ETHNO-BIOLOGICAL NOTES ON THE MEYAH TRIBE FROM THE NORTHERN PART OF MANOKWARI, WEST PAPUA

(Catatan Etnobiologi Pada Suku Meyah di Pantai Utara Manokwari, Papua Barat)

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Abstract

Tropical forests provide many products such as fruits, seeds, resin, medicines, meat and by-products such as non-timber forest products. In June 2005, February 2008 and June 2009, ethno botanical and ethno zoological surveys were conducted among Meyah hunter-gatherers and on the flora and fauna. This paper aims to reveal the interaction between the Meyah Tribe in the Northern Part of Manokwari and utilization of forest products. Our study reports that the tribe used about 67 species of plants and 11 wild animals to support their livelihood. Due to the expansion of the Manokwari regency as part of the development process in West Papua Province, we would therefore like to suggest that the local government should pay attention to developing and preserving the biodiversity in this area.

Keywords: non timber forest products, Meyah tribe, northern part of Manokwari, etnobiology

Abstrak

Hutan tropis pada prinsipnya menyediakan berbagai kebutuhan manusia baik buah, biji, resin, tumbuhan obat, daging dan dikenal sebagai hasil hutan bukan kayu. Survei etnobiologi ini dilakukan pada bulan June 2005, Februari 2008 dan Juni 2009 pada masyarakat yang melakukan kegiatan pemanfaatan tumbuhan dan berburu satwa liar. Tulisan ini bermaksud untuk mengungkapkan interaksi Suku Meyah di Wilayah Pantai Utara Manokwari dalam pemanfaatan produk hasil hutan bukan kayu. Studi ini mencatat sekitar 67 spesies tumbuhan dan 11 jenis satwa lair yang di manfaatkan untuk menopang kehidupan suku Meyah. Data jumlah jenis tumbuhan dan satwa liar yang di manfaatkan ini, di harapkan dapat berguna bagi pemerintah daerah dan lembaga lainnya dalam mengatur pola pemanfaatan sumberdaya hutan non kayu. Dalam hubungan dengan pemekaran wilayah, maka tantangan terhadap kelestarian sumberdaya hutan ini sangat besar, karena diprediksi akan mengalami tekanan dan kerusakan. Dengan demikian siklus kehidupan masyarakat akan terganggu. Sehingga di butuhkan kebijakan guna mengakomodir kepentingan masyarakat asli dan juga kebutuhan pembangunan.

***Kata kunci**: hasil hutan bukan kayu, suku Meyah, pantai utara Manokwari, etnobiologi*

INTRODUCTION

An important functions of forest resources is to provide a variety of forest products that support the traditional community life. One of these is 'Non Timber Forest Products' (NTFP), which provide a great contribution to human life, to both minimize ecological risks and enhance the economic households of the traditional societies (Arnold & Perez, 2001). Miah (2003) asserts that approximately 80% of people in developing countries use forest products as food and personal care. Furthermore, Belcher & Kuster (2004) inform that communities depend on varieties of forest products in both plants and animals, which are directly used as a consumption product in the household and a sale product for the market.

According to De Beer and Dermod (1996), hunting, gathering and extracting forest products are the main characteristics of the methods used by traditional societies to maintain their life. Kuster and Belcher (2004) add that the main components of livelihood are divided into four sectors i.e. financial, social assets, physical, and human nature.

Papua Island, an area of 42,198,100 hectares or nearly 3.5 times the size of Java Island, is the largest province in Indonesia. Approximately 85.05% of its region is forest ecosystems. The total of Papua's forest area is 42,224,840 hectares. From a socio cultural side, Papua itself consists about

250 ethnic groups that are spread out to twelve cultural regions (BPS Papua 2004; Patai 2005). Indigenous people in Papua are generally located in and around the forest. Traditionally, these communities expand practices of forest management by applying traditional wisdom, which contains the principles of conservation.

The forest for Papuan people is relating to the culture and social activities. Due to rural development as well as the development of remote area is West Papua, forest is integrated part of those process. It is therefore, can be seen that forest is belongs to security of the papuan people. Furthermore, forest can be look not only as a economic value but also social and culture intrinsic value.

The utilisation of biological resources such plant and animal was doing by tradition dweling nearly the forest. Meyah is one ethnic who living and occupied Northern Part of Manokwari, Bird Head Region of the West Papua. Meyah Ethnic has interaction with the forest occurs from generation to generation. This paper describes the close relationship between the forest and the Meyah tribe through approaches of both ethno zoology and ethno botany.

