

Name of Protected Area: Balek Wildlife Sanctuary

Part 1: Basic information about the protected area

Table 1. Protected area information

Name, organisation and contact details for person(s) conducting the assessment 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	Bernard Suruman, CEPA, bsuruman@dec.gov.png
Today's Date	24/08/2016
Name (or names) of protected area	Balek Wildlife Sanctuary
Size of protected area (ha)	470
PNG Code or number	154
World Database of Protected Areas site code (these codes can be found on www.unep-wcmc.org/wdpa/)	4204
What level or kind of protected area is it? (National Park, Wildlife Management Area, Sanctuary, Reserve, Locally Managed Marine Area etc)	Wildlife Sanctuary
IUCN Category	
International protected area? e.g. World Heritage or Ramsar?	
Country	Papua New Guinea
Province/s	Madang
District/s	Madang
Local level governments	Ambenob
Ward/s	16
Nearest big town	Madang
Location of protected area (brief description)	Located to the south-west of Madang (about 20 minutes by car along the Jeff Cot Highway). It is situated before the Go Gol River Bridge. The Sanctuary spans the Behir Creek with elevations from about 50-100m. The northern boundary is south of Sein Village. It is about 10km from the coast.
Map references	
When was the protected area gazetted or formally established?	4/08/1977
Reference for gazettal or Memorandum of Understanding (MoU)	G 61
Who owns the protected area? please enter Government Private Community/ customary landowners, private, Other (name) and include Clan name(s)	Customary landowners: Awa Tribe: Hep, Yaum and Belih

Number of households living in the protected area	10
Population size within the protected area	Approx. 300
Who manages the protected area? (e.g. please enter government, customary landowners [add clan names] management committee [how many and what gender])	Awa Tribe; Management Committee (9 men from the three clans; 3 executives and 6 committee members)
Total number of staff (this means anyone working on the protected area in paid jobs – whether NGOs, community, rangers or customary landowners)	0
<i>Temporary paid workers</i>	Temporary hire of cleaners who patrol the sanctuary boundary perhaps twice every year to keep it clear.
<i>Permanent paid workers</i>	0
Annual budget (US\$) – excluding staff salary costs	0
Operational (recurrent) funds	0
Project or special funds	0
Reason for park establishment	To protect the natural habitat for future generations to see. My father wanted to set up a national park because he wanted to protect the area. At independence he was able to have the land established as a Sanctuary.
What are the main values for which the area is designated (Fill this out after data sheet 2)	
List the primary protected area management objectives (add lines if needed after the most important objectives): <i>Management objective 1</i>	To protect what God has created.
<i>Management objective 2</i>	To protect the iconic species of PNG (e.g. bird of paradise)
<i>Management objective 3</i>	To provide an avenue for tourists and students to see the environment and to appreciate what God has created.
Number of people involved in answering the assessment questions	10
Name/organisation/contact details of people participating the assessment (<i>Please do not insert return/enter or dot points</i>)	<i>Panu J Wagu</i> , Coordinator/Chairman, Balek Wildlife Sanctuary, PO Box 910, Madang 511, 71170885; <i>Beh Kom</i> , BWS Member, as above; <i>Damun Bital</i> , as above; <i>Talil Butt</i> , Secretary BWS, as above; <i>Momois Heb</i> , Member BWS, 71487160; <i>Meregin Wagum</i> , BWS Member, as above; <i>Naptali Kobis</i> , Clan representative, as above; <i>Rodney Sakel</i> , Treasurer, BWS, as above; <i>Oniel P Beibi</i> , Madang Provincial Administration, Commerce, Industry and Tourism Branch, PO Box 2026, Madang 511, onielbeibi@gmail.com, 4221601/72731228; <i>John Sigara</i> , Madang Provincial Administration, Planning Office, PO Box 2139, Madang 511, jaysigara@gmail.com, 79346633.
Customary landowners/other community; CEPA, Other national government agency; Provincial govt; local level govt; Protected area staff (anyone working on the protected area in paid jobs; NGO; Donors; External experts; Others	Customary landowners and members of the Management Committee, Madang Provincial Government (Planning and Tourism).

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

My father came up with the idea of a Sanctuary and he convinced the members of the community. Logging companies were interested in the area, but we recognized the importance of the area for wildlife. We didn't want to have logging. We would have lost everything. We wanted to keep it protected for our children. In the Sanctuary we have kwila trees, butterfly, herbal plants and national iconic species such as the bird of paradise and crocodile. There are python, scorpion and other unique species. There are no cassowaries (muruk) any more as they have been hunted. So we must protect what is left. It is important to have this place so that children can come here and learn about the environment. There is healing water in the sulphur springs. People come here to be in the water as it helps with many illnesses (e.g. malaria, leprosy and other sicknesses). There are fish, prawns and eels in the water. There is also a mountain with caves and tunnels.

