

## **CEPF Final Completion and Impact Report**

<b>Organization's Legal Name:</b>	The University of Queensland
<b>Project Title:</b>	Biodiversity Assessment and Awareness Building in the Kunua and Mt Balbi Key Biodiversity Area of Bougainville, Papua New Guinea
<b>Grant Number:</b>	66518
<b>Hotspot:</b>	East Melanesian Islands
<b>Strategic Direction:</b>	1 Empower local communities to protect and manage globally significant biodiversity at priority Key Biodiversity Areas under-served by current conservation efforts
<b>Grant Amount:</b>	\$106,683.67
<b>Project Dates:</b>	July 01, 2018 - December 31, 2021
<b>Date of Report:</b>	March 31, 2022

### **IMPLEMENTATION PARTNERS**

Student and Kunua Conservation Network facilitator Junior Novera (UQ) was involved in the design and deployment of field surveys, identification of mammals, training of community participants in survey methods, community consultations, networking with government and community leaders to establish a conservation agreement and collaboration, and report co-writing.

The communities of Kunua, Mahari, Teua, Keriaka, Sipai, Rotokas, and Amun in the the Kunua and Mt Balbi KBA in the Autonomous Region of Bougainville in Papua New Guinea were involved in the consultation, permission and participation in surveys and the Kunua Conservation Network, working with Junior Novera in biodiversity conservation awareness activities, and participating in training in survey methods.

The Autonomous Bougainville Government, National Government (Conservation and Environmental Protection Authority, CEPA) and local government of Bougainville were involved in the providing permits, discussion of results, confirming agreements related to the KCN, and receiving reports.

Papua New Guinea and Solomons Archipelago (which includes Bougainville) taxon experts Stephen Richards (frogs, reptiles, invertebrates), Iain Woxvold (birds), and Myknee Sirokolo (Solomon Islands National University) (plants) together with Junior Novera (UQ) (mammals) were involved in the survey and identification of amphibians, birds, invertebrates, mammals and plants, discovery and description of new species, and providing reports and publications on species discoveries and status. The New Guinea Binatang Research Centre also provided a ranger training course for PNG community members from Kunua and Mt Balbi.

## CONSERVATION IMPACTS

Planned Long-Term Impacts: 3+ years (as stated in the approved proposal)

Impact Description	Impact Summary
<p>Protection of endemic Bougainville mammals and frogs from extinction, including six red-listed priority species</p>	<p>This project clarified the status of island endemic mammals, birds, reptiles, frogs, plants and insects from sea level to ~2000m elevation in western Bougainville. We recorded five of the six initial priority species (one is possibly extinct), and recorded additional species of threatened frogs, new species of montane frogs and insects, and 12 rare endemic plants including two Critically Endangered plants (one rediscovered that had been flagged 'presumed extinct'). These threatened species and restricted-range endemics will be better protected than before the project because they are in the area of the Kunua Conservation Network, and landowners and communities of the KBA are now aware of these special species, their distributions are now better understood, and they can now be listed and their status updated by their relevant IUCN Specialist Groups.</p> <p>The PhD qualification of indigenous scientist Junior Novera is a result of this project. Junior has achieved formal recognition of his global expertise in wildlife conservation, ecology, and the community conservation network approach. This establishes him firmly as a current authority and a future leader in government policy. This is a crucial outcome for long-term protection of threatened and endemic Bougainville species</p>

Planned Short-Term Impacts: 1 to 3 years (as stated in the approved proposal)

Impact Description	Impact Summary
<p>Declaration of a Kunua and Mt Balbi KBA resource management area under the management of the Kunua Conservation Network, a new local organisation which will protect exploited and endemic species of Bougainville from extinction through sustainable use of this 1200 km<sup>2</sup> area (~35 km across)</p>	<p>Rotokas Ecotourism, Kanaike, Birdlife, WCS, and the landowners of the Emperor Range have agreed to participate / join the new network of local community protected areas. This will be in June 2022 when the KCN is formally registered. The Bougainville Conservation Network plans to continue recruiting community-based organisations over the next three years. The concept of this network is supported by the Autonomous Bougainville Government.</p>
<p>Awareness of local biodiversity values and threats in the KBA increases by 25% in eight communities representing the entire KBA,</p>	<p>In December 2021 Junior Novera presented the key results of the project (biodiversity surveys, threatened species and ethno-ecology</p>

