

Name of Protected Area: Kavakuna Caves Wildlife Management Area

Part 1: Basic information about the protected area

Table 1. Protected area information

Name, organisation and contact details for person(s) responsible for completing this form - Person 1: Name, Organisation, Address, Email, Phone	Ann Peterson, SPREP/Protected Area Solutions, 283 Madill Road, Tandur, Q4570, Australia, a.peterson@uq.edu.au, 0414300955.
Person 2: Name, Organisation, Address, Email, Phone	Warren Jano, SPREP, wjano2009@gmail.com, 73780347.
Today's Date	3/6/2016 and 6/6/2016 i.e. two separate groups undertook the assessment
Name (or names) of protected area	Kavakuna Caves Wildlife Management Area
Size of protected area (ha)	3220; (proposal for additional land to a total of 22,800ha)
PNG Code or number	33
World Database of Protected Areas site code (these codes can be found on www.unep-wcmc.org/wdpa/)	377717
Protected Area Designation What level or kind of protected area is it? (National, Provincial, Regional or Community protected area type e.g. Locally Managed Marine Area or Wildlife Management Area)	Wildlife Management Area
IUCN Category	
International protected area? e.g. World Heritage or Ramsar?	
Country	Papua New Guinea
Province/s	East New Britain
District/s	Pomio
Local level governments	Central Inland Pomio
Ward/s	Olaipuna, Marmar
Nearest big town	Kokopo
Location of protected area (brief description)	The WMA is isolated – it takes at least one day to walk to the WMA. Most of the community lives along the coast far from the WMA. The caves are located in the Nakanai Ranges. Matale River is the main river system. Near to Palmalmal district headquarters.
Map references	
When was the protected area gazetted or formally established?	1/5/1997
Reference for gazettal or Memorandum of Understanding (MoU)	
Who owns the protected area? please enter Government Private Community/ customary landowners, Other (name)	Customary landowners (Clans –Taulu [sole landowners]; 1 Olaipun village) Other clans in the area are Paugalpuna, Bulu and Boreng. There is some dispute about ownership.

Number of households in PA	Small number
Population size in PA	Approx. 200-300
Who manages the protected area?(e.g., please enter government, customary landowners, management committee)	Disputed –Taulu clan indicated that they have a new Kavakuna Caves Adventure Tours Management Committee, but others dispute the authority of this Committee. 7 Committee members (5 male; 2 female), and two Disputes Settlement Committee members. Some disagreement in relation to the authority of the Committee.
Number of staff (this means anyone working on the protected area in paid jobs –whether NGOs, community, rangers or customary landowners s	0
<i>Temporary</i>	0
<i>Permanent</i>	0
Annual budget (US\$) – excluding staff salary costs	0
Operational (recurrent) funds	0 (seeking funds for development of tourism facilities e.g. guest house)
Project or special funds	0
Why was the PA gazetted?	The community did not know that the WMA was gazetted – there was no communication between government and community. Tourists come to the cave (e.g. French explorers and others) and the arrangements were made external to the community (e.g. tourist operator or provincial government) and payments were made to these groups and not to the community.
What are the main values for which the area is designated (Fill this out after data sheet 2)	Protects important forests, animal habitat (e.g. for brown possum, birds, snakes, rats, bats) and cave landscapes in the Nakanai Ranges and is important for providing clean water to the community (e.g. underground streams).
List the primary protected area management objectives (add lines if needed after the most important objectives)Management objective 1	Protection of environment (e.g. forest, water, animals [possum])
Management objective 2	Develop tourism, especially for cavers (e.g. facilities such as a guest house to be located outside the gazetted WMA on customary land owned by the Taulu clan)
Management objective 3	
Number of people involved in completing assessment	5
Name/organisation/contact details of people participating the assessment (Please do not insert return/enter or dot points)	<i>Gerard W. Borenga</i> , Kavakuna WMA, 72382219; <i>Florence Paisparea</i> , Coordinator, Forest and Environment Unit, East New Britain Provincial Administration, ftpaisparea@gmail.com, 9829443; <i>Simon Passingan</i> , Barefoot Community Service, PO Box 3381, Kokopo, ENBP, spassingan@yahoo.com, 67572497915; <i>Racheal Ataur</i> , Barefoot (as above), rachealataur@gmail.com, 72634108, <i>Clive Passingan</i> , Barefoot (as above), clivepassingan@gmail.com, 67579665809
CEPA staff, Protected area staff (anyone working on the protected area in paid jobs)- Insert - Customary landowners and other community members; NGO; Donors; External experts; Others	Customary landowner, Provincial Administration, NGO

