Research and Conservation Foundation of Papua New Guinea

Mt Kovilati (Ubaigubi) Rapid Biodiversity Inventory Report

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Content Page:

Abstract

Ubaigubi Village in Lufa District is located on the fringes of the Crater Mountain Wildlife Management Area (CMWMA). The CMWMA is a well-known Protected Area straddled over 3 provinces: Eastern Highlands, Chimbu and Gulf Provinces. It hosts a vast array of faunal and flora species. Our Natural Resources Management Program (NRMP) team conducted a six-day biodiversity survey of fauna species of Mt. Kovilati in the CMWMA in Ubaigubi village from the 25th – 30th May. This rapid biodiversity inventory was conducted to identify fauna species inhabiting Mt Kovilati and to establish the presence of six indicator fauna species in the Ubaigubi Region of the CMWMA. Previous studies in the CMWMA have proved that biodiversity remains high in the CMWMA with much of the forest intact. Data collected in this biodiversity survey was done through the line transect methods and the use of traditional ecological knowledge in a specific site: Mt. Kovilati. The results from this six-day survey of fauna species show that the species diversity in Mt. Kovilati in the CMWMA remains intact with few species facing minimal yet significant threats. Over 25 bird sightings and calls were heard while 10 mammals were observed.

1. Introduction

Papua New Guinea harbors more than five percent of the world's biodiversity within some of the world's most biologically diverse ecosystems (Sekhran & Miller, 1994). Many of these organisms are endemic to the island of New Guinea, whilst others are under constant natural and human induced threats that may elicit their gradual extinction (IPBES, 2019). Coupled with the topical threat that is climate change, steep increase in human population has also impacted pristine marine and terrestrial ecosystems that provide abodes for these organisms. The threats to biodiversity are recognized globally and relevant multilateral environmental agreements (MEAs) such as the Convention on Biological Diversity (CBD -1992) and the Aichi Targets (201) have been ratified and adapted by the PNG Government (Go-PNG) to counter these threats. In-situ conservation of species, amongst other interventions, epitomizes the implementation of these MEAs (Convention on Biological Diversity, 2022 & Independent State of Papua New Guinea, 2007). National parks, conservation areas, locally managed marine areas (LMMAs), estuaries, and wildlife management areas (WMAs) are all facets of in-situ conservation Go-PNG has, since signing the CBD 1992, established throughout the country (Independent State of Papua New Guinea, 2014). The Crater Mountain Wildlife Management Area (CMWMA) is one such paradigm of Go-PNG's commitment to these MEAs.

The CMWMA was gazetted by the Papua New Guinean government as a Wildlife Management Area in 1994, through the Fauna Protection and Control Act of 1966. The CMWMA's chief objective was to establish laws and regulations that control the harvest, possession, and trade of wildlife in communities within its boundaries (West, 2006). The CMWMA spans into three provincial borders: Eastern Highlands, Chimbu and Gulf Provinces and covers close to 2700 square kilometers (Ericho, Bino & Johnson, 1999). The boundaries of the CMWMA straddles two tribal groups: Pawaia towards the south and Mihibe (formerly Gimi) towards the north. The Pawaian tribal group occupy the sub stations of Haia and Wabo and all villages in between whilst the Mihibe tribal group are settled in the villages of Herowana, Mengino, Maimafu, Abigarama and Ubaigubi towards the northern boundary of the CMWMA (See Fig 1).

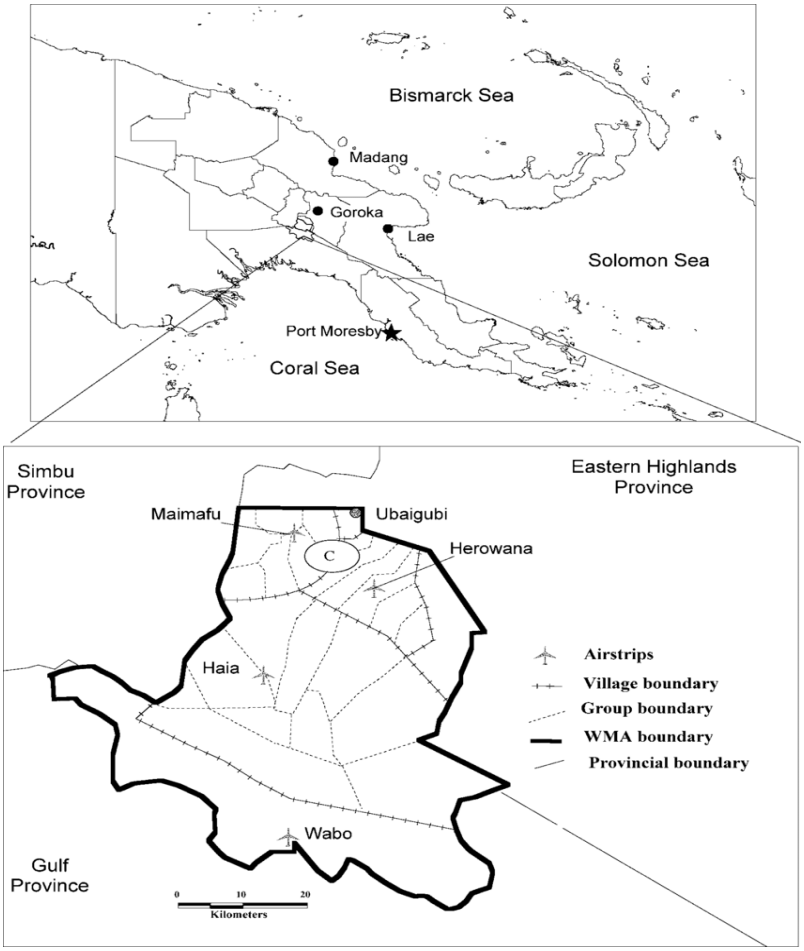

Fig 1: Boundary Map of the Crater Mountain Wildlife Management Area (Johnson, Bino & Igag, 2004)

This report presents the findings of a 6-day rapid biodiversity inventory along the slope of Mt Kovilati approximately 6.4km south-west of Ubaigubi Village. Ubaigubi Village is Ward 6 in the Unavi LLG of Lufa District, Eastern Highlands Province. The report will also discuss how impacts of climate change in the region has affected the distribution and shift of species in Mt Kovilati and parts of the CMWMA adjacent to it.

2. Background of Study

The CMWMA was gazetted on the grounds of having immense biological diversity including a wide array of bird of paradise species. This has been confirmed in part by Takeuchi (2000), Symes & Marsden (2004), Oppel (2005) and Mack & Scholes III (2003) through their respective works. Ericho, Bino and Johnson (1999) state that the CMWMA is abode to 220 bird species, 49 of which are endemic to the region and 84 mammal species, 15 of which are also endemic to the central cordillera of the island of New Guinea. Tree kangaroo and bird of paradise species are also inhabitants of the CMWMA. This study is a re-confirmation of these figures, specifically in the Ubaigubi Region of the CMWMA.

