

Name of Protected Area: McAdam National Park

Part 1: Basic information about the protected area

Table 1. Protected area information

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| Name, organisation and contact details for person(s) conducting the assessment <i>Person 1: Name, Organisation, Address, Email, Phone</i> | Greg Peterson, SPREP/Protected Area Solutions, 283 Madill Road, Tandur, Q4570, Australia, gregpeterson53@hotmail.com; 0414300955. |
| <i>Person 2: Name, Organisation, Address, Email, Phone</i> | Beside Thomas, Conservation and Environment Protection Authority, P.O. Box 6601, Boroko, National Capital District, beside.thomass@gmail.com; and Ann Peterson, SPREP/Protected Area Solutions, 283 Madill Road, Tandur, Q4570, Australia, a.peterson@uq.edu.au; 0414300955. |
| Today's Date | 31/08/2016 |
| Name (or names) of protected area | McAdam National Park |
| Size of protected area (ha) | 1,821 (Register indicates 2,080 ha) |
| PNG Code or number | |
| World Database of Protected Areas site code (these codes can be found on www.unep-wcmc.org/wdpa/) | 838 |
| What level or kind of protected area is it? (National Park, Wildlife Management Area, Sanctuary, Reserve, Locally Managed Marine Area etc) | National Park |
| IUCN Category | |
| International protected area? e.g. World Heritage or Ramsar? | |
| Country | Papua New Guinea |
| Province/s | Morobe |
| District/s | Bulolo |
| Local level governments | Wau Rural |
| Ward/s | Ward 9 (Watut) and ward 1 (Wau) |
| Nearest big town | Wau |
| Location of protected area (brief description) | Mountainous area to the south of Morobe provincial capital Lae. It is mainly forested with small watercourses. |
| Map references | Topo. 1:100,000 - Wau - sh.828. |
| When was the protected area gazetted or formally established? | 22/02/1962 (reserved); gazetted as National Park on 1/7/70). |
| 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) | The state. Bialgai tribe. Clans: Siwik; Kelege; Munanga; luanni; Kobiaklinge; Kongawe; and Manki. |

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| Number of households living in the protected area | Unknown, but could be as many as 100 illegal structures. |
| Population size within the protected area | Unknown, but could be as many as 1000 illegal settlers. |
| Who manages the protected area? (e.g. please enter government, customary landowners [add clan names] management committee [how many and what gender]) | The state. Bialgai tribe. Clans: Siwik; Kelege; Munanga; luanni; Kobiaklinge; Kongawe and Manki. |
| 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 | It was a seed bank for the araucaria (Klinkii and Hoop Pines) (Register states: to protect a representative area of forest rapidly being lost to mining, settlements and forestry operations). There have been several changes over time: the land was declared ‘waste and vacant’ in the colonial period and became crown land; 1973-4, McAdam was to be retained as a Park in return for a cash payment to the customary landowners (but ownership was disputed and it is unknown whether any payment was made); some land (500ha) was excised in the south in 1969 for settlement of the Kumalu people (and this is now the cause of several disputes). |
| What are the main values for which the area is designated (Fill this out after data sheet 2) | Wildlife/biodiversity, Alexander birdwing butterfly, Araucaria (hoop and klinkii pine) and oak trees and clean water |
| List the primary protected area management objectives (add lines if needed after the most important objectives): <i>Management objective 1</i> | Protect the natural environment, in particular the remnant <i>Araucaria</i> forest, from potential outside impacts. |
| <i>Management objective 2</i> | |
| <i>Management objective 3</i> | |
| Number of people involved in answering the assessment questions | 3 |
| Name/organisation/contact details of people participating the assessment (<i>Please do not insert return/enter or dot points</i>) | <i>Samuel Sesiguoc</i> , Patrol Officer, Wau Rural LLG, PO Box 81 Bulolo, ssesiguoc@yahoo.com, 72161956/73275799; <i>Steven Pabia</i> , Bulolo District Rural Development Officer, Bulolo District Administration, PO Box 178, Bulolo, 71752952; <i>Martin Denny</i> , Mt Kaindi WMA Chairman, c/- Wau Rural LLG, PO Box 81 Bulolo. |
| 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, Local level government |

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| 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?

The park contains steep slopes, rising to the Three Sisters peak (SW) and is drained by the Weibek Creek, with steep slopes towards the Bulolo River (E). The park has important *Araucaria* mixed rainforest and is important for its klinkii and hoop pines. There is also bamboo and oak trees. The forest provides habitat for bird of paradise, parrots, cassowary, tree python and other snakes, lizards, wallaby and tree kangaroos. Illegal settlers have moved into the area. They come to mine in the rivers and also to settle on customary land and this results in an expansion of the gardens and loss of vegetation. There are small scale mining activities along the Bulolo River.