Please note if assessment was carried out in association with a particular project, on behalf of an organisation or donor.

SPREP through the PNG Protected Area Assessment Project, which is a component of the GEF Community-based Forest and Coastal Conservation and Resource Management Project in PNG.

Part 2: What makes this protected area special and important?

The WMA is 3220 ha, but there is a much larger area that we would like to have in the WMA. It is important for fresh water. If mining comes to our area it is important to protect our fresh water. The WMA is important for caving. The caves are made of limestone (karst landscape). There has been talk of people in a tribe with one leg who live in the forest. People walk to the caves and it takes at least one day (from the coast). The caves have important plants and animals such as snakes, bats and rats, possum, and birds (e.g. cassowary). It is in a montane area and has important forests. The community realizes that it is an important protected area, but it is remote and isolated. Some in the community have never visited the WMA. There is some hunting for pigs and some taking of plants for building material.

Table 2. Key values of the protected area

No.	Key values	Brief description	Note if endangered species or ecosystem (IUCN)
1	Biodiversity	Protect important species/habitats (e.g. brown possum, snakes, birds [cassowary], bats; fish	
2	Clean water	Keep the water clean as it is important to the community.	
3	Tourism (caving)	To protect the landscape (especially around the cave) to ensure that tourists come and pay their entry fee to the community.	
4.	Cave system	Extensive interconnected karst landscape with important plant and animal associations.	
5.	Research	The WMA offers opportunity for research into the cave system (e.g. the output from the cave system may be in Jacquinot Bay in the offshore ocean), wildlife (plants and animals).	
6.	Uniqueness	The cave system and its environment is unique within PNG e.g. unusual fish,	

Table 3. Checklist of benefits

Not important 0; Important 1; Very important 2; Don't know DK

How important is the protected area for each of the listed values/benefits?	Score (0,1,2, DK)	Comment
1. Biodiversity – the presence of many different kinds of plants, animals and ecosystems	2	Snakes, possum, forest, important cave species
2. Presence of rare, threatened, or endangered species (plants and animals)	2	Scientific interest in uncommon rat spp found in caves especially in Muruk, which is connected to Kavakuna
3. Ecosystems (e.g. wetlands, grasslands, coral reefs etc) that are rare because they have been cleared or destroyed in other areas	2	Water catchment area and filters through the caves, and this produces important cave systems. Pure water with minerals that provides health benefits.
4. Protecting clean, fresh water	2	Very important for the community.
5. Sustaining important species in big enough numbers that they are able to survive here	2	Caves sustain important species.
6. Providing a source of employment for local communities	2	In the process of expanding the WMA and creating opportunities for people to engage in tourist enterprises
7. Providing resources for local subsistence (food, building materials, medicines etc.)	0	Caves are far away (1 day walk from nearest village) so people get their main subsistence material from closer areas rather than in the WMA.
8. Providing community development opportunities through sustainable resource use	2	Currently few development opportunities, but hope to establish tourism facilities to attract tourists and generate income.
9. Religious or spiritual significance (e.g. tambu places)	2	Spiritual places are found near the river rather than in the WMA. Some ancestral burial sites within the park, but not in the caves. Provides evidence for ownership of the land in the WMA.
10. Plant species of high social, cultural, or economic importance	2	Plants are important for traditional medicines – the people are a long way from the health centre and rely on traditional medicines. Kauri pine – large trees that have cultural importance (occur in montane areas); palms and cane are used for traditional sing sings and building material.
11. Animal species of high social, cultural, or economic importance	2	Fish without tail (specialized to the cave system), snakes, birds (feathers used for sing sings); important source of protein.
12. Attractive scenery	2	Inside the cave (stalactites and stalagmites) and views from caves, forest and rivers.
13. Tourism now	0	
14. Potential value for tourism in the future	2	Very important, but needs investment into tourist facilities.
15. Educational and/or scientific value	2	Important for scientists to research into the cave system. Some specific cave species that are found nowhere else.
16. Maintaining a tradition of protection by customary landowners (of places, animals, or plants) within the protected area	2	Very important for water for the community and maintains their sustainable way of life.

