

REPORT
TAIKICHIRO MORI MEMORIAL RESEARCH FUND
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Project : Ethnobotany and local forest policy analysis of Dayak people in North Kalimantan, Indonesia

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Affiliation : 2nd year doctoral student, Graduate School of Media and Governance

Research Achievement Report

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1. Research outline

This study aims to investigate the traditional ethnobotanical knowledge of Dayak people in villages in North Kalimantan and their perception, and to analyse the policies at local level for the development. This study acknowledges the traditional ethnobotanical knowledge of the Dayak people in North Kalimantan, to document and to analyse people's perception to the knowledge in adapting the development. This study has objective to complement some prior research of the Dayak people in traditional ethnobotanical knowledge and the policy at a local level, and to design a model of sustainable development based on medicinal plants knowledge by the Dayak people in North Kalimantan. Another objective is to create a database to initiate the rights of ownership, to respect the people and key persons in the village, to share and promote the knowledge, and to create a benefit for a good project for livelihood of people near future. The sites of study are Apau Ping village in Malinau regency and Wa Yagung village in Nunukan regency. Both are remote villages at the borderline with neighbor country Malaysia.

The concept map of this study is to analyse from ethnobotany and policy, while for ethnobotany elaborates the Tri-stimulus NUR (Natural-Usefulness-Religion) pro-conservation from Zuhud (2007) to determine the conservation attitude. The variable of perception employs the level of knowledge and use to quantify the index of cultural significance, while for the policy emphasises on the health and education development. The perception is based on gender and age groups.

2. Research result

2.1. Introduction

The Dayak people are local ethnics of Kalimantan island living in the forest, and still apply ethnobotany knowledge for livelihood and daily needs. The Dayak people have applied the ethnobotany knowledge and best practices in agriculture and utilisation of forest products in a sustainable way. However, there is a concern of loss of this cultural asset as the remoteness put constraints to the people and causes more young generation leaves their villages for

education and employment. This situation could deter the passing on the knowledge or discouraging younger generation to practice it. In addition, still numerous botany species for specific ethnic use need for a documentation to conserve and support the good practices of life of Dayak people. Moreover, this action is expected the local people to be proud of their cultural and natural resources, therefore have the urgency to conserve them (Zuhud et al., 2014). By adapting the local and customary acts in local context, it expects to overcome the social friction as Indonesia is a diverse nation.

Malinau and Nunukan are two of five regencies in North Kalimantan, the youngest province in Indonesia and directly have borderline to neighbor country Malaysia. Kalimantan is identified as the habitat of the largest tropical rain forest with high biodiversity level in which still threatened by deforestation and forest degradation. Therefore, there are some cooperation in objective of nature and biodiversity conservation on this island through Heart of Borneo initiative and also part of REDD+ program. By these cooperation activities, the local governments now impose the customary regulation and traditional knowledge to the local regulation implementation. Currently, the latter program only implemented in Apau Ping village as the cooperation project in North Kalimantan only in Malinau. The project had run since North Kalimantan was still part of East Kalimantan, which focused to regencies of Berau, West Kutai, and Malinau. The project will end next year.

2.2. Preliminary results

The study encouraged a quite stay period in the villages or in the capital of regencies. Challenges occurred as the key informant in Wa Yagung was having medical treatment in hospitals in Malinau and Tarakan, therefore drastic change of plan made the research went longer than planned as the subsidy flight to those villages needed an early book as the seats were limited and prioritised to the villagers in need such as illness or accident.

The plan was to visit Wa Yagung in Nunukan regency first as it has prominent key informant, the local healer, Mr. Daniel Kapung, but as he was on medical treatment, Apau Ping became the first site for data collection. First, the data collected at Malinau government level. Here some data and information collected from agencies of development planning, health, education, agriculture, forest, and development data statistics, regulation, customary council, also WWF as the organisation which has been working long time with local people for nature conservation of Kayan Mentarang National Park. Prior to Malinau, a coordination with provincial government also done by visiting Tanjung Selor. Research permits from the government of Malinau and Nunukan, and Kayan Mentarang National Park agency were obtained prior visiting the villages as it is obligatory based on regulation.

