CEPF Final Completion and Impact Report

Organization's Legal Name:	Vanuatu Environmental Science Society
Project Title:	Identifying and protecting important habitat for the Fiji Mastiff bat and the Banks Flying fox in Vanuatu
Grant Number:	CEPF-110283
Hotspot:	East Melanesian Islands
Strategic Direction:	3 Safeguard priority globally threatened species by addressing major threats and information gaps
Grant Amount:	$86,627.55
Project Dates:	April 01, 2020 - December 31, 2021
Date of Report:	April 20, 2022

IMPLEMENTATION PARTNERS

The Vanuatu Environmental Science Society was the project lead and responsible for the management of the project, liaison with the local communities at the field sites, logistics, conducting the field work and reporting.
Ian Davidson-Watts Ecology was the technical advisor on this project and devised the survey techniques and protocols and trained the VESS, and other Ni-Vanuatu scientists in bat acoustic monitoring techniques. Ian planned to travel to Vanuatu to conduct the training and lead the expeditions however due to Covid19 travel restrictions he was unable to enter Vanuatu. Therefore, the training and advice was given virtually. Ian analysed the bat called recorded during the fieldwork by the VESS team.

CONSERVATION IMPACTS

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

Impact Description	Impact Summary
A national library of bat calls will allow confident species identification of microbats in future research and monitoring of bat populations in Vanuatu. Acoustic monitoring is a passive, non-invasive monitoring technique and will therefore reduce the welfare implication and risks compared to catching bats for identification.	In order to create a bat call library, reference calls in the local areas needs to be recorded at the time of positive identification of the bats. In this project this was planned with the harp trap capture surveys. As Ian Davidson-Watts was unable to travel these capture surveys did not occur. However we did record 15,599 bat calls, most of which have been provisionally identified to species level with references from various sources. These calls can be verified when the capture studies eventually happen

Impact Description	Impact Summary
	and will then contribute to the bat call library. These calls are securely stored in a cloud storage facility as well as on hard discs and therefore will be available for future studies.
The identification of important habitat including at least 2 breeding sites for the Fiji Mastiff bat will lead to protection and sustainable management of these sites by engaged local communities by inclusion in Community Conservation Areas registered with the Government of Vanuatu.	Due to the inability of Ian-Davidson Watts, our technical advisor and lead for the expeditions, to travel to Vanuatu during the entire lifetime of the project due to Vanuatu's closed borders, many of the activities of the project could not happen or were delayed whilst waiting for the borders to open (which had not happened by the time of the end of the project). One of those activities was the capture surveys to identify where the Fiji Mastiff Bat roosts are. This activity did not happen as we needed hands on training to use the harp traps properly and ensure the welfare of the bats. Therefore, we have not managed to establish the breeding roosts for the Fiji Mastiff bat and we therefore have not identify the communities that live close by that will be best placed to implement conservation measures. Our awareness campaign has given all the communities we visit suggestions for bat conservation measure in general and some of these areas will contain Fiji Mastiff bat roosts so the protection to them is greater than before this project.

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

Impact Description	Impact Summary
The distribution and population estimates of the Fiji Mastiff Bat will be established by April 2021 which will be a baseline for species monitoring and will be used to assess effectiveness of conservation actions.	Due to the Covid19 travel restriction the Vanautu international boarder was closed to all non-residents for the duration of the project and therefore the Ian Davison-Watts, the projects's technical advisor and trainer, was unable to visit Vanuatu to lead the planned trapping and acoustic surveys for the Fiji Mastiff Bat. Acoustic training was provided virtually and the VESS scientist conducted acoustic monitoring surveys on Santo Malo and Aore islands. The trapping surveys were not conducted and therefore population estimates were not possible. Fiji Mastiff bat calls were recorded on Espiritu Santo and Malo where they have been detected before. They were also recorded on Aore island which has not had theses bats recorded there before. This has expended the known distribution for the Fiji Mastiff Bat.
Awareness of the importance of the ecosystem services provided by bats will be increased by September 2020 amongst at least 200 members of the community of Sanma province in Vanuatu	10 bat awareness workshops were conducted in Santo, Malo, Aore, and Tutuba Islands and 153 people attended. An exhibition was hosted in Luganville and 77 people attended. So on total 230 attended awareness activities. 10 bat awareness