EXPERIMENTAL METHOD

This research was conducted in three villages on the North Coast of Manokwari i.e. Pami, Nuni and Inoduas Villager in June 2005, February 2008 and June 2009. The materials used were questionnaires, tape recorder and books of identification. Identification books are ; Mamals of New Guinea (Flannery 1995), Kelelawar Burung burung di Kawasan Papua dan Pulau Sekitarnya (Behleer 2001),. Common Trees of Irian jaya Papua Indonesia (Jhons. 1997), Flora untuk Sekolah di Indonesia (Van Steenis , 2005), Keanekaragaman Flora Taman Wisata Alam Gunung Meja-Papua Barat-Jenis-jenis Pohon Bagian Pertama (Lekitoo et all 2007). Data were taken by semi-structural interview technique and field observation. Variables observed in the utilization of plants cover the types of wildlife, frequency of hunting, the purpose of hunting, the method of game, the equipment of hunting, and the location of hunting. The use of plants contains variables such as types of plant, parts of plants, processes of use, and advantages of using them. Respondents in this study were traditional elders, chiefs and the people who hunt the animals and extract the plants.

RESULTS AND DISCUSSION

Utilization of Wildlife

Types of Wild Life and Their Utilization by the Meyah Tribe in the Area of the North Coast of Manokwari. Table 1 show that there the Meyah communities utilize 11 species of wildlife. Generally, these species are used for household consumption. Furthermore, it confirms that four species are used for body jewellery: *Sus papuensis*, *Cervus timorensis*, *Spilocuscus maculatus*, *and Phalanger orientalis*.

For curing asthma, the Meyah tribe use infants of *Echymypera rufescens*, *Echymypera kallubu*, *Pteropus neohibernicus*, and *Dobsonia magna* which are two weeks old. Other types consumed are dark brown lizard (*Varanus indicus*) and Maleo (*Megapodius freycinet*). Hunting for consumption is the major reason and choice of Meyah society, and for most rural tribes in Papua. It is well-known

Table 1. The types of wildlife and their utilization by the Meyah tribe in the area of the north coast of Manokwari

No.	Scientific name	Family	Local name	Part wich are used	The purpose of use
1.	*Sus papuensis*	Suidae	mek	meat, tusk	consumption, sale and jewellery
2.	*Cervus timorensis*	Cervidae	mietk	meat, horn	consumption, sale and jewellery
3.	*Dorcopsis muelleri*	Macropodidae	mesyit	meat	consumption
4.	*Spilocuscus maculatus*	Phalangeridae	mowudu	meat, fur	consumption, sale and jewellery
5.	*Phalanger orientalis*	Phalangeridae	mowudu mre	meat, fur	consumption
6.	*Echymypera rufescens*	Peroryctidae	mosyug	meat, infant 2 weeks	consumption, asthma medicine
7.	*Echymypera kallubu*	Peroryctidae	mosyug mog	meat, infant 2 weeks	consumption, asthma medicine
8.	*Pteropus neohibernicus*	Pteropodidae	memf	meat, bile	consumption, asthma medicine
9.	*Dobsonia magna*	Pteropodidae	mefniof	meat, bile	consumption, asthma medicine
10.	*Varanus indicus*	Varanidae	mejus	meat	consumption
11.	*Megapodius freycinet*	Megapodidae	mem	meat	consumption

that the consumption of animals can fulfil the necessity of protein. On a larger scale, Bodmer *et al* (1997) note that there are at least 62 countries in the world whose inhabitants use wildlife as a source of animal protein through hunting activities.

Hunting Methods and Tools

The results show that, for hunting, the Meyah tribe use several tools such as spears and arrows. While the method of hunting is done by placing a trap, using dogs, and imitating animal sounds. Meyah tribe use dogs because they generally have the ability to smell and catch prey. For hunting by imitating animal sounds, basically, the Meyah tribe have a special skill to hunt couscous. The trap method is usually done by placing a trap around the area where animals are active.

According to Lee (2000), hunting activities can be classified into two groups: active hunting and passive hunting. Active hunting is the type of hunting that requires a lot of energy, strength and time to capture the prey. On the other hand, passive hunting only requires a short amount of time and the ideas to design and install the traps on the ground. Usually, after setting the trap, the hunters wait until prey becomes trapped. In the northern part of Manokwari, the Meyah tribe use both of these methods.