The access to Apau Ping was by flight of six passengers from Malinau to Long Alango for about 40 minutes on October 26, stay a night at Long Alango as the researcher collected data from the head of customary land area of Hulu Bahau, Mr. Anyie Apuy. Then by a motorcycle to Long Ilan for about 15 minutes on October 27, continue by wooden boat of two passengers to Apau Ping for an hour. The boat transportation depends on the Bahau river situation as this river has big water rapids with big rocks, it is a big risk to run the river when the water level is very high or very low. In Malinau where Dayak Kenyah people mostly inhabit, there are big rivers with big rapids and therefore the migration of the people is not fast dynamic. There is an army platoon of border deployment in this village. While access to Wa Yagung was also by flight but slightly bigger for 12 persons from Tarakan to Long Bawan for an hour on Dec 6, as the airport in Long Bawan is the most important hub in the Krayan sub-regency at the border. Long Bawan, the sub-regency capital of Krayan is more populated and dynamic compare to Long Aalngo, the sub-regency capital of Hulu Bahau. Two nights stay in Long Bawan for collecting data and report to the authorities before visiting the villages. Continued by a motorcycle to Long Umung for an hour as the road was in poor condition, and the next day on foot for eight hours accompanied by local guide. The situation was exacerbated by heavy rain during the walk. The trip to Wa Yagung was more challenging compare to eight years ago when thesis research done at the same village. The road was in very poor condition for people as the villagers now using buffaloes for transporting out the Adan rice as the main product of Krayan sub-regency or some handicrafts made from bamboos, and transporting the daily products into the village.

Period of stay in the village was 26 days (October 27 to November 22) in Apau Ping and 19 days in Wa Yagung. (December 9 to 28). During the research periods, the researcher involved in communities activities to have a direct observation, and to connect with the people. Around those months, people in Apau Ping were preparing for christmas celebration, therefore many communities activities were in managing the agriculture land in groups for a donation to the church. Researcher involved in several weeding activities. Apau Ping had a micro hydro power plant, but a landslide broke and buried it in early 2017. Hence the electricity was expensive as villagers needed to buy gasoline with price of almost quadruple the normal one in the city, while the livelihood of the people was from agriculture or goods transporting, and now there was also income for the villagers from the construction project funded by village fund program. At that time they worked for rebuilding the village culture hall as Apau Ping was appointed as tourism village by Malinau regent in 2015. Apparently, the village fund program encourages villagers to develop their villages and earn some income at the same

time, This program has been implemented since 2015 by President Joko Widodo's administration. While in Wa Yagung, micro hydro power plant operated during the nights and sometimes during the days for important occasions, unfortunately this village was in the situation of conflict with the head of the village committing corruption of village fund constructing the village office. At that time, Wa Yagung suspected for a disease as big number of villagers were unwell and the health center of sub-district in Long Bawan deploy its doctor and paramedics. Villagers in Wa Yagung were busy preparing christmas celebration as well, and to manage this situation involving in many occasions was a helpful way to obtain the data while considering villagers' personal activities. Generally, the villagers from those two villages were very welcome and open during interview.

While in Wa Yagung mostly data of ethnobotany species for medicinal plants obtained from Mr. Daniel Kapung, in Apau Ping it occurred for a few information after interviewing the elderly people. In order to expand the information, there were three times meeting with the male villagers and female villagers. The data then became part of the questionnaire for quantifying the index of cultural significance. The vernacular name of paddy collected in order to complement the staple food species. The specimen of ethnobotany species obtained by transect walks for several days guided by the knowledgeable villagers. Wet specimens were imposed for the species in order to preserve the shape and the form of the botany species, prior to identification at Herbarium Samboja of Balitek KSDA (nature conservation technology research agency) in Samboja, Kutai Kartanegara regency about 20 kilometers from Balikpapan or 38 kilometers from Samarinda, the capital of East Kalimantan province. There is also a cooperation with a colleague at Forestry faculty of Mulawarman University (Harlinda Kuspradini, Ph.D) for chemical analysis which expect to enrich the discussion of the dissertation.

Topographically, Wa Yagung lies in higher elevation of 700-1300 masl with some large plains for wet paddy field while even Apau Ping lies lower of 400-800 masl, but the plains area for wet paddy fields is much smaller. Hence the agriculture in Hulu Bahau predominantly by dry farming with rotation farming. People in Apau Ping were busy all year managing their agriculture land, on the other hand for Wa Yagung villagers have more time apart of managing wet paddy field.

