

## Name of Protected Area: Hombareta 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 <b>Person 1: Name, Organisation, Address, Email, Phone</b>	<i>Bernard Suruman</i> , Conservation and Environment Protection Authority, PO Box 6601, Boroko, NCD, Email: <a href="mailto:bsuruman@dec.gov.pg">bsuruman@dec.gov.pg</a> , Office phone: +675 301 4500 and <i>Warren Jano</i> , PO Box 6601, Boroko, National Capital District, Email: <a href="mailto:wjano2009@gmail.com">wjano2009@gmail.com</a> , mobile phone: +675 7378 0347, +675 7358 8867
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Today's Date	23/11/2016
Name (or names) of protected area	Hombareta Wildlife Management Area
Size of protected area (ha)	130
PNG Code or number	G16
World Database of Protected Areas site code (these codes can be found on <a href="http://www.unep-wcmc.org/wdpa/">www.unep-wcmc.org/wdpa/</a> )	316895
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	(VI) Protected area with sustainable use of natural resources
International protected area? e.g. World Heritage or Ramsar?	NA
Country	Papua New Guinea
Province/s	Oro
District/s	Sohe
Local level governments	Higaturu
Ward/s	23 wards
Nearest big town	Popondetta
Location of protected area (brief description)	Located 25-30 minutes' drive from Popondetta town, in the middle of oil palm plantations.
Map references	150.61; -10.63
When was the protected area gazetted or formally established?	06/03/1997
Reference for gazettal or Memorandum of Understanding (MoU)	G16
Who owns the protected area? please enter Government Private Community/ customary landowners, private, Other (name) and include <b>Clan name(s)</b>	Customary landowners: Sangara Clan

Number of households living in the protected area	2
Population size within the protected area	15
Who manages the protected area? (e.g. please enter government, customary landowners [add clan names] management committee [how many and what gender])	National Government (because of the Queen Alexandra Birdwing Butterfly) and customary landowners (the Orari family - established by the father); Chairman - Mazori Orari, interim chairman (female).
Total number of staff (this means anyone working on the protected area in <b>paid jobs</b> – 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	2012 - K1000; 2013 - K3000; 2014 - K3000
Reason for protected area establishment	To protect the Queen Alexandra Birdwing Butterfly (QABB), the biggest butterfly in the world. “The purpose of Hombareta WMA was to achieve our father’s vision to protect God’s creation”.
What are the main values for which the area is designated (Fill this out after data sheet 2)	Queen Alexandra Birdwing Butterfly habitat
List the primary protected area management objectives (add lines if needed after the most important objectives): <i>Management objective 1</i>	To protect the habitat of the QABB.
<i>Management objective 2</i>	
<i>Management objective 3</i>	
Number of people involved in answering the assessment questions	4
Name/organisation/contact details of people participating in the assessment	Not provided.
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 Provincial government officials (Oro Province), one CEPA staff, one facilitator.
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?

No statement included.

**Additional information:** The butterfly, which was named by Walter Rothschild in 1907 in honour of Alexandra of Denmark, is now endangered, being restricted to about 100 square kilometres of coastal rainforest near Popondetta. It requires old growth rainforest for its survival. A major threat is the destruction of habitat for the production of oil palm plantations and recent development of rubber and cocoa plantations. The eruption of Mount Lamington in the 1950s also destroyed some of its habitat. The butterfly is prized by collectors (Wikipedia 2017) and illegal collection still threatens the species (Earth's Endangered 2010). It has a wing span up to 28cm and is very colourful. The male has blue-green iridescent streaks across the largely black wings, with a scattering of yellow spots. The larger female has a brown colour across the wings and yellow blotches on the tips (Wildscreen Archive 2017). The butterfly's eggs are laid on the poisonous leaves of a tropical pine-vine (*Aristolochia spp.*). The caterpillars feed on this vine and ingest its toxins throughout all stages of growth and red hairs on the emerged adult butterfly's thorax warn predators that it remains highly toxic (Stratton 2012).

