

THE SUBGROUPING OF THE LANGUAGES OF BORNEO, AN OVERVIEW

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ABSTRACT

The classification of the languages of Borneo has been recently updated. New proposals from the dissertation *The languages of Borneo: a comprehensive classification* (Smith 2017a), building on earlier proposals by Blust, argue that the languages of Borneo are descended from a single proto-language and that this proto-language diversified into two primary branches on Borneo. This paper offers an overview of the dissertation, and focuses on some new proposals, specifically, the hypothesis of a Central Sarawak subgroup which includes Melanau, Kajang, Punan, and Müller-Schwaner, the hypothesis that the Barito languages form an innovation defined linkage, not a subgroup, that the Barito linkage and Basap form a larger Basap-Barito subgroup, and that there is a primary split in Land Dayak between Benyadu-Bekati' and Bidayuh-Southern Land Dayak. Other proposals from the dissertation which agree with previous publications are not discussed in detail, but a complete and updated family tree of the languages of Borneo is provided. Finally, the history of Central Sarawak languages, including their likely homeland along the Rejang river in Sarawak, is discussed in some detail.

1 INTRODUCTION¹

It is difficult to describe in concise language the linguistic profile of Borneo. It is an area of linguistic diversity, a hot-spot for linguistic change (Blust 2007a), a cross-roads for comparative linguistics (Adelaar 1995), and the historical phonology of some of its languages has been described as riotous (Blust 2001). However, despite the linguistic diversity found on the ground, it is well-known that the languages of Borneo² are entirely Malayo-Polynesian and that they form several well-defined subgroups. It has recently been suggested (Blust 2010) that all languages of Borneo are descended from a discrete proto-language, itself a subgroup within Malayo-Polynesian. The details of subgrouping in Borneo, however, have remained incomplete.

This paper is intended to present an overview of the most recent attempt at a truly island-wide classification of the languages of Borneo. It is based on Smith 2017a, *The languages of Borneo: a comprehensive classification*. The central claim is that the languages of Borneo are descended from a single proto-language, Proto-Western Indonesian (as suggested in Blust 2010), that two primary branches of Western Indonesian (WIN) are found on Borneo, and further, that

¹ This paper is an overview of the major subgrouping claims in my doctoral dissertation, *The languages of Borneo: a comprehensive classification* (Smith 2017a). I want to thank Robert Blust, for his guidance as I wrote the dissertation, the numerous language consultants who made that study possible, the Bilinski Foundation who funded my dissertation research, and an anonymous reviewer of this overview, who made several helpful suggestions on an earlier draft. Section three of this article is based largely on the introduction of the dissertation, and sections 4 and 5 combine several of the observations made in chapters 2, 3, and 4. Any oversights or errors are my responsibility, and the ultimate subgrouping arguments in this article do not differ in any way from those of the dissertation.

² "Languages of Borneo" is used here for what one might call the "indigenous" languages of Borneo. This includes Austronesian languages spoken exclusively on Borneo, plus Malagasy on the island of Madagascar (see Dahl 1951 for why Malagasy subgroups with the Barito languages of Borneo), the Sama-Bajaw languages found dispersed throughout Island Southeast Asia (Blust 2007b), and Malayo-Chamic and closely related languages which are found primarily to the west of Borneo. Languages of Borneo thus refers to linguistic classification and not to modern geographical distribution. As such, some Austronesian languages currently spoken in Borneo but more closely related to groups outside Borneo (see Tamanic in section 3.4.1 for example) are excluded.

the internal classification of these two subgroups can be straightforwardly worked out thanks to an increase in available data from field work undertaken between 2014 and 2016. During field work, 78 individual linguistic communities were studied throughout the island south of Sabah, with additional material on the languages of Sabah from Lobel (2016). The new classification includes the formation of a Central Sarawak subgroup, the Barito-as-a-linkage hypothesis, the linguistic position of Basap, and a new internal classification of Land Dayak.

The paper also discusses how linguistic classification can be used to make inferences about the homelands and recent migrations of various groups in Borneo. As it turns out, the linguistic history of the languages of Borneo complements various oral histories documented and published by anthropologists working in the area. This agreement between fields allows us to state with a high level of certainty both the homelands of every major group on Borneo and the nature of their subsequent migrations.

Because this is an overview, much of the finer details of the classification will not be presented. The paper also assumes basic knowledge of Bornean geography, the locations of major rivers, and major linguistic subgroups.

2 THE COMPARATIVE METHOD AND LINGUISTIC SUBGROUPING

The comparative method is a strict set of procedures by which historical linguists test and justify claims that similarities between two or more languages are inherited from a common ancestor and are not the product of chance, diffusion, or any other non-genetic means whereby two unrelated languages may seem similar. Further, the comparative method can be used within a language family to determine to what degree various languages are related to one another; i.e. linguistic subgrouping.

Language data, typically in the form of exclusively shared phonological innovations, is analyzed qualitatively in the comparative method. High-quality sound changes which provide evidence for a genetic relationship between two languages are more valuable than low-quality changes. In some cases, a single piece of high-quality evidence can override more quantitative data with which it disagrees. A linguist's inferences on "high-quality" and "low-quality" sound change are informed through a broad understanding of both synchronic and diachronic phonology, and more general knowledge about what is common and uncommon in phonological change. Qualitatively analyzed linguistic evidence suggests that Proto-Austronesian is the ancestral language of all Austronesian languages, that Proto-Malayo-Polynesian is a daughter language of Proto-Austronesian and the ancestor of all Austronesian languages outside Taiwan, that Proto-Western Indonesian is a daughter of Proto-Malayo-Polynesian and the common ancestor of all languages of Borneo, and so forth.

The inclusion of all languages outside of Taiwan in Malayo-Polynesian can be used to illustrate the use of sound change in a linguistic subgrouping argument. All Austronesian languages outside Taiwan show the merger of PAN *C with *t and *N with *n (Dahl 1973, Mills 1975). Tables one and two illustrates these mergers with data from the *Austronesian Comparative Dictionary* (Blust and Trussel ongoing). The tables illustrate that while Formosan³ languages generally maintain distinct reflexes of both *C and *t, and *n and *N, Malayo-

³ "Formosan" refers to the non-Malayo-Polynesian languages of Taiwan which themselves form several primary branches in Austronesian. Formosan is not a subgroup, as indicated by its appearance in italics in tables one and two. also note that Yami, a Batanic language in the Malayo-Polynesian subgroup, is spoken in Taiwan. It is the only Malayo-Polynesian language of Taiwan and is not included in the cover tern *Formosan*.