Table 2. Key values of the protected area

No.	Key values	Brief description	<i>Note if endangered species or ecosystem (IUCN)</i>
1	Natural habitat	Land and its vegetation (e.g. kwila, a vine that attracts butterfly), many animals (e.g. bird of paradise, cockatoo and other birds and aquatic animals found in the streams).	
2	Scientific and education	Important because of the healing potential of the water and the whole Sanctuary is important to educate children and others about the values of the site and to have it for them to enjoy in the future.	
3	Sulphur springs	There are healing properties associated with the springs. There was a belief that the spirit lived in the water, but Christianity has changed this view and it is now believed that the water is good because of God. It is thought to heal many illnesses (e.g. leprosy). There is also habitat for tortoise, eels, and prawns.	
4	Caves and tunnels	Called Balek. It was a tambu place, but now visitors are going there.	
5	Religious	Strong connections between the environment and God the creator.	

Table 3. Checklist of values/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	It is important for the preservation of iconic species such as the bird of paradise. It also has other wildlife including wild fowl, wild pigs, cockatoo (black and white), hornbill, crown pigeon, snakes, tortoise, prawns and eels, wallaby and cuscus (although numbers are low).
2. Presence of rare, threatened, or endangered species (plants and animals)	2	Bird of paradise (2 species). The feathers are used in ceremonies. When we want feathers we find a feather and stick it on the tree where the birds sit and then the bird flies about and drops more feathers and we collect them.
3. Ecosystems (e.g. wetlands, grasslands, coral reefs etc) that are rare because they have been cleared or destroyed in other areas	2	Forest provides healthy air and a cooling effect and helps to provide rain. There are important sulphur streams with special wildlife. The caves have a separate ecosystem with a restricted range of species e.g. python, birds, bats and in the streams in the caves there are eels, prawns and tortoise. One cave has sulphur water and the other cave has freshwater.
4. Protecting clean, fresh water	2	There are both sulphur streams and freshwater streams. The latter supplies water to the community.
5. Sustaining important species in big enough numbers that they are able to survive here	2	The size is sufficient to maintain larger species.
6. Providing a source of employment for local communities now	2	The income is infrequent e.g. when visitors come and pay the guides and the entry fee. We would like to have more income generation from the Sanctuary.
7. Providing resources for local subsistence (food, building materials, medicines etc.)	2	Landowners decided that gardens can occur only where there are existing gardens i.e. on the lower land in the eastern and southern part of the Sanctuary. We also take timber for poles for housing. The forest provides medicines (several plants for diarrhea and preventing headaches). Hunting has been restricted by the clan owners. There is only seasonal hunting (e.g. for cuscus wallaby, bandicoot, snakes, small birds, flying fox, pigeon, cockatoo). (However, outsiders come in to hunt our resources). It is open perhaps twice a year or when food is in short supply (e.g. during a drought).
8. Providing community development opportunities through sustainable resource use	2	Land outside the Sanctuary we would like to plant cocoa. We are not looking at developing the Sanctuary, other than for eco-tourism. Funding from UNDP in 2000 to build a walkway to the cave and some visitor facilities. The project is incomplete.
9. Religious or spiritual significance (e.g. tambu places)	2	Spirits are believed to be present at the site.
10. Plant species of high social, cultural, or economic importance	2	This area is a seed bank as the surrounding areas have been mainly logged; kwila is becoming scarce; plants have medicinal value and are important for various animals that depend on them (e.g. butterfly)
11. Animal species of high social, cultural, or economic importance	2	Bird of paradise.
12. Attractive scenery	2	There is a steep vegetated cliff face with sulphur creeks that flow from the limestone cliffs and caves. These provide very attractive scenery. The water has curative properties.
13. Tourism now	1	
14. Potential value for tourism in the future	2	
15. Educational and/or scientific value	2	