Currently the botany species have not completed for identification process of identification at Herbarium Samboja, as the temporary result just received on February 27, 2018 and therefore only vernacular and scientific names in this report. The data analysis is also still on compiling for 38 respondents in Apau Ping and 30 respondents in Wa Yagung.

References

- Zuhud, E.A.M. 2007. Community's attitudes and conservation: an analysis of kedawung (*Parkia timoriana* (DC.)Merr.) stimulus of medicinal plants for the community, case in Meru Betiri National Park. Dissertation. IPB. Bogor
- Zuhud, E.A.M, Hikmat, A., Damayanti, E.K., Metananda, A.A. 2014. Sovereignty of Indonesian biodiversity conservation and health through development of "Kampung Konservasi". Poster presentation in IUFRO XXIV World Congress

Images



Collecting information and direct observation during paddy harvesting activity in Wa Yagung



Transect walk in Wa Yagung accompanied by local assistants



Voucher specimen handling



Workshop with group of women in Wa Yagung



Interview with local authorities in Long Alango



Direct observation and collecting specimen during weeding activities in Apau Ping



Apau Ping situation



Interview in Apau Ping with family of Mr. and Mrs. Uday



Workshop with group of women in Wa Yagung



Interview with elderly woman in Apau Ping with Mrs. Sapuk



Workshop with group of men in Apau Ping



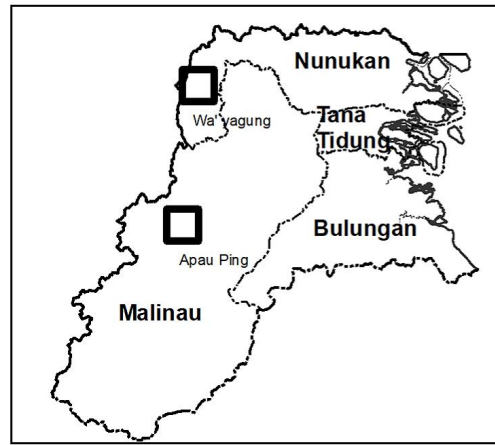
Transect walk in Apau Ping



Voucher specimen handling in Herbarium Samboja with Mr. Zainal Arifin

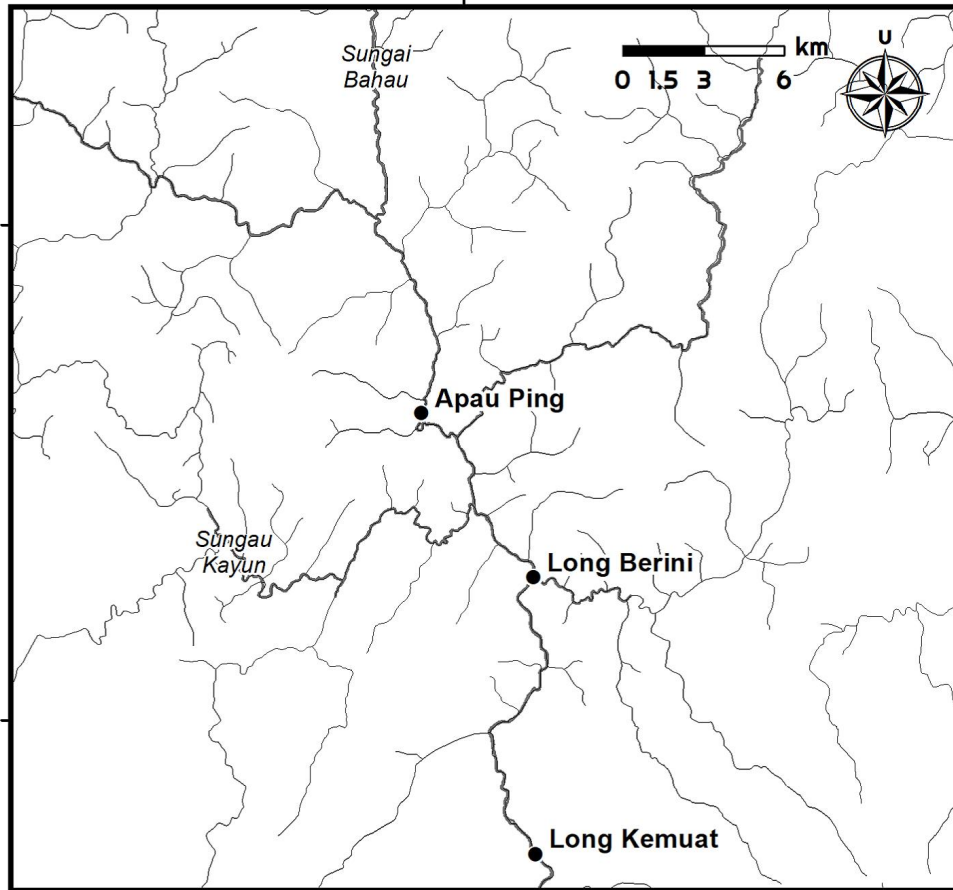


Meals of the locals from the forest garden



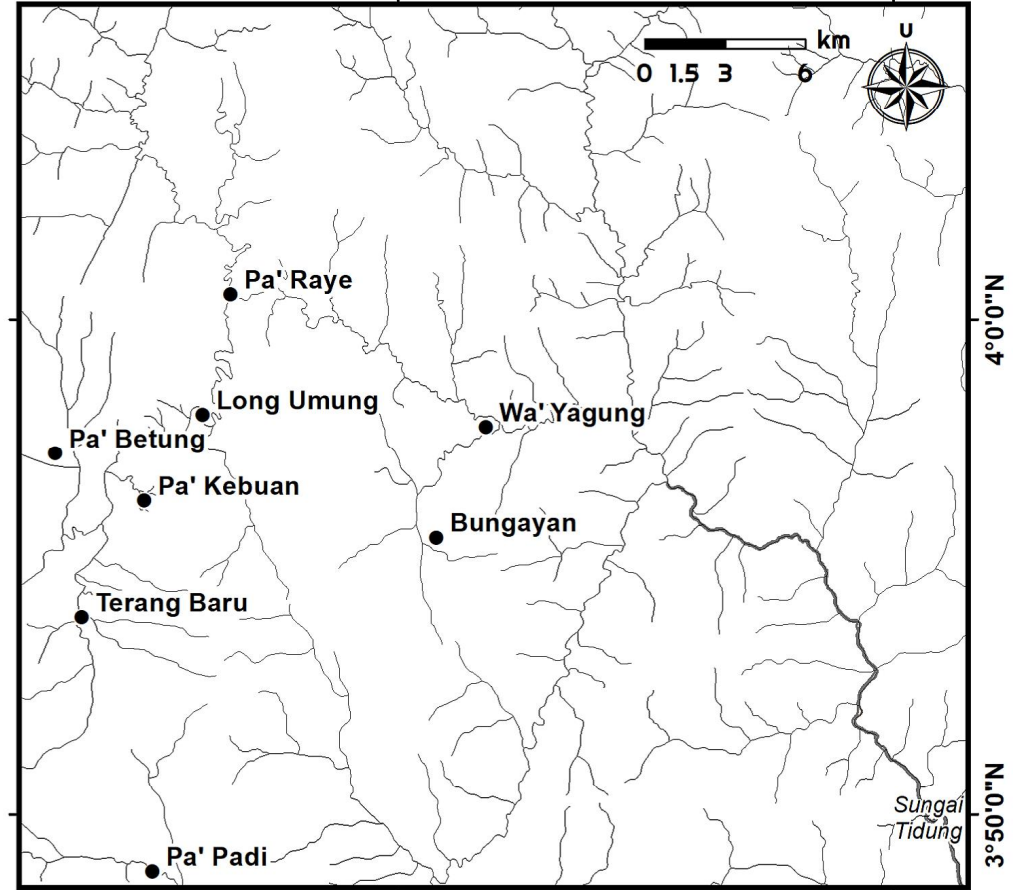
North Kalimantan

Apau Ping



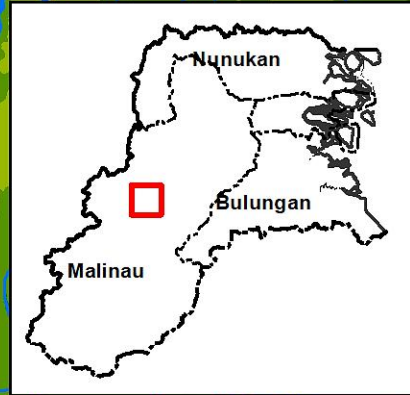
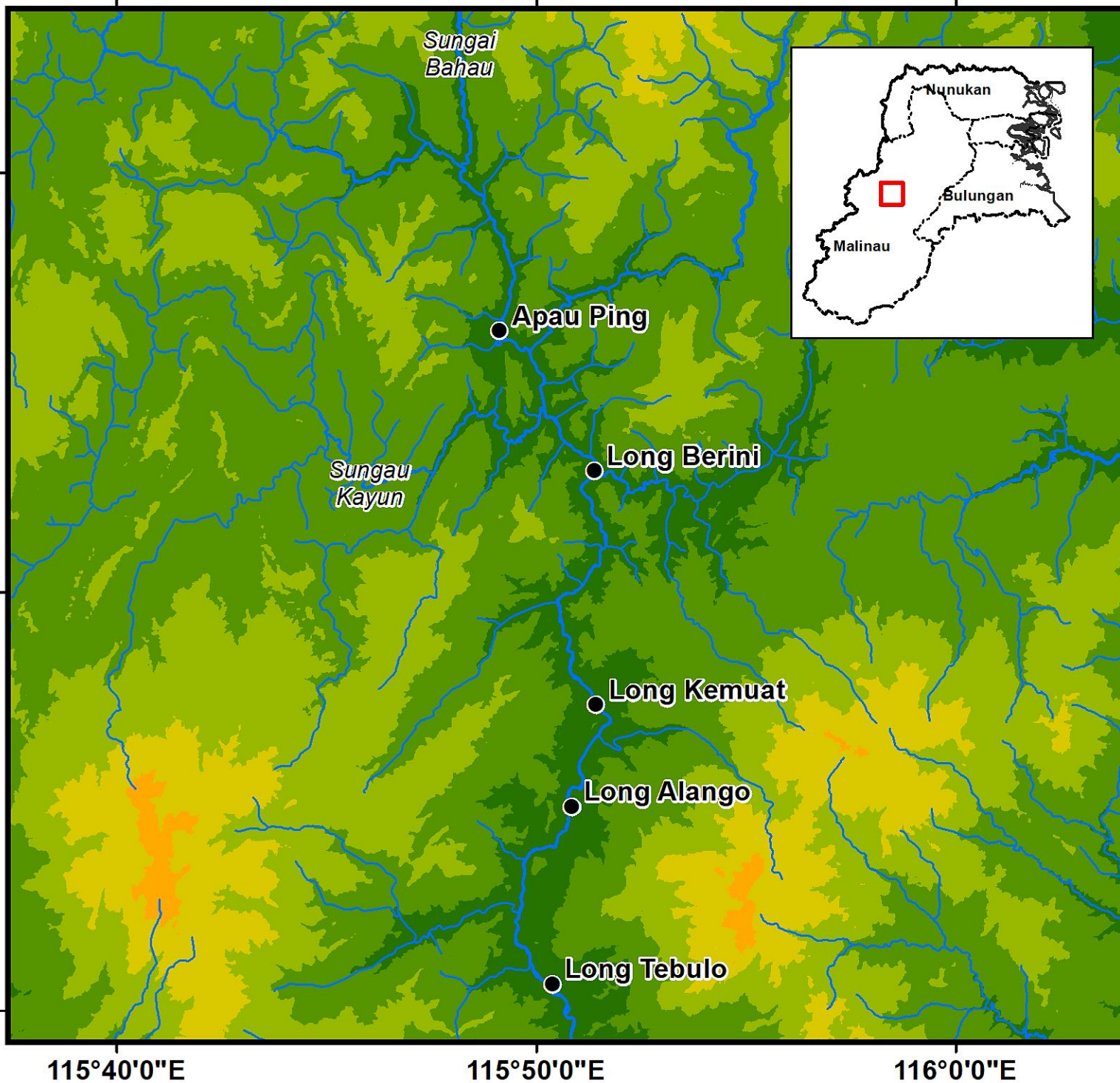
115°50'0"E