Polynesian languages do not. This in-turn suggests that the Malayo-Polynesian languages inherited these sound changes from a common ancestor i.e., Proto-Malayo-Polynesian.

Table 1

*Reflexes of PAN *n and *N in Formosan and Malayo-Polynesian languages*

		*danaw 'lake'	*panaq 'throw at target; shoot with bow'	*aNak 'child'	*aNay 'termite'
Formosan	Puyuma	danaw	panaʔ	alak	-
	Paiwan	djanaw	panaq	alʔak	-
	Pazeh	-	pa-pana	-	alay
Malayo-Polynesian	Itbayaten	ranaw	pana 'arrow'	anak	anay
	Tagalog	dánaw	pánaʔ 'arrow'	anáak	ánay
	Malay	danaw	panah 'archery'	anak	anay-anay
	Rotinese	dano	-	ma-anak	-
	Fijian	drano	vana	-	yane
	Tongan	ano	fana	-	ane
Samoan	lano	fana	-	ane	

Table 2

*Reflexes of PAN *C and *t in Formosan and Malayo-Polynesian languages*

		*batu 'stone'	*dataR 'flat'	*kuCu 'louse'	*maCa 'eye'
Formosan	Puyuma	-	datar 'village'	kuTu	maTa
	Saisiyat	bato	-	koso	masaʔ
	Thao	fatu	-	kucu	maca
	Tsou	fatu	-	ʔcuu	mcoo
Malayo-Polynesian	Itbayaten	vato	ratay	koto	mata
	Ilokano	bató	datár	kúto	matá
	Tagalog	bató	-	kúto	matá
	Malay	batu	datar	kutu	mata
	Fijian	vatu	-	kutu	mata
Hawaiian	pa-haku	-	ʔuku	maka	

These two mergers are not all that define the Malayo-Polynesian branch of Austronesian, but they illustrate nicely how historical linguists use exclusively shared innovations as the lynchpin of language classification based on qualitative evidence.

Linguistic subgroups may coincide with cultural or ethnic groups, but often do not. Throughout Southeast Asia and the Pacific, Austronesian languages are spoken by diverse ethnicities and cultures. In Borneo, there are several cases where linguistic subgroups do not match cultural groups. Two examples, Murik and Punan, are outlined below.

The Murik (Ngorek) language is spoken by a culturally Kenyah group along the Baram river in Sarawak, but is itself a Kayanic language (Blust 1974b, Smith 2017a, b), unintelligible to any speaker of a linguistically Kenyah language without prior knowledge of the Murik language. According to local testimony, however, the Murik language is a dialect of Kenyah. Similarly, the Penan and Sebop speak languages which are demonstrably part of the Kenyah subgroup (Smith 2015a, b) but are excluded by many Kenyah from the Kenyah cultural group.

Punan provides a second example. Like Kenyah, the linguistically defined Punan subgroup excludes the languages of several groups which either refer to themselves a Punan, or are called Punan by outsiders. For example, the Kelai language of Berau, East Kalimantan, is spoken by a group of people who are called Punan. The language, however, is part of the Segai group, itself part of the larger Segai-Modang group, which is part of the still larger Kayanic group (Smith 2017a). Speakers of Müller-Schwanner languages often refer to themselves as Punan, although the term is not favored by some speakers of Aoheng and Seputan who I worked with. Speakers of Siang, a Barito language spoken in the upper Barito river, are referred by downriver speakers as Punan, because of their association with upriver forest-dwellers. In this paper I use the term Punan in a purely linguistic sense, and a statement like “the Punan speak a single language” should not be misinterpreted as claiming that Punan Kelai, Punan Siang, or Aoheng speak the same language. Rather, only dialects which belong to the linguistically defined Punan subgroup are mutually intelligible.

As the two above examples show, linguistic subgrouping may at times produce results which differ from local testimony and from anthropological studies. Communities of a single cultural group may speak unrelated languages, and vis versa. However, as section 5 of this paper attempts to show, there are cases in Borneo where the linguistic evidence and anthropological evidence agree with regard to homelands and population movement.

3 PROPOSALS IN THE SUBGROUPING OF BORNEAN LANGUAGES.

The history of linguistic scholarship in Borneo has produced an impressive catalog of studies. Blust and Smith (2014) provide a recent bibliography summarizing works on the languages of Borneo (and Madagascar). Studies which propose an inclusive subgrouping hypothesis of all languages of Borneo, however, are far fewer. Hudson’s 1978 classification has been widely cited, while Ray (1913) provides perhaps the earliest and Blust (2010) the most recent attempts at an island-wide classification. The *Ethnologue* (Simons and Fennig 2017), which represents an amalgamation of various other works, provides another modern subgrouping hypothesis which is itself subject to regular updates.

In this section, I briefly outline the subgroup proposals of Hudson (1978) and Blust (2010). I then summarize areas of general agreement and disagreement concerning linguistic subgroups in Borneo. Finally, both are compared to the subgrouping hypothesis of Smith (2017a).

3.1 Borneo subgrouping according to Hudson (1978)

Hudson’s major classification of the languages of Borneo was based largely on numeral data (one through ten) for most language groups on the island. He split Bornean languages into two main groups, Exo-Bornean and Endo-Bornean. Exo-Bornean groups (Malayic, Idahan, and Tamanic) are said to have no special relationship to one another, and are said to have originated from outside Borneo. Endo-Bornean (East Barito, West Barito, Barito-Mahakam, Land Dayak, Apo Duat, Rejang-Baram, and Kayan-Kenyah) are said to be indigenous.

