

添付資料 4.2.5 Project newsletter vol. 1 – 9

CEPA - JICA

Biodiversity Project

News Letter



ISSUE: December 2015
Volume 1
(JUL – DEC 2015)

This newsletter is aimed at introducing progress news on the CEPA-JICA Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas.

Introduction

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA). The target areas are the Varirata National Park (VNP) for the development of terrestrial protected area (PA) model while Bootless bay and Motupore Island areas for the marine / coastal PA establishment model.

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Outputs

1. **National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council) is strengthened.**
2. **The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.**
3. **A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.**
4. **Public relations/awareness for biodiversity conservation is improved by disseminating project related information.**

Kickoff Seminar for CEPA-JICA Biodiversity Project

29 July, 2015

The CEPA-JICA Project, a core-funded project by CEPA and JICA hosted its Kickoff Seminar at Holiday Inn. The theme of the workshop was on “collaborative efforts to implement CEPA-JICA Biodiversity Project”. A total of 94 invitees attended the workshop.

This Biodiversity Project will run for a period of five (5) years commencing in June 2015. The primary purpose of the project is to institutionalize and strengthened capacity of CEPA for Protected Area (PA) management through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the Policy on the Protected Areas(PPA).

The workshop was organized to engage other Government Institutions and key stakeholders to seek their views on linking the Policy on PPA, which was approved by NEC in December 2014, with other national level sector policies, including the National Sustainable Land Use Policy (NSLUP) that was developed by the Department of Lands and Physical Planning. The workshop was significant for CEPA-JICA Project in order to identify the key actors or stakeholders, understand better the stakeholder engagement and through the collaborative conservation efforts the implementation of the PPA and related policies can be realized.

Inception workshop for Koiari

22 October, 2015

A inception workshop for Koiari was held at Kokoda Trail Hotel. At least 73

invitees attended the workshop. From this, 52 were participants from the Koiari Rural LLG including the local communities and reps from Tourism Promotion Authority. The primary purpose of this workshop was focused at “Role Sharing, Benefit Sharing and Livelihood Development in Koiari LLG”. This workshop was significant for CEPA-JICA Project in order to identify the relevant and appropriate mechanisms for role sharing, benefit sharing and understand better the stakeholder engagement.

Project Design Phase

A Japanese Detailed Planning Survey Team organized JICA visited PNG to discuss the formulation of a Technical Cooperation Project for “the Project for Biodiversity Conservation towards Achieving PNG Protected Area and the Aichi Target”.

An agreement was reached between the two parties for a Japanese Technical Cooperation to provide support to the Government of PNG for the implementation of PPA.

The Project was timely as the PPA was launched by the Government of PNG in December 2014. The focus of the PPA was to address biodiversity conservation and support the development and management of a National Protected Area for PNG.



CEPA - JICA Biodiversity Project

Reconnaissance survey of coastal & marine systems of Bootless Bay

CEPA-JICA undertook a preliminary survey of the surrounding mangrove habitats, NFA facilities deployed at the site and other marine ecosystems within Bootless Bay. It was observed that unregulated development were taking place along the mangrove areas within the Bootless Bay and the Tuna Bay areas. Such unregulated development taking place in those areas are very sensitive to the mangrove vegetation's since mangroves are critical habitats for coastline erosion as well as mangroves are the breeding grounds of the marine life. The Tuna Bay is a sensitive place as well for any development to take place because it is the spawning site for tuna which has been used traditionally by the locals around the Bootless Bay area, Pari and Taurama villages.



Varirata NP

Varirata National Park (VNP) was the first National Park declared in PNG and was officially opened on 8th October 1973. It is on State land and covers an area of 1,063 ha. It is located on the Sogeri Plateau appropriately 48 km east of Port Moresby city and is accessible by road.

VNP is situated at an elevation of 600 – 800 m with an average annual rainfall of 1400 mm. It has closely spaced narrow accordant ridges and rocks consisting of balastic lava, agglomerate, tuff and dyke origins.

The land was locally called *Wodobonumu* and was the traditional hunting grounds of Koiari people.

VNP has scenic views and beautiful forests comprising of rainforest, savannah, grassland, gallery forest and secondary regrowth. It is also inhabited with some unique plants and animals such as Rosa deer, cassowaries, forest wallabies, possums, bandicoots, butterflies, beetles, pythons, monitor lizards, Raggiana Bird of Paradise and other extraordinary bird species.

The main picnic area and the information center were once a coffee nursery established in 1950's. The same area was previously logged by Sandis and Burns Philip (NG) Ltd, respectively. Later a piggery and poultry farms were established. The concrete basements are the only remnants today.

CEPA-JICA Project acknowledged by KLLG

23 December, 2015

A reception was organized by the Koiari Local Level Government (LLG) to show their appreciation to the partner agencies for their active collaboration and successful implementation of joint activities in 2015, at the Fugui Restaurant in Port Moresby on 23th December, 2015. This was one of the annual events of the local Koiari LLG to bring its ward councilors, LLG administrative staff, and relevant key partners who implement projects in the Koiari and Sirinumu Catchment Area. Over 50 people attended the reception including 17 ward councilors and their spouses, 5 Koiari LLG staff and their spouses.

CEPA-JICA Project including eight (8) other organizations were invited to grant the certificates and gifts. The Project was presented with a "Certificate of Appreciation" and a traditional bilum (or string bag) from the highlands of PNG as a token of appreciation by the Koiari LLG Council President, Mr David Ogi. The Technical Coordinator was given the opportunity to give a short speech on behalf of the CEPA-JICA Project for the effective and successful partnership with the Koiari LLG and the local people of Koiari.

JICA Donates Project Vehicle

December, 2015

The Project Team was presented with a vehicle for the implementation of the CEPA-JICA Biodiversity Project in December, 2015.

The handover ceremony for the Toyota Land cruiser from Ela Motors by JICA PNG Office was facilitated at the CEPA parking lot. The formalities of signing the agreement of the vehicle was made at the CEPA Board room.

The presentation was made by Mr. Shigeru Shugijama, Chief Representative of JICA PNG Office (at that time), to DIRECTOR of CEPA (Ms. Kumaras Kay Kalim) on behalf of the Managing Director.

**Conservation and Environment
Protection Authority (CEPA)
Japan International Cooperation
Agency (JICA)**

Address: P.O.Box 6601, Boroko,
National Capital District, Papua New
Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

Facebook page:

<https://www.facebook.com/pngbiodiv/>

JICA Project Homepage:

<http://www.jica.go.jp/png/english/activities/activity18.html>

CEPA - JICA

Biodiversity Project

News Letter



ISSUE: June 2016
Volume 2
(JAN – JUN 2016)

This newsletter is aimed at introducing progress news on the CEPA-JICA Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas.

Introduction

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA). The target areas are the Varirata National Park (VNP) for the development of terrestrial protected area (PA) model while Bootless bay and Motupore Island areas for the marine / coastal PA establishment model.

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Outputs

1. **National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council) is strengthened.**
2. **The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.**
3. **A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.**
4. **Public relations/awareness for biodiversity conservation is improved by disseminating project related information.**

CEPA Launches Bird Watching MoU

19 February, 2016

The Memorandum of Understanding (MoU) for the bird watching project was signed at Lamana Hotel on 19th February, 2016. The MoU was signed by the Managing Director of CEPA (Mr. Gunther Joku), Acting Chief Executive Officer of PNGTPA (Mr. Eric Mossman), Vice Chancellor of PAU (Professor Ben Thomas), Council President of Koiari LLG (Mr. David Ogi) including the Chief Advisor of the CEPA-JICA Project (Mr. Koji Asano). The objective of the MoU is for the parties to maintain cooperation, enhance planning and information exchange to develop and promote the bird watching activities in the Varirata National Park, PAU campus and Sirinumu/Laloki Catchment areas in Central Province. Thus, this project will create an environment for mutual understanding for research, training, and capacity building for all parties, local resource

owners and partner organizations in order for better planning to achieve the tangible results from the bird watching and eco-tourism related activities.

The birding project will also promote conservation initiatives and sustainable livelihood of the local communities in Koiari and Hiri regions of Central Province.

At least six (6) bird watching sites will be identified and will provide the unique opportunity for bird watchers and residents of Port Moresby or travelers to observe different kinds of birds and at the same time enjoy the natural biodiversity and the scenic sites.

Camera traps assist monitoring and management of VNP

Twenty (20) camera traps have been installed within the Varirata National Park (VNP) for the monitoring and management of the Park. There are two sets of 10 digital camera traps comprising 10 cameras for obtaining still photographs and another 10 for capturing motion or videos. These have been installed along ten specific sites within the Park. These sites were marked, mapped and photographs

Camera Traps Photo



Wallaby at Scarp Track
19 Nov, 2015, 10:32am



Yellow-legged brush turkey
at Circuit Track
13 Oct, 2015, 10:04am



taken as trial monitoring stations. These cameras were first installed on 22 September, 2015, and retrieval of data has been made monthly. The images of the fauna have been captured by these camera traps.

CEPA - JICA Biodiversity Project

Promotes livelihood development for local Koiari communities

25 February, 2016

A follow-up workshop for the local communities of Koiari was held at the Sogeri Lodge. The workshop was focused on livelihood development and bird watching in the Koiari area. Also, a draft proposal of livelihood development option was presented to the local participants. A total of 25 participants attended from 4 local clan groups (Ianari, Nadeka, Omani and Narime), 2 Council Ward areas (Furimuti-ward 4, Depo –ward 5), 7 reporters/camera crews from 5 different media organization's (Post Courier, The National, NBC TV, EMTV, and Sunday Chronicles).

The preparatory work on the exposure (packaged) tour for tourists (including international/local) has begun and appropriate agencies including the PNGTPA and tour operators will be consulted in order to develop a package suitable for the communities in Koiari. The spin-offs from these activities will in the long-term benefit and sustain the livelihood of the local people.

The VNP landowner WS on livelihood development

19 May, 2016

A total of 19 local landowners representing four (4) clans and two (2) ward council areas participated at the workshop. The key message of the meeting was for the local people to understand the livelihood development option for the management of the VNP. CEPA and JICA are also insisting for the local community to establish a representative and recognized group which can fairly represent the community in terms of the coordination, planning and management of the livelihood development activities such as eco-tourism, bird watching, cultural dancing, traditional cooking, etc.

Installation of distance piles at VNP

April, 2016

The installation of distance piles along the four tracks of the Varirata National Park has been completed with a total of 79 piles. These distance piles can be

easily seen on these tracks; Self Guide, Circuit, Scarp and the track leading to Gare's Lookout. The average distance to be covered for each track is 2 km, which will take approximately 40-60 minutes for an average person on a normal walking pace. Also, the wooden foot bridge at the Main Picnic Area was renovated.



Tree House – Pride and Identity of local Koiari People

Koiari Tree-House has been a pride of the people of Koiari. The tree-house (also called traditionally as Babo) is the identify of Koiari and is one of the main features reassembling the people and

the people and the nature from which this unique structure is built. It also provides a strong element of culture and ancestral connection of the people to the past generations, and reason(s) why this unique high stilt houses were built. It is merely constructed to avoid bad spirits, sorcerers, and attacks from their traditional enemies.

CEPA-JICA Project is keen to revive the management of Varirata National Park and at the same time revive the loss culture of the local communities of Koiari, which the tree-house is a key part of them.



**Conservation and Environment Protection Authority (CEPA)
Japan International Cooperation Agency (JICA)**

Address: P.O.Box 6601, Boroko, National Capital District, Papua New Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

Facebook page:

<https://www.facebook.com/pngbiodiv/>

JICA Project Homepage:

<http://www.jica.go.jp/png/english/activities/activity18.html>

CEPA - JICA Biodiversity Project

News Letter



ISSUE: December 2016
Volume 3
(JUL – DEC 2016)

This newsletter is aimed at introducing progress news on the CEPA-JICA Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas.

Introduction

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA). The target areas are the Varirata National Park (VNP) for the development of terrestrial protected area (PA) model while Bootless bay and Motupore Island areas for the marine / coastal PA establishment model.

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Outputs

1. National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council) is strengthened.
2. The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.
3. A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.
4. Public relations/awareness for biodiversity conservation is improved by disseminating project related information.

Marine Inception WS brought together key stakeholders

16 August, 2016

The inception workshop (WS) for marine was held at Motupore Island. This workshop focused on one of the project outputs, "A model of establishing a new marine protected area (PA) is developed as per the provision of Policy on the Protected Areas (PPA) and concerned laws". At least 28 participants from various government, private and community-based organizations attended the



meeting. The objectives of the WS were to (1) showcase the project goals and expected outputs, (2) identify and network with all major stakeholders within the by, (3) identify and list issues (both present and potential), (4) recommend ways forward, and (5) set up coastal and marine "working" committee.

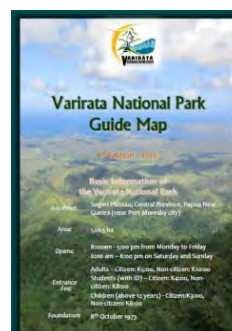
Also, a proposal of zoning for Tahira mangrove area by CEPA-JICA project was shown. SDA who hold land title of the area, UPNG and CEPA-JICA project confirmed that the proposal will be discussed further. Moreover, the MoU to protect the area is also progressing between SDA, UPNG and CEPA and will be signed soon.

VNP Guide Map published

September, 2016

Varirata National Park (VNP) visitors guide map has been developed.

The guide maps for the tracks will be handy for visitors who will be interested to hike / walk the track while visiting VNP.



New Signboard installed at VNP

October, 2016

New Signboards were installed at VNP as part of the revival phrase of the park in the Project. CEPA is the manager of the park and would like all the visitors, tourists, Port Moresby residents, clients and local community visiting Varirata to adhere to the simple rules and regulations of the park.

This project would also thank Advance Signs PNG Ltd, a local printing company for making this possible. In particular, Mr Gaina Isosia, who is the graphic artist of the company, has been working behind the scene to prepare the art work and design of these billboards.



CEPA - JICA Biodiversity Project



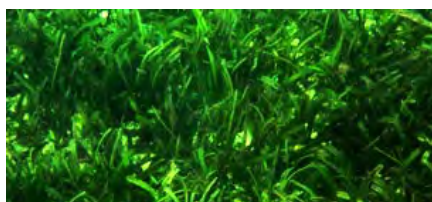
(Corals observed in Bootless Bay)

Marine Biodiversity Survey in Bootless Bay conducted

October to November, 2016

Rapid Marine Biodiversity Survey in Bootless Bay was conducted from late October to November 2016. This survey focused on marine habitats (seagrass, seaweed and coral) to understand distribution of those marine habitats and its condition and to identify problem on marine biodiversity in Bootless Bay. A total of 28 sites were observed covering inner shore, middle shore and outer shores.

Marine habitats distribution in Bootless Bay became clear. Seagrass, seaweed, and corals were major marine habitat in Bootless Bay. Coral was distributed widely in mouth of the bay. Seaweed was distributed widely in this survey area except head of the bay. Seagrass distributed widely in the bay. The most dominant species of seagrass around islands was *Cymodocea rotundata*.



(*Cymodocea rotundata*)

There was not rich species diversity of seaweed. Of the four major species of seaweeds *Turbinaria decurrens* was most common.



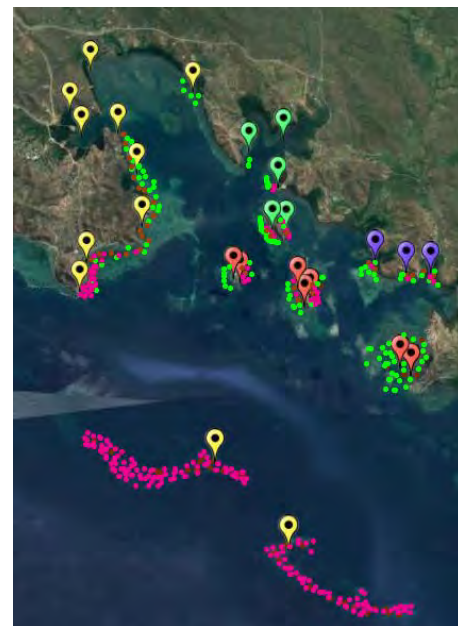
(*Turbinaria decurrens*)

Pyramid point showed a healthy coral growth. In Horse shoe Reef, coral and seaweed were observed but reef fish were less abundant and generally smaller in sizes.

During this survey, marine debris were observed. Especially, in front of mangrove forest near Tubuseria village, many marine debris were observed.

Three threats were identified in Bootless Bay through this survey.

- Degradation of fish resources
- Mangrove degradation
- Marine Debris



Distribution of marine habitat (Pink dots are coral, brown dots are seaweed and green dots are seagrass.)

To solve these problems, one of a most efficient way is to establish marine protected areas (MPAs). Hence, the Project enforce establishment MPAs in Bootless Bay with stakeholders.

VNP Security Guards hired from Koiari local communities

November, 2016

CEPA-JICA has hired local temporary security guards from the local communities of Koiari to provide safety for the tourists and visitors of VNP. These local guards can be seen wearing the orange vest with the VNP logo and SECURITY label. They will be mending the main gate of the park entrance and patrolling the park and along the tracks.

**Conservation and Environment Protection Authority (CEPA)
Japan International Cooperation Agency (JICA)**

Address: P.O.Box 6601, Boroko, National Capital District, Papua New Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

Facebook page:

<https://www.facebook.com/pngbiodiv/>

JICA Project Homepage:

<http://www.jica.go.jp/png/english/activities/activity18.html>

CEPA - JICA

Biodiversity Project

News Letter



ISSUE: June 2017
Volume 4
(JAN – JUN 2017)

This newsletter is aimed at introducing progress news on the CEPA-JICA Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas.

Introduction

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA). The target areas are the Varirata National Park (VNP) for the development of terrestrial protected area (PA) model while Bootless bay and Motupore Island areas for the marine / coastal PA establishment model.

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Outputs

1. National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council) is strengthened.
2. The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.
3. A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.
4. Public relations/awareness for biodiversity conservation is improved by disseminating project related information.

The 2nd Marine WS for BBMCI

31 January, 2017

The 2nd workshop for Bootless Bay Marine Conservation Initiative (BBMCI) was conducted at Lamana Hotel in Port Moresby. It is envisioned that through this workshop the key stakeholders will continue to maintain and strengthen the networking and information sharing as initiated in the inception workshop. The discussion on “working arrangements” among the stakeholders to promote BBMCI will also be enhanced.

More than 23 participants from over 12 different organizations attended, ranging from the Hiri Local Level Government (LLG), Central Provincial Government, PNG Ports, Coastal Fisheries Development Agency, community-based organisations, Industry and the representatives from the local communities. The main aim was to work in partnership with

relevant stakeholders to achieve the Output 3 of the CEPA –JICA Biodiversity Project - Bootless Bay to be the Model Marine Protected Area (MPA) in PNG. The Project is also embarking for a formal declaration from the key stakeholders for the protection of the Bootless Bay and the surrounding marine areas.



The bird watching initiative was further strengthened

3 February, 2017

The bird watching initiative was further strengthened by the Project when the Pacific Adventist University (PAU) agreed to construct a bird shelter within the Koiari Park Campus, few kilometers outside of Port

Moresby. This bird shelter will serve the purpose of providing an exhibition of various bird species including the birds of significance such as the water birds and waders. It will be also useful for students in terms of research and education. The bird watchers, tourists and public are also invited to use the common bird shelter.

A site was selected within the campus near the common student block and in the proximity of the roosting site of the Egrets, Ibis, Australian Swamphen,

Black Cormorant including the visitors such as the Royal Spoonbill.

The PNG Tourism Promotion Authority and CEPA with the support from JICA are keen to develop the facility within PAU to promote and boost the interests from the amateur bird watchers and students for the importance of birds and how vulnerable they are now due to habitat destruction, climate change and other impacts.



CEPA - JICA Biodiversity Project

Audition for Koiari traditional dance

22 March, 2017

The local people of Koiari have their unique traditions and cultures still intact. They are from the hinterlands of Central Province and you will be surprised when they set an entertainment scene for you. The CEPA-JICA Project is embarking on protecting the biodiversity and at the same time their traditions: cultures, taboos and rituals. These are all significant when it comes to biodiversity conservation and the surrounding ecosystems depended on --- we are all interdependent on each other.

An audition for Koiari traditional dance was performed at VNP. This provided a stage for the CEPA-JICA Project Team to develop a tour package for tourists and visitors, who wish to visit VNP and the Sogerri area and wants to see the cultural dances or shows.

We are encouraging everyone to come to VNP and Sogerri to see the great cultural dances put on show by the local people of Koiari.



Clean-up campaign at Tubusereia village

12 April, 2017

The Project has hosted a first clean-up campaign at Tubusereia village. This campaign was aimed at minimizing/controlling the unnecessary dumping of household wastes into the oceans, which contributes to unpleasant sightings of the marine debris in coral reefs, mangroves, seagrasses, and other critical marine systems in Bootless Bay. CEPA would also encourage the coastal communities to act responsibly and get rid of their rubbish, especially plastics and not to dump them directly into the seas and mangroves.

The clean-up was participated by over 100 people including key institutions such as the PNG Ports, Office of Coastal Fisheries and Development Agency, CEPA, PNG Dive Center, HELP (NGO), Central Village Environmental Services from Tubusereia, Pari Women's Development Association, Pacific Energy Aviation and the local people of Tubusereia village including JICA staff of the Project.



Field training for local field assistants

12 April, 2017

The field training for local field assistants for the 4 clans of Koiari was recently undertaken at VNP by the Project. The detailed biodiversity survey will cover most taxa groups - plants, birds, mammals, reptiles, frogs, and insects. The survey team settled in at the VNP Lodge with field survey gears.

A botanist and MSc fellow from the Forestry Department of the University of Technology was engaged to train the survey team and the local field assistants on how to collect fertile plant specimens and prepare voucher herbarium specimens. A trial demonstration was conducted which included specimen collection, data recording, pressing and drying.



The training was conducted to ensure the local field assistants learn and understand the processes involved in a botanical survey. Similar training will be conducted for sampling mammals, birds, reptiles, amphibians and aquatic fauna.

The Inaugural Launch for the works of VNP

20 April, 2017

The Inaugural Launch for the works of VNP was co-hosted by CEPA and the Project with funding support from JICA. More than 100 people attended representing PNG JICA Office, PNG Tourism Promotion Authority, Central Provincial Government, Koiari LLG, University of PNG, Local Koiari Tours, partners and local communities. The highlight of the launch were the cutting of ribbon for the new and renovated facilities including the new signboards, and the ground breaking

ceremony for the construction of the new Information Center in Varirata. The construction of the new building will commence in July and the completion is expected to be after 9 months.



**Conservation and Environment
Protection Authority (CEPA)
Japan International Cooperation
Agency (JICA)**

Address: P.O.Box 6601, Boroko,
National Capital District, Papua New
Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

Facebook page:

<https://www.facebook.com/pngbiodiv/>

JICA Project Homepage:

<http://www.jica.go.jp/png/english/activities/activity18.html>

CEPA - JICA Biodiversity Project

News Letter



ISSUE: December 2017
Volume 5
(JUL – DEC 2017)

This newsletter is aimed at introducing progress news on the CEPA-JICA Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas.

Introduction

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA). The target areas are the Varirata National Park (VNP) for the development of terrestrial protected area (PA) model while Bootless bay and Motupore Island areas for the marine / coastal PA establishment model.

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Outputs

1. National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council) is strengthened.
2. The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.
3. A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.
4. Public relations/awareness for biodiversity conservation is improved by disseminating project related information.

UPNG and CEPA signed MoU for mangrove protection

25 July, 2017

University of Papua New Guinea (UPNG) and CEPA signed a Memorandum of Understanding (MoU). The primary objective of this agreement is for a mutual understanding on implementing the activities within Bootless Bay for the protection of the mangroves (including other marine resources) and the establishment of the new marine protected area (MPA).

Professor Chalapan Kaluwin, Dean of School of Natural and Physical Sciences of UPNG, was glad to work with CEPA and the donor partners such as JICA to set up a MPA in the Bootless Bay of Central province, which is first of its kind under the provisions of the PPA that can be replicated elsewhere in PNG.



BBMCI Logo launched

The new logo for the Bootless Bay Marine Conservation Initiative (BBMCI) was also launched during the inaugural ceremony. Most BBMCI members from the government agencies, private sector, community and the not-for profit organizations witnessed the launching ceremony.



Social mapping and socio-economic

August, 2017

Social mapping and socio-economic studies of VNP and the areas within its 3km buffer covering the two ward council areas (Furimuti and Depo) commenced in early August, 2017. The initial community meeting with the clan leaders of Koiari was held at Depo village on 11 August, 2017. Dr Rodney Kameata of SERACS was the lead consultant who coordinated the investigations. He specializes in anthropology and the social set up of local communities in PNG. The findings from this study will assist CEPA-JICA



Project Team to develop an informed resource management plan for VNP.

Welcome reception of Minister at VNP

25 August, 2017

This was a special day for CEPA and its stakeholders including the local communities from Koiari and JICA when CEPA hosted the welcome reception of the Hon. John Pundari, Minister for Environment & Conservation and Climate Change at VNP.

This event was significant to the CEPA-JICA Project implementing activities within VNP because the Minister acknowledged our efforts and the investment from JICA. He personally met the Project Team on site and was briefly introduced on what this project is currently doing and planning to do in the next few years. Mr Pundari was pleased to see the changes on the renovation of the old Information Center (IC) and the local contractor (Hahebou) at the site.



CEPA - JICA Biodiversity Project

New bird watching shelter at PAU constructed

5 September, 2017

The first bird watching shelter was completed at the lakeside of Koiari Park Campus of Pacific Adventist University (PAU) with financial support from the PNG Tourism Promotion Authority (PNGTPA) through the collaborative partnership with CEPA, PNGTPA, PAU, Koiari LLG, and JICA. It is intended to enhance bird watching and other tourism opportunities for bird watchers, tourists, visitors, students and Port Moresby residents.



Ecological studies at VNP undertaken

December, 2017

The local survey team has been currently undertaking the ecological studies at VNP for the last 8 months since April, 2017. They have collected fertile plant specimens, collected snakes and frogs, collected insects/moths, recorded the sightings of birds, and other fauna. They have also prepared and dried the plant specimens at the base camp in Varirata and transfer the voucher plant specimens to UPNG Herbarium. The DNA samples of the snakes and frogs were also collected and stored for further DNA analysis.



Construction and improvement of facilities in VNP

28 July, 2017

Drainage system at the Information Center (IC) complex of VNP was improved.



15 September, 2017

Cultural taboos, rituals and the ancestral beliefs of the local customary landowners of Koiari will be illustrated on the totems and carvings. These wood art works will demonstrate the uniqueness and special connections of these local people on the natural environment and to encourage the protection of the biodiversity of VNP. The crafting of these totems/carvings commenced on 19 August, 2017. The crafting of the 6 totems and 4 carvings were completed on 15 September, 2017. These items will be installed within the IC complex of VNP.



November, 2017

The fabricated kitset building for 8-9 people living quarter has been constructed at VNP in July and is almost completed.

This houses the workers of the Rhodes PNG who will construct the new Information Center (IC). The kit house will be donated to CEPA after the completion of the new IC.



The renovation of the existing IC and the construction of the new IC have commenced in late August and early September, 2017 at VNP, respectively. The renovation of old IC was implemented by a local company Hahebou Construction and the new IC was constructed by Rhodes PNG. The approval of the building permit by the National Department of Works (Building Board) was granted in November. Also, the PNG Fire Service has granted their approval on 13 September, 2017.



**Conservation and Environment
Protection Authority (CEPA)
Japan International Cooperation
Agency (JICA)**

Address: P.O.Box 6601, Boroko,
National Capital District, Papua New
Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

Facebook page:

<https://www.facebook.com/pngbiodiv/>

JICA Project Homepage:

<http://www.jica.go.jp/png/english/activities/activity18.html>

This newsletter is aimed at introducing progress on the CEPA-JICA Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas.

Introduction

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA). The target areas are the Varirata National Park (VNP) for the development of terrestrial protected area (PA) model while Bootless Bay and Motupore Island areas for the marine / coastal PA establishment model.

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Outputs

1. National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council) is strengthened.
2. The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.
3. A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.
4. Public relations/awareness for biodiversity conservation is improved by disseminating project related information.

New billboard for VNP installed

January, 2018

VNP had a new billboard installed at the junction of the Sogeri Road. The Project is pleased to work in collaboration with the relevant development agencies including PNG Tourism Promotion Authority who have financially supported the design and installation of the billboard.



Studies of Social mapping and Socio-economic

1 March, 2018

The baseline data of the social mapping and socio-economic field surveys of VNP (and its 3 km buffer areas) was presented by Dr Rodney Kameata of SERCAS.

The final results of the studies show that the local populace has sufficient degree of education, moderate living standard, and easy access to basic essential services such as education, health, electricity and transportation. However, the records show that the local communities need to be properly mobilized with adequate support from their leaders in order to enable their local people to improve and sustain their daily livelihoods.

New record for VNP: Giant Bandicoot

April, 2018

The Giant Bandicoot (*Peroryctes broadbenti*) is a new record for VNP. It is an IUCN endangered species and was not recorded in Central Province before. It was captured on our camera traps at several places within the park in 2015 and current. The only live specimen collected was in Northern Province.

It is the largest bandicoot in the world: males attain body weights up to 5 kg and females are around 1.4 kg. It occurs in dense lowland tropical moist forest and gallery forests, typically along creeks or rivers. It appears in our cameras within the VNP in similar

habitats. The species is evidently rare, and has not been collected in the last three decades (Aplin et al 2010). It may be naturally rare, but is probably in decline due to habitat loss or hunting pressure.

For further information about this mammal read the following link.
<http://www.iucnredlist.org/details/16710/0>



CEPA - JICA Biodiversity Project

MoU for mangrove protection and MPA signed

13 April, 2018

Another memorandum of understanding (MoU) was signed between the Central Papua Conference (CPC) of Seventh Day Adventist (SDA) Church and CEPA. This was an agreement for the protection of mangroves and the establishment of the model Marine Protected Area (MPA) within Bootless Bay, east of the Port Moresby City. The President of CPC was proud to sign this MoU and acknowledged God as the Creator and CEPA as the custodian of His creation.



Training program on wildlife handling

23 April, 2018

Mr Angus Fraser was amazed on how the training program on wildlife handling including snakes has turned into a success story/VNP. Changing perceptions of local field guides on handling snakes in the wild at first was challenging but when they get used to it, it was unstoppable. Gideon Warite holding *Morelia amethystina* (Amethystine python - see photo). Gideon actually enjoyed learning how to hold this reptile and you can see that it is genuine in his smile. Previously, he would have either killed it or made a rapid exit from the scene. Also, Bali Korohi was staying in Depo village/Sogeri when he heard a commotion outside in the haus kakarauk. He went out to investigate and found a 5 foot python looking for eggs and chickens. Everyone around him was yelling at him to kill it and instead he calmly got a stock feed bag, handled the python himself and successfully bagged the animal. The

next day he took it away from the village and released the snake near a swamp. When Angus first knew Bali he was refusing to go near a snake or let alone hold one. When he finally did hold a snake he wanted to wear gloves so he couldn't feel the texture of the animal. He eventually took the gloves off when he got used to it.

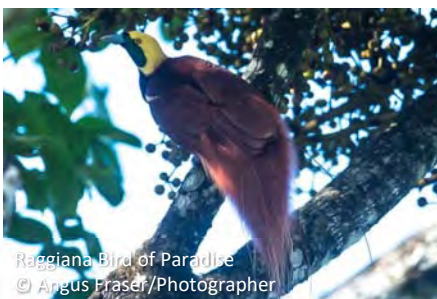


© Angus Fraser/Photographer

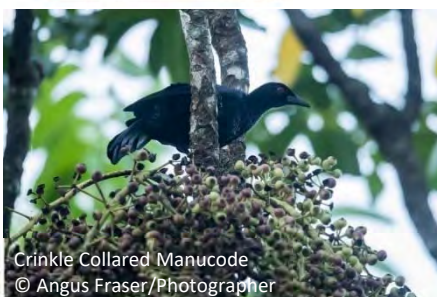
Bird species present in VNP

16 May, 2018

The total number of bird species present in VNP has increased to 231, which is about 30% of PNG birds, from the recent findings by CEPA-JICA Project in 2018. From this, we have 5 different birds of paradise species apart from the renown and commonly visited Raggiana Bird of Paradise (*Paradisaea raggiana*), and these are Crinkle Collared Manucode (*Manucodia chalybatus*); Trumpet Manucode (*Phonygammus keraudrenii*); Growling Rifle Bird (*Ptiloris intercedens*); and Magnificent (*Diphyllodes magnificus*). PNG has a total of 813 species of birds, of which 548 are residents (are native birds and only live in PNG).



Raggiana Bird of Paradise
© Angus Fraser/Photographer



Crinkle Collared Manucode
© Angus Fraser/Photographer

New IC at VNP

28 May, 2018

The new look of the new Information Center at VNP. The final refurbishment of the building is still continuing with the installation of open wood decking.



Conservation and Environment
Protection Authority (CEPA)
Japan International Cooperation
Agency (JICA)

Address: P.O.Box 6601, Boroko,
National Capital District, Papua New
Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

Facebook page:

<https://www.facebook.com/pngbiodiv/>

JICA Project Homepage:

<http://www.jica.go.jp/png/english/activities/activity18.html>

This newsletter is aimed at introducing progress on the CEPA-JICA Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas.

Introduction

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA). The target areas are the Varirata National Park (VNP) for the development of terrestrial protected area (PA) model while Bootless Bay and Motupore Island areas for the marine / coastal PA establishment model.

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Outputs

1. National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council) is strengthened.
2. The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.
3. A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.
4. Public relations/awareness for biodiversity conservation is improved by disseminating project related information.

Biodiversity & Conservation Seminar held

16 – 19 October, 2018

Biodiversity & Conservation Seminar

The seminar's theme was "Biodiversity Conservation and Development Challenges. What biodiversity research can offer in the 21st Century?" was held. It was co-hosted by CEPA and Mamagraun Conservation Trust Fund with funding support from JICA and ExxonMobil (PNG LNG Project), respectively.

There were two events hosted during that period. The Biodiversity Seminar was held at Gateway Hotel from 16,17,19 October, 2018 in Port Moresby whilst the study tour of the new Information Center Complex (ICC) at VNP and National Museum of PNG was held on 18 October.

Over 120 participants from 53 institutions attended the event for the entire week. The launch of the biodiversity reports and field guide brochures of VNP was remarkable, and we have a lot of followers who are keen to support the initiatives through CEPA and the long-term management of the Park.

ExxonMobil was also a strong partner in biodiversity conservation and has been supporting our biodiversity and

environment portfolio for many years since their inception on the PNG LNG Project. They have also officially launched their biodiversity report, which is also available on EMPNG webpage:

www.pnglng.com/environment

The seminar ended with presentations from the local communities.



Study Tour of ICC

The ICC consists of the renovated building and the newly constructed Information Center (IC). The renovated building is the auditorium and will be used for meetings and other activities. The new IC is comprised of environmental education exhibition, office space for Park's staff and storage space. Together these buildings are connected with the wood decking.

The Project has completed the



construction of the ICC which gives a new look to VNP that will lure a lot more visitors to the park in the years to come.

The new IC will be used by the visitors to gain various information about VNP such as the facilities' locations and

(continued to next page...)

CEPA - JICA Biodiversity Project

functions, wildlife and biodiversity, local culture and history, and other environmental education information.

Varirata species brochures

Varirata species brochures were published and launched on 17 October 2018 at Gateway Hotel in Port Moresby. These field guide brochures provide vital information about various species and biodiversity of VNP covering the following taxa: birds, mammals, frogs, reptiles, insects and plants.



Cultural, tourism & community livelihood support

6 November, 2018

The Project team undertook a reconnaissance trip for the Cultural Expo Tour to Kwalimurubu village (Saroa), Rigo District of Central province. The purpose was in preparation for the Koiari communities' cultural exposure tour intended for February 2019 and to find out what tourist attraction services and activities Kwalimurubu village could offer. From this, the Koiari communities could gain knowledge and experiences. The team was met by Mrs. Loa Samuel of the local tour agent, PNG Wildest Adventure Limited (PNGWAL), and the Councillor Mr. Dill Noris of Kwalimurubu village.



Ranger training WS

29 - 30 November, 2018

CEPA and UNDP jointly hosted the ranger training workshop at Sogeri. The final session was held at the new auditorium within the Information Center Complex of VNP. At least 35 people participated from Queensland Rangers Association, Solomon Island Rangers Association, CEPA, UNDP, JICA, Kokoda Track Authority, and local Koiari community including NGO's in Australia and PNG.



Meeting with Central Province Government

13 December, 2018

Project team had a successful meeting with the Governor of Central Province Hon. Robert Agarobe at his office in Port Moresby. The Honourable Governor was practical on mobilising and empowering the local communities in his province on three key fundamental areas - agriculture, tourism and sports in order to revive the true spirit of the Central Province people. He also supports the environment and biodiversity conservation portfolio under the new master plan for the province.

I want to revive the lost identity of the Central people, said the Honourable Governor Robert Agarobe. This is one of his key priorities. JICA is also embarking on the revival of the cultures and traditions of the local people of Koiari and Hiiri-Motu in Central Province. The cultural identity will be incorporated into the draft management plans for VNP and the proposed Bootless Bay MPA.



Field visit to Mirigeda

14 December, 2018

A joint field visit to Mirigeda was undertaken by the CEPA-JICA and the Governor's Office of Central Province. Mirigeda is situated within Bootless Bay and the land of about 60 ha belongs to Central Provincial Government (CPG). The newly established Hiri LLG office and chamber was officially opened in late November 2018. JICA is discussing with CPG to establish a regional or provincial protected area in the coming months.



Drafting of the by-laws for the National and Regional PA Roundtables

December, 2018

JICA Project Team is currently discussing with CEPA the drafting of the by-laws for the National and Regional Protected Area Roundtables which are stipulated in the PNG Policy on Protected Areas (2014). The agreement options of conservation deed or easement for Tahira MPA or Private Protected Area under the Regional Protected Area category was also investigated.

**Conservation and Environment
Protection Authority (CEPA)
Japan International Cooperation
Agency (JICA)**

Address: P.O.Box 6601, Boroko,
National Capital District, Papua New
Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

Facebook page:

<https://www.facebook.com/pngbiodiv2/>

JICA Project Homepage:

<http://www.jica.go.jp/png/english/activities/activity18.html>

This newsletter is aimed at introducing progress on the CEPA-JICA Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas.

Introduction

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA). The target areas are the Varirata National Park (VNP) for the development of terrestrial protected area (PA) model while Bootless Bay and Motupore Island areas for the marine / coastal PA establishment model.

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Outputs

1. National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council) is strengthened.
2. The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.
3. A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.
4. Public relations/awareness for biodiversity conservation is improved by disseminating project related information.

Establishing financial management system

12 March, 2019

JICA is working together with CEPA to establish a workable financial management system for the revenue generation and management of the monies for VNP. A proper book keeping and tracking of funds should be guided by well-resourced personnel within CEPA. JICA is also mindful of the new legislation on the Public Money Management Regularization Act 2017 and its implications on the small revenue generated from the entrance fees of VNP.

Kae Association registered by PNGIPA

12 March, 2019

Kae Association is a newly established community group from Koiari which was registered by the PNG Investment Promotion Authority (PNGIPA) through the assistance from the Project. This association is composed of 4 traditional land-owning clans of the VNP in the Sogeri Plateau of Central Province. The major function of this group is to take lead role in implementing activities of the VNP.

Basic book keeping training

14 March, 2019

The initial basic book keeping training was successfully conducted at VNP for the local park rangers and the newly established Kae Association of Koiari. The training was aimed at building the capacity of the locals in order for them to understand and know how to keep simple records of their daily businesses in sustaining their livelihoods. A total

of 8 locals were trained of which 4 are Kae office bearers and 4 VNP rangers. The participants were thankful of the Project for conducting the training which could help them to manage their small businesses and activities more effectively.



VNP new entrance fees

19 March, 2019

VNP has new entrance fee system which was effected on 1st April 2019. The gazettal notice of the new fees was issued by the Government Printing Office to CEPA. JICA is also closely working with CEPA to establish workable systems so that the revenue generated from the park can sustain the park in the long-term.

and HR of CEPA on the recruitment and enumeration of new park rangers for VNP. The options of hiring park rangers and sustaining them for the long term in terms of their costs have been investigated.

Thus, 3 community park rangers of VNP have been recruited and supported by JICA through the Project in collaboration with CEPA.



Varirata community park rangers hired

22 March, 2019

The Project team met with the Finance

CEPA - JICA Biodiversity Project

ICC was officially opened at VNP

28 March, 2019

The new Information Center Complex (ICC) was officially opened at VNP on 28 March, 2019. The Chief Representative of JICA PNG Office, Mr Takashi Toyama, handed over the keys of the new building to the Managing Director of CEPA, Mr Gunther Joku.



CEPA and the project team would thank everyone who have participated at the inauguration opening of the new ICC. We believed you have learned something and appreciate our conservation efforts in strengthening the management effectiveness of the VNP.

We would also take this opportunity to thank our important guests and dignitaries from the JICA PNG Office, CEPA, Port Moresby Nature Park, Rhodes PNG (contractor of new ICC), PNG Tourism Promotion Authority, Pacific Adventist University, Central Provincial Government, Koiari LLG, partners, local community members and Kae Association.

Cooperation with CPG for MPA

~ 10 April, 2019

Central Provincial Government (CPG) is a very important stakeholder in the establishment of the proposed Marine Protected Area (MPA) in the Bootless Bay area of Central Province. CPG is keen to participate in any related conservation efforts in the province. The discussions with the Provincial Governor since December 2018 and the Deputy Provincial Administrator, Mr Edward Kila cemented the relationship and the commitment to work together to implement relevant conservation initiatives at Mirigeda within Bootless Bay, East Hiri of Central province including the areas of interest within the province.

The Deputy Provincial Administrator (Corporate Services) of CPG met with the Project team to finalize the MOU between CEPA and CPG for the protection of mangroves and marine systems at Mirigeda of Bootless Bay. This is a 10 year partnership and the final draft was presented to the provincial executive council (PEC) and was endorsed on 10 April 2019. Central Province will soon be the leader of conservation in PNG.



Network with Boera Women's group

11 April, 2019

The Boera Women's Group has empowered local people to run small businesses in the village. The Project realized the importance of such local initiatives and is engaging with them to increase awareness and expose other communities in Koiari to learn from them. A field reconnaissance trip was conducted to establish dialogue and network with the Boera Women's Group on 25 February 2019.

The exposure tour undertaken on 11 April, 2019 by Kae Association with their cousins at Boera village was a significant event for the local people of Koiari and the Motuans. This exercise was facilitated by the Project in order to strengthen partnership with the local people of Central province to promote ecotourism in their communities. The homestay concept has been a brain child for the current Governor of Central and such initiatives can be promoted by empowering our local people to do it themselves.



Rangers training on camera traps

21 May, 2019

The rangers were being trained to handle camera traps by the Project. They are being taught to install and retrieve data (still photos and videos) from these cameras on monthly basis.

Social mapping and socio-economic studies –Bootless Bay

19 June, 2019

Social mapping and socio-economic studies were being undertaken in Bootless Bay in preparation for the declaration of the MPA by CEPA. The basic essence of these studies was to understand well the ownership of land, seas and land including mangroves and other marine life.

The data and information generated from these studies will assist CEPA, local communities and other stakeholders to be well informed and the key management recommendations shall pave the way forward for better and improved implementation strategies for the safeguard and protection of the proposed Bootless Bay MPA.

PAU student interns

June, 2019

Pacific Adventist University (PAU) student interns were engaged with the Project for their practicum. They were with the Project for 6 weeks from 24 June to 31 July 2019.

**Conservation and Environment
Protection Authority (CEPA)
Japan International Cooperation
Agency (JICA)**

Address: P.O.Box 6601, Boroko,
National Capital District, Papua New
Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

Facebook page:

<https://www.facebook.com/pngbiodiv2/>

JICA Project Homepage:

<http://www.jica.go.jp/png/english/activities/activity18.html>

This newsletter is aimed at introducing progress on the CEPA-JICA Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas.

Introduction

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA). The target areas are the Varirata National Park (VNP) for the development of terrestrial protected area (PA) model while Bootless Bay and Motupore Island areas for the marine / coastal PA establishment model.

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Outputs

1. National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council) is strengthened.
2. The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.
3. A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.
4. Public relations/awareness for biodiversity conservation is improved by disseminating project related information.

MOU signed between CEN Provincial Gov. and CEPA

9 August, 2019

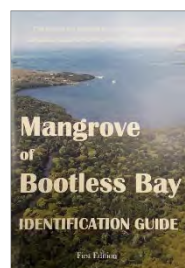
The Central Provincial Government and CEPA signed the memorandum of understanding (MoU) at Mirigeda about 40 minutes drive out of Port Moresby. The Central Governor Hon. Robert Agarobe and Minister for Environment & Conservation and Climate Change Hon. Geoffrey Kama signed the MOU. The signing ceremony was witnessed by the local MP for Kairiku-Hiri, Acting Provincial Administrator for Central Province, JICA PNG Senior Rep, Managing Director for CEPA, Chief Advisor Koji Asano of CEPA-JICA Project, CEPA staff, local communities, partners and development partners. This is the agreement to strengthen partnership between the two agencies for the protection of the mangroves and marine resources at Mirigeda and Bootless Bay in Hiri East LLG, Central Province.



Mangrove Guidebook

September, 2019

CEPA confirmed 24 species of mangroves present within Bootless Bay through the ecological study commissioned by the Project. University of PNG (UPNG) is regarded as the primary source of this vital information which includes the botany, ecology, phenology and the mangrove diversity of the bay area. A simple mangrove handbook titled "Mangrove of Bootless Bay - Identification Guide" was also published through the Project activity.



Field trip to the Lake Kutubu Ramsar Site

18-21 September, 2019

JICA arranged the Ramsar trip to the Lake Kutubu. The Ramsar Advisory Mission was organized based upon the request from the Government of PNG (via CEPA) and supported by the Government of Japan to deliver training to the Government's Oil and Gas Unit within the CEPA and to provide technical assistance on the review of the operation of ExxonMobil and Oil Search around Lake Kutubu.