Prior to this study, informant interviews were conducted in December 2022 in Ubaigubi Village. Locals who frequented the intended study site (Figure 3.1.2) were interviewed on the presence of several plant and animal species having significant IUCN Red List Status as well as cultural uses. Based on the responses obtained from these interview sessions, 6 fauna species spread across 2 classes were identified

and labelled as indicator species. These species are Salvadori's Teal (*Salvadorina waigiuensis*), Raggiana Bird of Paradise (*Paradise raggiana*), Eastern Long-Beaked Echidna (*Zaglossus bartoni*), Good Fellows Tree Kangaroo (*Dendrolagus goodfellowi*), King of Saxony Bird of Paradise (*Pteridophora alberti*) and Blue Bird of Paradise (*Paradisornis rudolphi*). Responses from these informant interviews narrowed the scope of this rapid biodiversity inventory to be focused on the bird and mammal classes only.

This rapid biodiversity inventory was conducted in May 2023 and was aimed at establishing the presence of the indicator species and how climate change is affecting these species. The inventory and report produced is part of the project titled 'Enhancing Community Capacity to adapt to the Impacts of Climate Change on Biodiversity in Ubaigubi Community, Lufa District, in Eastern Highlands Province' funded by the United Nations Development Program and GEF Small Grants Program.

2.1. Objective of Study

The main objective of the inventory was to rapidly assess and establish the presence of 6 indicator fauna species present in the Ubaigubi Region of the CMWMA based on informant interviews done in December 2022 and previous studies done in the CMWMA.

3. Study Site: Mt Kovilati

The site selected for this inventory is approximately 6.5km southwest from Ubaigubi Village. This site is locally known as Kovilati. For the purpose of this report, this site will be referred to as Mt Kovilati. The site is comfortably nestled in the gazetted boundary of the CMWMA as shown in Figure x. Mt Kovilati is stands at almost 2900 meters above sea level and is typically comprised of Lower Montane – Mid Montae Forests that are large and medium crowned (Johns, 2019). During the period of the inventory, temperatures averaged at 19˚C whilst rainfall was 12mm. The site was typical of a high-altitude montane ecosystem with semi-volcanic structures formed from the original caldera that is Crater Mountain. Figure 3.1.1 presents scenes from the camp and survey site, whilst figure 3.1.2 is a Google Earth Imagery of the survey quadrat the inventory was carried out in.

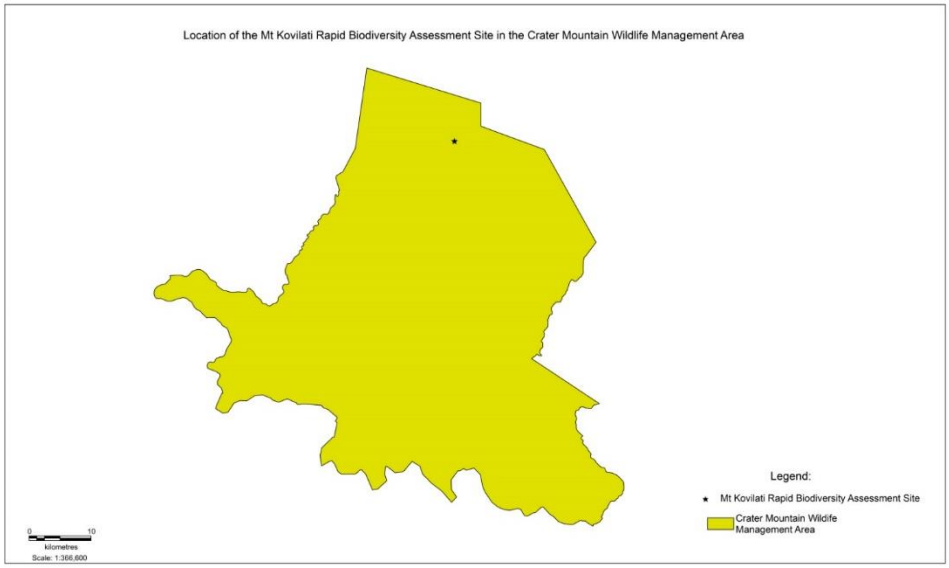

Figure 3.1.1 Mt Kovilati's position in the CMWMA Boundary

Figure 3.1.2 Google Earth Imagery of rapid biodiversity inventory quadrat and camp site

4. Methodology:

4.1. Materials

Materials used in this survey include 50m tape measures, handheld GPS(s), luminous flagging tapes, binoculars, audio recorders, rodent cage, and field guides for mammals (Flannery, 1990) and birds (Coates & Peckover, 2001).

4.2. Survey Team

Data for this study was collected by 11 trained local observers (TLOs) who had obtained a one-week basic biodiversity techniques training course provided by RCF through the UNDP GEF Small Grants Program. Data collected was verified by two of RCF's Natural Resource Management Program Staff (field biologist and environmental scientist) before being recorded. This collaboration between graduate natural scientists and ordinary individuals is known as the practice of citizen science. Citizen science is defined as works of science, often biological, undertaken by ordinary individuals with non-biology background under the supervision of a certified biologist. Although citizen science has its setbacks in limited preliminary statistical analysis, limited taxonomic gap knowledge and overall lacking data quality, it has since been instrumental in providing approximately 1.4 billion biodiversity data records to the Global Biodiversity Information Facility. These citizen scienced data has, since 2020, been used in the publication of 4307 research papers (Callaghan et al, 2020). Citizen science provides, at times, crucial data that answers questions on ecosystems, conservation, and natural resource management (McKinley et al, 2017). It is with this regard that citizen science was deemed amenable for data collection and recording in this study.

4.3. Species Identification Methods:

Two overarching methods of species identification were used to identify and document bird and mammal species in this study. Generally, these methods were (i) quadrat sampling and (ii) the use of traditional ecological knowledge provided by TLOs and experienced hunters and foragers who have roamed the study site for decades.

i. Quadrat Sampling

Although the study was not focused on vegetation and plant diversity, some aspects of Whittaker's Plant Sampling Technique was adapted to demarcate the study site. That is, having a defined area where all species identification and sampling will be conducted in. Theoretically, Whittaker's suggested area of study is 0.1 ha plot with sub plots to within the quadrat to quantify plant richness and diversity (Yorks and Dabydeen, 1998).

For this study 0.4ha was the expected quadrat area where 200m transect lines were stretched in each of the four directions from the center point. However, due to the irregular terrain, ridges, and an abrupt steep cliff towards the south, the total area of the quadrat was approximately 5.3 ha. All waypoints for all corners of the quadrat were recorded by handheld GPS(s). Each corner of the quadrat including the center point was flagged and labelled by luminous flagging tape. Within the quadrat, rodent cage traps were used to trap smaller mammals, whilst birds were recorded by spot counts via the 1.5km range binoculars and calls were recorded using handheld audio recorders. All species observed were confirmed on site with mammal (Flannery, 1990) and bird (Coates & Peckover, 2001) field guides.

Fig 4.3.1: Left: RCF Conservation Officer and a TLO recording the coordinates of the Eastern Point of the Quadrat. Right: TLO's using measuring 200m south of the center point using a 50m tape measure.

ii. Traditional ecological knowledge

Berkes (2008) defines traditional ecological knowledge as the "knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings, including humans, with one another and with their environment". This definition elucidates the intimate bond indigenous peoples have with their natural environment. Indigenous peoples are not intrigued academically to study the natural spaces and themes they occupy, but completely depend on them for survival. TEK varies amongst races, ethnicities, and geography however, much of these site-based knowledge systems have been used, adapted, and passed through generations over time they often surpass or provide wider meaning to Eastern and Western scientific tenets (Wilder et al, 2016). TEK was an important means of data collection in this study.

