

Name of Protected Area: Neiru Wildlife Management Area

Part 1: Basic information about the protected area

Table 1. Protected area information

Name, organisation and contact details for person(s) conducting the assessment <i>Person 1: Name, Organisation, Address, Email, Phone</i>	Gregory Peterson, SPREP/Protected Area Solutions, 283 Madill Road, Tandur Q4570, Australia, gregpeterson53@hotmail.com, +61754835155; Ann Peterson, SPREP/Protected Area Solutions, 283 Madill Road, Tandur, Q4570, Australia, a.peterson@uq.edu.au, 0414300955
<i>Person 2: Name, Organisation, Address, Email, Phone</i>	Benside Thomas, Conservation & Environment Protection Authority, PO Box 6601, Boroko, National Capital District, benside.thomass@gmail.com
Today's Date	24/02/2017
Name (or names) of protected area	Neiru Wildlife Management Area
Size of protected area (ha)	3984
PNG Code or number	81
World Database of Protected Areas site code (these codes can be found on www.unep-wcmc.org/wdpa/)	
What level or kind of protected area is it? (National Park, Wildlife Management Area, Sanctuary, Reserve, Locally Managed Marine Area etc)	Wildlife Management Area
IUCN Category	
International protected area? e.g. World Heritage or Ramsar?	
Country	Papua New Guinea
Province/s	Gulf Province
District/s	Kikori
Local level governments	East Kikori
Ward/s	Ward 8
Nearest big town	Kikori
Location of protected area (brief description)	The WMA is located about 10km east of Kikori town. It contains very low coastal wetlands, except for the low rise of Aird Hills (to 120m) and is surrounded by water from the river. It is a delta area. It consists of dense lowland rainforest on upland areas, closed wet forest (including sago forests) on low lying areas, and nipa palm and mangrove forest on the intertidal areas.
Map references	
When was the protected area gazetted or formally established?	24/12/1987
Reference for gazettal or Memorandum of Understanding (MoU)	
Who owns the protected area? please enter Government Private Community/ customary	Customary landowners: 9 clans, including Umomoro, Neurimoro, Kubitomoro, Kobein, Baraimoro, Keimirakaro, Birumoro, Wareimoro.

landowners, private, Other (name) and include Clan name(s)	
Number of households living in the protected area	NA
Population size within the protected area	4000 - 3 villages (Ero – 3,000; Wowou – 200; Samoa – 500)
Who manages the protected area? (e.g. please enter government, customary landowners [add clan names] management committee [how many and what gender])	WMA Management Committee – 18 committee members (two from each clan [16], 1 woman’s representative, 1 ward councillor representative) and 4 executive members) (only 1 woman representative on the Committee).
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>	0
<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 protected area establishment	In the 1980s there were logging operations and the area was heavily logged. The WMA was established to safeguard the forests and to preserve our biodiversity, including the fauna, which was hunted by outsiders, including fishers and crocodile hunters.
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 conserve and protect the rich biodiversity with its flora and fauna.
<i>Management objective 2</i>	To work in partnership with private and government organisations for the betterment of the WMA.
<i>Management objective 3</i>	To make Neiru WMA and its communities (Ero, Wowou and Samoa Villages) a model WMA in Kikori and Gulf Provinces in terms of environmental conservation to attract tourists, researchers, scientists and NGOs to the area and to have a business arm to engage in tourism to boost the organization’s economy and to support ourselves.
Number of people involved in answering the assessment questions	6
Name/organisation/contact details of people participating in the assessment	<i>Koumi Koumo</i> , Neiru WMA Chairman, Ero Village, Kikori, Gulf Province, 70376272, 72266726; <i>Kovei Natai</i> , Neiru WMA Secretary, PO Box 1 Ero Village, Kikori, Gulf Province; <i>Kemaru Buari</i> , Neiru WMA Treasurer, PO Box 1 Ero Village, Kikori, Gulf Province, 79316603; <i>Lee Mara</i> , Neiru WMA, PO Box 1, Ero Village, Kikori, Gulf Province, kemaruleemara@gmail.com, 79895851; <i>Sirio Epi</i> PO Box 1, Ero Village, Kikori, Gulf Province, 73151460; <i>Kebua Darobei</i> , PO Box 1 Ero Village, Kikori, Gulf Province, 71596400.