<b>Impact Description</b>	<b>Impact Summary</b>
<p>where we will hold awareness presentations and community discussion, based on our questionnaire</p>	<p>questionnaires) to 200 people in the communities that participated in this project. More than 60% of people stated that their knowledge of the value, status and threats to threatened mammals and birds increase 'a lot' as a result of the project. Perceptions of increases in knowledge of threatened frogs and plants was less, but &gt;50% of participants said that their knowledge of these groups increased a lot or moderately. 75% of people said that their overall knowledge of biodiversity conservation increased a lot during the project.</p>
<p>An update of species conservation status information provided to the IUCN for species that we find in our surveys, including information on species vulnerability to climate change-related declines.</p>	<p>We have provided recommendations to the IUCN Red List Authority Coordinator for Old World Bats (David Waldien) regarding the status of echolocating bats in the Solomon Islands archipelago including Bougainville, and the two threatened monkey-faced bats, the vulnerability of these species related to their elevational distribution and habitat specialisation. We are recommending that the Greater monkey-faced bat should be flagged as possibly extinct on Bougainville. We have also flagged with them that Junior Novera has recently received a report of unidentified flying foxes in the KBA, and we will update them if <i>P. flanneryi</i> is found. Steve Richards has provided information to the IUCN on the likely new species of montane rainforest frogs in the Emperor Range, which we believe is an important site for conservation of restricted-range and threatened endemic frogs. This high-elevation region will be at risk from climate change. Steve Richards will also provide information to the IUCN SSC Dragonfly Red List Authority Coordinator Viola Clausnitzer on the new dragonfly species. Iain Woxvold will provide his report to Birdlife International on the status of birds on Bougainville. Myknee Sirokolo is confirming the taxonomy of potentially new species of plants and will contact the Red List</p>
<p>Successful establishment and registration of the new Kunua Conservation Network: an organization to promote community development based on biodiversity research, sustainable livelihoods, and environmental and other education in the Kunua District</p>	<p>We have established an interim executive elected by community members to work on the profile of KCN, including Junior Novera and members from all of the wards in Kunua District, up to 2400m elevation. This includes the stated mission, values and principles, core activities, structure and logo.</p>
<p>A plan agreed between the KCN, other local conservation organisations on Bougainville, and government with a schedule to create a network of local community protected areas on Bougainville.</p>	<p>Rotokas Ecotourism, Kanaike, Birdlife, WCS, and the landowners of the Emperor Range have agreed to participate / join the new network of local community protected areas. This will be in June 2022 when the KCN is formally registered. The Bougainville Conservation Network plans to continue recruiting community-based organisations over the next three years. The concept of this network is</p>

Impact Description	Impact Summary
	supported by the Autonomous Bougainville Government.
Five people in the KBA are trained in wildlife monitoring and gain community ranger qualifications.	The five people from the Kunua/Mt Balbi KBA who have been trained in wildlife monitoring and have gained community ranger qualifications from the CEPF ranger training course held in Madang in 2020 are Blaise Sibetei and Gerard (Kunua) and Daniel, Ben and Lindon (Mt Balbi) (Figure 2 in attached report figures).

**Unexpected impacts (positive or negative)?**

Other than the surprisingly high conservation value of the Kunua region (more highly threatened and new species than expected), one unexpected positive was that some of the participants have stated that this project is an opportunity to promote peace-building, because ex-combatants who were on different sides during the Bougainville conflict three decades ago are now planning to join the KCN and work together to achieve common goals in environmental protection. This reconciliation is an unexpected benefit of our project and will be important for long-term conservation outcomes in Bougainville. There have been no unexpected negative impacts.

**PROJECT RESULTS/DELIVERABLES**

**Overall results of the project:**

The overall goal of this project was to protect endemic and threatened Bougainville species from extinction including six red-listed priority species of mammals and frogs, by improving knowledge of these species in the Kunua-Mt Balbi KBA through surveys covering the elevational range of the KBA by experts on mammals, birds, invertebrates, reptiles and frogs, and plants, and through community conservation agreements, establishment and expansion of a local conservation network, and training of local participants and students.

Red-listed priority species and biodiversity on elevational transects -----  
 We confirmed the persistence of the Bougainville monkey-faced bat *Pteralopex anceps*, and the endemic giant tree rats *Solomys salebrosus* and likely *S. ponceleti*. Despite our intensive effort in the western KBA and efforts in the eastern KBA by Rotokas, we found no evidence of the Greater monkey-face bat *Pteralopex flanneryi*. This Critically Endangered mammal is known from only one Bougainville specimen and it may be extinct on Bougainville. However, it is still possible that the species survives in yet unsurveyed coastal wetlands. During reporting to communities at the end of this project in late 2021, Junior Novera received information of a flying fox roost and a site with coconuts chewed by flying foxes in this habitat (he is investigating this). We recorded three-quarters of the terrestrial bird species known from Bougainville on our transects, including three Red-Listed birds (Sanford’s Sea Eagle *Haliaeetus sanfordi*, Fearful Owl *Nesasio solomonensis* and unconfirmed reports of the Yellow-legged Pigeon *Columba pallidiceps*). Our surveys failed to detect just four of 24 frog species previously known to occur on Bougainville, and one of these is probably restricted to southern districts (not in the KBA). At the start of this project frogs of Bougainville were poorly-known. The two frogs considered as priority species at the time of the CEPF EMI species assignments were downgraded to Least Concern during the 2019 Melanesia-region Red List assessment because of new knowledge of their distributions. These are *Cornufer heffernani* (formerly *Palmatorappia solomonis*), and *Litoria lutea*. We recorded both of these species in our surveys. We also recorded currently threatened

endemic frog species: *Cornufer wolfi* (VU, lowland species), and *Cornufer parkeri* (EN, very restricted distribution). We found two ceratobatrachid frogs in the genus *Cornufer* that appear to be new to science (likely endemics with restricted distributions), and the survey also encountered the poorly-known frog *Cornufer montanus*, an endemic species of montane primary forest. We only found *Cornufer montanus* in intact montane forest above 1400 m a.s.l. It is likely that montane forest habitat above 1500 m asl on the Emperor Range of the KBA is an important site for undescribed frog diversity.