Throughout the duration of this study, TEK was provided largely by experienced hunters and foragers who accompanied the survey team patrol the study site. Local species names, prior observation of species & their behavioral patterns, traditional hunting routes, species imitation, species abode & food identification and the elevational distribution of species were all traditionally passed down and observed over decades. These data provided the basis needed to confirm the presence of certain mammal and bird species, such as the good fellow's tree kangaroo and the blue bird of paradise. All data collected through the use of TEK was verified and recorded.

Figures 4.3.2 shows examples of how TEK was used to identify the abodes of two mammalian species.

Fig 4.3.2: Left: Trail and feeding area of Thylogale brunii (Dusky pademelon). Right: Claw marks of Dendrolagus goodfellowi on tree stem (Goodfellow's tree kangaroo).

5. Results

The rapid inventory was conducted for 4 days, from the 26th to 29th of March 2023. Raw data obtained from the inventory is presented as Appendix A.

5.1. Overall Results

The inventory conducted documented a total of 40 individuals from the mammal and bird classes. Birds made up 75% of the total number of individuals documented, whilst mammals made up the remaining 25%. Figure 5.1 presents this break up as a pie chart.

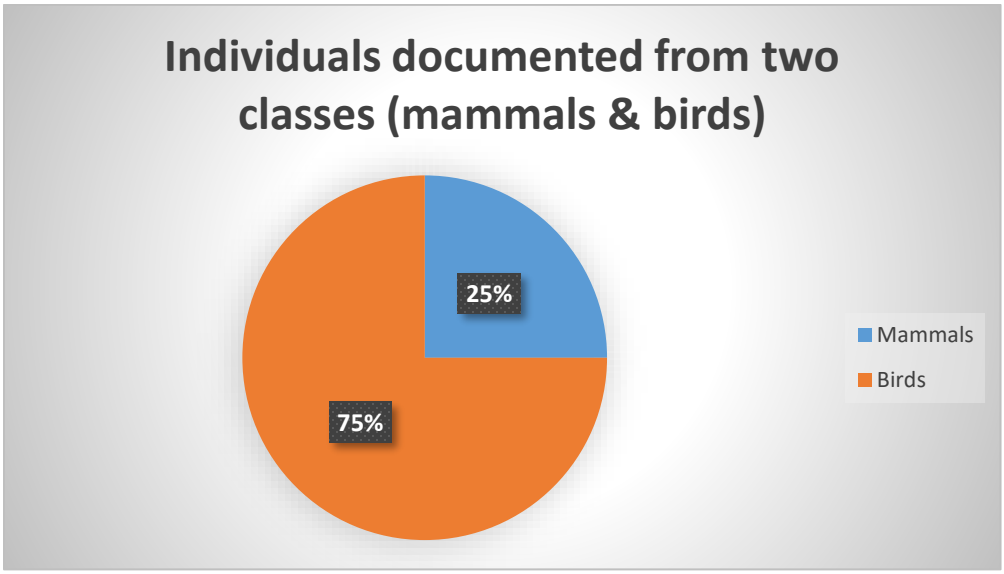

Figure 5.1.1. Break up of mammal and bird individuals documented during rapid biodiversity inventory

The study area's elevational range was between 1400 – 3000 meters above sea level. The table below presents the number of individuals documented and their respective elevational range. Between 1400 – 3000 meters above sea level, the altitudes have been split into three elevational ranges to specify which fauna species were identified at their respective altitudes.

Table 5.1: Number of individuals documented at different elevation ranges from 1400masl - 3000masl.

Elevation Range (in meters above sea level)	**Mammals**	**Birds**
1400 – 2200 masl	0	1
2200 – 2600 masl	10	27
2600 – 3000 masl	0	2
Total	**10**	**30**

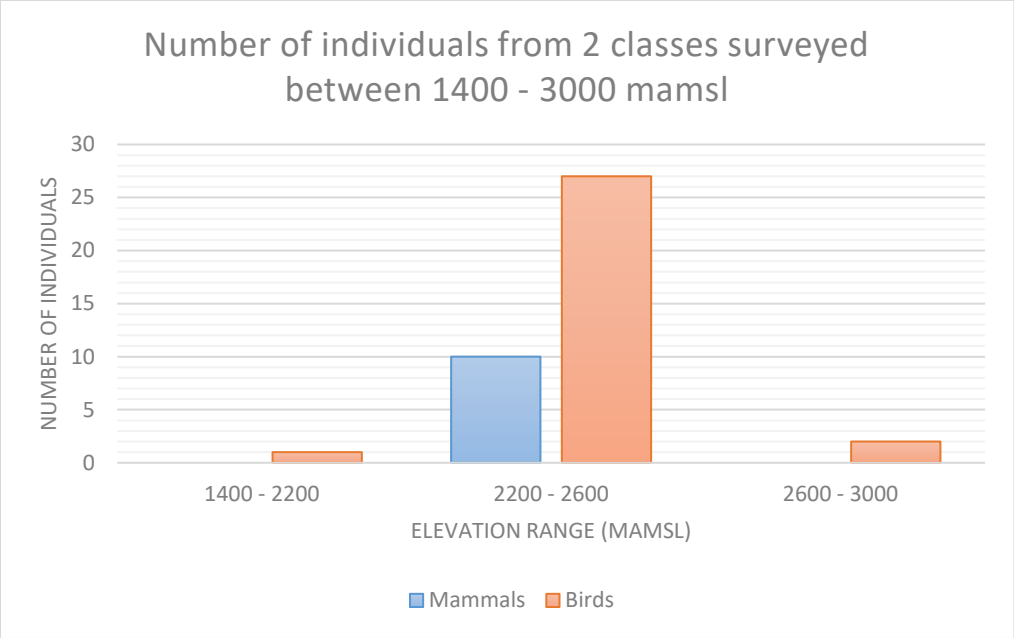

Figure 5.1.2. Number of bird and mammal individuals documented at three different elevational ranges.

5.2. Birds

The study documented 40 individuals from 20 bird species. Most individuals from the King of Saxony Bird of Paradise (*Pteridophora alberti*) species were recorded followed by Stephanie's Astrapia (*Astrapia stephaniae*). Figures 5.2.2 & 3 present the number of individuals and species recorded and the survey methods used.