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
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 a riverine and estuarine area of the Gulf of Papua. Its central core is raised, with limestone hills to the north. However, most of the area is low lying and subject to upstream and downstream influences. It is mostly water logged and unsuitable for many activities. The area is very important in providing water for the people, especially in dry times. The lowland areas contain alluvial deposits. There are important forests and plants which provide timber and food and many important animals (e.g. wallaby, cuscus, cassowary, birds, pigs and marine animals such as fish and shellfish) that provide food and protein. The people depend on the resources of the WMA, for consumption and also for sale. We have a strong culture with some sacred sites and many legends and myths. New settlers have come into our tribal lands. The village of Samoa, which lies centrally within the WMA, has many people who are not customary landowners.

Table 2. Key values of the protected area

No.	Key values	Brief description	Note if endangered species or ecosystem (IUCN)
1	Trees/flora and fauna	There are lowland rainforest areas (upland areas), closed wet forest with sago forests (low lying areas) and mangrove. Trees are used for house materials (kwila, rosewood, mangrove cedar) and building canoes (the only means of transport in the delta). There is a special tree (eriri tree) and there are trees that provide plentiful, fruits and nuts (chestnuts), as well as sago (staple food) and beetle nut. Some plants are only found in this area.	
2	Marine life	Fish (barramundi, catfish, and red-belly), shell fish, prawns and crabs are for consumption and for sale in the local market. Dolphins (short-nose) come on the high tide, and there are blue whales and turtles (pig-nosed) – they are protected, but people still hunt them and collect the eggs and as a result their numbers are declining.	
3	Spiritual, traditions and customs	Beliefs, customs, traditions and relationships. There are some sacred sites and our legends and myths are maintained. Our landownership is tied into our traditional beliefs. Names, clans and tribes have historical roots. Totems are used and have significance in initiation. Additional information: There are significant prehistoric archaeological sites near Samoa and elsewhere on elevated land near the Kikori River Channel (RAPPAM 2006).	
4	Fresh water	There is an abundance of fresh water. There is water even in very dry times and this is used for drinking, straining sago and washing. There is no storage of water.	

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	The WMA is centrally located between the mountains and the coast and this provides an important role for biodiversity. The mangroves are valued for timber but can only be found in one location within the WMA. Outsiders come in and extract mangroves and other resources. The WMA provides food (e.g. fish, prawns, shellfish, sago, nuts and fruit) and some plants have medicinal value. Forests are important for timber (canoes and houses), Nipa palm leaves and bamboo. Additional information: provides habitat to both terrestrial and aquatic species including dolphins, dugong, turtles, crocodiles, goannas and birds (hornbills, palm cockatoos and parrots). (RAPPAM 2006).
2. Presence of rare, threatened, or endangered species (plants and animals)	2	All around the WMA the area has been logged and many wildlife are coming into the WMA e.g. pig-nosed turtle and small wallabies. The WMA is important for locally endemic plants, but overall has low levels of endemism.
3. Ecosystems (e.g. wetlands, grasslands, coral reefs etc) that are rare because they have been cleared or destroyed in other areas	2	It is important for mangroves, kwila and mangrove cedar. Outside of Kikori these timbers have been extracted. The wetlands provide breeding and feeding areas for aquatic species and the central hill provides habitat for birds and other animals.
4. Protecting clean, fresh water	2	The WMA is a supplier of water for the whole Kikori delta. In drought people from other places come to our area to collect water.
5. Sustaining important species in big enough numbers that they are able to survive here	2	There are rules to limit the extraction of resources and to sustain their numbers. The ecosystems within the WMA are viable in terms of sustaining species.
6. Providing a source of employment for local communities now	0	There is no employment, but this is important for the future.
7. Providing resources for local subsistence (food, building materials, medicines etc.)	2	The area provides fish, timber, clean water and medicinal plants. 95% of the peoples' livelihoods depends on the resources extracted from the WMA.
8. Providing community development opportunities through sustainable resource use	0	There are no community development activities, but this is important for the future.
9. Religious or spiritual significance (e.g. tambu places)	2	There are several important places and a long tradition of passing on culture and traditions.
10. Plant species of high social, cultural, or economic importance	2	Kwila, mangrove cedar and sago are important.
11. Animal species of high social, cultural, or economic importance	2	Fish, shell-fish and crabs are important.
12. Attractive scenery	2	Very beautiful and would be good for tourism. For example there are extensive wetlands in the delta of the Kikori and other rivers, green hills, coast and wildlife, in particular birds.
13. Tourism now	2	There are no tourists currently. The WMA Profile indicates that tourism is important – “if we are well structured and organized it will pave the way for tourism engagement to the area”.
14. Potential value for tourism in the future	2	Tourism is important for the future.
15. Educational and/or scientific value	2	There has been some research in the past. The area has important scientific and educational value.
16. Maintaining culture and tradition on customary land and passing this on to future generations	2	