Frequency of Hunting

The Meyah tribe generally hunts three to four times per week. However, these times also depend on other activities such as gardening and family business, which may mean that they can only hunt once a week.

Method for Ravin Processing

The result from observation and interview indicates that all the ravins are normally cooked by using many kinds of spices. This process applies to all types of ravins in the table above. For health purposes, and more specifically for curing disease, prey is directly consumed. For instance, generations upon generation of the Meyah tribe have used the babies of *E. rufescens* and *E. kalubu* aged two weeks, to heal asthma. Other species, *Pteropus neohibernicus* and *Dobsonia magna*, are also consumed for asthma treatment. The Meyah people consume the fresh bile of these animals directly.

Locations of Hunting

Hunting is generally done by the Meyah tribe in several habitat types, i.e. primary forest and secondary forest, which are located either nearby or farther away from their village. This means that the distance between the hunting location and the residential location varies and depends on the type of game. For example, *Spilocuscus maculates, Cervus timorensis, Megapodius freyncinet, Pteropus neohibernicus, Dobsonia magna* and *Dorcopis muelleri* are generally hunted in primary forest or about 2 km from the location of settlements. The long distance is related to the ability of the animals to detect the level of disturbance and the level attack by predators.

Other hunted animals, such as *Sus scrofa, Varanus spp, Phalanger orientalis, E.kalubu* and *E. rufescens*, are usually hunted both in secondary forest locations and primary forest areas. These species have a high level of adaptation, and they can be found in both forest types. According to Fatem (2007), there are two types of cuscus on the northern part of Manokwari: *Spilocuscus maculatus* and *Phalanger orientalist.* Habitat of *S. maculatus* in the areas of primary forest with the dense of vegetation canopy, while *P. orientalis* exists more in the areas of secondary forests, village gardens and young secondary forests than in primary forests. The other species, *E. kalubu* and *E. rufescans*, can be found in both of primary and secondary forests, which have herbaceous plants and cover crops such as *Neprolepsis biserata, Imperata cylindrica, Amomum* sp., *Meremia peltata, Donax caniformis* and *Selaginella* sp. (Fatem et al, 2010)

Utilization of Plants

Types of Plants Used as Medicine and Foodstuff by the Meyah Tribe.

Based on Table 2, the total of plant species used by the Meyah tribe as traditional medicine and foodstuffs is 67 species from 43 families. In traditional health, the Meyah tribe use 24 species of 20 families. The species widely used as traditional medicine derive from family of *Arteraceae*, *Euphorbiaceae* and *Araceae*. This is followed by the families of *Moraceae*, *Mimosaceae*, *Fabaceae*, *Labiatea*, *Clasaraceae*, *Apocynaceae*, *Urficaceae*, *Rubianceae*, *Ververaceae*, *Convolvulaceae*, *Conneliaceae*, *Flagellariaceae*, *Smilaceae*, *Gesmeriaceae*, *Lauraceae* and *Myrtaceae*. For food, 43 species of 23 families are consumed by the

Table 2. Types of plants used as medicine and food stuff by the Meyah tribe (M = Medicine, F = Food)