Table 2. Key values of the protected area

| No. | Key values | Brief description | Note if endangered species or ecosystem (IUCN) |
|-----|---|---|--|
| 1 | Animal wildlife and protecting biodiversity and the environment | Bird of paradise, parrots, cassowary, tree python and other snakes, lizards, wallaby and tree kangaroos | |
| 2 | Birdwing butterfly | It is believed to be in a reasonable condition | |
| 3 | Pine and oak trees | <i>Araucaria</i> (hoop and klinkii pines) form a remnant stand within the park and have high value as a seed bank. There are healthy stands of pine trees, but some have been lost as a result of fire. There are also numerous oak trees within the forest. These provide building material. | |
| 4 | Clean water | The mountain streams provide an important source of 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 | There has been no monitoring or survey work to identify the biodiversity of the park. However, species that may exist are snakes, birds (hornbills, hawks and pigeons), butterflies and the important <i>Araucaria</i> forests. |
| 2. Presence of rare, threatened, or endangered species (plants and animals) | 2 | The park is a remnant of the former forests that existed in the Wau Bulolo valley. This is important for the increasingly rare <i>Araucaria</i> species of klinkii and hoop pines. |
| 3. Ecosystems (e.g. wetlands, grasslands, coral reefs etc) that are rare because they have been cleared or destroyed in other areas | 2 | <i>Araucaria</i> forests are important. |
| 4. Protecting clean, fresh water | 2 | |
| 5. Sustaining important species in big enough numbers that they are able to survive here | 2 | |
| 6. Providing a source of employment for local communities now | 0 | |
| 7. Providing resources for local subsistence (food, building materials, medicines etc.) | 2 | Illegal settlers have no regard for the park but customary landowners respect the park and use its resources sustainably for subsistence purposes. |

| | | |
|---|----|---|
| 8. Providing community development opportunities through sustainable resource use | 1 | |
| 9. Religious or spiritual significance (e.g. tambu places) | DK | |
| 10. Plant species of high social, cultural, or economic importance | 2 | It is used as a seed bank for the araucaria species. |
| 11. Animal species of high social, cultural, or economic importance | 2 | |
| 12. Attractive scenery | 2 | |
| 13. Tourism now | DK | |
| 14. Potential value for tourism in the future | 2 | |
| 15. Educational and/or scientific value | 2 | Important scientific value in the Araucaria species within the park, which provide an important seed bank. The University of Technology, Lae has established a forestry centre in Bulolo to undertake research. McAdam is sometimes used by staff and students for field trips. |
| 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 | Illegal settlers are constructing permanent structures. Mining attracts illegal settlers. |
| 1.1a Population increase in the protected area community | H | There is a steady rise in the number of illegal settlers, both in the park and in the surrounding areas, e.g. the Nauti people are established on the western and northern sides of the park, along with several other groups in other parts of the park. This increasing population places pressure on the park's resources, causing loss of biodiversity, introduction of invasive species, erosion and siltation of rivers. |
| 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 | H | Customary landowners do not live in the park and do not grow food or have gardens. Illegal settlers are increasing the number of gardens. Forest is cleared (or burned) to create gardens, which have been established on all sides of the park. |
| 2.1a Drug cultivation | M | |
| 2.1b Commercial plantations | H | Coffee provides a cash crop for illegal settlers. |
| 2.2 Wood and pulp plantations | L | |
| 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 | H | Illegal mining by illegal settlers, especially along the Bulolo River boundary of the park. |
| 3.3 Energy generation | L | |
| 4.1 Roads and railroads (include road-killed animals) | L | Some roads in a small area. |