Part 3: What are the threats to the protected area?

Table 4: Threats to the protected area

- H** High significance threats are seriously degrading values. This means they are badly damaging some value –it might be a kind of animal or plant, or your traditional gardens
- M** Medium threats are having some negative impact – they are damaging values but not so badly
- L** Low threats are present but not seriously damaging values
- 0** N/A where the threat is not present in the protected area or where something is happening but is not threatening the values at all

Threat type	Score (H,M,L,0)	Notes
1.1 Housing and settlement	0	
1.1a Population increase in the protected area community	0	
1.2 Commercial and industrial areas	0	
1.3 Tourism and recreation infrastructure	0	
2.1 Customary land owner and community gardens and small crops	0	
2.1a Drug cultivation	0	
2.1b Commercial plantations	L	From coffee production outside the WMA. There is concern about the possible expansion of coffee production in this area.
2.2 Wood and pulp plantations	0	
2.3 Livestock farming and grazing	0	
2.4 Marine and freshwater aquaculture	0	
3.1 Oil and gas drilling	L	Some oil exploration is being organised in the area.
3.2 Mining and quarrying	M	Limestone mining is a possibility in the area.
3.3 Energy generation	0	
4.1 Roads and railroads (include road-killed animals)	M	Logging tracks are around the WMA and this may lead to an expansion of logging to areas near the cave.
4.2 Utility and service lines (e.g. electricity cables, telephone lines)	0	
4.3 Shipping lanes	0	
4.4 Flight paths	0	
5.1 Hunting, killing and collecting terrestrial animals (including killing of animals as a result of human/wildlife conflict)	0	Too far to go to hunt and population is low.
5.2 Gathering terrestrial plants or plant products (non-timber)	0	
5.3a Logging and wood harvesting for local/customary use	0	
5.3b Logging and wood harvesting – commercial logging	M	Logging roads are opening up and there is discussion of the expansion of logging into this area.
5.4a Fishing, killing and harvesting aquatic resources for local/customary use	0	
5.4b Fishing, killing and harvesting aquatic resources for commercial use	0	
6.1 Recreational activities and tourism	0	
6.2 War, civil unrest and military exercises	0	
6.3 Research, education and other work-related activities in protected areas	0	
6.4 Activities of protected area managers (e.g. construction or vehicle use)	0	

Threat type	Score (H,M,L,0)	Notes
6.5 Deliberate vandalism, destructive activities or threats to protected area staff and visitors	0	
7.1 Fire and fire suppression (including arson)	0	
7.2 Dams, hydrological modification and water management/use	0	
7.3a Increased fragmentation within protected area	0	
7.3b Isolation from other natural habitat (e.g. deforestation)	0	
7.3c Other 'edge effects' on park values	0	
7.3d Loss of keystone species (e.g. top predators, pollinators etc.)	0	
8.1 Pest plants	0	
8.1a Pest animals	L	Rats eat village produce; wild pigs.
8.1b Diseases such as fungus or viruses that make native plants or animals sick	0	
8.2 Introduced genetic material (e.g. genetically modified organisms)	0	
9.1 Household sewage and urban waste water	0	
9.1a Sewage and waste water from protected area facilities	0	
9.2 Industrial, mining and military effluents	0	
9.3 Agricultural and forestry effluents (e.g. excess fertilizers or pesticides)	0	
9.4 Garbage and solid waste	0	
9.5 Air-borne pollutants	0	
9.6 Excess energy (e.g. heat pollution, lights etc.)	0	
10.1 Volcanoes	0	
10.2 Earthquakes/Tsunamis	0	
10.3 Avalanches/Landslides	M	Sediment from landslides can enter the water in the WMA. When rivers flood there is erosion and landslides in the park.
10.4 Erosion and siltation/deposition (e.g. shoreline or riverbed changes)	M	Erosion after heavy rain (especially in wet season) causes sediment to run into rivers in the WMA – pollutes fresh water for drinking.
11.1 Habitat shifting and alteration	0	
11.2 Droughts	0	
11.3 Temperature extremes	0	
11.4 Storms and flooding	M	In the wet season this causes increased erosion and sediment and can affect drinking water supplies.
11.5 Coral bleaching	0	
11.6 Intrusion by saltwater into gardens etc.	0	
11.7 Sea level rise	0	
Other (please explain)		
12.1 Loss of cultural links, traditional knowledge and/or management practices	0	
12.2 Natural deterioration of important cultural site values	0	