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 groups, not from our tribe, have settled on our tribal land. They created the village of Samoa and have come from west Kikori. These people were brought in by the missionaries in about 1901. Housing expansions results in loss of habitat and greater resource extraction.
1.1a Population increase in the protected area community	H	Population numbers are growing. They are hunting and fishing in the traditional lands and now the local people cannot get sufficient fish or terrestrial wildlife in their traditional lands.
1.2 Commercial and industrial areas	H	There is oil, gas and forestry operations – the pipeline from Kutubu passes through the WMA. Forestry operations in the upper catchment have resulted in erosion and siltation in the delta and this has affected the marine life. All the deep sections of the delta have now gone. There is also more flooding in the delta. The vessels come in here to collect the timber.
1.3 Tourism and recreation infrastructure	0	
2.1 Customary land owner and community gardens and small crops	H	They are clearing land in the WMA to make more gardens. This causes erosion and increased sedimentation in the river.
2.1a Drug cultivation	0	There is no growing of drugs, but lots of consumption (it comes in from the highlands).
2.1b Commercial plantations	0	There was one SABL, but it is not in operation.
2.2 Wood and pulp plantations	0	
2.3 Livestock farming and grazing	0	
2.4 Marine and freshwater aquaculture	0	There used to be crocodile farming.
3.1 Oil and gas drilling	H	To the north of the WMA and to the east there is exploration for oil and gas. There are proposed seismic lines that cross the WMA and this will result in some destruction of forest and other ecosystems. Oil Search are extracting oil from Lake Kutubu and piping it beside and down the Kikori River, passing within 10km of the WMA to a marine terminal about 20 kms offshore in the Gulf of Papua. There is also the threat of oil spills from pipes and ship loading facilities.
3.2 Mining and quarrying	0	
3.3 Energy generation	M	There is a diesel generated power station on one of the mountains in the WMA. There is runoff of diesel and oil.
4.1 Roads and railroads (include road-killed animals)	0	The area is a delta surrounded by rivers and there are few roads.
4.2 Utility and service lines (e.g. electricity cables, telephone lines)	L	There is a digicel tower. This provides a service to the people.
4.3 Shipping lanes	H	Ships and tug boats pass through the WMA waters in the Kikori delta. There is no other way for ships to access the development sites that are inland. There were about 10-20 ships per month when the oil and gas development was being progressed (e.g. for LNG construction). They release diesel and oil, damage/erode the river banks as a result of the boat wash. They use tug boats to take cargo on a pontoon and this damages the river banks.
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	People hunt wallaby, pigs, birds (pigeon, birds of paradise, crowned pigeons, cassowaries), tree kangaroo, cuscus, snakes (only one type), lizards, frogs, salt and fresh water crocodiles. With the increasing population and greater hunting pressure, this is a threat to wildlife. People are also using more modern hunting/fishing techniques (e.g.

Threat type	Score (H,M,L,0)	Notes
		fishing nets) and we are noticing a decline in numbers of some wildlife e.g. crowned pigeon.
5.2 Gathering terrestrial plants or plant products (non-timber)	L	
5.3a Logging and wood harvesting for local/customary use	L	Timber is extracted for customary use (houses, canoes and firewood).
5.3b Logging and wood harvesting – commercial logging	M	There is an impact from commercial logging which occurs outside the boundaries of the WMA e.g. reduced water quality as a result of sediment input, which impacts the fishery.
5.4a Fishing, killing and harvesting aquatic resources for local/customary use	M	There is over-harvesting of some resources (e.g. shell fish – using cast nets and drag nets, pig-nose turtles, mullet – lower in size now).
5.4b Fishing, killing and harvesting aquatic resources for commercial use	H	People are harvesting a lot of fish now – for the Asian market (local people sell to the traders). They use big nets and collect a lot of fish.
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	
6.5 Deliberate vandalism, destructive activities or threats to protected area staff and visitors	L	
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	M	The villages and roads and gardens are within the WMA and these are expanding and this causes greater fragmentation of the WMA.
7.3b Isolation from other natural habitat (e.g. deforestation)	0	The WMA is continuous with other natural habitats.
7.3c Other 'edge effects' on park values	M	There are eco-forestry projects undertaken by customary landowners in adjacent areas. They cut timber for sale in the local market.
7.3d Loss of keystone species (e.g. top predators, pollinators etc.)	0	Crocodile numbers remain high and are a threat to local people, e.g. about six people have been taken by crocodiles in recent years
8.1 Pest plants	L	
8.1a Pest animals	L	There is a fish that is taking the prawns. The super tilapia are in the rivers upstream and these are now affecting our marine life. Cane toads.
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	