Lake Kutubu lies within the Kikori River Catchment and is roughly located in the centre of Southern Highlands Province, PNG. Lake Kutubu was formed originally from the blockage of the valley by volcanically derived debris and ash. The lake is about 19 km long, 4.5 km wide at its widest point, with a maximum depth of about 70 m. Lake Kutubu Wildlife Management Area (LKWMA) was declared on 25 June 1992 by CEPA for the protection of the lake and its endemic fish species including its people and culture. After 4 years, on 25 September 1996 it was designated as the Ramsar Site for its significant wetlands area in PNG. It is the second Ramsar Site after Tonda in South Fly District of Western Province.



(continued to next page...)

CEPA - JICA Biodiversity Project



The natural riches of Lake Kutubu is valueless. The 12 endemic fish species which are native to the area including the people, traditions and cultural heritage which have made Lake Kutubu very unique and a special place in PNG. The annual 9th Kutubu Kundu and Digaso Festival again promotes this natural values from 19-21 September 2019. This festival lures a lot of international and local people.

The inaugural PMC for VNP established

16 October, 2019

The inaugural Park Management Committee (PMC) for VNP was established and the new office bearers were voted in during the second committee meeting at CEPA. The PMC comprises of PNGTPA, Koiairi LLG, Central Provincial Government, Port Moresby Nature Park, UPNG, Sogeri Police, PNG Power Ltd, Kae Association representing the local community and CEPA as the secretariat. This also signifies a very significant event of the park when the park was first opened to public on 18 October, 1973.

Community awareness on

Bootless Bay MPA

9-16 October, 2019

CEPA has undertaken the education and community awareness on environmental and biodiversity values of Bootless Bay in consideration of the cultural heritage of the coastal people of Central Province. The key issues and concerns emerged from the community consultations based around unsustainable fishing through small mesh sized nets, surveillance and enforcement, eco-tourism opportunities for local community, waste management and boundaries of the proposed National Marine Sanctuary in Bootless Bay. The key partners such as Central Provincial Fisheries, National Fisheries Authority,

NCDC, PNGTPA, CEPA, JICA, HIRI and Social Environmental Research and Consultancy Services Ltd (SERACS) jointly carried out the community consultations. This awareness was run covering Tubuseia, Gwarume Mase, Gereka, Dogura, Tuna Bay, Taurama, Pari and Joyce Bay.



VNP Tour Package

9 November, 2019

A first hand experiences of a lesser known side of VNP was planned. More than 54 Friends of Varirata who were looking forward to exploring one of the desirable tours in their lifetime joined the first trial tour package developed by the Project to give the opportunity to our Port Moresby residents to get away from the city's hustle-and-bustle. Logistics and support were provided by the UNDP GEF 5 and the Project teams.

Trekking

The team divided into two group and both started out from the main look out. One group tracked the Circuit track (45 mins walk to parks' main road near the entrance) and other went for the Self Guide track (30 mins walk to main picnic area). For most of them, this was a lifetime experience to track the parks pristine forest near Port Moresby.

Koiairi's Tree House ("Dobu" at VNP)

The Koiairi's lived in trees is just a 10 mins from the main picnic area. The both teams had the opportunity to visit the 'dobu' that was built about a 25m high in the tree branches. The 'dobu' is an inspiration to the people of Koiairi which we can see that it links the people to their nature or environment and their way of life (culture) is their true pride.

New Information Center (IC) Complex

The new IC Complex was officially opened on 29 March 2019 to the public visitors who had planned their way to the park to experience and know about the rich biodiversity of the park and the culture, history and



migration of the Koiari people. One or two rangers are available to assist any visitors who wish to visit the IC.

The group visited were stunned to see it was situated in the middle of the park surrounded by forests with the valuable information all over the walls of this amazing facility.

Local Koiari buffet's

The VNP through the Kae Association Inc, also helped to bring the local communities together. The Governor, Agarobe has declared Sogeri as a Tourism Hub for Central Province, and it our best interest to support the local communities to promote tourism at Vairata using the conservation values and tourism assets within the park.

It has been said that, 'Goilala and Koiari are the food bowls of Central Province, the local vegetables and food supply is overwhelming and it varies from shillots, carrots, ginger, kaukau, tapioka, ripe bananas, pitpit, pineapple, taro, watermelon, cucumbers, aibika, pumpkins, peanuts, choko's and many more. Food is served on banana leaves, sometimes coconut woven basket plates/bowls creamed with coconut. Mumu food is preferred most times. The Koiari buffet is only served during organized special visits/trip to the park.



**Conservation and Environment
Protection Authority (CEPA)
Japan International Cooperation
Agency (JICA)**

Address: P.O.Box 6601, Boroko,
National Capital District, Papua New
Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

Facebook page:

<https://www.facebook.com/pngbiodiv2/>

JICA Project Homepage:

<http://www.jica.go.jp/png/english/activities/activity18.html>

添付資料 4.2.6 Project factsheet vol. 1 – 2

Factsheet



PNG is one of the richest biodiversity countries in the world, while among the total population of 7.3 million in PNG, over 80% of them are in rural areas and still directly dependent on the natural environment with the rich biodiversity for their subsistence and livelihoods.

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA).

Name of The Project

The Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

Cooperating Agency

Japan International Cooperation Agency (JICA)

Project Period

June 2015 – June 2020

Targets

Provincial administration(s), district administration(s) and LLG government(s) surrounding the target Protected Areas

Target Protected Areas

Terrestrial – Varirata National Park

Marine/Coastal – Bootless Bay and Motupore Island Areas

Project Framework

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Overall Goal

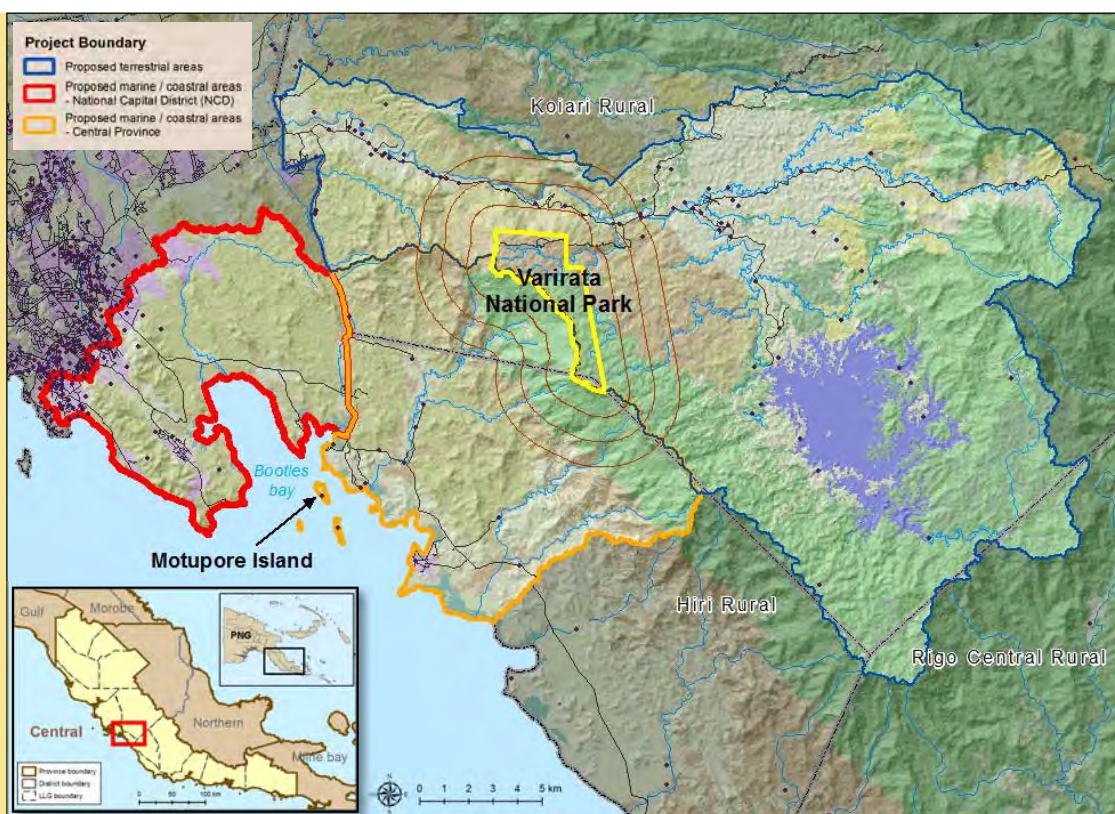
Protected Area Network is effectively managed by applying PA management (and establishment) model(s), which were developed by the Project.

Outputs

1. National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council (NCC)) is strengthened.
2. The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.
3. A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.
4. Public relations/awareness for biodiversity conservation is improved by disseminating project related information.

Target Areas

Proposed project target area covers approximately 612 km², which can be divided into two major types; terrestrial areas (396 km²) and marine/coastal areas (216 km²), as indicated below. The target PA for the Output 2 is the Varirata NP to develop a terrestrial PA management model, and Koiari Rural LLG is the target LLG for livelihood related activities. Besides, the Output 3 targets Bootless Bay and its coast for the establishment of a new marine/coastal PA model.



On 29th July 2015, Kick-off Seminar / Workshop (WS) for CEPA- JICA Biodiversity Project was held with

94 invitees.

A Livelihood development for Koiari LLG whereby

4 WSs were conducted and participants from the Koiari area attended as part of VNP revival program.

Inception WS for Koiari was

attended by **73** participants (22 Oct 2015).

Follow-up WS for Koiari was attended by

27 participants (24 Nov 2015).

WS on Livelihood Development & Bird Watching in Koiari was attended by

31 participants (25 Feb 2016).

WS on Livelihood development for VNP Landowner was attended by

25 participants (19 May 2016).

Revitalization of VNP

- The **assessment of the facilities at the Varirata National Park (VNP)** has been completed.
- A **detailed technical report** has been prepared in late December 2015.
- A **total of 284 facilities** were assessed at VNP.
- The **installation of distance piles** along the four tracks of the VNP has been completed with a total of **79 piles**.
- The **guide map** for tracks of VNP has been developed.
- **20 camera traps** were installed within the VNP for the monitoring and management of the Park.

Development of the Management Plan for the VNP

- The management plan will compose of the **conservation plan**, the **utilization plan**, and the **logistic support plan**.
- In order for the detailed management plan to be developed, the project is in the process of **undertaking the biodiversity and the socio-economic assessments of the VNP**

Establishment of a New Marine PA

- A **road map** for the establishment of a new marine PA at the Moutpore and Bootless Bay area in Central Province has been developed.

Tourism Aspect

- A **bird watching project** in partnership with PNGTPA, PAU and the Koiari LLG has been established in February, 2016, and **Memorandum of Understanding (MoU)** was signed by representatives of each party.
- **4 stakeholder workshops** has been undertaken for **enhancing community participation in eco-tourism development** in VNP and Laloki/Sirinumu Catchment areas.

Public Relations & GIS Database

- A **public relations strategy** for the CEPA-JICA Project has been developed in February, 2016.
- **10 news articles** appearances in newspaper, **52** postings on **facebook page** so far
- A variety of project PR tools, such as a **sign board, banners, posters, polo shirts, brochures (volume 2), and newsletters (volume 2)**, have been developed.
- **GIS database** has been developed, and also data and maps for each output have been prepared.
- A detailed **GIS map of the mangroves** of Bootless Bay, Dogura Inlet and Tuna Bay including Joyce Bay in the NCD and Central Province was developed in April, 2016.

On 16th August 2016, Inception WS for Bootless Bay Conservation Initiative was held

with **33** participants.

For more information

Conservation and Environment Protection Authority (CEPA)

Address: P.O.Box 6601, Boroko, National Capital District, Papua New Guinea

Phone: (+675) 301-4500 Fax: (+675) 325-0182

<http://www.jica.go.jp/png/english/activities/activity18.html>

<https://www.facebook.com/pngbiodiv/>

<http://pngcepa.com/projects/>

Factsheet



PNG is one of the richest biodiversity countries in the world, while among the total population of 7.3 million in PNG, over 80% of them are in rural areas and still directly dependent on the natural environment with the rich biodiversity for their subsistence and livelihoods.

To address biodiversity conservation, the government of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA).

Name of The Project

The Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

Cooperating Agency

Japan International Cooperation Agency (JICA)

Project Period

June 2015 – June 2020

Targets

Provincial administration(s), district administration(s) and LLG government(s) surrounding the target Protected Areas

Target Protected Areas

Terrestrial – Varirata National Park

Marine/Coastal – Bootless Bay and Motupore Island Areas

Project Framework

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened through enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Overall Goal

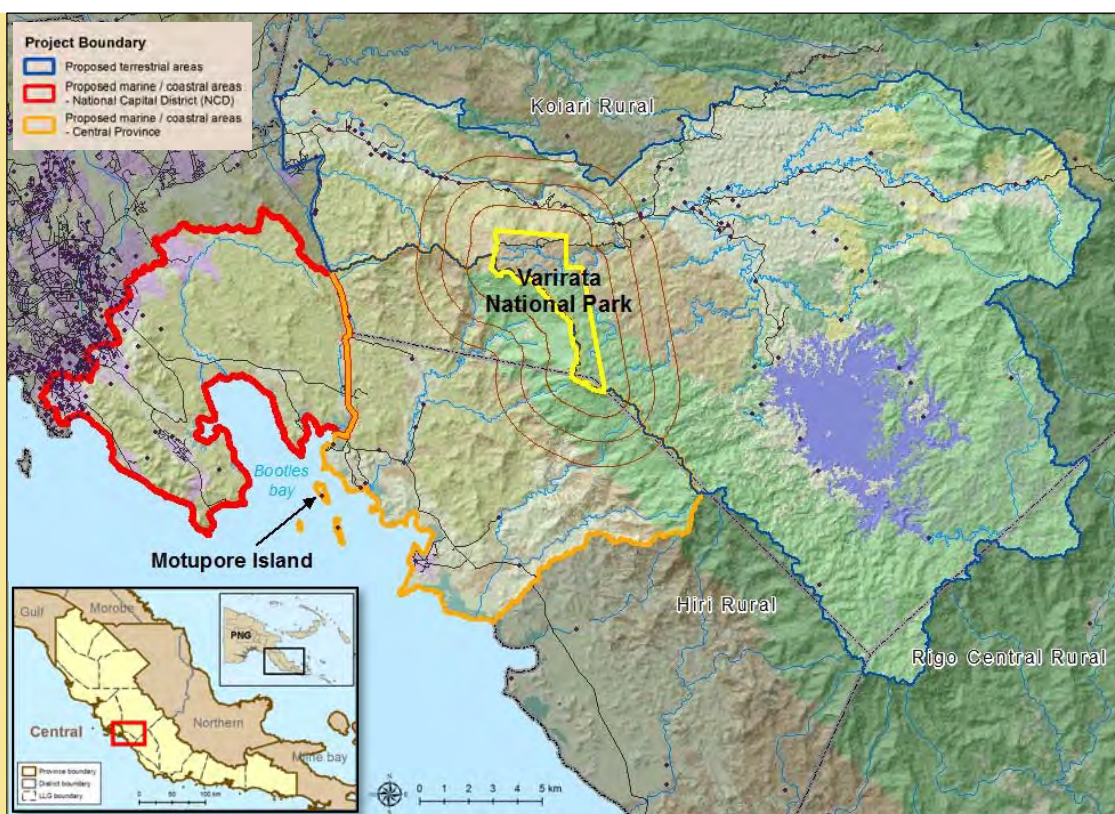
Protected Area Network is effectively managed by applying PA management (and establishment) model(s), which were developed by the Project.

Outputs

1. National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council (NCC)) is strengthened.
2. The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.
3. A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.
4. Public relations/awareness for biodiversity conservation is improved by disseminating project related information.

Target Areas

Proposed project target area covers approximately 612 km², which can be divided into two major types; terrestrial areas (396 km²) and marine/coastal areas (216 km²), as indicated below. The target PA for the Output 2 is the Varirata NP to develop a terrestrial PA management model, and Koiari Rural LLG is the target LLG for livelihood related activities. Besides, the Output 3 targets Bootless Bay and its coast for the establishment of a new marine/coastal PA model.



On 24th October 2016, **Launching ceremony of the Project boat** was

held with **35** participants.

On 31st January 2017, **The 2nd WS for BBMCI** was held with

55 participants.

On 2nd February 2017, **VNP Wrap-up Workshop (WS) on the Project Achievements 2015-2016** was held with

57 participants.

Inaugural Launch for the Renovated Facilities in VNP was attended by more

than **100** participants (20 Apr 2017).

BBMCI meetings

were held **3** times (12 Apr 2017, 19 Apr 2017, and 21 June 2017).

For more information

Conservation and Environment Protection Authority (CEPA)

Address: P.O.Box 6601, Boroko, National Capital District, Papua New Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

<http://www.jica.go.jp/pn/g/english/activities/activity18.html>

<https://www.facebook.com/pngbiodiv/>

<http://pngcepa.com/projects/>

Development of the Management Plan for the VNP

- **Revival Plan** has been prepared from the assessment conducted. **Financial management improvement plan** and **Plan for security improvement** in VNP were drafted.
- **Works to improve VNP management** was conducted as per the plan.
- **Camera trap** has continued since Sep 2015, and the first **wrap up report of mammal and bird** was prepared.
- **Trial community (four clans) patrol** was implemented.
- Preliminary draft **park committee by-law** was prepared.
- **Biodiversity survey** has been conducted, and **interim monitoring report** was submitted.
- **Social mapping & socio-economic studies** of VNP have been carried out and **final draft report** was submitted.

Development of Information Center (IC) Complex

- **IC Complex Master Plan** was prepared, and updated (ver.3 on June 2017).
- **3 Car parking areas (Total 100m²)** were renovated.
- **12 bar-type & 8 PVC car stop piles** (length 60m in total) were renewed or installed newly.
- **40m masonry drainage** was installed on the existing open drainage.
- One **wooden bridge (L=3m)** was renovated connecting IC complex and the main picnic area.
- **Old IC renovation** has **started** and will be **new auditorium**. So far additional concrete base was set, and broken walls and roof materials were renewed.
- **New Information Center Construction** was **started** by the Contractor with supervision by JICA Expert Team. So far basement and steel frames of the center were completed at the site.

Establishment of a New Marine PA (MPA)

- **Rapid Marine Biodiversity Survey** in Bootless Bay was carried out and a report was prepared.
- **A roadmap to establish MPA** was prepared.
- **Bootless Bay Marine Conservation Initiative (BBMCI)** was **established** with **19 stakeholders** (National organization, Provincial Governments, Local Level Government, Communities, NGOs, Private company).
- Under BBMCI, **Memorandum of Understanding (MoU)** was signed between UPNG and CEPA, **working groups for MPA establishment** was set up, and a **coastal clean-up event** was held.

Assistance of Development Planning of local governments

- **Key recommendations with revised Koiari Five Year Development Plan** was submitted to Koiari LLG.
- **Key recommendations with revised Central Provincial Development Plan** was submitted to Central Province.

Livelihood Development

- **Target clans and Needs and expectations** for livelihood development were identified from the **several meetings** with relevant players and **3 workshops with Koiari** people.
- Needs from **several tour operators** for tourism development for Koiari area was extracted.
- **12 potential tourism resources** were identified from the **tourism resource assessment** conducted at Koiari area.
- **Two draft packaged tour** were proposed to Koiari LLG and local people.
- **Draft livelihood development plan** was made based on discussions with relevant players.
- **Two social groups (Traditional Dance group and Traditional Cooking group)** were formed from the various meetings with target clan leaders of Koiari.
- **Several trainings** were conducted by social group members.
- Social groups gave their traditional performances at **two events**: World Environment Day (June 2017) and Inaugural event of VNP facility (April 2017).

Public Relations & GIS Database

- **1 news article** appearance in **newspaper**, **3** postings on **JICA Project page**, **101** postings on **facebook page**, **new facebook for BBMCI** opened and **setup of CEPA-JICA Project page** in home page of CEPA.
- A variety of project PR tools, such as **sign boards, banners, posters, T-shirts, stickers, brochures (volume 3 and Marine ver.)**, and **newsletters (volume 3 and 4)**, have been developed.
- Promoted the project in the **World Wildlife Day** event.
- Run a **booth** and made a **presentation** at the **World Oceans Conference** in UN HQ.
- **Major sponsorship of the World Environment Day** event at VNP.
- **GIS database** has been **updated**, and data and maps for each output have been prepared.
- A detailed **GIS map of the Land cover/use** of proposed terrestrial areas was **developed** in October, 2016.
- A **GIS map of the Reef** of targeted marine protected areas was **developed** in June, 2017.

添付資料 4.2.7 Project Atlas (1st edition)

ATLAS



2017



Technical Cooperation
CEPA-JICA
Biodiversity Project 2015▶2020

ATLAS 2017

Technical Cooperation
CEPA-JICA
Biodiversity Project 2015▶2020






Contents

Presentation of the Atlas

Presentation of the CEPA-JICA Biodiversity Project

Protected Areas in PNG

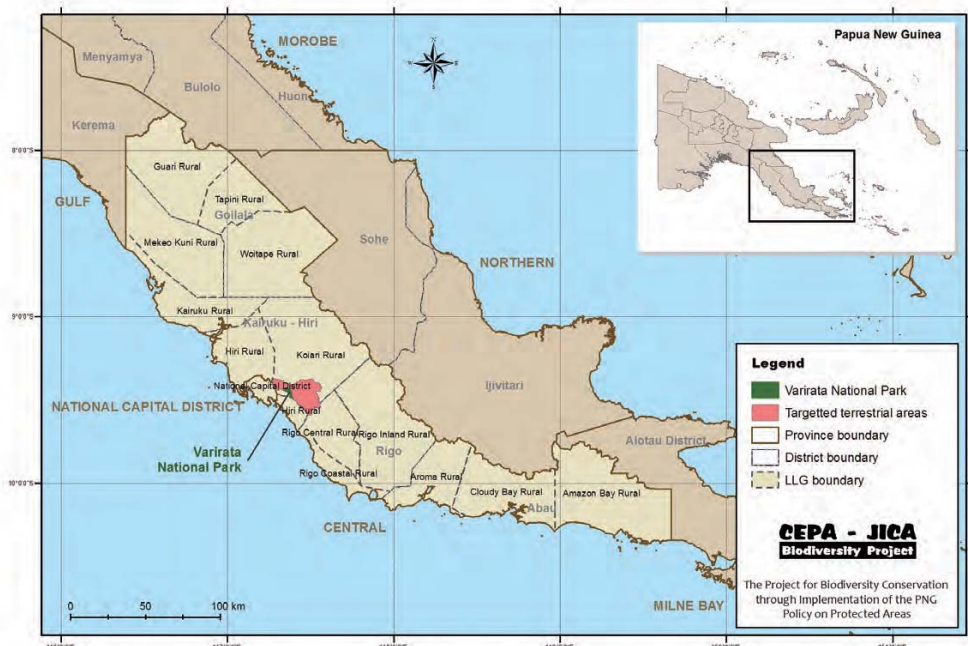
Provisional Project Boundary Map

<p>Chapter 1</p> 	<p>Chapter 2</p> 	<p>Chapter 3</p> 
<p>Targeted Terrestrial Areas</p>	<p>Varirata National Park</p>	<p>Targeted Marine / Coastal Areas</p>
<p>Location of targeted terrestrial areas Natural characteristics of targeted terrestrial areas <i>Terrestrial Areas Map (World View-2)</i></p> <p>Physical Environment <i>Altitude</i> <i>Slope</i> <i>Catchment</i> <i>Land Use Map</i></p> <p>Socioeconomic <i>Distribution of Words</i> <i>Population per Census Units</i></p>	<p>Access to Varirata National Park (VNP) Natural characteristics and facilities of VNP <i>Varirata National Park Map (WorldView-2)</i> <i>WorldView-2 Imagery of Varirata National Park</i> <i>Land Use Map of Varirata National Park</i></p> <p>Varirata National Park Guide: Tracks and Facilities in VNP <i>Guide Map</i> <i>Facility Map (as of April 2016)</i></p>	<p>Outline and objectives of Output 3 Major activities of Output 3 <i>Marine / Coastal Areas Map (WorldView-2)</i> <i>Marine / Coastal Areas (Boottles Bay) Map (World-View2)</i> <i>Mangrove Map</i> <i>Reef and Water Depth Map</i> <i>Marine Resources and Facilities</i></p> <p>Boottles Bay Marine Conservation Initiative (BBMCI) Access to 4 targeted Marine Protected Areas (MPAs) <i>Targeted Marine Protected Areas</i></p>

Presentation of the Atlas

CEPA-JICA Biodiversity Project team has created numerous maps in order to implement the project activities accordingly. For the purpose of applying and establishing Protected Area management model(s), various maps were developed. These maps show the results of the different field surveys undertaken by the project, which were then utilized for consultations with key partners and relevant stakeholders.

This atlas introduces some of the maps created over the project period from June 2015 to September 2017.



Presentation of CEPA-JICA Biodiversity Project

PNG is one of the richest biodiversity countries in the world. It has a total population of 7.3 million in PNG, over 80% of which are in rural areas and are still directly dependent on the natural environment for their subsistence and livelihood.

To address biodiversity conservation, the governments of Papua New Guinea and Japan jointly launched a technical cooperation called the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas.

The project commenced in June 2015 and will run for a five (5) year period. The implementing agencies are Conservation and Environment Protection Authority (CEPA) and Japan International Cooperation Agency (JICA).

Project Framework

Project Purpose

Institutional capacity of CEPA for protected area (PA) management is strengthened by enhancing national-level PA governance and sustainable use of natural resources with local communities in the model PA(s) as per the provision of the Policy on Protected Areas (PPA).

Overall Goal

Protected Area Network is effectively managed by applying and establishing PA management model(s), which were developed by the Project.

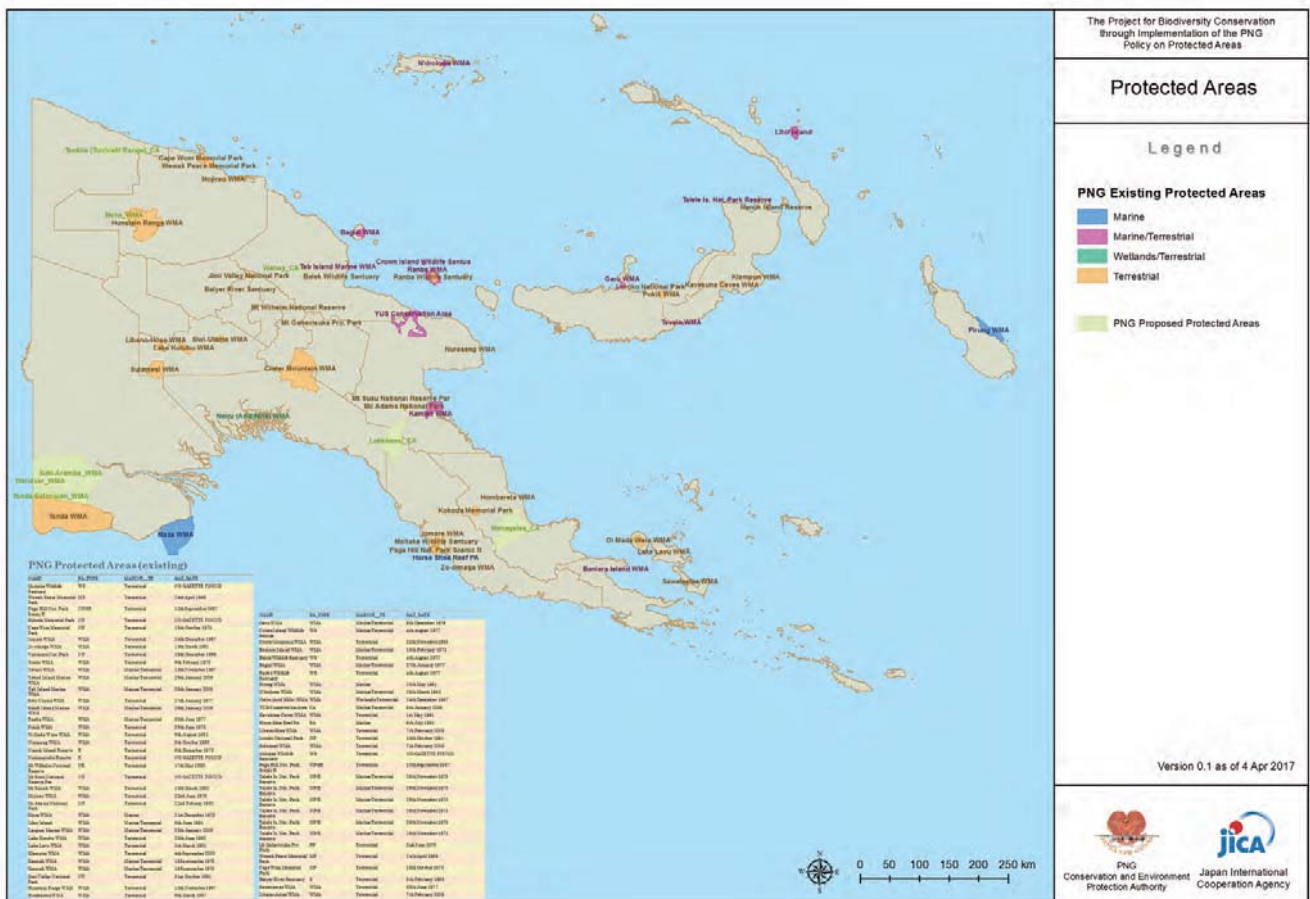
Outputs

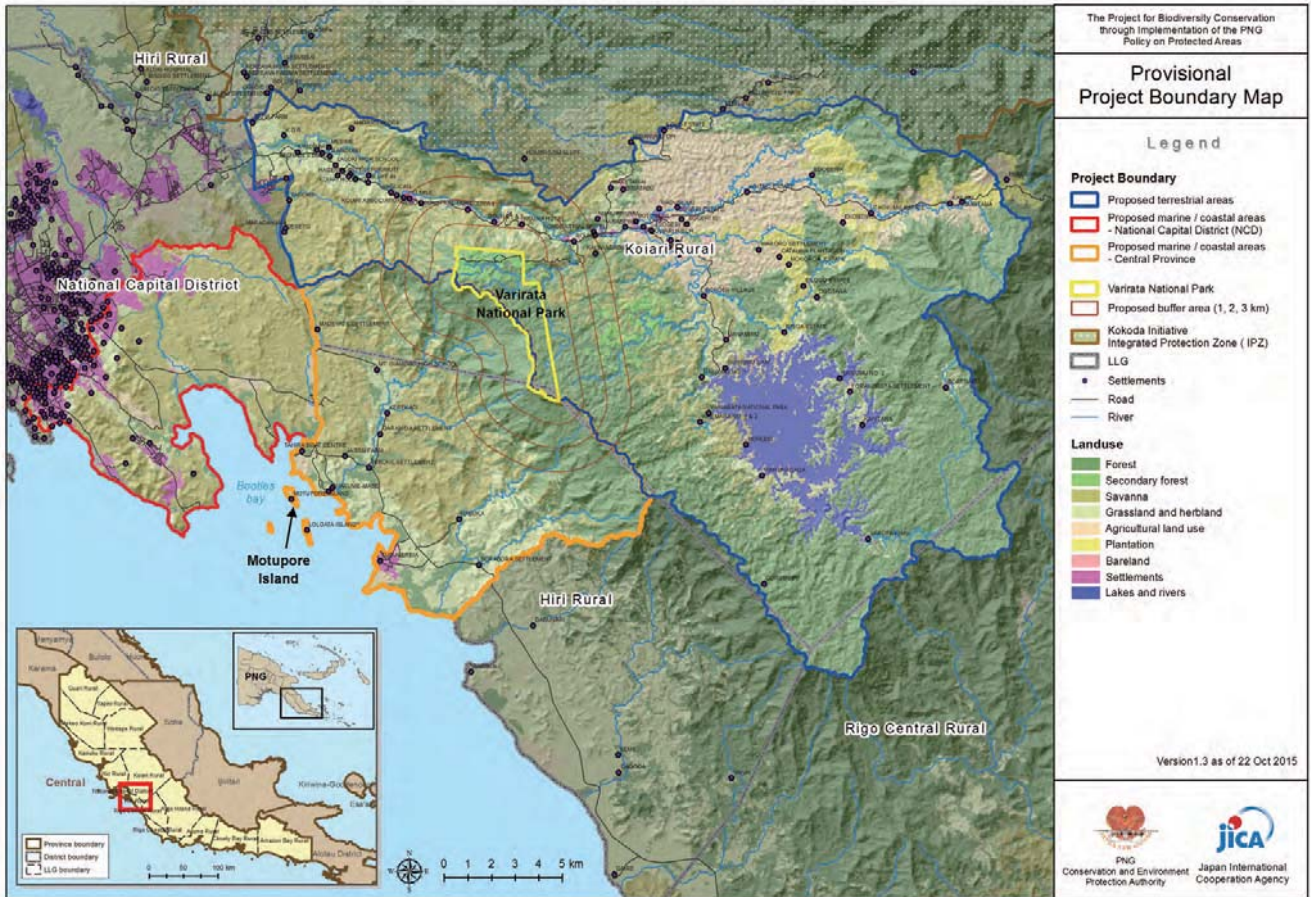
1. National-level governance and management arrangement for Protected Area Network (i.e., PPA Action Plan, National Conservation Council (NCC)) is strengthened.
2. The Varirata National Park (VNP) is enhanced as a terrestrial PA management model in accordance with PPA.
3. A model of establishing a new marine PA is developed as per the provision of PPA and concerned laws.
4. Public relations/awareness for biodiversity conservation is improved by disseminating project related information.

The project design can be interpreted to have three distinctive tasks; 1) enhancement of administrative function of national government for PA network (Output 1), 2) enhancement of PA management and establishment functions of both national and local governments (Output 2 & 3) and 3) enhancement of information dissemination and public relation function of national government (Output 4). While Output 2 & 3 are core components to the project purpose, Output 1 & 4 are supporting components of the Output 2 & 3.

Target Areas

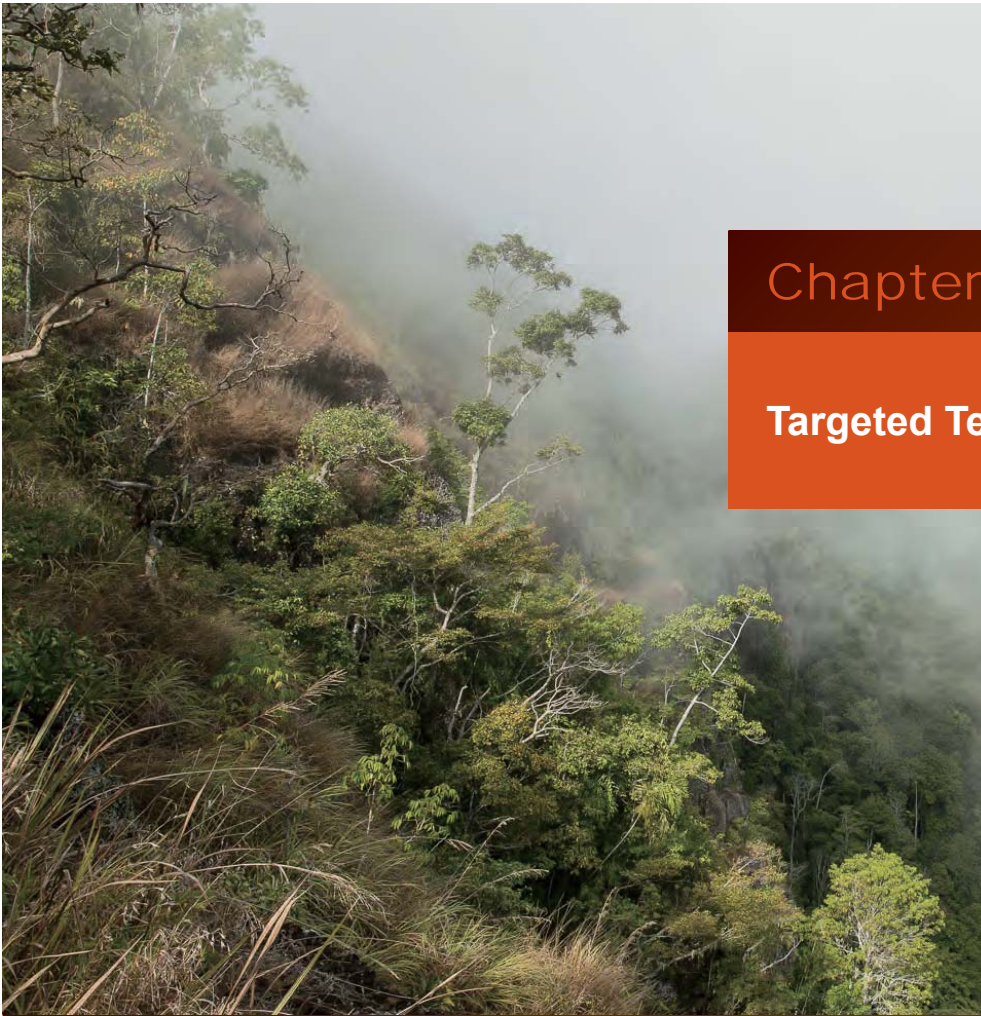
Proposed project target area covers approximately 612 km², which can be divided into two major types; terrestrial areas (396 km²) and marine/coastal areas (216 km²), as indicated below. The target PA for the Output 2 is the VNP to develop a terrestrial PA management model, and Koiari Rural LLG is the target LLG for livelihood related activities. Besides, the Output 3 targets Bootless Bay and its coast for the establishment of a new marine/coastal PA model.





Chapter 1

Targeted Terrestrial Areas



ATLAS 2017 9

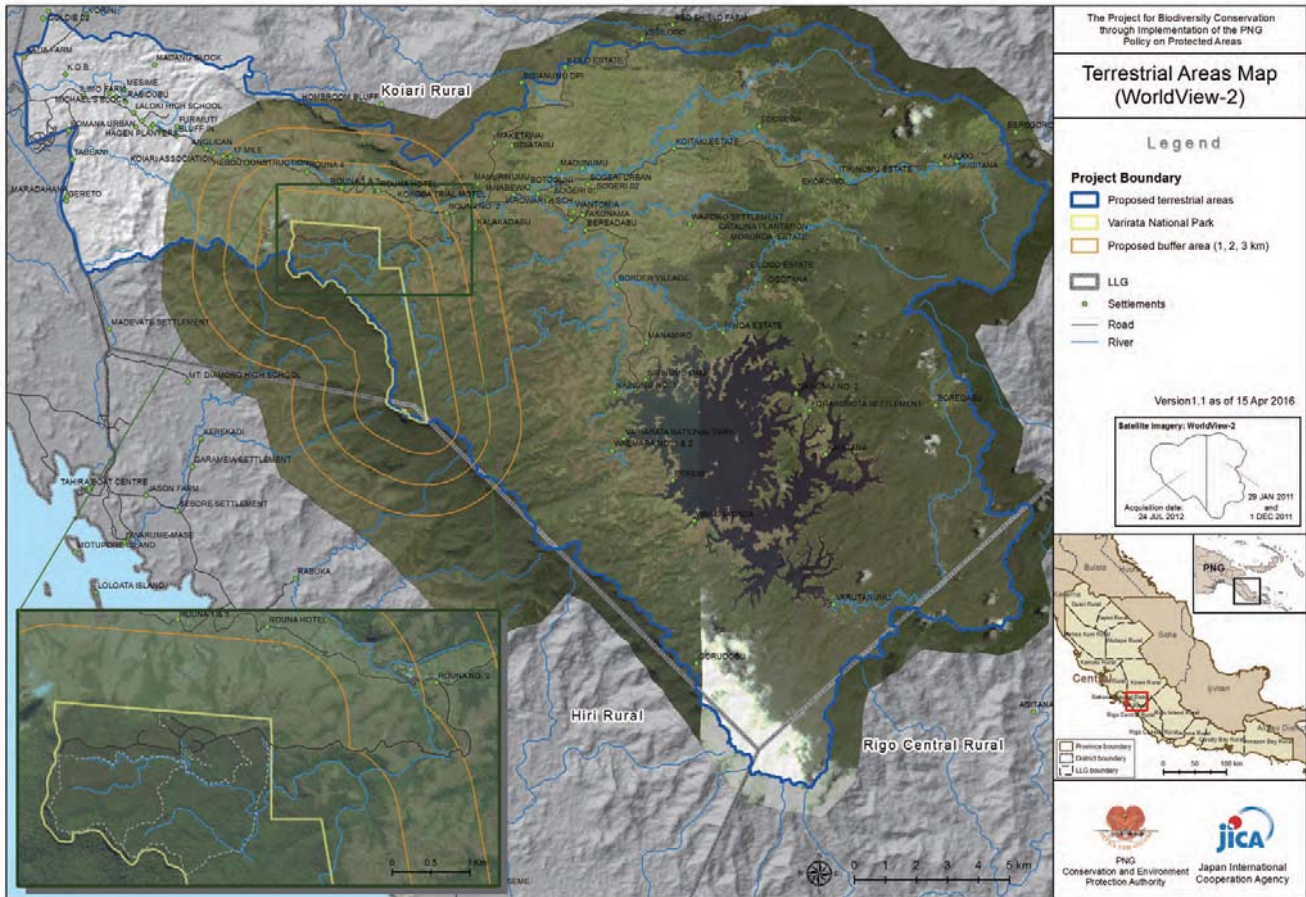
Targeted terrestrial areas

Location of targeted terrestrial areas

The boundaries of the Park are not very clear to this stage. However, it was assumed that the State portion of the land where the Park lies on was given away by the Koiari landowners for the protection of the biodiversity many years ago. The extension of the Park was also not clear and this sits on the customary land, no data or information is available to date. Thus proper boundary survey to determine the land boundaries should be conducted to verify the land boundary and boundary descriptions of the Park. The genuine customary landowners and clans should be also identified in order for proper consultation by the JICA-CEPA Biodiversity Project to take place. Other key stakeholders within and outside the vicinity of the Park should also be consulted.

Natural characteristics of targeted terrestrial areas

The Park has an average annual rainfall of 1400-2000 mm from December to April. The landform of the Park consists of closely spaced narrow accordant ridges and spurs with a relief of 15-30 meters. Rocks found in the Park consist of balastic lava, agglomerate, tuff and dyke origins. The Park consist of the following vegetation types; rainforest, savannah, grassland, gallery forest and secondary regrowth. The natural zone along the Nairogo creek towards Gare's Lookout is all tropical rainforest. From the toll gate to Lifiliwasowaso Lookout and Varirata Lookout is savannah grassland. Patches of secondary regrowth along the Self Guide Track in the Park is rich in bird life. This includes the Raggiana Bird of Paradise (BoP), the Rifle BoP and different species of doves, lorries, pigeons, kites, cockatoos, kingfishers, megapods, fantails and swallows. Bird of Paradise can be observed from the marked display tree between the months of mid-March to end of August, which is the mating season. The animal life in the Park composed of migrant deer, forest wallabies, possums, cuscus, bandicoots, rodents, wild boas, frogs, odanates, butterflies, other insects and different species of reptiles including pythons and monitor lizards.



Physical environment

Altitude

The Park has an area of 1,063 hectares (ha) and is located on the State land at an elevation between 600 – 1000m. Generally, the area on the north-east of the Park is at 700-800m and the south west towards the steep depression is at the elevation between 900-1000m. The highest peak is about 1000m towards the Gare's Lookout and the main lookout is at 833m above sea level.

Slope

The geography of the Park is variable with gently flat and steep areas. The steep slope of 30 degrees is towards the depression at the south west of the park. Generally, the Park is gently sloping between 2-5 degrees.

Catchment

The Park is situated on the Sogeri Plateau which is engulfed within the Laloki-Sirinumu catchment. There are several streams that drain out of Varirata including the Nairogo creek into the Laloki River.

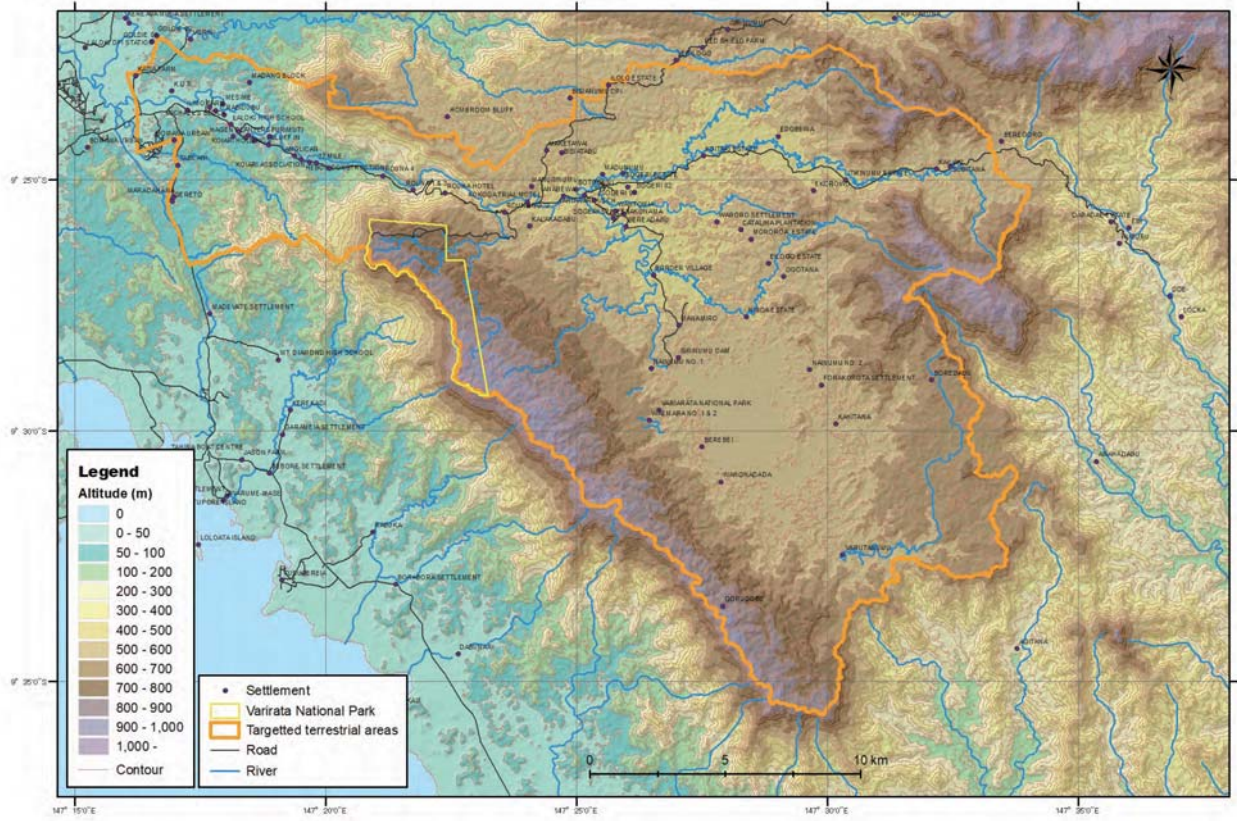
The Laloki and Sirinumu catchments are the significant water reservoirs and support the depend in Port Moresby city by providing the essential services such as the much needed water supply and electricity. The protection and sustainable management of the reservoir is essential for the catchment management.