Threat type	Score (H,M,L,0)	Notes
12.3 Destruction of cultural heritage buildings, gardens, sites etc.	0	
Other (please explain)	M	1. Community conflict over benefit sharing. 2. Lack of government support

Table 5. Worst threats and ways forward

Threat (Most significant first)	Threat number or name (copy from Table 4)	Please explain the nature of the threat and what impact is it causing
Community conflict and land disputes	Other	There is potential for conflict over benefits to be derived from future economic developments e.g. tourism, project support (which may be seen to be inequitable). There has been conflict in relation to the tourists who visit – the money has been taken by those in Kokopo and the community has received little in return (e.g. gifts from the tourists, but no payment for guides). There is ongoing conflict over landownership, even though there was a court decision to decide this.
Expansion of coffee production	2.1b	Few threats. WMA is isolated from the community – no impact from gardening, or hunting, or conflict with other clans. Even when there was a drought in 2015 (due to El Nino) we were not affected as we had plenty of water and food. There is no logging near the PA and no commercial development.
Lack of government support	Other	Since the WMA was founded there has been little funding for planning, capacity building, infrastructure and project development.

Table 6. Management effectiveness scores, comments, next steps

Issue	Score (0,1,2,3)	Comment	Next steps
1a. Legal status	3	Formal WMA exists.	Hope to expand the existing WMA to 22,800ha.
1b. Legal status			
2a Protected area	1	The Management Committee was formed by only one clan (Taulu) and representation from other clans is missing. Some rules exist in relation to cutting forest or taking forest products (to build houses). The new regulations are not legal or agreed to by everyone.	New management committee from Taulu clan has been established and will begin to review the WMA rules. The other clans are not included. There is a need for mediation to address this issue of land ownership. Taulu Management Committee wants to get an ILG in place (i.e. to identify the rightful owners) to help to better protect all of their land (i.e. including land outside the WMA). Need to establish customary clan boundaries.
2b Protected area regulations			
3. Law enforcement	1	Because the Committee is not active or has not been agreed to by all in the community, there is not the capacity in the community in relation to the rules.	There must be demarcation of customary clan boundaries, must be a new WMA committee and the development of a set of regulations that have power in the village court or other legislation to be enforced. (One participant from Taulu Clan indicated that they were in the process of having the new rules that they had decided on, be recognised through the LLG laws. They have a lawyer engaged to assist with the process).
4. Protected area objectives	0	Nothing in place (NGO score 0), but Taulu clan indicated they have agreed objectives and are working to achieve these (Customary landowner score 3).	Clear objectives can only be established with input from all relevant customary landowners. Obtain funding to assist with developing tourism facilities e.g. accommodation.
5. Protected area design	2	The existing design effectively protects the WMA values, but there are some caves outside the WMA that could be included to better protect the cave system.	WMA boundaries are established and it is difficult to change the boundary, but the community is proposing to expand the WMA to 22,800ha to surround the existing WMA (i.e. about 1.5km radius around the existing WMA).
6. Protected area boundaries	1	Boundaries are mapped in a GIS, but as the community lives a long way from the WMA, the boundaries are not well known by community members.	The WMA boundary is proposed to be expanded to 22,800ha. The Management Committee is proposing to undertake an awareness raising concerning the park boundaries.
7. Management plan	0	There is no management plan agreed by all the clans. The Taulu clan indicated they have a plan (score 2), and that the clan landowners understand the rules, but have not implemented it fully.	A new Management Plan is needed that incorporates all customary landowners. The Taulu Clan have established a new Management Committee and indicated that they will revisit the plan and update it. They are aiming to establish an Incorporated Land Group, expand the WMA and develop tourist enterprises. This role is however disputed by other participants at the workshop.