Figure 1

Subgrouping of Languages of Borneo according to Hudson (1978)

EXO-BORNEAN

1. MALAYIC

Malay, Iban, Other Malayic Dayak⁴

2. IDAHAN
 - a. Murut-Tidong
 - b. Dusun-Bisaya
3. TAMANIC
Taman, Kalis, Pari, Mbaloh

ENDO-BORNEAN (Seven equidistant groups, East Barito, West Barito, Barito-Mahakam, Land Dayak, Apo Duat, Rejang-Baram, and Kayan-Kenyah)

1. EAST BARITO
 - a. Northeast Barito
 - b. Southeast Barito
2. WEST BARITO
 - a. Southwest Barito
 - b. Northwest Barito
3. BARITO-MAHAKAM
Tunjung, Ampanang
4. LAND DAYAK
5. APO DUAT (Dayic in Blust 2010)
 - a. Kelabitic
 - b. Lun Dayeh
6. REJANG-BARAM
 - a. Baram-Tinjar
 - i. Lelak-Miri
 - ii. Belait Jati-Long Kiput
 - iii. Tutong
 - iv. Berawan-Long Pata
 - b. Rejang-Bintulu
 - i. Bintulu
 - ii. Lahanan
 - iii. Kajaman-Sekapan
 - iv. Bukutan-Sru
 - c. Lower Rejang
 - i. Melanau
 - ii. Kanowit
 - iii. Tanjong
 - d. Rejang-Sajau
 - i. Punan Bah-Punan Biau
 - ii. Punan Merap
 - iii. Sajau Basap
7. KAYAN-KENYAH
 - a. Kenyah
 - b. Punan-Nibong
 - c. Kayanic

⁴ Hudson used the term “Malayic Dayak” but the term itself is not linguistically valid, and should not be interpreted as a valid subgroup. The true classification of “Malayic Dayak” remains largely up in the air.

Much of Hudson's proposal has been updated and improved upon thanks to larger data sets and careful methods. Malayic and Idahan are no longer considered "exo-Bornean", although Tamanic likely forms a subgroup with South Sulawesi. The Rejang-Baram subgroup is considered invalid in this paper, although it still gets referenced in some specialist works (Adelaar 1995, Guerreiro 2015, Simons and Fennig 2017). In all, however, Hudson's proposals are largely done away with in Blust (2010) and Smith (2017a).

3.2 Borneo Subgrouping according to Blust (2010)

The subgrouping in Blust (2010) is a major departure from Hudson's earlier work, and is the culmination of decades of additional research (Adelaar 1992, 2005, Thurgood 1999, Blust 1974a, 1998, Prentice 1971, Smith 1984, King 1984, Spitzack 1984). The major original contributions of this study are i) the Western Indonesian group, which is said to include all languages of Borneo plus all Austronesian languages of western Island Southeast Asia, excluding the languages of Sulawesi, ii) the Greater North Borneo subgroup which consists of all languages of Borneo excluding Barito, but includes Malayo-Chamic, Sundanese, Moken, and Rejang to the west of Borneo. Barito languages were said to constitute a separate primary branch of Western Indonesian.

Figure 2

Subgrouping of Languages of Borneo according to Blust (2010)

WESTERN INDONESIAN

1. GREATER NORTH BORNEO

- a. North Borneo
 - i. Southwest Sabah
 - ii. Northeast Sabah
 - iii. North Sarawak
- b. Kayanic
 - i. Kayan
 - ii. Murik
 - iii. Modang
- c. Melanau
- d. Kajang
- e. Bidayuh
- f. Malayo-Chamic
- g. Other
 - Sundanese, Moken, Moklen, Rejang

2. GREATER BARITO (based on Hudson 1978, with the addition of Sama-Bajaw after Blust 2007b)

- a. Barito-Mahakam
- b. East Barito
- c. Sama-Bajau
- d. West Barito

3. All languages in western Malaysia and Indonesia excluding Sulawesi.

3.3 Areas of agreement and disagreement in the subgrouping of the languages of Borneo.

Hudson (1978) and Blust (2010) are certainly not the only works which deal with linguistic subgrouping in Borneo. They are, however, important in their scope. Beyond these two studies, countless smaller, more focused studies have classified various languages and language groups in Borneo, and this section is intended to show where there is broad agreement, and where there is not. The basic number and composition of subgroups in Borneo are, for the most part, widely accepted. Below, a brief list of subgroups with broad support are listed. This section (as well as 3.4 below) include opinions from a range of studies from with varied methodologies.

3.3.1 Malayic

The Malayic subgroup includes Malay (outside Borneo), Iban, Kendayan (including Selako), Mualang, Seberuang, Keninjal, various Malay dialects, and the “Malayic Dayak” languages found mostly in West Kalimantan. The exact composition of Malayic, especially when including languages spoken outside of Borneo, is a matter of some debate, but there is general agreement on which languages in Borneo are part of the subgroup (Adelaar 1992a, b, 2004 and Blust 1994, 2010, Hudson 1978, Nothofer 1988). More broadly, Malayic and Chamic are grouped into a Malayo-Chamic subgroup and Proto-Malayo-Chamic itself was likely spoken in western Borneo.

3.3.2 Kenyah

The Kenyah subgroup is concentrated along the upper Baram river in Sarawak, and throughout the highlands of East and North Kalimantan. The exact composition of Kenyah, however, has been the topic of some debate. Blust (1974a, 2010) and Smith (2015a, 2015b, 2017a) include Sebop, Penan, and all groups that identify as Kenyah, (excluding Murik after Blust 1974b) into a linguistically defined Kenyah subgroup. Soriente (2003) places several of these languages in the Kayanic group (Lebo Vo, Uma Pawe, Lebo Kulit) and places Sebop and Penan in their own group outside of Kenyah. Hudson (1978) also included a Kayan-Kenyah subgroup. In this paper, it is assumed that Kenyah does not subgroup immediately with Kayanic, and that Kenyah includes those languages outlined in Smith (2015a, b, 2017a).

3.3.4 Kayanic

Kayanic includes the mostly homogenous Kayan languages of the Baram and Rejang river in Sarawak, and the upper Mahakam and Kayan river in East and North Kalimantan plus Murik (Ngorek) and Merap (Smith 2017b). Long Gelat, Modang, and Segai are included in the Kayanic group, although they bear few superficial similarities with other Kayanic languages. Before Smith (2017a) no study had critically assessed the validity of a large Kayanic subgroup and the position of Segai and Modang within that subgroup (but see Guerreiro 1996 for some earlier insights).

3.3.5 Müller-Schwaner

There is a group of languages in the farthest reaches of the Kapuas and Mahakam rivers sometimes referred to as Müller-Schwaner Punan that includes Aoheng, Seputan, Hovongan, and Kereho (Sellato 1980, 1981, 1982, 1986, 1994). This group is unique among languages in Borneo in having a gender distinction in the third person pronouns.