Figure 5.2.1. Left: King of Saxony Bird of Paradise survey at Mt Kovilati. Right: Stephanie's Astrapia observed at Mt Kovilati

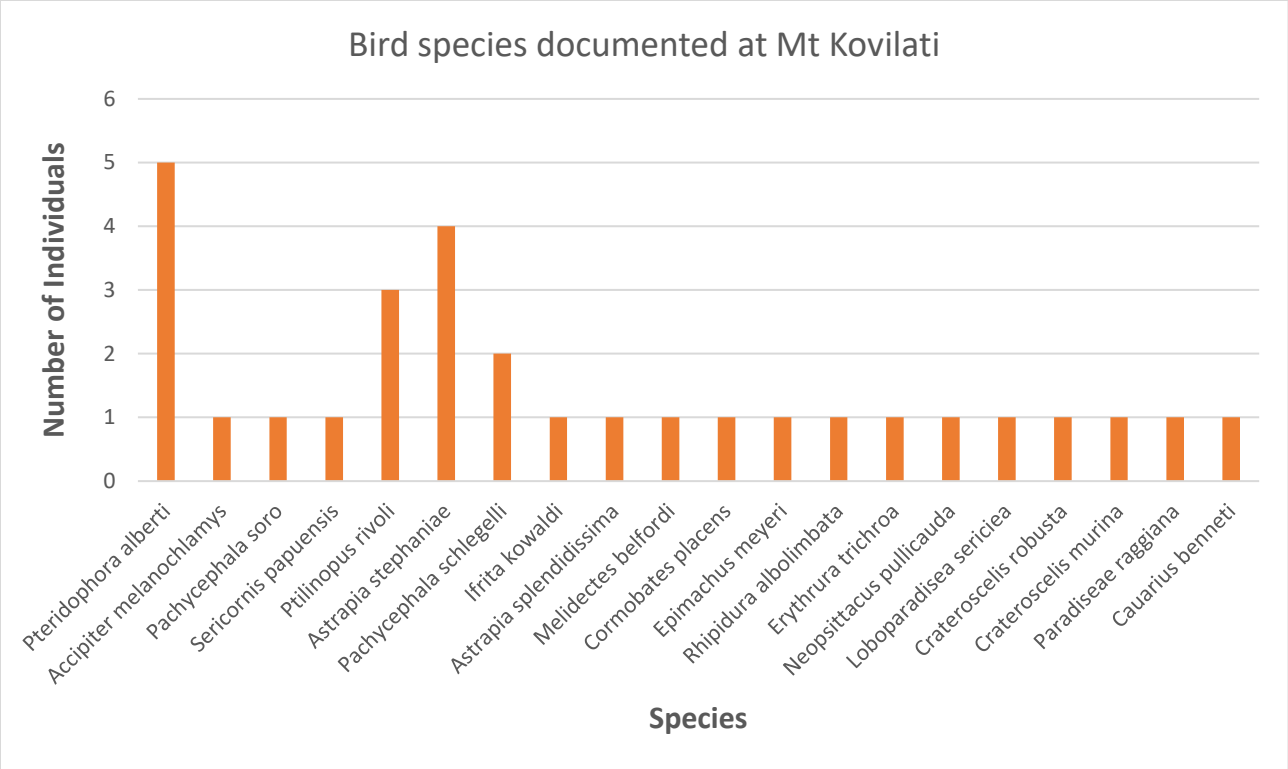

Figure 5.2.2. Number of individuals from 20 bird species recorded at Mt Kovilati

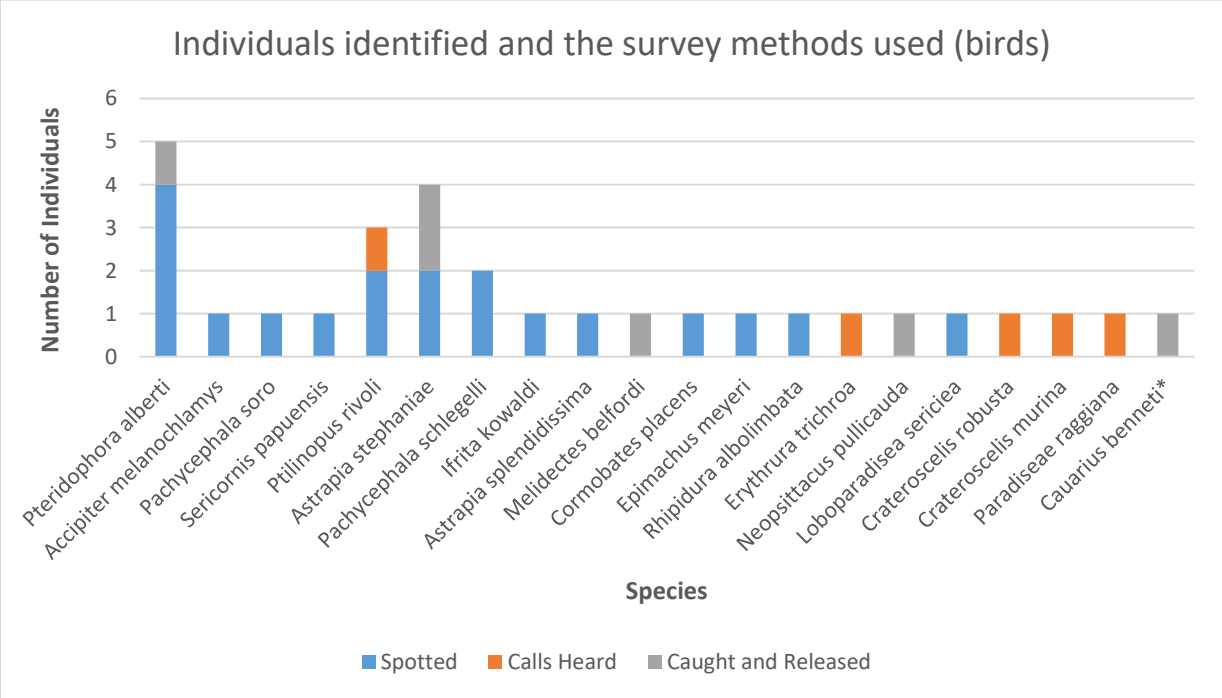

Figure 5.2.3. Number of individuals from 20 bird species recorded at Mt Kovilati and the survey methods used.

5.3. Mammals

The inventory recorded a total of 9 mammal species. Of the 9 species, two individuals from the *Pogonomelomys ruemmleri* species were recorded whilst the remaining for the remaining species lone individuals were recorded. Figure 5.3.1 shows a striped bandicoot trapped and documented while figures 5.3.2 & 3 shows the number of individuals and species documented and the survey methods used.

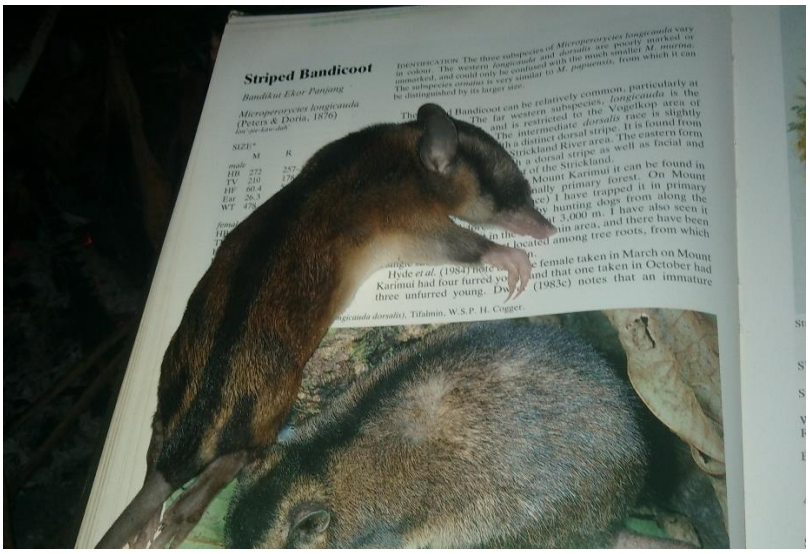

Figure 5.3.1. Striped bandicoot trapped and observed during survey at Mt Kovilati