Issue	Score (0,1,2,3)	Comment	Next steps
7a. Planning process	0	Taulu Clan say everyone has a say and they get to elect their committee. They can pressure the committee members to act on their concerns (score 1). NGOs indicated that there is no agreed plan and there has been no input (score 0).	Mediation is required to address the customary landownership conflict and subsequently establish a Management Committee, which can develop a Management Plan that encourages full input of the relevant customary landowners.
7b. Planning process	0	There is nothing to review.	The plan will be reviewed by the new Management Committee.
7c. Planning process	0	Taulu Clan indicated that information is passed on by the tourist operators and climbers and this information helps the customary landowners in their planning and management.	The aim is to have a monitoring plan in the future. Taulu Clan - this is not an immediate concern, there are other priorities (e.g. establishing the ILG and expanding the WMA) – this is the first step before funding can be available for other WMA activities such as monitoring.
8. Regular work plan	0		
9. Resource inventory	0	Only have information from gazettal stage. Japanese did some biological studies and filming and also the French (but data is not available to the community and it is written in French – about exploration of the cave system). Committee has been inactive, but now the Committee is in place, there will be more information available of the resources of the park. A study was conducted in 2008/9 - a survey of wildlife (e.g. insects) and areas outside the caves (i.e. outside WMA), but may represent what is in the WMA.	Need a Resource Management Plan (developed by CEPA and NGOs) e.g. on cave system and the species within, also with marketing of the WMA to tourists. Need a mechanism to store relevant data, so that community has access to the data and it is disseminated. Need community based empowerment to develop skills and capacity related to the proposed new tourism ventures and WMA planning and management.
10. Protection systems	0	Tourists/trekkers come in, but there is no permit/fee system. Some in the community can benefit through employment as porters and guides.	Need to establish a system to regulate the entry of tourists into the WMA and provide a return to the community. Need a legal officer to assist (through the LLG) and assistance through Barefoot NGO. Need leadership training. Alois Magogo is the existing Chair, Kavakuna WMA, from Paugalpuna Clan, but this position is being challenged by the Taulu Clan.
11. Research and monitoring	0	Research has taken place in the past (e.g. French).	Interested in scientific research on fauna and flora within the area and monitoring of water quality to ensure the health of the community.
12. Resource management	0	There is no active management in the WMA (NGO – score 0). Taulu - people are aware of the WMA rules and they abide by the rules. They can control the entry of visitors (Score 3).	There is a need for a Management Plan and then active management can begin. Because the community lives a long way from the WMA there is little need for on-ground active management.
13a. Staff numbers	0		
13b. Other people working on the protected area	1	Taulu Clan indicated that currently there is enough staff, but depending on the activities, it may require more (3 score). NGO indicated there were no community members working to manage the WMA (0 score).	

