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ETHNOBOTANY OF THE PENAN BENALUI OF EAST KALIMANTAN, INDONESIA: DIFFERENCE OF ETHNOBOTANICAL KNOWLEDGE AMONG VILLAGERS OF LONG BELAKA

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ABSTRACT Penan Benalui of East Kalimantan are a subgroup of Western Penan, one of the hunter-gatherer groups of Borneo in Indonesia. The Penan Benalui were nomads living in the forest of the interior part of Borneo until they settled down in villages in the 1960s. During the fieldwork in a Penan Benalui village in 2002, about 560 species of wild plants were collected and their ethnobotanical features were documented. Informants could identify most of the plants and gave about 550 local names. About 75% of the plants were reported to be in use and there were about 70 different uses. The difference in ethnobotanical knowledge was large between men and women of the younger generation. Men knew plants better than women. This was probably because men still go to the forests very often for hunting and gathering while women spend more time in the village.

Key Words: Ethnobotany; Penan; Borneo.

INTRODUCTION

Penan are one of the traditional hunter-gatherer groups in Borneo (Indonesia). Two main subgroups, Western Penan and Eastern Penan, are distinguished on the grounds of differences in hunting, settlements, and social organizations (Brosius, 1992: 60-68). Both groups represented nomadic forest-dwellers. They depended on sago palms, primarily on *Eugeissona utilis*, for starch. Young shoots of palms and fruits were also important foods. For protein, the Western Penan depended mainly on bearded pigs, and the Eastern Penan on a variety of animals. They traded forest products for such things as metal, salt, and tobacco with the agriculturalists. Most of the Penan settled down in villages and started to cultivate rice and other plants during the last 50 years. The population of the Penan is estimated to be several thousands.

Penan Benalui are a subgroup of Western Penan. The Penan Benalui came to East Kalimantan from Sarawak (Malaysia) about 100 years ago, when they split from a group now called Penan Silat in Sarawak. Puri (1997a: 73-83) has given a detailed history of the Penan Benalui.

Although no study has investigated the ethnobotanical knowledge of the Penan exhaustively, they are the best studied group for their ethnobotanical knowledge among the hunter-gatherers of Borneo. 'Bulungan Ethnobiology Handbook' (Puri, 2001) gives the ethnobotanical knowledge of 18 ethnic groups including the Penan Benalui in the Bulungan area, East Kalimantan,

Indonesia. The information includes local names, uses, and other information of 164 common plants of the area. In addition, the author of the book examined Penan Benalui classification and uses of about 40 palms (Puri, 1997b). He also described Penan Benalui categories of vegetation, their knowledge about the vegetation, and uses of some wild plants (Puri, 1997a: 103-116, 138-150, 200-222). Kedit (1982) did preliminary research on the ethnobotany of the Eastern Penan in Gunung Mulu National Park, Sarawak. Voeks & Sercombe (2000) studied medicinal plants of the Eastern Penan at Sukang (Brunei) though they did not give local names or scientific names of the plants.

DESCRIPTION OF THE STUDY VILLAGE

I. Location and Environment

In 2002, the fieldwork was conducted at the Penan Benalui village of Long Belaka (Fig. 1) in Pujungan, Malinau, East Kalimantan, Indonesia for a total of six months from January to September. Long Belaka is located along the Lurah River, a tributary of the Bahau River that flows into the Kayan River, and about 185 km west of Tanjung Selor, a town at the mouth of the Kayan River. The village is in Kayan-Mentarang National Park.

The elevation at the village site is about 300m a.s.l. The forests near the village are lowland mixed-dipterocarp forests. The canopy trees are usually up to about 20 m and some places are rich in Fagaceae trees. The forests with larger canopy trees, about 30 m or more, are not common around the village but can be found more often at a higher elevation.

In the lowland mixed-dipterocarp forests of Borneo, a phenomenon called mast-fruiting occurs every 2 to 10 years. At the time of mast-fruiting, many Dipterocarpaceae species and other unrelated taxa bear fruit simultaneously. Bearded pigs migrate into the forests during mast-fruiting (Puri, 1997a: 185-186).