Land use

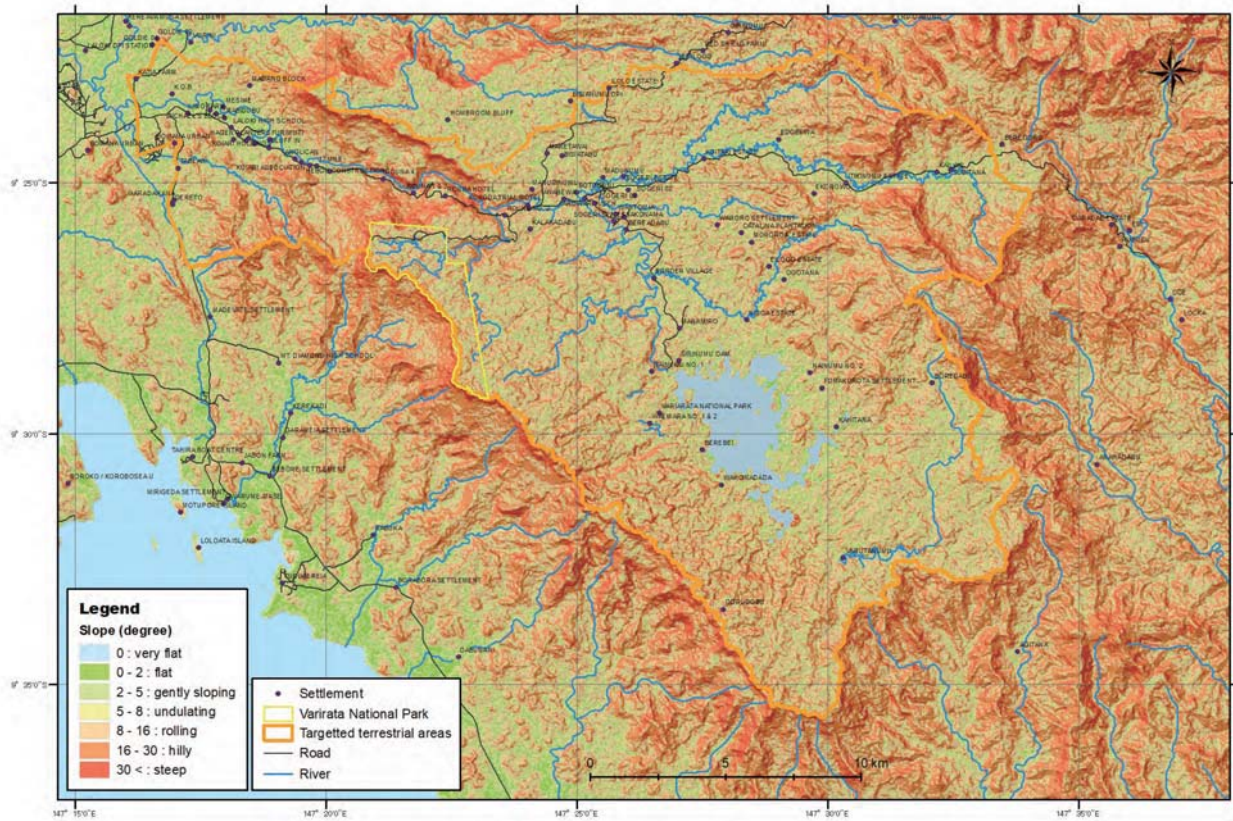
The terrestrial areas of the Laloki-Sirinumu catchment (396km²) possess various kinds of physical constraints and land uses. The most flat areas in the catchment were converted to farmlands (cattle, rubber plantations), human settlements and infrastructure development including modern facilities for schools, health services, government stations, etc.

The Park is composed of several vegetation types such as the savannah woodlands, secondary forests and remnants of tropical rainforest. However, within the 3km buffer (95km²) of the Park there is occurrence of agricultural farmlands utilized by local Koiari communities, bushfires altering the landscape and evidence of human settlements along the corridor of road networks and access to basic services.

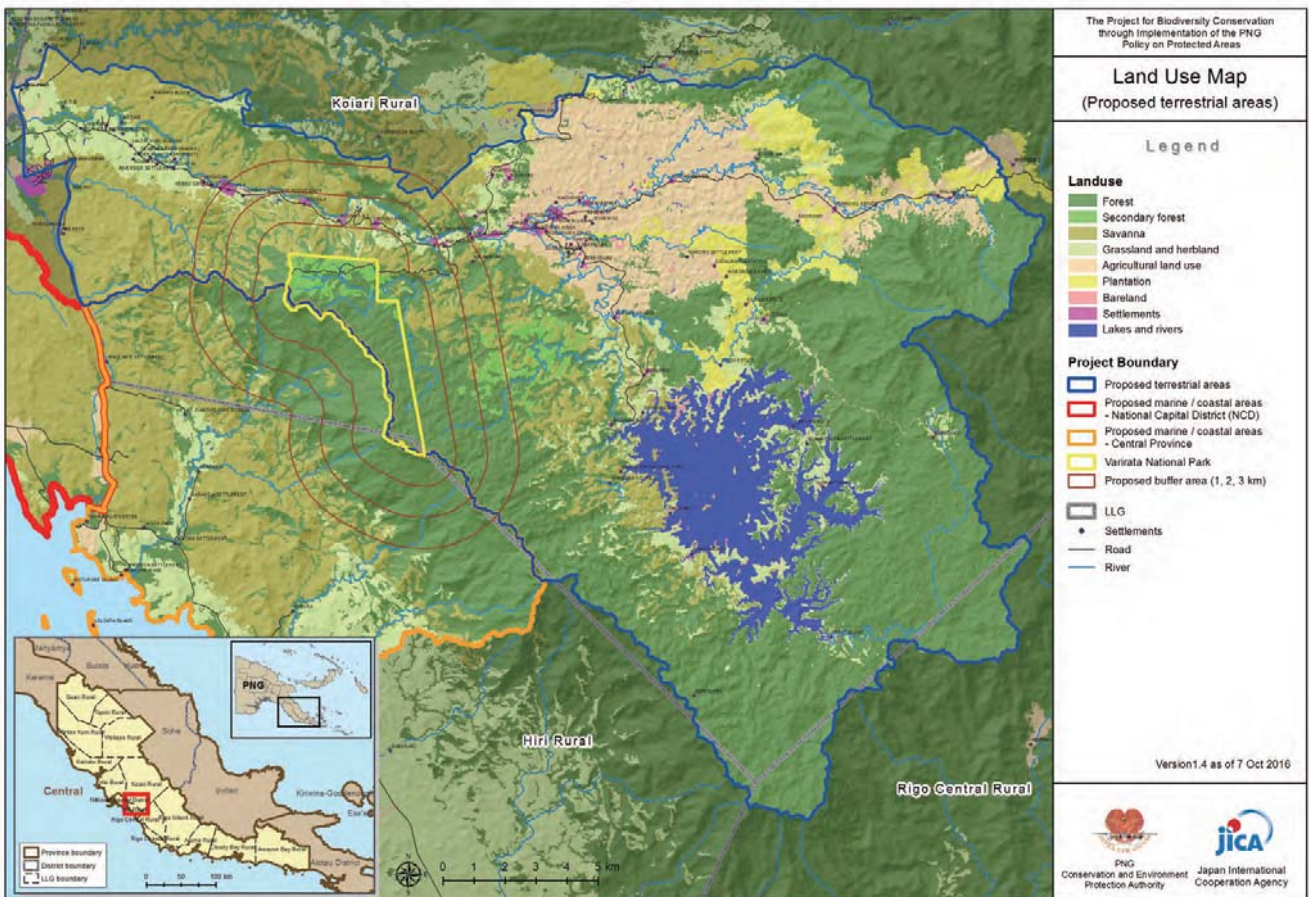
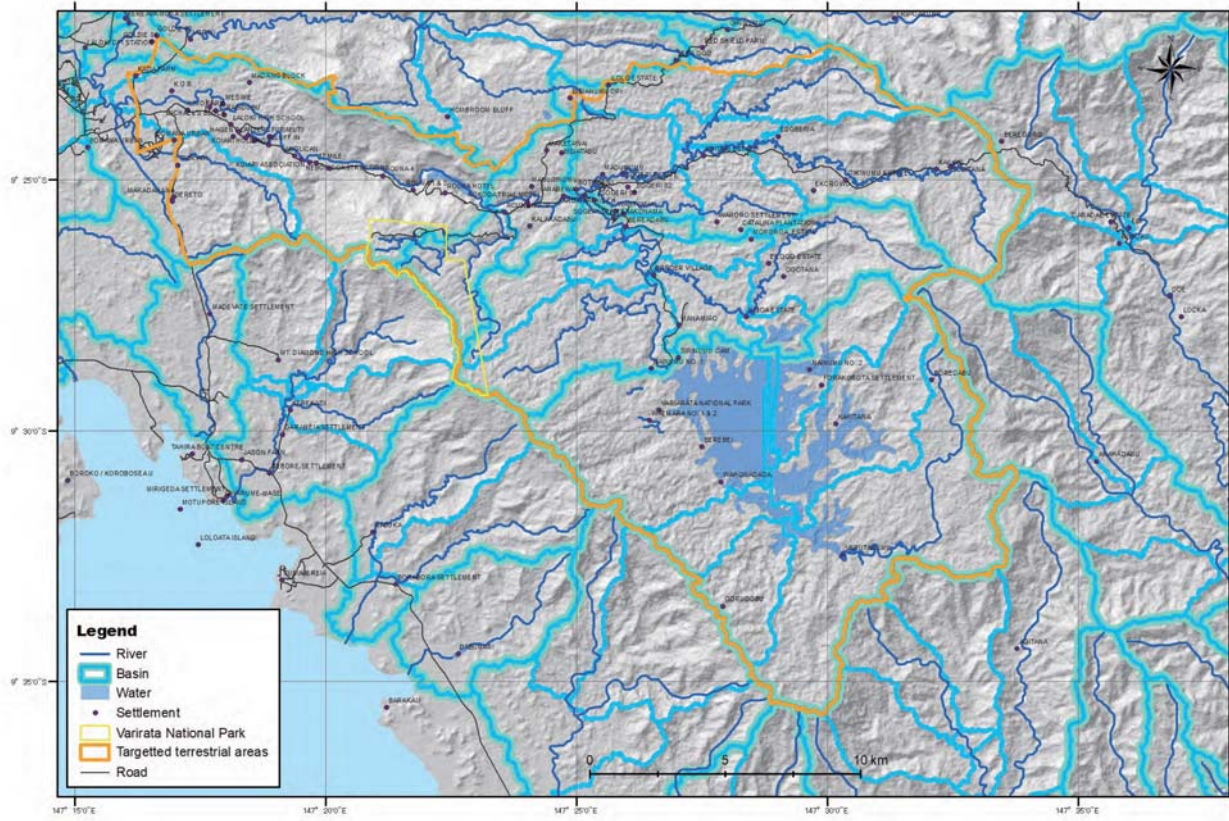
Altitude



Slope



Catchment





Socioeconomic

Wards

The Park is situated within two wards areas namely Ward 4 (Furimuti) and Ward 5 (Depo) in Koiari Local Level Government (LLG) of Central Province.

Ward 4 is located along the main highway of Sogeri, and along the banks of Laloki River. It is mostly situated on the lowlands of Koiari Rural LLG and its boundary begins at Laloki Secondary and Primary Schools and borders with Ward 5 at Rouna 4. A number of private sector businesses, schools, hotels, farms and human settlements are established within Ward 4 area.

Ward 5 of Depo consists mostly of traditional Koiari villages and passed the entrance of the VNP. It borders with Ward 4 at Rouna 4 and ends at Depo creek along the Sogeri highway towards Sogeri Urban (Ward 21).



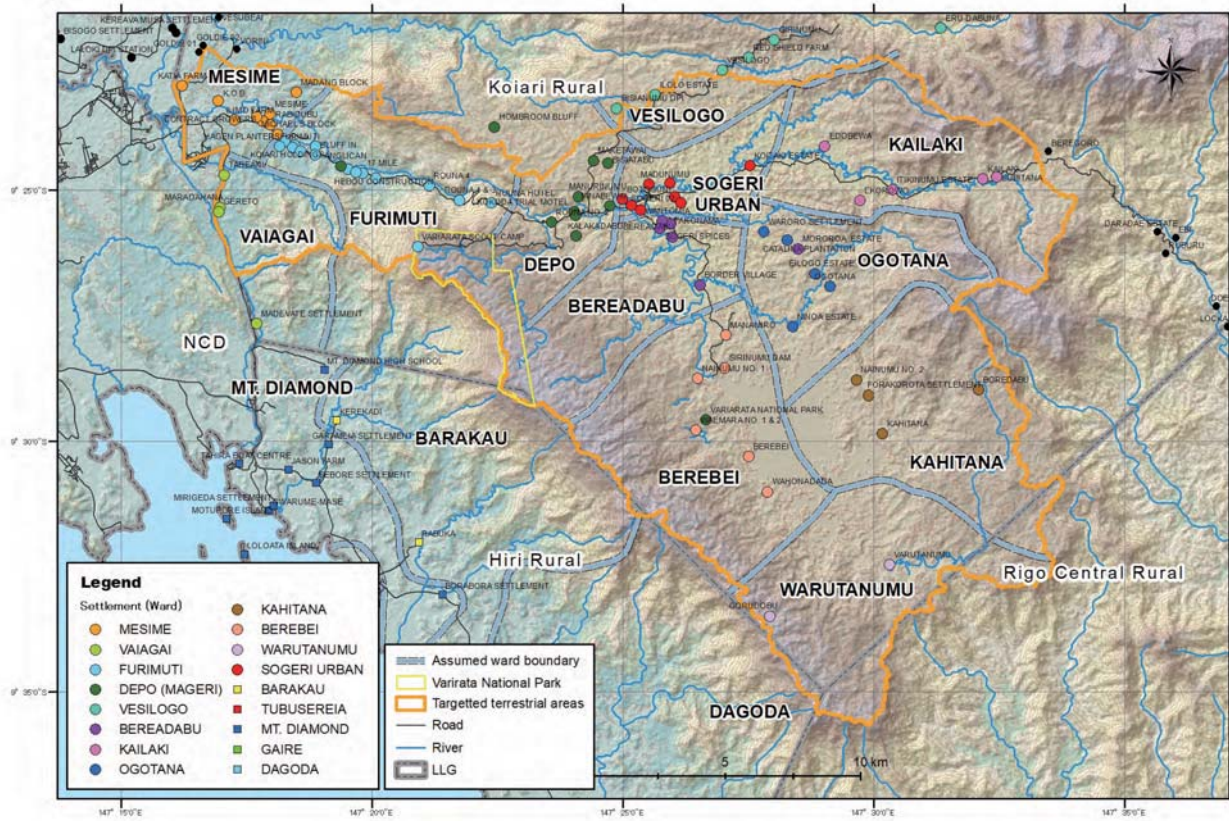
Population

The total population of the target areas within the vicinity of the Park encompassing the council ward areas of 4 and 5 is 1,149 (National Census 2011 cited in Inception report by Dr Kameata, 2017). Thus, the population for Ward 4 is 182 comprising of 89 males and 96 females. This ward covers two census units (Varirata Scout Camp and Rouna 4) with a total of 29 households.

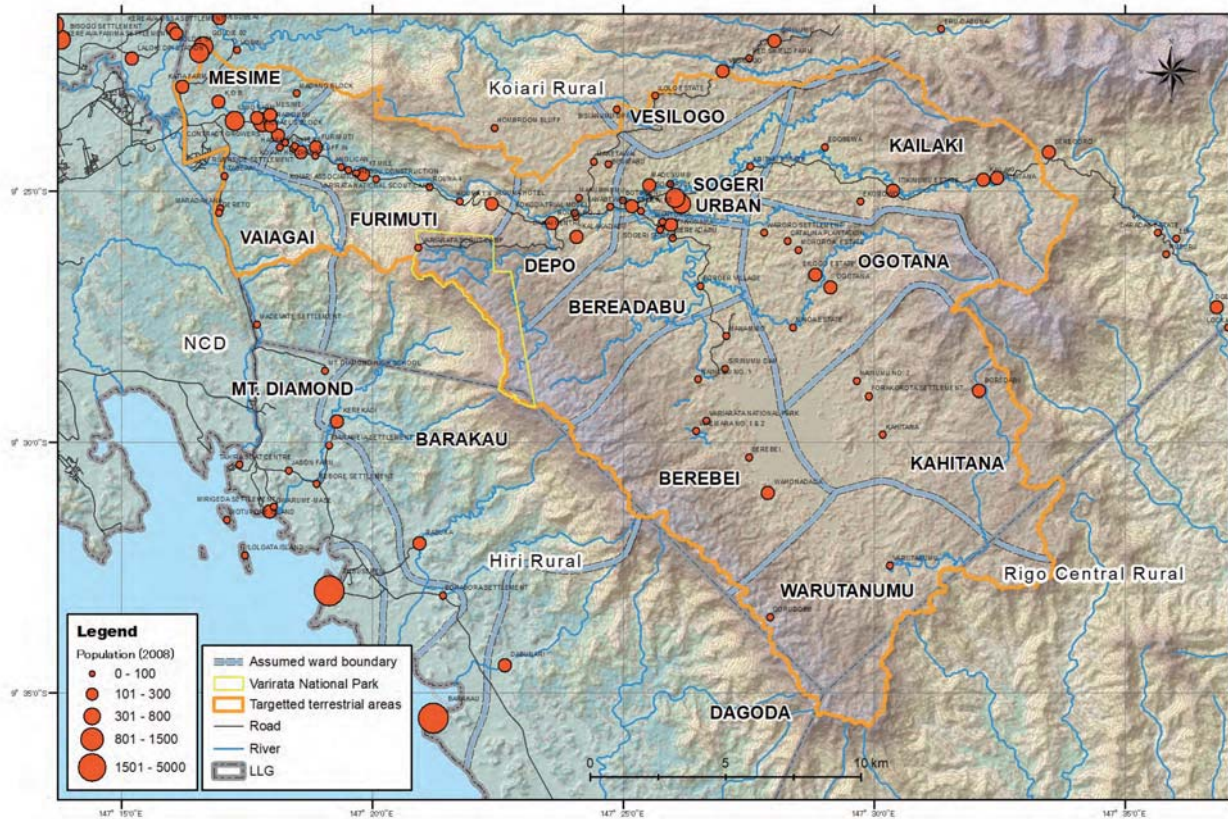
Ward 5 has a population of 967 including 499 males and 468 females, which comprises mostly of traditional Koiari villages. It covers 11 census units with a total of 164 households.



Distribution of Wards



Population per Census Units





Chapter 2

Varirata National Park



ATLAS 2017 23

Varirata National Park

History of the Park:

The land on which the Park lies was acquired under the Section 12 of the National Parks and Gardens Ordinance 1966 (Part 2 of Crown Land Ordinance 180) on 23rd October 1986. The land was known to Koiaris then as Wodobonomu. The Park is located on the traditional hunting grounds of the Koiari people. The land which the Park lies on was originally owned by two clans (Nadeka and lanari). The lanari clan owns the northern portion of the Park, which was previously demarcated for protection, and the Nadeka clan possesses the entire southern part of the Park, which was the extension of the Park (pers.comm. Kisea Tiube, VNP Ranger, 08.07.15).

The Park was originally reserved under the trusteeship of the District Commission, Director of Forest and Ruth Isobel Sefton on 17th February 1963. The Park was committed to the care and control of the National Parks Board (maybe equivalent to the National Conservation Council under the Policy on Protected Area (PPA)) on 10th December 1969 (PNG Gazettal Notice No.70). An additional land, where the main picnic area and the information center lie was once a coffee nursery established in 1950's. The same area was logged by two portable sawmill companies managed by Sandis and Burns Philip back then. Later a piggery and poultry farm were established on the same piece of land, which the land was acquired from Burns Philip (NG) Limited. The concrete foundations are the only remnants today.

Access to Varirata National Park (VNP)

The VNP was the first National Park declared in PNG and was officially opened on 18th October 1973. It is on State land and covers an area of 1,063 ha. It is located on the Sogeri Plateau appropriately 48 km east of Port Moresby city and is accessible by road.

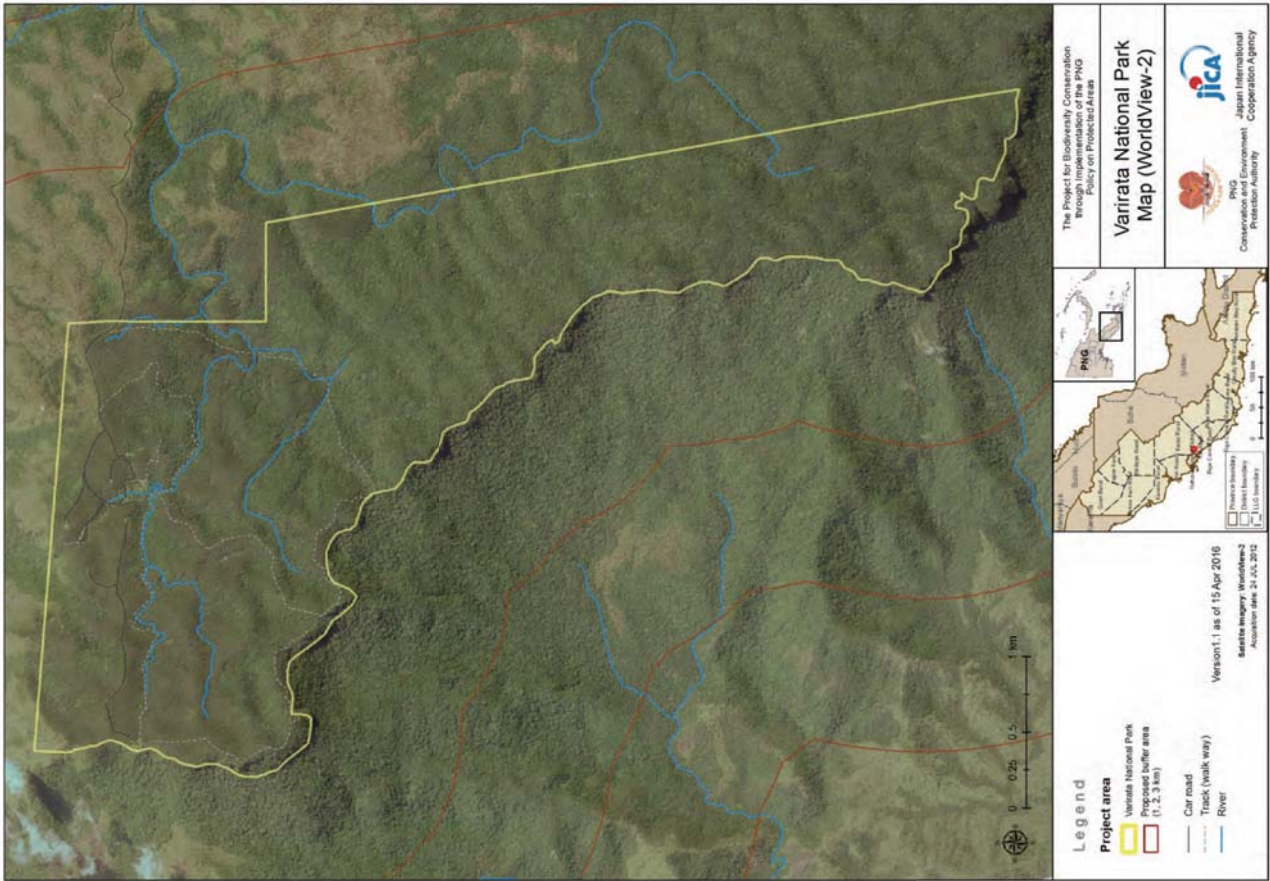
The VNP is situated at an elevation of 600 – 800 m with an average annual rainfall of 1400 – 2000 mm. It has closely spaced narrow accordant ridges and rocks consisting of balastic lava, agglomerate, tuff and dyke origins.

The land was locally called Wodobonomu and was the traditional hunting grounds of Koiari people. The land was given to the State by the Koiari customary landowners as a gift.

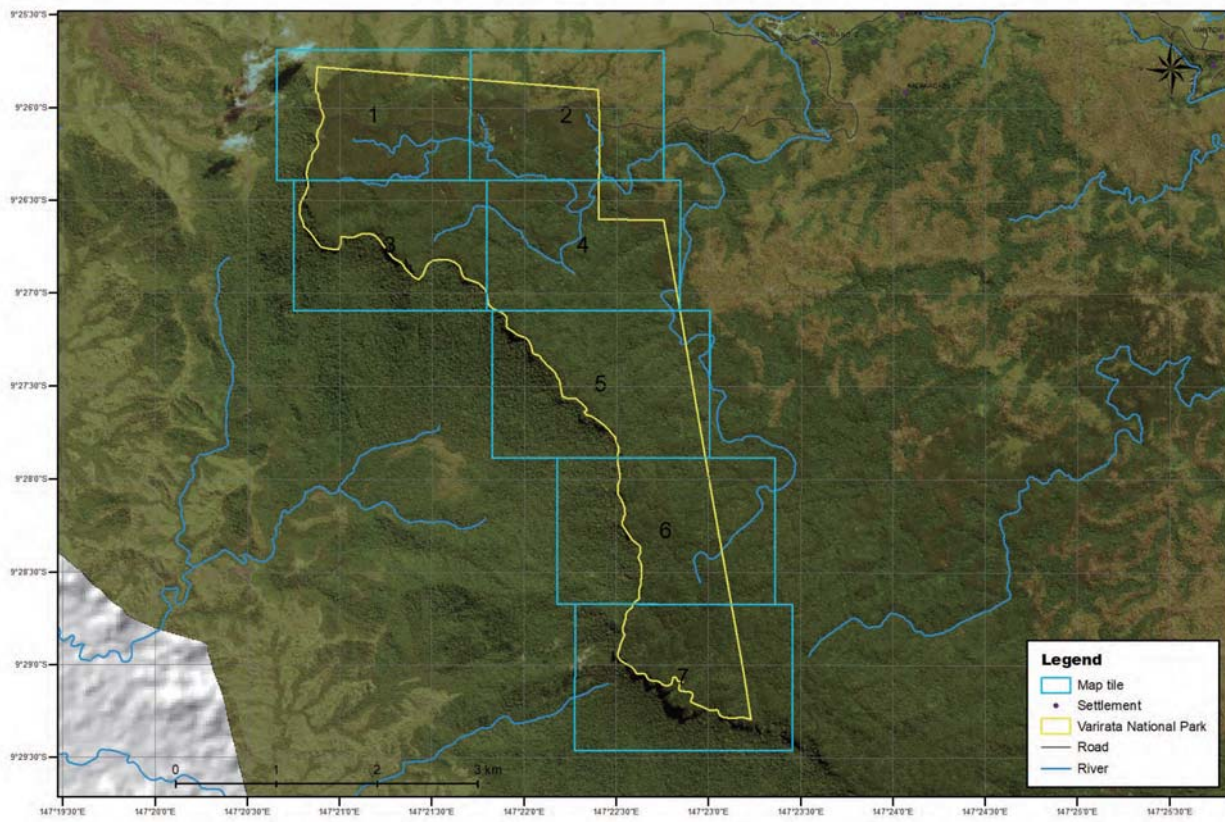
Natural characteristics and facilities of VNP

The VNP has scenic views and beautiful forests comprising of rainforest, savannah, grassland, gallery forest and secondary regrowth. It is also inhabited with some unique plants and animals such as Rusa Deer, Forest Wallabies, Possums, Bandicoots, Cassowaries, Raggiana Bird of Paradise and other extraordinary bird species, Pythons, Monitor Lizards, and various insects including Butterflies and Beetles.

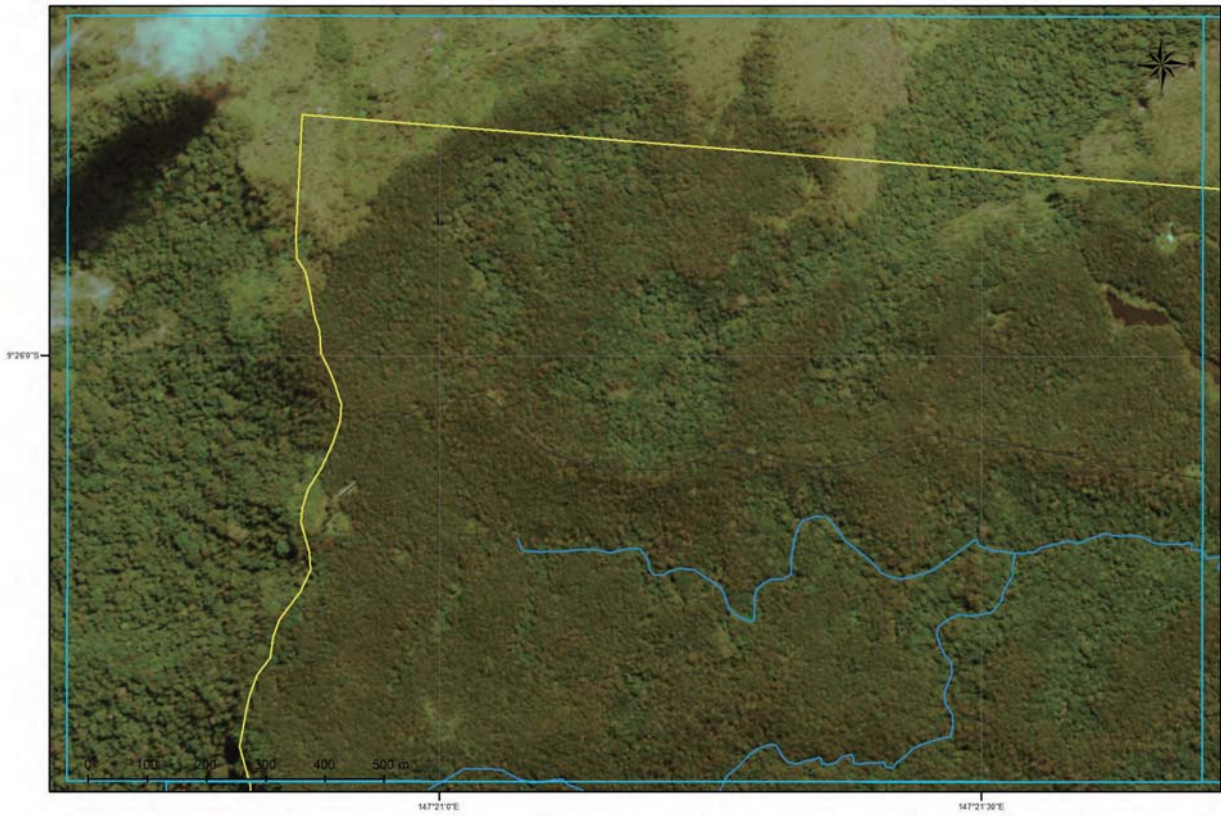
The main picnic area and the information center were once a coffee nursery established in 1950's. The same area was previously logged by Sandis and Burns Philip (NG) Ltd, respectively. Later a piggery and poultry farms were established. The concrete basements are the only remnants today.



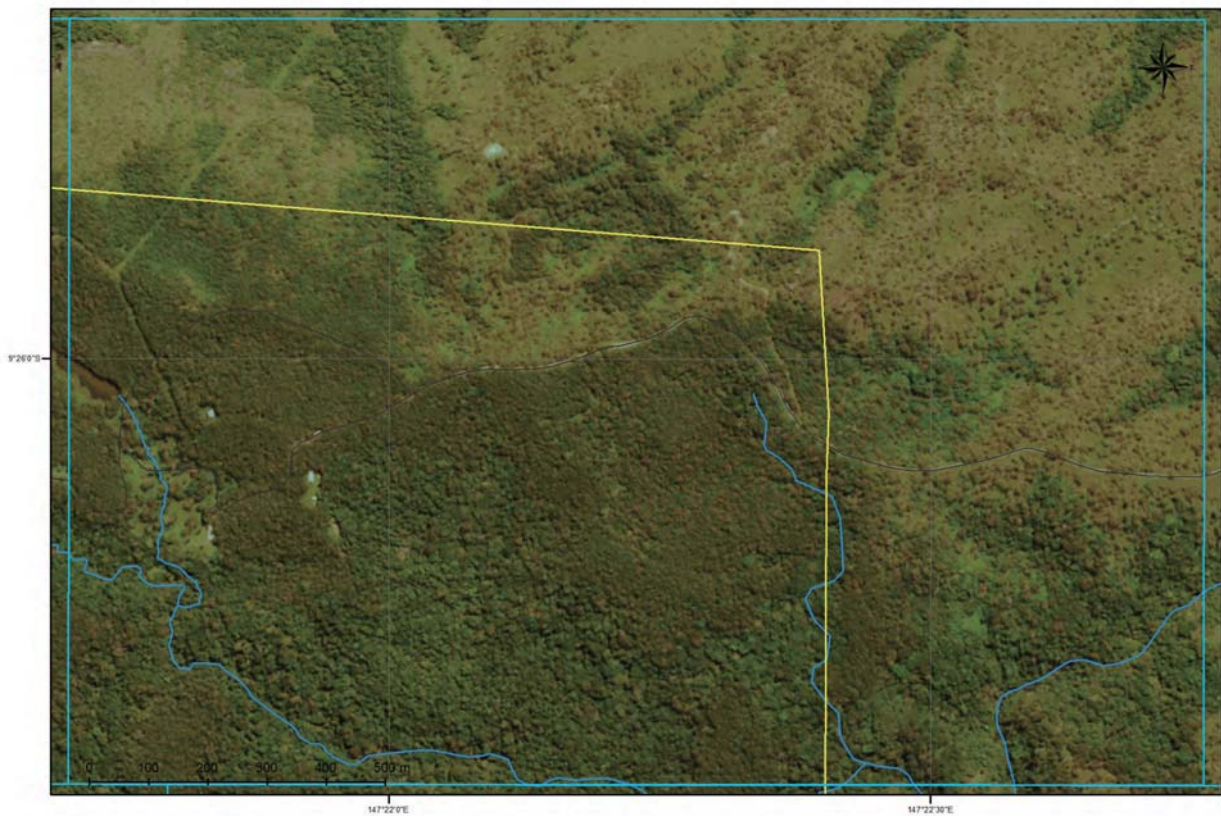
World View-2 Imagery of Varirata National Park (Index map)



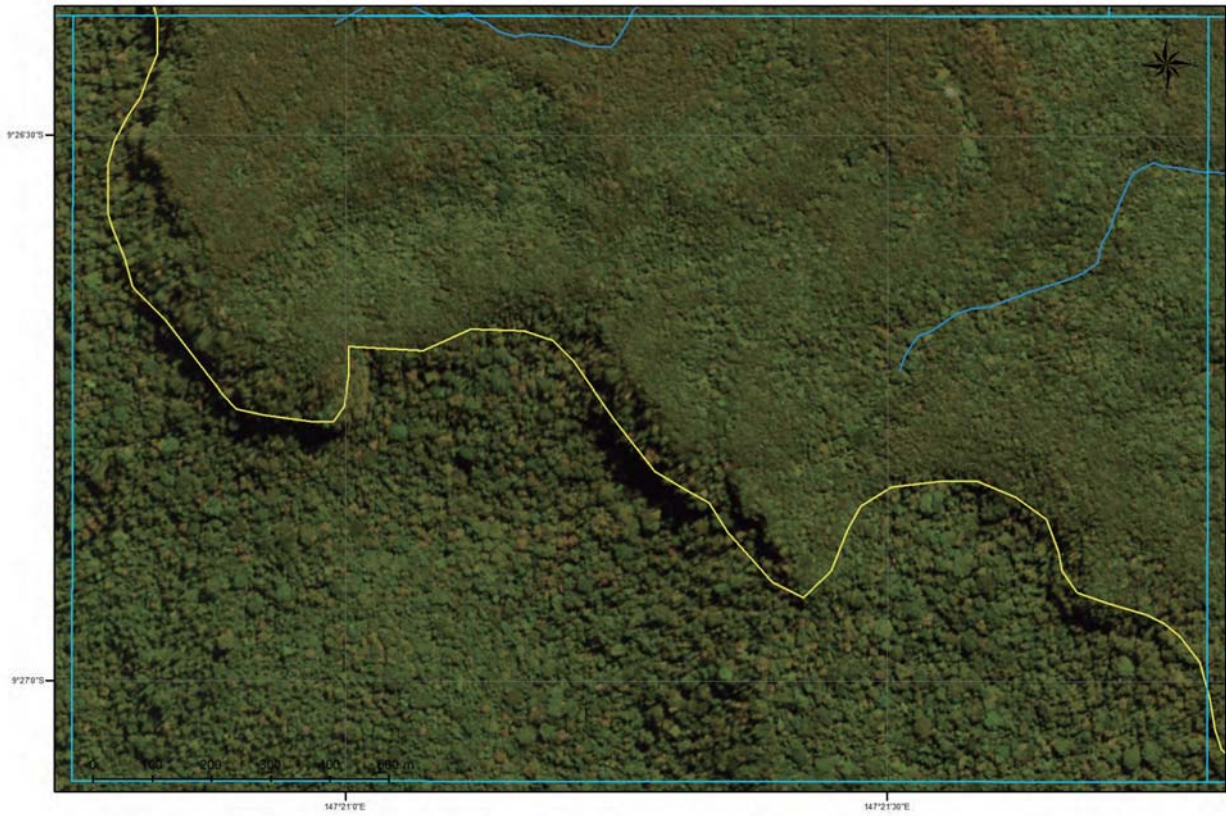
World View-2 Imagery of Varirata National Park (1)



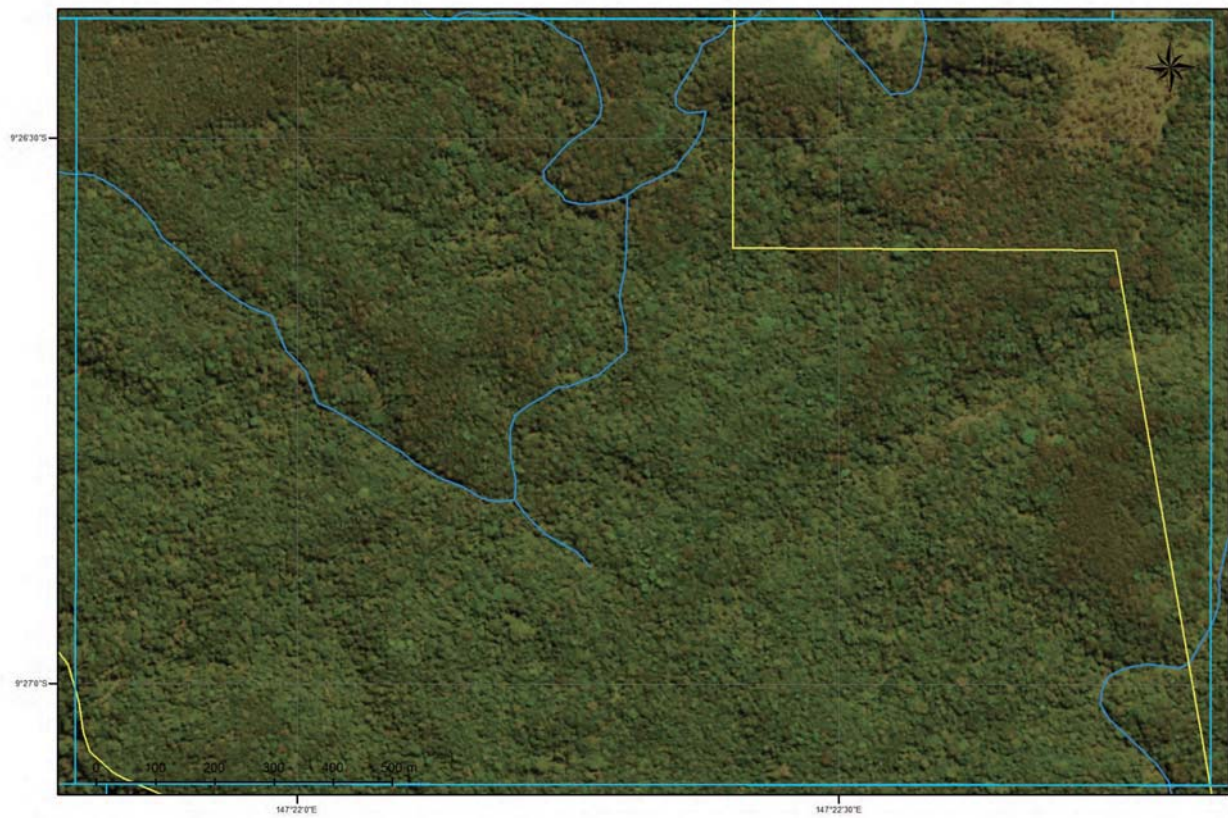
World View-2 Imagery of Varirata National Park (2)



World View-2 Imagery of Varirata National Park (3)



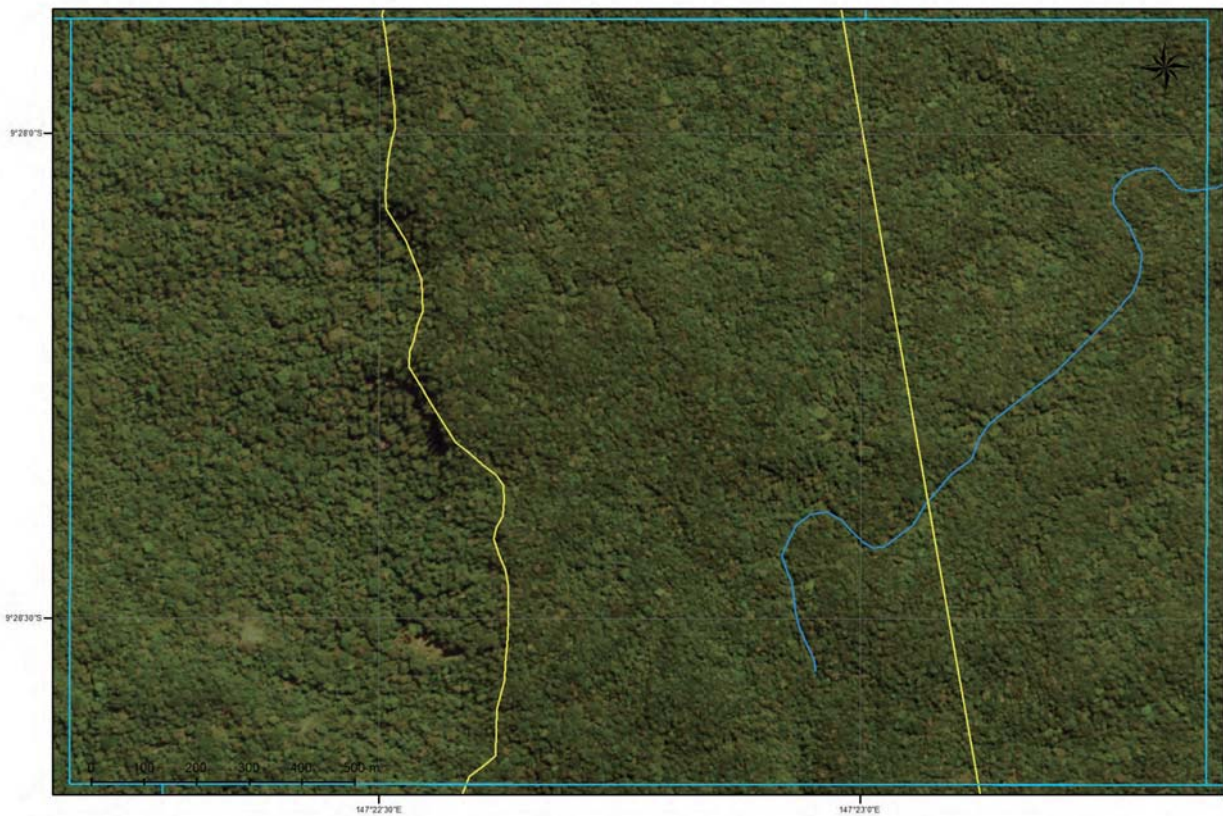
World View-2 Imagery of Varirata National Park (4)



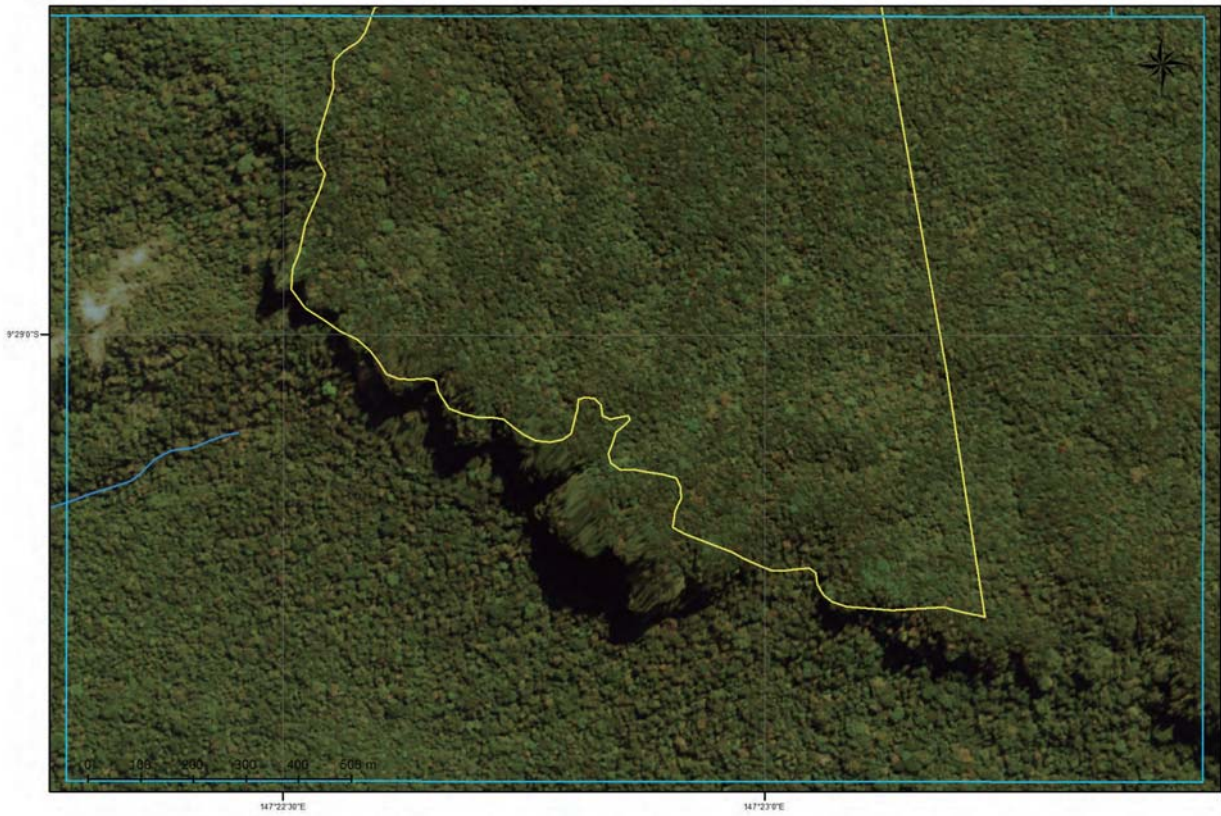
World View-2 Imagery of Varirata National Park (5)

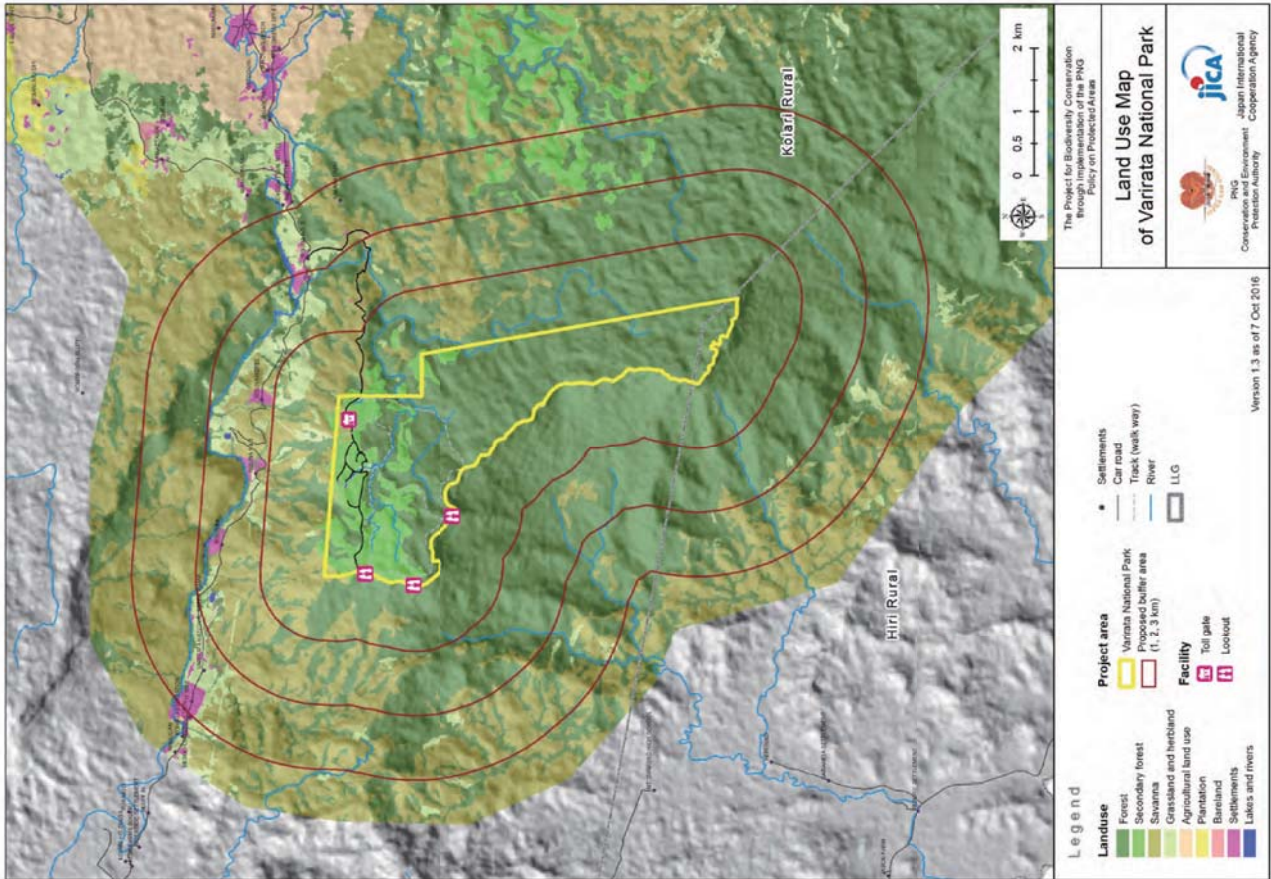


World View-2 Imagery of Varirata National Park (6)



World View-2 Imagery of Varirata National Park (7)





Varirata National Park Guide:

Tracks in VNP

Self Guide Track – This is one of the common tracks which connect the main picnic area and main lookout. It is one of the most easily accessible tracks and mostly frequented by visitors. Many different kinds of wildlife can be seen whilst walking along the track.



