

REPORT FOR THE RUFFORD FOUNDATION SMALL GRANTS FOR NATURE CONSERVATION

Project title: The assessment of hunting practices and the involvement of local communities for wildlife conservation in Papua (Irian Jaya), Indonesia"

Submitted by: Dr. Margaretha Z. Pangau
Biology Department-Natural Sciences and Mathematics Faculty,
Cenderawasih University Jayapura
Papua, Indonesia

Executive Summary

This project was conducted to provide baseline information on the target and intensity of wildlife hunting and trade in northern Papua, Indonesia. The overall effort resulted in significant progress on the primary objectives: (1) the level of subsistence hunting and commercial trade, (2) the importance of wildlife in the communities, (3) the establishment the co-operative links with NGOs, Local Government and Forest Department Regional Papua, (4) produce education materials and organise workshops and an interactive training to discuss strategies aimed at monitoring hunting and controlling trade (5) the involvement of local communities including hunters in wildlife management and (6) train local students from universities in wildlife conservation. For that reason this Rufford funded work would help to generate significant information and database on hunting patterns and target hunted species and to initiate important studies on long-term sustainability hunting in northern Papua. With support from Rufford Foundation, we could also be able to approach local communities and working among them to assess the overall importance of wildlife to local communities as well as to get people involved in wildlife conservation. Due to the regional election in November 2005 and the riot happened in March 2006, the project was completed two months later.

General Background

The main aim of this project is to assess the patterns and extent of hunting practices in the North Papuan lowlands, and to involve local communities in wildlife conservation programmes. This project might be a preliminary assessment of the sustainability of hunting in Papua region. In this phase, we were focusing on the assessment of hunting practices and the initiative of community-based education and conservation. It is expected to conduct wildlife surveys and monitoring in the subsequent phase.

The studies have been conducted in two different areas; Cyclops Nature Reserve and Nimbokrang District. A total of 14 villages in Nimbokrang and 5 villages around the Cyclops Nature Reserve have been approached and surveyed. Two villages in Nimbokrang District are migrant villages (in the period of 1979-2000, there was a transmigration program from Indonesian government in which the landless people from densely populated areas of Indonesia have been moved to less populous areas of the Indonesia including West Papua).

Semi-structure interviews have been conducted with 92 local hunters, 14 bird catchers from migrant communities, two bird collectors, 28 wild meat dealers and a number of villagers. We also could get possibility to join the hunting outings in both sites. Three local markets in study areas have been determined and weekly market surveys have been conducted. Wildlife markets in Jakarta were surveyed to determine the extent of wildlife trade in national and

international level. Particular meetings with village leaders and tribal chiefs have been conducted to gain their attention on the issues related to wildlife conservation and sustainable use. Village meetings, workshops and seminars have been organised in collaboration with Cenderawasih University.

Research accomplishments

The level of subsistence hunting

In the past hunting on wildlife around Cyclops NR was merely practised for subsistence. Our recent study shows that hunting patterns are already changed. Around 65% of hunters in this area hunt the wild animals for commercial purposes, and it was mainly to get wild meat. The most used hunting methods are using snares and guns, but several hunters still used traditional bow and arrows, and also dogs. The primary hunted animals around Cyclops NR include bandicoots (Fam. Peroryctidae), cuscuses (Fam. Phalangeridae), ground birds (Fam. Columbidae and Megapodidae) wild pigs and reptiles. They also collect eggs of megapodes for protein consumption.

Hunting patterns in Nimbokrang reveal some similarities. In the past hunting on wildlife was only for subsistence, but now most hunting is practised for commercial purposes. In this area hunting for subsistence is done by about 21.5 % household hunters. A variety of methods is used for hunting and each hunter uses more than one technique to hunt. These include snare, bow and arrow, spear, dog, gun and catapult, and the most used methods are snare, and bow and arrow. Spear together with bow and arrow are amongst traditional weapons used to hunt large terrestrial animals such as rusa deer (*Cervus timorensis*) and wild pig (*Sus scrofa*). Along with catapults, air rifles are used to capture birds of paradise (Fam: Paradisaeae), bats and arboreal marsupials. Hunting with dog and spear are mainly to catch wallabies, wild pig and rusa deer.