II. History, Population and Facilities

The village of Long Belaka was established in the early 1970s near a Kenyah Badeng village. The Kenyah Badeng are a subgroup of Kenyah, one of the major swidden agriculturist groups in Borneo. The Kenyah Badeng have had close relations with the Penan Benalui since the Penan Benalui came to East Kalimantan about 100 years ago (Puri, 1997a: 74-75). In 1994, an elementary school was opened in the village. This attracted some Penan Benalui who had been living in other villages to Long Belaka.

There were about 160 Penan Benalui persons belonging to 35 families in Long Belaka in 2002. Two elementary school teachers and their families, the Javanese and the Kenyah, were also living in the village. During the study



Fig. 1. Map of Study Area

period, one Penan Benalui family moved to a downriver village to work for a logging company and another family moved into Long Belaka from a small upriver community for schooling. Three deaths and one birth were observed.

In 2002, some 15 houses of the Penan Benalui, two houses of the teachers, an elementary school, and a church existed in the village. Five houses had solar-powered generators provided by the government. There were two chain saws and four motor-powered canoes in the village. Two of the canoes were owned by the teachers.

The villagers sometimes went to Long Pujungan, the center of the district administration, about one or two hours downriver by motor-powered canoe, to

buy things such as tobacco, clothes, sugar, salt, monosodium glutamate, and petrol. Some young people of Long Belaka were living in Long Pujungan to go to junior high school.

III. Subsistence

The Penan Benalui began to settle down in Kenyah villages in the 1960s and began to get involved in agriculture after that. Swidden agriculture is now important for their subsistence. They grow rice, which is now their staple food. They also grow cassava, banana, sweet potato, corn, cucumber, and some other plants.

Hunting and gathering in the forests are still important parts of their life. Bearded pigs are the most important animal food. They are mostly hunted by dog and spear, but sometimes by gun or rarely by blowpipe. They are abundant at the time of mast-fruiting, but are scarce at other times. Leaf monkeys are hunted by blowpipe when bearded pigs are scarce. Fish are valued when other animals are not available. Young shoots of palms, ferns, and mushrooms are collected for vegetables. Fruits become important food in the fruit season. Sago palms are sometimes processed for their starch. Timber for building and tools, rattan for basketry, and other plant materials are also collected from the forests. Timber for firewood is usually collected from swidden fields and swidden fallow.

IV. Income

Gaharu was one of the most important opportunities to get cash at the time of the study period. *Gaharu* is the fragrant wood of fungus-infected trees of *Aquilaria* spp., which has been highly valued for its scent and medicinal properties for centuries (Momberg *et al.*, 1997). The Penan Benalui, however, did not use *gaharu* and did not know how *gaharu* was used very well. During the study period, *gaharu* collection trips were organized by four bosses: a Javanese teacher in Long Belaka, a Javanese trader in Long Pujungan, a Kenyah Badeng man in Long Peliran, and another Kenyah Badeng man in Long Bena. The villagers rarely went on collection trips by themselves. One collection trip can last about two weeks to a few months depending on the amount of food and things that are provided in advance by a boss. The foods and things are actually debts, which are supposed to be paid off by the harvest of *gaharu*. Sometimes they get a lot of money, sometimes not, or even fail to get out of the debts.

Rattan products are also an important sources of cash income. Rattan is collected by men and made into baskets or mats by women. Some women can make finely designed baskets for sale, but others cannot. The teeth, claws, and gall bladders of bears and bezoar stones of leaf monkeys are sold to traders when the villagers are lucky enough to get them. A subsidy is provided to the village by the government once a year. The village chief, the village custom chief, and others in official positions get salaries from the government. Occa-

sionally, they get money by working for the Kenyah, for example by working in swidden fields.

FIELD METHODS

Plant specimens were collected with informants and ethnobotanical information was documented at the time of collecting. One informant accompanied me each time I went out collecting. Names and uses of plants were obtained through interviews. I worked with nine informants including a male key informant, seven other men, and a woman. The informants usually voluntarily chose plants to be explained and I collected the plants as voucher specimens. When we encountered flowering or fruiting plants, I collected the plants and asked the informants for details. We did not collect cultivated plants. Most of the specimens were dried in the village in an oven. In the middle and at the end of the study period, the ethnobotanical information was checked again with the key informant in the village looking at the dried specimens.