We discovered two plant species that are highly significant for conservation in the KBA. The rainforest tree *Weinmannia ysabelensis* was assessed to be Critically Endangered (Possibly Extinct) in 2020, so our surveys have rediscovered this species, and the Kunua KBA is its only known global location. This tree was previously only known from one location on Isabel Island, Solomon Islands. *Paphiopedilum bougainvilleanum* is a Critically Endangered montane forest orchid previously known from fewer than 50 individuals at only one location on Bougainville at 1200-1850m asl. We found this orchid in the KBA. We also discovered ten other species of rare plants in the KBA (the herb *Elatostema kietanum*, trees and shrubs *Elaeocarpus solomonensis*, *Ficus bougainvillei*, *Heliconia solomonensis*, *Hydriastele cylindrica*, *Pandanus buinensis*, and *Weinmannia ysabelensis*, and palms *Physokentia solomonensis*, *Ptychospema salomonense*, and *Tapeinochilos solomonensis*), however only one of them has been assessed by the Red List (the tree *Podocarpus salomonensis* is Near Threatened). During this project we also discovered a new dragonfly species, rediscovered a rare damselfly, and published an insect taxonomic key.

We found that frogs, birds, and dragonflies / damselflies increase strongly in endemism status with elevation, so the restricted-range island endemics with small global ranges were concentrated in the highest elevations surveyed (cloud forest). The Endangered priority species the Bougainville monkey-faced bat and the Critically Endangered orchid were also at the highest elevation band. Echolocating bats and reptiles did not show increasing endemism or threat with elevation, and the Endangered endemic Solomons mastiff bat *Chaerephon solomonis* occurred at mid-elevation (500-1000m). Our surveys identified mid-elevation locations of importance to endemic insects, bats and the rediscovered tree. The Kunua Conservation area and expanded network extends over ridge-to-reef elevations. Our findings show that continuity from mid to high sites and protection of high elevation habitat will be exceptionally valuable (much more valuable than the original CEPF priority species evaluation suspected in fact).

Community conservation agreements and establishment and expansion of a local conservation network -----

Establishing formal conservation agreements and an expanded conservation network has involved a longer process of discussion with local and regional government leaders than we hoped, partly because of covid19 disruptions, and the turnover of elected representatives in many local government areas in 2020-2021. In 2018-2020 Junior Novera met with clan chiefs and members of the villages of Tomasi Ward (Tosiavi, Mapisi, Sikeo), Makekoa Ward (Mapisi, Kepui, Koatoroi), Ubuko Ward (Ubui'opei, Kopae), and Siato Ward (Sisiapai, Tohei) to discuss the Kunua Conservation Network (KCN). In 2021 clans in the eastern KBA, adjacent to the initial area also asked to join the KCN, and Junior Novera met with clan chiefs and members of these villages of Askabi Ward, Keakara Ward, members of Mahari Community Government, and landowners of upland areas of Tinputz. Bougainville general elections were held in September 2020 and a new government was sworn in in October. On his return to Bougainville in late 2021 Junior held consultations in person with the newly elected members of the Bougainville and National governments. These consultations led to a 'Green-Blue Economic Concept Information Paper' in December 2021 ([https://www.pg.undp.org/content/papua\\_new\\_guinea/en/home/presscenter/articles/2021/](https://www.pg.undp.org/content/papua_new_guinea/en/home/presscenter/articles/2021/)

bougainville-looking-towards-an-inclusive-green-economy.html). The Information Paper was guided by the Regional Member of the Autonomous Bougainville Government Peter Tsiamalili Jr, and community leader Dr Jeffery Noro, with inputs from Junior Novera. Junior Novera is currently liaising with the local governments listed above to confirm and renew the agreements made in 2018-2020, and formally establish the KCN by June 2022.

#### Training of local participants and students -----

This project has trained more than 50 community participants to conduct wildlife surveys, and five have gained formal qualifications through a CEPF-funded ranger training course run by Binatang Research Centre. Indigenous Bougainville student Junior Novera will gain a PhD qualification from the University of Queensland from this project. He has submitted his PhD, and co-authored one peer-reviewed publication directly on the findings of this project and one on impacts of covid19 on biodiversity that was informed by the findings.

**Results for each deliverable:**

<b>Component</b>		<b>Deliverable</b>		
<b>#</b>	<b>Description</b>	<b>#</b>	<b>Description</b>	<b>Results for Deliverable</b>
1.0	Community consultation, project management and monitoring, safeguard policy compliance, gender equity	1.1	A report document summarising who has been consulted: household size, location, age and sex composition, concerns and opinions expressed, by October 31 2018	We completed a community consultation report including details of the participants in household consultations, and attached this to progress report one (period ending December 2018 'Kunua community consultation information, participant origin and sex'). This document shows records of who has been consulted, households, sex, concerns and opinions. A detailed list of people consulted is also in the appendix of Junior Novera's submitted PhD thesis (attached).
1.0	Community consultation, project management and monitoring, safeguard policy compliance, gender equity	1.2	Written participant list showing who from each of the four communities in Kunua and Mt Balbi districts will be involved in training during wildlife surveys, who will be guides, payments, permission, and list of tabu species, by October 31 2018	This project has employed more than 200 guides from 8 villages and trained 50 local field assistants in using GPS, camera trapping, live trapping, acoustic recording of bat calls, species measurements, data recording, and field survey design with transects, point counts and monitoring plots. We have worked with community participants to establish an ongoing elevational transect to monitor biodiversity of the KCN area. The two Kunua participants of the intensive ranger training course at Binatang Research Station (Madang, PNG) are Blaise and Gerard. They also completed an awareness program to share what they learned during their ranger training in six wards in the Teua Constituency in 2021. The tabu species list (species of special cultural meaning to specific clans) was