| Threat type | Score (H,M,L,O) | Notes |
|---|--------------------|--|
| 4.2 Utility and service lines (e.g. electricity cables, telephone lines) | 0 | |
| 4.3 Shipping lanes | 0 | |
| 4.4 Flight paths | L | Helicopters carrying dangerous chemicals. |
| 5.1 Hunting, killing and collecting terrestrial animals (including killing of animals as a result of human/wildlife conflict) | H | Illegal settlers have no regard for sustainable harvest of wildlife. Many species are targeted (e.g. squirrels, bandicoots, birds), resulting in a loss of wildlife. |
| 5.2 Gathering terrestrial plants or plant products (non-timber) | H | Orchids and bamboo. |
| 5.3a Logging and wood harvesting for local/customary use | H | Illegal settlers. |
| 5.3b Logging and wood harvesting – commercial logging | 0 | |
| 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 | H | Illegal settlers are the only source of the threat from recreational activities. |
| 6.2 War, civil unrest and military exercises | L | |
| 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 | Caused by the illegal settlers. The Government needs to step in and remove the illegal settlers. |
| 7.1 Fire and fire suppression (including arson) | L | Fire is a problem, particularly in the dry season. Settlers do not make fire breaks. Historically, the presence of fire has resulted in extensive damage to the closed forests. Often the fires have been followed by regular burning and clearing for gardens etc and subsequently resulting in grassland ecosystems on the hills. Fire is also associated with drought and El Nino events (e.g. 1997). |
| 7.2 Dams, hydrological modification and water management/use | 0 | |
| 7.3a Increased fragmentation within protected area | H | Human intervention in the park has increased fragmentation. |
| 7.3b Isolation from other natural habitat (e.g. deforestation) | L | Only a small part of the boundary adjacent to a forestry area is removed from other vegetation. |
| 7.3c Other 'edge effects' on park values | H | Increasing incursions into the park. |
| 7.3d Loss of keystone species (e.g. top predators, pollinators etc.) | L | |
| 8.1 Pest plants | H | Following the fires which burned the Araucaria forests on the eastern side of the park, the trees died (low fire resistance) and have been replaced by bamboo and the invasive <i>Piperacea adankum</i> . |
| 8.1a Pest animals | M | Poisonous snake (wowyang in local language). |
| 8.1b Diseases such as fungus or viruses that make native plants or animals sick | L | There is a fungus in the soil, but its impact is unknown. |
| 8.2 Introduced genetic material (e.g. genetically modified organisms) | 0 | |
| 9.1 Household sewage and urban waste water | L | Urban waste water enters some creeks. |

| Threat type | Score (H,M,L,O) | Notes |
|---|-----------------|---|
| 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 | Forestry uses fertilizers in the area adjacent to the park. |
| 9.4 Garbage and solid waste | L | Illegal settlers discard household rubbish. |
| 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 | L | |
| 10.3 Avalanches/Landslides | M | Mountainous area increases chances of landslides. The increase in mining, forest fires and garden clearing are resulting in increased incidence of landslides and soil erosion. This occurs particularly on the eastern and northern parts of the park. |
| 10.4 Erosion and siltation/ deposition (e.g. shoreline or riverbed changes) | M | |
| 11.1 Habitat shifting and alteration | M | |
| 11.2 Droughts | L | |
| 11.3 Temperature extremes | M | Days are getting hotter and nights are getting cooler. |
| 11.4 Storms and flooding | L | Occasional strong winds. |
| 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 | L | |
| 12.3 Destruction of cultural heritage buildings, gardens, sites etc. | H | Illegal settlers show no regard for spiritual places of the customary landowners. |
| 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 | Housing and settlement | 1.1 | Legal status needs to be settled. There needs to be a CEPA officer in Bulolo or Wau. Re-mark the boundary after a proper survey. |
| 2 | Population increase | 1.1a | Legal status needs to be settled. There needs to be a CEPA officer in Bulolo or Wau. Re-mark the boundary after a proper survey. |
| 3 | Fragmentation through coffee gardens and small gardens | 2.1, 2.1b | Legal status needs to be settled. There needs to be a CEPA officer in Bulolo or Wau. Re-mark the boundary after a proper survey. |
| 4 | Mining | 3.2 | Small scale mechanised mining and alluvial mining. Stop the use of mechanised mining and the use of pressure hoses. |
| 5 | Other edge effects | 7.3c | Forestry has a common boundary and a buffer zone is required to reduce the impact of forestry activities (e.g. fertilizers entering the park). |

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 national park, but there are disputes about the future status of the park. | Establish a process to determine the most appropriate legal status for the park. The customary landowners are seeking a return of their customary lands. |
| 1b. Legal status | | | |
| 2a. Protected area regulations | 1 | There are some regulations, but lack of CEPA staff means that they are not implemented. | Determine the status of the park and then develop a Management Plan with appropriate regulations. |
| 2b. Protected area regulations | | | |
| 3. Law enforcement | 1 | CEPA is responsible for the park and it has the capacity to enforce the laws, but has not had a presence in the park for many years. | Re-establish a government presence in the park. Create a position at provincial or district level to monitor and enforce some basic rules. |
| 4. Protected area objectives | 0 | The original objectives were to protect the remnant Araucaria forest and some of these forests remain. However, the absence of CEPA staff has meant that no one knows what the objectives are. They are not enforced. | Re-establish a government presence in the park. Create a position at provincial or district level. Work collaboratively to develop a new Management Plan, with relevant biodiversity related objectives. |
| 5. Protected area design | 1 | The boundaries encompass the last remaining patch of Araucaria forest in the Wau Bulolo area and hence are adequate, but would be improved with park expansion. | Building links to the south and south west in order to increase the size of the protected area. For example increasing connectivity with Mt Susu, which is 10km away. The shape of the park should be redrawn to include two small stands of virgin forest just outside the park boundary. |
| 6. Protected area boundaries | 1 | CEPA may know the boundaries, but they are not marked on the ground and are not respected by the community. There are illegal settlers within the park. | Mark the boundary on the ground so that all are aware of its location. |
| 7. Management plan | 0 | | Once the legal status is decided a Management Plan is needed to guide on-ground actions to achieve better outcomes. |
| 7a. Planning process | 0 | | Customary landowners must be consulted and included in future decision making concerning the park. |
| 7b. Planning process | 0 | | |
| 7c. Planning process | 0 | | |
| 8. Regular work plan | 0 | | |
| 9. Resource inventory | 0 | Unknown (Forestry could be collecting seeds). | |
| 10. Protection systems | 0 | | CEPA to actively create systems to manage the park effectively. |
| 11. Research and monitoring | 0 | | |
| 12. Resource management | 0 | | |