No	Species	Family	Local name	Part of consumed	Utilization Process	Function
1	*Amaranthus* sp.	Amarantaceae	Mewiowi	Leaf	Boiled & drank	M
2	*Alstonis scholaris* RB.	Apocynaceae	Mongkur	Bark and resin	Boiled & drank	M
3	*Colocasia esculenta*		Mesikhkia	Fruit	Rubbed	M
4	*Alacosia* sp[1]		Momos	Tuber	Roasted & boiled	F
5	*Alacosia* sp[2]	Araceae	Moisa	Tuber	Roasted & boiled	F
6	*Santhovisa* sp.		Meisi	Tuber	Roasted & boiled	F
7	*Xanthomonas violucum* Schott.		Momosekemi	Fruit	Eaten directly	F
8	*Areca macrocalyx*		Meijik merenda	Tuber	Eaten directly	F
9	*Arenga pinnata*		Mofut ofoko	Tuber	Eaten directly	F
10	*Calamus barbatus*	Arecaceac	Meyah mocosu	Tuber	Eaten directly	F
11	*Gulubia costata*		Mombua	Tuber	Eaten directly	F
12	*Rhophaloblaste* sp.		Merva	Root	Eaten directly	F
13	*Spondias dulcis*	Anarcadiaceae	Zimbiek	Fruit	Eaten directly	F
14	*Mangifera* sp.		Meweknek	Fruit	Eaten directly	F
15	*Agreretum conyzoides* L	Asteraceae	Isenbah	Leaf	Heated & posted	M
16	*Erigeno sumatrancis* Retze		Mekeyceto	Leaf	Mashed & posted	M
17	*Ananas comosus*	Bromeliaceae	Manggera	Fruit	Eaten directly	F
18	*Carica papaya*	Caricaceae	Manana	Fruit, leaf, & juv. steam	Eaten directly & boiled	F
19	*Kalanchoe* sp.	Clasaraceae	Meshe Ergefei	Leaf	Mashed & posted	M
20	*Terminalia catappa*	Combretaceae	Krisi	Fruit	Eaten directly	F
21	*Amisehotolype marginato* Hassk	Commelinaceae	Moskusso	Stem	heated & rubbed	M
22	*Marremia paltata*	Convolvulaceae	Nosumzum	Stem	Drank directly	M
23	*Cyathea* sp.	Cyatheaceae	Mojumofog	Leaf	Boiled & drank	F
24	*Croton* sp.		Mohkaekemi	Leaf	Heated & dropped	M
25	*Endospermum moluccanum*	Euphorbiaceae	Mani ofok	Shoot	Boiled & cooked	F
26	*Homalanthus populueus*		Mohnon	Leaf	Boiled & drank	M
27	*Senna alata*	Fabaceae	Megamendes	Leaf	Boiled & rubbed	M
28	*Flagellaria indica* L.	Flagellariaceae	Meskebga	Water	Dropped	M
29	*Cyrtandra* Sp.	Gesneriaceae	Merecekoh	Bark	Posted	M
30	*Gnetum gnemon*	Gnetaceae	Maku	Leaf, fruit & skin of fruit	Boiled, cooked & roasted	F
31	*Medusanthera laxiflora*	Icacinaceae	Worou	Fruit	Boiled & cooked	F
32	*Ortosiphan oristatus* (BI) Mig	Labiate	Kumis Kucing	Leaf	Boiled & drank	M
33	*Persea gratissiama* Geart	Lauraceae	Alpokat	Leaf	Boiled & drank	M
34	*Abelmochus maninhot*	Malvaceae	Merevi	Leaf	Boiled & cooked	F
35	*Lansium domesticum*	Meliaceae	Meraa	Fruit	Eaten directly	F
36	*Paraserianthes falcataria*	Mimosaceae	Nhos	Bark	Boiled & drank	M
37	*Horsfieldi sylvestris*	Mirysticaceae	Pala hutan	Fruit	Eaten directly	F
38	*Myristica holrungii*		Pala hutan	Fruit	Eaten directly	F
39	*Arthocarpus comunis*		Mesik	Shoot	Eaten directly	F
40	*Ficus* sp.	Moraceae	Mokekemi Ofok	Leaf	Boiled & drank	M
41	*Ficus trapecisom*		Mokosifok	Shoot	Roasted & boiled	F
42	*Musa* sp.	Musaceae	Menai nage	Fruit	Roasted & boiled	F
43	*Muntingia carabula*	Muntingiacea	Meyaska	Fruit	Eaten, boiled & roasted	F
44	*Syzigium* sp[1]		Motog ekemi	Fruit	Eaten directly	F
45	*Syzigium* sp[2]		Motog epsi	Fruit	Eaten directly	F
46	*Syzigium* sp[3]	Myrtaceae	Borok	Fruit	Eaten directly	F
47	*Syzigium* sp[4]		Matrik	Fruit	Eaten directly	F
48	*Psidium guajava*		Giawas	Fruit	Eaten directly	F
49	*Psidium guajava* Linn		Giawas	Leaf	Eaten directly	M
50	*Pandanus conoedeus*	Pandanaceae	Menja idewik	Fruit	Boiled	F
51	*Pandanus* sp.		Ikenicik	Fruit	Boiled	F
52	*Passiflora foetida*	Passifloraceae	Morigmos	Fruit	Eaten directly	F
53	*Piper* sp.	Piperaceae	Irvevan	Fruit & shoot	Eaten directly	F
54	*Pleurotus* sp.	Pleurotaceae	Mokwa megefa	All parts	Boiled & cooked	F
55	*Loleba atra*		Mososko ofok	Bamboo shoot	Boiled & cooked	F
56	*Neololeba* sp.	Poaceae	Moka	Bamboo shoot	Boiled & cooked	F
57	*Saccharum edule* Hassk		Sayur lilin	Fruit	Eaten, boiled, cooked & roasted	F
58	*Stenochlaena palustris*	Polypodiaceae	Mofun	Leaf	Boiled or saute	F
59	*Stenochlaena* sp.		Mofun/Paku	Leaf	Boiled or sauté	F
60	*Acranthera* sp	Rubiaceae	Mogra	Leaf	Boiled & drank	M
61	*Pometia pinnata*	Sapindaceae	Morug ioghiom	Fruit	Eaten directly	F
62	*Smilax leucophylla*	Smilaxaceae	Mofunga	Leaf	Roasted & rubbed	-
63	*Laportea decumana DC.*	Urticaceae	Meciwi	Leaf	Rubbed	-
64	Stachytarpheta jamaicensis (L)	Verbenaceae	Idoverera efei	Leaf	Heated, posted & dried	M
65	Geloba sp1		Mewamos	Fruit	Eaten directly	F
66	Geloba sp2	Zingiberaceae	Mewamos	Fruit	Eaten directly	M
67	*Zingiber officinali* Roxb.		Mansufuk	Fruit	Grated & posted	M

