Community-based conservation of red-bellied monkeys and wetland ecosystems on Agonve island, Benin

3rd Quarter Report

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Abstract

Agonve Island, situated within the wetland ecosystems of Benin, represents an underexplored landscape of significant conservation value. This project seeks to document the presence and population status of the red-bellied monkey (*Cercopithecus erythrogaster*) while advancing community-based wildlife conservation across the island. Fifteen camera traps were deployed across five sampling periods between April 2025 and February 2026, generating 21 station-deployment combinations and accumulating substantial monitoring effort despite seasonal flooding constraints. Across all deployments, eight wildlife species were recorded, with *Cercopithecus mona* (262 detections) and *Tragelaphus spekii* (136 detections) emerging as the most frequently detected. Notably, two species of high conservation concern were confirmed within the reserve: *Perodicticus potto ssp. juju*, classified as Endangered on both the Benin and IUCN Red Lists, and *T. spekii*, listed as Endangered on the Benin Red List. A significant ancillary discovery was made during fieldwork: the monitored area corresponds to the officially gazetted Réserve Biologique d'Agbogon, designated by decree in 2012 yet largely unknown to local authorities. The reserve boundaries have since been digitized and shared, providing a legal conservation framework to guide future management. Fieldwork challenges included camera malfunctions, seasonal flooding restricting access for approximately four months, and security risks in areas of high human pressure. Community engagement with surrounding villages, particularly Houeli, Agonve Azilidji, and Wometo has been effective in safeguarding equipment and building conservation awareness. While a confirmed detection of the target species has not yet been achieved, monitoring is ongoing and the data collected represents the first systematic, reserve-wide wildlife survey in the history of this ecosystem. Results are currently being prepared for scientific publication.

1. Data collection

Fifteen camera traps were deployed to estimate population density using the Random Encounter Model (Rowcliffe *et al.*, 2008; Palencia *et al.*, 2022). The first installation was conducted in April 2025. Cameras were removed from July to October due to flooding constraints and reinstalled in December 2025. Monitoring continued until February 2026. Cameras were checked monthly, except for the final interval, which lasted two months. Because dense undergrowth reduced visibility and limited effective detection, camera placement was restricted to accessible microhabitats likely to facilitate animal movement (e.g., areas characterized by Raphia and Ficus species). Within these microhabitats, camera locations were randomly selected to comply with REM assumptions. Cameras were positioned to optimize detection while minimizing obstruction from surrounding vegetation. If a station recorded detections, it was maintained for the subsequent sampling period; stations without detections were relocated to a newly selected random microhabitat. The selection of deployment areas was conducted in collaboration with local community members to maximize detection probability and reduce the risk of theft or damage.

2. Results

Across five deployments conducted between April 2025 and February 2026, 15 camera traps generated 21 station-deployment combinations (Table 1), accumulating between 1 and 71 days of total monitoring duration per station. The majority of stations achieved a 100% activity rate, meaning detections were recorded throughout the entire deployment period. Three stations experienced break periods exceeding 20 consecutive days without any true detection: cam8_5 (40.93 days), cam10_5 (35.75 days), and cam11_5 (21.92 days), resulting in reduced activity rates of 42.2%, 37.2%, and 60.6% respectively. The highest number of records was captured by cam13_4 (139 records) and cam12_5 (60 records), indicating these stations were positioned in particularly active movement corridors.

Table 1: Table 1. Summary of camera trap deployment performance across five sampling periods (April 2025 – February 2026), including the number of records, monitoring duration (days), active duration, break duration, and activity rate (%) per station.