Component		Deliverable		
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				provided. Tabu species in Kunua are totemic species of birds: hornbills, parrots, cockatoos, doves, pigeons, and eagles.
2.0	Biodiversity surveys	2.1	2.1 Through surveys covering the entire KBA, report on species present in the KBA at different elevations & habitats, and their likely local conservation status, by July 1 2019. Major field trips in September / October 2018, Jan / Feb 2019, and September	We have presented the surveys of species present in the KBA at all elevation bands and habitats, and their likely conservation status and threats. These include Junior Novera's assessment of species distribution and status based on hunting data 'Kunua subsistence hunting report', and the detailed uploaded reports and papers on the birds, reptiles and frogs, mammals, insects and other fauna, and plants of the KBA. These were also part of progress report four in June 2020. Further assessment of these species is in Junior Novera's PhD thesis (summary attached) and a published paper on birds of the Kunua region ( <a href="https://bioone.org/journals/bulletin-of-the-british-ornithologists-club/volume-141/issue-2/bboc.v141i2.2021.a12/Avifauna-of-the-Aiope-River-basin-Kunua-District-north-west/10.25226/bboc.v141i2.2021.a12.full">https://bioone.org/journals/bulletin-of-the-british-ornithologists-club/volume-141/issue-2/bboc.v141i2.2021.a12/Avifauna-of-the-Aiope-River-basin-Kunua-District-north-west/10.25226/bboc.v141i2.2021.a12.full</a> ). We have summarised the most important points in the final report to CEPF and the attached summary document 'species in the Kunua-Mt Balbi KBA at different elevations, habitats and locations, and their likely conservation status'.
3.0	Establish Kunua Conservation Network	3.1	Written agreement by community leaders	The community leaders described in the social safeguard document are: the Kunua district

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
			described in the attached Social Safeguard document . . . Registration of KCA and community leaders of Sipai, Amun, Keriaka and Rotokas added to scope document by 31 December 2021	<p>manager and head of the council of chiefs, and the Teua Community Government, the head of the council of chiefs at Sipai, Amun, Keriaka and Rotokas communities, the Autonomous Bougainville Government member, and the newly elected Bougainville Regional Member who is from Amun. Junior has consulted with all of these community leaders and obtained a letter of support agreeing to the aims, scope and membership of the Kunua Conservation Network, and a proposed timeline for their formal addition to the Kunua Conservation Network.</p> <p>In 2021 Junior held discussions with the Honourable Regional Member of Bougainville Peter Tsiamalili about his project outcomes and the KCN. The Minister for Environment Conservation and Climate Change Honourable Wera Mori was invited to visit Kunua District, he accepted, and Bougainville Bureau for Environment (BBE) senior staff accompanied the minister to Kunua. Junior's research supported by CEPF was discussed during the visit by community leaders in Kunua, and they stressed that they fully support the ongoing conservation work. Please also see deliverable 6.1 below for KCN registration progress.</p>
4.0	Awareness (community members and schools)	4.1	Documentation of presentation of survey results to communities (photographic, video,	Junior held community workshops to present the project research and survey results together with the school educational materials at each participating community in Kunua and

Component		Deliverable		
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			summary report) by July 1 2019. Documentation of presentation of survey results to communities of Sipai, Amun, Keriaka and Rotokas (photographic, video, summary report) b	Wakunai Districts. He also discussed the KCN agreement with those community leaders and publicised the KCN at the sites in 2021 (Figure 3 in attached final report figures). It was not possible to visit Rotokas in 2021 due to the death of honourable member of parliament Sam Akoita and consequent disruptions to access. Junior will present results to Rotokas in 2022 along with formalising their participation in the KCN. At the end of the project in 2021, 75% of people said that their overall knowledge of biodiversity conservation increased 'a lot' during the project (see short term impacts point 3 above).
4.0	Awareness (community members and schools)	4.2	In conjunction with our education presentations to teachers, providing printed awareness materials to the eight primary schools in the initial Kunua areas of the KBA, by Sept 30 2019. Presentations to teachers, providing printed awareness materials to 4 p	Awareness materials include the printed and online newsletter 'Biodiversity Newsletter' published by PNG Mama Graun Conservation Trust Fund (uploaded in the progress report of the period ending June 2019), a poster highlighting the project and Junior Novera's contact details in villages 'Poster_CEPF_Pidgin_Kunua' (uploaded in the progress report of the period ending June 2019). We also provided our Solomons Forest Life book to Kunua schools. This book is about the biodiversity of the Solomons archipelago, which includes Bougainville, for school students ( <a href="https://espace.library.uq.edu.au/view/UQ:387049">https://espace.library.uq.edu.au/view/UQ:387049</a> ).