Threat type	Score (H,M,L,O)	Notes
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	Big landslide is common. Destroyed houses and disrupts the flow of river water
10.4 Erosion and siltation/ deposition (e.g. shoreline or riverbed changes)	H	This is caused mainly by ships and other boats that enter the rivers and cause bank erosion; loss of vegetation also results in erosion and sediment increase.
11.1 Habitat shifting and alteration	L	
11.2 Droughts	L	It rains most of the year, although there is a dry season.
11.3 Temperature extremes	L	
11.4 Storms and flooding	L	Flooding is an ongoing problem.
11.5 Coral bleaching	0	
11.6 Intrusion by saltwater into gardens etc.	L	Salt water can threaten gardens sometimes.
11.7 Sea level rise	L	We are noticing a gradually increasing sea level.
Other (please explain)		
12.1 Loss of cultural links, traditional knowledge and/or management practices	H	We notice a decreasing interest in culture from the young people.
12.2 Natural deterioration of important cultural site values	H	There is less respect for special cultural sites.
12.3 Destruction of cultural heritage buildings, gardens, sites by people	H	There is an increasing collapse in recognising the importance of our heritage.
Other (please explain)		

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	Erosion and siltation	10.4	Greater discussion is needed with neighbouring land users to reduce the possible impacts of their activities.
2	Shipping lanes	4.3	We brought in Greenpeace to assist us with organising a sit in protest against the damage caused by bow wave intrusion onto the land.
3	Cultural heritage	12.1; 12.2; 12.3	There is some loss of cultural heritage due to western influences. Awareness programs are needed to increase knowledge and understanding of the WMA, including training programs in schools. Every student studies Environment Studies, but that program could be expanded and improved.

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	The WMA is legally gazetted.	Re-gazette the WMA under the new PNG protected area legislation.
1b. Legal status			
2a. Protected area regulations	1	No rules were stated in the gazettal notice for the WMA. There may have been previous rules relating to hunting in the WMA, hunting methods, restricted hunting times, fish catch limits and royalties payable to the WMA from the hunting of certain animals (RAPPAM 2006).	Doing awareness in community. Some rules could be created. Review the current rules and change if necessary.
2b. Protected area regulations			
3. Law enforcement	2	There is no formal paid workforce, but customary landowners play a role in enforcement and have some capacity.	Community awareness raising is needed to give strength to the rules.
4. Protected area objectives	1	A Profile for Neiru has been prepared and this included a vision for the WMA. A new board for the WMA was established on 3/12/2016 and they have had little time to institute, plan and enforce objectives and rules for the management of the WMA.	Secure resources and develop capacity to implement the vision and objectives outlined for the WMA.
5. Protected area design	1		
6. Protected area boundaries	1	The boundary runs down the middle of the Saboro River. It is known by the customary landowners, but not always respected by others as there are settlers from outside who now live in the WMA.	
7. Management plan	1	There is no formal Management Plan. An initial Profile for Neiru WMA was written in December 2016 which included a vision for the protected area. Jane Moghina from Exxon Mobil provided assistance with setting up the profile. Once the re-gazettal has been approved, the fledging Management Committee will go into action. This Profile includes introductory sections and comments on history, values, human resources, services, research, public and private engagement and tourism engagement.	Further develop the existing WMA Profile into a Management Plan for the WMA and ensure the engagement of the customary landowners.
7a. Planning process – rights holders	1	The customary landowners have input into management planning	
7b. Planning process – plan review and updating	1	A new Profile for Neiru has just been completed.	