Deployment	Station	Detection	Start Datetime	End Datetime	Days	Active days	Break days	Activity rate (%)
Deployment 1	cam03_1	3	25/04/28 18:38	25/04/28 18:39	1	1	1	100
Deployment 1	cam06_1	6	25/03/30 9:53	25/03/30 9:54	1	1	1	100
Deployment 2	cam03_2	6	25/03/28 1:57	25/04/09 22:46	12.87	12.87	0	100
Deployment 3	cam10_3	2	25/05/17 5:26	25/06/03 0:38	16.8	16.8	0	100
Deployment 3	cam11_3	13	25/05/13 11:51	25/06/07 23:12	25.47	25.47	0	100
Deployment 3	cam12_3	13	25/05/13 10:23	25/06/07 15:52	25.23	25.23	0	100
Deployment 3	cam13-3	85	25/05/12 11:16	25/06/10 9:54	28.94	28.94	0	100
Deployment 3	cam02_3	3	25/05/11 22:13	25/05/16 0:18	4.09	4.09	0	100
Deployment 3	cam03_3	8	25/05/13 12:50	25/06/03 18:36	21.24	21.24	0	100
Deployment 3	cam06_3	5	25/05/13 11:58	25/06/09 11:39	26.99	26.99	0	100
Deployment 4	cam11_4	12	25/05/13 11:51	25/06/07 23:12	25.47	25.47	0	100
Deployment 4	cam12_4	18	25/06/05 16:52	25/07/10 8:39	34.66	34.66	0	100
Deployment 4	cam13_4	139	25/06/11 19:48	25/07/12 7:13	30.48	30.48	0	100
Deployment 4	cam06_4	10	25/06/14 2:27	25/07/05 16:45	21.6	21.6	0	100
Deployment 5	cam11_5	18	25/11/23 11:07	26/01/18 2:08	55.63	33.71	21.92	60.6
Deployment 5	cam12_5	60	25/12/28 10:27	26/02/27 8:45	60.93	60.93	0	100
Deployment 5	cam13_5	21	25/11/26 15:35	26/01/28 15:46	63.01	63.01	0	100
Deployment 5	cam10_5	6	25/11/27 12:20	26/01/26 15:11	60.12	22.37	37.75	37.2
Deployment 5	cam9_5	5	26/01/28 9:06	26/02/18 10:51	21.07	21.07	0	100
Deployment 5	cam8_5	5	25/12/06 13:49	26/02/15 9:02	70.8	29.88	40.93	42.2
Deployment 5	cam6_5	12	26/01/02 8:05	26/02/27 12:03	56.17	56.17	0	100

Camera trap recorded a total of eight wildlife species across all deployments, with detection numbers ranging from 2 to 262 per species. The most frequently detected species were *Cercopithecus mona* (262 detections), followed by *Tragelaphus spekii* (136 detections) and *Genetta sp.* (23 detections), while *Perodicticus potto ssp. juju* was the rarest, with only 2 detections.