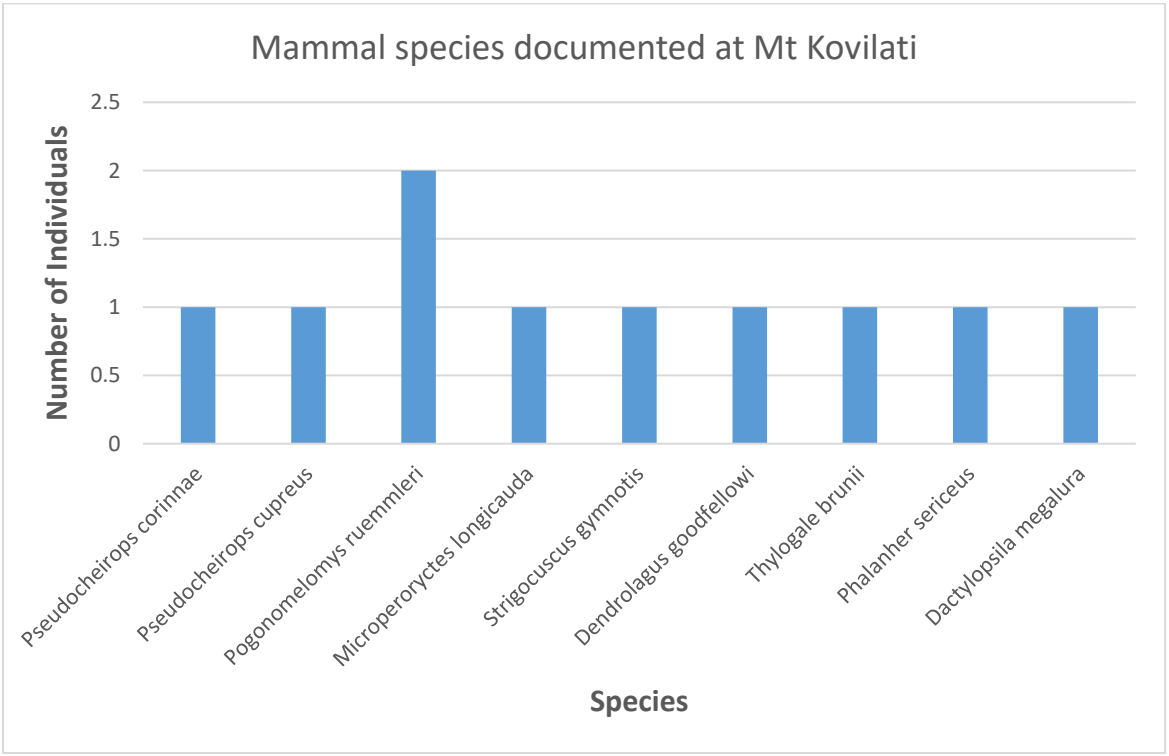

Figure 5.3.2. Number of individuals from 9 mammal species recorded at Mt Kovilati

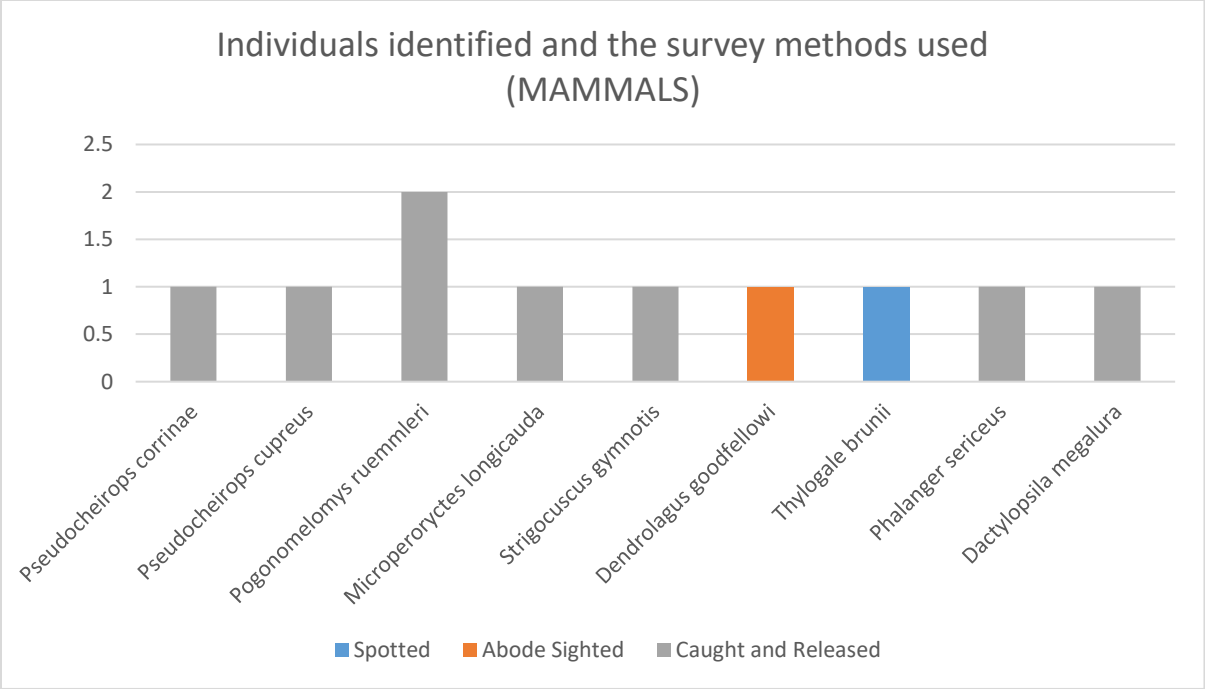

Figure 5.3.3. Number of individuals from 9 mammal species recorded at Mt Kovilati and the survey methods used

6. Discussion

6.1. Species Presence and Diversity

All indicator species identified by locals during informant interviews were inherent in two classes only. These are the bird and mammal classes. The results of this rapid inventory presented in Section 5 displayed the presence of 20 and 9 species in both classes respectively.

To determine species diversity in this area, Shannon's Biodiversity Index was used. Shannon's Biodiversity Index assumes all species are represented in a sample and are randomly selected, which is the case for this inventory.

Tabled below are the respective indexes for the Bird and Mammal species.

Table 6.1.1. Shannon's Biodiversity Index for Bird Species in the survey area at Mt Kovilati.