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5.0	Reporting and publishing	5.1	Debriefing project outcomes for government agencies (Mahari, Teua, and Keriaka community governments, and the Bougainville Bureau of Environment): report with summary of discussions by July 1 2019	In October 2019 Junior Novera presented the project outcomes to government agencies at a Biodiversity and Conservation Seminar in Port Moresby and organised by the energy company Exxon Mobil and the conservation NGO Mama Graun ( <a href="https://png-data.sprep.org/index.php/data-story/cepa-jica-biodiversity-project-and-cepa-successfully-hosted-biodiversity-and">https://png-data.sprep.org/index.php/data-story/cepa-jica-biodiversity-project-and-cepa-successfully-hosted-biodiversity-and</a> ). The organisers formally invited Junior to present and included him in the program. All major conservation practitioners in PNG were present at this meeting and gave talks. Junior also discussed the project outcomes with non-government Bougainville organisations at this meeting and afterwards. These were this project (Kunua), and Rotokas, Kainake, and Tulelepeisa. These are local groups which are carrying out conservation projects in Bougainville to address climate change adaptation, food security, ecotourism, and community conservation. Junior Novera presented outcomes of his community conservation work and biodiversity surveys. After this seminar, Junior Novera and Jeffery Noro (Kainake) organised a meeting with the small Bougainville NGOs to draft ideas on how collaborate on common goals in community conservation. We had also planned to present at the Bougainville economic and investment summit but this was postponed due to covid

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5.0	Reporting and publishing	5.2	Project management and monitoring of CEPF indicators, by March 2021	We have reported progress against CEPF indicators in the submitted final report.
5.0	Reporting and publishing	5.3	Final report to CEPF by March 2021	We have submitted the final report in March 2022 (extended due date). We were granted a two-week extension because of Junior Novera being ill with covid19 in January-February 2022, and UQ / Brisbane being flooded, disrupting work and closing the university for a week in February 2022.
1.0	Community consultation, project management and monitoring, safeguard policy compliance, gender equity	1.3	Report on information obtained about distributions of wildlife, status of wildlife, and access routes for elevational transects, by October 31 2018	The transect map is included in the report 'Kunua subsistence hunting report' and Figure 2 below. Background information on consultation about access routes for these elevational transects is also in the report document 'Kunua community consultation information participant origin and sex'. We have surveyed species at the range of elevations in the KBA to better understand abundance and distribution, and discovery new species (see section 2.2 below on our attached report on the distribution and status of wildlife).
1.0	Community consultation, project management and monitoring, safeguard policy compliance, gender equity	1.4	Formal agreement to support project obtained from four local communities, CEPA, and the three local government authorities (Mahari, Teua, and Keriaka community governments), by October 31 2018	We obtained formal consent from these communities and government authorities. Copies are attached to this report, 'Support letter Tohei Ubuko Teua Constituency 2019', 'Formal letter of consent Teua Community Government and Rapoisi Kunua' and 'Bougainville government consent form 2019'. Junior Novera read out and explained the

Component		Deliverable		
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				safeguard documents at community meetings and also conveyed this information individually to community leaders. Junior Novera printed out these forms and gave them to chiefs in Tohei, Ubuko and Kopae as hard copies for reference. The PNG Secretariat of Science and Technology supported this project and granted a research permit for our work in Kunua (attached). The past written agreements and verbal permission granted by local authorities is also being reviewed and signed by new elected ward members of the Teua Community Government and Mahari CG. KCN executive members will also signed the new agreement. This will renew the agreements and may also alter some wording.
5.0	Reporting and publishing	5.4	CEPF financial and programmatic reports submitted on time and accurately, each six moths.	We have uploaded the six progress reports and all accompanying finance reports. These are all approved.
1.0	Community consultation, project management and monitoring, safeguard policy compliance, gender equity	1.5	Complaints system document, by October 31 2018	Junior Novera printed out the grievance information with contact details, and told community members during the community meetings to report any grievances initially to chiefs in Tohei, Ubuko and Kopae, then the other contacts in order if needed. Junior disseminated the grievance handling document (comments book) to all of the participating communities and explained the process to them. This document is in pidgin (PNG tok pisin). A copy is attached to this

Component		Deliverable		
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				report, 'Grievance Handling Mechanism Kunua (Tok pisin - PNG)')
2.0	Biodiversity surveys	2.2	Report on species present in the KBA at different elevations, habitats and locations, and their likely local conservation status, by September 30, 2021	We have attached this final summary report as well as the taxon-specific reports (see above)
2.0	Biodiversity surveys	2.3	Biosecurity plan, by July 1 2018	Junior and all consultants adhered to an agreed biosecurity plan during fieldwork and travel to and from the sites, particularly focusing on preventing spread of frog diseases (as PNG does not have the widespread deadly frog pathogen chytrid fungus). Our hygiene protocols closely followed the published protocols attached 'Hygiene protocols for the control of diseases in Australian frogs'. The amphibian taxon expert Steve Richards is very experienced in these procedures and recommended them.
4.0	Awareness (community members and schools)	4.2	Documenting how attitudes / knowledge have changed by November 2021	After awareness discussions on the status of monkey-face bats and threatened tree rats in 2018-2019, all 50 residents of the communities of Tohei, Popoeharai, and Kopaewho who participated in Junior Novera's interviews told him that customary laws and traditional community conservation areas (Bakabusu) need to be enforced to protect these threatened species from hunting. Before these face-to-face discussions 60% of people who participated in these interviews reported