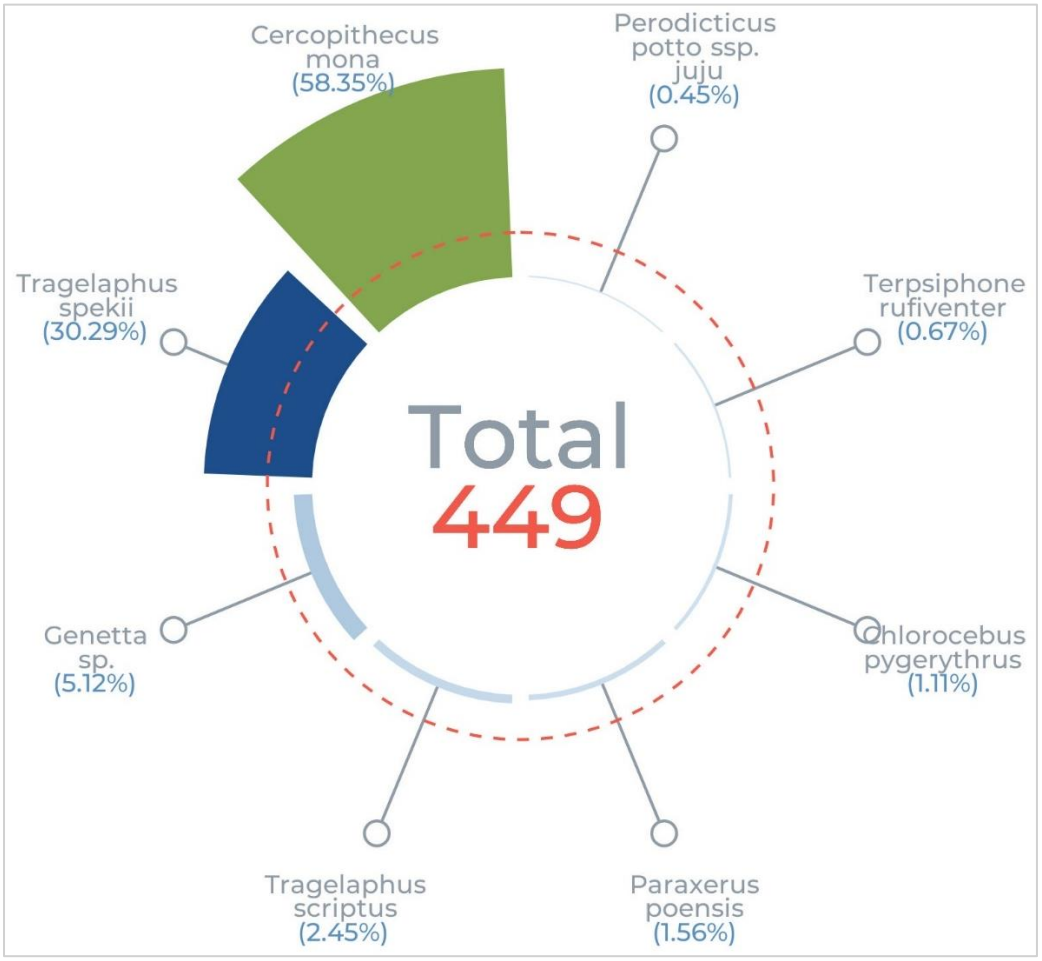

Figure 1: Distribution of species detected. The dashed red line indicates the mean proportion of detection across all species. Species exceeding the average represent those most frequently detected.

Figure 2 presents the wildlife species recorded by camera traps during the survey.

Perodicticus potto ssp. juju

Terpsiphone rufiventer

Chlorocebus pygerythrus

Paraxerus poensis

Tragelaphus scriptus

Genetta sp.

Tragelaphus spekii

Cercopithecus mona

Photo 1: presents the wildlife species recorded by camera traps during the survey

Regarding conservation status (Table 2), two species are of particular concern: *P. potto ssp. juju* is classified as Endangered (EN) on both the Benin and IUCN Red Lists, and *T. spekii*, despite being the second most detected species, is listed as Endangered (EN) on the Benin Red List, though it is considered Least Concern (LC) at the global level. *C. mona* and *T. scriptus* are both classified as Near Threatened (NT) on at least one of the two lists, while the remaining four species are currently of Least Concern at both national and global levels.

Table 2: Detected species, number of detections, and conservation status according to the Benin and IUCN Red Lists.

Species	Number of detections	Benin red list	IUCN red list
Perodicticus potto ssp. juju	2	Endangered (EN)	Endangered (EN)
Terpsiphone rufiventer	3	Least Concern (LC)	Least Concern (LC)
Chlorocebus pygerythrus	5	Least Concern (LC)	Least Concern (LC)
Paraxerus poensis	7	Least Concern (LC)	Least Concern (LC)
Tragelaphus scriptus	11	Near Threatened (NT)	Least Concern (LC)
Genetta sp.	23	Least Concern (LC)	Least Concern (LC)
Tragelaphus spekii	136	Endangered (EN)	Least Concern (LC)
Cercopithecus mona	262	Near Threatened (NT)	Near Threatened (NT)

During field work, the team discovered a plaque indicating that the area was officially designated as a biological reserve named the "Réserve Biologique d'Agbogon" (Agbogon Biological Reserve in English), by decree in 2012 (N°4M/17/C-ZDO/SG-SA). Despite this legal status, the reserve's protected designation remained largely unknown to local authorities. Following this discovery, the team approached the local municipal administration, which provided the official decree and its accompanying map. These documents were subsequently digitized and made available to Naben to support its future conservation operations and to serve as a formal reference framework for the management of the reserve. The Reserve covers an area of 32 km², with an additional 5.80 km² extension planned by Naben.