3.3.6 Dayic

Dayic (also called Kelabit-Lun Dayeh or Apo Duat) includes Kelabit dialects in and around the Kelabit Highlands in Sarawak and adjacent highlands in North Kalimantan as well as Lun Dayeh or Lun Bawang dialects, spoken farther north in Sarawak, Kalimantan, and Sabah (Blust 1974a, 2006, 2010, Hudson 1978). The phonologically aberrant language Sa'ban is also included in this subgroup (Blust 2001).

3.3.7 Berawan-Lower Baram.

Berawan includes the Berawan languages of the lower Tinjar and more loosely several Lower Baram river languages including Kiput, Miri, and Narum (Blust 1974, 2000a, 2002b, 2003, Burkhardt 2014, 2016). Although it is generally agreed that these languages form a subgroup, there is less agreement on their wider position. Note that Hudson includes these languages in a much larger, Rejang-Baram subgroup. That group, however, is considered invalid here.

3.3.8 Melanau

Melanau languages are found along the coastal areas of central Sarawak, around Sibuh and generally south of Bintulu (Chou 2002, Rensch 2012). Some Melanau dialects are found farther up the Rejang river (Kanowit and Tanjong). Bintulu, a North Sarawak language spoken in and around the town of Bintulu is sometimes included in Melanau, but this is not supported by linguistic evidence.

3.3.9 Kajang

Kajang languages are spoken in the upper Rejang, including Kejaman, Sekapan, and Lahanan. The Kajang label is often applied to communities that do not speak Kajang languages, including the Punan dialects of the upper Rejang, which are more closely related to other Punan dialects in Kalimantan than they are to Kajang.

3.3.10 Land Dayak

Land Dayak (known collectively as Bidayuh in Sarawak, but not in Kalimantan) is spoken on both sides of the West Kalimantan-Sarawak border (Rensch et al 2012). This includes the Bidayuh and several groups of west Kalimantan, including the Bekati', Benyadu, Sanggau, Jangkang, Golik, and Ribun. Kendayan and Selako are sometimes grouped together with Land Dayak (Cense and Uhlenbeck 1958 for example), although historical linguists familiar with these languages generally include them in Malayic (Adelaar 1992b, Hudson 1970).

3.3.11 Barito

Barito includes most of the languages of the central and western areas of Central Kalimantan, western East Kalimantan, Malagasy dialects of Madagascar (Dahl 1951), and the numerous Sama-Bajaw groups found in small dispersed communities in the Sulu Archipelago, coastal Sulawesi, parts of coastal Borneo, and coastal areas in the Lesser Sunda Islands (Blust 2007b). In Borneo, the Barito languages dominate the entire stretch of the Barito river, for which they are named, as well as the Kapuas, Kahayan, Rungan, and Sampit rivers to the west. Barito languages also occupy most of the interior lands between the Barito and Mahakam rivers.

3.3.12 Sabah

The languages of Sabah are typically split into a Southwest and Northeast group (Lobel 2013, Blust 1998, 2010). Southwest Sabah is by far the larger of the two, and covers almost all of present day Sabah. Northeast Sabah, after Blust (2010) is less widely accepted. Lobel maintains that Bonggi forms a subgroup with Molbog, but does not take a position on what this means for the Northeast Sabah group as a whole. Smith (2017a) places Molbog in the Greater Central Philippine group, and Bonggi with Ikaan in the Northeast Sabah group.

3.4 AREAS OF DISAGREEMENT

While the basic subgroups are mostly agreed upon, there is much more disagreement regarding the details of higher-order subgrouping in Borneo, and how the various subgroups relate to one another. The following section highlights some of the more important areas of disagreement.

3.4.1 Tamanic

Historically, there have been two major theories of Tamanic classification. Early studies on Tamanic (von Kessel 1850) made note of similarities between these languages and Makassarese (of the South Sulawesi subgroup) and Hudson (1978) classified Tamanic as Exo-Bornean, indicating that it is not closely related to any Bornean language. However, Tamanic has at times been placed in Malayic, generally on lexical grounds (Blust 1981, Nothofer 1988), or in Malayo-Chamic (Blust 1988). As this paper deals specifically with the languages of Borneo as a genetic unit, it is important to determine the position of Tamanic as either subgrouping immediately with other languages of Borneo or with South Sulawesi, a subgroup with no historical presence on the island. Adelaar (1994) contains a thorough overview of both arguments and organizes Tamanic and South Sulawesi data to convincingly show that Tamanic languages do in fact subgroup with South Sulawesi. Perhaps the most convincing evidence is reflexes of PMP *j, which Buginese (South Sulawesi) and Tamanic both reflect as *s* (PMP *pajay ‘rice in the field’, Embaloh (Tamanic) *ase*, Buginese *ase*, but PWIN *paday, PMP *(ŋ)ajan ‘name’, Embaloh *asan*, Buginese *asəŋ*, but PWIN *ŋadan). In contrast, all languages of Borneo merged *j with *d, a change which can likely be reconstructed to the common ancestor of all languages of Borneo. Another convincing piece of evidence for subgrouping Tamanic with South Sulawesi is the irregular deletion of word-initial *p in a specific set of words. Reflexes of *pajay above show this change, as do reflexes of PMP *pusuq ‘heart; banana tree blossom’ in Embaloh *uso?* and Buginese *uso*. This evidence alone suggests that Tamanic languages originate from South Sulawesi, not Borneo. Although speakers of Tamanic languages self-identify as Dayak, and are culturally similar to other upriver people in Borneo, for the purposes of linguistic classification a distinction between Tamanic and South Sulawesi on the one hand, and other languages of Borneo on the other, must be maintained. For more on the linguistic position of Tamanic, the reader is referred to Adelaar 1994.

3.4.2 Kayan-Kenyah

Hudson (1978), Soriente (2003, 2006a, 2006b, 2008, 2010, 2013), and Ethnologue (Simons and Fennig 2017) subgroup Kayanic languages with Kenyah, arguing for a Kayan-Kenyah subgroup. Smith (2015a) argued specifically against a Kayan-Kenyah group, citing a lack of strong evidence, and weaknesses in the proposed exclusively shared sound changes from Soriente (2003, 2008). Hudson’s Kayan-Kenyah subgroup is unique as it has no special relationship to the other languages of the Baram river, including Kelabit, Berawan, and the Lower Baram languages, effectively denying North Sarawak.