Wa'yagung



115°50'0"E

116°0'0"E



Topography Map of Apau Ping



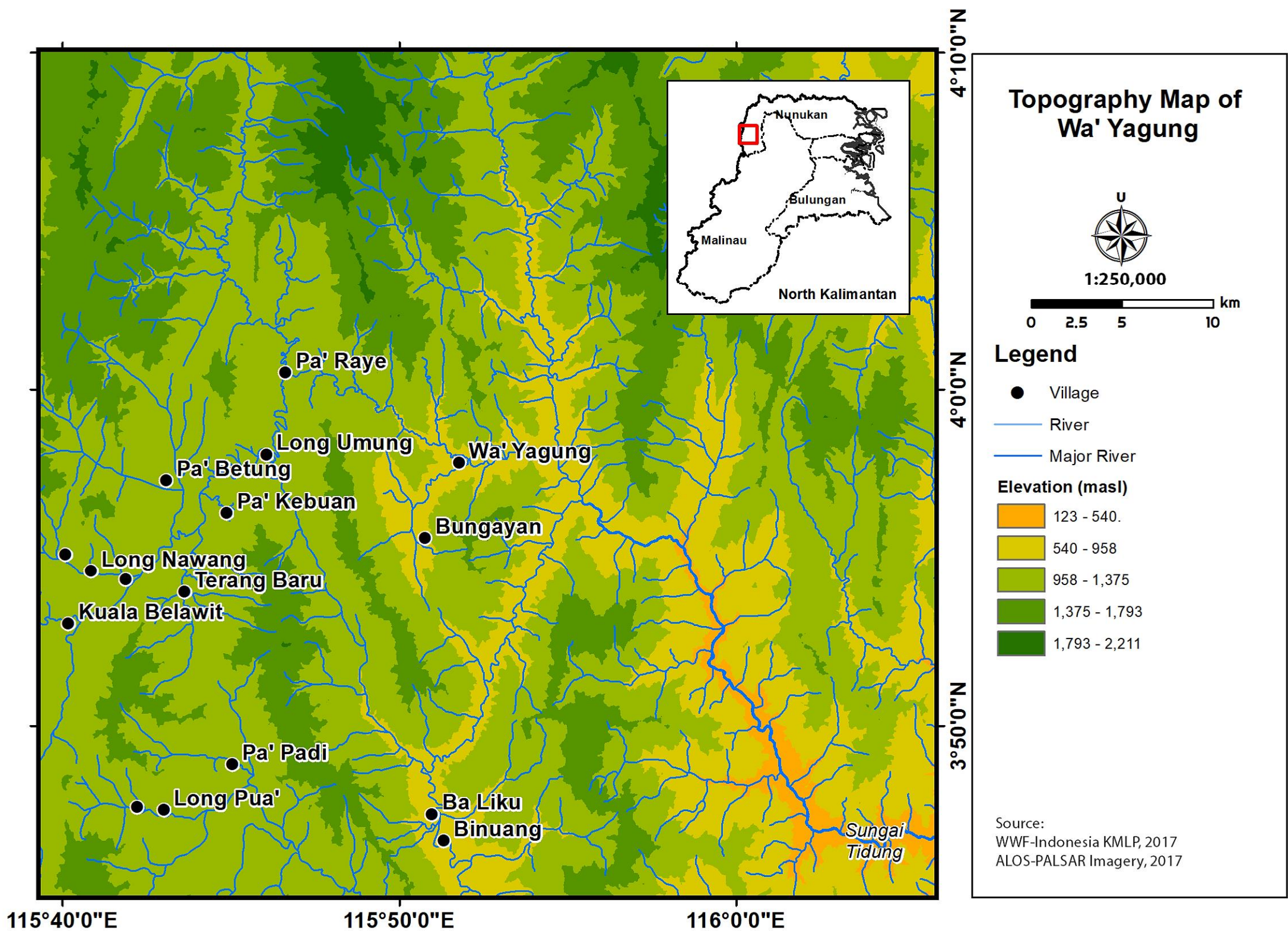
1:250,000



Legend

- Village
 - River
 - Major River
- Elevation (masl)**
- 242 - 618
 - 618 - 994
 - 994 - 1,370
 - 1,370 - 1,746
 - 1,746 - 2,123