Impact Description	Impact Summary
	raising workbooks were also distributes so that communities can pass on the information to others in the community by having the tools to conduct their own workshops. 157 bats of Vanuatu booklets and 103 ecosystem system services posters were given out. In this way the awareness raising about bats will reach beyond just the people who attended our awareness activities and will be sustained after the end of this project.
National Plan of Action for the conservation of the microbats and fruit bats and species recovery plans for the Fiji Mastiff Bat and the Banks Flying fox will be approved by the Government of Vanuatu and funding sought for its implementation	Due to the inability of Ian-Davidson Watts, our technical advisor and lead for the expeditions, to travel to Vanuatu during the entire lifetime of the project due to Vanuatu's closed borders, many of the activities of the project could not happen or were delayed whilst waiting for the borders to open (which had not happened by the time of the end of the project). This had a knock-on effect on other activities which were dependent on the previous ones which did not happen or were delayed. This was one of those activities. Because the expeditions had to be modified and were delayed until the very end of the project, we did not gather the information in time to then write the national plans of action, and species recovery plans. However, the project was modified, and useful information was collected about the Fiji Mastiff bat and other bats in Sanma province. A questionnaire survey was designed and completed in Sanma province. Questionnaire surveys cannot replace scientific studies but our questionnaire did collect a lot of information over a short period of time and over a large area and helped to direct where the follow-up acoustic logger surveys were located. From the results of the surveys, we have been able to make recommendations for further studies, conservation measures that
At least 10 Ni-Vanuatu scientists and conservationists, including 4 women, will be able to demonstrate via an evaluation that they are competent to survey and monitor microbats populations beyond the project.	In person training by Ian Davidson-Watts was planned, however due to Covid19 this could not happen. Training was pivoted to a virtual training on acoustic monitoring and an open invitation was given to other NGOs and practising conservationists. 10 Ni-Vanuatu scientists registered but only 7 of the people turned up to the workshop, 5 of them were women. 3 VESS scientists gained practical experience of deploying loggers in the field and gathering quality data. 10 Ni-Vanuatu science graduates attended training on questionnaire surveys and gained practical experience of collecting local knowledge using this tool.
Conservation plans for the Banks flying fox are being implemented by the communities in the Banks Islands and progress is being made to	Under this project, we continued to work with the communities in the Banks Islands where our Flying fox project was located. Since we started our work

Impact Description	Impact Summary
register Community Conservation areas with the Vanuatu Government	there delivering the awareness workshops and left awareness materials in the villages, the committees have continued to spread the information to others. Several measure have been put in place. Some islands have banned hunting of the endemic flying foxes, The Banks Flying Fox and the Vanautu Flying Fox. In others the hunting of all flying foxes is prohibited in their roosting sites. VESS has provided the communities with training and equipment for making basic bat observations and monitoring.

Unexpected impacts (positive or negative)?
Because of the bat conservation work that we have been doing under our CEPF-funded projects we were invited to be part of a proposal to apply for SNAP funding, that was untimely unsuccessful but a new network of Pacific Bat conservationists and academics was formed out of the group - the Pacific Bat network or PacBat for short. PacBat now holds regular monthly meetings. Christina was on the organising committee of the Pacific Bat Forum which was hosted by PacBat in 2021. VESS hosting the Vanuatu virtual hub to allow Ni-Vanautu interested in bat conservation to participate, presented our work and contributed to the discussions. VESS will continue to be part of this network after the currently CEPF funding has ceased.

PROJECT RESULTS/DELIVERABLES

Overall results of the project:
Many activities were delayed or could not take place because the Covid 19 pandemic closed Vanuatu's borders meaning Ian Davidson-Watts, our technical advisor and expedition lead could not travel to Vanuatu. However, the project was modified, and useful information was collected about the Fiji Mastiff bat and other bats in Sanma province. A questionnaire survey was designed and completed in Sanma province. A report about the questionnaire survey is published on the VESS website: https://www.vanuatuconservation.org/fiji-mastiff-bat-project/. The interview team visited 75 locations on three islands: Santo, Malo and Aore. 308 people were interviewed. The interview team (VESS staff and recent science graduates) ensured that a mix of people were interviewed. 151 were male and 154 female. The questionnaire has 73 questions and was designed to capture information over several topics: Interviewee information; General perspectives on bats; Information on different bat species (behaviour, habitat use and reproduction); threats to bats; bats and culture; tourism involving bats; and tabu areas. Significant amount of information was gathered about bats in Sanma Province. Bats are seen commonly. In Sanma, even though it is perceived that the number of flying foxes has decreased, they are still seen very commonly, including the endemic, threatened bats. The decline may be due to the recent cyclone and monitoring in the next few years will identify if the decline has reversed or if it is a trend that needs measures to address. The survey has identified behaviours and ecological needs of bats that differ between the species. This knowledge will assist conservation managers to implement measures to conserve bats. Bats are hunted but it appears that the hunting pressure is not extremely high. Monitoring of the hunting and the populations of bats will determine if the take is sustainable. Tourism involving bats is relatively common, but it appears to be generally low impact. the same appears to be true of other cave use. But this survey has highlighted some concern over practices that may increase health risks and disturbance to bat roosts. Some animal welfare concerns have also been raised. 142 plants that are used by bats were identified by their language names during the survey. 61 were

identified to species or genus level by the VESS team. Questionnaire surveys cannot replace scientific studies, but the information gathered on what threats are present, particularly those that are due to human bat interactions, can be interpreted with confidence. Questionnaires can collect a lot of information over a short period of time and over a large area and this can help to direct where the follow-up scientific studies should concentrate, such as the acoustic logger surveys that we conducted under this project. Whilst waiting for the follow up studies to happen, the questionnaire survey results do give confidence to recommendations for conservation actions that can be taken to protect bats, particularly the threatened species, in the interim. From the results of the survey, we have been able to make recommendations for further studies, conservation measures that can be implemented and how health and welfare concerns can be addressed. These recommendations could form the basis of a national Plan of action for bats.