Species	Count	n/N	p_i	p_i^2	$\ln(p_i)$	$p_i(\ln p_i)$
1	5	0.5	0.5	0.25	-1.38629	-0.69315
2	1	0.1	0.1	0.01	-4.60517	-0.46052
3	1	0.1	0.1	0.01	-4.60517	-0.46052
4	1	0.1	0.1	0.01	-4.60517	-0.46052
5	3	0.3	0.3	0.09	-2.40795	-0.72238
6	4	0.4	0.4	0.16	-1.83258	-0.73303
7	2	0.2	0.2	0.04	-3.21888	-0.64378
8	1	0.1	0.1	0.01	-4.60517	-0.46052

9	1	0.1	0.1	0.01	-4.60517	-0.46052
10	1	0.1	0.1	0.01	-4.60517	-0.46052
11	1	0.1	0.1	0.01	-4.60517	-0.46052
12	1	0.1	0.1	0.01	-4.60517	-0.46052
13	1	0.1	0.1	0.01	-4.60517	-0.46052
14	1	0.1	0.1	0.01	-4.60517	-0.46052
15	1	0.1	0.1	0.01	-4.60517	-0.46052
16	1	0.1	0.1	0.01	-4.60517	-0.46052
17	1	0.1	0.1	0.01	-4.60517	-0.46052
18	1	0.1	0.1	0.01	-4.60517	-0.46052
19	1	0.1	0.1	0.01	-4.60517	-0.46052
20	1	0.1	0.1	0.01	-4.60517	-0.46052
Sum	30	3	3	0.7	-82.5284	-10.1606

$$Shannon's\ Diversity\ Index\ (H) = -\sum_{i=1}^{s} p_i \ln p_i$$

$$H = 10.1606$$

The Shannon's Diversity Index (H) for bird species documented in the survey area at Mt Kovilati is 10.1606. This translates to the survey area having extreme avifauna. The value of H for bird species is only representative of the survey area and not the entire Ubaigubi Region of the CMWMA, nonetheless, it provides and a conclusive prediction on the diversity of avifauna in the entire Crater Mountain Wildlife Management Area.

Table 6.1.2. Shannon's Biodiversity Index for Mammal Species in the survey area at Mt Kovilati

Species	**Count**	**n/N**	**p_i**	**P_i^2**	**$\ln p_i$**	**$p_i (\ln p_i)$**
1	1	0.1	0.1	0.01	-4.60517	-0.46052
2	1	0.1	0.1	0.01	-4.60517	-0.46052
3	2	0.2	0.2	0.04	-3.21888	-0.64378
4	1	0.1	0.1	0.01	-4.60517	-0.46052
5	1	0.1	0.1	0.01	-4.60517	-0.46052
6	1	0.1	0.1	0.01	-4.60517	-0.46052
7	1	0.1	0.1	0.01	-4.60517	-0.46052
8	1	0.1	0.1	0.01	-4.60517	-0.46052
9	1	0.1	0.1	0.01	-4.60517	-0.46052
Sum	10	1	1	0.12	-40.0602	-4.32791

$$Shannon's\ Diversity\ Index\ (H) = -\sum_{i=1}^{s} p_i \ln p_i$$

$$H = 4.32791$$

The value of H for mammal species suggests that the survey area hosts an array of mammal species. However, the index for mammal species is relatively lower than that of the bird species. This is due in part to migration from human pressures (such as overhunting and land use infringement) as well as the gradual changes in weather patterns (increase in humidity and temperature).

Broadly, the survey area along the slopes of Mt Kovilati boasts high levels of bird and mammalian diversity as depicted by the Shannon Diversity Index. This survey area lies within the gazetted boundaries of the CMWMA and provides a glimpse into the rich biodiversity that the entire 270000 hectares of the CMWMA holds.

6.2. IUCN Status of Species

This rapid biodiversity inventory was intended to confirm the presence of several indicator species along the slopes of Mt Kovilati. The results of the inventory have provided confirmation on some of these species whilst also realizing the presence of other species of significant IUCN Status. The table below lists these species in their respective IUCN Statuses from least to most threatened. Goodfellow's Tree Kangaroo and Dusky Pademelon were the species observed that were categorized as threatened in the IUCN Red List Rankings.

Table 6.2.2. IUCN Red List Species observed at Mt Kovilati

Species Observed:	IUCN Status:
Goodfellow's Tree Kangaroo (*Dendrolagus goodfellowi*)	Endangered
Dusky Pademelon (*Thylogale brunii*)	Vulnerable
Dwarf Cassowary (*Casuarius bennetti*)	Near Threatened
Plush Coated Ringtail (*Pseudocheirops corinnae*)	Near Threatened

Apart from the species observed using survey techniques and traditional ecological knowledge, citizen science from the TLOs and guides suggested that there has been numerous sightings of the Eastern Long Beaked Echidna and Salvadori's Teal along the same elevations as the survey site but outside of the vicinity towards the east and west ridges of Mt Kovilati. These two species were also amongst the original 6 indicator species that the inventory sought to confirm presence. Although not verified, it can be assumed that these claims are to some degree factual based on existing literature on the CMWMA.

6.3. Land Use Changes

Within the 200m x 200m quadrat survey area, land use change was very limited. The nearest household was more 4 km away, whilst the nearest slash and burn clearing for gardens was 2.4 km away. The approximate distances can be drawn from Figure 6.3.1. Threats of land use change encroachment into the CMWMA boundaries remains imminent. With iterative awareness and better land use planning, this threat can be addressed.