Issue	Score (0,1,2,3, NA)	Comment	Next steps
7c. Planning process – monitoring, research	0	No monitoring or research informs our planning.	
8. Regular work plan	0	There is no work plan.	
9. Resource inventory	0	There is no resource inventory.	
10. Protection systems	0	There are no formal patrols; outsiders have accessed our WMA.	
11. Research and monitoring	0	Previous surveys were undertaken in the 1980s on marine species and birds. There has been no recent research and monitoring.	Obtain funding to undertake research within the WMA to provide information on how to improve management of the WMA.
12. Resource management	1	Very little active resource management is occurring.	
13a. Staff numbers	0	There are no paid staff.	
13b. Other people working on the protected area	3	While there is no work plan, the customary landowners often undertake ad hoc monitoring of flora and fauna.	There is a high level of interest in the future success of the WMA.
14. Training and skills	0	The customary landowners do not have the skills they need to manage the protected area.	Training in a wide range of areas is required e.g. on-ground management, understanding the values of the area.
15. Current budget	0	There is no budget.	A budget is required to undertake basic management tasks.
16. Security of budget	0	There is no secure budget.	
17. Management of budget	NA		
18. Equipment	1	The WMA has a 60 horse power outboard motor and a 20 foot aluminium boat.	The following equipment is needed: boat with outboard motor (x2), laptop, desktop, printer, digital camera, modem, external hard drive, generator, 1400v solar panel set, office stationery, GPS tracking system, projector, building material for WMA office, office table and chair, uniform for rangers.
19. Maintenance of equipment	1	The boat is only new so maintenance has not been required	Establish a regular service schedule for the boat engine.
20. Education and awareness	1	There is limited education and awareness of the WMA. Children have some instruction in school about environmental studies.	There is always room for increased awareness, publicity and education on the values of the WMA.
21. Planning for land use or marine activities	0	We are not engaged with any outside land use planning.	
22. State and commercial neighbours	0	There is no contact between the Management Committee and neighbouring government or corporate users.	
23. Indigenous people/ Customary landowners	3	Customary landowners participate in decision making – each clan has two representatives on the Management Committee.	Strive to increase the participation of women in decision making in the WMA.
24a. Impact on communities - communication	0	There is no communication with government.	Strive to improve communication and engagement with all levels of government.
24b. Impact on communities – welfare programs	0	There are no programs to improve landowners’ welfare.	
24c. Impact on communities - support	1	The customary landowners support the WMA.	

Issue	Score (0,1,2,3, NA)	Comment	Next steps
25. Economic benefit	1	Some of the resources from the WMA are sold and this generates some small income.	Strive to identify some sustainable economic enterprises e.g. ecotourism.
26. Monitoring and evaluation	1	There is irregular monitoring by the landowners who regularly traverse their WMA.	
27. Visitor facilities	0		
28. Commercial tourism operators	0		
29. Fees	NA		
30. Condition of values	2	The values remain in a relatively good condition.	
30a. Condition of values	0		
30b. Condition of values	0	There are no threat abatement plans.	
30c. Condition of values	0	There is no routine active management of the park.	

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
Trees/ flora and fauna	G	D	There is only a minor deterioration in trend. The trees have a stable trend. We need to do more awareness raising in the community to encourage people to adhere to the rules and to respect the environment.
Marine life	VG	S	Despite the shipping lanes impacting on marine life, their condition remains very good.
Spiritual traditions and customs	G	S	There have been no changes in clan names and tribe names. There has been some decline of interest by the young in our cultural heritage. The invasive nature of western culture has a negative impact on traditional culture.
Fresh water	VG	S	We have everlasting water in our WMA.

Table 8. Recommendations and ways forward

1. Training and capacity building. Identify training needs then seek out trainers and carry out training outside or in the WMA.	2. Financial support to assist in the establishment of a Management Committee.	3. Exposure to other organizational support such as NGOs.
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Table 9. Strengths and challenges (facilitator/recorder synthesis)

	Strengths	Challenges
1	A committed management committee to further the best interests of the WMA.	Addressing the impact that the shipping lanes have on the low tidal flats from their wash.
2	An almost unique ecosystem in the PNG context, with many of the values in very good condition.	Obtaining sufficient support and funding to implement effective management outcomes.
3	A recent WMA Profile has been developed in consultation with the customary landowners to provide guidance on management.	