In this area, hunting sites are related to clan forest, which are including mixed garden, secondary forest and primary forest. The distance from village to hunting site is ranging from 2 to 30km, from mixed garden in the village to the deep primary forest. Hunting activity is decreasing during the rainy season, because of the heavy rains and enlarged rivers. In villages where there are farms, some hunters might turn to clearing, burning and planting during this time of the year. Duration of hunts varied greatly, ranging from a few hours to 5 days. It seems that hunting intensity vary according to differences in accessibility of the surrounding terrain, traditions, and socioeconomic status of the inhabitants.

Identification of target hunted species, hunting effort and harvest rate of primary hunted animals

During the study, we identified ten hunted mammal species, 7 birds and 2 reptiles. The most frequently hunted mammals included wild pigs, rusa deer and bandicoots, followed by cuscuses, kangaroos and wallabies. Northern cassowaries (*Casuarius unappendiculatus*) along with megapodes and crowned pigeons are the primarily hunted birds by the local communities.

From the data obtained on harvest rate, we can calculate the annual harvest on wild animal in Nimbokrang area. An average of 14 animals were killed per hunter during one year study period and the estimated weight of total animal harvested is about 87,504 kg.

The importance of wildlife to local communities

For Moi tribe (living in surroundings of Cyclops NR) and Genyem tribe in Nimbokrang area, wild animals are still related to the culture and belief. Several clans believed that their ancestor was from wild animals such as birds of paradise and cassowaries. In the past hunting of these species were prohibited and now three clans still pay attention on this beliefs. With regards to the culture, in several villages wild animals are occasionally hunted by the clan groups for community festivals and religious ceremonies.

For Nimbokrang people wild animals have significant economic value. Hunting on wildlife has become an alternative source of income for many local people. The men hunters can be able to fulfil the family livelihood need and provide financial support for their school children. Furthermore, economic opportunity might drive the increase of hunting pressure in this region. Many hunters are engaged to farming, but they admitted that hunting may provide immediate cash throughout the year as opposed to farming. For the most household hunters, wild animals remained the primary source of protein. From 546 meal records, it was found that the percentage of meals containing wild meat (51.1 %) was greater than those containing fish (17.4%), livestock (13.7 %), vegetables (16.0) and other food items (1.8). Wild meat appeared to be the most prevalent source of animal protein compared to fish and domestic meat (livestock).

Assess the level of commercial hunting and wildlife trade

Since the market in Genyem town (main city of Nimbokrang) has been developed and it is available three times per week to trade wild meat, hunters made certain effort to harvest more wild animals and sell it for cash.

Due to the economic opportunity, the preference of species hunted is mostly related to the economic value of animal. Therefore, large animals are being the most target species for hunting, whereas the small sized animals including megapodes and bandicoots are hunted for family consumption. Wild meat was sold in the markets and directly in the villages either fresh or smoke, and the price ranged from 2.2 US\$ – 45 US\$/animal. Trade in wild meat is decreasing in the peak of rainy season (Dec-Jan), where hunting outings was also reduced. About 72 % harvested animals sold in market town was from Nimbokrang, a district closed to the town and only 28 % from other districts further away. The young cassowary chicks, crowned pigeon, birds of paradise are often trapped alive and reared to be sold in the pet trade or for consumption. We found about 11 % hunter households reared cassowaries, crowned-pigeons, lesser bird of paradise, cuscuses and tree kangaroo at the backyard for the purpose mentioned above. Hunters also offered the skin and feathers (stuffed) birds of paradise up for sale at local markets or villages for decoration purposes. Its price ranged from 35 to 45 US\$ each. Having beautiful plumes, the male of this species was being the primary target of hunting using air rifle.