At the same time as the questionnaire was rolled out, the VESS team conducted an awareness campaign. We adapted our Bats of Vanuatu booklet and bat conservation workbook developed in our other project on flying foxes, to have more emphasis on insectivorous bats such as the Fiji Mastiff bat. During the workshops community members learned about the biology and ecology of bats, threats to their survival and possible conservation actions. In total, 11 workshops were conducted in Santo, Malo, Aore, Tutuba and Efate Islands and 191 people attended (49 male and 72 female and 70 school children). During the workshops, 10 awareness workbook (8 in Bislama, 2 in English) and 107 Bats of Vanuatu Booklet (88 in Bislama and 19 in English) were distributed. A poster bat ecosystem services was designed in bislama and 98 were distributed to community members. 77 people visited a public exhibit hosted by the Vanuatu Environmental Science Society at the Unity Park Stage in Luganville. 50 Bats of Vanuatu booklets, and 5 posters were given away.

The planned acoustic and trapping survey was modified to include static acoustic monitoring only. We will wait for the borders to open for the capture surveys when Ian can give hands on training. Anabat Swift full spectrum static loggers (Titley, Australia) and Harp traps were purchased, giving the VESS team in country equipment necessary for bat surveys beyond the scope of this project. The scientific survey for this project was modified to include static acoustic monitoring only and we would wait for the borders to open for the capture surveys when Ian can give hands on training. Ian delivered training virtually online on how acoustic monitoring works and how to deploy the loggers. The main focus of this project was Sanma province as the Fiji Mastiff Bat has been observed in this province before, including community members reporting seeing insectivorous bats with a tail during our questionnaire survey (FMB is the only microbat with this feature). The loggers were also deployed when the VESS team had field work for our Banks Flying Fox project and they were deployed in Efate when we were training and becoming familiar with the equipment. All static loggers that were deployed recorded bats during the survey period. The loggers made 81,659 recordings of ultrasonic sounds in 2021 of which 15,599 (19%) were bat echolocation calls. In tropical habitats invertebrates emit high quantities of high frequency noise and this had the effect of filling memory cards with non-bat data. Although static loggers can be adjusted to avoid recording such noise, several bat species call parameters overlap with the noise made by orthopterans, especially FMB which uses the lower end of the ultrasonic frequency spectrum. The data recorded was uploaded to the cloud and access was given to Ian in New Zealand, to complete the data preparation and analysis. Fijian Mastiff Bat (FMB) made up the largest number of total bat calls at 42%. Other bats recorded were: little/small bentwing bat (L/SBB) at 33%; the large bent wing bat (LrgeBB) consisted of 12%; and Nyctophilus/Myotis (N/Myotis) 13%; and 62 recordings of horseshoe bats (likely to be the trident horseshoe bat). The bat data obtained during the preliminary acoustic bat surveys of Vanuatu was significant and has confirmed the presence of the Fiji Mastiff Bat in Aore, Malo

and Santo in the Samna Region. The FMB has not previously been recorded in Aore island. There were variations in bat species occurrence between survey logger locations. There were no recordings of FMB, horseshoe or N/Myotis in Malo. The calls of these species/groups were detected in Aore, and Venui Plantation in Samna Region. Little/small bentwing bats were found at all locations and were the most widely distributed of all species/species groups. Large bengtwing bat was also widely distributed. Myotis/Nyctophilus were recorded at Aore, Venui Plantation and a significant level of detection on Malo. Horseshoe bats recorded at Venui Plantation and higher numbers (n=57) at Malo. The surveys undertaken in the present study have provided a flexible approach to understanding the bats habitat use by not only focusing on caves and have shown proof of concept to at least obtain presence data by local biologists with limited technical resources in bat research methods. In conclusion the use of acoustic bat loggers has been demonstrated for echolocating bat species in Vanuatu and there is now a skilled core of local biologists that can regularly undertake sampling of different locations to build a more comprehensive distribution of echolocating bats.

Results for each deliverable:

Component		Deliverable		
#	**Description**	**#**	**Description**	**Results for Deliverable**
1.0	Habitat and breeding sites of Fiji Mastiff Bat identified	1.1	Report on questionnaire survey of community members and database of at least 300 questionnaire responses with at least 25% of responses from women or girls (September 2020)	A report about the questionnaire survey is published on the VESS website: https://www.vanuatuconservation.org/fiji-mastiff-bat-project/. The interview team visited 75 locations on three islands; Santo, Malo and Aore. 308 people were interviewed in April 2021. The interview team (VESS staff and recent science graduates) ensured that a mix of people were interviewed. 151 (49%) were male and 154 (50%) were female. The questionnaire has 73 questions and was designed to capture information over several topics: Interviewee information; General perspectives on bats; Information on different bat species, such as behaviour, habitat use and reproductive status; threats to bats; Links to bats and culture; Tourism involving bats; Tabu or conservation areas. Significant amount of information was gathered about bats in Sanma Province. Bats are seen commonly including the endemic and threatened bats. The survey identified behaviours of bats that differ between species. 142 plants that are used by bats were identified. Threats to bats in the survey sites have been assessed. The results show that knowledge gaps still exist, some practices may increase health risks or affect animal welfare. Recommendations have been made to address