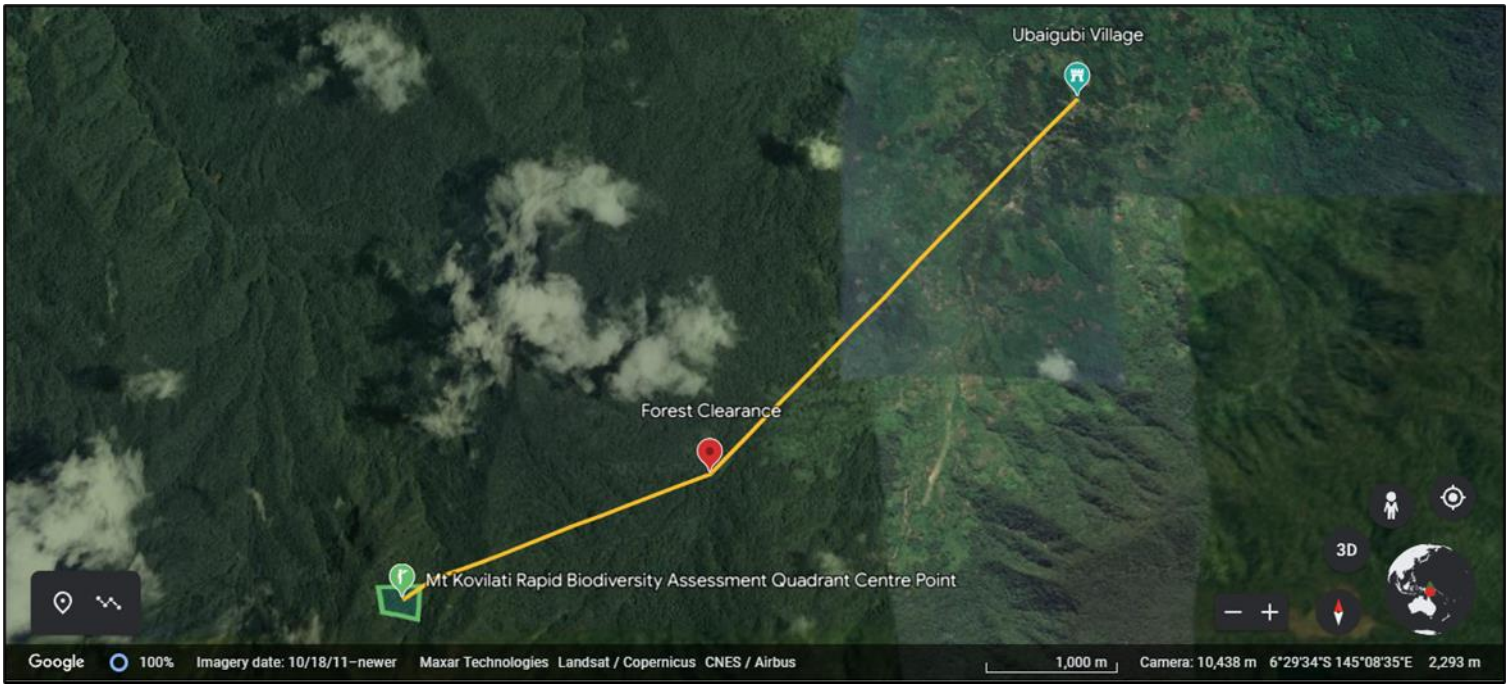

Figure 6.3.1. Google Earth Imagery showing survey site, the nearest forest clearance and Ubaigubi Village.

There is evidence of hunting within the vicinity of the survey area, however, the TLOs have claimed that bird species are hunted for their plumes only when there are ceremonies or other activities requiring traditional head dresses. Mammals on the other hand are hunted without strict control because of the community's day to day dietary needs. This is well in violation of the WMA Laws set by the then function Wildlife Management Committee.

The dormancy of the Wildlife Management Committee in the CMWMA has destabilized the enforcement of the CMWMA by-laws in Ubaigubi as well as other communities within the gazetted CMWMA boundaries. As a result overhunting, land use changes and unlimited foraging has been observed along the trek towards the survey area.

6.4. Migration of Species

Coupled with the aforementioned land use changes, climate change has also played a role in the distribution of fauna species along the slopes of Mt Kovilati. With irregular rainfall, humidity and increased surface temperatures, a couple of the mammalian species observed have migrated to higher altitudes to maintain survival. *Thylogale brunii*, a species that was restricted to low land tropical rainforest (Scherber, 1778) has migrated from their previously documented elevation limits to inhabit a higher altitude of 2578 meters above sea level. Another species that was previously expected between 1400 – 1600 meters above sea level (Peters & Doria, 1876) but was spotted at 2582 meters above sea level is *Microperoryctes longicauda.*

The migration of species from varying altitudes may accrue in natural selection and seldom mutation of genes to allow individuals to live with unfamiliar bio-physical parameters. However, this migration can also lead to the gradual dissipation of the 2 mentioned species. Consistent monitoring of the ecology and

population of these species is warranted for the survival of these species in Mt Kovilati. Although not purely scientific, strict enforcement of the WMA Laws will also contribute in maintaining the populations of these species.

7. Conclusion

Mt Kovilati and the entire CMWMA remains diverse and intact as presented in this report. It is the intention of the authors of this report to portray a glimpse of the variety of fauna species held in the CMWMA and specifically the Ubaigubi Region. With this report, it is envisaged that more research and monitoring work will be conducted in the CMWMA to gauge the levels of biodiversity and to identify and address imminent threats. Upon the completion of this report, it is seemingly evident that other parts of the CMWMA need similar inventories and species research to fully grasp the array of biodiversity this second largest WMA in PNG holds.

Monitoring of both flora and fauna species in the CMWMA remains a mammoth challenge to fulfill due to the legislature that it was gazetted under, the size and geography of the location, its resident tribal groups and overarching funding constraints. With the introduction and implementation of PNG's Policy on Protected Areas, it is the authors' hope that habitat damage and loss in the CMWMA will be prioritized by relevant stakeholders to uphold effective in-situ conservation. Further, it is envisioned that CMWMA will be a climate resilient Protected Area through research and studies such as the one presented above so that the future custodians of the CMWMA will be aware of the impact's climate change has on their forests.

Based on the data collection methods utilized in this report, it can be concluded that future research in the CMWMA will unavoidably utilize citizen science and traditional ecological knowledge. Thus, the training of locals to understand basic biological survey techniques will be sustainable as the knowledge gained will further complement and enhance their local and traditional knowledge. Nonetheless, modern scientific knowledge must still be employed to translate all natural and traditional phenomenon to the global community. Then and only then will we achieve global biological conservation as envisaged in the Global Biodiversity Framework to conserve at least 30% of terrestrial areas of particular biodiversity importance are effectively conserved by 2030.

8.0 APEENDIX

APPENDIX A: Mt Kovilati Rapid Biodiversity Inventory Raw Data Set

BIRDS										
Date	**Species**	**Scientific name**	**Local name**	**Presence Confirmed**	**Abundance (increasing, Stagnant, declining)**	**Observation type**	**Altitude (m)**	**Description of Habitat**	**GPS Coordinates**	**Conservation Status (IUCN Redlist)**
25.05.23	King of Saxony Bird of Paradise	*Pteridophora alberti*	Oleja	Yes	Increasing	Spotted	2543	Montane forest	S 06°51'74.1'' E 145°13'53.5''	LC
	Black-Mantled Goshawk	*Accipiter melanochlamys*	Kekepa	Yes	Stagnant	Voice heard and spotted	2582	Lives in huge trees in the forest	S 06°31'14.8'' E 145°07'44.8''	LC
	King of Saxony Bird of Paradise	*Pteridophora alberti*	Oleja	Yes	Increasing	Spotted	2557	Montane rainforest	S 06°51'94.5'' E 145°13'20.6''	LC
27.05.23	Hill Golden Whistler	*Pachycephala soro*	Obuai	Yes	Increasing	Spotted	2577	Montane rainforest	S 06°51'93.0'' E 145°13'23.0''	Not found

	Papuan Scrub-Wren	*Sericornis papuensis*	Hamasi	Yes	Increasing	Spotted	2506	Montane rainforest	S 06°31'13.5'' E 145°07'45.9''	LC
	White-Bibbed Fruit-Dove	*Ptilinopus rivoli*	Luhi	Yes	Increasing	Spotted with its nest	2565	Montane rainforest	S 06°31'20.2'' E 145°07'45.5''	LC
	Stephanie's Astrapia Bird of Paradise	*Astrapia stephaniae*	Meulo	Yes	Increasing	Spotted and caught	2570	Montane rainforest	S 06°31'17.0'' E 145°07'41.3''	LC
	Regent Whistler	*Pachycephala schlegelli*	Obuai	Yes	Increasing	Spotted	2606	Montane rainforest	S 06°31'18.8'' E 145°07'38.2''	LC
	White-Bibbed Fruit-Dove	*Ptilinopus rivoli*	Luhi	Yes	Increasing	Voice heard	2580	Montane rainforest	S 06°31'20.5'' E 145°07'45.4''	LC
	Blue-Capped Ifrita	*Ifrita kowaldi*	Nanisani	Yes	Increasing	Spotted	2616	Mossy montane forest	S 06°31'19.6'' E 145°07'39.0''	LC
28.05.23	Stephanie's Astrapia Bird of Paradise	*Astrapia stephaniae*	Meulo	Yes	Increasing	Spotted	2348	Montane rainforest	S 06°31'17.0'' E	LC

