

Name of Protected Area: Mt Susu Natural Reserve

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
<i>Person 2: Name, Organisation, Address, Email, Phone</i>	<i>Beside Thomas, Conservation and Environment Protection Authority, P.O. Box 6601, Boroko, National Capital District, beside.thomass@gmail.com; Vagi Rei, Conservation and Environment Protection Authority, P.O; Box 6601, Boroko, National Capital District, rei.vagi@gmail.com 76224416; and Ann Peterson, SPREP/Protected Area Solutions, 283 Madill Road, Tandur, Q4570, Australia, gregpeterson53@hotmail.com, +61754835155</i>
Today's Date	01/09/2016
Name (or names) of protected area	Mt Susu Natural Reserve
Size of protected area (ha)	49
PNG Code or number	
World Database of Protected Areas site code (these codes can be found on www.unep-wcmc.org/wdpa/)	4197
What level or kind of protected area is it? (National Park, Wildlife Management Area, Sanctuary, Reserve, Locally Managed Marine Area etc)	Natural Reserve
IUCN Category	
International protected area? e.g. World Heritage or Ramsar?	
Country	Papua New Guinea
Province/s	Morobe
District/s	Bulolo
Local level governments	Bulolo rural
Ward/s	Ward 4
Nearest big town	Bulolo
Location of protected area (brief description)	The reserve is a small area to the south west of the provincial capital of Lae and close to Bulolo. It is in a mainly hilly area (800-1000m) with steep sided slopes. Two rivers are located at the base of the reserve. The vegetation is forest (Araucaria mixed rainforest) and grassland. The site is surrounded by a National Forest Plantation.
Map references	1:100,000 topo map, Wau sheet 8283
When was the protected area gazetted or formally established?	Not located
Reference for gazettal or Memorandum of Understanding (MoU)	

Who owns the protected area? please enter Government Private Community/ customary landowners, private, Other (name) and include Clan name(s)	State land; Manki and Nautiya clans are traditional clans of the area occupied by the natural reserve (and also possibly the Biangai).
Number of households living in the protected area	0
Population size within the protected area	0
Who manages the protected area? (e.g. please enter government, customary landowners [add clan names] management committee [how many and what gender])	CEPA are the official agency responsible for management. However, the Nautiya clan claim some responsibility for management.
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 park establishment	Ban all activity (Register); preserve for future generations so there will be abundant animals for hunting (Customary landowners).
What are the main values for which the area is designated (Fill this out after data sheet 2)	Araucaria forest and wildlife
List the primary protected area management objectives (add lines if needed after the most important objectives): <i>Management objective 1</i>	To protect remaining Araucaria natural forest with the reforested plantations that surround it.
<i>Management objective 2</i>	Protect the area's scenic values as this will attract tourists.
<i>Management objective 3</i>	
Number of people involved in answering the assessment questions	5
Name/organisation/contact details of people participating the assessment (<i>Please do not insert return/enter or dot points</i>)	<i>James Salis, Chairman of Nautiya Land Group, 70036525; Edwin Salis, 72377751; Gidion Giamga, 72103960; Wilson Joseph, 70550312; Mesak Oven, 73818733.</i>
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?

A decision was made by customary landowners to give the land to government to keep it safe for future generations. Large areas of customary land were degraded through logging and mining. However, it is unclear whether a resource use agreement was made between the National Forest Service and the landowners. The area has biological significance because it contains a small remnant of araucaria pine forest that also contains red cedar. There are several fauna species (e.g. bird of paradise, cassowary and small mammals), but the small size of the reserve limits its effectiveness. It has special spiritual places that are important to the landowners. It is an area of scenic value, overlooking the Bulolo Valley. The reserve is surrounded by monoculture pine plantation. PNG Forest Products is a key commercial plantation owner in the area. Customary landowners believe that the state has done nothing to protect and manage the area and the customary landowners want to reclaim their ownership.