3.4.3 Müller-Schwaner and Kayan

Hudson (1978) placed the Müller-Schwaner Punan languages in the Kayanic branch of this Kayan-Kenyah group, where Penihing (Aoheng) and Seputan are listed under Long Paka' Kayan-Penyabung, which is itself listed under Kayanic. Ethnologue has followed suit, although Sellato and Soriente (2015:350) do not claim that the Müller-Schwaner languages subgroup with Kayan. Rather, they claim that the languages have been heavily relexified but are ultimately “rooted in an old Western Borneo linguistic substratum”, although the source and nature of this substratum are not clear.

3.4.4 North Sarawak

The North Sarawak group is defined phonologically by a single sound change; the development of a distinct series of stops that begin voiced and end voiceless (b^h , d^h , j^h , and g^h) and are retained in certain Kelabit and Lun Dayeh dialects (Blust 1974, 2006). Ethnologue lists a North Sarawak group, as does Soriente (2008), although both models have modified Blust's original proposal by placing Kayanic languages inside the North Sarawak group, a hypothesis that Blust (2010) and Smith (2015a) claim lacks supporting evidence. North Sarawak contains Kenyah, Kelabit-Lun Dayeh, Berawan-Lower Baram, and Bintulu (as an isolate within North Sarawak). Hudson (1978) dismantles North Sarawak, placing Bintulu and Berawan-Lower Baram in the same Rejang-Baram group, but placing Dayic (Apo Duat) and Kenyah in two separate subgroups.

3.4.5 Punan

There is wide disagreement on the classification of “Punan”. Blust (2010) does not address the subgroup for lack of data. Hudson (1978) created a misleading subgroup “Punan-Nibong” which consists of several so-called Punan languages. The data that he provides, however, suggests that they are Penan, not Punan. For example, Hudson lists *tujak* ‘seven’ for Punan Gang, a mishearing of Western Penan *tujək* ‘seven’. Actual Punan languages in Hudson's classification are split between two groups, some appear in his Rejang-Bintulu subgroup and others in his Rejang-Sajau group. His reasons for doing so are a small set of shared lexical innovations in Rejang-Sajau, and the presence of glide fortition in Rejang-Bintulu (both of which are shown to be insignificant for subgrouping in Smith 2017a). The Ethnologue classification splits Punan dialects into three separate subgroups: Müller-Schwaner Punan (part of Kayanic), Rejang-Sajau, and Punan Tubu, which is grouped as an isolate within North Sarawak. Blust (2015:204) provides a recent statement on the classification of Punan, although he does so as a side note. There, Blust suggests that Bukitan, Ukit, Punan Ba, Punan Batu, Punan Busang, and Punan Sajau form a subgroup which excludes the Penan (which Hudson mislabeled Punan). This classification, based on limited data, is the most consistent with Smith (2017a)

3.4.6 East and North Kalimantan

There is a lack of available data for languages of this area (with the exception of Kenyah and Kayan, which are better documented in general). East and North Kalimantan include the Mahakam river and its large tributaries, the Segah and Kelay rivers, the Kayan river and its numerous tributaries, and the Sesayap river and its upper tributaries the Tubu and Malinau. Many disagreements which involve this area of the island are thus partially the result of a lack of data. Although the available data sets for this part of the island are now more complete than ever before, East and North Kalimantan remain in need of broad linguistic documentation.

3.5 Summary of Linguistic Classification in Borneo

The above list of agreements and disagreements is meant to put the following family tree (from Smith 2017a) into perspective. In some respects, it is similar to that proposed in Blust (2010). It places all languages of Borneo into a single Western Indonesian subgroup and the evidence for such a subgroup has been improved upon and expanded. Western Indonesian is represented by two primary branches on Borneo, Greater North Borneo and Barito (again, with expanded and updated evidence). Also, the North Borneo subgroup remains similar to that proposed in Blust 2010. Significant changes, however, are found in the remaining subgroups. Blust (2010) and Hudson (1978) did not include a Central Sarawak subgroup. Blust did not have much to say about the classification of Punan and Müller-Schwaner, and although Hudson did provide a hypothesis on the linguistic position of these languages, the proposal below is markedly different. The Kayanic subgroup was represented almost exclusively by Kayan in both works. Segai-Modang did not factor into their proposals, but is robustly represented in Smith (2017a). Blust did not address the internal classification of Land Dayak, but Rensch et al (2012) published a large classification of these languages two years later. The proposal below differs from Rensch et al in fundamental ways. Finally, Blust (2010) did not include information on the Basap languages, which I have argued are linked with Barito. Furthermore, the Barito languages themselves are shown in Smith (2017a, c, to appear) to form an innovation defined linkage (thus named the Greater Barito Linkage), not a traditional subgroup.

Figure 3

The Classification of languages of Borneo after Smith (2017a)

WESTERN INDONESIAN

- a. Greater North Borneo
 - i. North Borneo
 - Northeast Sabah
 - Southwest Sabah
 - North Sarawak
 - ii. Central Sarawak
 - Melanau
 - Kajang
 - Punan-Müller-Schwaner
 - iii. Kayanic
 - Kayan-Murik (and Merap)
 - Segai-Modang
 - iv. Land Dayak
 - Benyadu-Bekati'
 - Bidayuh-Southern Land Dayak
 - v. Malayic
 - Malay, Chamic, Ibanic, Kendayan
- b. Basap-Barito
 - i. Greater Barito Linkage
 - ii. Basap
- c. *Other languages of western Indonesia*

The above family tree is the most current, and is based on that found in Smith (2017a) where the tree includes every language found in each subgroup. Some of the more important changes are discussed in more detail below, and a larger tree with the placement of every language discussed in Smith (2017a) can be found in the appendix.

4 A CLOSER LOOK

As already noted, Smith 2017a does not completely dismantle previous proposals on the linguistic subgrouping of Bornean languages. The composition and interrelatedness of North Borneo remains more-or-less unchanged from Blust 2010. The Malayic subgroup was not altered in any serious manner from that of Adelaar (1992a). Kayanic also remained essentially unchanged from Blust (1974a, b, 2010), although a linguistic justification for including Segai-Modang in this group was provided for the first time. Some subgroups, however, were altered dramatically, while others appear for the first time. In the section below I summarize the more important changes, including the formation of a Central Sarawak subgroup, the Basap-Barito hypothesis, the Barito linkage hypothesis, and a re-evaluation of Land Dayak (Bidayuh) internal subgrouping.