Component		Deliverable		
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				these and for conservation actions and further research.
1.0	Habitat and breeding sites of Fiji Mastiff Bat identified	1.2	Interim report on the results of the initial acoustic and trapping surveys including photos and a database of information gathered (November 2020)	The original plan was for Ian Davidson-Watts to travel to Vanuatu to lead this expedition and train the VESS staff. However due to Covid he could not. He advised us on the survey design which was modified to include static acoustic monitoring only and to wait for the borders to open for the capture surveys so Ian can give hands on training. Anabat Swift full spectrum static loggers (Titley, Australia) were purchased and were deployed by the VESS team at sites where FMB had been observed before and where responses from our questionnaire survey, indicated insectivorous bats with tail. The loggers made 81,659 recordings of ultrasonic sounds of which 15,599 (19%) were bat echolocation calls. The data recorded was uploaded to the cloud and access was given to Ian to prepare and analysis the data. Fijian Mastiff Bat (FMB) made up the largest number of total bat calls at 42%. The bat data obtained during the preliminary acoustic bat surveys of Vanuatu was significant and has confirmed the presence of the Fiji Mastiff Bat in Aore, Malo and Santo in the Samna Region. FMB has not been recorded on Aore before. There is now a skilled core of local biologists that can regularly undertake sampling of different

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				locations to build a more comprehensive distribution of echolocating bats.
2.0	Capacity of Ni-Vanuatu scientists built in how to survey and monitor microbats	2.1	Report and participant list of workshop on acoustic monitoring of bats delivered to at least 10 Ni-Vanuatu scientists, including at least 4 women, on Efate (November 2020)	This activity was planned as a face-to-face training course delivered by Ian Davidson-Watts as one of the activities he undertook on his visits to Vanuatu. However this was not possible as the borders were closed for the duration of this project. The training was delivered virtually. Initially the VESS team, had several trainings lesions via zoom on how to deploy the acoustic bat detectors. We also organised a one-day workshop on acoustic monitoring in bats and opened this opportunity to other NGOs and conservation practitioners in Vanuatu. 10 people registered for the course. However only 7 turned up. 5 of the 7 participants were women. Ian delivered a power point presentation via zoom and included the theory of acoustic monitoring, bats that can be found in Vanuatu and how to interoperated the bat calls. We looked at some of the bt called that had been recorded during our fieldwork and practiced using the Insite software that comes with the Anabat swift bat detectors. In the afternoon, we demonstrated to the other participants how to deploy the bat detectors and they all practiced setting the correct settings to deploy the detectors.
4.0	Draft National Plan of Action for microbats of Vanuatu and tourism	4.2	Draft action plan for microbats and fruit bats in Vanuatu and draft Species	Due to the inability of Ian-Davidson Watts, our technical advisor and lead for the expeditions, to travel to Vanautu during the entire lifetime

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	guidelines developed and Species recovery plans for the Fiji Mastiff Bat and the Banks Flying fox produced		action plans for Fiji Mastiff Bat and the Banks Flying Fox (April 2021)	of the project due to Vanuatu's closed borders, many of the activities of the project could not happen or were delayed whilst waiting for the borders to open (which had not happened by the time of the end of the project). This had a knock-on effect on other activities which were dependent on the previous ones which did not happen or were delayed until the last few months of the project. This was one of those activities. Because the expeditions had to be modified and were delayed until the very end of the project we did not gather the information in time to then write the national plans of action, and species recovery plans. However, recommendations have been made and been included in the report on the questionnaire survey. This will form the basis for the plans and we will continue to work on them beyond the end of this project.
7.0	CEPF project management and monitoring	7.1	Safeguard policies for Indigenous Peoples implemented, monitored, and reported every six months to CEPF to ensure full compliance (continuous throughout project)	A safeguarding plan was created at the beginning of the project. The grievance mechanism was included in our project leaflet which was given out at every site visit. A safeguarding report was submitted to CEPF every six months during the project. Written consent was obtained form all communities visited. No safeguarding issues have arisen during the lifetime of this project.
7.0	CEPF project management and monitoring	7.2	Institutional Capacity of VESS evaluated through the	The CSTT and GTT were completed at the beginning and the end of the projects