Main Picnic Area



Main Lookout

It is also full of bird life and enjoyed by many bird watchers who intend to visit VNP. The track also runs parallel to the Nairogo Creek. The sacred and shy Forest Bittern (*Zonotrichia heliosylus*) and the small Azure Kingfisher (*Ceyx azureus*) can be seen during the stroll along the track.

Scarp Track – This track connects the main lookout and Gare's lookout. The track is long covering approximately 2km. It is steep in few places along the track but the climb is not that difficult. The forest is dominant with Fagaceae trees (*Lithocarpus* and *Nothofagus*) on the ridges, which you tend to see and hear beautiful calls of the common White Cockatoo (Kau in local Koiari dialect).



Red - legged brush turkey



Ground Cuscus

You will enjoy seeing the Kau feeding on the Fagaceae nuts.

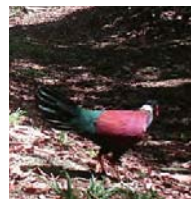
Gare's Lookout Track – This is the shortest track but is quite steep, which connects the main picnic area and Gare's lookout. It starts from the main picnic area across the Nairogo Creek and diverts from the Circuit Track. It takes a slow stroll along the ridge leading towards the



Gare's Lookout

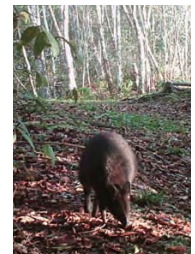
Gare's lookout.

The first Koiari-tree house was built along this track in the early 1960's. The scenic view from the Gare's lookout is breath taking and ideal for photography fanatics.

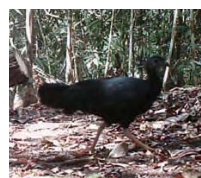


Pheasant Pigeon

Circuit Track – The track has an array of vegetation types including the natural rainforest, secondary regrowth, savannah and grassland. You can also enjoy watching many different birds within those forest types. It starts from the main picnic area and ends at the main VNP road, few distance from the toll gate. It is the most exciting track with the meandering streams and drainage systems, which you will cross on wooden bridges whilst walking along the track.

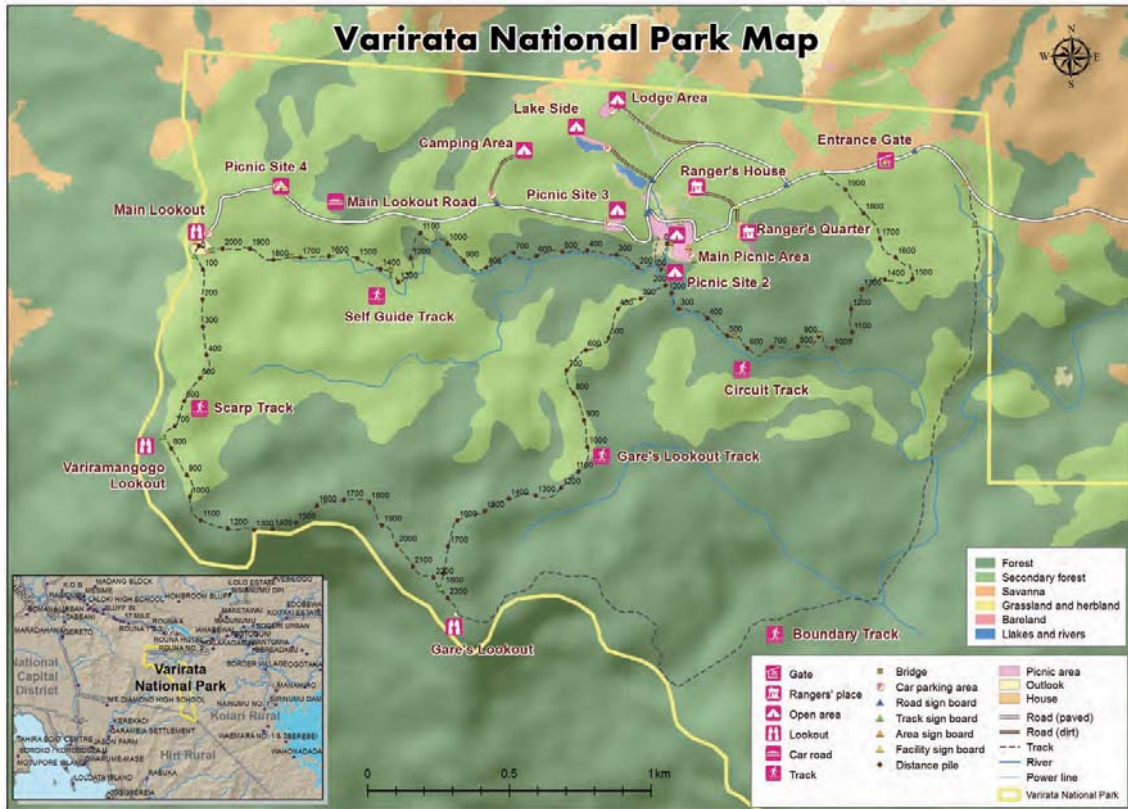


Forest Wallaby

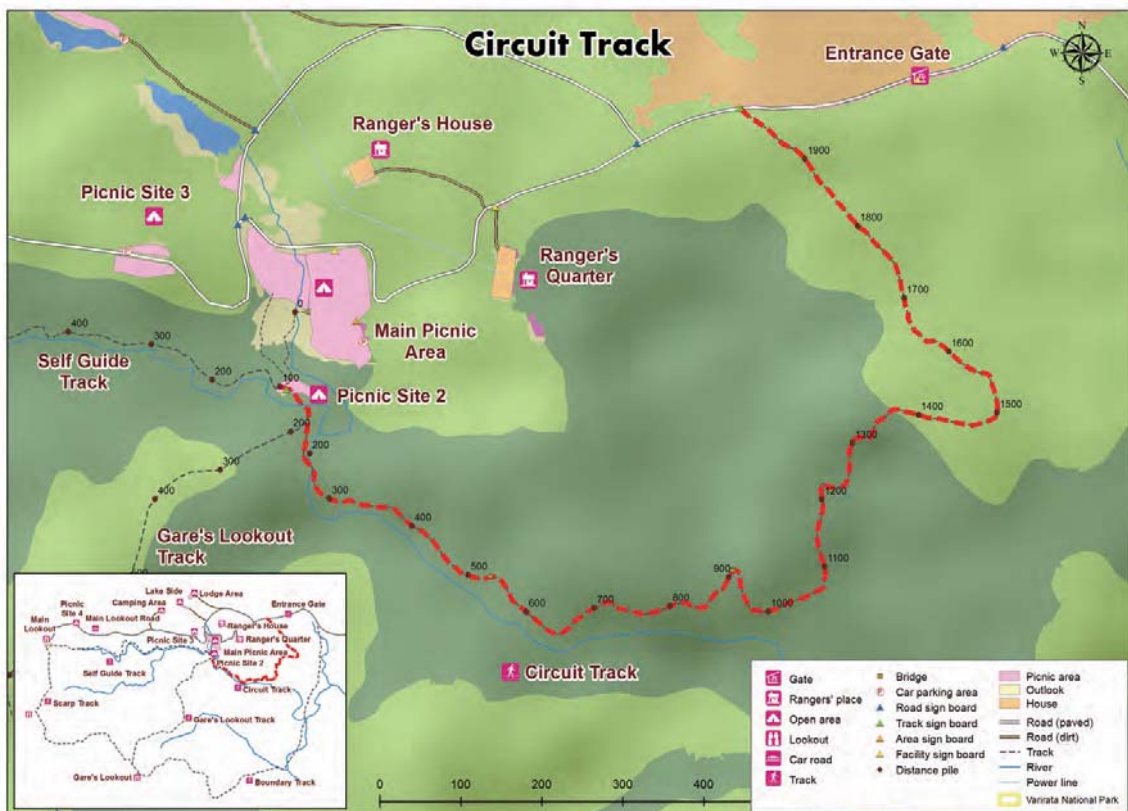


Yellow - legged brush turkey

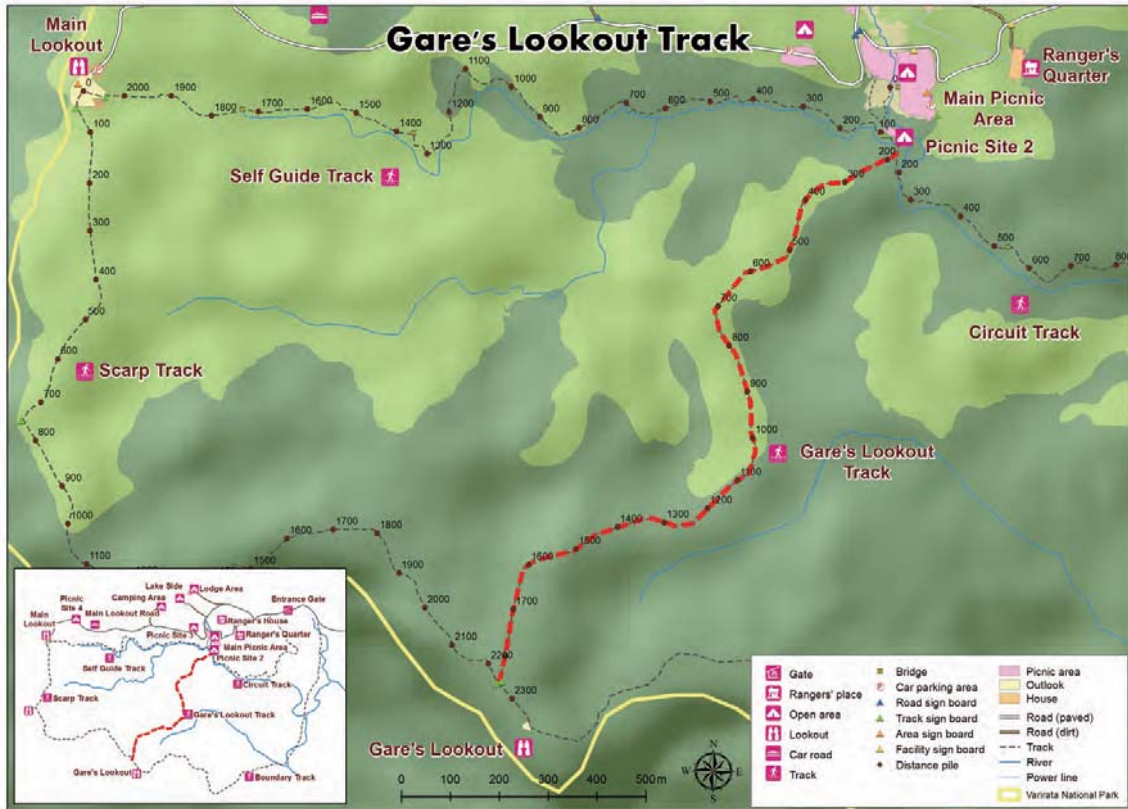
Guide Map (1)



Guide Map (2)



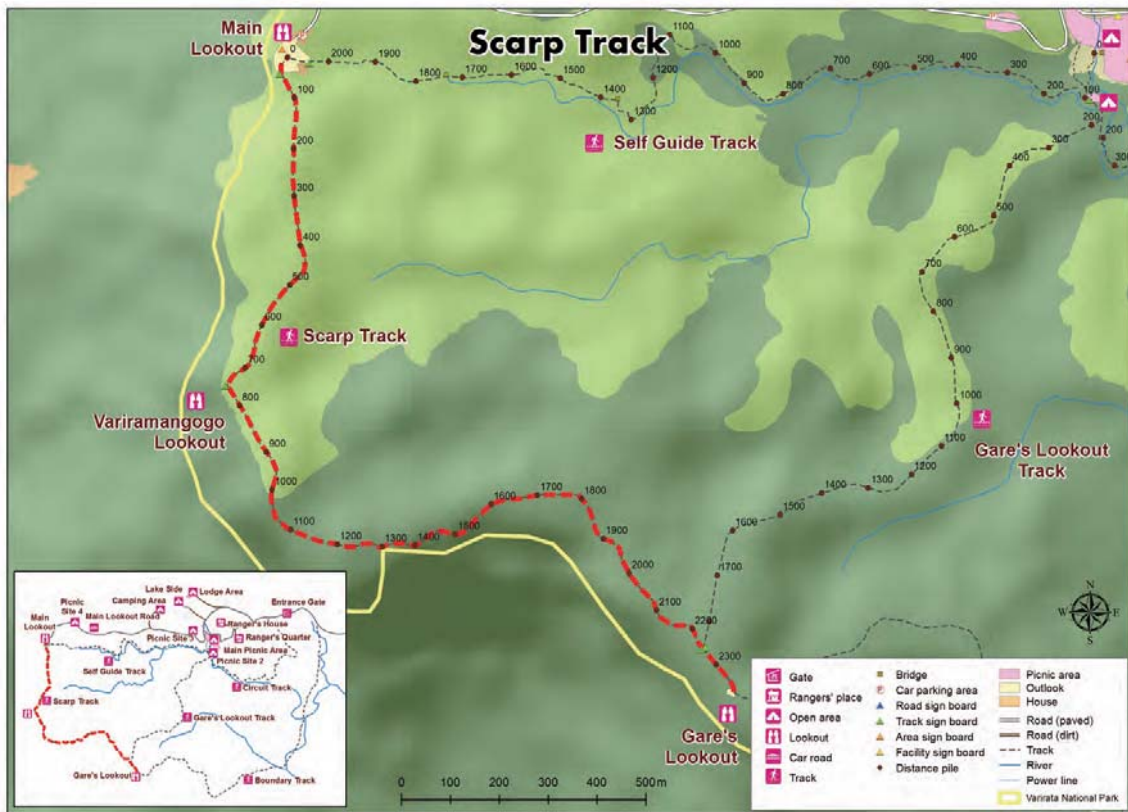
Guide Map (3)



Guide Map (4)



Guide Map (5)



Facilities in VNP

The facility assessment was carried out to i) collect and compile basic information for the development planning in VNP such as distribution map, database, GIS database, etc., ii) consider the principle for the development plan.

The follows are required for this assessment:

- 1) To comprehend the existing facilities' current condition,
- 2) To prepare a principle and framework of facility repair and maintenance plan based on the current condition.

The prepared principle and framework will be used for facility development planning as a basic information. Therefore, the assessment can contribute to preparation of the development plan in VNP.

In the assessment, the results of field survey were recorded on field data sheets and the data was encoded into the current facility database (individual data sheet and list of facility). The facility distribution maps were developed based on a GIS database in April 2016.

The major facility distribution maps, which was the result of the field survey carried out during October to November, 2015, are shown here.

The major functions of nature parks are follows.

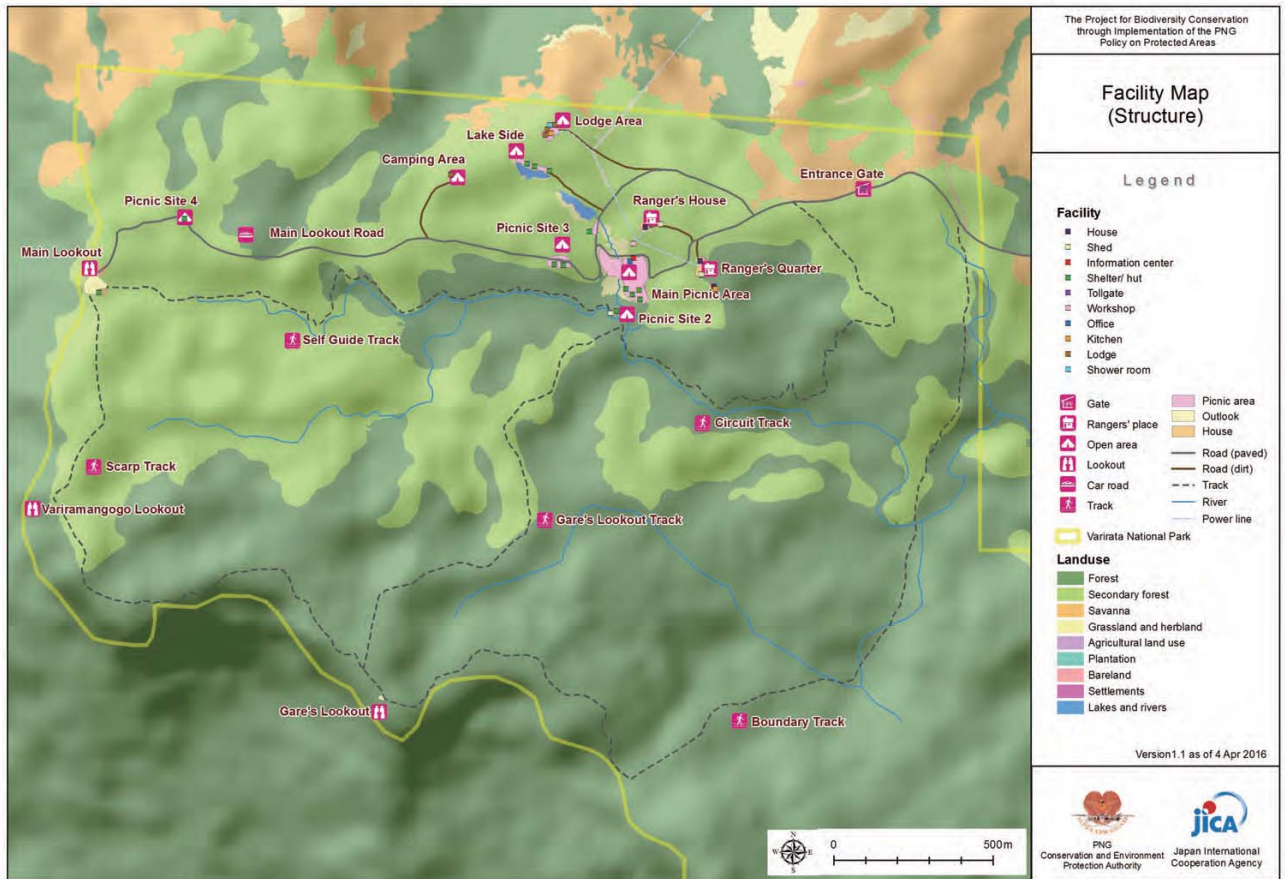
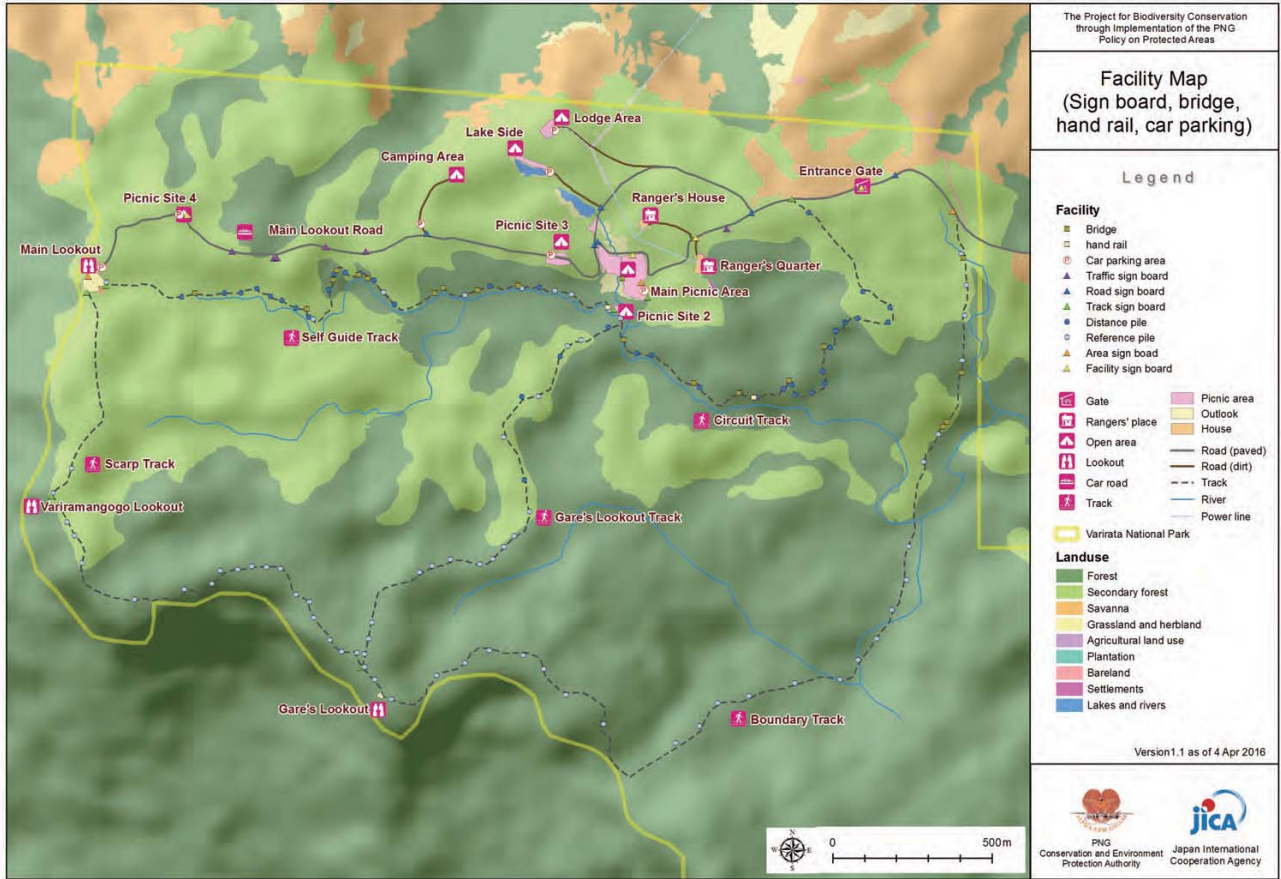
- a) Contribute to secure biodiversity or conservation of natural environment,
- b) Contribute to provision of place and chance of experiences in nature or study of natural environment
- c) Contribute safety park utilization, and
- d) Contribute to provision of place and chance of recreation

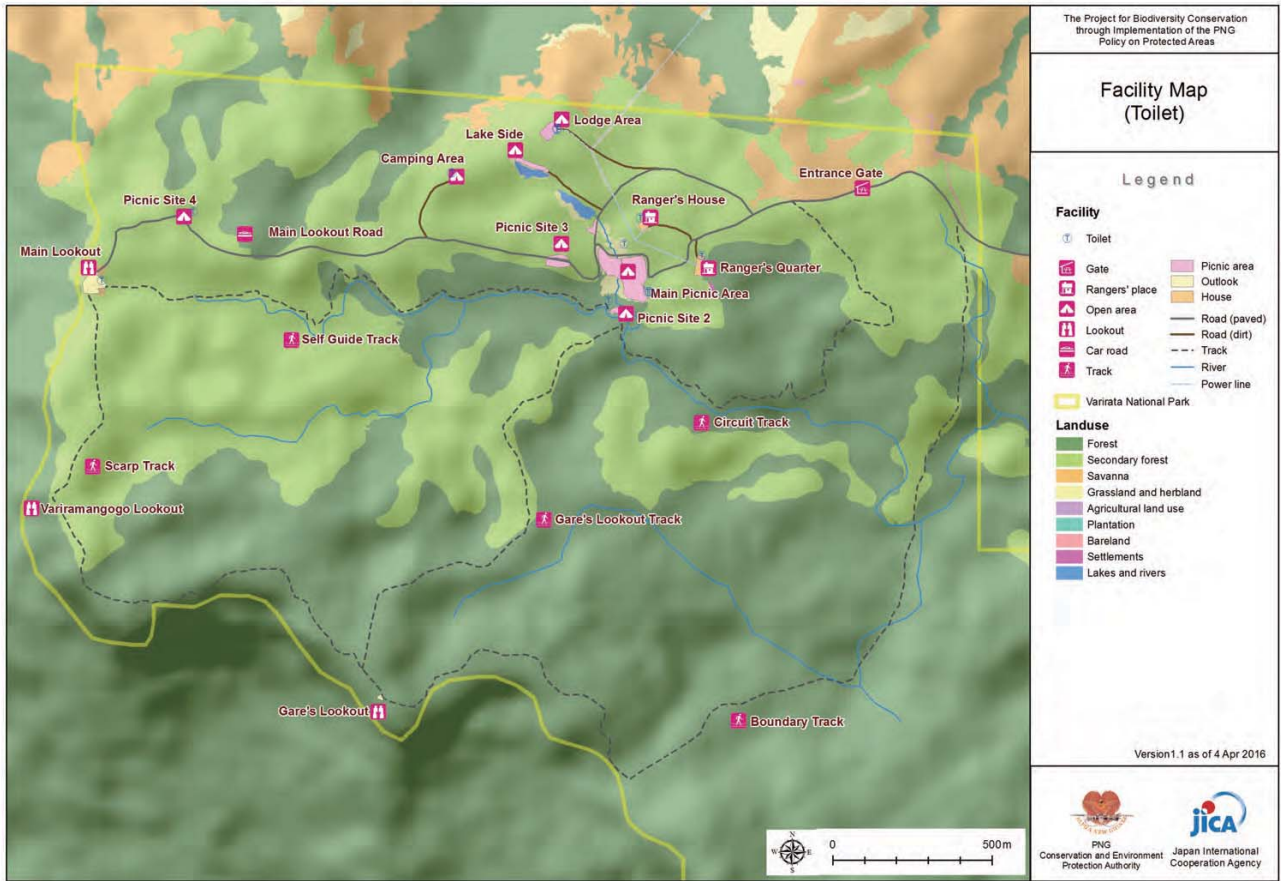
In accordance with current condition of facility in VNP, they do not function enough. However, they can contribute to provision of public services which shall be prepared with a nature park if the facilities will be repaired or replaced.

Therefore, damage condition of the facilities and necessity of repair/ replacement/ improvement were described, and the facilities are repairing and replacing now.

Basic information of VNP (as of September 2017)

Location:	Sogeri Plateau, Central Province, Papua New Guinea (near Port Moresby city)
Area:	1,063 ha
Opens:	8:00 am – 5:00 pm from Monday to Friday 6:00 am – 6:00 pm on Saturday and Sunday
Entrance Fee:	Adults – Citizen: K5:00, Non-citizen: K10:00 Students (with ID) – Citizen: K4:00, Non-citizen: K8:00 Children (above 12 years) - Citizen: K3:00, Non-citizen: K6:00
Foundation:	8 th October 1973





Chapter 3



Targeted marine coastal area



Targeted marine coastal area

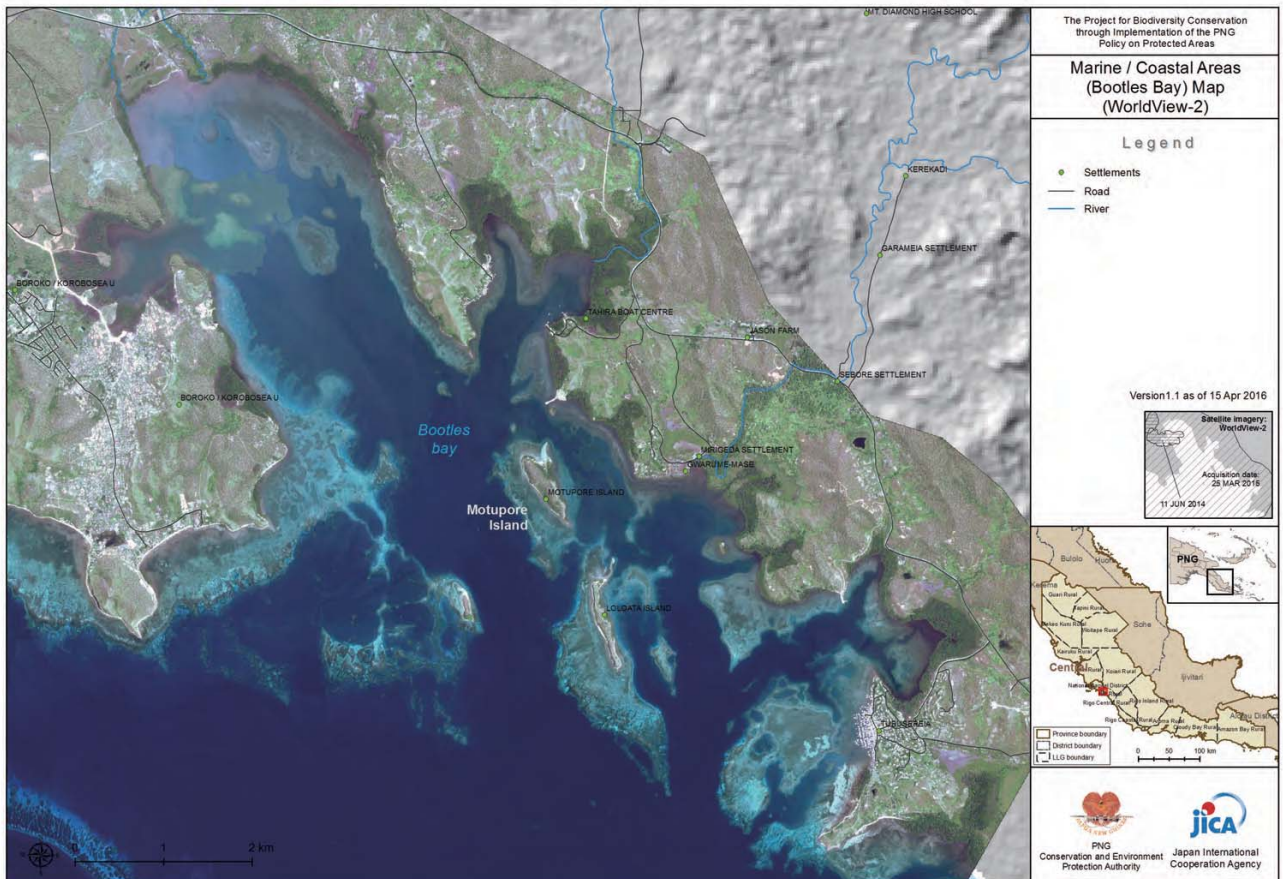
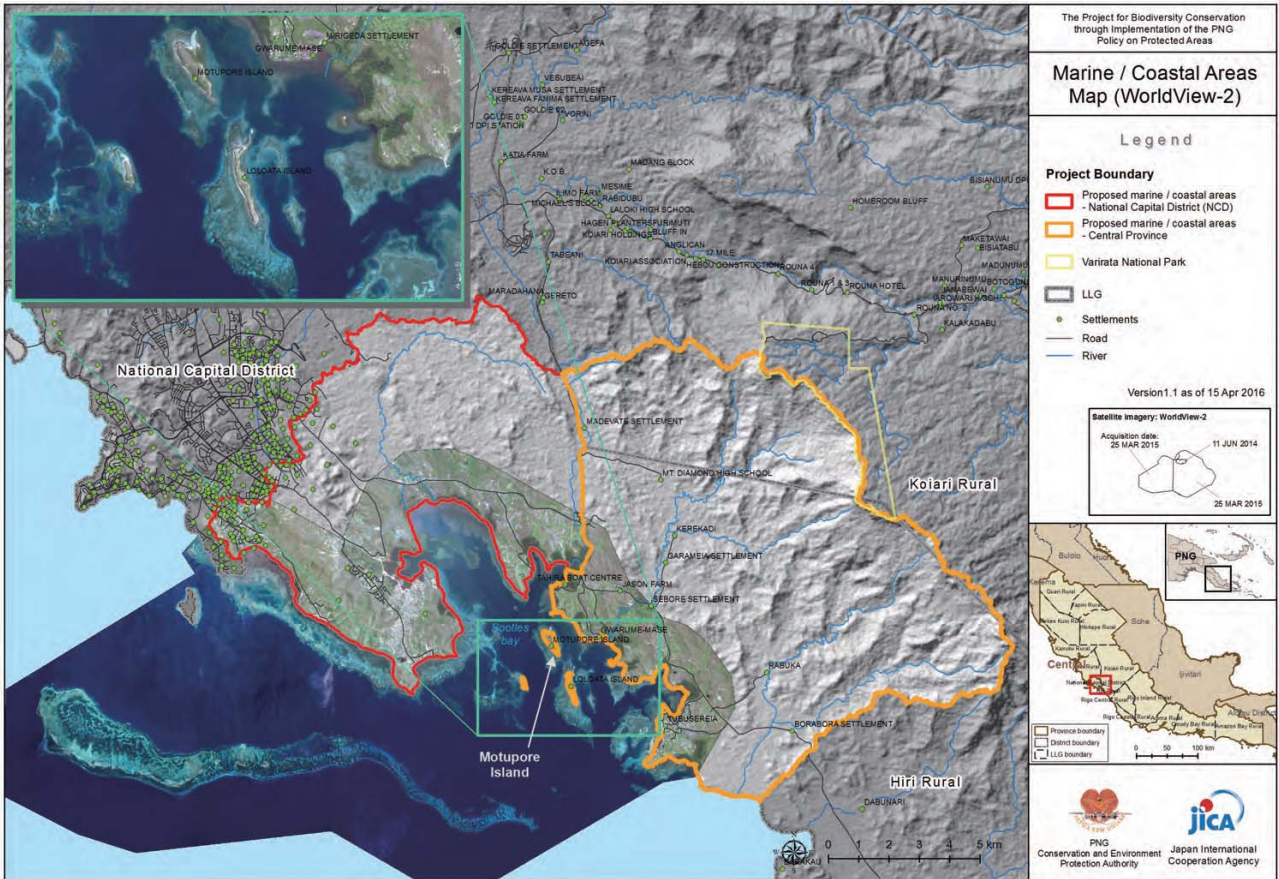
Outline and objectives of Output 3

This project's component addresses the coastal and marine issues, which specifically focuses on a model for establishing a new Marine Protected Area (MPA) as per the provision of Policy on Protected Area (PPA) and other relevant legislations and Acts. The project focused on Bootless Bay, because Bootless Bay has a wide range of issues that include environmental degradation causing ecological imbalances, influx of human settlements along the narrow coastal fringes, overfishing in the mangroves and inter-tidal zones, and proposed major developments including a new wharf, and an aviation fuel terminal (Motuan pipeline), amongst others.



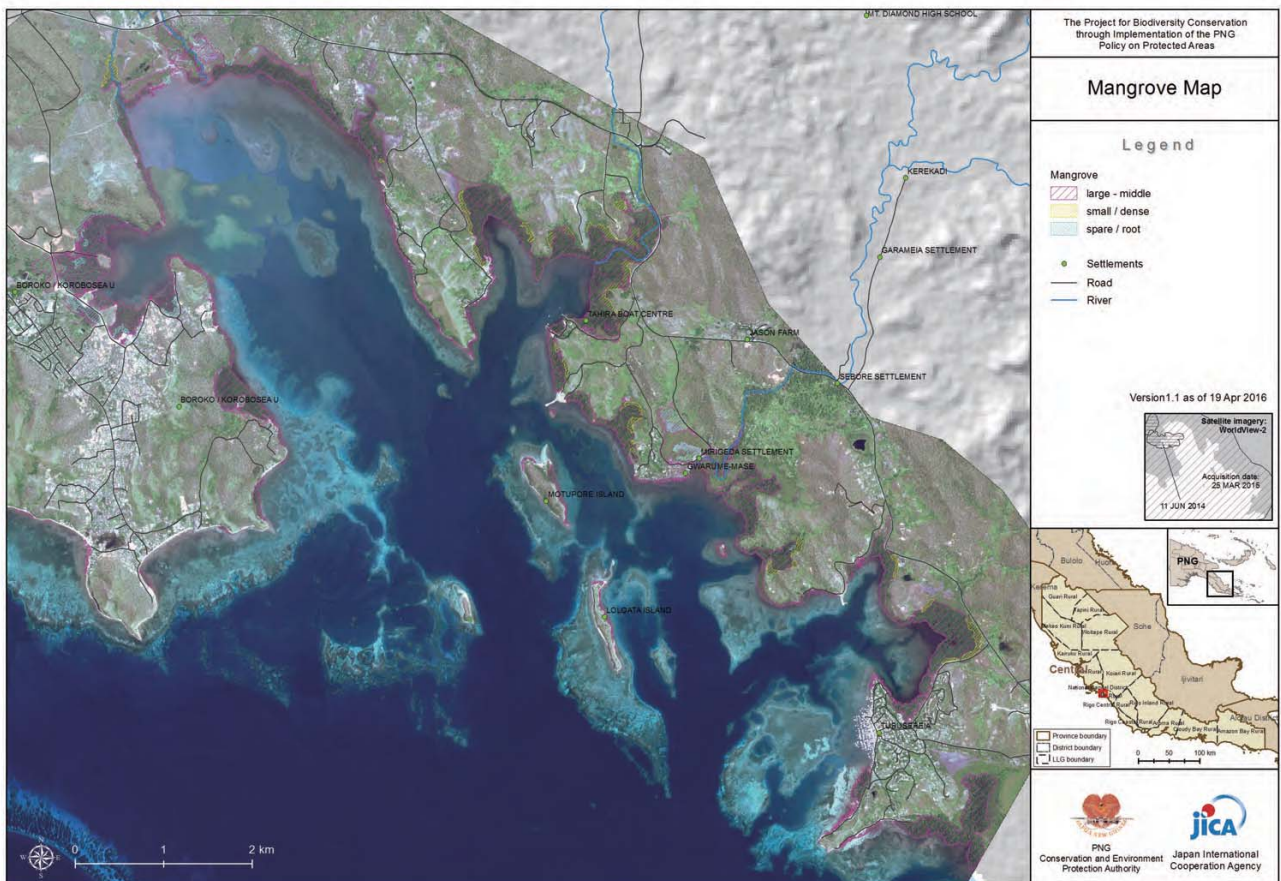
Major activities of Output 3

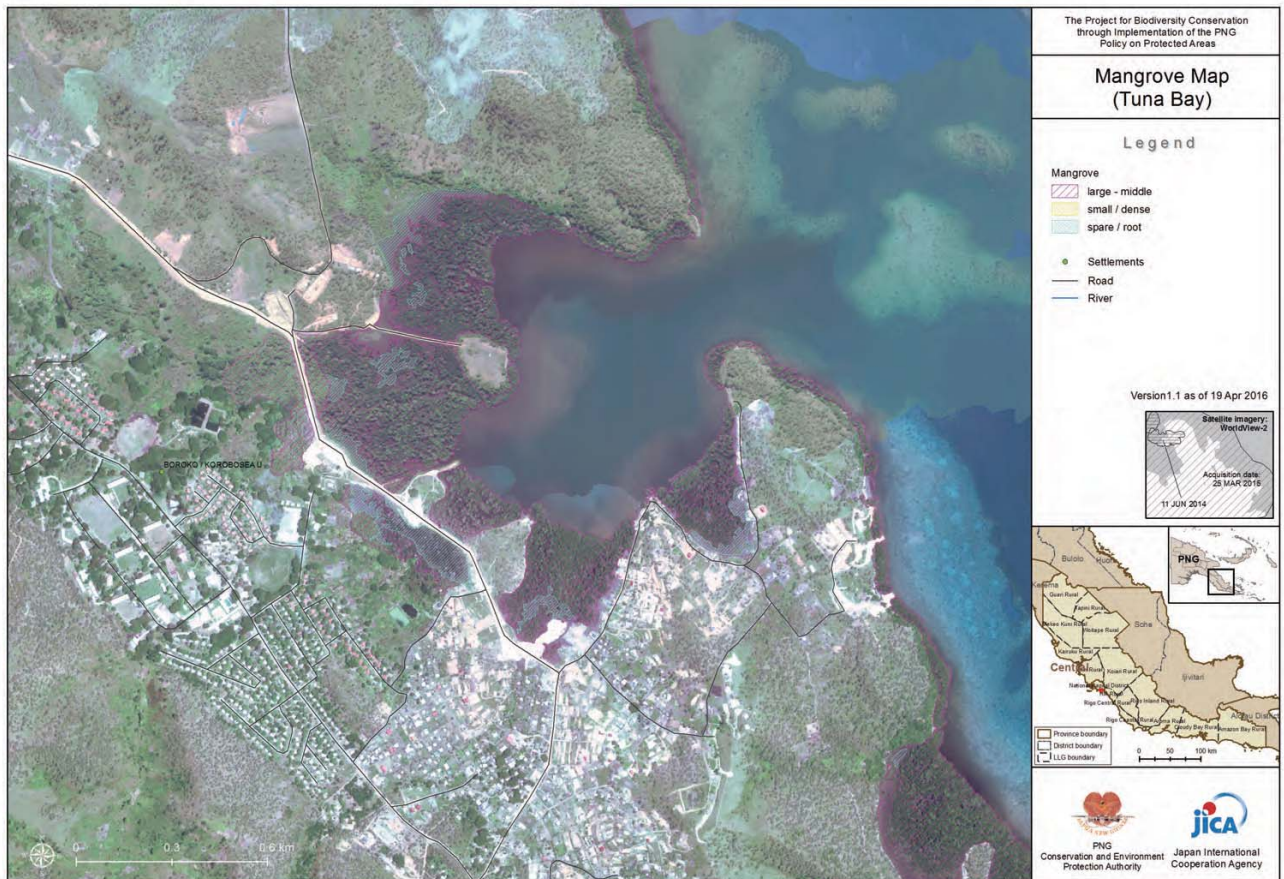
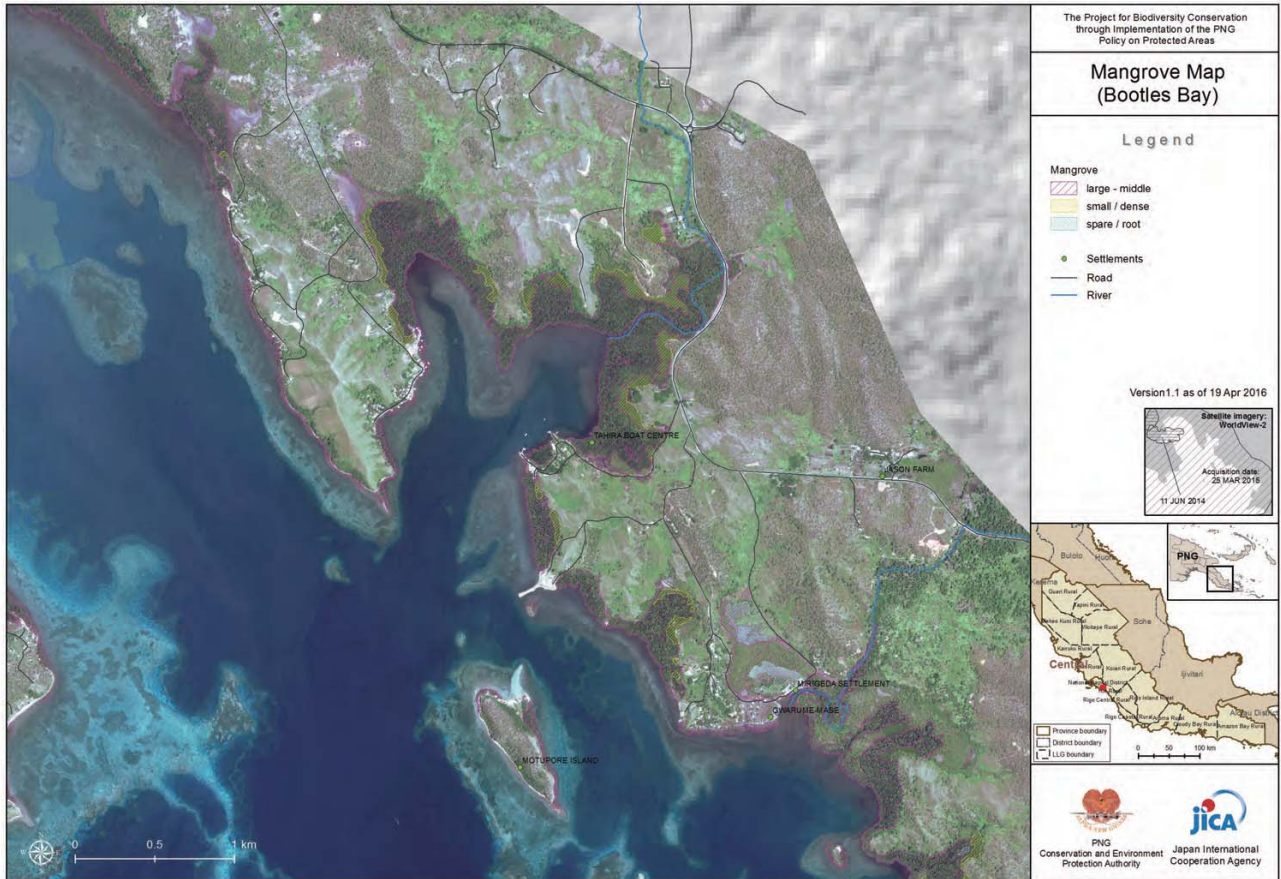
- Model of establishing new MPA developed as per the provisions of the PPA. Under this Output 3, Bootless Bay was selected through stakeholder consultations and biodiversity survey, and 4 MPA sites were targeted.
- Consult with local governments and communities including customary landowners to seek potential for establishing new protected area of either regional and/or national importance.
- Develop a proposal for a new MPA with conducting social mapping and public consultation.
- Consult with Regional or National Protected Area Roundtable and local and national governments to be endorsed with the official procedure for gazettement new protected area.
- Prepare new Management Plan for the new marine MPA.