									145°07'41.4''	
	King of Saxony Bird of Paradise	*Pteridophora alberti*	Oleja	Yes	Increasing	Spotted	2348	Montane rainforest	S 06°31'11.8'' E 145°07'48.8''	LC
	Splendid Astrapia Bird of Paradise	*Astrapia splendidissima*	A'udo	Yes	Increasing	Spotted	2416	Montane rainforest	S 06°31'11.7'' E 145°07'38.0''	LC
	Belford's Honeyeater	*Melidectes belfordi*	Bajo	Yes	Increasing	Spotted	2417	Montane rainforest	S 06°31'11.9'' E 145°07'38.1''	LC
	Papuan Treecreeper	*Cormobates placens*	Ave	Yes	Increasing	Spotted	2493	Montane Forest with few trees	S 06°31'16.5'' E 145°07'44.0''	LC
	Brown Sicklebill	*Epimachus meyeri*	Daifetai	Yes	Stagnant	Spotted	2490	Montane Forest	S 06°31'16.5'' E 145°07'41.0''	LC
	White-Bibbed Fruit-Dove	*Ptilinopus rivoli*	Luhi	Yes	Increasing	Spotted	2399	Montane Forest	S 06°31'14.8'' E 145°07'44.8''	LC

	Stephanie's Astrapia Bird of Paradise	*Astrapia stephaniae*	Meulo	Yes	Increasing	Spotted	2503	Montane Forest	S 06°31'47.7'' E 145°08'06.1''	LC
	Regent Whistler	*Pachycephala schlegelli*	Obuai	Yes	Increasing	Spotted	2550	Montane Forest	S 06°31'18.3'' E 145°07'39.0''	LC
	Friendly Fantail	*Rhipidura albolimbata*	Fenifone	Yes	Increasing	Spotted	2564	Montane Forest	S 06°31'19.8'' E 145°07'45.6''	LC
	Blue-Faced Parrot-Finch	*Erythrura trichroa*	Lu'i	Yes	Increasing	Voice heard	2565	Montane forest edge	S 06°31'47.7'' E 145°08'06.1''	LC
	King of Saxony Bird of Paradise	*Pteridophora alberti*	Oleja	Yes	Increasing	Spotted	2515	Montane forest	S 06°31'47.7'' E 145°08'06.1''	LC
29.05.23	Orange-Billed Lorikeet	*Neopsittacus pullicauda*	A'ne	Yes	Increasing	Caught and released	2257	Montane forest edge	S 06°51'71.8'' E 145°14'54.5''	LC
	Stephanie's Astrapia Bird of Paradise	*Astrapia stephaniae*	Meulo	Yes	Increasing	Caught and released	2473	Montane forest	S 06°31'15.3'' E	LC

									145°07'48.9''	
	King of Saxony Bird of Paradise	*Pteridophora alberti*	Oleja	Yes	Increasing	Caught and released	2515	Montane forest	S 06°31'11.6'' E 145°07'48.9''	LC
	Yellow-Breasted Bird of Paradise	*Loboparadisea sericea*	Ose	Yes	Stagnant	Spotted	2518	Montane forest	S 06°31'12.7'' E 145°07'50.0''	LC
	Mountain Mouse-Warbler	*Crateroscelis robusta*	Sitere	Yes	Increasing	Voice heard	2551	Montane Forest	S 06°31'18.8'' E 145°07'38.7''	LC
	Rusty Mouse-Warbler	*Crateroscelis murina*	Amasi	Yes	Increasing	Voice heard	2577	Montane forest	S 06°31'1.4'' E 145°07'39.0''	LC
31.05.23	Ragianna Bird of Paradise	*Paradisaea apoda*	Olomo	Yes	Stagnant	Voice heard	1428	Lowland and hill forest	S 06°45'17.1'' E 145°21'62.0''	LC
29.05.23	Dwarf Cassowary	*Casuarius bennetti*	hamanani	Yes	Stagnant	Caught and released	2582	Montane forest	S 06°31'14.8'' E 145°07'44.8''	NT

MAMMALS										
Date	**Species**	**Scientific name**	**Local name**	**Presence Confirmed**	**Abundance (increasing, Stagnant, declining)**	**Observation type**	**Altitude (m)**	**Description of Habitat**	**GPS Coordinates**	**Conservation Status (IUCN Redlist)**
	Plus-coated Ringtail	*Pseudocheirops corinnae*	Arabo	Yes	Increasing	Caught and released	2367	Montane forest	S 06°31'11.6'' E 145°07'49.2''	Near Threatened (NT)
25.05.23	Coppery Ringtail	*Pseudocheirops cupreus*	Ma'inu	Yes	Increasing	Caught and released	2509	Montane forest	S 06°52'03.5'' E 145°13'02.0''	LC
	Highland Pogonomelomys	*Pogonomelomys ruemmleri*	Lavija'e	Yes	Increasing	Caught and released	2493	Forestry tree hollows	S 06°51'99.3'' E 145°13'04.5''	LC
	Highland Pogonomelomys	*Pogonomelomys ruemmleri*	Lavija'e	Yes	Increasing	Caught and released	2495	Forest tree hollows	S 06°52'00.0'' E 145°13'05.5''	LC
27.05.23	Striped Bandicoot	*Microperorycte s longicauda*	Osi	Yes	Increasing	Caught and released	2582	Lives in a twig and moss nest among tree roots	S 06°31'14.8'' E 145°07'44.8''	LC

	Ground Cuscus	*Strigocuscus gymnotis*	Alu'i	Yes	Increasing	Caught and released	2592	Lives under tree roots or even in caves	S 06°52'16.3'' E 145°13'07.5''	LC
	Goodfellow Tree Kangaroo	*Dendrolagus goodfellowi*	Kile	Yes	Stagnant	Habitat found with claw prints	2570	Lives on tree branches during the day and usually lives in holes dug under huge tree roots	S 06°31'07.7'' E 145°07'35.3''	EN
	Dusky Pademelon	*Thylogale brunii*	Be'eda	Yes	Stagnant	Spotted	2578	Mossy montane forest	S 06°31'17.5'' E 145°07'42.0''	VU
	Silky Cuscus	*Phalanger sericeus*	Uhi-alu'i	Yes	Increasing	Caught and released	2573	Montane forest tree hollows	S 06°31'18.7'' E 145°07'37.9''	LC
28.05.23	Great-tailed Triok	*Dactylopsila megalura*	Ka'ulopa	Yes	Stagnant	Caught and released	2570	Montane forest	S 06°31'17.0'' E 145°08'38.1''	LC

APPENDIX B: Photographs from Rapid Biodiversity Inventory at Mt Kovilati

Figure B1. Left: Nest of Papuan scrub-wren observed during survey Right: Belford's Honeyeater caught during survey.

Figure B2. Left: Plush coated ring tail possum observed during survey Right: Dwarf Cassowary caught within survey area by locals.

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