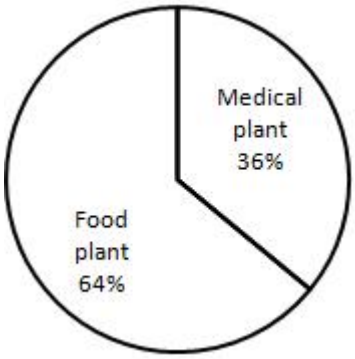

Figure 1. The percentage of utilization of plants as medical plants and food plants

Meyah society. The types of plants that mostly eaten by the Meyah tribe come from families of *Arecaceae* and *Myrtaceae*, while the families least use are *Bromeliaceae*, *Cyatheaceae*, *Combretaceae*, *Euphorbiaceae*, *Gnetaceae*, *Icacinaceae*, *Meliaceae*, *Malvaceae*, *Musaceae*, *Muntingiaceae*, *Pleurotaceae*, *Passifloraceae*, *Piperaceae* and *Sapindaceae*. The percentage of utilization of plants by Meyah tribes is presented in Figure 1.

The Parts of Plants Used

Result shows that the Meyah tribe treat several illnesses by using different parts of plants such as the leaf, bark, fruit, stem and sap. For food stuff, they consume several parts of plant such as tuber, bamboo shoot, leaf, fruit, root, and resin. The most widely used in order are fruit (52%), leaf (23%), root (12%), tuber (7%), bamboo shoot (5%), and resin (1%).

Method of processing

Processing of Medical Plants

The results show that medicine plants are used by the Meyah tribe with and without processing. Roasting, cooking and boiling are the processes used by them. The plants that are not processed are eaten directly.

Processing of Food Plants

The plants used for food are also used with or without processing. Nineteen different plant species are used as food material after being processed; and 26 different species are used without processing. The reason of this way to used in terms of two type is relating to; traditional manner from time to time of Meyah tribe ancestor and the material content of the plants.

Through the Special Treatments

The Meyah tribe on the North coast of Manokwari use several methods i.e. roasting, cooking and boiling to process forest plants.

Roasting

The plants that are usually roasted are the seeds of *Gnetum gnemon* (Maku ofok), *Musa* sp (Menai Nage), and *Arthocarpus communis* (Want). To cook the food, the Meyah tribe use a wrapper media made from Ficus bark, which is woven together with rope. The use of this media is associated with the processing of single and compound materials. They process some forest plants, for instance, *Alocasia* sp. (Moisa), separately. Others such as the leaves of *Gnetum gnemo* (*Makuofok)* and seeds of *Gnetum gnemo* (*Makuofok)*, and *Cyatea* sp. (Meigiga) are processed together and cooked together with meat.

Cooking

Forest plant species that are usually cooked are the leaves of *Gnetum gnemon* (Maku Ofok), *Pleurotus* sp. (Mokwa Megefa), *Carica papaya* (Mariana), *Cyathea* sp (Mojum Ofog), *Endospermum moluccanum* (Mani Ofog), *Medusanthelaxiflora* (Worou), and *Stenochlaena palustris* (Mofun).