**Table 2. Key values of the protected area**

No.	Key values	Brief description	Note if endangered species or ecosystem (IUCN)
1	Queen Alexandra Birdwing Butterfly, <i>Ornithoptera alexandrae</i>	The WMA provides important habitat for the QABB and its primary food source, the vine <i>Aristolochia</i> . Much of the habitat has been planted out for oil palm and it was important to protect the butterfly habitat.	Listed under Appendix 1 of CITES as endangered species and also on IUCN Red List; threatened by oil palm expansion
2	Birdlife	There is habitat for birds of paradise (e.g. raggiana), hornbills and wildfowl. The habitat for birdlife is getting smaller due to oil palm expansion.	Bird of paradise, hornbills and wildfowl are protected by PNG laws and is also endangered and threatened.
3	Creek (fresh water)	The WMA is in a low land area and is also used for oil palm. The area is protected to preserve clean water.	
4	Fish and prawns/shrimps	Fish and prawns are important for food, but these are gradually reducing in abundance.	
5	Family cemetery	There is a family burial site, which also helps to protect the habitat, because the area is regarded as a respected burial site by the people.	
6	Building materials (black palm and palms for walls and flooring)	Much of the forest is being cleared for oil palm expansion and to provide wood for housing. Wood harvesting is increasing as the population grows.	
7	Traditional plants	Bark and leaves are currently used for medication of the sick.	

**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	Best remaining habitat for the Birdwing butterfly: also forest habitat for some other animals.
2. Presence of rare, threatened, or endangered species (plants and animals)	2	The QABB is rare and endangered as a result of oil palm expansion and that was the reason for the establishment of the WMA.
3. Ecosystems (e.g. wetlands, grasslands, coral reefs etc) that are rare because they have been cleared or destroyed in other areas	2	It contains: important forest habitat that has been cleared in surrounding areas for oil palm and gardening; grassland for grassland species; and habitat for wallabies.

4. Protecting clean, fresh water	2	The community access water from a well now. Previously the creek supplied the village people with water.
5. Sustaining important species in big enough numbers that they are able to survive here	2	Currently the number and abundance of animal species are decreasing.
6. Providing a source of employment for local communities now	0	No current employment is provided by the WMA.
7. Providing resources for local subsistence (food, building materials, medicines etc.)	2	Non-timber forest products e.g. cane for furniture-making. The population is increasing and that is putting great pressure on the protected area.
8. Providing community development opportunities through sustainable resource use	1	Provincial government gives a small amount each year to the Committee/customary landowners as an incentive to keep the WMA.
9. Religious or spiritual significance (e.g. tambu places)	1	There is a cemetery within the WMA.
10. Plant species of high social, cultural, or economic importance	2	There is a vine ( <i>Aristolochia spp.</i> ) that is an important food source for the QABB.
11. Animal species of high social, cultural, or economic importance	2	QABB and birds of paradise.
12. Attractive scenery	2	
13. Tourism now	0	Tourism is in its initial stages, but there is nothing happening in the WMA now.
14. Potential value for tourism in the future	1	There is but need infrastructure and financial support
15. Educational and/or scientific value	2	There is potential for research, especially on QABB habitat, e.g. what is causing the reduction in QABB numbers etc. There needs to be information printed and circulated in schools to help conserve the butterfly.
16. Maintaining culture and tradition on customary land and passing this on to future generations	2	Skills are still practices, e.g. furniture-making from cane.