In this area several protected birds including birds of paradise are captured and traded despite Indonesian regulation for wildlife protection. Currently local people are attracted by the economic benefits of the bird trade and they start to offer live birds (i.e. crowned pigeons and parrots) to the public and bird handlers. The price of bird sold in the trade ranged from 10000 to 1 million rupiah (US\$1-105) depending on the species and its condition. Birds are then shipped or transported by flight out of Papua to the big cities of Java and Bali. In these islands, birds are traded in public markets, pet shops and shopping malls, and the price could be as much 10 times higher.

Training and educational accomplishments

The project has been active in providing capacity building training for local young scientists. Two local undergraduate students have been trained in practical wildlife conservation skills and they are currently working for the project. We have also established collaboration with Cenderawasih University, local government agencies, the Forestry Department Papua and conservation NGO's to organize integrated conservation programs in the region. Project members have visited primary and secondary schools in the region, exploring the possibilities of offering environmental education lessons at the schools with the cooperation of the teachers and school directors. They have shown great interest in such an opportunity and we hope to commence offering conservation courses in the near future.

The involvement of local communities in wildlife conservation

In order to involve local communities in wildlife conservation, we have approached the village leaders and the tribal chiefs of local communities. Two village meetings have been conducted in the study area with a theme "Wildlife Conservation and Sustainable Use". Local communities in both villages expressed an interest and eagerness in a continued relationship with the research team in order to strengthen the existed traditional institutions and to improve the community-based natural resources management plans. Two workshops/seminars have been organised in Cenderawasih University to encourage academicians, government agencies, NGO representatives and other stakeholders to take action in conservation efforts. In collaboration with the university, local NGOs and Forest Department Papua, an initiative Programme, "Papuan Conservation Education Programme", is going to be launched in Jayapura.

1. Local benefit: Two local guides are involved in this project. Both of them were experienced hunter who have changed their profession being the natural guides.
2. Involvement of local and international agencies:
 - We have established collaboration with Cenderawasih University; WWF Region Sahul, Papua; Conservation International (CI), Jayapura; Local Government Papua and Forest Department Region Papua.
 - International links include the Centre for Nature Conservation, Göttingen University, Germany and Key Centre for Tropical Wildlife Management, Charles Darwin University, Australia.

Other accomplishments

- A poster has been presented in "The Seventh of New Guinea Biological Conference 2005" in Jayapura, Papua.
- A paper entitled Hunting and Wildlife Trade in Papua, Indonesia was presented in the student practical courses at Centre for Nature Conservation, Göttingen University, Germany.
- An integrated meeting and training for young people on biodiversity conservation was conducted in Jayapura . A paper entitled "Community-based for conservation" was presented.
- An article about hunting patterns and wildlife trade in Papua, Indonesia is *in preparation*.

The major constraints:

- There were some difficulties in interviewing with the bird collectors and bird handlers.

- During the regional election in November, the day of Papuan Independence Organization (OPM) movement in December and the riot happened in March 2006, the research activities were reduced to avoid unpredictable incident. For that reason, we have prolonged the field research until the end of August 2006.

Disbursed Funds

Rufford Foundation has provided the sum of £ 5000 to support this project. The detailed list of expenditure is given below (Table 2). Workshops, seminars and training for local students were organised together with Biology Department, Cenderawasih University. The payment for field assistance was also done through Biology Department. Where savings were made on a line item, it was used to purchase or pay for other goods and services. Items/services that were not budgeted for include department overhead, field equipments and the use of a courier. Department overhead included costs for using the auditorium and some department facilities during seminar and workshops (in-focus, computer rooms, etc). Field equipments were purchased to help access the hunting sites (hiking boots, flagging tape, tents etc) and to increase the overall efficiency of our work. The courier service was used to deliver purchase orders from Jakarta, the capitol city of Indonesia. That was used as a method of payment for the equipments and field gear. A surplus of £31.66 was also spent for the project.