4.1 Central Sarawak

Central Sarawak is a loosely related group of languages spread throughout the Rejang river and parts of the farthest reaches of the Kapuas and Mahakam river in West and East Kalimantan. Four groups make up Central Sarawak: Melanau, Kajang, Punan, and Müller-Schwaner. Internal subgrouping of Central Sarawak supports a Punan-Müller-Schwaner group, but not a Melanau-Kajang group. Evidence for Central Sarawak is organized into lexical replacement innovations and irregular sound changes. The justifications for each proposed innovation are listed in detail in Smith 2017a.

Perhaps the most important piece of evidence for Central Sarawak is the irregular raising of *a in a single word, Proto-Central Sarawak *tikaw/manikaw ‘to steal’, from Proto-Malayo-Polynesian *takaw/manakaw ‘to steal’. Central Sarawak languages typically reflect *a unchanged in the penultimate syllable. Reflexes of ‘to steal’ are the only cases where *a became *i, and moreover, no other group of languages in the Austronesian family are known to have raised and fronted *a to *i in this word only. This irregular sound change thus provides powerful evidence for the Central Sarawak subgroup.

1)

- | | |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Melanau: | Mukah <i>tikaw/mənikaw</i> , Dalat <i>mənikaw</i> , Kanowit <i>nikaw</i> , Sarikei <i>mənikaw</i> . |
| Kajang: | Sekapan <i>mənikaw</i> , Kejaman <i>nikaw</i> , Lahanan <i>nikaw</i> . |
| Punan: | Punan Bah <i>mañikuow</i> , Punan Lisum <i>niko</i> , Punan Tubu <i>nikow</i> , Punan Aput <i>nikow</i> , Beketan <i>nikow</i> , Ukit <i>niko</i> , Buket <i>niko</i> . |
| Müller-Schwaner: | Kereho <i>niku</i> , Hovongan <i>niko</i> , Seputan <i>niku</i> , Aoheng <i>niku</i> . |

In addition to this irregular change, there are numerous lexical replacement innovations which define the subgroup. Rather than defend the reconstruction of each innovation, I will list the most important here, and refer to the reader to Smith (2017a) for evidence from individual Central Sarawak languages.

2)

PMP⁵ *ibəR > PCS *əliŋ ‘saliva’

PMP *manuk > PCS *siaw ‘chicken’

PGNB⁶ *alud > *PCS saluy ‘canoe’

PWIN *qulun > PCS *linaw ‘person’

PMP *bəRsay > PCS *pəla ‘paddle’.

4.1.1 Central Sarawak internal subgrouping

Smith 2017a provides the following internal classification of Central Sarawak. It places Melanau and Kajang in separate groups, but recognizes a subgrouping relationship between Punan and Müller-Schwaner within Central Sarawak.

Figure 4

Internal subgrouping of Central Sarawak

CENTRAL SARAWAK

1. Melanau (Mukah, Dalat, Balingian, Daro, Sarikei, Kanowit)
2. Kajang (Sekapan, Lahanan, Kajaman)
3. Punan-Müller-Schwaner
 - a. Punan
 - i. Tubu-Bah (Punan Bah, Punan Biah, Punan Tubu, Sajau, Latti)
 - ii. Punan (Punan Lisum, Punan Aput Beketan, Ukit, Buket)
 - iii. Sru
 - b. Müller-Schwaner (Kereho, Hovongan, Aoheng (Penihing), Seputan)

As noted in Smith (2017a) the evidence for Central Sarawak lacks phonological innovations, but irregular sound changes, like that found in PCS *manikaw ‘to steal’ have the potential to provide strong evidence. It would be inappropriate to assume that *a irregularly became *i in unrelated sound changes, in these languages only, and nowhere else in the Austronesian family. The larger list of lexical replacement innovations adds to the argument that these languages form an exclusive genetic unit. Furthermore, recent migrations of Iban and Kayan into the Rejang have had a major linguistic impact, and it should come as no surprise that Central Sarawak languages remain difficult to analyze.

4.1.2 Sru Dayak

In 1963, the Borneo Literature Bureau published *The Sea Dayaks and other races of Sarawak*, which contained a short vocabulary by D.J.S. Bailey (Bailey 1963) of 170 items on a language spoken by the “Sru Dayaks”. The article provides little linguistic information and since the publication of that document, the Sru Dayak have been completely overrun by Iban and their language is no longer spoken. From that short list, however, several lexical items stand out, and appear to be cognate with a number of items in Punan, particularly Beketan and Punan Lisum. The full list is given below.

Figure 5

Lexical evidence for including Sru Dayak in the Punan subgroup

⁵ Proto-Malayo-Polynesian

⁶ Proto-Greater North Borneo

Sru	Punan
<i>a</i> ‘man; human being’	<i>aʔ</i> (Punan Tubu)
<i>tabun</i> ‘snake’	<i>təvun</i> (Punan Aput)
<i>kəboh</i> ‘die’	<i>kəvo</i> (Proto-Central Sarawak *kəbəs)
<i>bila</i> ‘river’	<i>bilaʔ</i> (Beketan)
<i>tugaw</i> ‘tooth’	<i>tuku</i> (Seputan, note there is a regular g : k correspondence.)
<i>tura</i> ‘stomach’	<i>toraʔ</i> (Punan Lisum, Buket)
<i>labo</i> ‘back’	<i>lavoʔ</i> (Punan Lisum, Beketan)
<i>komo</i> ‘to eat’	<i>kamoʔ</i> (Punan Lisum, Beketan)
<i>kroŋo</i> ‘to hear’	<i>kəriŋo</i> (Punan Lisum, Beketan)

Little else can be said about the Sru. The detailed phonetics of the language are impossible to extract from the wordlist. At the very least, however, we are now able to state with a fair amount of certainty that the Sru spoke a Punan language.

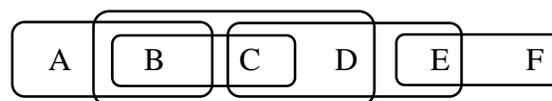
4.2 Barito and Basap

The classification of Barito languages has also received major updates. Two proposals are found in Smith (2017a, 2017c, to appear) which claim that 1) Barito languages form an innovation defined linkage, not a traditional subgroup, and 2) the Basap languages/dialects of East Kalimantan form a larger Basap-Barito group which stretched from the Barito river in the south, to the Berau regency in northern East Kalimantan, before being severed by the migration of Kayanic speaking people out of the central highlands into much of present day East Kalimantan.