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				hunting monkey-face bats and threatened tree rats in the Kunua KBA. Another indicator of how attitudes have changed comes from requests from surrounding districts to join the conservation network (see 6.1 'Deliverable in relation to Component 6: Consult on Bougainville sustainable development and community conservation partnership' below).
6.0	Consult on Bougainville sustainable development and community conservation partnership	6.1	Deliverable in relation to Component 6 - must be reported on by UQ	Despite the impact of COVID-19, in late 2021 we have consulted and discussed strategies with the communities from 10 Wards of Kunua KBA (Figures 3 and 4), and conservation organisations and agencies working in Bougainville including the UNDP, Bougainville Bureau for the Environment, Kainake, Rotokas Ecotourism, WCS, Birdlife, and colleagues at Binatang and Pacific Adventist University. There has also been interest from inland communities in the Tinputz District (northern Emperor Range) in joining the KCN. In meetings with Junior Novera, the Tinputz District communities have stated their aim to conserve the entire Emperor Range from the east to west coast. This is an important step, because they are the primary landowners of the remaining Emperor range, which is the other large area of remaining intact forest on Bougainville, along with the Kunua Plains and Mt Balbi KBA. Our surveys have indicated that this is a particular important area for montane

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				species including range-restricted frogs, threatened mammals, plants and birds.

**Tools, products or methodologies that resulted from the project or contributed to the results:**

None

**PORTFOLIO INDICATORS**

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
1.1	Baseline surveys completed for at least 10 priority sites.			1	Within the one priority KBA site, we surveyed ten sites on elevational transects to record animal and plant abundance and distribution
1.2	Awareness of the values of biodiversity and the nature of threats and drivers raised among local communities within at least 10 priority sites.			1	We worked in one priority KBA site. Awareness activities and consultations have covered 10 Wards in the Kunua District
2.4	Number of CEPF priority sites where biodiversity and ecosystem service values are integrated into land-use and/or			1	We worked in one priority KBA site. All six wards in Teua have been included as pilot sites of the biodiversity and ecosystem services profiling. Additional work will be included in Ward Plans led by each Ward

<b>Portfolio Indicator Number</b>	<b>Portfolio Indicator Description</b>	<b>Expected Numerical Contribution</b>	<b>Expected Contribution Description</b>	<b>Actual Numerical Contribution</b>	<b>Actual Contribution Description</b>
	development plans and policies.				Member which will contribute to the Teua Constituency Environmental Plan. KCN will be the lead organisation to implement these plans and project.
3.1	Number of CEPF priority species with improved knowledge of their status and distribution.			5	Not including suspected new taxa, 321 species were included in the surveys: 39 frogs and reptiles, 3 insects, 79 birds, 212 plants, 8 Pteropodid bats, 13 echolocating bats, 6 non-flying mammals. 5 of these are on the CEPF priority species list.
5.1	Number of civil society organizations that actively participate in conservation actions guided by the ecosystem profile.			5	University of Queensland, The Kainake Project, Rotokas Ecotourism, Birdlife International, and WCS.
5.3	Number of civil society organizations supported by CEPF that secure follow-up funding from conservation trust funds and/or the GEF Small Grants Programme.			1	The KCN
1.1	Baseline surveys completed for at			1	Within the one priority KBA site, we surveyed ten sites on elevational transects to

<b>Portfolio Indicator Number</b>	<b>Portfolio Indicator Description</b>	<b>Expected Numerical Contribution</b>	<b>Expected Contribution Description</b>	<b>Actual Numerical Contribution</b>	<b>Actual Contribution Description</b>
	least 10 priority sites.				record animal and plant abundance and distribution
1.2	Awareness of the values of biodiversity and the nature of threats and drivers raised among local communities within at least 10 priority sites.			1	We worked in one priority KBA site. Awareness activities and consultations have covered 10 Wards in the Kunua District
2.4	Number of CEPF priority sites where biodiversity and ecosystem service values are integrated into land-use and/or development plans and policies.			1	We worked in one priority KBA site..All six Wards in Teua had been included as pilot sites of the biodiversity and ecosystem services profiling. Additional work would be included in Ward Plans led by each Ward Member which will contribute to the Teua Constituency Environmental Plan. KCN will be the lead organisation to implement these plans and project.
3.1	Number of CEPF priority species with improved knowledge of their status and distribution.			5	Not including suspected new taxa, 321 species were included in the surveys: 39 frogs and reptiles, 3 insects, 79 birds, 212 plants, 8 Pteropodid bats, 13 echolocating bats, 6 non-flying mammals. 5 of these are on the CEPF priority species list.

## GLOBAL INDICATORS

### Protected Areas

Protected areas that have been created and/or expanded as a result of the project. Protected areas may include private or community reserves, municipal or provincial parks, or other designations where biodiversity conservation is an official management goal.

<b>Name of Protected Area</b>	<b>WDPA ID*</b>	<b>Latitude</b>	<b>Longitude</b>	<b>Country</b>	<b>Original Total Size (Hectares) **</b>	<b>New Protected Hectares ***</b>	<b>Year of Legal Declaration or Expansion</b>
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\*World Database of Protected Areas

\*\*If this is a new protected area, 0 should appear in this column

\*\*\* This column excludes the original total size of the protected area.