Table 1. Proposed Budget

Activities	Cost
Pre-project expenses	
Paper based Maps and digital maps	150
Computer and printer	700
Digital camera	250
Sub-total	1100
Field expenses	
Transport (fuel, travel allowance, vehicle use)	450
Living cost for four researchers (500 man days x £ 4)	1500
Local guides	500
Interviews (tape recorder, cassettes, materials)	150
Workshops, seminars and interactive training	300
Training for local students	250
Production of education materials and conservation programmes in the villages	400
Sub-total	3550
Post-project expenses	
Communication (telephone, fax, email)	100
Report production and photography	250
Administrative (covered by Cenderawasih University)	
Sub-total	350
TOTAL	5000

Table 2. Expendable Budget (£)

	Unit cost	Budgeted
Equipments		
Paper based maps and digital maps	112.50	
Computer and printer	634.70	
Digital camera	225.45	
Field equipments (includes tents, hiking boots, raincoats, altimeter, flagging tape etc)	246.51	
<i>Sub-total</i>	1219.16	1100
Field expenses		
Transport (fuel, travel allowance, vehicle use)	426.50	
Living cost for three researchers (300 man days x £ 4)	1200.00	
Local guides	500.00	
Interviews (tape recorder, cassettes, materials)	112.65	
Workshops, seminars and interactive training	485.50	
Training for local students	287.75	
Production of education materials and conservation programmes in the villages	335.40	
<i>Sub-total</i>	3347.80	3550
Post-project expenses		
Communication (telephone, fax, email)	96.82	
Report production and photography	175.24	
Administrative (covered by Cenderawasih University)	-	
<i>Sub-total</i>	272.06	350
MISCELLANEOUS		
Courier service	52.64	
Department overhead	140.00	
<i>Subtotal</i>	192.64	
TOTAL	5031.66	5000

Appendix 1: Pictures from research activities.

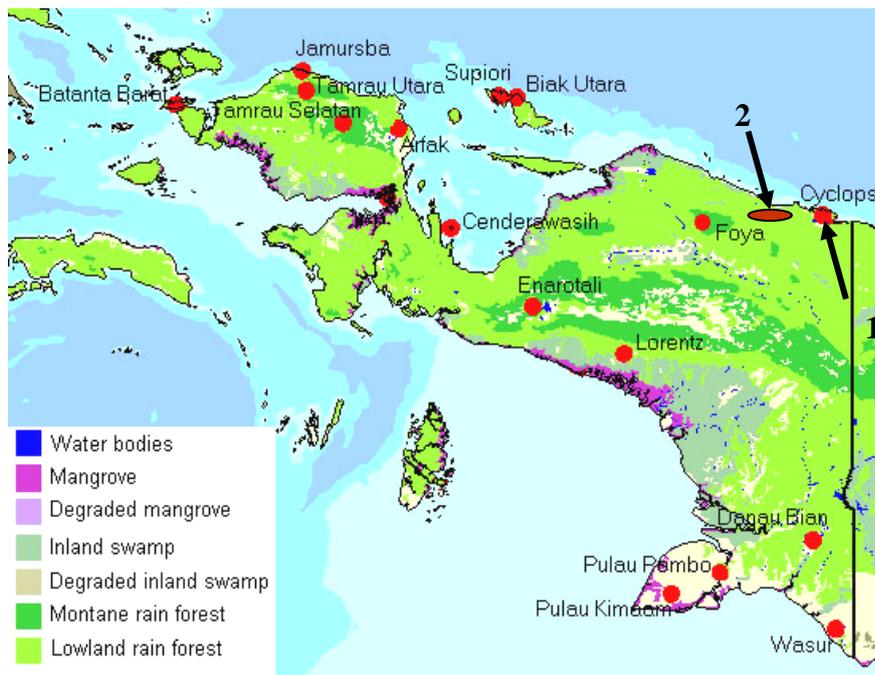


Figure 1. The map of study sites, (1) Cyclops Nature Reserve, (2) Nimbokrang area



Picture 1. In Cyclops area, hunters also collect the eggs of megapodes.



Picture 2. A Nimbokrang hunter with bow and arrow.



Picture 3. Wild meat was sold in local markets and directly in villages.



Picture 4. Young cassowary chicks are often trapped alive and reared to be sold in the pet trade or for consumption.



Picture 5. Village meeting and distribution of education materials were done during the field study.



Picture 6. Training for local students was done in both study sites.