Source:
WWF-Indonesia KMLP, 2017
ALOS-PALSAR Imagery, 2017



Kode	omc	Famili	Jenis
AP		Blechnaceae	Stenochlaena palustris (Burm.) Bedd.
AP		Arecaceae	Licuala spinosa Thunb.
AP	1	Dilleniaceae	Dillenia excelsa (Jack) Gilg
AP	10	Araceae	Typhonium trilobatum (L.) Schott
AP	11	Araceae	Alocasia sp.
AP	12	Marantaceae	Donax caniformis K.Schum.
AP	13	Selaginellaceae	Selaginella plana (Desv. Ex Poir.) Hierion
AP	14	Crassulaceae	Bryophyllum pinnatum (Lam.) Oken
AP	15	Ohagraceae	Jussieua linifolia Vahl
AP	16		
AP	17	Apocynaceae	Alstonia iwahigensis Elmer
AP	18	Phyllanthaceae	Glochidion sericeum (Blume) Zoll. & Mor.
AP	2	Loranthaceae	Scurrula cf. artopurpurea (Blume) Danser
AP	20	Menispermaceae	Fibraurea tinctoria Lour.
AP	22	Moraceae	Streblus sp.
AP	22	Moraceae	Streblus sp.
AP	23	Phyllanthaceae	Baccaurea lanceolata (Miq.) Muell.Arg.
AP	26		
AP	27	Rhamnaceae	Alphitonia excelsa (Fenzl) Reissek ex benth
AP	27	Euphorbiaceae	Macaranga costulata Pax & K.Hoffm.
AP	29		
AP	3	Fabaceae	Senna alata (L.) Roxb.
AP	3	Basellaceae	Basella alba L.
AP	32	Lamiaceae	Callicarpa cf. longifolia Lam.
AP	24	Arecaceae	Arenga pinnata (Wurmb) Merr.
AP	34	Rubiaceae	Aidia sp.
AP	35	Dilleniaceae	Dillenia excelsa (Jack) Gilg
AP	36	Achariaceae	Pangium edule Reinw.
AP	37	Proteaceae	Helicia sp.
AP	38	Cyperaceae	Mapania cf. cuspidata (Miq.) Uittien
AP	39		
AP	4	Myrtaceae	Syzygium tawahense (Korth.) Merr. & Perry
AP	40	Convolvulaceae	quamoclit L.
AP	41	Araceae	Typhonium trilobatum (L.) Schott
AP	42	Asteraceae	Blumea balsamifera DC.
AP	43	Schizaeaceae	Lygodium circinatum (Burm.f.)Sw.
AP	44		
AP	45	Poaceae	Paspalum conjugatum Berggr.
AP	5	Bixaceae	Bixa orellana L.
AP	6		
AP	7	Zingiberaceae	Etlingera sp.
AP	8	Piperaceae	Peperomia pellucida (L.) Kunth
AP	9	Acoraceae	Acorus calamus L.
W	412	Fabaceae	Spatholobus ferrugineus Benth.
W	432	Amaryllidaceae	Curculigo latifolia Dryand.
W	433	Phyllanthaceae	Glochidion obscurum (Roxb.ex Willd.) Blume
W	434	Labiatae	Hyptis capitata Jacq.