4.2.1 Subgroups and linkages

Subgroups are linguistically defined by exclusively shared phonological innovations which are inherited among daughter languages from a single ancestral proto-language. A linkage, however, refers to a group of languages which are more related to each other than any other language, but cannot be grouped together by exclusively shared phonological innovations. A linkage is instead defined by a set of innovations which are present in many but not all languages (Ross 1988:8). Linkages are assumed to have formed through the slow differentiation of dialects in a wider network or chain, not from the sharp separation of one group from the larger community, as is assumed with the subgroup model. The distribution of sound changes in a linkage is visualized below in a figure from Smith (to appear), with all member languages united by sound changes that do not occur in every member, and with no internal separation.

Figure 6
Visualization of the distribution of sound changes in a linkage



4.2.2 Barito as a linkage

To briefly review the classification of Barito, Hudson (1967) proposed three subgroups in a larger Barito “family”, Barito-Mahakam (Tunjung), West Barito (Bakumpai, Kapuas, Ngaju dialects, Kadorih, Siang, Murung), and East Barito (Maanyan, Malagasy, Dusun Witu, Dusung Malang, Taboyan, Benuaq, Lawangan, Bentian, Paser). Blust (2007b) argued on lexical grounds that the Sama-Bajaw languages must be included in a larger “Greater Barito” subgroup. This view is endorsed by the *Ethnologue* (Simons and Fennig 2017), which incorporates Sama-Bajaw into their Greater Barito classification in a fourth node, equidistant from West Barito, East Barito, and Barito-Mahakam. Durasid (1980/1981) has attempted to reconstruct the phonology of Proto-Barito.

There is far too much data to get into here, but Smith (to appear) contains a detailed description and analysis of the evidence for both a Barito linkage and a larger Basap-Barito group. It was found that relevant sound changes of high quality are dispersed throughout the Barito languages. No single high-quality sound change is found in all Barito languages, and the sound changes that are found are spread in such a way that no non-arbitrary line can be drawn separating one group from another. The result is that sound changes form a step-ladder distribution when plotted on a table (table 1 below, with a plus sign “+” indicating the presence of a sound change). This distribution suggests a linkage relationship between these languages.

Table 3
Step-ladder distribution of sound changes in Barito

	NWB ⁷	SWB	Yakan	SEB	C-EB	NEB	Tunjung
*R > h	+	+	+				+
*ə > e		+	+	+	+		
*z > *d > (r)			+	+	+	+	
*-R > -y				+ ⁸	+	+	
*-b > -w					+	+	+
*-d > -r		+				+	+
*-l > -r						+	+
*d- > r-				+	+		+
*b- > w-				+	+		

As the above table makes clear, Barito languages form a linkage, not a subgroup. Malagasy subgroups with the Southeast Barito languages, and Sama-Bajaw appears to be between Southwest and Southeast Barito.

4.2.3 Basap and Barito

As noted earlier, Smith (2017a, c, to appear) also proposes linking Basap with Barito, in a Basap-Barito group. The evidence for this connection is lexical, and I will attempt to summarize the

⁷ NWB = Northwest Barito, SWB = Southwest Barito, SEB = Southeast Barito, Central-East Barito, NEB = Northeast Barito, and Tunjung represents Hudson’s Barito-Mahakam (B-M) group. Note that Malagasy is included in SEB following Dahl (1951).

⁸ An anonymous reviewer points out that the sound change *-R > *-y in Malagasy is only observable at morpheme boundaries, where *-y is reflected as z. Elsewhere, it has deleted in final position (see Adelaar 1989 and Dahl 1973 for more). Note that *-y- became -z- regularly in intervocalic position. Thus, *-R became *-y, then with suffixation *-y became -z-, but Ø where no suffixation took place.

argument here. Basap is currently spoken by small groups dispersed throughout the Berau area of East Kalimantan. Guerreiro (2015) provides some maps showing the location of various Basap groups, but it is important to make clear a distinction between Sajau/Latti and Basap “proper”. Sajau and Latti are spoken to the north of Berau regency, in North Kalimantan, and are sometimes referred to as Sajau Basap, or Latti Basap. Hudson (1978) lists Basap in a Rejang-Sajau group, because of apparent similarities in the lexicon of Sajau and some Punan languages to the west. Guerreiro (2015) follows suit, and includes Sajau and Latti in Basap with a link between Basap and languages in Sarawak. Sajau and Latti are, however, dialects of Punan. They belong to the larger Central Sarawak subgroup, and have no special relationship to Basap. They have been grouped together with Basap because of a cultural-linguistic mismatch (like the Murik of Sarawak). Evidence linking Sajau and Latti to Punan, but not Basap, can be found in Smith (to appear). When Basap and Barito are said to form an exclusive group, this does not include Sajau or Latti.

Borneo is home to two primary branches of Western-Indonesian, Greater North Borneo and Barito, so Basap must logically either 1) constitute its own primary branch, 2) subgroup with a language outside Borneo, 3) subgroup with Greater North Borneo, or 4) subgroup with Barito. Possibilities 1 and 2 are not supported by evidence. There are, however, conflicting data sets which appear to support both 3 and 4. This evidence is a list of GNB lexical innovations which are found in Basap and thus suggest that Basap group with GNB, and a list of Basap-Barito lexical innovations which suggests that Basap subgroups with Barito. Both pieces of evidence are listed in Table 4 below, with more detail in Smith (2017a, to appear). Without going into too much detail, the fact that Basap is today surrounded by Kenyah and Kayan languages, both of which are part of GNB, suggests that the GNB lexicon in Basap is not native. On the other hand, there are no Barito languages in Basap territory and no known means through which Barito languages might have had an influence on Basap. Thus, the presence of Basap-Barito exclusive lexical innovations is significant, as inheritance seems the only reasonable explanation for their existence. In the following table, PMP reconstructions are from Blust and Trussel (ongoing), PGNB reconstructions are from Blust (2010) unless marked otherwise, and PWIN reconstructions are from Smith (2017).