16. Maintaining culture and tradition on customary land and passing this on to future generations	2	
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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	H	Other people are settling in the Sanctuary. Settlement is increasing on all sides of the Sanctuary. Then they enter and hunt and take resources. Previously there were rangers and we could fix the problems. The police have been unable to lay charges and remove them. There are about 10 households in the Sanctuary, but outside there are many.
1.1a Population increase in the protected area community	H	As above
1.2 Commercial and industrial areas	L	There is a timber mill that causes impact on water.
1.3 Tourism and recreation infrastructure	0	
2.1 Customary land owner and community gardens and small crops	H	Gardens are expanding due to increasing population.
2.1a Drug cultivation	0	
2.1b Commercial plantations	M	An oil palm plantation is proposed and will result in roads and clearance.
2.2 Wood and pulp plantations	0	Plantations are a long way from here.
2.3 Livestock farming and grazing	0	
2.4 Marine and freshwater aquaculture	H	There are plans to put in fish farms. The ponds have already been constructed within the Sanctuary and it is proposed to put in Tilapia and carp. This will have severe consequences for native fish if the farmed fish escape into natural waterways.
3.1 Oil and gas drilling	M	There is some exploration in the area and it may cause damage. The community do not know the status of this.
3.2 Mining and quarrying	L	There is potential for mining in the area, but we are unsure of what will be happening.
3.3 Energy generation	L	There could be hydro dam construction in upstream areas, but we are not sure what is happening.
4.1 Roads and railroads (include road-killed animals)	M	There are plans to expand the road. The community do not want this to take place in the Sanctuary.
4.2 Utility and service lines (e.g. electricity cables, telephone lines)	0	There is a power line but it does not cause any problems.
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)	H	Outsiders enter the Sanctuary and take wildlife.
5.2 Gathering terrestrial plants or plant products (non-timber)	H	Outsiders enter the Sanctuary and take plants.
5.3a Logging and wood harvesting for local/customary use	H	Mainly for house building, firewood, garden fencing. Occurs close to the gardens.
5.3b Logging and wood harvesting – commercial logging	L	

Threat type	Score (H,M,L,0)	Notes
5.4a Fishing, killing and harvesting aquatic resources for local/customary use	M	Outsiders come in to take our marine resources (e.g. fish, prawns)
5.4b Fishing, killing and harvesting aquatic resources for commercial use	L	
6.1 Recreational activities and tourism	L	Sometimes tourists come and take stones, plants from the Sanctuary. Sometimes they walk in the caves and tunnels.
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)	M	Some customary landowners will make gardens and clear the land in virgin forest and take timber.
6.5 Deliberate vandalism, destructive activities or threats to protected area staff and visitors	H	Outsiders are entering the Sanctuary and cause serious impacts on the Sanctuary (e.g. clearing virgin forest, hunting, and fishing).
7.1 Fire and fire suppression (including arson)	H	Mainly a problem in the dry season (May – July) (as a result mainly of fire escapes. It changes the plants and animals (e.g. the wallabies have no place to hide in a fire). The fire moves from the gardens generally from the north east to the south west. The landowners carry buckets of water into the forest to try and stop the fire.
7.2 Dams, hydrological modification and water management/use	L	
7.3a Increased fragmentation within protected area	H	Due to increased gardening as a result of population growth and some effects from wild fires which move through the Sanctuary during the dry season.
7.3b Isolation from other natural habitat (e.g. deforestation)	L	There is still forest on the western side, but much of the forest has been removed from the remainder (although it is regenerating).
7.3c Other 'edge effects' on park values	H	There is increased gardening on the edges of the park and more people who then enter the Sanctuary.
7.3d Loss of keystone species (e.g. top predators, pollinators etc.)	H	Cassowary, Gura pigeon and Agile wallaby are no longer found in the Sanctuary. They have been hunted.
8.1 Pest plants	H	There is the strangling vine (with purple flower) and Glarisida, a legume plant used on cocoa plantations.
8.1a Pest animals	L	Willy wagtail feed on butterfly caterpillars and this is a pest.
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	L	There could be, but we have not tested the water.
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)	L	
9.4 Garbage and solid waste	M	People living in town dump their waste in the drains in the Sanctuary and some fish are disappearing. People travelling along the road also dump their waste. Factories dump building material, cement and other toxic material into the river. The landowners would like a sign to advise not to dump waste and to advise of the penalties.
9.5 Air-borne pollutants	0	
9.6 Excess energy (e.g. heat pollution, lights etc.)	0	
10.1 Volcanoes	0	

Threat type	Score (H,M,L,0)	Notes
10.2 Earthquakes/Tsunamis	0	There are earthquakes, but they don't cause a problem.
10.3 Avalanches/Landslides	L	
10.4 Erosion and siltation/ deposition (e.g. shoreline or riverbed changes)	L	
11.1 Habitat shifting and alteration	L	The impacts are unknown, but thought to be possible.
11.2 Droughts	L	Droughts are more frequent and the dry season comes earlier each year. They will have impact on some trees and reduce the water availability and increase the risk of bush fires.
11.3 Temperature extremes	M	People notice changes in the temperatures – they are hotter for longer.
11.4 Storms and flooding	0	
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	L	
12.2 Natural deterioration of important cultural site values	0	
12.3 Destruction of cultural heritage buildings, gardens, sites etc.	0	
Other (please explain)	H	Lack of effective Management Plan.