### 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	M	There is not much impact from the two houses in the WMA.
1.1a Population increase in the protected area community	H	The population is growing and currently it is not a problem but it is anticipated that this will be a big problem in the future. This will bring greater development and potential threats to the WMA.
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	M	There are some family gardens within the WMA and these may expand in the future.
2.1a Drug cultivation	L	The boys grow drugs for local consumption.
2.1b Commercial plantations	L	Oil palm is encroaching on the edges of the WMA, but the company does respect the protected 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	0	
3.2 Mining and quarrying	0	
3.3 Energy generation	0	

Threat type	Score (H,M,L,O)	Notes
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)	H	Vandalism and poaching of WMA resources are common problems.
5.2 Gathering terrestrial plants or plant products (non-timber)	H	The WMA is the only place that has cane and people enter the WMA to harvest cane and this destroys QABB habitat and vines.
5.3a Logging and wood harvesting for local/customary use	H	There is logging done by outsiders who are being hired to cut the timber.
5.3b Logging and wood harvesting – commercial logging	M	Chainsaws are in operation in the WMA and this reduces forest habitat, and the vines needed by the QABB.
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	There is no serious research.
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	Young children go around destroy QABB habitat and vines; need improved legal frameworks and enforcement.
7.1 Fire and fire suppression (including arson)	M	Burning of grassland can occur.
7.2 Dams, hydrological modification and water management/use	0	
7.3a Increased fragmentation within protected area	H	Bush tracks are increasing and this fragments the habitat.
7.3b Isolation from other natural habitat (e.g. deforestation)	0	
7.3c Other 'edge effects' on park values	L	The oil palm companies are on the edges of the WMA, but in general show respect to the WMA.
7.3d Loss of keystone species (e.g. top predators, pollinators etc.)	0	
8.1 Pest plants	H	Piper tree (daka diwai) is present in the WMA.
8.1a Pest animals	H	These are a high threat for the QABB vines.
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	

Threat type	Score (H,M,L,O)	Notes
9.3 Agricultural and forestry effluents (e.g. excess fertilizers or pesticides)	M	There is no storage for the effluents in the adjacent oil palm plantation so this flows directly into the protected area. However, the fertiliser and pesticides that are used now are improving due to a change to organic fertilisers.
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	
11.1 Habitat shifting and alteration	0	
11.2 Droughts	0	The 1997 drought and bushfire were serious and caused a conversion of forest to grassland. Some forest restoration has been undertaken since that time.
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)	0	
12.1 Loss of cultural links, traditional knowledge and/or management practices	0	
12.2 Natural deterioration of important cultural site values	0	
12.3 Destruction of cultural heritage buildings, gardens, sites etc.	0	
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	Population Increase	1.1a	No actions
2	Fragmentation	7.3a	Increase in tracks through the forest as people are coming in to take cane etc – the ineffective legal frameworks need to be improved.
3	Killing and hunting animals	5.1	Legal frameworks are not effective at present.

## 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.	Negotiate the re-gazettal of the WMA under the new protected area legislation.
1b. Legal status			
2a. Protected area regulations	2	Regulations are not adequate to prevent the entry of outsiders and the take of the WMA's resources (e.g. cane and timber).	Improve the legislative frameworks.
2b. Protected area regulations			
3. Law enforcement	0	Absence of ability to enforce the laws is resulting in degradation and loss of values.	Reactivate the management committee and the laws and seek government support to improve enforcement.
4. Protected area objectives	1	Landowners and the Provincial Government understand the objectives focussed on conserving the QABB and its habitat, but there have been no actions to achieve these objectives.	To achieve the objectives there must be improved awareness and understanding of the rules and effective enforcement.
5. Protected area design	2	The design of the WMA is okay except that it is surrounded by oil palm plantation and is thus isolated from other natural habitat and impacted by edge effects.	Explore the possibility of expanding the size of the WMA.
6. Protected area boundaries	3	Protected area boundaries are known and respected by industry and customary landowners, but people still enter as they need resources from the area.	Develop a land use and harvesting plan to ensure that resource use is sustainable.
7. Management plan	0	There is no management plan.	Develop a management plan which includes a sustainable use strategy and spatial planning.
7a. Planning process	1	People are involved when any planning within the WMA is discussed.	
7b. Planning process	1	Observational monitoring data is considered in planning, but this is not at regular intervals.	
7c. Planning process	0	There is no monitoring or evaluation that informs planning.	
8. Regular work plan	0	No work is undertaken and there is no work plan.	When the Management Plan is developed, identify a suitable Work Plan.
9. Resource inventory	2	Some information is available from Oro Provincial Government, Forest Research Institute.	Liaise with the PNG University of Natural Resources and Environment (formerly Vudal University) to seek support to enhance the information needs of the WMA.