Table 2. Key values of the protected area

No.	Key values	Brief description	Note if endangered species or ecosystem (IUCN)
1	To preserve natural environment	Because of a lack of onsite monitoring and enforcement by customary landowners and others over a number of years, the customary landowners took direct action to create the sanctuary so that it would protect the vegetation, mainly Araucaria pines and wildlife. <i>Araucaria hunsteinii</i> (Klinki pine) is endemic to PNG.	<i>Araucaria hunsteinii</i> near threatened, IUCN Red List of Threatened spp
2	To create a safe place for all animals	Lack of management meant that wildlife was under threat from unsustainable hunting practices. The reserve is an important 'safe haven' for many species.	
3	Wildlife e.g. cassowary, tree wallaby, bird of paradise	Several important species are found in the reserve and it is important to protect them and their habitat.	
4	Clean water	There are two rivers at the base of the mountain and they provide clean 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	No inventory of species, but contains cassowary, birds of paradise, several mammal species (e.g. bandicoots); and Araucaria pines e.g. <i>A. hunsteinii</i> (klinkii pine) and <i>A. cunninghamii</i> (hoop pine), which are a remnant forest within the Bulolo Valley. Relatively small size limits the diversity of species.
2. Presence of rare, threatened, or endangered species (plants and animals)	2	Bird of paradise and cassowary are found in the reserve, but it is not known to contain other rare and threatened species. There is wild banana, the liquid of which is drunk.
3. Ecosystems (e.g. wetlands, grasslands, coral reefs etc) that are rare because they have been cleared or destroyed in other areas	2	To have variety is crucial for balance. The sanctuary is a remnant forest surrounded by regrowth forest plantations and thus has relatively high value, although it is isolated.
4. Protecting clean, fresh water	2	
5. Sustaining important species in big enough numbers that they are able to survive here	2	Absolutely critical to realize the main objective of the reserve.
6. Providing a source of employment for local communities now	1	Provides no employment now, as the landowners do not live close to the reserve.
7. Providing resources for local subsistence (food, building materials, medicines etc.)	1	Wild banana stalks are squeezed for juice

8. Providing community development opportunities through sustainable resource use	1	
9. Religious or spiritual significance (e.g. tambu places)	2	There is a place of spiritual significance which is taboo to enter.
10. Plant species of high social, cultural, or economic importance	1	Araucaria pines e.g. <i>A. hunsteinii</i> and <i>A. cunninghamii</i> .
11. Animal species of high social, cultural, or economic importance	1	
12. Attractive scenery	1	Good site to view the Bulolo Valley.
13. Tourism now	2	
14. Potential value for tourism in the future	2	There is a strong desire to attract tourists.
15. Educational and/or scientific value	1	Important as a seed bank for Araucaria species and for students to visit.
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	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	0	
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	0	
3.2 Mining and quarrying	0	
3.3 Energy generation	0	
4.1 Roads and railroads (include road-killed animals)	0	
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)	L	Isolated cases of local people entering the reserve to hunt (e.g. birds and small mammals).
5.2 Gathering terrestrial plants or plant products (non-timber)	L	Some cutting and collecting of bush materials.
5.3a Logging and wood harvesting for local/customary use	0	

Threat type	Score (H,M,L,0)	Notes
5.3b Logging and wood harvesting – commercial logging	0	
5.4a Fishing, killing and harvesting aquatic resources for local/customary use	M	Fish are taken from the reserve's rivers.
5.4b Fishing, killing and harvesting aquatic resources for commercial use	L	
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	0	
7.1 Fire and fire suppression (including arson)	L	There is currently no fire, but the potential impact of fire on the vegetation would be great e.g. loss of klinkii pine and hoop pine and the fire may spread to surrounding plantations and cause significant economic losses.
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	L	Invasive tree of unknown type and origin.
8.1a Pest animals	0	
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	0	
10.4 Erosion and siltation/deposition (e.g. shoreline or riverbed changes)	0	

Threat type	Score (H,M,L,0)	Notes
11.1 Habitat shifting and alteration	0	
11.2 Droughts	L	Some species (e.g. mosses, lichens) no longer grow here due to drying out of the area.
11.3 Temperature extremes	0	
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	H	We are losing our culture and not passing it on to our children. There is less respect for our tabu places. There is a lot of influence from the adjacent towns and children are not practicing their culture as much.
12.2 Natural deterioration of important cultural site values	0	
12.3 Destruction of cultural heritage buildings, gardens, sites etc.	L	There is only one cave in the reserve and there has been some loss of its values.
Other (please explain)	M	Lightning strikes; lack of management

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	Lightning that strikes the klinkii pine	Other	Damages the trees.
2	Lack of management	Other	People illegally enter the reserve and take timber and hunt wildlife.
3	Fire	7.1	During the dry season the land dries out. Currently people don't light fires unnecessarily, but there is a possibility that fires may come and destroy our vegetation.