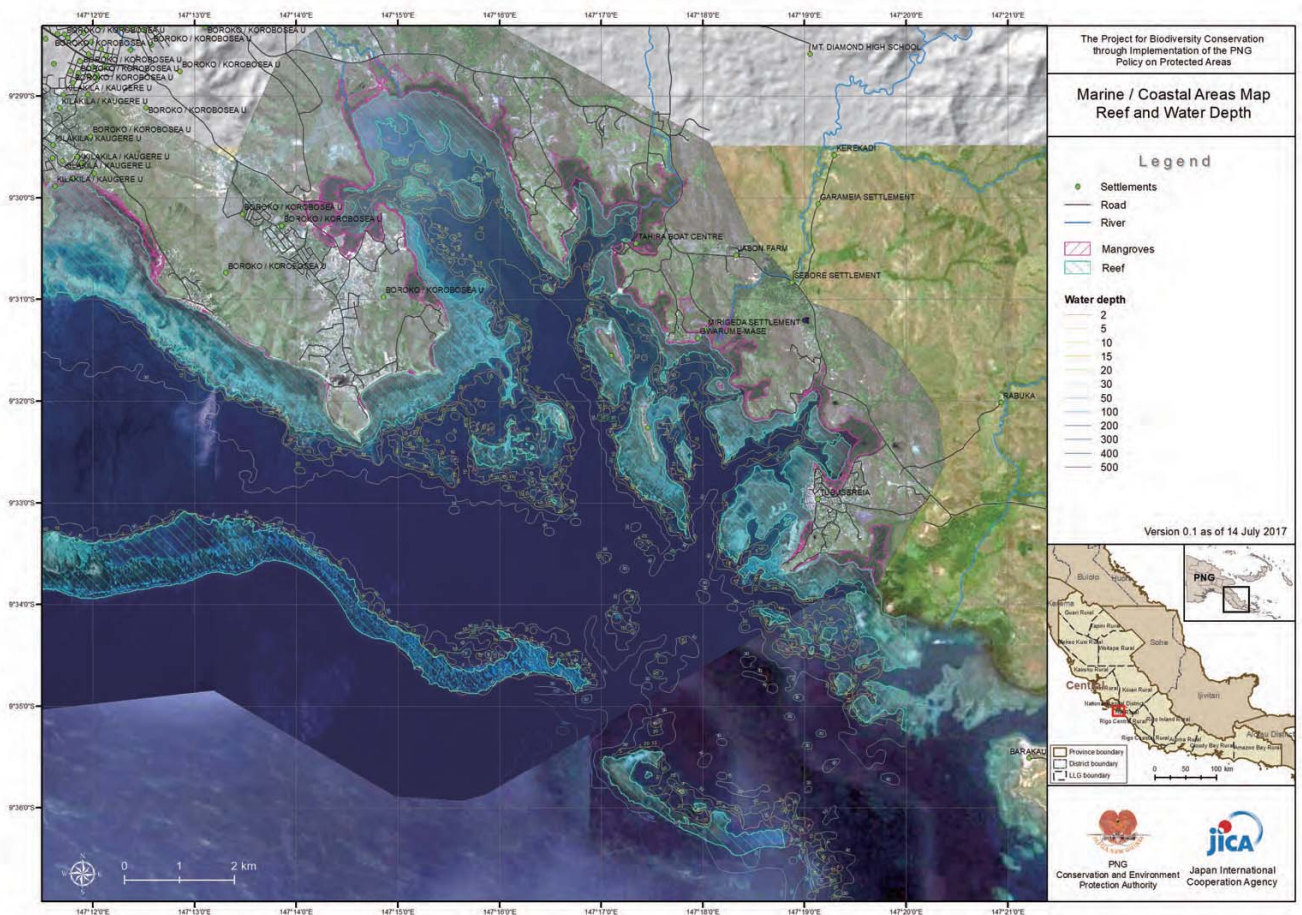


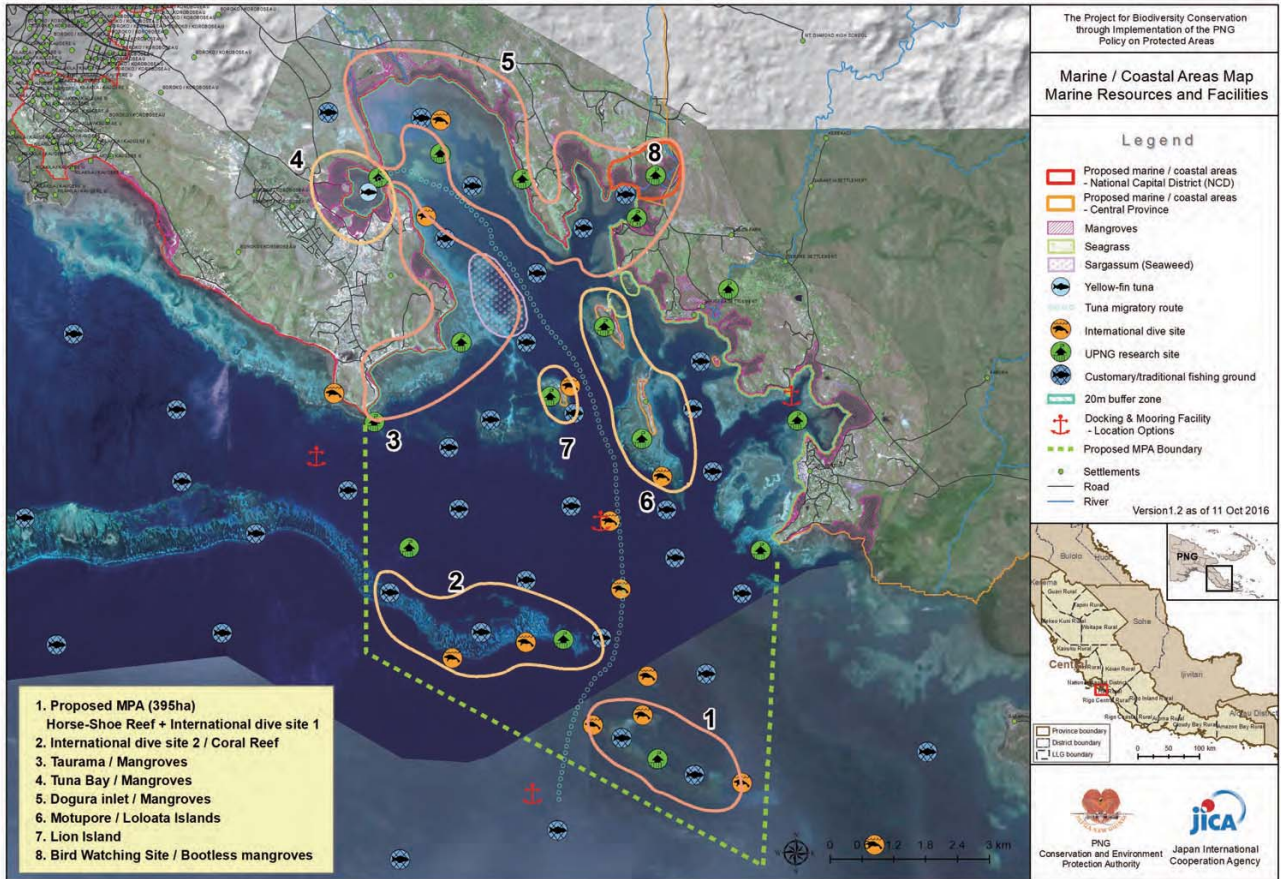


ATLAS 2017









Bootless Bay Marine Conservation Initiative (BBMCI)



The BBMCI was formulated under Output 3 of CEPA-JICA Project as a high level consultation process to allow for information sharing and exchange, consultations and collaborations regarding activities within Bootless Bay. Many stakeholders of Bootless Bay participate to BBMCI.

For example, CVES, PNG Ports LTD, PNG Harbour Management Services, National Maritime Safety Authority, Coastal Fisheries Development Agency, Hiri Local Level Government, PNG Tourism Promotion Authority, Gereka Village Community, HELP Inc., Central Provincial Government, Pari Women’s Development Association, National Fisheries Authority, PNG Centre for Locally Managed Areas, Central Papua Conference-SDA, Pacific Energy Aviation Fuel LTD, and Tubuseria BLRA.

Access to 4 targeted Marine Protected Areas (MPAs)

A Roadmap to establish MPA in PNG was written by CEPA-JICA Project. The Roadmap concluded four targeted MPAs include the following:

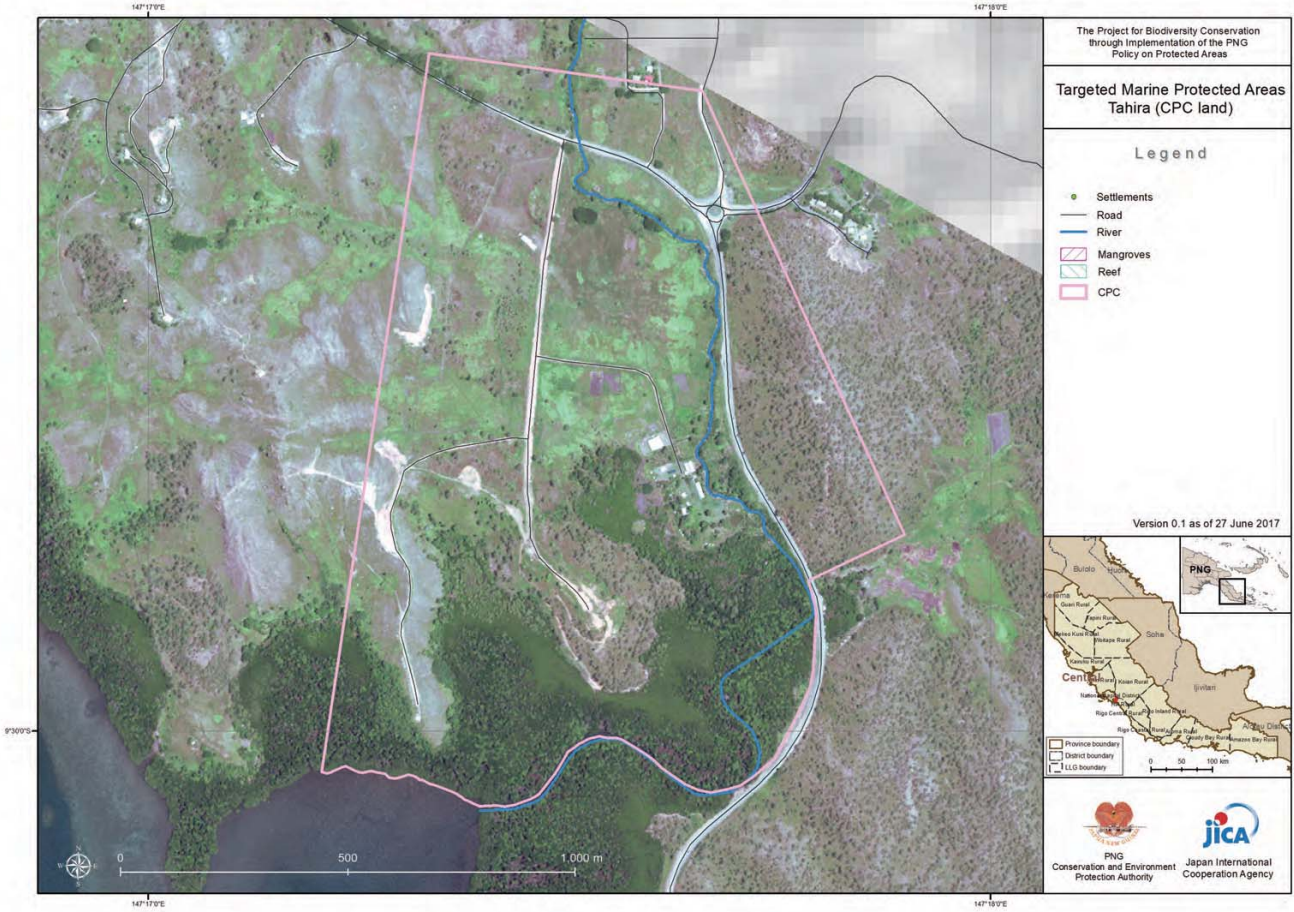
- Central Papua Conference Bautama Tahira Mangrove Conservation MPA. This MPA allows for zonation include bird watching, boardwalks, mangrove conservation areas and education and research mangrove areas.
- University of PNG (UPNG) Tahira Mangrove Conservation MPA. This project allows for joint collaboration with UPNG for mangrove conservation , education and research.
- Motupore Island MPA. This MPA allows for coral reef, sea grass and mangrove conservation for research and education purposes.
- Aioro (Horseshoe) Reef MPA. This project allows for coral reef conservation and sustainable management to allow for reef fish species sustainability and coral reef conservation.

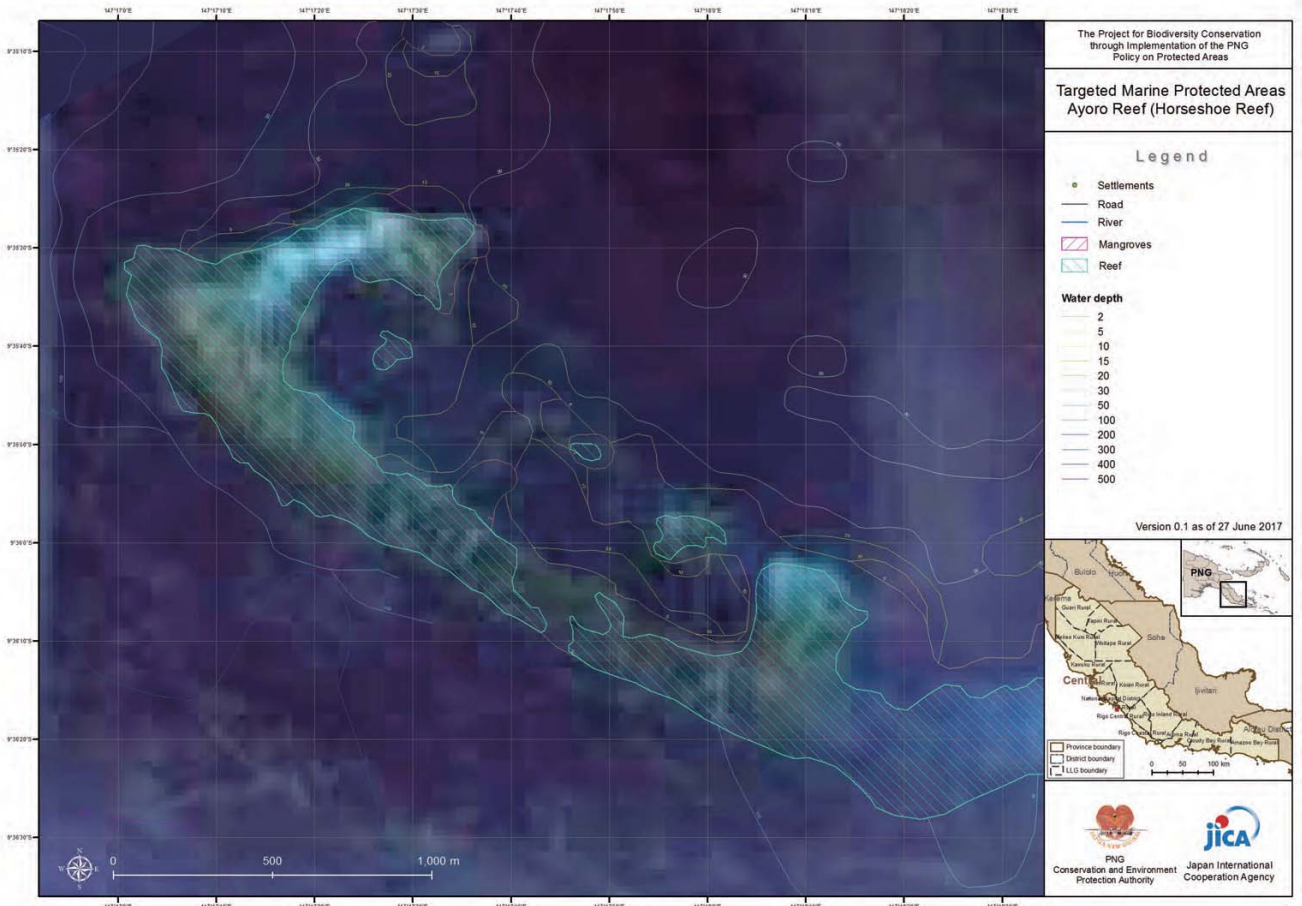
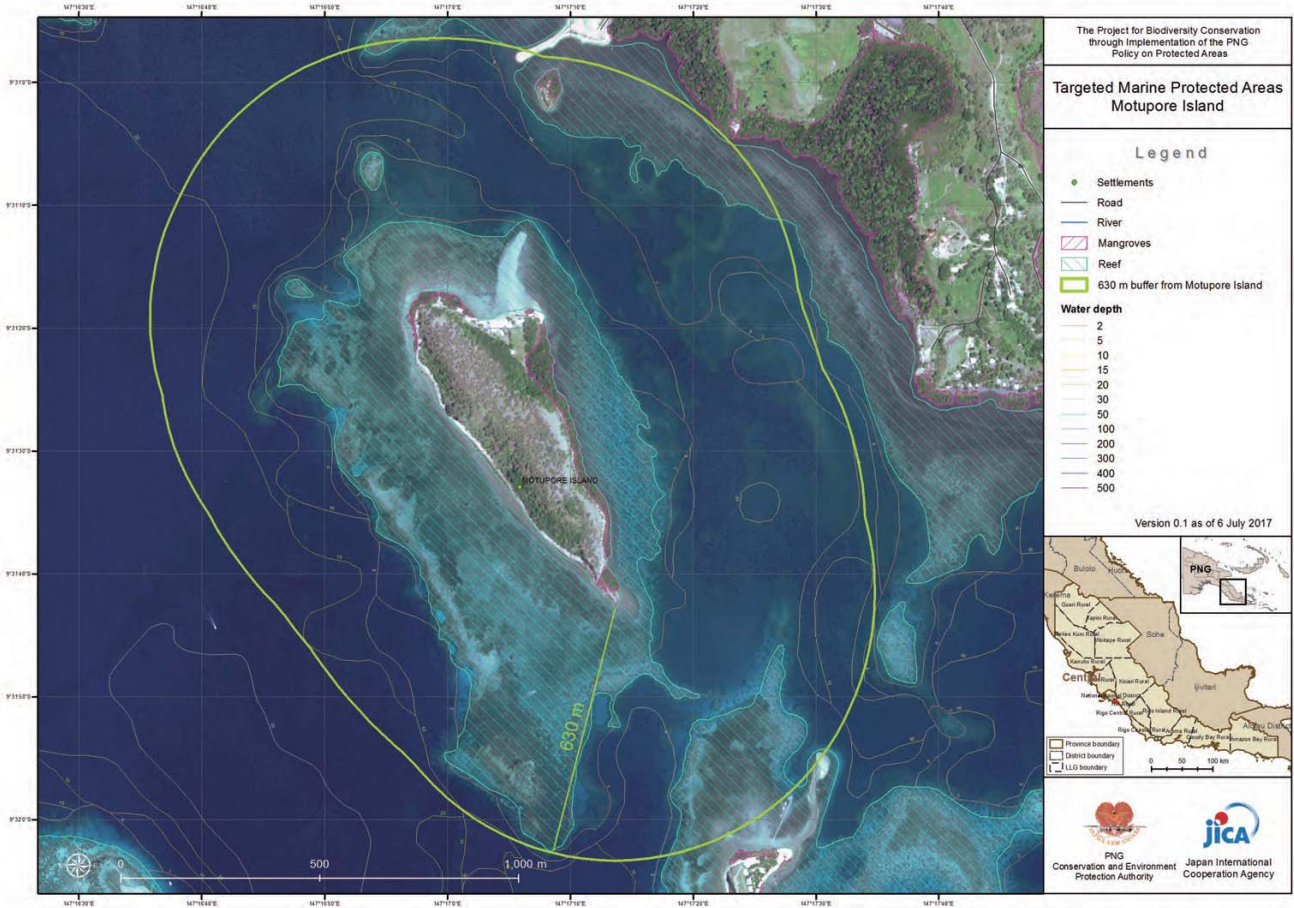


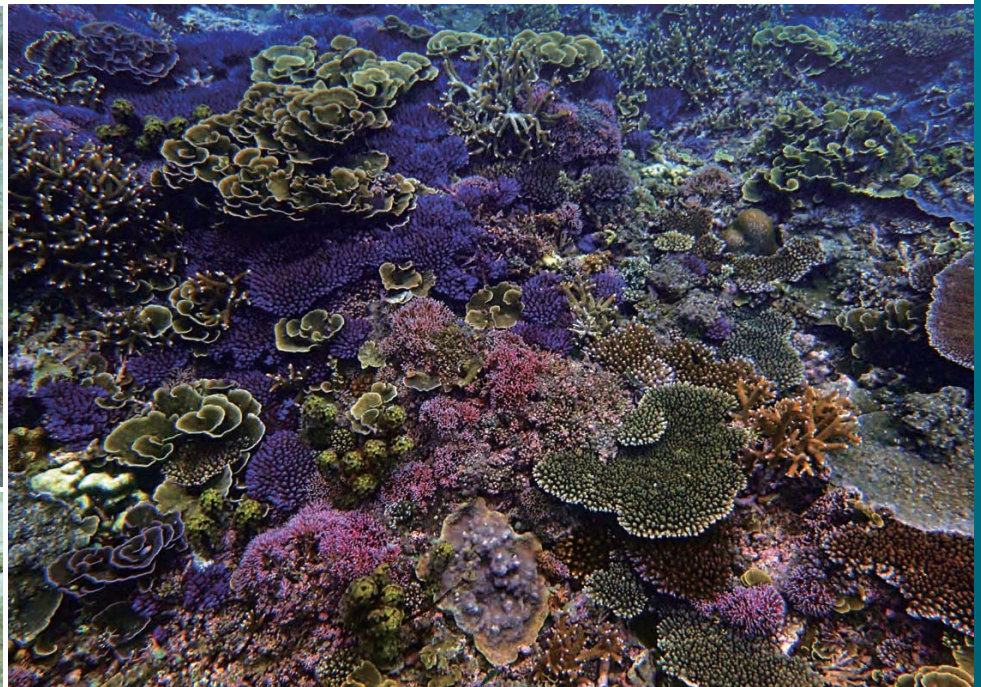
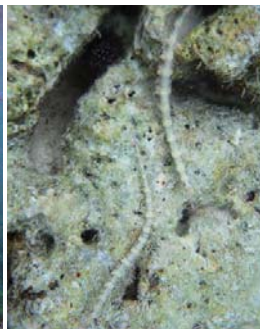
Turbinaria decurrens



Cymodocea rotundata







Technical Cooperation CEPA-JICA Biodiversity Project 2015▶2020 Atlas

Edition

First edition 2017

Issued date

October 2017

Publisher

CEPA - JICA Project Team

Conservation and Environment Protection Authority (CEPA)

Japan International Cooperation Agency (JICA)

Address: P.O.Box 6601, Boroko, National Capital District, Papua New Guinea

Phone: (+675) 301-4500

Fax: (+675) 325-0182

<http://www.jica.go.jp/png/english/activities/activity18.html>

<https://www.facebook.com/pngbiodiv2/>

<http://pngcepa.com/projects/>

Editing and Cartography

Ayako Ochi

Authors

Ted Mamu and Ayako Ochi

Cover design

FINEPROS

Photos

Allen Allison, Hitoshi Watanabe, Koji Asano, Yukio Nagahama and Yoshito Mochizuki

Print production

SONOBE



Conservation and Environment Protection Authority (CEPA)
Japan International Cooperation Agency (JICA)

Address
Project homepage



CEPA - JICA
Biodiversity Project



添付資料 4.2.8 Field guide brochure: Plants, Mammals, Birds, Reptiles, Flogs, Invertebrates)



When learning about the plants of Varirata National Park it is useful to know a little plant classification. Plants that can internally transport nutrients and water are vascular plants. This group includes ferns, which reproduce from spores, and also plants that produce seeds. This latter group includes gymnosperms, which produce seeds in unprotected structures such as cones, and plants with flowers that produce seeds within a fleshy ovary or fruit

Ferns are generally easy to recognise by their feathery or leafy fronds and often by the appearance of yellow or golden spores on their undersides. They are mostly found in the forest interior, particularly in damp areas, but some species have adapted to seasonally dry habitats and are common in the savannah grasslands in the northern parts of the Park. One species, a shield fern (*Stichurus*) covers large areas of the floor of secondary forest. Most fern species grow in soil but many species are epiphytes which means that they grow on another plant, usually a tree, which provides support.

There are only a few species of gymnosperms occurring the Park. These include cycads, fern-like plants restricted in the Park to the savannah grasslands, and well known rainforest trees such as tulip - a species that has leaf-like foliage and is often mistaken for a flowering plant. The Klinki and Hoop Pines planted around the main lookout are also gymnosperms.

The flowering plants in VNP include at least 300 different kinds of trees, a large number of shrubs, a profusion of vines and at least 70 species of orchids, most of which are epiphytic. Many of the trees produce large, fleshy fruits that are eaten by mammals and birds including honeyeaters, birds of paradise and cassowaries.

A list of all the different plants from a geographic area is termed a **Flora**. The world flora, for example, includes around 300,000 different vascular plants. Around 5% of

these (about 14,000) are found in Papua New Guinea. The flora of VNP includes about 150 species of ferns, at least five species of gymnosperms, and around 850 to 900 species of flowering plants. This is an extraordinarily diverse assemblage that represents around 7% of all the different kinds of plants found in Papua New Guinea.

The physical or structural appearance of a plant community is generally referred to as **Vegetation**. The type of vegetation found in an area is strongly influenced by climate, mainly temperature and rainfall. There are three main types of vegetation found in the Park. These include **Eucalypt Savannah** which is the dominant plant community found around Port Moresby and characterized by scattered gum trees with an understory of grasses. **Secondary forests**, readily recognized in the Park by the presence of the dominant species, *Gymnostoma* (*Gymnostoma papuana*), which is recolonizing areas that were formerly cleared for a coffee plantation. **Primary forest or Rainforest** is the largest and most diverse assemblage of plants in the Park, and covers most of the areas along the walking tracks and the entire area south of the main picnic ground.

There are also more than 50 different kinds of introduced plants found in the Park. Introduced plants are those that do not occur naturally in an area but have become established, deliberately or accidentally, by people. These plants are found mostly around public use areas such as the main lookout and picnic grounds but two of them, *Clidemia* and *Spiked Pepper*, are invading the forests and displacing native species. These are considered serious pests in Papua New Guinea. Please be careful not to spread them to other areas.

The following letter keys are used in the photo captions:
I: introduced, PF: primary forest, SF: secondary forest,
ES: eucalypt savannah

Oakleaf Fern *Drynaria quercifolia* (Polypodiaceae) PF, SF, ES
Common on boulders in eucalypt woodland. Basket-forming epiphyte or climber, also found on trees throughout the Park.



Ghost Gum *Corymbia papuana* ES
Tree to 40 m; distinctive white trunk; whitish flowers an important source of nectar for honeyeaters and lorikeets.



Tulip Gnetum *Gnetum* (Gnetaceae) (trunk and foliage) PF
Gymnosperm; tree up to 20 m; distinctive raised rings around trunk; broad leaves; red fruit; bark used for bilmu twine.



Sumac *Rhus latensis* (Anacardiaceae) SF
Tree to 30 m; common in secondary forest and forest edge. Large clusters of white flowers in early dry season; fruit black.



Gymnostoma *Gymnostoma papuana* (Casuarinaceae) SF
Pioneering tree to 30 m; dominant tree in secondary forest; fruit cone-like, this is a flowering plant, not a gymnosperm.



Umbrella Tree *Schefflera thauasiana* (Araliaceae) PF, SF
Tree to 10 m; common at forest edges; palm-shaped leaves. Small reddish flowers produced on spikes; fruit a black berry.



Shield Fern *Stichurus mihel* (Gleicheniaceae) PF, SF
Branching fern; pioneering species that forms dense thickets up to 3 m in forest gaps and open areas.



Butterfly Tree *Evdellia muelleri* (Rutaceae) SF
Tree to 10 m; flowers in conspicuous bunches; pink; leaves with three leaflets; source of nectar for butterflies & birds.



Kangaroo Grass *Themeda triandra* (Poaceae) ES
Grass up to 1.5 m; reddish spikelets produced on branched stems. It has deep roots, grows back quickly following fires.



Birthwort *Artischochia momandi* (Aristolochiaceae) PF
Vine with heart-shaped leaves. Flowers prominent, purplish. This is the primary food plant of the Birdwing Butterfly.



Clidemia *Miconia crenata* (Melastomataceae) I, PF, SF
Shrub up to 5 m; flowers small, white. Fruit a small purple berry. An invasive species originally from South America.



Ant Plant *Mymecodia platyrea* (Rubiaceae) PF, SF, ES
An epiphyte with small white flowers and a swollen base that is inhabited by ants, a relationship known as mutualism.



PLANTS

Varirata National Park (VNP) is PNG's first national park, declared on 10th December 1969 and officially opened on 18th October 1973. It is on state land on the Sogeri Plateau at an elevation of 600–900 m and covers an area of 1,063 ha. It is 48 km east of Port Moresby City and accessible by road. The land was locally called *Wodobonomu* and was the traditional hunting ground of the Koiari people.

VNP has scenic views and beautiful rainforests, savannah grasslands and secondary regrowth. The average annual rainfall is 1400–2000 mm. The Park is inhabited by some unique plants and animals such as forest wallabies, possums, bandicoots, cassowaries, the raggiana bird of paradise, as well as many extraordinary reptile and frog species, and a rich variety of remarkable insects.

The Park is one of the best places in the country to learn about biodiversity. It is visited by dozens of nature tours each year and attracts researchers from throughout the world. It is also an important training site for students from surrounding universities.

Conservation & Environment Protection Authority
Level 5 Dynasty Tower A Savannah Heights Waigani Drive
P.O. Box 6601 BOROKEO NCD Papua New Guinea
Tel: (+675) 301 4500 email: kkalim@dec.gov.pg

www.jica.go.jp/png/english/activities/activity18.html
www.facebook.com/pngbiodiv/

Photography Angus Fraser, Allen Alison, Text Allen Alison, Design Mike McCoy
This Guide Map was produced through the activities of CEPA-JICA Biodiversity Project (2015-2020), which was the joint initiative between the governments of PNG and Japan for the revitalization of Varirata National Park.





Papuan Oak *Castanopsis acuminatissima* (Fagaceae) PF
Tree to 35 m; easily recognized by ring of root suckers around the trunk; fruit a spiny nut that is eaten by people as well as parrots.



Bottlebrush Orchid *Dendrobium smillieae* (Orchidaceae) PF
Epiphytic, with grass-like leaves. Flowers grow in clusters with distinctive green, hooded lip; pollinated by birds.



Cycad *Cycas campestris* (Cycadaceae) ES
Plants up to 2.5 m, with a single shaggy trunk topped with a crown of fern-like leaves; fruit an ovoid nut, toxic; fire resistant.



Tropical Mistletoe *Amyema cf. friesiana* (Loranthaceae) PF, SF
Parasite; leaves thick and brittle; flowers in triads up to 30 mm long; fruit small, with special features to attach to host plants.



Spiked Pepper *Piper adnucum* (Piperaceae) I; PF; SF; ES
Tree or shrub to 7 m; native to Central and South America; serious invasive pest that has spread throughout the Old World tropics.



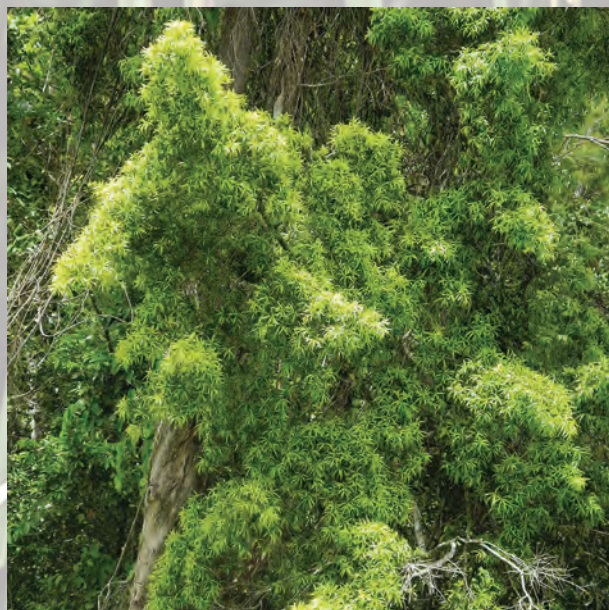
Hyacinth Orchid *Dipodium squamatum* (Orchidaceae) ES
Ground orchid, with showy spikes of pink flowers; leafless, regarded as mycoheterotrophic (parasitic on soil fungi).



Planchonia *Planchonia papuana* (Lecythidaceae) PF
Rainforest canopy tree to 35 m; leaves toothed, flowers to 10 mm diameter with numerous stamens, probably pollinated by bats.



East New Guinea Fig *Ficus rhizophoriphylla* (Moraceae) PF, ES
Trees to 15 m, primarily at forest edge; fruit bright orange; eaten by a variety of pigeons, doves and birds of paradise.



Brown Pine *Podocarpus neriifolius* (Podocarpaceae) PF
Gymnosperm; trees to 25 m tall; leaves spirally arranged; Female cone solitary, reddish; important food tree for birds of paradise.



Tropical Banksia *Banksia dentata* (Proteaceae) ES
Shrub up to 6 m; large cone-like head of showy, yellow flowers; a source of nectar for insects, birds and nectar-feeding mammals.



Chalmers' Neonauclea *Neonauclea chalmersii* (Rubiaceae) PF
Aquatic shrub growing to 4 m; restricted to streams; flowers in heads, 15-20 mm in diameter; leaves narrow, tapering to a point.



Melastome *Melastoma polyanthum* (Melastomitaceae) PF
Shrub 2.5 m tall; common along the walking tracks; leaves large, hairy with three parallel veins; mauve flowers; fruit a black berry.



Pandanus *Benstonea stenocarpa* (Pandanaceae)
Understory tree to 5 m; leaves slender, to 2.7 m long; fruit large, scarlet, oblong, head-like cluster; eaten by birds and mammals.



Common Pitcher Plant *Nepenthes mirabilis* (Nepenthaceae) ES
Terrestrial climber; carnivorous plant with spikes of red flowers and leaves modified into fluid-filled pitchers that trap insects.



Semecarpus *Semecarpus cassuvium* (Anacardiaceae) PF
Tree to 10 m; flowers white; fruit fleshy with a central stone and borne on a yellowish receptacle; sap black; can cause skin rash.



Water Chestnut *Eleocharis dulcis* (Cyperaceae) SF, Aquatic
Grass-like sedge up to 2 m, common in shallow water at edges of lakes; occasionally cultivated in PNG to make grass skirts.

Mammals are warm-blooded animals that possess hair or fur and nourish their young from special milk producing glands. This group includes humans as well as a very diverse array of other animals such as cats and dogs. There are approximately 5,330 species of land mammals in the world. A total of 293 mammal species (5.4% of the world total) occur in Papua New Guinea and 44 of these (a sixth of the country total) occur in Varirata National Park. There are four general mammal groups represented in Papua New Guinea.

Monotremes. These are egg-laying mammals that are found only in Australia and New Guinea. Two species occur in PNG. One of these, the Short-beaked Echidna *Tachyglossus aculeatus*, has been reported from Varirata National Park but there have not been any recent sightings.

Marsupials. This is actually a diverse group with three main evolutionary branches: (a) carnivorous (meat eating) species such as quolls, (b) the bandicoots and (c) a broad group that includes possums, kangaroos and their relatives. Marsupials differ from other mammals by giving birth to very small, incompletely developed young that are carried in pouches where they suckle and complete development.

Rodents. This group accounts for a third of all the mammals found in PNG and includes such familiar animals as rats and mice. Most species live on the ground but a few are arboreal, meaning that they live in trees. Most rats are vegetarian, eating seeds and fruit. They are generally small but some New Guinea species can reach a weight of at least 1 kg.

Bats. These are the only mammals that are truly adapted for sustained flight. This group includes the large fruit bats or flying foxes familiar to the residents of Port Moresby, as well as the small insect-eating (insectivorous) species that are often seen at dawn and dusk. All of these small insect-eating species use high-frequency sound to locate prey. These bats call as they fly and listen to the reflected echoes to map their surroundings. This system, which is

similar to sonar, is called echolocation. Their calls are beyond the range of human hearing but can be detected with special equipment. Each species gives a distinctive call. Interestingly, some species of moths can detect bat calls and take evasive action to avoid being eaten by the bats.

The fruit bats range in size from small flower-feeding species such as the Common Blossom Bat *Synchonycteris australis*, which weighs about 15 g, to large, fruit-eating species such as the Spectacled Fruit Bat *Pteropus conspicillatus* which can weigh up to 1.4 kg. Fruit bats generally lack the capacity for echolocation, although some species use the sound of their wings to help navigate through forests.

In addition to the native mammals, there are six species of non-native or introduced mammals found in Papua New Guinea. These include the house mouse, two species of rats, wild pigs and Rusa Deer. All but the house mouse and one species of rat are found in Varirata National Park.

Although rats are common in the Park, most species are shy and nocturnal (active only at night), and can be difficult to observe. Rats have a good sense of smell and quickly hide when they sense danger. The insectivorous bats can commonly be seen at dawn and dusk in open areas in the Park but they fly so quickly that it is nearly impossible to identify them to species. The fruit bats often congregate around flowering and fruiting trees and can be seen at night when they are feeding.

With patience, and using a torch to spotlight, marsupials can often be seen by slowly walking along the tracks at night, when most species are active. The wallabies and bandicoots can sometimes be seen along the road verges when they come out to feed at dusk or in the early morning. The Agile Wallaby *Macropus agilis* is active during the day and with luck can be seen in the eucalypt savannah areas.



MAMMALS



Varirata National Park (VNP) is PNG's first national park, declared on 10th December 1969 and officially opened on 18th October 1973. It is on state land on the Sogeri Plateau at an elevation of 600–900 m and covers an area of 1,063 ha. It is 48 km east of Port Moresby City and accessible by road. The land was locally called *Wodobonomu* and was the traditional hunting ground of the Koiari people, and wherever possible Koiari names are included with the common names for each species depicted in this brochure.

VNP has scenic views and beautiful rainforests, savannah grasslands and secondary regrowth. The average annual rainfall is 1400–2000 mm. The Park is inhabited by some unique plants and animals such as forest wallabies, possums, bandicoots, cassowaries, the raggiana bird of paradise, as well as many extraordinary reptile and frog species, and a rich variety of remarkable insects.

The Park is one of the best places in the country to learn about biodiversity. It is visited by dozens of nature tours each year and attracts researchers from throughout the world. It is also an important training site for students from surrounding universities.

Conservation & Environment Protection Authority
Level 5 Dynasty Tower A Savannah Heights Waigani Drive
P.O Box 6601 BOROKEO NCD Papua New Guinea
Tel: (+675) 301 4500 email: kkalim@dec.gov.pg

www.jica.go.jp/png/english/activities/activity
www.facebook.com/pngbiodiv/

Photography Angus Fraser, Pavel German, Roy & Margaret Mackay, Mike McCoy
Allen Allison, Harold Cogger, Text Allen Allison, Design Mike McCoy
This Guide Map was produced through the activities of CEPA-JICA Biodiversity Project (2015-2020), which was the joint initiative between the governments of PNG and Japan for the revitalization of Varirata National Park.



Relatively small insectivorous bat, up to 11 g. The upper fur is grey-brown, the underside mottled grey and brown. It is widespread in New Guinea and Australia. In New Guinea it occurs up to 1600 m. Its flight is relatively slow and it can hover as it picks its insect prey from vegetation. It is found in both primary and secondary forest.

Eastern Horseshoe Bat
Rhinolophus megaphyllus



Medium-sized insectivorous bat, up to 18 g. The fur is grey-brown at the base, darker brown to reddish-brown at the tips. The underside similar, often a bit darker. Widespread in New Guinea and Australia. It occurs in New Guinea from sea level to more than 2000 m and is found in both primary and secondary forest. It is a fast flyer as it captures its insect prey.

Eastern Bent-winged Bat
Miniopterus oceanensis



Small bat, up to 21 g. The fur is dark brown, somewhat paler on the underside. The tail is absent. It is widespread in New Guinea and Australia, up to 3000 m elevation. In VNP it is present in eucalypt savannah and primary and secondary forest. It feeds on nectar, pollen, fruits and probably also insects. It is extremely abundant.