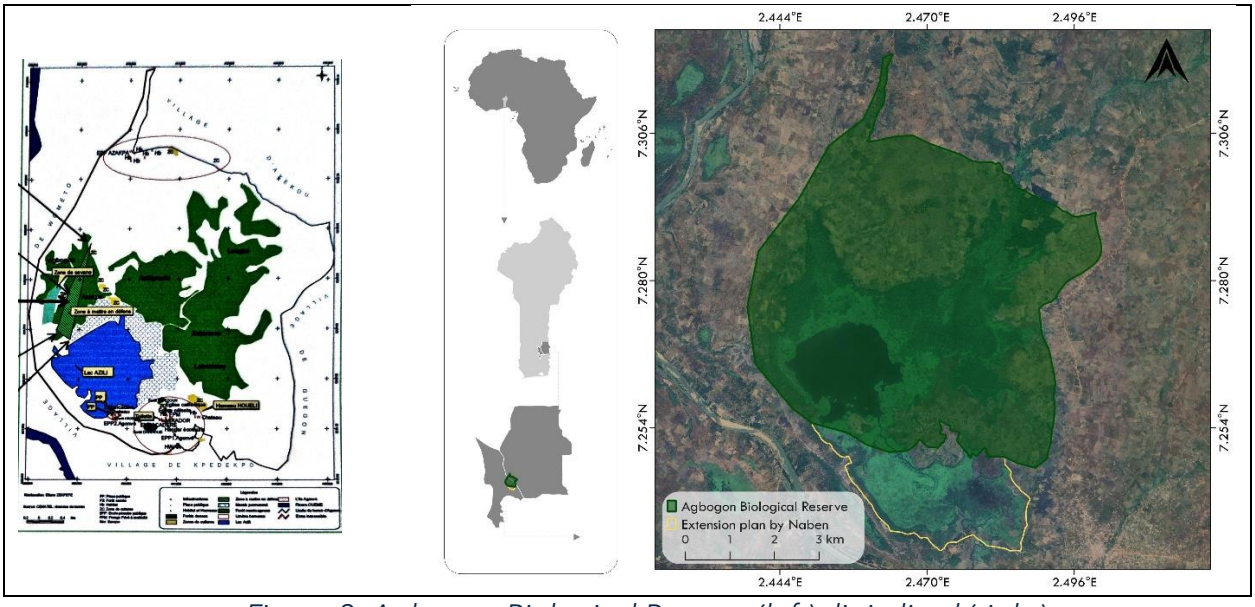

Figure 2: Agbogon Biological Reserve (left) digitalized (right)

3. Difficulties

Prior to project implementation, a total of 20 camera traps were planned for field monitoring: 10 provided through project support and 10 additional units independently acquired. Of the 10 acquired cameras, 5 were found to be non-functional at the removal stage, as these units had previously been deployed in the Lama classified forest. During the monitoring period, one of the remaining newly acquired units was further damaged by giant ants that destroyed its sensor, reducing the number of functional acquired cameras to 14.

Security and community-related risks posed additional challenges. Field guides indicated that the risk of theft or destruction was particularly elevated in the north-eastern part of the reserve, where anthropic factors were more pronounced than in other areas. The presence of active herders around the reserve (Photo 1) further compounded this risk. Special community awareness efforts will be required in future project phases to build trust and foster collaboration, as was successfully achieved with the communities of Houeli, Agonve Azilidji, Wometo, and neighbouring villages, whose members pass through the reserve without disturbing the equipment.

Photo 2: Herd of cattle around Agonve Island (© Stanislas Mahussi Gandaho)

Seasonal constraints significantly impacted fieldwork scheduling. Approximately four months of the project period were affected by heavy rainfall and flooding, preventing access to key monitoring sites and necessitating the temporary removal of all camera traps. Field conditions during and after the rainy season were further complicated by deep mud, which substantially slowed movement through the reserve and increased the time required to complete monitoring tasks.

4. Conclusion

This project marks a pivotal stage in the conservation of red-bellied monkeys and wetland ecosystems on Agonve Island. While a confirmed detection of *Cercopithecus erythrogaster* remains the project's primary goal, the work conducted to date has already yielded results of considerable scientific significance. The first systematic wildlife survey across the entire reserve documented eight species, including *Perodicticus potto ssp. juju*, classified as Endangered (EN) on both the IUCN and Benin Red Lists, and *Tragelaphus spekii*, listed as EN on the Benin Red List. *Cercopithecus mona* and *Tragelaphus scriptus* were additionally recorded as Near Threatened (NT) on at least one of the two lists, further underscoring the reserve's conservation value. The discovery and digitization of the reserve's official legal status strengthen the institutional foundation for all future conservation activities. Community engagement has proven equally valuable. The collaboration built with surrounding villages has protected field equipment and fostered a growing sense of shared stewardship over the reserve, a dynamic that will be essential as efforts expand into the more challenging north-eastern areas.

References

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