W	443	Asteraceae	Blumea balsamifera DC.
W	448	Apocynaceae	Hoya sp.
W	449	Primulaceae	Embelia sp.
W	453	Liliaceae	Smilax sp.
W	454	Menispermaceae	Pycnarrhena tumefacta Miers
W	49	Actinidiaceae	Saurauia glabra (Ruiz & Pav.) Soejarto
WAY	?	Malvaceae	Kleinhovia hospita L.
WY?	?	Rubiaceae	Hedyotis vestita G.Don
WY	1		
WY	10	Piperaceae	Piper sp.
WY	11	Gesneriaceae	Cryptandra sp.
WY	12	Fabaceae	Spatholobus ferrugineus Benth.
WY	13		
WY	14	Malvaceae	Hibiscus tiliaceus L.
WY	15	Moraceae	Ficus sp.
WY	16	Araceae	Homalomena sp.
WY	17	Cyperaceae	Fimbristylis globulosa Kth.
WY	18	Achariaceae	Pangium edule Reinw.
WY	19	Arecaceae	
WY	2	Primulaceae	Labisia pumila (Blume) Benth. & Hook.f.
WY	20	Malvaceae	Urena lobalata L.
WY	22	Fabaceae	Archidendron clypearia (Jack) I.C.Nielsen
WY	23		
WY	24	Lycopodiaceae	Lycopodium cernuum L
WY	25	Schizaeaceae	Lygodium circintaum (Burm.f.)Sw.
WY	26	Rhamnaceae	Ventilago sp.
WY	27	Piperaceae	Piper sp.
WY	28	Menispermaceae	Fibraurea tinctoria Lour.
WY	29	Vitaceae	Tetrastigma sp.
WY	3	Asteraceae	Blumea riparia (Bl.) DC.
WY	30		
WY	31	Zingiberaceae	Costus cf. specious (Koenig) Smith
WY	32	Amaryllidaceae	Curculigo latifolia Dryand.
WY	33	Phyllanthaceae	Glochidion obscurum (Roxb.ex Willd.) Blume
WY	34	Labiatae	Hyptis capitata Jacq.
WY	35		
WY	36	Fabaceae	Derris sp.
WY	37	Calophyllaceae	Callophyllum sp.
WY	38	Apocynaceae	Hoya sp.
WY	39	Vitaceae	Tetrastigma sp.
WY	40	Dioscoreaceae	Dioscorea sp.
WY	41	Passifloraceae	Passiflora foetida L.
WY	42	Piperaceae	Piper sp.
WY	43	Asteraceae	Blumea balsamifera DC.
WY	44	Lauraceae	Litsea cf. Cubeba (Lour.) Pers.
WY	44		
WY	45	Poaceae	Imperata cylindrica (L.) Beauv
WY	46	Arecaceae	Caryota mitis Lour.

WY	47	Zingiberaceae	Plagiostachys
WY	48	Primulaceae	Embelia sp.
WY	5	Melastomataceae	
WY	51	Euphorbiaceae	Macaranga hulletii King x Hook.f.
WY	51	Melastomataceae	Melastoma sp
WY	52	Euphorbiaceae	Macaranga costulata Pax & K.Hoffm..
WY	53	Liliaceae	Smilax sp.
WY	54	Menispermaceae	Pycnarrhena tumefacta Miers
WY	6	Acanthaceae	Gendarussa vulgaris Nees.
WY	7		
WY	8	Rosaceae	Rubus sp.
WY	9	Actinidaceae	Saurauia glabra (Ruiz & Pav.) Soejarto
?		Simaroubaceae	Eurycoma longifolia Jack
?		Simaroubaceae	Eurycoma longifolia Jack
?		Malvaceae	Urena lobalata L.
?			

Nama Lokal	
Paku bala	
Sang	
Kudip	
Upa tuduk	
Pa onglong	
Mejedung	
Salasui	
Cocor bebek	Kalanchoe pinnata (Lam.) Pers. Adalah sinonimnya
Klijai suncai	
Njau lutung lebar	
Njau lutung k	
Sleman Bala	
Pula suiita	
Aka acfit	
Nyilek	
Kelapeso	
Kayu bao	
Lengidan	
Bine	
Belengla	
Lidukip	
Lu'da	
Mata atuk	
Iman	
Lerganing	
Kutip	
Payang	
Kayu tembang	
T. Muldong	
Simang	
Larau li'bun	
Upa tuduk	
mbong	
Binja matatau	
Lidudlo	
Beleuda	
Balasua	
Balang	
Jaung lan	
Akelingai	
Timbeng	
Wai sia	
Tamar	

Ibpung	
Warperata	
	AP3 DOUBEL
Busakudan	
Akar tetaduh	
Limuan bakian	
Buyu bacca	
Tereb lubai	
Wai sia	
Ipang	
Daun bunga	
Lunuk	
Duli	
Siye	
Payang	
We keraruh	
War ubat	
Tageng bara	
Kayu keraruh	
Kayu bubpuk	
Pelio pade	
War eleng	
Peruay	
Daun buyu	
War birar	
War siri	
Tapak lina	
Temawar	
Silok	
Tamar	
Uber lai	
Ruyu ruma	
Apub bara	
Tebuyan	
Bitor	
War perata	
Warsiri buah bulat	
Peresang	
Bua ghawet	
Ibpung	
Buai tenem	
Uduh muhara/akar tetaduh	
Budud	
Riman laba	

Daun itip	
War pulir urat	
Udu lab	
Bina	
Sikeli guru	
Mini	
Bila serei	
Apa pulung	
Petuneb	
Tuer	
War serinit	
Teberecek	
Njau cupas	
Teneb luba	