Common Blossom Bat
Synchonycteris australis



Small fruit bat, up to 32 g. The fur of back and flanks whitish at the base, brown at the tips. The undersides are whitish to golden. The wings are dark brown with yellowish spots. The nose is tubular and the eyes are amber. Widespread in New Guinea up to 1700 m elevation. It primarily forages in the understory of primary forest feeding on nectar and fruit.

Common Tube-nosed Bat
Nyctimene albiventer





M. McCoy

Short-beaked Echidna
Tachyglossus aculeatus

Distinctive monotreme mammal up to 1.7 kg. It is easily distinguished from other New Guinea mammals by a dense covering of spines (modified hair) over the upper body and its long, thin, straight snout. It is widespread in New Guinea and Australia. In New Guinea it occurs from lowlands to 1700 m. It feeds on termites, ants and soil invertebrates.



M. McCoy

Agile Wallaby
Macropus agilis

Small kangaroo, up to 20 kg. The fur is coarse, tan on the back and sides, whitish below. There is a distinctive white hip stripe. It is widely distributed in southern and eastern New Guinea and coastal Australia up to around 700 m elevation. It grazes primarily on grass but also eats fruit and foliage. It is generally restricted to open areas such as eucalypt savannah.



A. Allison

Common Bush Wallaby
Thylogale brunii

Moderate-sized wallaby, males to 18 kg, females to around 9 kg. The upper parts are dark brown, the undersides are whitish. The tail is relatively thick and short, carried on the ground. It is widespread in New Guinea, ranging from sea level to the foothills. It is often seen grazing on grass on verges along roads and tracks.



P. German

Long-nosed Echymipera
Echymipera rufescens

Moderate-sized bandicoot, females to 1 kg, males to 2 kg. The fur is coarse, spiny. The colour is generally dark brown with a rust-coloured tinge. It is widely distributed in northern Australia and New Guinea up to 2000 m. It feeds mostly on fruit and fungi, also insects and other invertebrates. It is found throughout VNP, particularly in grasslands and forest edges.



R. Mackay

Giant Bandicoot
Peroryctes broadbenti

Large bandicoot, males up to 5 kg. The fur is coarse and dark brown with reddish flanks. The tail is short, black, often with a white tip. It is endemic to PNG, occurring from lowlands to 1000 m on the SE peninsula of PNG. Its habits are poorly known, thought to feed on fruit, fungi and insects. It is found mainly in primary forest, occasionally in secondary forest.



A. Fraser

Short-snouted Bandicoot
Isoodon macrourus

Moderate-sized bandicoot, females to 1 kg, males to 2 kg. The fur is coarse, brown, fading to white on the lower flanks. The undersides are whitish, as are the feet. It is widely distributed in PNG and northern Australia, up to 1200 m. It feeds mainly on fruit and insects. In VNP it is found mainly in eucalypt savannah and secondary forest.



M. McCoy

New Guinea Quoll
Dasyurus albopunctatus

Moderate-sized marsupial, up to 1 kg. It is the largest carnivorous marsupial occurring in PNG. It is widely distributed in New Guinea, up to 2000 m elevation. The fur is dark brown suffused with black, with distinctive white spots. It is nocturnal and partly arboreal, preying on small reptiles, birds and mammals. It is mainly found in primary forest.



M. McCoy

Short-furred Dasyure
Murexia longicaudata

Small rat-like marsupial, males to 440 g; females to 90 g. The fur is light grey-brown, the undersides light grey. It is endemic to New Guinea where it is widespread to elevations up to 2000 m. Occurs only in primary forest. Carnivorous, feeding mainly on insects, but like other dasyurid mammals it likely also preys on small vertebrates such as lizards.



A. Fraser

Southern Common Cuscus
Phalanger intercastellanus

Moderate-sized cuscus, up to 2.2 kg. The fur is short, greyish white in males, females with a reddish tinge. A dark vertebral stripe runs from the snout and along the back. The undersides are whitish. Widely distributed in New Guinea up to 1200 m. There is a disjunct population on Cape York in Australia. It is arboreal and nocturnal, feeding mainly on fruits and seeds.



P. German

Common Spotted Cuscus
Spiloglossus maculatus

Large cuscus, up to 6 kg. The fur is short and variable in colour. The form in VNP is generally a mottled brown with light brown undersides. The ears are noticeably short. Occurs from eastern Indonesian islands to New Guinea and Cape York Peninsula in Australia, up to 1200 m elevation. It is highly arboreal, feeding on a wide variety of fruit and foliage.



P. German

Sugar Glider
Petaurus breviceps

Small glider up to 165 g. The colour is generally grey or brown above with whitish to yellowish undersides. A black vertebral stripe runs from the snout to the tail. The tail is long and bushy. It has a furred membrane between legs, extended for gliding. It is widely distributed in Australia and New Guinea. It is highly arboreal, feeding on nectar and insects.



H. Cogger

Striped Possum
Dactylopsila trivigata

Small possum, up to 500 g. The colouration is boldly striped black and white. The tail is long, mainly black, with a white tip. The fourth finger is noticeably long. It is distributed across New Guinea up to 2300 m but most common in hill forest. It also occurs on Cape York Peninsula in Australia. It is highly arboreal, feeding primarily on insects and other invertebrates.



A. Allison

Mottled-tailed Giant Rat
Uromys caudimaculata

Large rat up to 700 g. Sandy to grey-brown, underparts whitish. The tail is mottled with brown and whitish patches with a white tip. It is widely distributed in New Guinea and northern Australia from lowlands to nearly 2000 m. It is terrestrial in primary and secondary forest, feeding on fruit, seeds, insects and small vertebrates.



A. McCoy

Chestnut Tree Mouse
Pogonomys macrourus

Small rat up to 45 g. The fur is soft, generally light brown to grey-brown, often with a reddish tinge. The undersides are white and the tail is dark brown to black. It is endemic to New Guinea where it occurs from sea level to 1300 m, but mainly is a hill forest species. It is highly arboreal, mainly in low vegetation and likely feeds on seeds and insects.



M. McCoy

Grasslands Melomys
Melomys lutillus

Small rat up to 35 g. The upper parts are light grey-brown, whitish or buff below. The tail is nearly naked with non-overlapping scales. It is widely distributed in New Guinea and possibly belongs to the same species as *Melomys* populations in northern Australia. It is terrestrial and in VNP it inhabits eucalypt savannah, feeding on vegetable matter.



A. Fraser

Rusa Deer INTRODUCED
Cervus timorensis

A large deer, females to 80 kg, males to 120 kg. The fur is a greyish-brown with darker hindquarters. The males have antlers. Originally from the islands of Java, Bali and Timor, introduced to western New Guinea in 1928, it has spread throughout much of SW PNG. It is a grazer, active in the early morning and late afternoon, mainly in secondary forest.

Varirata National Park has long been recognised as an important bird watching destination both locally and internationally among amateur, enthusiastic and obsessive twitchers alike. Many bird watching tours commence their itinerary in VNP and for good reason. There are 99 families, 335 genera and 813 species of birds known from Papua New Guinea and VNP includes a rich proportion of these, with 58 families, 150 genera and 331 species. These species can be observed in a variety of distinctively different habitats including: savannah and eucalyptus woodland, secondary forest, primary forest, aquatic (waterways and lakes) and the zones where habitats converge (edge zones).

Iconic Species

Many of PNG's iconic species occur within VNP and are well worth searching for. Five species of birds of paradise (Raggiana Birds of Paradise; Magnificent Birds of Paradise; Growling Riflebird; Crinkle Collared Manucode; Glossy Manucode) the New Guinea Harpy Eagle, two species of Paradise Kingfishers, the rare Forest Bittern, Gurney's Eagle and the very shy and secretive Southern Cassowary all occur in different habitats within VNP. The cacophony of Sulphur Crested Cockatoos and Eclectus Parrots combined with the loud and distinctive 'whoosh, whoosh, whoosh' of a flock of Blythe's Hornbills can often be heard along the escarpment trails. With patience, luck and a good guide you have an excellent chance of seeing some of these species. At least seven species are seasonal migrants coming north from Australia during the

austral winter (May to September). These species include the Rainbow Bee-eater, Sacred Kingfisher and the Dollar Bird often seen in secondary forest or open woodland. Other migratory species inhabit VNP's forests including the Buff-breasted Paradise Kingfisher, Red-bellied Pitta, Black-Faced Monarch, and Rufous Fantail.

PNG's national emblem, the Raggiana Bird of Paradise, is perhaps the most widely recognised species that occurs within the Park. Incredibly, during peak breeding season (April–October) there is an excellent chance of seeing as many as five male Raggiana BoP in full breeding plumage vigorously vying for the attention of a female in frenzied displays of colour, dance and avian seduction! This is truly a wonderful and memorable experience and well worth an early start to the day. There are several leks (courtship trees) within the park, however accessibility to the main lek requires little to no exertion being merely 20-30 meters off the tar sealed road on the way to the main Lookout.

Bird Watching in VNP

VNP's network of forest trails make excellent bird watching circuits and also provide opportunities to observe other wildlife. An early start, a local guide or the services of a local and reputable specialist tour operator will enhance your chances of seeing the more secretive species within VNP. The photographs presented in this brochure were taken of birds within VNP and many were photographed at fruiting fig trees within the Main Picnic Area and surrounds.



BIRDS



Varirata National Park (VNP) is PNG's first national park, declared on 10th December 1969 and officially opened on 18th October 1973. It is on state land on the Sogeri Plateau at an elevation of 600–900 m and covers an area of 1,063 ha. It is 48km east of Port Moresby City and accessible by road. The land was locally called *Wodobonomu* and was the traditional hunting ground of the Koiari people.

VNP has scenic views and beautiful rainforests, savannah grasslands and secondary regrowth. The average annual rainfall is 1400–2000 mm. The Park is inhabited by some unique plants and animals such as forest wallabies, possums, bandicoots, cassowaries, the raggiana bird of paradise, as well as many extraordinary reptile and frog species, and a rich variety of remarkable insects.

The Park is one of the best places in the country to learn about biodiversity. It is visited by dozens of nature tours each year and attracts researchers from throughout the world. It is also an important training site for students from surrounding universities.

Conservation & Environment Protection Authority
Level 5 Dynasty Tower A Savannah Heights Waigani Drive
P.O Box 6601 BOROKEO NCD Papua New Guinea
Tel: (+675) 301 4500 email: kkalim@dec.gov.pg

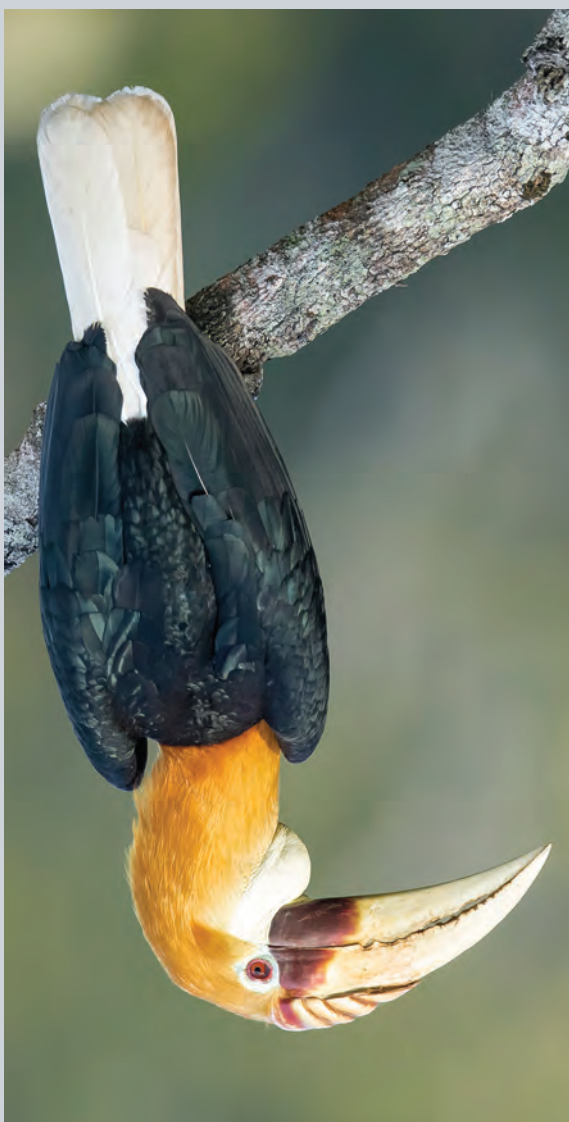
www.jica.go.jp/png/english/activities/activity18.html
www.facebook.com/pngbiodiv/

Photography and text Angus Fraser, Design Mike McCoy
This Guide Map was produced through the activities of CEPA-JICA Biodiversity Project (2015-2020), which was the joint initiative between the governments of PNG and Japan for the revitalization of Varirata National Park.



seen along the Scarp Track within VNP. Common honks and grunts. Vary and difficult to observe but often and white bill, female has a black head. Call a deep resonant 'whoosh, whoosh' of its wing beats. Male has orange head not hunted. Often heard in flight with its distinctive loud wings, orange buff underbelly with pale scalloping on chest. Occurs in secondary forest and eucalyptus woodland within VNP. Male builds a two walled avenue bower typically decorated with green fruit and berries. Shy and wary. Calls are highly variable and a combination of rasping, chirring and harsh notes. Common

Blythe's Hornbill Hure
Rhyticeros plicatus



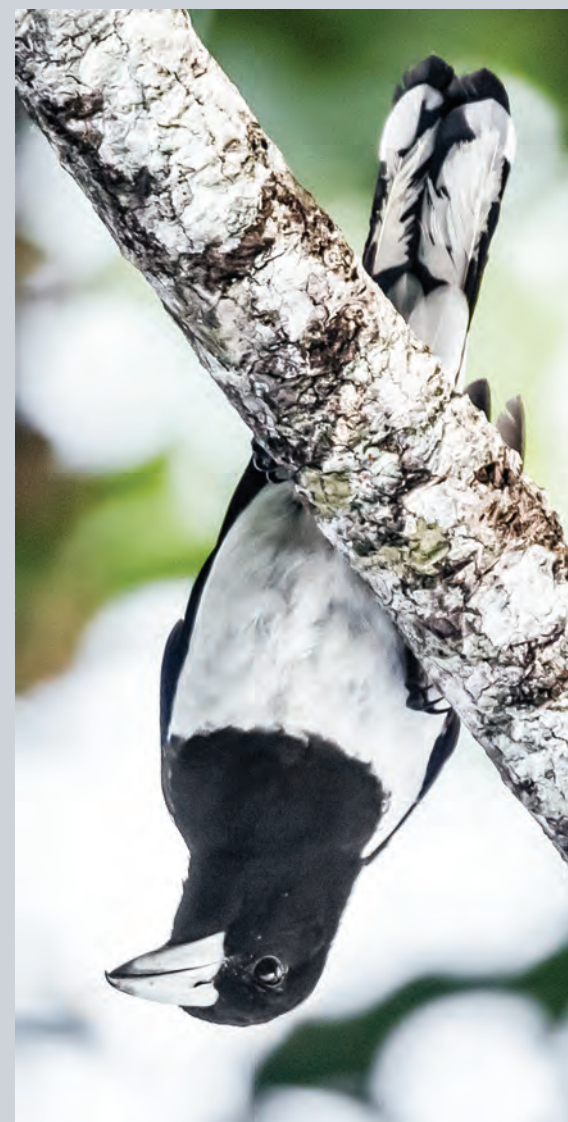
Medium sized pigeon (34-37 cm) with distinctive long tail feathers. Occurs in secondary forest, woodland and disturbed habitats. Male, grey-brown, tail is long and unbarred, with a rosy grey head and faint green iridescence behind the neck. Female is barred on head and breast. Common

Brown Cuckoo Dove Kuohu
Macropygia ambouenensis



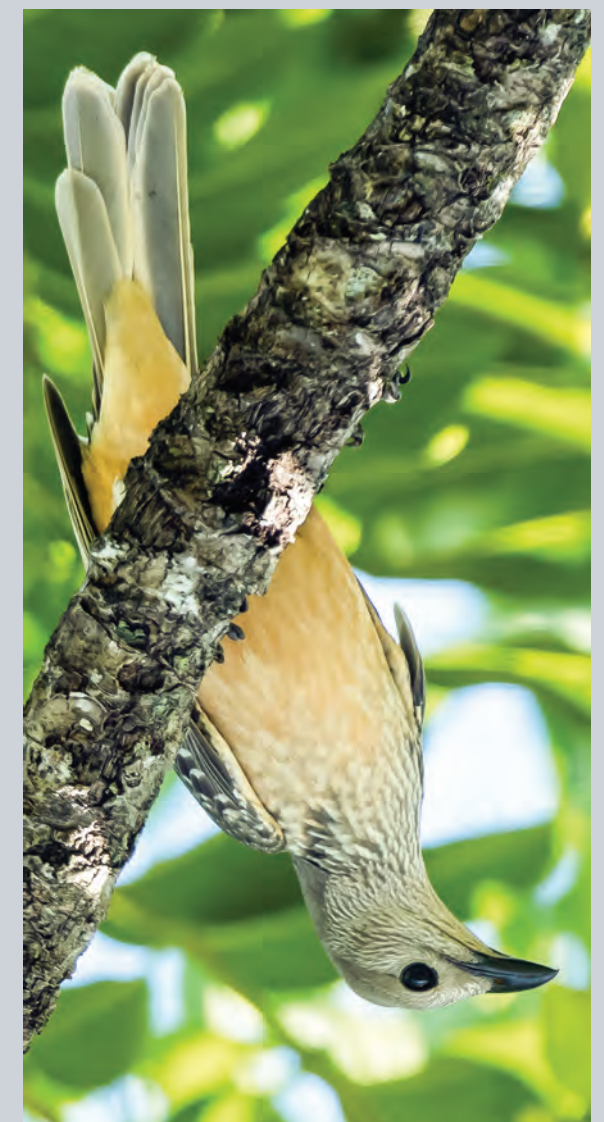
Medium sized bird (32-35 cm) with distinctive plumage: Black head, throat and upper breast and white underparts. Large prominent pale blue hooked bill. Common woodland species often observed in the early morning. Wonderful songster with a range of calls combining bell-like notes and liquid rillicking phrases, hoarse notes, and croaks. Endemic.

Hooded Butcherbird Wahuroka
Cracticus cassicus



A medium sized (28-30 cm) bowerbird, grey-tan back and wings, orange buff underbelly with pale scalloping on chest. Occurs in secondary forest and eucalyptus woodland within VNP. Male builds a two walled avenue bower typically decorated with green fruit and berries. Shy and wary. Calls are highly variable and a combination of rasping, chirring and harsh notes. Common

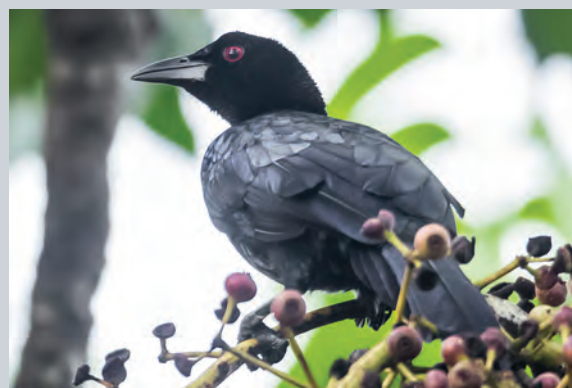
Fawn Breasted Bowerbird Yosevaka
Chamydera cerviniventris





Grey Crow Gayabora
Corvus tristis

A 51-56 cm crow-like bird with large beak, bare pale face and blue iris and relatively long tail. Adult plumage sooty brown. Call a short pitched nasal *creww*, often repeated. A social bird, occurs in small flocks often observed along the park's escarpment. Endemic. **Common**



Crinkle Collared Manucode Ko'akobodu
Manucodia chalybatus

A medium sized (33-37 cm) bird with a red iris and blue-black plumage. Secretive and difficult to observe. Iridescent breast and neck feathers (yellowish green and purple) are apparent in direct light. Occurs in primary and secondary forests in the mid to upper canopy. Favours fig trees. Call is a repeated 'hoo'. Endemic. **Common**



Pink Spotted Fruit Dove Mabukamuni
Ptilinopus perlatus

Large fruit dove (25-27 cm) commonly observed in lowland hill forests. Diagnostic pink spots on the shoulder, mustard coloured neck band, white chin. Dark green wings and pale green belly. Frequently observed in the main picnic area visiting fruiting fig trees. NG endemic. **Common**



Coroneted Fruit Dove Mabutogoro
Ptilinopus coronulatus

Stocky fruit dove (18-19 cm), predominantly dark green with lilac crown edged with a gold band. Yellow under the tail. It occurs in secondary forests and often seen in the main picnic area visiting fruiting fig trees. Solitary and in small flocks. Nests in the understory between 1-5 m above ground. Endemic to NG, **Common**



Raggiana Bird of Paradise Fanaha
Paradisaea raggiana

A medium sized bird (35 cm) occurring in secondary forest, forest edge, and picnic areas where it often feeds on figs, pandanus and other fruiting trees. Male with orange to deep red flank plumes, yellow head and iridescent dark green chin. Call distinctive 'Wau, wau, wau, wau, wau, wau'. PNG Endemic, PNG's national emblem. **Common**



Brown Oriole Seo
Oriolus szalayi

Medium sized bird (25-28 cm) predominantly grey brown, with blackish face patch and dark red iris. Head and neck thickly streaked, as is the pale underbelly. Calls are loud and musical. Feeds on insects and fruit. Shy and wary, it is difficult to observe. Endemic to NG and islands. **Common**



Hooded Pitohui Soroko
Pitohui dichrous

Medium sized bird (22-23 cm) with bold plumage. Head, upperparts and tail are black with chestnut breast and belly. Common in secondary forest and in the vicinity of the Main Picnic Area in VNP. Very unusual species as it is poisonous. Observed in pairs or small groups. A range of calls, the most common is 'pi-to-hui'. NG endemic. **Common**



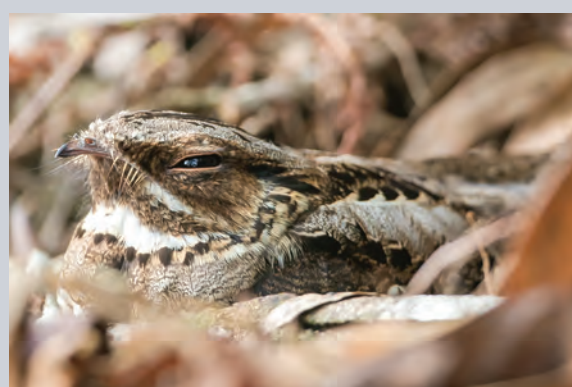
Puff-backed Meliphaga Hugu misimisi
Meliphaga aruensis

Medium sized honeyeater (16-18 cm), olive rump tuft has diagnostic white fringe. Pale yellow ear spot and dark brown iris, stout bill. Difficult to differentiate between other meliphaga species. Commonly observed in VNP in secondary forests and lake side. Endemic to NG and Islands. **Common**



Papuan Frogmouth Humuto
Podargus papuensis

A large bird (46-53 cm) with wide flattened beak and red iris. Plumage is a variable grey-brown, the male with underparts marbled with white blotches and black margins. Female typically lacks marbling. Occurs in secondary forests and often observed in the main picnic area at night. Widespread throughout NG and Australia. **Common**



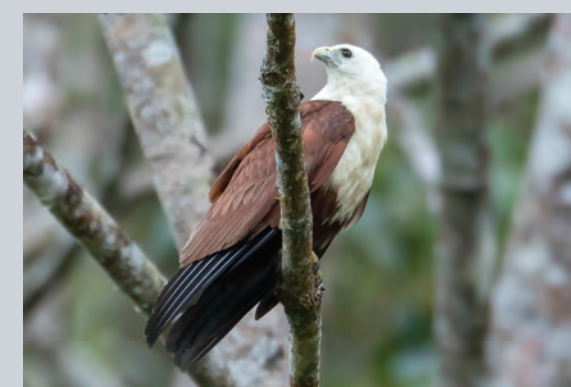
Large-tailed Nightjar Tarobuka
Caprimulgus macrurus

Colouration quite variable. Adults characteristically have white patches on primary wing feathers and tail. Shoulders lined with two rows of lighter coloured spots. White based rictal (whiskers) and white chin gape. Size 25-28 cm. Nests on the ground and is expertly camouflaged. Widespread from SEA throughout NG. **Common**



Azure Kingfisher Heita gigiri
Ceyx azureus

A small kingfisher (16 cm) preferring aquatic habitats feeding on aquatic insects, frogs and fish. Dark blue back, wings and crown with light brown tawny to pale chest. Commonly observed along Narirogo Creek on the Self Guide Track and lakeside. Widespread in NG and **Common**



Brahminy Kite Duna koruta
Haliastur indus

A medium sized raptor (41-43 cm, wingspan 110-125 cm) which frequents savannah, secondary forest and settlements. Distinctive colouration - white chest and head with chestnut wings and belly. Hunts small prey and also scavenges. Call is a meek 'peeyah' similar to a whistling kite. Widespread, India to NG, and Australia. **Common**



Yellow-faced Myna Gorane hisidakoro
Mino dumontii

A medium sized bird (25-26 cm) with bright yellow-orange facial skin, yellow belly and black upperparts, and white patches on rump and wings. Gregarious, frequently observed in eucalyptus woodland, secondary forests and adjacent to human habitation. Call is loud guttural twangs. Often in pairs or small flocks. NG Endemic and Islands. **Common**



Helmeted Friar Bird Kohako
Philemon buceroides

Medium sized bird (33-35 cm) with long slender neck. Face is bare black skin and bill often has a large knob at the base, red iris. Typically vocal and commonly seen in secondary forests, woodland and settlements. Diet consists of insects, and fruit. Widespread throughout NG and islands, also in Australia. **Common**



Rainbow Lorikeet Kihiri kuruku
Trichoglossus haematodus

A medium sized (25-30 cm) noisy parrot, vibrant red-orange breast, dark blue head, red beak with green back and tail. Often seen in pairs or small groups, occasionally large flocks. Occurs in secondary forests and eucalyptus woodland within the park. Nests in tree hollows. Widespread west of NG, Australia and east to Melanesia. **Common**



Southern Cassowary Evadubu
Casuaris casuaris

A very large, unmistakable flightless bird, 1.5m in height. The head has a large bony casque, the face is bare blue, there are double red wattles. The plumage is shiny black, coarse and shaggy. The legs are large and very strongly clawed. Solitary, found in forests, feeds on fallen fruits. Southern NG and northern Australia. Rarely seen in VNP.

Papua New Guinea has a rich diversity of reptiles in eleven major groups that includes snakes, lizards, crocodiles, and turtles. With the exception of the crocodiles, each group is represented in Varirata, and of the 346 species of reptiles known from PNG, 61 of these occur in the Park.

Turtles belong to the **Chelid** family and there is one species of freshwater turtle found in the lakes and streams of the Park. It can occasionally be seen basking in the sun on a log or rock beside the water.

Five groups of lizards may be found in VNP. Geckos or **Gekkonids** occur worldwide. There are two types of geckos in the Park. The arboreal geckos that live in trees and the terrestrial geckos that live under rocks and rotten logs. One species, the common house gecko, lives only in houses. Geckos are nocturnal animals, they feed largely on insects and spiders.

Snake-lizards are **Pygopodids**. They are closely related to the geckos. Two species occur in PNG. They are terrestrial, limbless and snake-like in appearance. Like the geckos and skinks, they can drop their tail as a predator defence.

Skinks or **Scincids** belong to the largest and one of the most diverse families of lizards in the world. Most skinks are active during the day. Depending on the species they can be found under logs, actively foraging in the leaf litter or in trees. Most are largely insectivores, though the Bluetongues will also eat fallen fruit. Some skinks, like the Emo Skinks (*Emoia*) are egg-layers, other species such as the Bluetongue have live young.

Dragon lizards are **Agamids**. There are two species in VNP and both are arboreal. They have long legs with strongly clawed hands and feet, and very long tails. They have a distinctive crest of spine-like scales at the back of their heads. They are agile lizards and active during the day.

The largest lizards in the world belong to the **Varanid** family. They are commonly called goannas or monitors. At least one species of this family is present in the Park. It is a

very shy animal that will flee from humans if disturbed. Its diet comprises arthropods, birds, lizards and occasionally small mammals. Varanids typically have long tails, pointed snouts and a forked tongue like a snake which they flick in and out, "tasting" their surroundings.

There are four groups of snakes occurring in the Park. The smallest are the Blindsnakes or **Typhlopids**. These are worm-like snakes that are burrowers and feed mostly on the larvae and eggs of ants and termites. They are harmless, though they can emit a foul odour if disturbed.

Pythons and Boas belong to the **Boid** family. Both occur in PNG, though only pythons are found in the Park. They are non-venomous and kill their prey by constriction, causing suffocation. Pythons can be very large snakes but they will not attack humans unless provoked. They prey upon birds and mammals, and occasionally other reptiles.

Colubrid snakes belong to the largest and most diverse family of snakes in the world. The snakes in this family are mostly solid-toothed and non-venomous, though some in New Guinea are mildly, but not dangerously, venomous.

The snakes of the **Elapid** family are all venomous, though not all are dangerous. However the group does include the most highly venomous and dangerous snakes of New Guinea of which several are found in the Park. These are the Papuan Taipan, the Papuan Black Snake, the Death Adder, and the Small-eyed Snake. If any of these snakes are encountered, move away from them slowly and quietly. Avoid disturbing them in any way.

Reptiles tend to be secretive animals, very wary of human approach. Although there are many species in the Park, with the exception of the small, active Emo and Rainbow Skinks, most reptiles are not often seen by the casual visitor. Additionally, a number of reptiles, such as the geckos and some of the snakes, are nocturnal. Although many people have a fear of reptiles, particularly snakes, reptiles are nonetheless fascinating animals and are a vital and integral component of the Park's broader environment.



REPTILES

Varirata National Park (VNP) is PNG's first national park, declared on 10th December 1969 and officially opened on 18th October 1973. It is on state land on the Sogeri Plateau at an elevation of 600–900 m and covers an area of 1,063 ha. It is 48 km east of Port Moresby City and accessible by road. The land was locally called *Wodobonomu* and was the traditional hunting ground of the Koiari people, and wherever possible Koiari names are included with the common names for each species depicted in this brochure.

VNP has scenic views and beautiful rainforests, savannah grasslands and secondary regrowth. The average annual rainfall is 1400–2000 mm. The Park is inhabited by some unique plants and animals such as forest wallabies, possums, bandicoots, cassowaries, the raggiana bird of paradise, as well as many extraordinary reptile and frog species, and a rich variety of remarkable insects.

The Park is one of the best places in the country to learn about biodiversity. It is visited by dozens of nature tours each year and attracts researchers from throughout the world. It is also an important training site for students from surrounding universities.



Conservation & Environment Protection Authority
Level 5 Dynasty Tower A Savannah Heights Waigani Drive
P.O. Box 6601 BOROKEO NCD Papua New Guinea
Tel: (+675) 301 4500 email: kkalim@dec.gov.pg

www.jica.go.jp/png/english/activities/activity18.html
www.facebook.com/pngbiodiv/

Photography Angus Fraser, Allen Allison, Scott Eipper, Mike McCoy
Text Nitya Simard, Design Mike McCoy

This Guide Map was produced through the activities of CEPA-JICA Biodiversity Project (2015-2020), which was the joint initiative between the governments of PNG and Japan for the revitalization of Varirata National Park.



Total length to 175 mm, tail length to 110 mm. A terrestrial lizard found in the forest among the leaf litter. The head is gold-brown. The upper body is olive-brown with darker markings. The sides are dark brown with lighter spots. Endemic. Common

Slender Emo Skink Boromai
Emoia physciae



Total length to 180 mm, the tail length to 100 mm. A terrestrial gecko found in leaf litter, under rocks or logs in savannah and forest. Dark brown base colour with or without striped pattern on upper body and tail. Long, thin bent fingers and toes which are strongly clawed. Pointed snout, large eyes. The skin is rough and pimply. Endemic. Common

Ground Gecko Boromai-dubu
Nactus sp.



Total length to 100 mm, the tail length to 60 mm. A small terrestrial skink found around rocks in savannah. There are two distinct cream bands along the brown body. The snout is pointed. The eye is large and covered with a transparent scale. Endemic. Common

Yule Island Snake-eyed Skink Boromai
Cryptoblepharus yulensis



Total length to 95 mm of which the tail is 50 mm. An arboreal gecko found in houses and also in the forest. The body colour is brown to pale tan to cream with irregular light and darker markings. There are expanded pads on the fingers and toes. The eyes are large with vertical pupils and a gold iris. The skin is smooth. SE Asia to Oceania. Common

Common Dwarf Gecko Boromai-kae
Hemiphyllodactylus typus



Total length to 130 mm, tail length to 85 mm. A terrestrial lizard found in the open vegetation of savannahs. The upper body is brown with lighter longitudinal stripes along the sides. The throat is whitish. It has four fingers and five toes. Endemic. Common

Bicarbonate Rainbow Skink Boromai
Carlia bicarinata



Total length to 120 mm, the tail about 60 mm. This gecko is almost exclusively an inhabitant of houses, feeding at night on insects attracted to the house lights. It has a distinctive chirping call. At night, when it is active, this lizard is a uniform light pinkish-tan, during the day its colouration is grey-brown with darker markings. SE Asia-Pacific. Common

Common House Gecko Kae
Hemidactylus frenatus



Total length to 500 mm. A terrestrial lizard found in forests and savannahs. The colour is highly variable, usually a shade of grey or brown with darker markings. Limbs are absent. Feeds mostly on smaller lizards and also insects. Occurs in Australia and Papua New Guinea. Uncommon

Burton's Snake-lizard
Lialis burtonis



Shell length to 26 cm. Aquatic, found in the lakes of the Park. A yellow-cream band runs from the snout to the ear passing over the eyes. The lower jaw with orange-red markings. The carapace (upper shell) is dark brown with orange-red edges, the plastron (lower shell) is bright orange, yellow or pinkish. The body is dark grey. Common

Red-bellied Shortneck Turtle Vero
Emydura subglobosa





A. Fraser

Jobi Skink Eveboro
Sphenomorphus jobiensis

Total length to 230 mm, tail length to 150 mm. Terrestrial, found in the forest among leaf litter and under rotten logs. Stout brown body, large eyes with white eyelids. A distinctive dark round spot near the ear. Lighter vertical barring on the body and tail. Endemic to the New Guinea region. **Uncommon**



M. McCoy

New Guinea Bluetongue Hodo Kae
Tiliqua gigas

This is the largest of the New Guinea skinks, growing to a total length of around 60 cms. It is a terrestrial lizard, found in forest and savannah. It is an omnivore; eating both plant and animal material. Its colouration is a shade of light brown patterned with darker cross bands. It occurs from Indonesia to New Guinea. **Uncommon**



A. Fraser

Forest Dragon Kesoua
Hypsilurus modestus

Total length to 320 mm, tail length to 230 mm. Arboreal, perching and foraging on branches and vines in the forest. Bright green colouration, brownish posteriorly. The legs and tail with darker bands. A serrated crest is present on the neck. It feeds on insects and spiders, and some plant material. Endemic. **Uncommon**



A. Allison

Papuan Tree Dragon
Hypsilurus papuensis

Total length to 600 mm, tail length around 350 mm. This is a large, long-tailed lizard with a spectacular crest on its neck. The colour is a variable shade of yellowish-brown. It is found in forest and forest edges and is almost totally arboreal. It feeds on arthropods and some plant material such as flowers and fruits. Endemic. **Uncommon**



S. Eipper

Peach-throated Monitor Efoka
Varanus jobiensis

This monitor grows to a total length of around 1.2 m with a tail length of 500 mm. It is partly terrestrial, foraging on the ground in forests, though it also readily climbs trees, to search for food or if disturbed on the ground. It feeds on small mammals, birds - particularly nestlings, and reptiles including snakes. It occurs from Indonesia to New Guinea. **Uncommon**



A. Fraser

Montane Blindsnake
Gerrhopilus inornatus

Length to 230 mm. A burrowing worm-like snake found in forest areas, usually in the loose soil under rotting logs. The whole body is smooth and glossy. The head with minute eyes which appear as dark spots. The tail is rounded and blunt. It feeds largely on the larvae of ants and termites. It is a harmless snake. Endemic. **Uncommon**



M. McCoy

Brown Tree Snake Nanahuma
Boiga irregularis

Body length to 2.3 m. Largely arboreal, found in forests, and sometimes also in houses. Very slender with a broad head. Light brown to red-brown body, light yellowish belly. The eyes are large with vertical pupils. Nocturnal (active at night). Feeds on geckos, birds and small mammals. Found in the Australia-Pacific region. Mildly venomous. **Common**



A. Fraser

Slatey-grey Snake Varaka-kae
Stegonotus cucullatus

Body length to 1 m. Terrestrial, found in forest among leaves and under rocks and fallen timber. It is active at night (nocturnal). The body is light to dark grey-brown, the scales are black-edged. The eyes are large with round pupils. This snake can be aggressive and bites readily if disturbed. Found in the Indo-Australian Region. Non-venomous. **Uncommon**



A. Fraser

Common Keelback Nanahuma
Tropidonophis mairii

Body length to 900 mm. Semi-aquatic and terrestrial, found in the forest near water bodies. The body is slender and the head is distinct from the neck. Colouration is a shade of brown to greenish-brown with dark brown spots. It feeds mainly on frogs. Found in the Indo-Australian Region. Non-venomous. **Common**



A. Fraser

Southern White-lipped Python Moe
Bothrochilus meridionalis

Length to 2.5 m. Terrestrial; found in forest near water bodies. A heavily built python, the head is long and distinct from neck. The body is uniformly dark brown with a strong iridescent sheen. The lips are white. It feeds on mammals such as bandicoots. Southern NG and islands of Torres Strait. Non-venomous. **Uncommon**



A. Fraser

Amethystine Python Hiniku
Morelia amethystina

Body length to 5 m. PNG's longest snake. Terrestrial and arboreal. Found in savannah, forest and along river banks. The body is slender, the head is large and elongate. The colouration is highly variable from dark grey-brown to sandy brown with darker markings. The body has an iridescent sheen. Indo-Australian region. Non-venomous. **Uncommon**



M. McCoy

Green Python Boreka
Morelia viridis

Body length to 1.5 m; Mainly arboreal, found in forest, savannah and disturbed areas. The body is long and laterally compressed. Adult snakes are bright green with or without white spots, juveniles are bright yellow with scattered brown markings. Feeds on small mammals and occasionally birds. Indo-Australian Region. Non-venomous. **Uncommon**



A. Fraser

New Guinea Death Adder Tahadu DANGEROUS
Acanthopis laevis

Body length to 500 mm. Terrestrial, occurs in rainforest, savannah and plantations. The body is quite stout, the head is large and broad and distinct from the neck. The eyes are large with vertical pupils. The colour is variable, basically brown with darker markings. It feeds mainly on small mammals. Found in the Indo-Australian region. **Common**

HIGHLY VENOMOUS



A. Fraser

Small-eyed Snake Matabea DANGEROUS
Micropechis ikaheka

Body length to 2 m. Terrestrial, found in forest. Stocky body with narrow head barely distinct from the neck. The eyes are very small. The head is dark grey, the body is yellow-cream, darker posteriorly. Darker banding may be distinct or indistinct. Feeds on small mammals and reptiles including other snakes. Potentially aggressive. **Uncommon**

HIGHLY VENOMOUS



A. Allison

Papuan Taipn Yarama DANGEROUS
Oxyuranus scutellatus canni

Body length to 3 m. Terrestrial, found in savannah and in the vicinity of human habitations. This snake is very swift moving and potentially aggressive. It is large and slender snake with an elongate head and large eyes. The body is grey-brown, distinctly reddish posteriorly. This is an endemic subspecies of the Australian taipans. **Uncommon**

HIGHLY VENOMOUS



A. Allison

Papuan Black Snake Yarama DANGEROUS
Pseudechis papuanus

Length to 2 m. Terrestrial, found in savannah and forest edges. The body is stout, the head broad with a rounded snout, and not distinct from the neck. The colour is uniformly black above and below, the lips and chin are whitish. Occurs in NG and several islands in Torres Strait. **Uncommon**

HIGHLY VENOMOUS

Frogs are found all over Papua New Guinea and most occur nowhere else, these are termed endemic species. There are 6 families of frogs in Papua New Guinea, and 5 of them are found in Varirata National Park. There are 24 species of frogs found in the Park, representing 6% of PNG's total of 371 species.

Hylids are mostly frogs that prefer living in trees (arboreal), and so are commonly called tree frogs. Some of the hylid frogs are ground dwelling (terrestrial) and others are semi-aquatic.

Ranids are terrestrial and aquatic frogs. They are found around water bodies such as ponds, creeks and lakes.

Myobatrachids are terrestrial frogs that are found mainly in the leaf litter on the forest floor.

The **bufonids** are toads. There are two toad species in New Guinea, both are introduced and are considered serious invasive pests.

Frogs from these four families lay eggs in water. The eggs hatch into free-living tadpoles that eventually change into juvenile frogs. This process is called indirect development or metamorphosis.

The fifth family, the **microhylids**, are frogs that have many different characteristics. Some are arboreal, while others are terrestrial or may perch on low vegetation to call (scansorial). The microhylid frogs lay eggs that hatch directly into small frogs. This process is called direct development where there is no metamorphosis.

All the frogs in the Park are nocturnal, meaning they are mainly active during the night. Sometimes if the weather has been overcast and it has been raining, frogs will start becoming active in late afternoon or at dusk.

Water is very important for frogs because they use water for breeding, drinking, and for breathing. Frogs have very thin skin through which they can breathe and drink by absorbing the water and its oxygen around their skin.

Therefore, frogs must always have moist skin and live near water or in wet areas like the rainforest. They can also absorb water from the food they eat. The diet of frogs include a diversity of insects like ants, termites, and beetles.

The frogs can be very colourful and many frogs even have the ability to change their skin colour. The skin colour tends to match the colour of the environment to blend in, like camouflage, so that predators cannot spot the frog so easily. For example, a tree frog will be green to blend with the leaves of trees, whereas a ground frog will be grey-brown coloured to resemble to the ground.

If you cannot spot a frog, you can probably hear them calling. Only male frogs call by using their inflatable vocal sacs below their jaws. Males call to advertise their presence for two reasons: to attract females to reproduce, and to scare off other male competitors. Each frog species has its own specific call, so you can recognize a frog species by its call without seeing it.

Frogs are very important animals as they can indicate how healthy the environment is. If there are many different species of frogs around you, it means the environment is healthy! They also have an important role in the food chain, where they eat many insects and are themselves eaten by many different species of snakes and birds.

Frogs are vulnerable and very sensitive to environmental change. The biggest threats to frogs are habitat degradation and destruction, and diseases. Luckily, Varirata National Park protects many species of animals including frogs from habitat degradation and destruction. However, diseases can still invade the Park and affect the frogs. There is a deadly fungus affecting frogs from all over the world, called the Chytrid fungus. This disease has not yet been introduced to Papua New Guinea, though it occurs in Australia. To prevent any disease transmission to frogs, we recommend that you do not catch frogs in the Park. If you see a sick frog with its belly up and not moving, please inform the Park authorities.



FROGS

Varirata National Park (VNP) is PNG's first national park, declared on 10th December 1969 and officially opened on 18th October 1973. It is on state land on the Sogeri Plateau at an elevation of 600–900 m and covers an area of 1,063 ha. It is 48 km east of Port Moresby City and accessible by road. The land was locally called *Wodobonomu* and was the traditional hunting ground of the Koiari people, and wherever possible Koiari names are included with the common names for each species depicted in this brochure.

VNP has scenic views and beautiful rainforests, savannah grasslands and secondary regrowth. The average annual rainfall is 1400–2000 mm. The Park is inhabited by some unique plants and animals such as forest wallabies, possums, bandicoots, cassowaries, the raggiana bird of paradise, as well as many extraordinary reptile and frog species, and a rich variety of remarkable insects.

The Park is one of the best places in the country to learn about biodiversity. It is visited by dozens of nature tours each year and attracts researchers from throughout the world. It is also an important training site for students from surrounding universities.



Conservation & Environment Protection Authority
Level 5 Dynasty Tower A Savannah Heights Waigani Drive
P.O. Box 6601 BOROKEO NCD Papua New Guinea
Tel: (+675) 301 4500 email: kkalim@dec.gov.pg

www.jica.go.jp/png/english/activities/activity
www.facebook.com/pngbiodiv/

Photography Angus Fraser, Text Nityya Simard, Design Mike McCoy
This Guide Map was produced through the activities of CEPA-JICA Biodiversity Project (2015-2020), which was the joint initiative between the governments of PNG and Japan for the revitalization of Varirata National Park.