Table 5. Worst threats and ways forward

Threat No.	Threat (Most significant first)	Threat number or name (copy no. from Table 4)	Nature of the threat, impact and how to reduce the impact.
1	Population/ illegal settlement	1.1a, 1.1	Results in more houses/settlement and impacts on resource use. This is mainly a threat from the new settlers. The Province can issue an eviction notice, but this is a difficult process to get an outcome. The Village Court does not have the capacity and is not familiar with the laws related to these gazetted areas and they may not see this as a criminal matter. There needs to be more cooperation between provincial and LLGs to better protect the protected areas. Provincial environment officers no longer exist and this is a major gap. A representative from the Sanctuary should be on the Ward Development Committee.
2	Absence of effective management plan	Other	The plan is old and has not been revised. We have many problems to address and a new Management Plan would provide a framework for this.
3	Lack of awareness and education		We must continue to raise awareness so that the values of the Sanctuary are protected for the future.

Part 4: What is the management like in the protected area?

Table 6. Management effectiveness scores, comments, next steps

Issue	Score (0,1,2,3, NA)	Comment	Next steps
1a. Legal status	3	Legally gazetted.	
1b. Legal status			
2a. Protected area regulations	2	There are statutory regulations (e.g. prohibitions on taking fauna, lighting fires, disposal of refuse, cutting trees or plants or making a garden). People with customary garden rights in the Sanctuary may make a garden and cut trees or plants, but only with the approval of the clan leader and only on land customarily used for gardens. The village court is relatively effective in protecting the values of the Sanctuary, but there are some weaknesses.	We need an Environment Officer at the Provincial level who will address a range of issues that are relevant to the protected areas. Some of the relevant laws need to be reviewed and they must link with other laws to ensure the protection of the environmental values.
2b. Protected area regulations			
3. Law enforcement	1	We have some committees and they are relatively effective, but there is lack of funding. They also do not have effective powers and the penalties are not severe.	Funding is required and also improved training.
4. Protected area objectives	2	A Management Plan was developed at the time of gazettal and it contained some objectives.	We must revise the Management Plan and its objectives.
5. Protected area design	2	The boundaries are within our customary land and we can't change that. If the surrounding villages were cooperative we could expand the Sanctuary.	
6. Protected area boundaries	2	The boundary is mapped and known by the Committee. Natural markings (on trees, along creeks) occur on the ground and there has been GPS mapping (1977). Outsiders, however do not always respect the boundary.	
7. Management plan	3	Management Plan was written in about 1973 (i.e. before gazettal). Lack of funding restricts implementation of the Plan.	The Management Plan needs to be revised, including the fees and penalties to generate some income for the landowners.
7a. Planning process	1		
7b. Planning process	0		
7c. Planning process	0		
8. Regular work plan	3	There is community involvement on Monday and Wednesday – the community work for one day each week on cleaning and improving the site. This has happened since the start of the Sanctuary. They are not paid to do this.	

Issue	Score (0,1,2,3, NA)	Comment	Next steps
9. Resource inventory	2	There was a technical officer in the past, but the funding stopped. The landowners are in the Sanctuary often and know what is happening.	
10. Protection systems	2	Responsibility rests on all clan members to stop outsiders entering. They report this to the committee. Now the outsiders challenge the right of the clan members to penalise the offenders.	Need to explore with LLG ways to link the Sanctuary laws with the LLG so that it can be enforced under the LLG laws. The review of the Management Plan is also important to address this. This will also help to raise awareness in the wider community.
11. Research and monitoring	0		
12. Resource management	1	Maintain the sulphur springs and the paths.	
13a. Staff numbers	0		
13b. Other people working on the protected area	2	Not all the community members participate, but if they all did we would have better outcomes.	Encourage all the landowners to participate in the management of the Sanctuary.
14. Training and skills	1		Training for the committee e.g. administration, planning and plan review, monitoring.
15. Current budget	0		
16. Security of budget	0		
17. Management of budget	NA		
18. Equipment	2	Pit toilet, tracks, bridge, wheel barrow, carpentry tools, spades, visitor facilities, computers	Electricity to facilitate better administration (e.g. computers), water system (from the creek)
19. Maintenance of equipment	3	People are trained to maintain the equipment.	
20. Education and awareness	1	About once per year students come and our landowners provide information about the Sanctuary and how to manage the environment.	We need funding to provide further education programs.
21. Planning for land use or marine activities	2	Outsiders often think that protected areas have no important values and they want plantations (coconut, cocoa), mines and other land uses. Agriculture and Fisheries Departments want to do some land use change (e.g. tilapia farms) and they don't consider the impact on the Sanctuary.	There needs to be good planning that will assist the PA. There is a plan being developed for an expanded Madang (next 5-10 years). There will be an international airport (from Go Gol Bridge) and a LNG power plant, but this should not have impact on the Sanctuary. There will be a 4 lane road constructed to the airport (15m each side of the Sanctuary. This will impact on the Sanctuary boundary. The Planning Office should have a data layer with all of the protected areas, so that future planning can take this into account. The NGOs are not reporting to the governments (after removal of provincial wildlife officers). The issue of tilapia in fish ponds should be raised with the National Fisheries Office.
22. State and commercial neighbours	0	There are laws but there is ignorance of the laws and the rights of the customary landowners are not respected.	Solutions need to be found higher in the system.