## Key Biodiversity Area Management

Key Biodiversity Areas (KBAs) under improved management—where tangible results have been achieved to support conservation—as a result of the project.

KBA Name	KBA Code	Size of KBA	Number of Hectares with Improved Management
Kunua Plains and Mount Balbi	PNG16		120,000

## Production Landscapes

Production landscapes with strengthened management of biodiversity as a result of the project.

A production landscape is defined as a site outside a protected area where commercial agriculture, forestry or natural product exploitation occurs.

Name of Production Landscape	Latitude	Longitude	Hectares Strengthened	Intervention
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## Benefits to Individuals

- **Structured Training:**

Number of Men Trained	Number of Women Trained	Topics of Training
20	20	Field surveys and techniques, strategic planning, biodiversity conservation, KBAs, research techniques, report writing, leadership roles, decision making tools

- **Cash Benefits:**

Number of Men – Cash Benefits	Number of Women – Cash Benefits	Description of Benefits
200	100	Cash for sea and land transport, guides, accommodation and food, research assistants

## Benefits to Communities

View the <b>characteristics</b> column below with the following corresponding codes:	View the <b>benefits</b> column below with the following corresponding codes:
1- Small Landowners	a. Increased Access to Clean Water
2- Subsistence Economy	b. Increased Food Security
3- Indigenous/ Ethnic Peoples	c. Increased Access to Energy
4- Pastoralists / Nomadic Peoples	d. Increased Access to Public Services
5- Recent Migrants	e. Increased Resilience to Climate Change
6- Urban Communities	f. Improved Land Tenure
7- Other	g. Improved Use of Traditional Knowledge
	h. Improved Decision-Making
	i. Improved Access to Ecosystem Services

Community Name	Community Characteristics							Type of Benefit									Country	Number of Males Benefitting	Number of Females Benefitting
	1	2	3	4	5	6	7	a	b	c	d	e	f	g	h	i			
SIATO Ward, UBUKO Ward, MAKEKOA Ward, TOMASI Ward, MAHARI, and KEREAKA (Kunua)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Papua New Guinea	850	470							

### Characteristics of "Other" Communities:

## Policies, Laws and Regulations

View the <b>topics</b> column below with the following corresponding codes:			
A- Agriculture	E- Energy	I- Planning/Zoning	M- Tourism
B- Climate	F- Fisheries	J- Pollution	N- Transportation

C- Ecosystem Management	G- Forestry	K- Protected Areas	O- Wildlife Trade
D- Education	H- Mining and Quarrying	L- Species Protection	P- Other

No.	Name of Law	Scope	Topics															
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P

**“Other” Topics Addressed by the Policy, Law or Regulation:**

No.	Country/ Countries	Date Enacted/ Amended	Expected impact	Action Performed to Achieve the Enactment/ Amendment
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**Companies Adopting Biodiversity-friendly Practices**

A company is defined as a for-profit business entity. A biodiversity-friendly practice is one that conserves or uses natural resources in a sustainable manner.

Name of Company	Description of Biodiversity-Friendly Practice	Country/Countries where Practice was Adopted
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**Networks and Partnerships**

Networks/partnerships should have some lasting benefit beyond immediate project implementation. Informal networks/partnerships are acceptable.

Name of Network/Partnership	Year Established	Country/Countries	Established by Project?	Purpose
Kunua Conservation Network (KCN)	2022	Papua New Guinea	Yes	Biodiversity conservation, preservation of cultures, traditions and languages, and promotion of sustainable livelihoods for the current and future generations.

## Sustainable Financing

Sustainable financing mechanisms generate funding for the long-term (generally five or more years). These include, but are not limited to, conservation trust funds, debt-for-nature swaps, payment for ecosystem services (PES) schemes, and other revenue, fee or tax schemes that generate long-term funding for conservation.

Name of Mechanism	Purpose	Date Established	Description	Country/Countries	Project Intervention	Delivery of Funds?
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## Globally Threatened Species

Globally threatened species (CR, EN, VU) on the IUCN Red List of Threatened Species, benefitting from the project.

Genus	Species	Common Name (English)	Status	Intervention	Population Trend at Site
Pteralopex	anceps	Bougainville Monkey-faced Bat	EN	Species habitat protection, protection from unsustainable hunting, species monitoring, status and distribution assessment, increased local awareness	Unknown
Pteralopex	flanneryi	Greater Monkey-faced Bat	CR	Species habitat protection, protection from unsustainable hunting, species monitoring, status and distribution assessment, increased local awareness. Species possibly extinct.	Stable
Solomys	salebrosus	Bougainville Naked-tailed Rat	EN	Species habitat protection, protection from unsustainable hunting, species monitoring,	Unknown

