Local Guides, assistants and/or animators (Per diem, daily allowances for animators)	100	3437500	625
Field Equipment	Binoculars	2	3520000	640
	Batteries	62		
	Pencils	200		
	Observation notebooks	1000		
	Cameras	1		
	GPS	2		
Awareness materials	Posters and brochures for the local communities	60	550000	100
final workshop	Workshop for local communities	1	1100000	200
Communication	Internet packages to ensure bibliography and calls	160	165000	30
Insurance	Health insurance	100	495000	90
Bank	Bank charges over 4 months of location	4	165000	30
Unforeseen 10%	Permits, administrative costs and unforeseen expenses	120	1265000	230
<b>Total</b>			<b>15950000</b>	<b>2900</b>

## ANNEXES

### Annex 1: Educational materials produced

- A3-format poster




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LIPIA

## Endemic and threatened birds of the spiny dry forest of southwestern Madagascar


### The Red-shouldered Vanga (*Calicalicus rufocarpalis*)

 **Identification**

NV:


The Red-shouldered Vanga exhibits sexual dimorphism; the male is more colorful than the female. The male has a pale grey crown, nape, and mantle, with white on the auricular coverts and forehead. Apart from a black bib extending from the bill to mid-chest and continuing up the sides of the neck, the underparts are predominantly whitish, tinged with pink on the breast and flanks. The feathers on the back are brown, the wing coverts are brick-red, and the tail is pale brick-red. The bill is black, the irises are yellow, and the legs and feet are pinkish-grey. The female lacks the black bib on the chest. Her plumage is greyish-brown to olive above, with slightly rufous wings that are less vivid than the male's. The underparts are pale grey to whitish, without any pinkish hue. The bill is black, the eyes are yellow, and the legs are pinkish-grey.

**Male**



© John C. Mittermeier

**Female**



© Nigel Voaden

 **Habitat**

The Red-shouldered Vanga is a terrestrial species endemic to the spiny dry forest of southwestern Madagascar. It inhabits dense thickets of Euphorbia and low, compact bushes ranging from 2 to 3 metres in height.

 **Diet**

This species primarily feeds on small insects, which it gleans from leaves and branches. It also employs sallying behaviour to capture prey (Hawkins *et al.*, 1998).

 **Threats**

The principal threats to this species include agricultural expansion, charcoal production, firewood collection, timber extraction, and drought. The Red-shouldered Vanga is currently classified as Vulnerable according to the IUCN Red List (2024).



Annex 2: Photographs of observed bird species

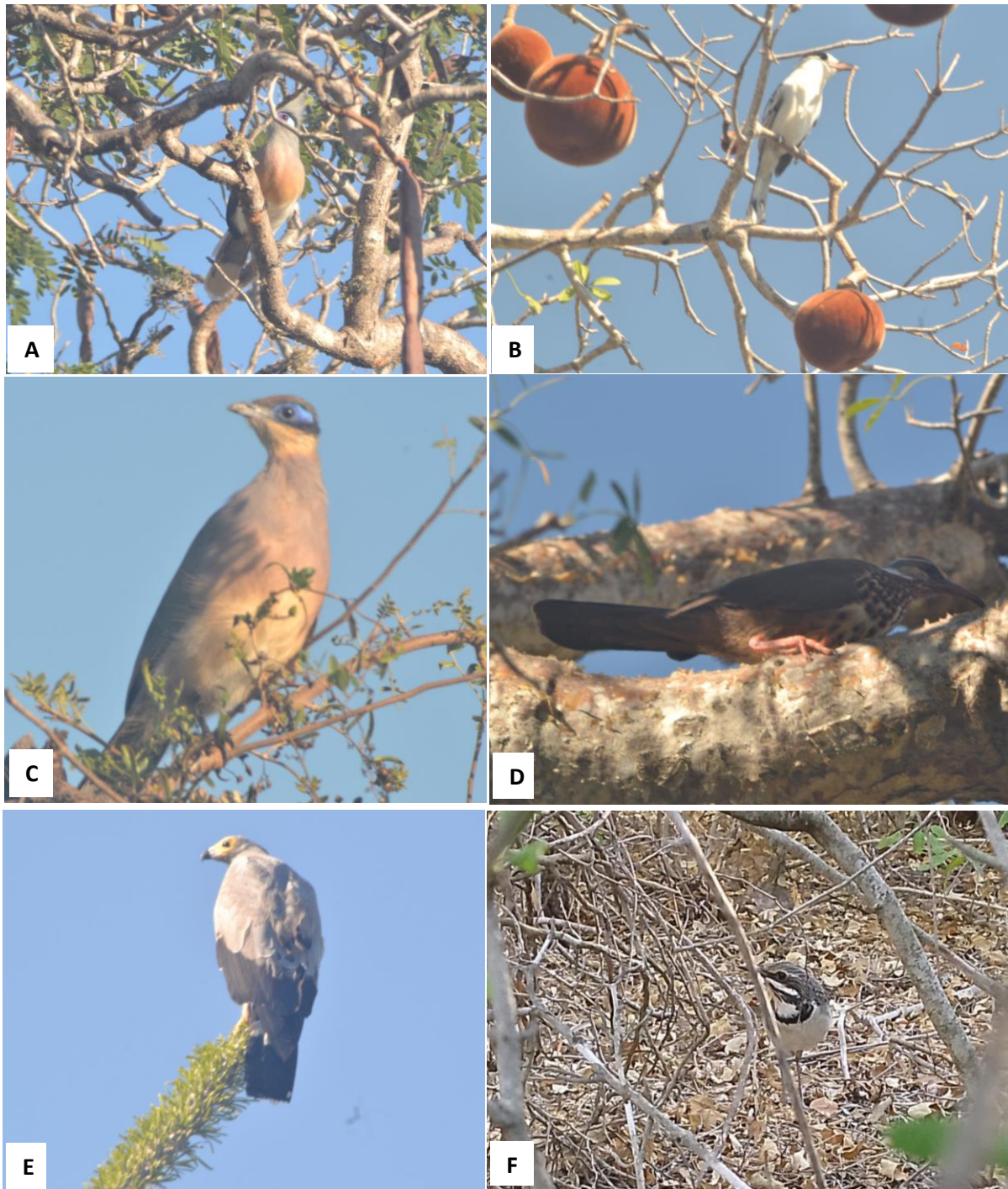


Photo: **A:** *Coua cristata* (Crested Coua); **B:** *Vanga curvirostris* (Hook-billed Vanga);  
**C:** *Coua olivaceiceps* (Olive-capped Coua); **D:** *Monias benschi* (Subdesert Mesite );  
**E:** *Aviceda madagascariensis* (Madagascar cuckoo-hawk); **F:** *Uratelornis chimaera* (Long-tailed Ground-Roller)

### Annex 3: Photographs of activities

- Photographs documenting students participating in bird observation sessions, using binoculars.



- Photographs illustrating training workshops involving teachers, students, and members of local communities during awareness and educational sessions.



- group photograph (students, teachers and local communities)