Boiling

Some forest vegetations such as the root tubers of *Alocasia sp1* (Moisa), tuber root of *Alocasia sp2* (Meisi), and *Santhovisa sp* (Kiha) are processed by boiling them.

Without Processing

The plants are usually picked, peeled, cut, and eaten directly. The most frequently used type of vegetation is fruit, such as, *Horsfieldii sylvestris* (Pala hutan), *Myristica fattua* (Nutmeg), *Syzigium* sp1 (Motokekemi), *Syzigium* sp2 (Motok Epsi), *Syzigium* sp3 (Borok), *Syzigium* sp4 (Matrix), *Pometia pinnata* (Moruki oghiom), and *Spondias dulcis* (Simbiek).

Dose and Time of Use

The dose used to treat a disease for children differs from adults. Herbs are usually consumed 2 to 3times a day once in the morning, afternoon and evening.

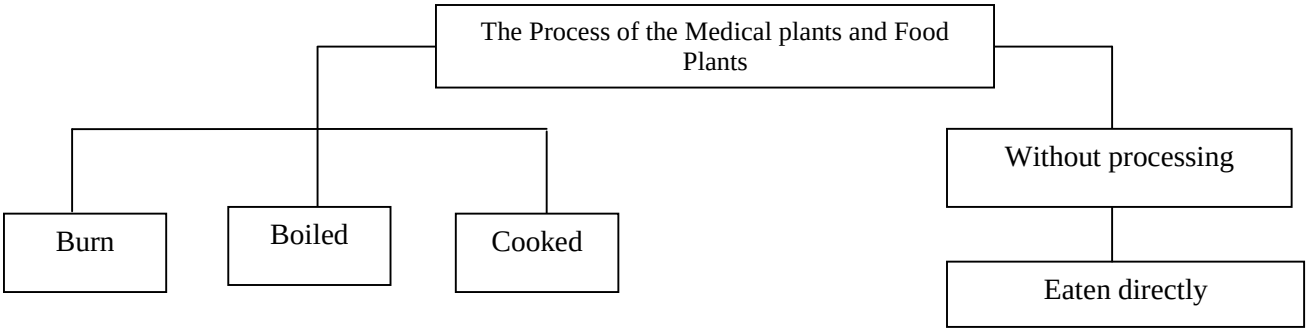

Figure 2. The process of medical plants and food plants

Public Perceptions about Modern Health

In general, modern treatments have long been known by the communityy on the North Coast of Manokwari, but the traditional treatment has been applied from generation to generation. The Meyah tribe prefer to apply traditional cures because they are more easily accessible or available, and they believe that traditional medicine causes no side effects.

Pattern of Knowledge Transfer

Pattern of knowledge transfer adopted by the Meyah tribe on the North Coast of Manokwari is an open system. The knowledge is open to everyone and is a family tradition. The traditional knowledge is transferred by telling stories and pointing out the vegetation.

Hidayat and Sumarliana (1996) cited by Krimadi (2009) state that the transfer of local knowledge is divided into two approaches i.e. general and specific. In first patterns, all people is enabling to recognized it but, on the second pattern, all people have not chance to recognize it. It is very restriction. Only certain people such as particular clan or a specific gender who allowed to know it. In addition, in the Meyah community, there is not restriction of gender and age to be acquainted with the information of traditional medicine.

Pattern of Traditional Conservation

To sustain the plants species which are used as traditional medicine and foodstuff, the Meyah tribe grow these plants around their home yards. In addition, in their utilization, they do not cut whole trees.

CONCLUSION

Our study reveals that non timber forest product (NTFP) play important role to local people. The utilisation is done by hunting, gathering and extraction forest resources.

Ethno zoological aspects confirm that the Meyah tribe on the North Coast of Manokwari uses 11 species of wildlife for household consumption, 4 species for body jewellery, and 4 species for asthma medicine. While Ethno botany aspects show that in total the Meyah tribe on the North Coast of Manokwari use 67 species of plants, including 24 species of medical plants and 43 species of food plants.

In conjunction with the conservation and utilization of natural resources, subsequent research could be done into population structure of wildlife and chemical substances of medicinal plants in order to complete data for the purpose of conservation and other development planning. The listing of plants and animals of etnobiological value is important for evaluating human- plants and animals relationships (Alcorn, 1981; Bye 1979) and for understanding the regional human ecology relation. The government intervention by a rule due to biological resources in this area is compulsory.

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