The voucher specimens were identified at the Herbarium Bogoriense (BO) and the Leiden University branch of the National Herbarium of the Netherlands (L) by the author and other botanists listed in the acknowledgements. The first set is deposited in BO and the duplicates are deposited in BO, L, and the Kyoto University Museum (KYO).

PENAN BENALUI ETHNOBOTANICAL KNOWLEDGE

There are 901 voucher specimens collected during the fieldwork and some 560 species in the collection. Most of them are seed plants, but there are also some ferns and fungi.

The informants could identify most of the collected plants. They gave about 550 local names for the voucher specimens. However, there were a few specimens that informants couldn't identify. They were some fallen flowers. The informants couldn't find plants from which the flowers had fallen. The informants knew flowers of some important fruit trees very well, but in general, they needed to identify fallen flowers by looking for the plants from which the flowers had fallen. There were also a few plants that the informants said they didn't know. They were a small leafless orchid and a fungus.

Many plants were binomially named by the Penan Benalui. The former part of a name represents a group and the latter part is a modifier. Group level identification was relatively consistent, but more specific identification was not always consistent for some plants. In other words, different informants gave different modifiers for the same plants or an informant gave different modifiers at different times. Sometimes informants could give only group level names.

About 75% of the collected plants were reported to be used by the informants. About 70 uses were mentioned by informants. Some uses were tradi-

tional to the Penan Benalui (e.g., for blowpipes and for folks to eat sago). On the other hand, some uses were obviously associated with the Kenyah culture (e.g., for a ritual that involves killing domesticated pigs). How the uses were mentioned reflected important subsistent activities. Barks of some Annonaceae and Sterculiaceae species are used as rope, and informants always mentioned the use as “bark is used for rope to tie and bring bearded pigs” though the bark is also used to tie other things as well.

A few plants have special purposes. For example, *Antiaris toxicaria* (Moraceae) is used for a fatal poisonous ingredient of dart poison. On the other hand, some uses have a variety of plants. More than 200 local taxa were reported to have edible fruits, though only a part of them were significant in the diet. Some fruits were collected by adults and considerable amounts were eaten, while others were enjoyed only by children.

DIFFERENCE OF ETHNOBOTANICAL KNOWLEDGE BETWEEN VILLAGERS

In general elders knew more about plants than young people and all elders were considered to be knowledgeable about plants by young people. Some elders knew more plants than others. The difference was related to experience of life in the forests and the personality of the villagers. An elder who said that his wife knew plants better than he did because she had lived in the forest in her childhood while he had been born in a village and brought up in villages. He stated that he learnt the names of many plants from his mother. I also witnessed him learning the names of plants from his wife on the day both accompanied me to the forest.

Among the youth (aged between 15-30), young women did not know names and uses of forest plants very well, but younger men knew better. When I asked for knowledge about a medicinal plant to a woman aged about 20 who had two children, she said she didn't know the plant. The plant, *Coscinium fenestratum* (Menispermaceae), had been mentioned by several villagers and I thought that the woman was too shy to say she knew. Later, I talked about it to her father. He said, “She probably really doesn't know the plant. She is still young. She will know when she becomes older.” When I was pressing plants to make specimens, a woman aged 18 and her husband aged about 25 talked to me. She asked, “Is this *berepek*?” looking at a plant. *Berepek* is a local name for *Parashorea* spp. (Dipterocarpaceae). The husband said, “This is *abang*.” The key informant had given the same name at the time of the collection though he had given a more specific name. *Abang* refers to *Shorea* spp. (Dipterocarpaceae). *Berepek* was more common in the village than *abang* and the wood of *berepek* was often used for house construction.

The gender-based knowledge difference was probably due to the differentiation of labor. Women have fewer chances to go to the forests than men. Men often go to the forests for hunting and gathering and they sometimes

spend a couple of months in the forests searching for *gaharu*. Women sometimes accompany their husbands to the forests for hunting and gathering, but they spend more time in the village. The difference in the opportunities to spend time in the forests has obviously occurred after settlement in the villages. Actually, some older women knew plants in the forests well. Elders and young people said young people would become knowledgeable when they became older. It is probably true for men, but only partly true for women. Women can learn names and uses of plants that are often used in the village. However, their chances to learn plants in the forests are very low.

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