Table 6. Management effectiveness scores, comments, next steps

Issue	Score (0,1,2,3, NA)	Comment	Next steps
1a. Legal status	3	Legally gazetted although the history and status is unclear.	
1b. Legal status			
2a. Protected area regulations	2	One objective is stated in the register i.e. to ban all activity (that may be detrimental to the surrounding forest plantations).	Clarify who has responsibility for management of the site and what the management arrangements are for the site.
2b. Protected area regulations			
3. Law enforcement	1		Ranger training at LLG and ward levels.
4. Protected area objectives	3		Develop a Management Plan and include agreed objectives. CEPA needs to assist in this process.

Issue	Score (0,1,2,3, NA)	Comment	Next steps
5. Protected area design	3	The reserve contains all the remnant Araucaria stands within the Bulolo valley forest. The surrounding area is plantation forest. However, it has limited long-term effectiveness for a range of fauna species due to its small size.	
6. Protected area boundaries	3		
7. Management plan	0		CEPA to assist in developing a Management Plan.
7a. Planning process	0	This is the first communication between customary landowners and CEPA.	Ensure effective communication with all levels of government, especially CEPA.
7b. Planning process	0		
7c. Planning process	0		
8. Regular work plan	0		
9. Resource inventory	0		
10. Protection systems	0		
11. Research and monitoring	0		
12. Resource management	0		
13a. Staff numbers	0		
13b. Other people working on the protected area	0	Previously infrastructure (e.g. office and equipment) was provided by the district administration.	Customary landowners would like continuing administrative and practical support from all levels of government.
14. Training and skills	0		CEPA to assist with training and upgrading skills.
15. Current budget	0		
16. Security of budget	0		
17. Management of budget	NA		
18. Equipment	0		
19. Maintenance of equipment	NA		
20. Education and awareness	0		
21. Planning for land use or marine activities	3	PNG Forests (private) and Forestry (government) plant and harvest the plantation timber on adjacent land. There appears to be a buffer zone to minimize forestry impacts.	
22. State and commercial neighbours	0	There is little cooperation between the adjacent forestry operations and CEPA.	CEPA and the Provincial Forest authority should create a network that includes the customary landowners to create closer cooperation.
23. Indigenous people/ Customary landowners	0		
24a. Impact on communities	0		
24b. Impact on communities	0		
24c. Impact on communities	1	The customary landowners want to protect the area.	A management plan is needed to ensure the conservation of this area.
25. Economic benefit	0		
26. Monitoring and evaluation	1	Unplanned irregular visits by customary landowners.	

Issue	Score (0,1,2,3, NA)	Comment	Next steps
27. Visitor facilities	0		
28. Commercial tourism operators	0		
29. Fees	NA		
30. Condition of values	3		
30a. Condition of values	1	Based on traditional knowledge.	CEPA to conduct an inventory of resources to improve management outcomes.
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
To preserve natural environment	G	S	The condition remains good, but there are some pressures from illegal entry.
To create a safe place for all animals	VG	S	The sanctuary idea has worked in that the wildlife is largely protected. The idea of a 'safe haven' has largely worked.
Wildlife e.g. cassowary, bird of paradise, tree wallaby	VG	S	Cassowary numbers have not increased at the same rate as other species.
Clean water	G	S	Generally good but some pollution from nearby forestry

Table 8. Recommendations and ways forward

1.	2.	3.
Enforce a 'no go' zone for non-customary landowners.	Promote a conservation ethic through awareness raising and education program.	Increase the communication between customary landowners and CEPA and other government and non-government authorities.

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

	Strengths	Challenges
1	An intact reserve that has to a large extent retained its conservation values.	Maintaining effective conservation outcomes with little or no financial assistance and input from a range of stakeholders, including CEPA and the Provincial and Local Level Governments.
2	There has been a significant increase in numbers of all the animal species except the cassowary.	Lack of clarity concerning the gazettal history of the site, the agreements that were made with the customary landowners, who has responsibility for management (i.e. there is a need to clarify the role of the National/Provincial Forest Authority and PNG Forest Products which harvest timber in the surrounding plantation forests).
3	Retains a remnant forest containing Araucaria species (<i>A. hunsteinii</i> , klinkii pine and <i>A. cunninghamii</i> , hoop pine), which provide an important seed bank for the commercial pine plantation industry surrounding the Reserve.	
4	Customary landowners have expressed interest in become more engaged in the management of the Reserve.	
5	Site provides a good view point over the Bulolo Valley.	