Length to 55 mm. Arboreal, found in forest and near slow running creeks. The call is a quiet series of notes sounding: "waa, waa, waa...". The colouration is highly variable. There are fringes apparent on the edges of front and back legs, the heels are soft and pointy. The iris of the eye is gold with a green upper margin. Uncommon

Southern New Guinea Tree Frog
Hylia impura Hylid



Length to 70 mm. Arboreal, found in forest and near slow running creeks. The call is a quiet series of notes sounding: "waa, waa, waa...". The colouration is highly variable. There are fringes apparent on the edges of front and back legs, the heels are soft and pointy. The iris of the eye is gold with a green upper margin. Uncommon

Fringed Free Frog
Litoria eucnemis Hylid



Length to 35 mm. Aquatic and scansorial, found along large water bodies. The call is a series of irregular notes, harsh squeaky "chik-chak". The snout is angular. The upper body is a leaf green mottled with occasional darker yellow spots. The concealed surfaces of the hind limbs are bright orange. The belly and throat are creamy white. Endemic. Common

Foothill Reed Frog
Litoria chloristoma Hylid



Length to 30 mm. Terrestrial, found in the forest. The males call from concealed places under leaves, the call is a short series of loud rough notes in rapid succession. Large eyes. The upper body is warty, a dark olive-brown or reddish colour. The belly is mottled grey and white and yellow to red towards the posterior. Endemic. Common

Red Mawata Frog
Hyliphobus rufescens Microhylid



Length to 33 mm. Terrestrial, found in the forest. The call is a short series of 1 to 4 notes with a scratchy impression. The snout is rounded, the eyes are small. The upper body is smooth, coloured grey/yellow/red-brown, with or without a mid-dorsal stripe. The hidden surfaces of the thighs are bright orange. Endemic. Uncommon

Mehely Frog
Cophixalus aetes Microhylid



Length to 15 mm. Terrestrial and scansorial. Found among leaf litter. The call is an irregular slow series of plaintive, high frequency notes. The snout is pointed, fingers and toes with disks. The upper body is reddish brown with irregular raised warts on the back limbs. The iris of the eye is bronze to red-gold. Endemic. Common

Mehely Frog
Cophixalus aetes Microhylid



Length to 60 mm. This terrestrial frog is found in the forest, often near streams and ponds. The call is a series of loud snorts. The upper body is smooth with raised longitudinal ridges with black underneath. The head is broad and the eyes are large. The colour is a mottled grey-brown. Endemic. Uncommon

Wokan Cannibal Frog
Myobatrachina Myobatrachid



Length to 27 mm. Terrestrial and scansorial. Found along creek edges. The call is a wooden rattle of notes in rapid succession. The head is broad with a pointed snout, fingers and toes with large disks. The upper body is mottled brown or green with a "W" mark. The posterior belly and hind limbs are intense yellow. Endemic. Uncommon

Moroker Rainforest Frog
Cophixalus verrucosus Microhylid





Striped Rocket Frog **Arebada**
Litoria nasuta **Hylid**

Length to 45 mm. Terrestrial, commonly occurs along the margins of lakes. The call is a rapid series of chattering notes. The legs are long and the snout is long and pointed. The upper body with black and light brown longitudinal bands. The chest is white and the belly is yellowish. **Common**



Efogi Tree Frog **Hidi kaharah**
Litoria prora **Hylid**

Length to 42 mm. Arboreal, found in forest about 1-3m above the ground. The call is a short series of 2-7 bleating notes. It has a rostral spike. There are scalloped fringes on the arms and legs. The upper body is warty. The colouration is mottled green/grey, the backs of the thighs are brown/purple with white spots. The belly is white. Endemic. **Uncommon**



Tree Frog **Hidi kaharah**
Litoria sp. **Hylid**

Length to 65 mm. Arboreal, found in forest near lakes. The call is a rattling succession of notes that slow down. The head is broad, the eyes are large, the iris is gold with a diamond shaped pupil. The upper body is brown with green spots or white-cream with brown-green spots. The sides and belly are white. Endemic. **Uncommon**



Treasury Island Tree Frog **Hidi kaharah**
Litoria thesaurensis **Hylid**

Length to 60 mm. Arboreal, found in forest. The call is a series of short buzzing notes. The upper body colour is variable: dark/light brown/pale green with or without white spots. The belly is white. The eyes are edged with green. The bones are green (visible in the underside of the thighs). **Uncommon**



Brown River Tree Frog **Hidi kaharah**
Litoria vocivincens **Hylid**

Length to 27 mm. Arboreal, found in forest, disturbed areas and along water bodies. The call is a continuous succession of buzzes. There are two colour patterns: (1) upper body green with black spots, (2) upper body dull olive with yellow stripes. The eyes are large. Endemic. **Common**



Victoria Archipelago Frog **Watawa kaharah**
Mantophryne lateralis **Microhylid**

Length to 55 mm. Terrestrial, found in forest. The call is a very long succession of notes, sounds like rough barking. The legs are short. The upper body is dark brown to almost black. There are dark bands on the sides of the body with white lower edges. Two warts on the chin. **Common**



Iowari School Frog **Watawa kaharah**
Mantophryne menziesi **Microhylid**

Length to 38 mm. Terrestrial, found in forest, forest edges and disturbed habitats. The call is a short series of rough notes. It is a squat frog with large eyes. The upper body is warty grey-brown. There is a distinct dark spot towards the posterior near the hind legs. Endemic. **Common**



White-lipped Tree Frog **Hidi kaharah**
Nyctimystes infrafrenatus **Hylid**

Length to 130 mm. Arboreal, found perched in trees in forest, plantations, gardens, and near water bodies. The call is a loud barking. The head is broad and long. The legs are long. The upper body is bright plain green. The belly is white. The lower lip is white. The iris of the eye is gold. **Common**



Kokoda Big-eyed Tree Frog **Hidi kaharah**
Nyctimystes semipalmatus **Hylid**

Length to 84 mm. Arboreal, found in forest. The call is similar to the sound of a horse galloping. The nostrils are closely spaced. There are golden veins over the large eyes. The legs are long and there are pointed lappets on the heels. There are large finger and toe discs. The upper body is patchy grey/brown. Endemic. **Uncommon**



Port Moresby Cross Frog **Hidi kaharah**
Oreophryne loriae **Microhylid**

Length to 27 mm. Arboreal, found in forest. The call is a series of long notes that sound harmonic. The upper body is pale brown with darker markings, pale bands on the sides. The belly is yellowish brown, darker on the throat. Endemic. **Uncommon**



Amau Microfrog **Watawa kaharah**
Paedophryne amauensis **Microhylid**

Length to 9 mm, this is the smallest frog in the world. Terrestrial, found in leaf litter on the forest floor. The call is a series of very high-pitched insect-like peeps. The body is brown with darker brown patches. The eyes are reddish. Often overlooked because of its size. Endemic. **Common**



Arfak Mountains Frog **Haiti kaharah**
Papurana arfaki **Ranid**

Length to 160 mm. Terrestrial and aquatic, found along creeks and streams. The call is a squeaky note. The upper body is very warty and rough. The colouration is plain brown with or without irregular white patches. The belly is white. Endemic. **Uncommon**



Water Frog **Haita kaharah**
Papurana daemeli **Ranid**

Length to 80 mm. Terrestrial and aquatic, found along water bodies such as creeks. The call is a short series of 3-4 wavering notes sounds like a duck: "quik quaaq quaaq". The snout is projecting and rounded. The sides of the snout are dark like a mask. **Common**



Eilogo Estate Frog **Haita kaharah**
Papurana garritor **Ranid**

Length to 95 mm. Terrestrial and aquatic, found along water bodies such as creeks. The call is a loud chattering series of notes: "crek-crek-crek...". The snout is projecting and angular. The ear is large and round. **Uncommon**



Mountain Swamp Frog **Haita kaharah**
Papurana grisea **Ranid**

Length to 100 mm. Terrestrial and aquatic, found along water bodies such as creeks and lakes. The call is a short series of squeaky notes. The snout is projecting and rounded. The sides of the snout dark like a mask. Endemic. **Common**



Cane Toad **Mao INTRODUCED**
Rhinella marina **Bufo** **id**

Length to 100mm. Terrestrial, found in forest and disturbed areas. The call is a melodious trill lasting 3 to 4 seconds. There are distinctive poison glands on the back of the head behind the ears. **Introduced to PNG from South America and considered a serious pest.**

Over 95% of the world's fauna (approximately 15-30 million species) are invertebrates, which comprise animals that have evolved without a backbone. PNG has a very rich diversity of invertebrate fauna and you have an excellent chance of observing some of PNG's most beautiful butterflies and moths, dragonflies and damselflies, and an astounding variety of beetles in VNP. It is likely that invertebrates represent more than 90% of the animals in the Park and include at least 5000 species.

You will likely hear the noisy cicadas and may also encounter less appealing invertebrates such as centipedes and spiders. Don't attempt to pick them up or harm them and you will avoid a nasty bite. In the wet season leeches are common in the primary forests but don't let these put you off visiting VNP!

Two of the eight major invertebrate groups (Phyla) are represented in this Field Guide Brochure: Phylum Arthropoda (arthropods) and Phylum Annelida (annelids).

Annelids are soft bodied 'segmented worms' and the group includes marine worms, earthworms and leeches. Earthworms are extremely beneficial to soils for enhancing nutrient cycling processes, while leeches are parasites that feed on the blood of other animals and have medicinal applications often used to reduce swelling after surgery.

Arthropods have segmented bodies, jointed legs and often have a rigid external protective covering called an exoskeleton. Arthropods include the following four major groups: Insects; Spiders; Millipedes and Centipedes; and Crustaceans. It is estimated that a staggering 80% of all animals on earth are arthropods and 75% of all animals are insects!

Phylum Arthropoda (Arachnids)

Arachnids have eight legs, and specialised jaws (mandibles) adapted for piercing and chewing. Spiders, harvestmen, scorpions, ticks, and mites are all

arachnids and some are venomous and can cause health complications, give nasty stings or infections. These animals should be treated with care and not handled.

Phylum Arthropoda

(Myriapoda - millipedes and centipedes)

Millipedes and centipedes both have long segmented bodies. Centipedes have one pair of legs per segment and millipedes have two pairs of legs per segment. Millipedes are generally decomposers in forest ecosystems while centipedes are venomous predators and can inflict a painful bite. Both occur in VNP.

Phylum Arthropoda (Crustaceans)

Crustaceans are primarily aquatic animals (live in water) and include crabs, crayfish, shrimps, and barnacles. Widespread in marine systems, some have also evolved to live in freshwater, with species shrimps and crabs both occurring in VNP. With patience, you can observe these animals along Narirogo Creek.

Phylum Arthropoda (Insects)

Insects have six legs and usually one or two pairs of wings although some insects do lack wings. There are 29 Orders of insects including: Lepidoptera (butterflies and moths); Coleoptera (beetles and weevils); Orthoptera (grasshoppers and katydids); Blattodea (termites) Hymenoptera (ants, wasps and bees); Diptera (flies and mosquitoes); Mantodea (mantids); Odonata (dragonflies); Hemiptera (Cicadas); and Phasmatodea (stick insects). Many colourful butterflies and dragonflies are easily observed within VNP. With careful observation you can also see more cryptic (camouflaged) species of moth, beetle, katydid, grass hopper, and giant stick insects to name a few.

It is often very difficult to correctly identify invertebrates to species level. Therefore for most of the animals pictured in this brochure, the much broader biological category of the Order to which they belong is used.



INVERTEBRATES

Varirata National Park (VNP) is PNG's first national park, declared on 10th December 1969 and officially opened on 18th October 1973. It is on state land on the Sogeri Plateau at an elevation of 600–900 m and covers an area of 1,063 ha. It is 48km east of Port Moresby City and accessible by road. The land was locally called *Wodobonomu* and was the traditional hunting ground of the Koiari people.

VNP has scenic views and beautiful rainforests, savannah grasslands and secondary regrowth. The average annual rainfall is 1400–2000 mm. The Park is inhabited by some unique plants and animals such as forest wallabies, possums, bandicoots, cassowaries, the raggiana bird of paradise, as well as many extraordinary reptile and frog species, and a rich variety of remarkable insects.

The Park is one of the best places in the country to learn about biodiversity. It is visited by dozens of nature tours each year and attracts researchers from throughout the world. It is also an important training site for students from surrounding universities.



Conservation & Environment Protection Authority
Level 5 Dynasty Tower A Savannah Heights Waigani Drive
PO Box 6601 BOROKEO NCD Papua New Guinea
Tel: (+675) 301 4500 email: kkalim@dec.gov.pg

www.jica.go.jp/png/english/activities/activity
www.facebook.com/pngbiodiv/

Photography and text Angus Fraser, Design Mike McCoy

This Guide Map was produced through the activities of CEPA-JICA Biodiversity Project (2015-2020), which was the joint initiative between the governments of PNG and Japan for the revitalization of Varirata National Park.



Scarab beetle
Order Coleoptera, *Pelopides schradeti*
Medium sized, stout black beetle with terminal segments of the antennae club like. Forelegs adapted to digging and primarily active at dusk or nocturnal. Larvae comprise white grubs are found in soil, and soft rotting timber.



Scarab beetle
Order Coleoptera, *Oryctes* sp.
Medium sized beetle, hemispherical varying in colour from dark tan and black on the dorsal side and pale ventrally. Attracted to lights at night and emits a hissing sound if alarmed.



Longhorn beetle
Order Coleoptera, *Agriaonome* sp.
Large tan coloured longhorn beetle, with prominent mandibles and long antennae. Emits hissing sound if alarmed and will bite if handled incorrectly. Attracted to lights at night.



Termites
Order Blattodea
Masses of flying termites congregate under specific environmental conditions of temperature and humidity to mate and form new colonies. Approximately 25 mm in length with forewings and hind wings similarly sized.



Freshwater crab
Order Decapoda, *Holuhisana papuana*
A small freshwater crab with cryptic colouration; rusty brown and mottled orange dorsally, but pale ventrally. Well suited to the rocky substrate of watercourses throughout VNP.



Millipede
Order Myriapoda
Long segmented arthropod. Typically grey with yellow margins and black markings laterally on each segment. Generally inhabits forest floor leaf litter, but a capable climber. Active during the day (diurnal).



Order Arhynchobdellida, Haemadipsid Leech
A small segmented parasitic annelid with a preference for moist wet forest environments. Occurs on forest floor and low level vegetation. Abundant during wet season rains and can survive long dry periods.



New Guinea Tarantula
Order Araneae, *Selenocosmia* sp.
Large burrowing spider, variable in colour, occurring in savannah and primary forests. Silken lined cylindrical burrow that can extend to 1 m deep. Typically a nocturnal predator. Venomous.





Weevil Beetle

Order Coleoptera, *Eupholus* sp.

Small beetle with cylindrical body and rounded abdomen. Approximately 10 mm in length. Long and slender snout, forward pointing. This genus of beetle can be found across all vegetation types within VNP.



Cicada

Order Hemiptera

A large cicada approximately 100 mm in length. Green brown body, with green to yellowish venation in translucent wings. Male cicadas use their tymbal organ (vibrating membrane under the wing) to generate extraordinarily loud 'singing' at dusk.



Cicada

Order Hemiptera

A medium sized cicada approximately 40 mm in length. Green body and translucent wings. Abundant in VNP and nocturnal. Attracted to lights.



Bumblebee

Order Hymenoptera

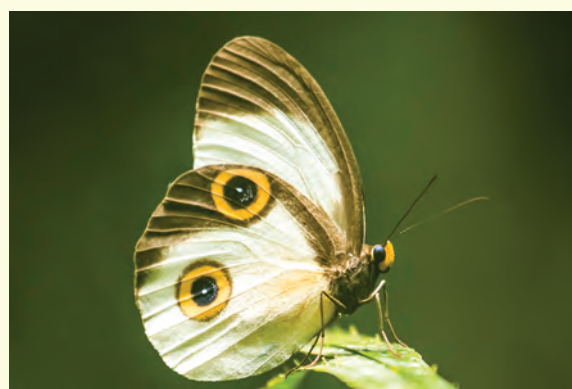
A large bumble bee with black head, yellow thorax and black abdomen and dark blue translucent wings. An active bee found in secondary forests, savannah and often seen frequenting flowers.



Rainbow Ant

Order Hymenoptera

A strikingly coloured ant characterised with iridescent dark blue head, a magenta and copper gold thorax and aquamarine abdomen. Occurs in primary forest.



Butterfly

Order Lepidoptera

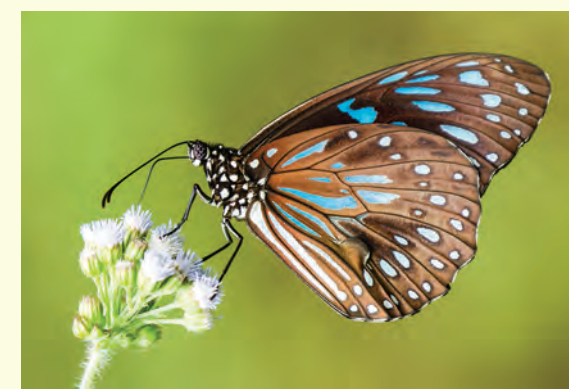
A common primary forest butterfly which is predominantly white with dark brown forewing and hindwing margins. Two large yellow, brown and black coloured 'eyes' apparent on each hindwing as a strategy to deter predators.



Geometrid Moth

Order Lepidoptera

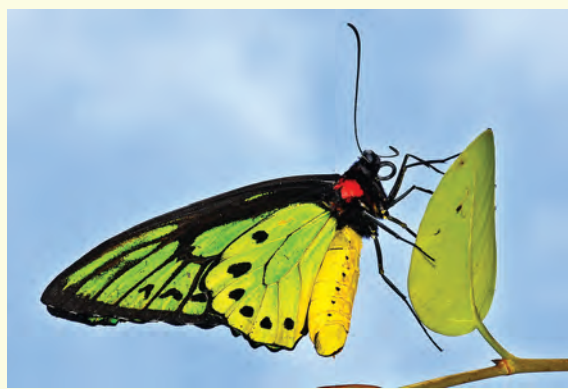
A cryptically coloured pale moth, superbly camouflaged against eucalyptus tree bark in savannah woodland habitats in VNP. Approximately 50 mm wingspan. Attracted to lights.



Blue Tiger Butterfly

Order Lepidoptera, *Tirumala hamata*

A beautifully coloured butterfly with black wings interspersed with striking blue spots. Wingspan of approximately 70 mm. A migrant species and widespread globally. Commonly observed in VNP picnic areas.



New Guinea Birdwing

Order Lepidoptera, *Ornithoptera priamus*

An uncommon large butterfly growing to a wingspan of 125 mm for males, females to 150 mm. The butterfly pictured above is a male. Adults fly with a gliding or sailing flight.



Saturn Moth

Order Lepidoptera, *Syntherata janetta*

A strikingly coloured moth, predominantly yellow with dark rusty brown mottling on forewings and hindwings. 'Eyes' present on the forewings, large antennae and yellow abdomen. Unmistakable and commonly attracted to lights.



Green Mantid

Order Mantodea

A large green mantid with yellow colouration on the abdomen. Cryptic on forest vegetation. Green elytra and translucent wings. A renown predator often attracted to lights where it hunts other insects.



Damselfly

Order Odonata, *Idiocnemis* sp.

A small damselfly with striking blue colouration on the thorax and abdomen and dark blue translucent wings and large black eyes. Found adjacent to waterways this insect is active during the day and common within VNP.



Red-legged Dragonfly

Order Odonata, *Argiolestes* sp.

A beautiful dragonfly, with striking orange-red legs, green thorax (dorsally) and large black eyes and clear translucent wings. Commonly found adjacent to watercourses within VNP.



Katydid

Order Orthoptera

A large cryptically coloured katydid, mottled brown body and wings and relatively long antennae. Perfectly camouflaged against leaf litter, this species is commonly found in secondary forests and often found at night while spotlighting.



Katydid

Order Orthoptera

A large eclectically coloured katydid, characterised by forest green body and wings. Yellow blotches on both ventral sides and bright red-pink hind legs. Active at night in primary forest.



Spiny Leaf Insect

Order Phasmatodea, *Extatosoma* sp.

A juvenile phasmid or stick insect, found in secondary forest. Cryptically coloured with mottled browns and irregularly shaped limbs, this animal is difficult to see.

添付資料 4.2.9 Biodiversity reports/Executive summary of the biodiversity reports

C-3 公園管理の適正化（添付資料 2.3.4）参照

添付資料 4.2.10 Guide Map of Varirata National Park

C-1 公園施設の整備（添付資料 2.1.3）参照

添付資料 4.2.11 Mangrove of Bootless Bay – Identification guide

D-4 MPA管理のためのツール（添付資料 3.4.2）参照

添付資料 4.2.12 Common Birds of Bootless Bay – A field guide

D-4 MPA管理のためのツール（添付資料 3.4.3）参照

**添付資料 4.2.13 Monitoring report of Facebook page
for the Project**

**Quarterly monitoring report 10/2015 to 2/2016
of Facebook page
for the project for Biodiversity Conservation through
Implementation of the PNG Policy on Protected Areas**

2016/3/1

CEPA-JICA Project team

1. Background of creation of Facebook page

Project Facebook page was created as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of a National Protected Area network in PNG. The Facebook account was registered in October, 2015. The Facebook page was opened to the public on November 25, 2016 for the purpose of widely spreading project information. This monitoring report covers the period from October 2015 to February 2016.

2. Monitoring indicator

The monitoring indicates the number of people who like our project Facebook page. By analyzing this indicator, we can check the public relations effect of Facebook page.

3. Update of Facebook page during this period

Page information was mainly updated before November 25, 2015 when Facebook page was opened to the public. Project outline and the link to downloaded PDM and PO was posted as Page Information. In addition, launch of Facebook page was informed to relevant stakeholders by email.

News articles were mainly posted after launch of Facebook page. As of 29 February, 2016, eleven news articles with photos were posted.

4. Results of monitoring

In total, 301 person liked our project on Facebook as of 29 February 2016. Number of likes rapidly increased at the time of launch of Facebook page, as shown in the following figure. Although growth declined after that, the number of likes continue to increase at a constant rate.



Figure 1 Chronological change of number of likes

The following figure indicates male-to-female ratio and age group of the people who liked the Facebook page. Although there is no sharp difference of male-to-female ratio, there is big difference by age group. Almost 50% people who liked the page were 25 - 34 years old. Hence, Facebook page is thought to be effective to reach people, especially in their 20's and 30's.

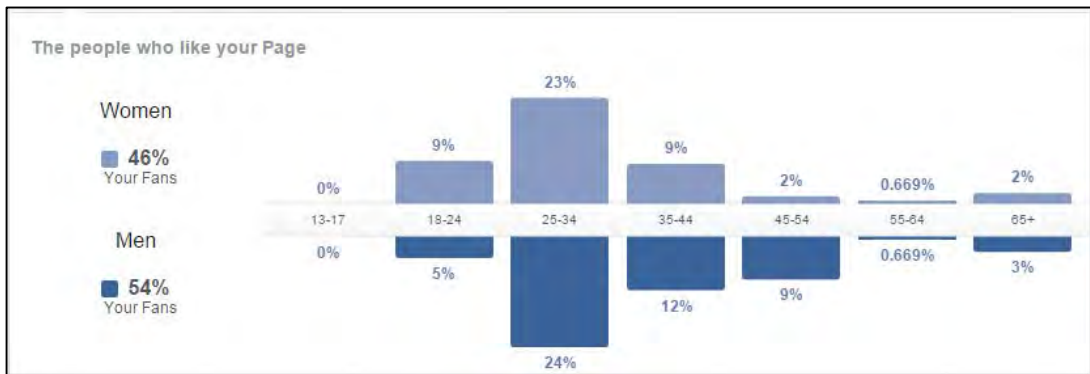


Figure 2 Male-to-female ratio and age group of people who liked the page

Nationality of the people who liked the page is indicated in the following table. Most page viewers were from Papua New Guinea. Although other countries are also included, most of them may be relevant stakeholders of the project.

Table 1 Nationality of the people who like the Facebook page

Country	Your Fans
Papua New Guinea	279
Australia	8
Japan	3
Philippines	3
New Zealand	3
Indonesia	1
United Kingdom	1
Malaysia	1

5. Future plan

The Facebook page introduced many people to the project. In the next period, we will continue post project activity and monitoring visitor to the Facebook page. We also try to increase the number of people outside PNG to see the Facebook page.

Quarterly monitoring report from 3/2016 to 6/2016 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2016/9/1

CEPA-JICA Project team

1. Background of creation of Facebook page

The Project Facebook page was created as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of a National Protected Area network in PNG. The Facebook account was registered in October 2015. The Facebook page was opened to the public on November 25, 2016 for the purpose of widely spreading project information. Since the Facebook page was opened, CEPA-JICA project team continues posting news articles. This monitoring report covers the period from March 2016 to June 2016.

2. Monitoring indicators

The monitoring indicators are the number of people who like our project Facebook page and the number who looked at each news articles. By analyzing these indicators, we can gauge the public relation's effect of Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. The total number of posted articles were 32 (1 article in March, 14 articles in April, 13 articles in May and 4 articles in June). The contents of articles are mainly related to workshops, field surveys and facilities improvement in Varirata National Park.

4. Results of monitoring

(1) The number of likes

To date, 403 persons liked our Facebook page as of 30 June 2016. Since the number of likes in the end of February was 301, we acquired more than 100 new likes during this period. The following figure shows the increasing trend of likes. It shows that the number of likes greatly increased from the end of March to beginning of April. The number of likes is constantly increased after May.



Figure 1: Chronological change of number of likes

The following figure indicates male-to-female ratio and age group of the people who liked the Facebook page. This trend is same as that of before February. The data shows that Facebook page is thought to be reaching young people, especially in their 20's and 30's.

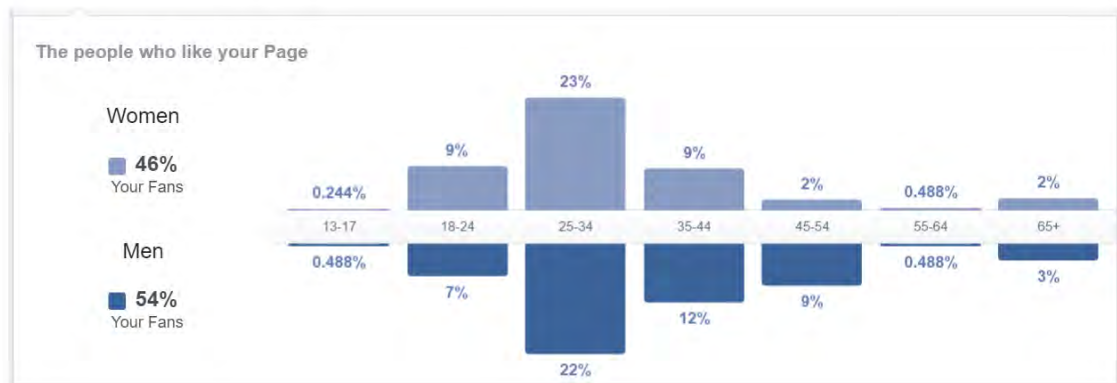


Figure 2: Male-to-female ratio and age group of people who liked the page

(2) Analysis of page contents

By analysing the number of pages looked at by many people, we can understand what kind of articles are effective in public relations. The following table shows that top 5 articles which were looked at by facebook users. This number is only counted when facebook users click and see details pages for each article. The contents of articles include mangrove forest and bird watching site. More than 50 persons looked at these articles.

Table 1: Top 5 news articles looked at by facebook users

Post Title	Posted	Total Reach
Proposed birdwatching site -Bautama SDA land-Bootless Inlet	2016/4/24	74
2016 WORLD ENVIRONMENT DAY CELEBRATION	2016/6/1	69
Mangrove map of Bootless Bay	2016/4/24	69
Tuna Bay with some critical mangrove forests	2016/4/21	66
Camera traps assist monitoring and management of Varirata National Park	2016/5/3	53

*Data as of August 3, 2016

On the other hand, nobody looked at details pages of the following 5 articles (Table 2). The contents of articles related to Koiari workshop. Although some people liked these articles, they just scanned through timeline and they didn't access the details pages.

Table 2: News articles not looked at by anybody

Post Title	Posted	Total Reach
Another successful community workshop held in Koiari for VNP landowners	2016/6/7	0
Unspoilt limestone cave of Do'e	2016/5/23	0
Unexpected expedition to Do'e village - Koairi	2016/5/23	0
VNP Landowner Workshop on Livelihood development	2016/5/19	0
Consultation on VNP Biodiversity Study	2016/5/19	0

*Data as of August 3, 2016

5. Future plan

The Facebook pages continuously acquired likes the same as the previous period. However, the number of pages looked at differs widely. In addition, details pages of some articles were not looked at by any Facebook users. CEPA-JICA team should continuously monitor these indicators and analyze what kind of postings are effective in public relations, which can attract interests and also lure readers.

From this period and previous period, most readers who liked the Facebook page are of age groups between 20's and 30's because most of these people roam the internet daily compared to other age groups. In order to have an influence on the other readers, the project team needs to understand the current affairs and upload stories and photographs/graphics that will suit the readers and lure them to visit our Facebook page. It has shown from the number of people who likes the top five stories (Table 1) because these events (bird watching, tourism, mangrove protection, climate change, etc) have been talked about a lot and have been reported on the PNG local daily newspapers and television, which have lured readers to read and learn more about these issues.

Quarterly monitoring report from July to October 2016 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2016/11/24

CEPA-JICA Project team

1. Background of creation of Facebook page

The Project Facebook page was created as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of a National Protected Area network in PNG. The Facebook account was registered in October 2015. The Facebook page was opened to the public on November 25, 2016 for the purpose of widely spreading project information. Since the Facebook page was opened, CEPA-JICA project team continues posting news articles. This monitoring report covers the period from July to October 2016.

2. Monitoring indicators

The monitoring indicators are the number of people who like our project Facebook page and the number who looked at each news articles. By analyzing these indicators, we can gauge the public relation's effect of Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 20 articles were posted (2 articles in July, 5 articles in August, 8 articles in September and 5 articles in October). The contents of articles are mainly related to workshops and field surveys. Mainly articles which are related to marine activities (output 3) were posted during this period.

4. Results of monitoring

(1) The number of likes

To date, 481 persons liked our Facebook page as of 31 October 2016. Since the number of likes at the end of June was 403, we acquired around 80 new likes during this period. The following figure shows the increasing trend of likes. It shows that the number of likes greatly increased from after the middle of September to end of October. It is thought that

this is because more than half of the articles were posted after middle of September.

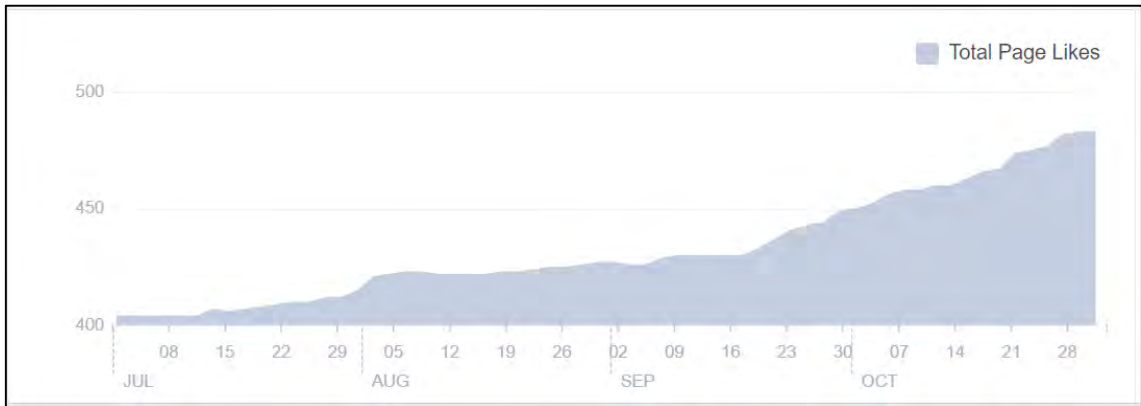


Figure 1: Chronological change of number of likes

The following figure indicates male-to-female ratio and age group of the people who liked the Facebook page. This trend is same as that of before June 2016. The data shows that Facebook page is thought to be reaching young people, especially in their 20's and 30's.

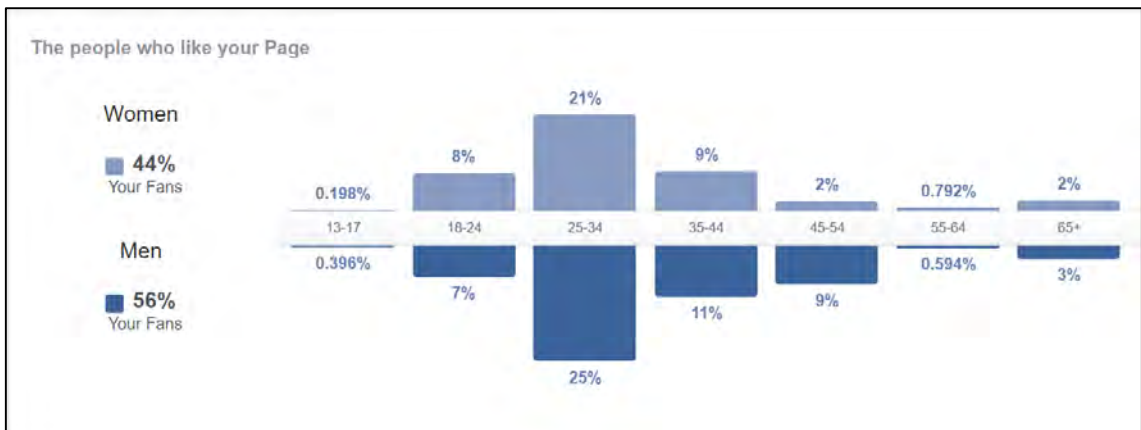


Figure 2: Male-to-female ratio and age group of people who liked the page

(2) Analysis of page contents

By analyzing the number of pages looked at by many people, we can understand what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by Facebook users. This number is only counted when Facebook users click and see details pages for each article. As shown in this table, more than 100 persons looked at top 3 news articles. This number is very high compared to that of the previous quarter because number of people who looked at posted article in previous quarter is less than 100 persons.

Table 1: Top 5 news articles looked at by facebook users

Post Title	Posted	Total Reach
Basic Information of Varirata National Park	2016/9/21	262
CEPA-JICA Project hosted an inauguration ceremony for the launch of the new boat and engine	2016/10/25	180
The CEPA-JICA Project is privileged to have Mr Togo Takamura joining the Japanese Expert Team this week.	2016/10/17	106
Conservation & Environment Protection Authority (CEPA) celebrates Pre-Independence with its staff	2016/9/15	85
CEPA JICA Biodiversity Project shared Fiji Sun Online's post.	2016/10/17	78

*Data as of October 31, 2016

On the other hand, nobody looked at details pages of 9 articles. These articles were posted as events. In this type of article, details contents of articles are shown when we click the event. Although some people liked these articles, they just scanned through timeline and they didn't access the details pages. Hence, the article should be directly written to timeline like top 5 news articles shown table 1.

5. Future plan

The Facebook pages continuously acquired likes the same as the previous period. The number of likes already reached almost 500. However, the number of pages looked at differs widely. In this period, CEPA-JICA team changed the posting method. We stopped to post articles as event and directly posted articles to timeline. It is very effective because this type of article was reached by many Facebook users. We should continue to update this style and analyze the reaches in the next quarter again.

To date, most readers who liked the Facebook page are of age groups between 20's and 30's. In order to have an influence on other readers, the project team continuously needs to introduce project Facebook page to these age group. In addition, the project team should upload stories using photographs/graphics that will lure people to visit our Facebook page.

Monitoring report from Nov 2016 to Feb 2017 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2017/3/7
CEPA-JICA Project team

1. Background of creation of Facebook page

The Project Facebook page was created as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of a National Protected Area network in PNG. The Facebook account was registered in October 2015. The Facebook page was opened to the public on November 25, 2016 for the purpose of widely spreading project information. Since the Facebook page was opened, CEPA-JICA project team continues posting news articles. This monitoring report covers the period from November 2016 to February 2017.

2. Monitoring indicators

The monitoring indicators are the number of people who expressed “like” of the project Facebook page and the number who looked at each news article. By analyzing these indicators, we gauge the public relation’s effect of Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 18 articles were posted (7 articles in November, 1 article in December, 2 articles in January and 8 articles in February). The articles cover a wide variety of topics such as workshops, Varirata National Park, tourism resource in Koiari, marine survey and bird watching project. There were few news article posted in the Facebook in December 2016 and January 2017 because of Christmas vacation and the absence of staff of CEPA-JICA project.

4. Results of monitoring

(1) The number of likes

As of 28 February 2017, 718 persons expressed “like” of the Facebook page. Since the number of likes at the end of October 2016 was 481, we acquired 237 new likes during this period. This number is quite high compared to the previous period which got only 80 new likes. The following figure shows the increasing trend of likes. It shows that the number of likes constantly increased during this period.



Figure 1: Chronological change of number of likes

The following figure indicates male-to-female ratio and age group of the people who liked the Facebook page. The ratio of men has increased 4% and the proportion of 18-24 men has increased around 6% compared to previous period. Although there are small changes of proportion, the data still shows that Facebook page is thought to be reaching young people, especially in their 20's and 30's.

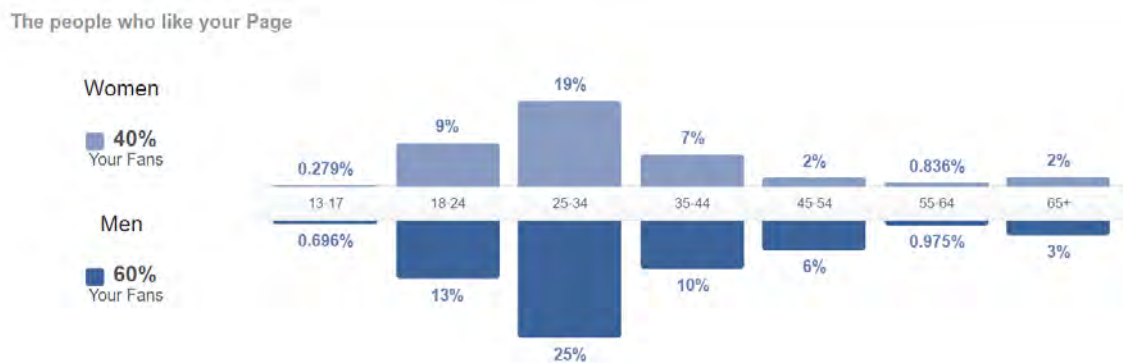


Figure 2: Male-to-female ratio and age group of people who liked the page

(2) Analysis of page contents

The number of pages looked at by many people indicates what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by many Facebook users. This number is only counted when Facebook users click and see the details on the pages for each article. As shown in this table, more than 250 persons looked at top 5 news articles. The No. 1 news article which is relevant to bird watching project was read by more than 1,500 Facebook users. This number is quite high compared to that of the previous period because maximum number of people who looked at posted article in previous period was only 260 persons (see table 2).

Table 1: Top 5 news articles looked at by Facebook users between November 2016 and February 2017

Contents of Post	Posted Date	Total Reach
Installing bird watching billboard (Bird watching project)	2016/12/8	1,531
Marine Biodiversity Survey in Bootless Bay	2016/11/29	531
Introducing Koiari tourism spot, Blamey's garden	2016/11/18	303
Pictures of Wild animals in Varirata National Park	2016/11/10	277
Bird shelter for PAU campus (Bird watching project)	2017/2/16	263

*Data as of March 1, 2017

Table 2: Top 5 news articles looked at by Facebook users between July and October 2016

Post Title	Posted	Total Reach
Basic Information of Varirata National Park	2016/9/21	262
CEPA-JICA Project hosted an inauguration ceremony for the launch of the new boat and engine	2016/10/25	180
The CEPA-JICA Project is privileged to have Mr Togo Takamura joining the Japanese Expert Team this week.	2016/10/17	106
Conservation & Environment Protection Authority (CEPA) celebrates Pre-Independence with its staff	2016/9/15	85
CEPA JICA Biodiversity Project shared Fiji Sun Online's post.	2016/10/17	78

*Data as of October 31, 2016

Although there are some news articles which were not looked at anybody in previous period, all 18 articles in this period were read by many Facebook users. The average number of people who looked at each article is more than 260 people. This number is almost the same as No. 1 news article in previous period. We directly write news articles to the timeline from the previous period. It is thought that this style is very effective to get Facebook users to read news article.

5.Future plan

The Facebook pages continuously acquired likes the same as the previous period. The number of likes is rapidly increasing and already reached more than 700 Facebook users. This means that the new posting method which directly posts articles to timeline is very effective to get Facebook users to look at news articles. We should continue to update by using this style and acquire more readers.

To date, most readers who liked the Facebook page are of age groups between 20's and 30's. In order to attract the other age groups, the project team should utilize other public relation materials like brochures or put stories of Varirata (terrestrial) and Bootless Bay (marine) in the daily newspapers including their weekender.

Monitoring report from March 2017 to June 2017 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2017/8/9
CEPA-JICA Project team

1. Background of creation of Facebook page

The Project Facebook page was created as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of the National Protected Area network in PNG. The Facebook account was registered in October 2015. The Facebook page was opened to the public on November 25, 2016 for the purpose of widely spreading the project information. Since the Facebook page was opened, CEPA-JICA project team continues posting news articles. This monitoring report covers the period from March 2017 to June 2017.

2. Monitoring indicators

The monitoring indicators are the number of people who expressed “like” of the project Facebook page and the number of people who actually looked at each news article. By analyzing these indicators, we gauge the public relation’s effect of the Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 33 articles were posted (18 articles in March, 4 articles in April, 3 articles in May and 8 articles in June). The articles cover a wide variety of topics such as workshops, bird watching updates, updates of Varirata National Park, and the activities of output 3 – marine biodiversity conservation, clean up campaign, etc.

4. Results of monitoring

(1) The number of likes

As of 30 June 2017, 1,026 persons expressed “like” of the Facebook page. Since the number of likes at the end of February 2017 was 718, we acquired 308 new likes during this period. This number is high compared to the previous period which got 237 new likes. The following figure shows the increasing trend of likes. It shows that the number of likes constantly increased during this period.



Figure 1: Chronological change of number of likes

The following figure indicates male-to-female ratio and age group of the people who liked the Facebook page. The ratio of sex and each generation is almost same as previous period. This trend shows that Facebook page is thought to be reaching younger people, especially in their 20's and 30's.

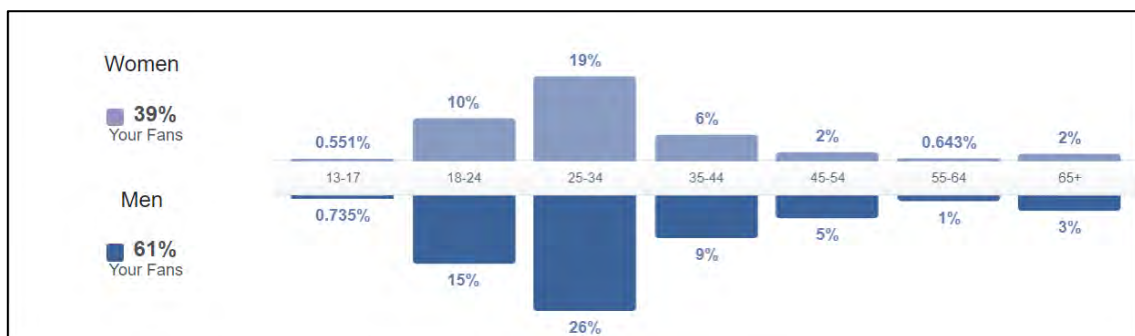


Figure 2: Male-to-female ratio and age group of people who liked the page

(2) Analysis of page contents

The number of pages looked at by many people indicates what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by many Facebook users. This number is only counted when Facebook users click and see the details on the pages for each article. As shown in this table, more than 250 persons looked at top 5 news articles. The No. 1 news article which is relevant to bird watching project was read by more than 1,500 Facebook users. This number is quite high compared to that of the previous period because maximum number of people who looked at posted articles in previous period was only 260 persons.

Table 1: Top 5 news articles looked at by Facebook users between November 2016 and February 2017

Contents of Post	Posted Date	Total Reach
First clean-up campaign at Tubusereia village	2017/4/10	5,003
Information of Varirata National Park	2017/5/21	1,341
Construction of bird shelter	2017/6/22	568
Report of first clean-up campaign at Tubusereia village	2017/4/12	489
Training for local field assistants for biodiversity survey in Varirata National Park	2017/4/12	444

*Data as of July 31, 2017

All news articles were looked at by Facebook user more than 50 times. The average number of times looked at each article is more than 400 times. Although this number overlapped same person if someone see several times, it is thought that many users read news articles.

5.Future plan

The Facebook pages continuously acquired likes the same as the previous period. The number of likes is rapidly increasing and already reached more than 1,000 Facebook users. To date, most readers who liked the Facebook page are of age groups between 20's and 30's. In order to attract the other age groups, the project team should utilize other public relation materials like brochures or put stories of Varirata (terrestrial) and Bootless Bay (marine) in the daily newspapers including their weekender.

Monitoring report from July 2017 to October 2017 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2017/11/15
CEPA-JICA Project team

1. Background of creation of Facebook page

The Project Facebook page was created as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of the National Protected Area network in PNG. The Facebook account was registered in October 2015. The Facebook page was opened to the public on November 25, 2016 for the purpose of widely spreading the project information. Since the Facebook page was opened, CEPA-JICA project team continues posting news articles. This monitoring report covers the period from July 2017 to October 2017.

2. Monitoring indicators

The monitoring indicators are the number of people who expressed “like” of the project Facebook page and the number of people who actually looked at each news article. By analyzing these indicators, we gauge the public relation’s effect of the Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 33 articles were posted (8 articles in July, 8 articles in August, 9 articles in September and 8 articles in October). Total number of posted article was same compared to that of previous period. The articles mainly cover biodiversity survey in Varirata National Park, social mapping near Varirata National Park and the renovation of old information center, etc.

4. Results of monitoring

(1) The number of likes

As of 31 October 2017, 1,233 persons expressed “like” of the Facebook page. Since the number of likes at the end of June 2017 was 1,026, we acquired 207 new likes during this period. This number is lower compared to the previous period which got 308 new likes. The following figure shows the increasing trend of likes. It shows that the number of likes constantly increased during this period.



Figure 1: Chronological change of number of likes

The following figure indicates male-to-female ratio and age group of the people who liked the Facebook page. The ratio of sex and each generation is almost same as previous period. This trend shows that Facebook page is thought to be reaching younger people, especially in their 20's and 30's.