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			CSTT and the Gender Tracking Tool (April 2021)	
7.0	CEPF project management and monitoring	7.3	Submission of an article and photograph demonstrating project benefits to local communities and biodiversity (January 2021)	We submitted and article and photos to RIT which appeared in the May CEPF EMI newsletter.
3.0	Awareness raised of the ecosystems services provided by bats	3.1	Report including photos, attendance sheets, before and after quiz results and interviews for at least 10 awareness workshops in Samna province (Santo, Malo and Aore Islands) with women and girls making up at least 25% of the attendees (July to Sept 2020).	The VESS team conducted a bat awareness campaign during the project. We adapted our Bats of Vanuatu booklet and bat conservation workbook developed in our other project on flying foxes, to have more emphasis on insectivorous bats such as the Fiji Mastiff bat. 10 workshops were conducted in Santo, Malo, Aore, and Tutuba Islands and 153 people attended (47 male and 63 female plus 70 school students). During the workshops community members learned about the biology and ecology of bats, threats to their survival and possible conservation actions. 10 awareness workbook (8 in Bislama, 2 in English) and 107 Bats of Vanuatu Booklet (88 in Bislama and 19 in English) were distributed. A poster bat ecosystem services was designed in bislama and 98 were distributed to community members. There was also a workshop on Efate islands during the training of VESS staff and testing of the workshop. 11 people attended (1 male and 10 female). Other awareness activities are captured in a report by Martika Tahi.

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3.0	Awareness raised of the ecosystems services provided by bats	3.2	Report, photos and attendance sheets for Microbat of Vanuatu exhibition at Space Alliance Française or other suitable central venue in Port Vila (November 2020)	We decided to hold the exhibition in Sanma province and hired the stage in Unity Part in the middle of Luganville town for 2 days. 77 (62 were male, 15 females) people visited a public exhibit. An additional 50 Bats of Vanuatu booklet (30 in Bislama, 20 in English), and 5 Bislama bat ecosystem services posters were distributed. We exhibited general information on bats, factsheets on fruit bats and insectivorous bats. We included a sections on biodiversity, ecosystem, and ecosystem services. Photos of various terrestrial animals were also put up to educate visitors about the importance biodiversity. Threats and conservation actions posters were also displayed. The information focused on the different threats bats are facing in Vanuatu and actions that everyone can take to protect these important species. Students completed activities on the difference between bats and birds, threats and conservation actions. They followed the instructions provided by VESS staff and completed the activity. People enjoyed the exhibition and said it increased their knowledge of bats. Attendees included government, non-government organisation and private sectors employees, farmers, students, church representatives, teachers, and children. A report on the exhibition is included the awareness report

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1.0	Habitat and breeding sites of Fiji Mastiff Bat identified	1.4	Database / library of bat calls in Vanuatu (March 2021)	All the acoustic recordings taken during the fieldwork, has been safely secured in a cloud storage facility as well as on multiple hard drives in the VESS office. A call library has not yet been created as without capture and species identification at the time of the recording, reference calls cannot be verified as belong to that species of bat in that locations. Whilst there is a high degree of confidence in that the recordings we have taken include those of the Fiji Mastiff Bat, without the verification of a bat in the hand, it is not classed as a reference call. As Ian Davidson-Watts did was not able to travel to Vanautu, the trapping surveys did not happen and therefore we cannot verify any reference calls to create the library with. We plan to continue working with Ian and once the borders are open and further funding is found, we will trap the bats and then will be able to verify the calls we recorded during this project and they can form part of the bat call library for Vanuatu.
1.0	Habitat and breeding sites of Fiji Mastiff Bat identified	1.3	Report on survey during suspected breeding season (November, December 2020).	As the borders were not open during the whole timeframe of this project, our expedition lead was unable to travel to Vanuatu. The activities throughout the project were delayed in the hope that Ian would be able to come. However, this never transpired. Once we realised that it was not going to be possible at all, we modified the plans for the

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				expeditions and what data we could collect. As the first expedition for acoustic monitoring happened at the end of the project, there was no time to complete the second planned survey.
2.0	Capacity of Ni-Vanuatu scientists built in how to survey and monitor microbats	2.2	Reports on what was learnt and including photos by at least 3 Ni-Vanuatu scientists who accompany Ian Davidson-Watts for the entire acoustic and trapping survey in July and in December 2020	Due to the inability of Ian-Davidson Watts, our technical advisor and lead for the expeditions, to travel to Vanautu during the entire lifetime of the project due to Vanuatu's closed borders, the acoustic surveys were delayed in the hope that the border would open and Ian would be able to travel to Vanuatu. This did not happen and we had to modify the training and surveys with the VESS team deploying the loggers in the field without the assistance of Ian. Ian did give several virtual training sessions during the project. A report on what 3 of us learnt has been uploaded with this report.
4.0	Draft National Plan of Action for microbats of Vanuatu and tourism guidelines developed and Species recovery plans for the Fiji Mastiff Bat and the Banks Flying fox produced	4.3	Guidelines for tourism interaction with bats (April 2021)	Due to the inability of Ian-Davidson Watts, our technical advisor and lead for the expeditions, to travel to Vanautu during the entire lifetime of the project due to Vanuatu's closed borders, many of the activities of the project could not happen or were delayed whilst waiting for the borders to open (which had not happened by the time of the end of the project). This had a knock-on effect to other activities which were depended to the previous ones which have not happened or were delayed until the last few months of the