Issue	Score (0,1,2,3, NA)	Comment	Next steps
10. Protection systems	1	There is little effective protection in relation to hunting and harvesting, However, there are no incursions of plantations or gardens into the WMA.	Improve regulations, planning and law enforcement.
11. Research and monitoring	1	There is no regular research or monitoring as the WMA has no money to support this.	Research is needed to better understand the QABB population and current threats. Utilise the Eastern Papua/Vudal University students (Environmental Department) to assist in research and monitoring. The Provincial Government wants to write up proformas for students to use.
12. Resource management	1	There has been some discussions with the community about doing the right thing for the WMA.	
13a. Staff numbers	1	Some minimal support is provided by the Provincial Government.	We need the Provincial Government to give a greater priority to the protection of special areas, such as Hombareta WMA.
13b. Other people working on the protected area	1	There has been some small efforts made by the local customary landowners/WMA committee in undertaking work in the WMA.	We need government support to assist with management of the WMA.
14. Training and skills	1	There is knowledge and expertise (one person undertakes some birdwing butterfly research).	We need more support and incentives. Training is needed in management planning and resource inventory.
15. Current budget	0		Seek funding (e.g. through donors, Provincial Government and NGOs) to support the management of the WMA and in particular the QABB.
16. Security of budget	0		
17. Management of budget	NA		
18. Equipment	0		
19. Maintenance of equipment	NA		
20. Education and awareness	0	There was an awareness program in the past, but the program has died out now.	There is a need to utilise social media (such as FB) to raise awareness and also seek the assistance of the tertiary institution here in Oro. Information is needed by the surrounding community and the Committee.
21. Planning for land use or marine activities	0	The adjacent land use is primarily oil palm production and there has been little or no consideration of the WMA.	Awareness raising of the local community is needed to ensure that adjacent development does not negatively impact on the WMA.

Issue	Score (0,1,2,3, NA)	Comment	Next steps
22. State and commercial neighbours	2	The adjacent oil palm industry have not consulted members of the committee in relation to the development of the plantation. The oil palm plantation does impact on the water as a result of discharge of effluent. In other matters there is respect for the WMA boundaries.	Gradually improve the use of fertilisers and pesticides so that they do not impact on the WMA.
23. Indigenous people/ Customary landowners	2	The WMA is owned by one family.	There is a plan to establish a committee to deal with the day to day management of the WMA.
24a. Impact on communities - communication	0	There is no communication with CEPA, and no partnerships with NGOs or universities	There needs to be an open communication with the other stakeholders.
24b. Impact on communities – community welfare programs	0	No programs are in place to improve the community's welfare.	Welfare programs are needed, as requested by the Chair of the Hombareta WMA.
24c. Impact on communities – support for protected area	1	Everyone in the village and the community recognises and supports the Hombareta WMA.	
25. Economic benefit	1	At present, the WMA brings little economic benefit to the community.	The Chair of the WMA realises that this area is protected and she is unable to bring in large commercial developments such as oil palm but the Chair would like to grow cocoa at a village scale to generate some economic benefit which can be used to support the management of the Hombareta WMA.
26. Monitoring and evaluation	1	The Provincial Government and the community does some incidental (visual) monitoring of vines and butterflies.	Monitoring and evaluation are necessary. We could utilise schools and universities to assist us with data collection. We need support for more regular monitoring.
27. Visitor facilities	0	There used to be an information centre in the past but this does not exist now.	There is a need for fundraising to establish an information centre and promote awareness of the Hombareta WMA.
28. Commercial tourism operators	0	There was a plan to bring in commercial tourism but the Provincial Government has requested that this be put on hold for some reasons. The reasons have not yet been clarified.	
29. Fees	0	There is a guideline that enables us to charge fees but that has not been implemented.	The Chair of the WMA indicated that the WMA will commence charging a fee from now.
30. Condition of values	2	Generally the WMA values are in good condition but there are impacts as a result of tracks, hunting and gathering. The butterfly populations can recover in a short period.	
30a. Condition of values	1	There has been some research on the QABB.	We need supported research on the QAABB and bird research.