Issue	Score (0,1,2,3)	Comment	Next steps
14. Training and skills	1	Some people were trained as tour guides.	Training to assist with developing and marketing tourist activities. Need a volunteer to stay in the community and build the capacity; perhaps more NGO/government assistance – to help with the identification of the WMA resources and better understanding and appreciation of the values of the WMA. Need to improve the capacity of the Committee e.g. management and financial skills and marketing of the WMA.
15. Current budget	0	There was no committee so no money was available.	Seek support from the community itself, from LLG and government projects (e.g. for trekking, establishing water tanks). NGOs may also be able to assist (e.g. Barefoot was assigned by UNDP to do an assessment).
16. Security of budget	0		
17. Management of budget	NA		
18. Equipment	0	There is no equipment.	The problem is transport – the roads are bad (it was a logging road, but has been maintained, to some extent, since they left). To improve the outcomes for the community a better road would make it easier for tourists to enter the WMA. A car for transporting tourists to the site and for the proposed guesthouse. Establishment of an office, with equipment for the Management Committee.
19. Maintenance of equipment	NA		
20. Education and awareness	1	In the village there are ward members who consult with the villagers during Ward meetings. Some awareness programs since 2006, sponsored by Provincial Government and Conservation International (eg. World Heritage listing); training in relation to the ILG; training of trainers to conduct awareness programs.	Help with writing a booklet about the WMA and using it in the school to help inform the younger generation; generate information in digital form to attract visitors and this could generate income. This could be packaged with the divers who come to the coast to some excellent diving spots (e.g. leatherback turtles).
21. Planning for land use or marine activities	3	Land use planning does understand the values of the WMA and tries to avoid impact on the WMA. Limestone mining tenement exists around the WMA, but consultation is occurring through CEPA to protect the WMA values.	Avoid limestone mining that impacts on the WMA.
22. State and commercial neighbours	2	Some coffee growing south of the park (north of Pomio).	
23. Indigenous people/ Customary landowners	1	Taulu - Management Committee is established and represents men and women. People identify the issues with the committee members. Meet on quarterly basis (score 3). NGO indicated that not all clans are involved (score 1).	Community must be represented in the Management Committee and the committee should hold regular meetings. The Committee should reflect all of the clans, and include men and women.

Issue	Score (0,1,2,3)	Comment	Next steps
24a. Impact on communities	0		
24b. Impact on communities	1	Through the LLG there are community programs e.g. healthy island concept (community planning), agriculture and business development	
24c. Impact on communities	1	Respect the WMA area and in support of the management of the area, but due to landowner dispute the other clans are quiet at the moment.	There needs to be resolution of the land ownership question.
25. Economic benefit	1	No current benefits.	Plans to develop tourism potential.
26. Monitoring and evaluation	0	No monitoring because there is no plan.	
27. Visitor facilities	0	Because of landowner disputes there is no visitation into the WMA.	Trying to establish visitor facilities.
28. Commercial tourism operators	0		
29. Fees	0	There are no fees in existence. Film crews etc do not pay fees to community, but they may pay for porters.	Would like to have a permit and fee system for cavers.
30. Condition of values	3		
30a. Condition of values	0		
30b. Condition of values	0		
30c. Condition of values	0		

Part 5: Condition and trends of protected area values

Table 7. Values, condition and trend

Key value (from Table 2)	Condition Score (VG, G, F, P, DK)	Trend Score, (I, S, D, DK)	Information source and justification for Assessment
Biodiversity	VG	I	Improving due to removal of logging. Scientific research to identify baseline data on the biodiversity and monitoring to assess changes in these values.
Clean water	VG	S	Sustainable tourism to ensure that there is no impact on the quality of water. Mining and logging and cash crops must have no impact on the WMA.
Tourism (caving)	VG	S	Good opportunity for tourism; intact environment; excellent for adventure tourism. Investment into developing tourist facilities, introducing a permit system and fee system for visitors, and information and marketing of the WMA values.
Cave system	VG	S	In very good condition. It is an important resource for the community. There is a need for scientific research into the cave ecosystem.
Research value	VG	S	
Uniqueness	VG	S	

Table 8. Recommendations and ways forward

1	2	3	4	5
Settle the landownership disputes and establish a management plan and Management Committee that reflects the customary landownership	Build capacity so that people have skills to manage and get benefit from the PA.	Develop a land use plan and monitor and evaluate the plan	Limestone mining should be stopped as it is a threat to the whole community	Greater monitoring of cavers who enter without permission and develop an effective payment system, in conjunction with the Tourism Bureau, to ensure some return to the community.