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				project. This was one of those activities. Because the expeditions had to be modified and were delayed until the very end of the project we ran out of time to develop the guidelines. Also it did not seem an appropriate time to be consulting the tourism industry and gathering information when the operators were under so much distress due to the Covid 19 pandemic. Some information has been gathered during the questionnaire surveys and work will continue on preparing the guidelines and consulting the industry once tourism resumes in Vanuatu.
5.0	Conservation actions by communities to protect the Fiji Mastiff bat in Sanma province	5.1	Plans for conservation activities carried out by local communities to protect the Fiji Mastiff Bat in at least 2 locations in Samna Province (March 2021)	Due to the inability of Ian-Davidson Watts, our technical advisor and lead for the expeditions, to travel to Vanautu during the entire lifetime of the project due to Vanuatu's closed borders, many of the activities of the project could not happen or were delayed whilst waiting for the borders to open (which had not happened by the time of the end of the project). This had a knock-on effect to other activities which were depended to the previous ones which have not happened or were delayed until the last few months of the project. As the acoustic surveys were delayed to the last few months of the project, with the time taken to analyse them and identify where the Fiji Mastiff bat found, it left no time to go back to the communities to discuss the options for them to carry out conservation

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				actions in their areas. Therefore this activity did not happen.
4.0	Draft National Plan of Action for microbats of Vanuatu and tourism guidelines developed and Species recovery plans for the Fiji Mastiff Bat and the Banks Flying fox produced	4.1	Report, attendance sheets and photos of stakeholder workshops to consult on the draft national plan of actions for microbats and fruitbats, species recovery plans for the FMB and Banks flying fox and guidelines for bat tourism (April 2021)	Due to the inability of Ian-Davidson Watts, our technical advisor and lead for the expeditions, to travel to Vanautu during the entire lifetime of the project due to Vanuatu's closed borders, many of the activities of the project could not happen or were delayed whilst waiting for the borders to open (which had not happened by the time of the end of the project). This had a knock-on effect to other activities which were depended to the previous ones which have not happened or were delayed until the last few months of the project. This was one of those activities. Because the expeditions had to be modified and were delayed until the very end of the project we ran out of time to hold this workshop. We will however continue the work on the national plans of action, species recovery plans and guidelines for tourism.
1.0	Habitat and breeding sites of Fiji Mastiff Bat identified	1.5	Research permit for surveying bats in Shefa and Samna provinces (May 2020)	A research permit application was sent to the Department of Environment and the permit was granted.
6.0	Conservation actions by communities to protect bats in the Banks Islands	6.1	Report on the conservation activities implemented by communities to protect the Banks Flying fox (April 2021)	Under this project, we continued to work with the communities in the Banks Islands where our Flying fox project was located. Since we started our work there delivering the awareness workshops and left awareness materials in the villages, the committees have

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				continued to spread the information to others. Several measure have been put in place. Some islands have banned hunting of the endemic flying foxes, The Banks Flying Fox and the Vanautu Flying Fox. In others the hunting of all flying foxes is prohibited in their roosting sites. Under these projects VESS has provided the communities with binoculars, clicker counters and notebooks and brought the community members into a workshop in Mota Lava so train them on basic bat monitoring. The community members have learn how to conduct timed counts at emergence in the evenings and camp counts of their Pacific Flying Fox camps. We also suggested they note down each time they see the endemic bats or conduct regular transects, walking along the same route in the forest and counting and recording the endemic flying foxes. A report with the details is attached.
8.0	Seeking financial support for continuing bat conservation activities in Vanuatu	8.2	Preparation of two concept notes for bat conservation projects in Vanuatu (April 2021)	VESS was a member of a consortium that applied for a SNAPP proposal for bat conservation in the Pacific. That proposal was unsuccessful but the PacBat network was born out of it. PacBat is a network of conservationists and researchers interested in bat conservation and research in the Pacific region. Funding was found to host a Pacific Bat Forum in 2021 and VESS hosted the virtual hub in Vanuatu and presented at the forum on our bat projects. VESS was part of

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				preliminary proposal writing to pit together a pacific bat project. We had initial discussions with the Kiwa Initiative but although the description of the fund suggest that biodiversity conservation will be funded the staff at the fund headquarters said that the donors were only interested in climate change solutions and livelihoods and a bat project was very unlikely to be funded. Therefore we did not pursue the application any further.
8.0	Seeking financial support for continuing bat conservation activities in Vanuatu	8.1	Create a list of funders who could potentially fund bat conservation projects in Vanuatu (April 2021)	A search on the Funds for NGOs website, to which VESS is a premium subscriber, with the search topic "bats" revealed no results. Under the criteria "Vanautu", "environment" and "Animals and wildlife" with not keywords identified, the search revealed approximately 20 possible grants only 2 of which were for species conservation, one was for a maximum of USD $1,000 and the other in the region of 1,000 to 5,000 euros. Looking through the posts of grant opportunities on the TerraViva grant website in 6 months worth of posts only 10 potential funding opportunities were discovered for biodiversity conservation in Vanuatu that VESS would be eligible for. The GEF small grants program offers up to $50,000 USD, the Mohammed bin Zayed offer grant of up to USD$25,000, all the rest were less than $15,000 and some will not allow any overheads costs or wages. Most of the grants