Issue	Score (0,1,2,3, NA)	Comment	Next steps
30b. Condition of values – threat abatement plans	0	There are currently no threat abatement plans in place.	There is a plan for a village court system to support management and address threats that are impacting on the WMA.
30c. Condition of values – routine management activities	0	Irregular management activities are undertaken e.g. observations by the community and the Orari family.	

## 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
Queen Alexandra birdwing butterfly	P	D	There are some populations remaining (“but not very good populations”). It is recommended that some immediate actions be taken to improve this threatened species e.g. plant more vines that attract this QABB, stop communities from burning the surrounding areas and the forest and raise awareness to prevent bad gardening practices.
Birdlife (bird of paradise, hornbills, wildfowl)	G	S	Hornbill populations are increasing; wild fowl are being hunted; birds of paradise are decreasing because communities hunt for headaddresses for traditional singsings (festivals). Need to retain and expand habitat, reduce hunting and raise awareness.
Creek (fresh water)	F	I	The waters have been polluted by the adjacent oil palm plantation. However, the practices of applying fertilizer and pesticides are now improving.
Fish and prawns/shrimps	F	S	Fish disappeared but are now returning into the creek.
Family cemetery	F	S	The burial sites are in the headwaters of the creek and this can affect the water-well. It also creates an added value to the WMA and the generations that come later will have respect for the initiator of the project.
Building materials (black palm and palms for walls and flooring)	VG	S	The stance of the building material (palms) is good. Usually the houses last for a long time.
Traditional plants	VG	S	Bark and leaves are currently used for medication of the sick and there is a good supply.

**Table 8. Recommendations and ways forward**

1.	2.	3.	4.
Capacity building - training for the landowners (management training for the WMA area).	Develop a Management Plan for the protected area.	Education and awareness raising about the area - the importance of the area, rules and the values of the area and also to make people aware of the climate change problems and how to mitigate and adapt to the problems.	Source funding to implement the plans that have to be drafted (e.g. Management Plan).

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

	Strengths	Challenges
1	Queen Alexandra birdwing butterfly is iconic, although endangered. Though the population has now declined, it should be possible to breed the species, replant more vines and improve its condition.	Reducing the spread and impact of the oil palm plantations (e.g. oil palm is now grown right up to the protected area boundary). In the past this has led to impacts on the WMA from the flow of pesticides and fertilizers, but the company is now attempting to increase the sustainability of its operations.
2	The QABB is the logo for Oro Province, so there should be a lot of attention given to its conservation. There is a provincial officer interested in the WMA though he has had limited time to spend on the WMA.	Stemming the impacts of population pressure and a reduction in bush areas, which have resulted in increased pressure on the natural area (e.g. birds, including birds of paradise are being hunted).
3	People are impressed with the work done on the QABB.	Addressing a range of threatening processes in the face of limited funding, resources and support e.g. people go into the forest to cut plants, especially cane for furniture, and this has resulted in disturbance and a reduction in the number of vines ( <i>Aristolochia</i> ) which the butterfly needs to feed on and reproduce.
4	There is general recognition and respect by the local community, and a strong level of commitment by the customary landowners, partly out of respect for the WMA's founder.	

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