| Issue | Score (0,1,2,3, NA) | Comment | Next steps |
|---|------------------------|--|---|
| 13a. Staff numbers | 0 | No CEPA staff are present in the park to manage. | |
| 13b. Other people working on the protected area | 0 | Customary landowners are not engaged in management. | CEPA to actively create systems to manage the park effectively. |
| 14. Training and skills | NA | No one is working on the park and hence it is not possible to assess their level of skill. | |
| 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 | 0 | The last park ranger left about 1982 or 1983 and there has been no on site CEPA presence since. The integrity of the park was respected by all the local people up until about 2000. It was after that date, when CEPA withdrew, that illegal settlers began to move in with impunity. | A Management Plan is required to address issues of land adjacency and impact. |
| 22. State and commercial neighbours | 1 | There is some engagement with Forestry. | |
| 23. Indigenous people/ Customary landowners | 0 | There is no Management Plan and therefore no consultation. | Develop a Management Plan. |
| 24a. Impact on communities | 0 | | |
| 24b. Impact on communities | 0 | | |
| 24c. Impact on communities | 1 | The customary landowners want the protected area to continue, but to have some input into management. | |
| 25. Economic benefit | 0 | | |
| 26. Monitoring and evaluation | 1 | | |
| 27. Visitor facilities | 0 | | |
| 28. Commercial tourism operators | 0 | | |
| 29. Fees | 0 | | |
| 30. Condition of values | 0 | | |
| 30a. Condition of values | 0 | | |
| 30b. Condition of values | 0 | | |
| 30c. Condition of values | 0 | | |

Part 5: Condition and trends of protected area values

Table 7. Values, condition and trend

| Key value (from Table 2) | Condition Score (VG, G, F, P, DK) | Trend Score (I, S, D, DK) | Information source and justification for Assessment and HOW the condition can be IMPROVED |
|--|---|---------------------------------|---|
| Wildlife/protecting biodiversity and the environment | F | D | Anecdotal evidence and ad hoc monitoring would indicate most wildlife to be in satisfactory condition, but due to increasing settlement and mining resulting in more hunting and loss of habitat, their condition is in decline. Illegal settlers need to be removed from the park. |
| Birdwing butterfly | F | D | Loss of forest habitat is the main cause for their decline. |
| Pine and oak trees | G | D | Important remnant habitat for pines; illegal settlers who create gardens and use fire are impacting negatively on these forest stands; need to remove the illegal settlers |
| Clean water | F | D | Alluvial panning for gold and the use of high pressure hoses and other mechanised equipment in the park's watercourses is making the water polluted and unfit for drinking. There needs to be a halt to alluvial mining. |

Table 8. Recommendations and ways forward

| 1. | 2. | 3. |
|--|---|---|
| Settle the legal status as there is a dispute over land ownership. | Establish a Management Committee. This should include national and local government and customary landowners. Increase communication amongst all the relevant stakeholders. Establish a good working relationship with the settlers, government and customary landowners. | Re-afforestation of degraded areas of the park. |

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

| | Strengths | Challenges |
|---|---|--|
| 1 | There is some preservation of the natural environment. | To secure the boundary to make a clear statement to illegal occupiers. |
| 2 | Some customary landowners support the national park. | To settle the legal status of the park and resolve the disputed land ownership issue. |
| 3 | Government currently supports the existence of the national park. | Illegal settlers have constructed permanent dwellings and consider the land to be their own and in the process show little regard for the values of the national park. |
| 4 | | Customary landowners support the park, but they feel disempowered concerning ongoing management. |
| 5 | | Settling disputes over claims to gold (exposed following a landslide). |