Component		Deliverable		
#	Description	#	Description	Results for Deliverable
				opportunities were for climate change, start-ups and journalism and media.
6.0	Conservation actions by communities to protect bats in the Banks Islands	6.2	Activities to monitor and conserve microbats added to management plans in at least two community conservation areas (February 2021).	Due to the inability of Ian-Davidson Watts, our technical advisor and lead for the expeditions, to travel to Vanautu during the entire lifetime of the project due to Vanuatu's closed borders, many of the activities of the project could not happen or were delayed whilst waiting for the borders to open (which had not happened by the time of the end of the project). This had a knock-on effect to other activities which were depended to the previous ones which have not happened or were delayed until the last few months of the project. As the acoustic surveys were delayed to the last few months of the project, with the time taken to analyse them and identify where the Fiji Mastiff bat found, it left no time to go back to the communities to discuss the options for them to carry out conservation actions in their areas. Therefore this activity did not happen.

Tools, products or methodologies that resulted from the project or contributed to the results:
Questionnaire designed to capture local knowledge of bats
Report on the questionnaire survey of bats in Sanma Province
Report on the acoustic surveys in Sanma
Report on the awareness activities

PORTFOLIO INDICATORS

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
1	Hectares in a key biodiversity area (KBA) with new or strengthened protection and management.			0	
2	At least 100,000 hectares within production landscapes are managed for biodiversity conservation or sustainable use.			0	
3	At least 5 local land-use or development plans influenced to accommodate biodiversity.			0	
4	48 globally threatened species have improved conservation status and/or available information on status and distribution.			2	Fijian Mastiff Bat and Banks Flying Fox
5	At least 10 partnerships and networks formed among civil society, government and communities to leverage complementary			1	Pacific Bat Conservation Network or PacBat

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
	capacities and maximize impact in support of the ecosystem profile.				
6	At least 40 civil society organizations, including at least 30 domestic organizations, actively participate in conservation actions guided by the ecosystem profile.			1	VESS
1.1	Baseline surveys completed for at least 10 priority sites.			1	Santo Mountain Chain - Sanma
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	Santo Mountain Chain, Sanma province communities
1.3	Threat levels to at least 15 priority sites reduced through locally relevant conservation actions			0	

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
	implemented by local communities.				
1.4	Conservation incentives (ecotourism, payments for ecosystem services, conservation agreements, etc.) demonstrated for at least 5 priority sites.			0	
1.5	Number of communities targeted by site-based projects that show tangible well-being benefits.			0	
2.1	Number of CEPF priority sites where ownership and tenure rights within customary lands have been mapped			0	
2.2	Number of communities affected by incompatible development projects provided with legal training and support			0	
2.3	Number of partnerships catalyzed between civil society			0	

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
	organizations and natural resource companies to promote sustainable development through better environmental and social practices.				
2.4	Number of CEPF priority sites where biodiversity and ecosystem service values are integrated into land-use and/or development plans and policies.			0	
3.1	Number of CEPF priority species with improved knowledge of their status and distribution.			2	Fijian Mastiff Bat and Banks Flying Fox
3.2	Number of priority species with recovery plans developed, implemented and monitored.			0	
3.3	Number of priority species with science-based harvest management plans that are introduced for local food security.			0	

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
4.1	Number of civil society networks that enable collective responses to priority and emerging threats			1	Pacific Bat Conservation Network
4.2	Number of local civil society organizations that demonstrate improvements in organizational capacity.			0	
4.3	Number of civil society organizations that emerge as national conservation leaders in each hotspot country.			1	VESS
4.4	Number of conservationists that demonstrate strengthened capacity in conservation management, science and leadership.			7	
5.1	Number of civil society organizations that actively participate in conservation actions guided by the ecosystem profile.			1	VESS

Portfolio Indicator Number	Portfolio Indicator Description	Expected Numerical Contribution	Expected Contribution Description	Actual Numerical Contribution	Actual Contribution Description
5.2	Number of domestic civil society organizations receiving CEPF grants that demonstrate more effective capacity to design and implement conservation actions.			1	VESS
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.			0	
5.4	Number of participatory assessments undertaken with lessons learned and best practices documented.			1	Questionnaire in Sunma Province and Stationary Ecolocation Data all documented in reports

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.

Name of Protected Area	WDPA ID*	Latitude	Longitude	Country	Original Total Size (Hectares) **	New Protected Hectares ***	Year of Legal Declaration or Expansion

*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

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

Benefits to Individuals

- **Structured Training:**

Number of Men Trained	Number of Women Trained	Topics of Training
2	5	The use of bat detectors and acoustic monitoring of bats.