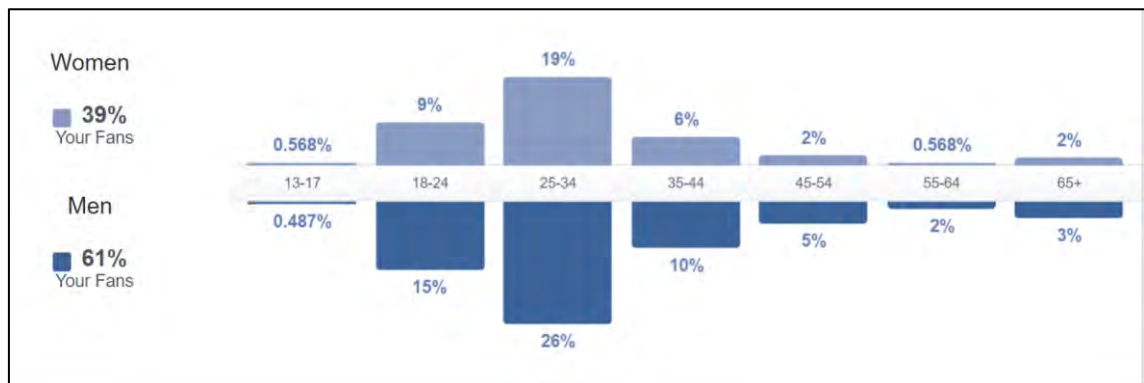


Figure 2: Male-to-female ratio and age group of people who liked the page

The following table shows the country of people who liked our Facebook page. Although most people who liked our pages were Papua New Guinean, 38 Facebook users from Australia are also interested in our pages. Other countries such as Philippines, Japan, USA, etc. are also included Facebook users who liked our Facebook pages.

Table 1: The country of people who liked our Facebook page

Country	Your Fans
Papua New Guinea	1,122
Australia	38
Philippines	7
Japan	6
United States of America	5
Bangladesh	3
Brazil	3
New Zealand	3
Pakistan	3
Madagascar	2
Vanuatu	2
Myanmar	2
Nepal	2

(2) Analysis of page contents

The number of pages looked at by many people indicates what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by many Facebook users. This number is only counted when Facebook users click and see the details on the pages for each article. As shown in this table, more than 600 times looked at top 5 news articles. Although the No. 1 news article was a job advertisement, this article was read by more than 3,000 times by Facebook users. All news articles were looked at by Facebook user more than 150 times and this number is quite high compared to that of previous period. The average number of times looked at each article is more than 400 times. Although this number overlapped same person if someone see several times, it is thought that many Facebook users read our news articles.

Table 2: Top 5 news articles looked at by Facebook users between July 2017 and October 2017

Contents of Post	Posted Date	Total Reach
A job advertisement for terrestrial Expert of CEPA-JICA project	08/21/17	3,601
The report of trial terrestrial and marine biodiversity training courses	09/25/17	860
MoU between UPNG and CEPA for a mutual understanding on implementing the activities within Bootless Bay	07/27/17	713
Meeting with Ramsar experts for discussing nomination for Bootless Bay	09/25/17	693
New Prim Minister Peter O'Neill's Cabinet Ministers and their Portfolios	08/09/17	623

*Data as of October 31, 2017

5. Future plan

The Facebook pages continuously acquired likes the same as the previous period. The number of likes is rapidly increasing and increasing speed was almost same throughout this year. To date, most readers who liked the Facebook page are of age groups between 20's and 30's. In order to attract the other age groups, the project team should utilize other public relation materials like brochures or put stories of Varirata (terrestrial) and Bootless Bay (marine) in the daily newspapers including their weekender. In analysis of countries of Facebook users, the people from several countries are interested in our Facebook page but the number is still few except for Papua New Guinean. We need to utilize some events such as international conference, overseas training for CEPA staffs to appeal our project and our Facebook page.

Monitoring report from November 2017 to February 2018 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2018/4/11
CEPA-JICA Project team

1. Background of creation of Facebook page

The Project Facebook page was created as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of the National Protected Area network in PNG. The Facebook account was registered in October 2015. The Facebook page was opened to the public on November 25, 2016 for the purpose of widely spreading the project information. Since the Facebook page was opened, CEPA-JICA project team continues posting news articles. This monitoring report covers the period from November 2017 to February 2018.

2. Monitoring indicators

The monitoring indicators are the number of people who expressed “like” of the project Facebook page and the number of people who actually looked at each news article. By analyzing these indicators, we gauge the public relation’s effect of the Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 16 articles were posted (7 articles in November, 2 articles in December, 4 articles in January and 3 articles in February). Total number of posted article was low compared to that of previous period. The contents of articles were mainly related to output 2 such as the renovation of old information center in Varirata National Park.

4. Results of monitoring

(1) The number of likes

As of 28 February 2018, 1,362 persons expressed “like” of the Facebook page. Since the number of likes at the end of October 2017 was 1,233, we acquired 129 new likes during this period. This number is lower compared to the previous period which got 207 new likes. The following figure shows the increasing trend of likes. It shows that the number of likes constantly increased during this period.

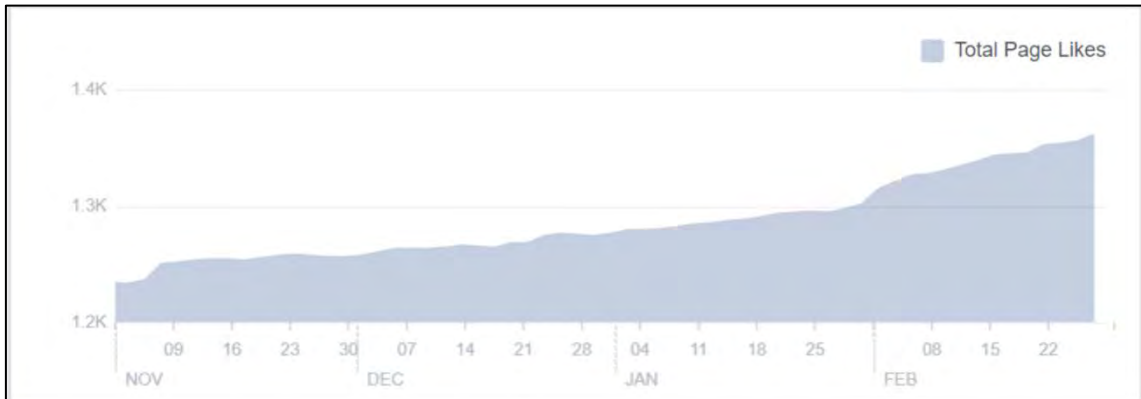


Figure 1: Chronological change of number of likes

The following figure indicates male-to-female ratio and age group of the people who liked the Facebook page. The ratio of sex and each generation is almost same as previous period. This trend shows that Facebook page is thought to be reaching younger people, especially in their 20's and 30's.

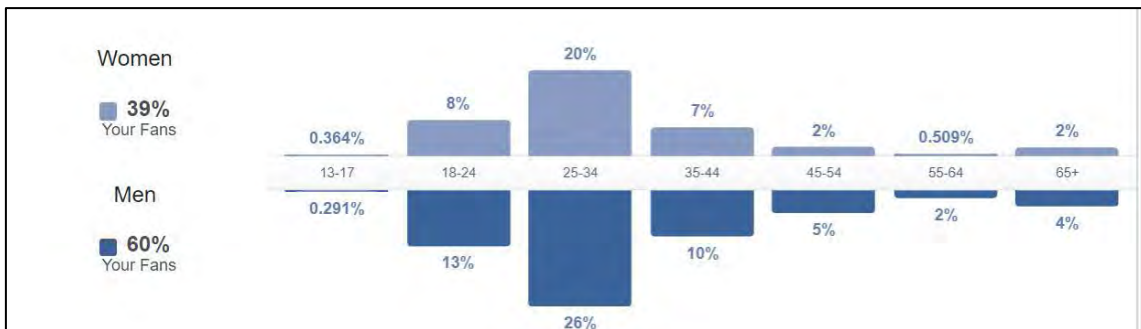


Figure 2: Male-to-female ratio and age group of people who liked the page

The following table shows the country of people who liked our Facebook page. Although most people who liked our pages were Papua New Guineans, 42 Facebook users from Australia are also interested in our pages. We acquired 4 new likes from Australia during this period. Other countries such as Philippines, Japan, USA, etc. are also included Facebook users who liked our Facebook pages.

Table 1: The country of people who liked our Facebook page

Country	Your Fans
Papua New Guinea	1,260
Australia	42
United States of America	10
Japan	7
Philippines	7
Bangladesh	4
Vanuatu	3
Myanmar	3
Pakistan	3
Benin	2

(2) Analysis of page contents

The number of pages looked at by many people indicates what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by many Facebook users. This number is only counted when Facebook users click and see the details on the pages for each article. As shown in this table, more than 400 times looked at top 5 news articles. No. 1 news article was biodiversity survey in Varirata National Park and this article was read by more than 1,000 times by Facebook users.

All news articles posted during this period were looked at by Facebook user more than 140 times and this number is almost same compared to that of previous period. The average number of times looked at each article is more than 370 times. Although this number overlapped same person if someone see several times, it is thought that many Facebook users read our news articles.

Table 2: Top 5 news articles looked at by Facebook users between November 2017 and February 2018

Contents of Post	Posted Date	Total Reach
Biodiversity survey in Varirata National Park	11/9/17	1,056
Biodiversity management training course at UPNG	11/7/17	1,019
Installation of new billboard for Varirata National Park	1/28/18	497
Installation of billboard for mangrove protection	10/31/17	493
Mid-term review by the JICA Monitoring Mission	11/21/17	443

*Data as of February 28, 2018

5. Future plan

Although increasing speed of likes was slow compared to the previous period, the Facebook pages continuously acquired likes. As it is thought that slow increasing speed is related to low number of news articles posted during this period, the project needs to posts more news articles for getting new likes. To date, most readers who liked the Facebook page are of age groups between 20's and 30's. In order to attract the other age groups, the project team should utilize other public relation materials like brochures or put stories of Varirata (terrestrial) and Bootless Bay (marine) in the daily newspapers including their weekender. In analysis of countries of Facebook users, the people from several countries are interested in our Facebook page but the number is still few except for Papua New Guinea. We need to utilize some events such as international conference. In 2018, APEC will be held in Port Moresby and it is thought that this is a good opportunity to promote this project.

Monitoring report from October 2018 to January 2019 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2019/2/21
CEPA-JICA Project team

1. Background of the Facebook page

The Project Facebook page was setup as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of the National Protected Area network in PNG. The Facebook account was registered in October 2015 and the Facebook page was opened to the public on November 25, 2016 for the purpose of spreading the project information to a wide audience. However, the project setup a new Facebook page in October 2018 because there was a problem with the previous Facebook page account. Since the new Facebook page was established, CEPA-JICA project team continues posting news articles. This monitoring report is targeted to post on the new Facebook page and covers the period from October 2018 to January 2019.

2. Monitoring indicators

The monitoring indicators cover the number of people who expressed “like” of the project Facebook page and the number of people who actually looked at each news article. By analyzing these indicators, we gauge the public relation’s effect of the Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 60 articles were posted (21 articles in October, 20 articles in November, 8 articles in December and 11 articles in January). Total number of posted articles was high compared to that of previous Facebook periods. The articles covered a wide range of project activities such as meetings, events, and public relation materials.

4. Results of monitoring

(1) The number of likes

As of 31 January 2019, 208 people expressed “like” of the Facebook page. As more than 1,700 people expressed “like” of the previous Facebook page, the number of likes for the new Facebook page is low. The following figure shows the increasing trend of likes. It shows that the number of likes rapidly increased at the end of October and January.



Figure 1: Chronological change of number of likes

The following figure indicates the male-to-female ratio and age group of the people who liked the Facebook page. The number of men is higher than that of women. While the age group between 25 and 34 is highest for men, the age group between 35 and 44 is highest for women. Overall trend shows that Facebook page seems to be reaching people in their 20's, 30's and 40's.

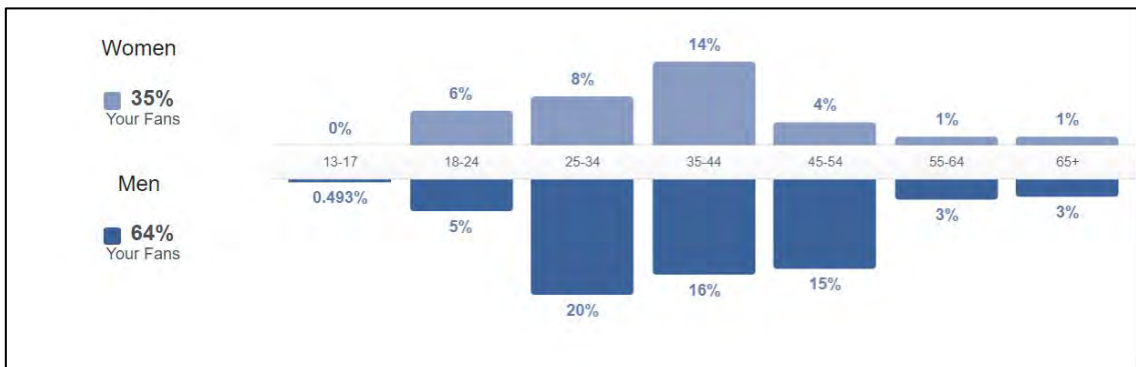


Figure 2: Male-to-female ratio and age group of people who liked the page

The following table shows the country of people who liked our Facebook page. Although most people who liked our pages were Papua New Guineans, 18 Facebook users from other countries are also interested in our pages. The highest number of countries except for Papua New Guineans was Australia. Other countries such as Czech Republic, USA, China, etc are also included in Facebook users who liked our Facebook page.

Table 1: The country of people who liked our Facebook page

Country	Your Fans	City	Your Fans	Language	Your Fans
Papua New Guinea	190	Port Moresby, Papua N...	141	English (US)	163
Australia	7	Lae, Morobe Province, ...	16	English (UK)	44
Czech Republic	2	Madang, Madang Provi...	11	Japanese	1
United States of America	2	Brisbane, QLD, Austr...	3		
China	1	Goroka, Eastern Highla...	3		
Fiji	1	Kimbe, West New Brita...	3		
United Kingdom	1	Wewak, East Sepik Pr...	3		
Cambodia	1	Melbourne, VIC, Austr...	2		
Panama	1	Kokopo, East New Brit...	2		
Solomon Islands	1	Ceske Budejovice, Sou...	2		
Vanuatu	1	Darwin, NT, Australia	1		
		Townsville, QLD, Austr...	1		
		Phnom Penh, Cambodia	1		
		Panama City, Panamá ...	1		

(2) Analysis of page contents

The number of pages looked at by many people indicates what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by many Facebook users. This number is only counted when Facebook users click and see the details on the pages for each article. As shown in this table, more than 290 times people looked at top 5 news articles. No. 1 and No.2 news articles were read more than 1,000 times by Facebook users. Although this number overlaps some of the same persons when someone reads articles several times, it is thought that many Facebook users read our news articles.

Three articles of the top 5 were posted on January 2019 and two of them are related to meetings with the Governor of Central Province in Papua New Guinea. As the number of likes rapidly increased at the end of January, it is thought that these articles were effective to increase “like” of the Facebook page.

Table 2: Top 5 news articles looked at by Facebook users between October 2018 and January 2019

Contents of Post	Posted Date	Total Reach
Meeting with governor of Central Province for marine protected area	2019/1/24	1,221
Meeting for PA Bill	2019/1/15	1,182
Speech of the Deputy Managing Director of CEPA	2018/10/24	372
Meeting with Central Provincial Government for marine protected area	2019/1/21	294
Meeting with the Governor of Central Province	2018/12/12	292

*Data as of January 31, 2019

5. Future plan

Since number of likes was quite low compared to previous Facebook page, most Facebook users who liked previous pages did not read the new Facebook pages yet. The project needs to continue to make appealing new Facebook pages. To date, most readers who liked the Facebook page are of age groups between 20's and 40's. In order to attract other age groups, the project team should utilize other public relation materials like brochures and putting stories of Varirata (terrestrial) and Bootless Bay (marine) in the daily newspapers including their weekender. People from several countries are interested in our Facebook page but the number is small except for Papua New Guineans. We need to utilize some events such as international conference for publicizing our project to the people of other countries.

Monitoring report from February 2019 to May 2019 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2019/6/21
CEPA-JICA Project team

1. Background of the Facebook page

The Project Facebook page was setup as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of the National Protected Area network in PNG. The Facebook account was registered in October 2015 and the Facebook page was opened to the public on November 25, 2016 for the purpose of spreading the project information to a wide audience. However, the project setup a new Facebook page in October 2018 because there was a problem with the previous Facebook page account. Since the new Facebook page was established, CEPA-JICA project team continues posting news articles. This monitoring report is targeted to post on the new Facebook page and covers the period from February 2019 to May 2019.

2. Monitoring indicators

The monitoring indicators cover the number of people who expressed “like” of the project Facebook page and the number of people who actually looked at each news article. By analyzing these indicators, we gauge the public relation’s effect of the Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 55 articles were posted (11 articles in February, 17 articles in March, 15 articles in April and 12 articles in May). Total number of posted articles was almost same compared to that of previous periods. The articles covered a wide range of project activities especially related to Varirata National Park for Output 2 and Bootless Bay for Output 3.

4. Results of monitoring

(1) The number of likes

As of 31 May 2019, 447 people expressed “like” of the Facebook page. As only 209 people expressed “like” of the Facebook page at the end of January, number of “like” has increased more than double during this period. The following figure shows the increasing trend of likes. It shows that the number of likes rapidly increased in May.



Figure 1: Chronological change of number of likes

The following figure indicates the male-to-female ratio and age group of the people who liked the Facebook page. The number of men is slightly higher than that of women. The age group between 25 and 34 is highest ratio for both men and women and between 35 and 44 is second highest ratio for men and women. Overall trend shows that Facebook page seems to be reaching people in their 20's, 30's and 40's.

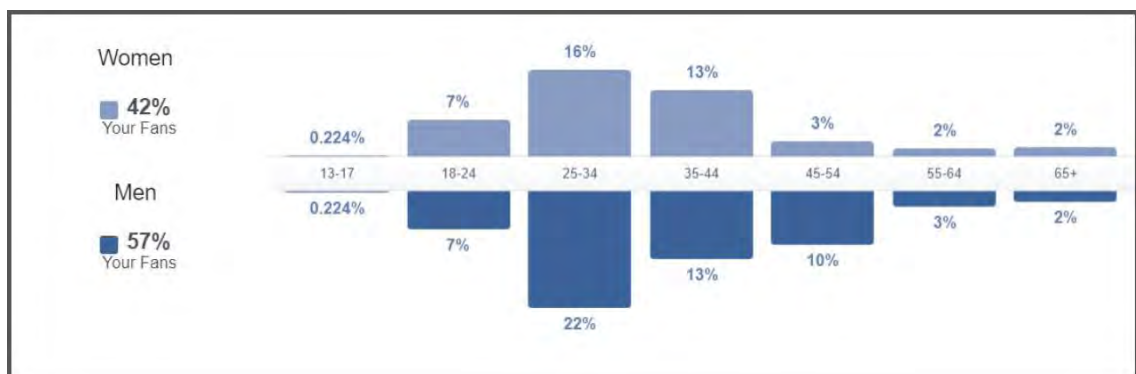


Figure 2: Male-to-female ratio and age group of people who liked the page

The following table shows the country of people who liked our Facebook page. Although most people who liked our pages were Papua New Guineans, 32 Facebook users from other countries are also interested in our pages. The highest number of countries except for Papua New Guineans was Australia and 17 Australian expressed "like" of the Facebook page. Other countries such as Japan, USA, Solomon Islands, etc are also included in Facebook users who liked our Facebook page.

Table 1: The country of people who liked our Facebook page

Country	Your Fans	City	Your Fans	Language	Your Fans
Papua New Guinea	409	Port Moresby, Papua N...	310	English (US)	361
Australia	17	Lae, Papua New Guinea	26	English (UK)	82
Japan	5	Madang, Papua New G...	20	Japanese	2
United States of America	3	Kimbe, Papua New Gu...	8	Spanish	1
Solomon Islands	2	Kokopo, Papua New G...	8		
Czech Republic	1	Goroka, Papua New G...	7		
Fiji	1	Rabaul, Papua New G...	6		
France	1	Brisbane, QLD, Australia	5		
Cambodia	1	Melbourne, VIC, Australia	4		
Morocco	1	Alotau, Papua New Gu...	3		

(2) Analysis of page contents

The number of pages looked at by many people indicates what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by many Facebook users. This number is only counted when Facebook users click and see the details on the pages for each article. As shown in this table, more than 1,800 times people looked at top 5 news articles and No.1 news article was read more than 5,000 times by Facebook users. Although this number overlaps some of the same persons when someone reads articles several times, it is thought that many Facebook users read our news articles.

Four articles of the top 5 were posted in late April or May. As the number of likes rapidly increased in May, it is thought that these articles were effective to increase “like” of the Facebook page. In addition, Facebook users are probably highly interested in marine protection because 3 news articles of the top 5 were related to marine protection activities for output 3.

Table 2: Top 5 news articles looked at by Facebook users between February 2019 and May 2019

Contents of Post	Posted Date	Total Reach
Commitment of preserving mangroves and wetlands in Mirigeda land	20/05/2019	5,085
Artistic Impression of new PNG National Mining Museum	30/04/2019	4,283
Establishment of a first marine protected area in PNG	04/04/2019	2,867
A meeting for Bootless Bay Marine Protected Area	07/05/2019	1,928
Building models of Koiari Tree house	07/05/2019	1,818

*Data as of May 31, 2019

5. Future plan

In this monitoring period, number of likes rapidly increased and reached almost 450 Facebook users. The project needs to post news articles to increase number of likes continuously. To date, most readers who liked the Facebook page are of age groups between 20's and 40's. In order to attract other age groups, the project team should utilize other public relation materials like brochures and putting stories of Varirata National Park (terrestrial) and Bootless Bay (marine) in the daily newspapers including their weekender. Although people from several countries are interested in our Facebook page, the number is still small except for Papua New Guineans. We need to utilize some events such as international conference for publicizing our project to the people of other countries.

The other ways of promoting our Facebook page would be as follows: CEPA and project team should also tag or communicate to their friends on Facebook or other social media about our page and the project, or other agencies such as the PNG Tourism Promotion Authority including others to link their Facebook or webpages with our page.

Monitoring report from June 2019 to September 2019 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2019/11/6
CEPA-JICA Project team

1. Background of the Facebook page

The Project Facebook page was setup as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of the National Protected Area network in PNG. The Facebook account was registered in October 2015 and the Facebook page was opened to the public on November 25, 2016 for the purpose of spreading the project information to a wide audience. However, the project setup a new Facebook page in October 2018 because there was a problem with the previous Facebook page account. Since the new Facebook page was established, CEPA-JICA project team continues posting news articles. This monitoring report is targeted to post on the new Facebook page and covers the period from June 2019 to September 2019.

2. Monitoring indicators

The monitoring indicators cover the number of people who expressed “like” of the project Facebook page and the number of people who actually looked at each news article. By analyzing these indicators, we gauge the public relation’s effect of the Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 37 articles were posted (13 articles in June, 10 articles in July, 3 articles in August and 11 articles in September). Total number of posted articles was low compared to that of previous periods. The articles covered a wide range of project activities.

4. Results of monitoring

(1) The number of likes

As of 30 September 2019, 711 people expressed “like” of the Facebook page. As 447 people expressed “like” of the Facebook page at the end of May, number of “like” has increased 264 people during this period. The following figure shows the increasing trend of likes. It shows that the number of likes increased at a constant pace during this period.



Figure 1: Chronological change of number of likes

The following figure indicates the male-to-female ratio and age group of the people who liked the Facebook page. The number of men is slightly higher than that of women. The age group between 25 and 34 is highest ratio for both men and women and between 35 and 44 is second highest ratio for men and women. Overall trend shows that Facebook page seems to be reaching people in their 20's, 30's and 40's.

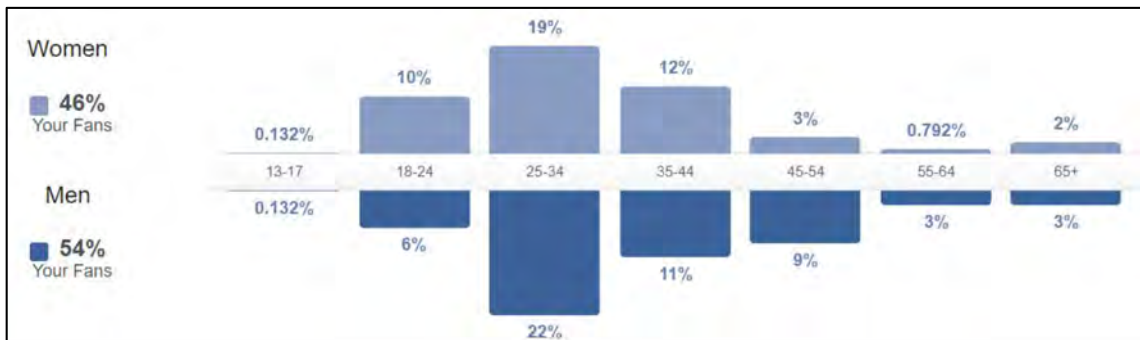


Figure 2: Male-to-female ratio and age group of people who liked the page

The following table shows the country of people who liked our Facebook page. Although most people who liked our pages were Papua New Guineans, 53 Facebook users from other countries are also interested in our pages. The highest number of countries except for Papua New Guineans was Australia. Twenty-six Australian expressed "like" of the Facebook page. Other countries such as Japan, USA, Solomon Islands, etc. are also included in Facebook users who liked our Facebook page.

Table 1: The country of people who liked our Facebook page

Country	Your Fans
Papua New Guinea	695
Australia	26
Japan	7
Solomon Islands	5
United States of America	4
Czech Republic	3
Syria	2
Indonesia	2
Cambodia	2
Vanuatu	2

(2) Analysis of page contents

The number of pages looked at by many people indicates what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by many Facebook users. This number is only counted when Facebook users click and see the details on the pages for each article. As shown in this table, more than 1,000 times people looked at top 5 news articles and No.1 news article was read more than 2,000 times by Facebook users. Although this number overlaps some of the same persons when someone reads articles several times, it is thought that many Facebook users read our news articles.

Table 2: Top 5 news articles looked at by Facebook users between June 2019 and September 2019

Contents of Post	Posted Date	Total Reach
Interns from Pacific Adventist University student	26/06/2019	2,138
The memorandum of understanding (MoU) of the Central Provincial Government and CEPA	08/08/2019	1,751
World Environmental Day event at Mirigeda/Bootless Bay	04/06/2019	1,737
Meeting with community people at Bootless Bay	05/07/2019	1,234
Interns from Pacific Adventist University student	30/06/2019	1,108

*Data as of September 30, 2019

5. Future plan

In this monitoring period, number of likes continuously increased and reached 700 Facebook users. The project needs to post news articles to increase number of likes continuously. To date, most readers who liked the Facebook page are of age groups between 20's and 40's. In order to attract other age groups, the project team should utilize other public relation materials like brochures and putting stories of Varirata National Park (terrestrial) and Bootless Bay (marine) in the daily newspapers including their weekend. CEPA-JICA project also plans to implement trial packaged tour in November 2019. This would also lead to raise awareness of the project and increase number of likes

for the Facebook page. Although people from several countries are interested in our Facebook page, the number is still small except for Papua New Guineans. We need to utilize some events such as international conference for publicizing our project to the people of other countries.

The other ways of promoting our Facebook page would be as follows: CEPA and project team should also tag or communicate to their friends on Facebook or other social media about our page and the project, or other agencies such as the PNG Tourism Promotion Authority including others to link their Facebook or webpages with our page.

End

Monitoring report from October 2019 to January 2020 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2020/2/18
CEPA-JICA Project team

1. Background of the Facebook page

The Project Facebook page was setup as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of the National Protected Area network in PNG. The Facebook account was registered in October 2015 and the Facebook page was opened to the public on November 25, 2016 for the purpose of spreading the project information to a wide audience. However, the project setup a new Facebook page in October 2018 because there was a problem with the previous Facebook page account. Since the new Facebook page was established, CEPA-JICA project team continues posting news articles. This monitoring report is targeted to post on the new Facebook page and covers the period from October 2019 to January 2020.

2. Monitoring indicators

The monitoring indicators cover the number of people who expressed “like” of the project Facebook page and the number of people who actually looked at each news article. By analyzing these indicators, we gauge the public relation’s effect of the Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 20 articles were posted (8 articles in October, 6 articles in November, 3 articles in December and 3 articles in January). Total number of posted articles was low compared to that of previous periods. The articles covered a wide range of project activities.

4. Results of monitoring

(1) The number of likes

As of 31 January 2020, 869 people expressed “like” of the Facebook page. As 711 people expressed “like” of the Facebook page at the end of September, number of “like” has increased 158 people during this period. The following figure shows the increasing trend of likes. It shows that the number of likes increased at a constant pace during this period.

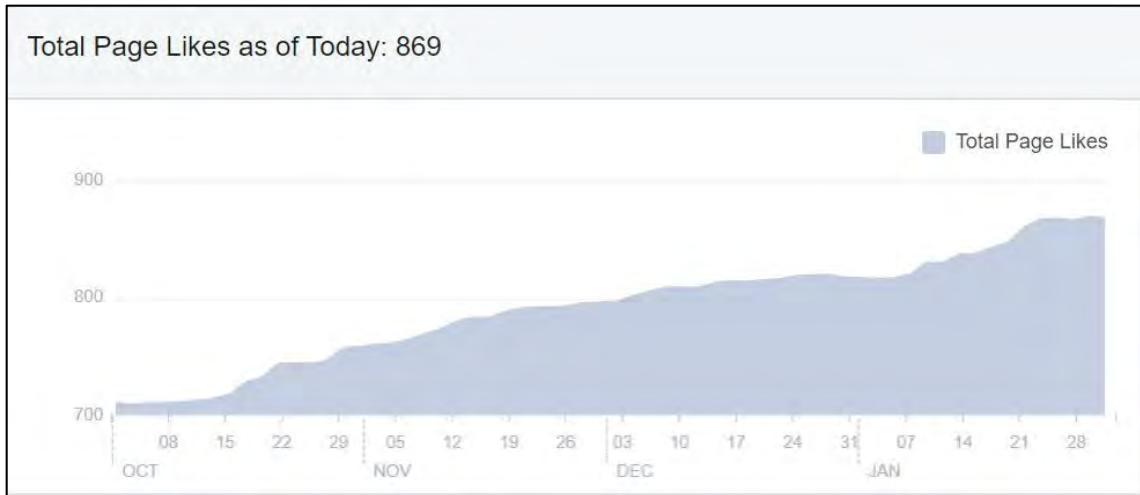


Figure 1: Chronological change of number of likes

The following figure indicates the male-to-female ratio and age group of the people who liked the Facebook page. The number of men is slightly higher than that of women. The age group between 25 and 34 is highest ratio for both men and women and between 35 and 44 is second highest ratio for men and women. Overall trend shows that Facebook page seems to be reaching people in their 20's, 30's and 40's.

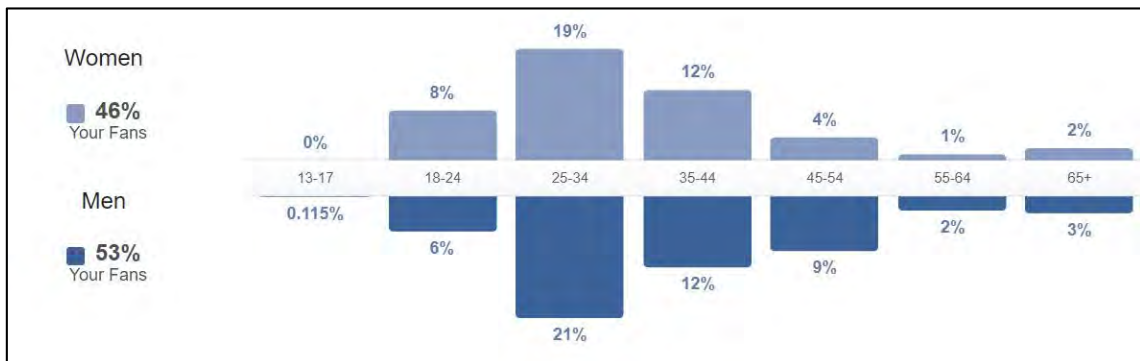


Figure 2: Male-to-female ratio and age group of people who liked the page

The following table shows the country of people who liked our Facebook page. Although most people who liked our pages were Papua New Guineans, 68 Facebook users from other countries are also interested in our pages. The highest number of countries except for Papua New Guineans was Australia. Twenty-nine Australian expressed "like" of the Facebook page. Other countries such as Japan, USA, Solomon Islands, etc. are also included in Facebook users who liked our Facebook page.

Table 1: The country of people who liked our Facebook page

Country	Your Fans
Papua New Guinea	801
Australia	29
Japan	6
Solomon Islands	5
United States of America	4
Czech Republic	3
Brazil	2
United Kingdom	2
Cambodia	2
Fiji	1

(2) Analysis of page contents

The number of pages looked at by many people indicates what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by many Facebook users. This number is only counted when Facebook users click and see the details on the pages for each article. As shown in this table, more than 1,000 times people looked at top 5 news articles and No.1 and No.2 news articles were read more than 2,000 times by Facebook users. Although this number overlaps some of the same persons when someone reads articles several times, it is thought that many Facebook users read these news articles.

Table 2: Top 5 news articles looked at by Facebook users between October 2019 and January 2020

Contents of Post	Posted Date	Total Reach
Community awareness on environmental and biodiversity values of Bootless Bay	16/10/2019	2,634
First trial tour for Varirata National Park	27/10/2019	2,202
Protection of biodiversity for Bootless Bay	4/12/2019	1,374
New park rangers of Varirata National Park	16/10/2019	1,345
Local Koiari buffet's by Kae Association	12/11/2019	1,286

*Data as of January 31, 2020

5. Future plan

Although number of likes continuously increased and reached 869 Facebook users, number of likes did not increase largely compared to other periods. Since the project posted only few news articles in this period, the project needs to post news articles more to increase number of likes.

To date, most readers who liked the Facebook page are of age groups between 20's and 40's. In order to attract other age groups, the project team should utilize other public relation materials like brochures and putting stories of Varirata National Park (terrestrial) and Bootless Bay (marine) in the daily newspapers including their weekender. Although people from several countries are interested in our Facebook page, the number is still small except for Papua New Guineans. We need to utilize some events such as international conference for publicizing our project to the people of other countries. The other ways of promoting our Facebook page would be as follows: CEPA and project team should also tag or communicate to their friends on Facebook or other social media about our page and the project, or other agencies such as the PNG Tourism Promotion Authority including others to link their Facebook or webpages with our page.

End

Monitoring report from February to May 2020 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2020/6/12
CEPA-JICA Project team

1. Background of the Facebook page

The Project Facebook page was setup as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of the National Protected Area network in PNG. The Facebook account was registered in October 2015 and the Facebook page was opened to the public on November 25, 2016 for the purpose of spreading the project information to a wide audience. However, the project setup a new Facebook page in October 2018 because there was a problem with the previous Facebook page account. Since the new Facebook page was established, CEPA-JICA project team continues posting news articles. This monitoring report is targeted to post on the new Facebook page and covers the period from February to May 2020.

2. Monitoring indicators

The monitoring indicators cover the number of people who expressed “like” of the project Facebook page and the number of people who actually looked at each news article. By analyzing these indicators, we gauge the public relation’s effect of the Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 19 articles were posted (7 articles in February, 1 article in March, 9 articles in April and 2 articles in May). Total number of posted articles was almost same compared to that of previous periods. The articles covered a wide range of project activities.

4. Results of monitoring

(1) The number of likes

As of 31 May 2020, 982 people expressed “like” of the Facebook page. As 869 people expressed “like” of the Facebook page at the end of September, number of “like” has increased 113 people during this period. The following figure shows the increasing trend of likes. It shows that the number of likes increased at a constant pace during this period.



Figure 1: Chronological change of number of likes

The following figure indicates the male-to-female ratio and age group of the people who liked the Facebook page. The number of men is slightly higher than that of women. The age group between 25 and 34 is highest ratio for both men and women and between 35 and 44 is second highest ratio for men and women. Overall trend shows that Facebook page seems to be reaching people in their 20's, 30's and 40's.

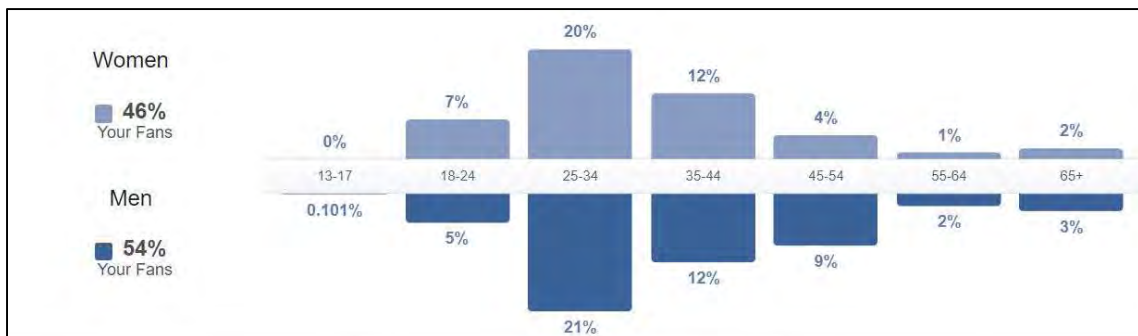


Figure 2: Male-to-female ratio and age group of people who liked the page

The following table shows the country of people who liked our Facebook page. Although most people who liked our pages were Papua New Guineans, 79 Facebook users from other countries are also interested in our pages. The highest number of countries except for Papua New Guineans was Australia. Thirty-three Australian expressed "like" of the Facebook page. Additional 4 Australian expressed "like" of the Facebook page during this period. Other countries such as Japan, USA, Solomon Islands, etc. are also included in Facebook users who liked our Facebook page.

Table 1: The country of people who liked our Facebook page

Country	Your Fans
Papua New Guinea	916
Australia	33
Japan	7
Solomon Islands	4
United States of America	4
Fiji	3
Czech Republic	3
Indonesia	2
Cambodia	2
Philippines	2
Vanuatu	2

(2) Analysis of page contents

The number of pages looked at by many people indicates what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by many Facebook users. This number is only counted when Facebook users click and see the details on the pages for each article. As shown in this table, more than 1,000 times people looked at No.1 and No.2 news articles by Facebook users. Although this number overlaps some of the same persons when someone reads articles several times, it is thought that many Facebook users read these news articles.

Table 2: Top 5 news articles looked at by Facebook users between February and May 2020

Contents of Post	Posted Date	Total Reach
One Day Cultural Tour Package for VNP	20/05/2020	1,537
The establishment of the Bootless Bay Marine Station at the Tahira	18/02/2020	1,122
Meeting of Bootless Bay Marine Conservation Initiative (BBMCI)	10/02/2020	797
Advertisement of one day cultural tour for VNP	23/02/2020	791
Signboard installation for protection of Bootless Bay	25/05/2020	762

*Data as of May 31, 2020

5. Future plan

Although some of the activities were stopped due to COVID-19, the number of likes continuously increased and reached 982 Facebook users. Since many Facebook user looked at news articles related to one day tour for VNP, this will be good advertisement for VNP to the public.

To date, most readers who liked the Facebook page are of age groups between 20's and

40's. In order to attract other age groups, the project team should utilize other public relation materials like brochures and putting stories of Varirata National Park (terrestrial) and Bootless Bay (marine) in the daily newspapers including their weekender. Although people from several countries are interested in our Facebook page, the number is still small except for Papua New Guineans. We need to utilize some events such as international conference for publicizing our project to the people of other countries. The other ways of promoting our Facebook page would be as follows: CEPA and project team should also tag or communicate to their friends on Facebook or other social media about our page and the project, or other agencies such as the PNG Tourism Promotion Authority including others to link their Facebook or webpages with our page.

End

Monitoring report from June to September 2020 of Facebook page for the Project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas

2020/10/8
CEPA-JICA Project team

1. Background of the Facebook page

The Project Facebook page was setup as one of the activities of the project for Biodiversity Conservation through Implementation of the PNG Policy on Protected Areas. This project tackles the issue of biodiversity conservation and supports the development and management of the National Protected Area network in PNG. The Facebook account was registered in October 2015 and the Facebook page was opened to the public on November 25, 2016 for the purpose of spreading the project information to a wide audience. However, the project setup a new Facebook page in October 2018 because there was a problem with the previous Facebook page account. Since the new Facebook page was established, CEPA-JICA project team continues posting news articles. This monitoring report is targeted to post on the new Facebook page and covers the period from June to September 2020.

2. Monitoring indicators

The monitoring indicators cover the number of people who expressed “like” of the project Facebook page and the number of people who actually looked at each news article. By analyzing these indicators, we gauge the public relation’s effect of the Facebook page.

3. Update of Facebook page during this period

News articles were continuously posted during this period. In total, 18 articles were posted (11 articles in June, 2 articles in August and 5 articles in September). Total number of posted articles was almost same compared to that of previous periods. The articles covered a wide range of project activities.

4. Results of monitoring

(1) The number of likes

As of 30 September 2020, 1,086 people expressed “like” of the Facebook page. As 982 people expressed “like” of the Facebook page at the end of May, number of “like” has increased 104 people during this period. The following figure shows the increasing trend of likes. It shows that the number of likes increased rapidly especially end of September.

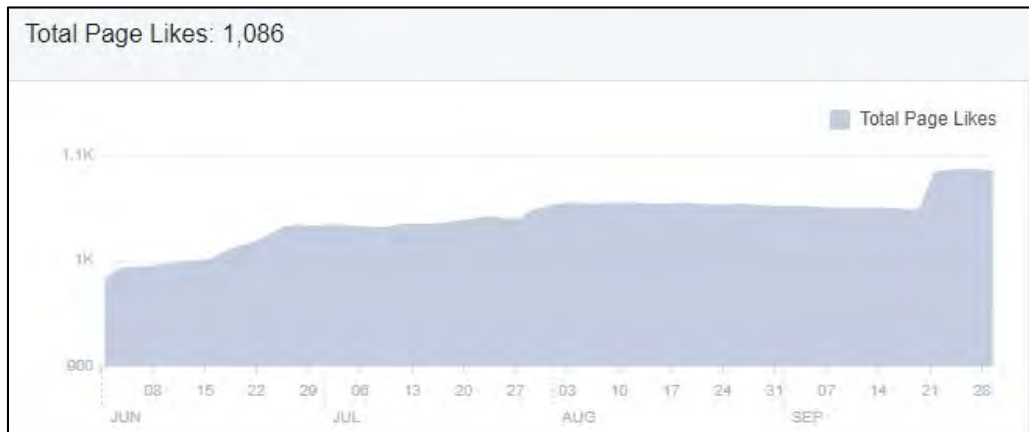


Figure 1: Chronological change of number of likes

The following figure indicates the male-to-female ratio and age group of the people who liked the Facebook page. The number of men is slightly higher than that of women. The age group between 25 and 34 is highest ratio for both men and women and between 35 and 44 is second highest ratio for men and women. Overall trend shows that Facebook page seems to be reaching people in their 20's, 30's and 40's.

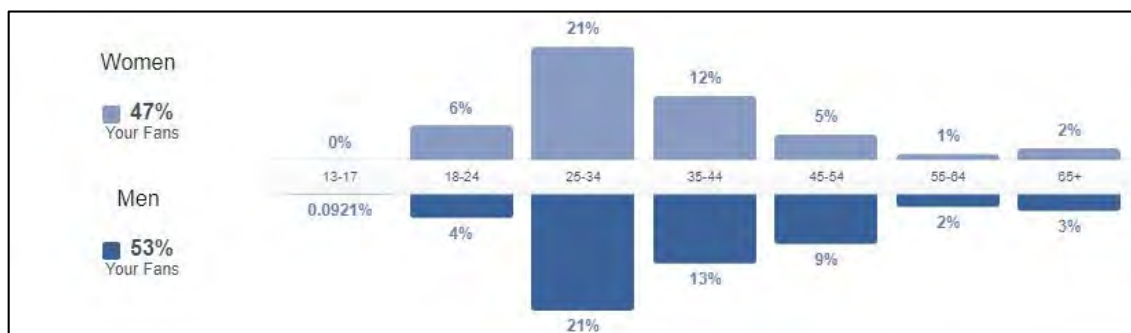


Figure 2: Male-to-female ratio and age group of people who liked the page

The following table shows the country of people who liked our Facebook page. Although most people who liked our pages were Papua New Guineans, 79 Facebook users from other countries are also interested in our pages. As this number is same as previous periods, only Facebook users of Papua New Guineans liked our Facebook page during this period. The highest number of countries except for Papua New Guineans was Australia. Thirty-six Australian expressed "like" of the Facebook page. Other countries such as Japan, USA, Solomon Islands, etc. are also included in Facebook users who liked our Facebook page.

Table 1: The country of people who liked our Facebook page

Country	Your Fans
Papua New Guinea	1,007
Australia	36
Japan	8
Solomon Islands	4
United States of America	3
Czech Republic	3
Fiji	2
Indonesia	2
Cambodia	2
Philippines	2
Vanuatu	2

(2) Analysis of page contents

The number of pages looked at by many people indicates what kind of articles are effective in public relations. The following table shows the top 5 articles which were looked at by many Facebook users. This number is only counted when Facebook users click and see the details on the pages for each article. As shown in this table, more than 1,000 people looked at the top 5 articles by Facebook users. Although this number overlaps some of the same persons when someone reads articles several times, it is thought that many Facebook users read these news articles.

Table 2: Top 5 news articles looked at by Facebook users between June and September 2020

Contents of Post	Posted Date	Total Reach
Trekking site and the waterfall in Varirata National Park	20/09/2020	4,003
The introduction of the waterfall in Varirata National Park	20/09/2020	1,813
Report of One Day Varirata Cultural Tour	22/06/2020	1,760
The introduction of the promotional video in VNP	28/06/2020	1,187
The official opening and the handover of the Varirata National Park Toll Gate's House	01/06/2020	1,026

*Data as of September 30, 2020

5. Future plan

Although some of the activities were stopped due to COVID-19, the number of likes continuously increased and reached 1,000 Facebook users. No.1 news article related to VNP posted at the end of September was seen more than 4,000 times. Since many Facebook users liked our Facebook page during this period, this article attracts many Facebook users. It is effective to post news articles related to VNP continuously to get more likes from Facebook users.

The project activities will be finished at end of the year. The project will handover this Facebook page to the CEPA during next period.

End