Genus	Species	Common Name (English)	Status	Intervention	Population Trend at Site
				status and distribution assessment, increased local awareness	
Solomys	ponceleti	Poncelet's Naked-tailed Rat	CR	Species habitat protection, protection from unsustainable hunting, species monitoring, status and distribution assessment, increased local awareness	Decreasing
Chaerephon	solomonis	Solomons Mastiff Bat	EN	Species habitat protection, protection from unsustainable hunting, species monitoring, status and distribution assessment, increased local awareness	Unknown
Cornufer	parkeri	Parker's Wrinkled Ground Frog	VU	Species habitat protection, species monitoring, status and distribution assessment, increased local awareness	Stable
Palmatorappia	solomonis	Solomon Island Palm Frog	VU	Species habitat protection, species monitoring, status and distribution assessment, increased local awareness (now Cornufer heffernani, Least Concern)	Stable
Litoria	lutea	Faro Island Treefrog	VU	Species habitat protection, species monitoring, status and distribution assessment, increased local awareness (now Least Concern)	Stable
Haliaeetus	sanfordi	Forest Fish Eagle	VU	Species habitat protection, protection from unsustainable hunting, species monitoring, status and distribution assessment, increased local awareness	Unknown
Nesasio	solomonensis	Fearful Owl	VU	Species habitat protection, protection from unsustainable hunting, species monitoring, status and distribution assessment, increased local awareness	Unknown
Columba	pallidiceps	Yellow-legged Pigeon	VU	Species habitat protection, protection from unsustainable hunting, species monitoring, status and distribution assessment, increased local awareness	Unknown
Paphiopedilum	bougainvilleanum	Bougainville Paphiopedilum	CR	Species habitat protection, protection from unsustainable harvesting, species	Stable

Genus	Species	Common Name (English)	Status	Intervention	Population Trend at Site
				monitoring, status and distribution assessment, increased local awareness. A new location record for a CR plant known only from one site.	

## LESSONS LEARNED

The most important factor in the success of this project was the leading role of a trusted, inclusive and motivated person with integrity who has collaborated with these communities for many years, is part of the communities, and speaks the local languages (Junior Novera). The continuing success of this project demonstrates the value of 'backyard conservation', i.e. projects led by indigenous scientists and conservation practitioners who are themselves also primary landowners. As a general rule we believe that it is important that students doing field projects in PNG should be PNG nationals who will benefit their communities by training others competently, and who will benefit their local regions and countries by increasing the number of qualified professionals able to do so in their region when they graduate. Projects should support capacity building at all levels including university training.

Bougainville has had a turbulent recent history of conflict and hardship. In 2018, there was division in Kunua communities because some people supported mining exploration in the KBA. However, the majority of local people continued their support of our conservation project. The mining exploration in the KBA ceased in 2021 and those who were supporting the exploration company re-joined the community and supported the establishment of KCN for biodiversity conservation. Some of them are now part of the executive team and planning committee. This reconciliation and realisation was the result of persistence and long-term relationships. We believe that it would be unlikely if international organisations had been running the project on the ground because they would be most likely to have to cease the project and leave due to divisions in the community.

## SUSTAINABILITY/REPLICATION

A challenge is ongoing funding for monitoring equipment for rangers to maintain their motivation to keep track of KBA biodiversity, protect highly threatened animals and plants, to document new species, and continue to search for the Greater monkey-faced bat and Poncelet's giant rat (Kunua rangers have borrowed cameras, and supply of batteries, chargers, SD cards and camera maintenance may be an issue in the future). Fuel is also expensive so it is difficult to run generators daily in Kunua. Telecommunication has been a huge impediment to report conservation work for the Kunua-Mt Balbi KBA. Network quality is currently not good enough to download or upload attachments in Kunua (and sometimes in Buka town). Junior Novera now based in Bougainville travels between Buka and Kunua weekly to check emails and report. Zoom meetings have been impossible since December 2021. Often Junior spends a two nights in Buka to check emails and view attached documents at night when the network is free, and this has been expensive. This cost should be included in future projects. We also plan to seek additional funding or support for a satellite dish to install in Kunua for KCN to support conservation and training for the local communities. Junior can follow up with ranger support, help to train more young people in these communities, and continue to play a leading role in running of the KCN and expand its area further. Once the KCN is formalised, Junior will begin seeking further funding for species monitoring on expanded transects, capacity building for more monitoring by rangers, species action plans, and climate change initiatives using nature-based solutions.

## ENVIRONMENTAL AND SOCIAL SAFEGUARDS/STANDARDS

The project required us to interact with live animals, including obtaining animal ethics permits. The project supported activities in an area used and inhabited by Indigenous Peoples. It resulted in the strengthened management of a community protected area to conserve priority species on land customarily used and occupied by clans in the Kunua-Mt Balbi KBA. It also built capacity of indigenous students and community members. We consulted with the local communities throughout the project, and surveys were run by an indigenous student together with species experts. There were no grievances registered or mentioned by any participants or communities regarding our project. A separate safeguards document was produced and submitted.

## ADDITIONAL COMMENTS/RECOMMENDATIONS

The links to red-listed species are out of date, recent changes do not show in the links to this document. Additional red-listed species are in our species distribution and status surveys report.

## ADDITIONAL FUNDING

<b>Total Amount of Additional Funding Actually Secured (USD)</b>	\$36,450.00
<b>Breakdown of Additional Funding</b>	Australian Government Ausaid PhD scholarship to Junior Novera \$19650 Camera traps and batteries (UQ) \$10000 Fondation Segre expedition funding for Bougainville component including Junior Novera \$1000 Auckland Zoo Conservation Fund \$2800 Bat Conservation International Student Grant \$3000

## INFORMATION SHARING AND CEPF POLICY

CEPF is committed to transparent operations and to helping civil society groups share experiences, lessons learned and results. For more information about this project, you may contact the organization and/or individual listed below.

biolhospa@uq.edu.au (UQ School of Biological Sciences)