Issue	Score (0,1,2,3, NA)	Comment	Next steps
23. Indigenous people/ Customary landowners	2		
24a. Impact on communities	1	There is communication within the Clans and some with other levels of government.	
24b. Impact on communities	0		Development programmes are needed within the community and this will require some funding. We also need some information on welfare provision (e.g. health, education).
24c. Impact on communities	1	People volunteer their work and so there is support. But the outside people may not support the objectives.	
25. Economic benefit	2	Some tourists come (about 3 per month) and they pay about K10 each.	There needs to be dissemination of information about the Sanctuary. There is potential to gain income from eco-tourism, but the issue of equitable spread of benefits needs to be addressed.
26. Monitoring and evaluation	1		
27. Visitor facilities	2		
28. Commercial tourism operators	1	A local tourism company and other provinces may bring tourists to the Sanctuary.	
29. Fees	2	Tour operators do collect fees and pay us (K10). Fees help to maintain the area.	
30. Condition of values	2		
30a. Condition of values	0	Assessment is based on traditional knowledge.	
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 and HOW the condition can be IMPROVED
Natural habitat	G	D	The habitat remains relatively intact, although there has been a loss of some species (e.g. cassowary, Agile wallaby). Future proposed development may pose a threat (e.g. airport, road expansion, commercial plantations). There must be greater engagement with all levels of government and open communication to address the needs of the Sanctuary.
Scientific and education	VG	I	At present several institutions come to the Sanctuary e.g. University, Madang Teachers College and Technical College. They come for one day and get some instructions and can ask questions. On the job training for students would be something useful for the future. This is important for their learning and they can also support the Sanctuary.

Sulphur spring	VG	D	Quality is good, but there are starting to be some impacts with decline in water quality.
Caves and tunnels	VG	D	The structure and the animals remain although there are potential impacts on water quality.
Religious	VG	D	Religion is having less of an influence.

Table 8. Recommendations and ways forward

1.	2.	3.
Effective communication among the customary landowners and all levels of government (i.e. community, provincial, local, and national government). This must include feedback on relevant issues so that we are kept informed of government decisions.	The protected area legislation is not effective. It needs to be fully implemented so that outcomes are achieved for each protected area. There must be on-ground support and effective communication with the national government. There is insufficient support from the national and provincial governments.	To implement more effective plans and processes that will encourage tourism. This can be achieved in coordination with the Provincial Government, which is developing a tourism policy. We also need some training on how to apply for any funding that is available. This can be achieved through close communication with LLG and Provincial government.

Table 9. Strengths and challenges (facilitator/recorder synthesis)

	Strengths	Challenges
1	Biodiversity and cultural values remain strong and the Management Committee is interested in conserving the Sanctuary's values.	Maintaining the values of the Sanctuary in the face of several proposed developments (e.g. plantations, airport, road expansion and mining exploration).
2	There are several interesting tourist sites within the Sanctuary (e.g. caves, sulphur springs and vegetation and wildlife) that provide opportunity for income generation and there are some basic tourist facilities.	Obtaining effective support to address some challenging issues facing the Sanctuary (e.g. illegal settlers who now reside in the Sanctuary).
3	The landowners volunteer their time to work within the Sanctuary and actively support the Sanctuary.	Withdrawal of support and funding from the Sanctuary and lack of communication with all levels of government.
4	The community has waited for over 20 years to receive some support, and they continue to manage their area and fight for ongoing support.	Developing a range of skills, in the face of limited funding, to enable landowners to monitor and manage the Sanctuary.