- **Cash Benefits:**

Number of Men – Cash Benefits	Number of Women – Cash Benefits	Description of Benefits

Benefits to Communities

View the **characteristics** column below with the following corresponding codes:	View the **benefits** 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**			

Characteristics of "Other" Communities:

Policies, Laws and Regulations

View the **topics** 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

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

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
Pacific Bat Conservation Network	2021	Australia;Cook Islands;Fiji;French Polynesia;Guam;Indonesi	Yes	A new network of Pacific Bat conservationists and academics was formed. The Pacific Bat network or PacBat for short. PacBat now holds regular monthly meetings. Christina was on the organising committee of the Pacific Bat Forum which was hosted by

Name of Network/Partnership	Year Established	Country/ Countries	Established by Project?	Purpose
		a;Malaysia;Micronesia, Federated States of;Nauru;New Caledonia;New Zealand;Palau;Papua New Guinea;Philippines;Samoa;Solomon Islands;Tonga;Tuvalu;Vanuatu		PacBat in 2021. VESS hosting the Vanuatu virtual hub to allow Ni-Vanautu interested in bat conservation to participate, presented our work and contributed to the discussions. VESS will continue to be part of this network after the currently CEPF funding has ceased.

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?

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
Chaereph on	bregullae	Fijian Mastiff Bat	EN	Education and awareness campaign, improved knowledge on threats and habitat use. Update distribution to include Aore island.	Unknown
Pteropus	fundatus	Banks Flying Fox	EN	flying fox awareness workshops; bat monitoring training given to the communities. Conservation measures such as a ban on hunting this species implemented on the islands with eh most important populations.	Unknown

LESSONS LEARNED

The entire of this project was conducted during the Covid19 pandemic. Something we found hard because of this was decision making in the face of uncertainty. Because we were continue expecting the borders to open within 3 months, it seemed appropriate to delay activities until they did open. But they never did before our project was finished. This meant that towards the end of the project we have many activities left to do. Some were not possible to do with the borders still closed and some we ran out of time to complete. With the beauty of hindsight, we could have made the decision to modify the project sooner rather than wait and we would have been able to finish more activities. It is hard to know what we would do in similar circumstances again. If we modify the project early and the borders did open afterwards, we would probably have had a budget shortfall to do the most important aspects of the project.

We have learnt that collaboration with experts helps to design the project and for it to yield useful results. The PacBat network has been supportive, even though not directly involved in our projects.

Using modern technology can help to obtain useful information but it is important to understand how it works and to have someone who knows how to interpret the results to assist us. Low tech systems can also be useful to answer research questions. But gathering a lot of data results in a lot of time being spent on analysing the data set. We would like to extend our questionnaire survey to other areas of Vanuatu, but we would look into technology, such as software and tablets, to assist us to collect the responses, manage the data and analyse the results.

We recognise that working with the local community is vital and have formed good working relationships with them. We have also made sure to keep the local government informed of our activities in their province.

SUSTAINABILITY/REPLICATION

The greatest challenge we faced in this project was that the Vanuatu International border remained closed of the whole duration of the project. The main focus of this project was to build the capacity of the VESS scientists to conduct bat studies in-country and not be totally reliant on outside consultants to do these studies. But to start this process we need expert training. We pivoted the project and Ian Davidson-Watts, our technical advisor and project lead was able to provide training for some aspects of the studies virtually. Deploying acoustic loggers was an activity that we could be trained dhow to do virtually but harp net capture studies need hands on training to ensure bat welfare as well as handler safety. It remains a challenge to be confident about several bat species from acoustic data alone and building a substantial library of calls from which call parameters can be derived for individual bat species remains a priority. This does require external expertise and was part of the original scope of works. Capacity building is important. Whilst we believe that international collaboration is important and valuable, we should be able to contribute to the scientific knowledge of our species and are best suited to interpreting the local knowledge and designing appropriate interventions when needed to conserve the species. Once the borders re-open we will continue to work with Ian and seek funding to do the studies we were unable to do under this project.

Covid also challenged us in more unexpected ways. We collected a significant amount of data from the acoustic surveys and needed to get this data to Ian Davidson-Watts in rural New Zealand. The simplest way would have been to put it all on a hard drive and post it. However, as the planes were not flying regally there was a premium on freight space and the post and courier services were incapacitated. It has taken more than 6 months for some post or even couriered packages to reach Vanuatu during the pandemic. Our solution was to upload the data to a cloud-based storage facility. With the speed of the internet in Vanuatu it took just over a week to upload using up our bandwidth. Ian had similar, if not quite so extreme issues downloading so much data in rural New Zealand.

The project has cemented the relationship between VESS and Ian and also with the PacBat network and we will continue to collaborate in this supportive network and hope to find funding to continue our work for the Bats of Vanuatu.

ENVIRONMENTAL AND SOCIAL SAFEGUARDS/STANDARDS

A safeguard report has been submitted via the safeguarding report

ADDITIONAL COMMENTS/RECOMMENDATIONS

ADDITIONAL FUNDING

Total Amount of Additional Funding Actually Secured (USD)	$0.00
Breakdown of Additional Funding	The additional funding was for genetic analysis of the samples taken form Fiji Mastiff Bats. However as Covid19 travel restrictions prevented the expedition lead travelling to Vanuatu, no trapping surveys were conducted and therefore no samples were taken.

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.

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