Table 4
Basap subgrouping evidence

Evidence linking Basap to GNB	Evidence linking Basap to Barito
PMP *pitu > PGNB *tuzuq ‘seven’ Basap <i>tujo?</i>	PMP *walu > *kaluŋ ‘eight’ Basap <i>kalon</i> , Tunjung <i>kalukŋ</i>
PMP bakbak > PGNB *saʔay ‘frog’ Basap <i>sai</i>	PWIN *kəniw > *buniaʔ ‘eagle’ (Smith 2017a) Basap <i>bunia?</i> , Tunjung <i>bənia</i>
PMP *qabaŋ > PGNB *alud ‘canoe’ Basap <i>alun</i>	PMP *qinəp > *tidiʔ ‘lie down’ Basap <i>tide?</i> , Tunjung <i>tiri?</i>
PMP *ipəs > PGNB *lipəs ‘cockroach’ Basap <i>lepəs</i>	PMP *baŋun > *pukaw ‘wake up’ Basap <i>pukaw</i> , Tunjung <i>pokaw</i>
PMP *palu > PGNB *tukul ‘hammer’ Basap <i>tukul</i> (note, *-l should have become -n in Basap, indicating possible borrowing)	PMP *hawak > *kaRaŋ ‘waist’ Basap <i>karaŋ</i> , Tunjung <i>kahakŋ</i> , Ngaju, Kadorih <i>kahan</i>

	Hliboi <i>ipuy</i> , Sungkung <i>ahpoy</i> , Jangkang, Ribun, and Sanggau, <i>opi</i> , Golik <i>opuy</i>
PMP *tanəq ‘land’	Benyadu and Bekati’ <i>tana?</i> Hliboi, Sungkung, and Golik <i>tana?</i>
PMP *təlu ‘three’	Benyadu, Bekati’ <i>taru</i> Hliboi and Sung <i>taluh</i> , Jangkang and Sanggau <i>toruh</i> , Ribun <i>tahuh</i> , Golik <i>taruh</i>
PMP *dəpa ‘fathom’	Benyadu <i>dapa</i> Sungkung <i>dahpɪh</i> , Golik <i>dopa?</i> , Sanggau <i>sopa?</i> (s- <i>opa?</i>)
PLD *kəbəs ‘to die’	Benyadu <i>kabis</i> , Bekati’ <i>kabih</i> Hliboi <i>kibos</i> , Sungkung <i>kabis</i> , Ribun, Sanggau <i>kobis</i> , Golik <i>kobəs</i>
PMP *pənuq ‘full’	Benyadu <i>pano?</i> , Bekati’ <i>panu?</i> Hliboi <i>hnu?</i> , Sungkung <i>pino?</i> , Ribun <i>punut</i> , Golik <i>puno?</i> , Sanggau <i>punu?</i>
PMP *bəli ‘to buy’	Benyadu and Bekati’ <i>mari</i> Hliboi <i>mlitn</i> , Sungkung <i>biltn</i> , Jangkang <i>miris</i> , Ribun <i>mihis</i> , Golik <i>mirih</i>
PMP *bətis ‘calf of the leg’	Benyadu <i>batis</i> , Bekati’ <i>batih</i> Hliboi <i>ddis</i> , Jangkang <i>bitis</i> , Ribun <i>botis</i> , Sanggau <i>botis</i>

Table 5
Summary of reflexes of schwa in penultimate position in Land Dayak

	Benyadu-Bekati’		Bidayuh				Southern Land Dayak				
	Ben	Bek	Hli	Sung	Biat	B-S	Jang	Rib	Gol	Sang	Sing
*pənuq ‘full’	a	a	∅	i	u	-	u	u	u	u	u
*bəli ‘buy’	a	a	∅	i	i	-	i	i	i	i	i
*bətis ‘calf’	a	a	∅	-	i	i	i	-	-	-	i
*təlu ‘three’	a	a	a	a	a	-	o	a	a	o	a
*dəpa ‘fathom’	a	-	-	a	a	a	-	o	-	-	o
*kəbəs ‘to die’	a	a	i	a	a	-	o	o	o	o	-
*pajay ‘field rice’	a	a	i	a	a	a	o	o	o	o	a
*hapuy ‘fire’	a	a	i	a	a	a	o	o	o	o	o
*tanəq ‘land’	a	a	a	a	a	a	-	-	a	-	a

There are some irregularities in the data. Hliboi Bidayuh reflects penultimate *a (from both *a and *ə) as either *i* or *a*, an unconditioned split as evidenced by reflexes of *təlu and *kəbəs. Some Southern Land Dayak languages unexpectedly reflect penultimate *a as *a*, rather than *o*, although these may ultimately be early borrowings. Nevertheless, as table five above makes clear, reflexes of schwa after labial onsets did not merge with *a, and have a distinct set of reflexes in Bidayuh and Southern Land Dayak, but not in Benyadu or Bekati’, where schwa completely merged with *a.

Beyond reflexes of schwa, Benyadu-Bekati’ is defined by the innovation of glottal stop to close final open syllables and the coalescence of *-ay to *-e and *-aw to *-o. Bidayuh-Southern Land

Dayak is supported, in addition to the split in reflexes of penultimate schwa, by raising of *-a to *-i, closing of final open syllables with *h, coalescence of *-ay to *-i and *-aw to *-u.

4)

Benyadu-Bekati'

*ə, *a > *a (in penultimate position)

*-V > *-Vʔ

*-aw, *-ay > *-o, *-e

Bedayuh-Southern Land Dayak

*ə, *a > *a (in penultimate position, except after labial onsets)

*-V > *-Vh

*-aw, *-ay > *-u, *-i

*-a > *-i

To summarize, although Rensch et al (2012) proposed a Bekati'-Bedayuh subgroup, Smith (2017a) has organized evidence based primarily on reflexes of schwa in penultimate position, that Bidayuh forms a subgroup with Southern Land Dayak, and that Bidayuh-Southern Land Dayak combines with Benyadu-Bekati' to form Land Dayak. The internal classification of Land Dayak from Smith (2017a) is given below in Figure 7.

Figure 7

Internal classification of Land Dayak

PROTO LAND DAYAK

1 Benyadu-Bekati'

a. Benyadu, Bekati', Rara, Sara

2 Bidayuh-Southern Land Dayak

a. Bidayuh

Hliboi, Sungkung, Bau-Jagoi, Biatah, Bukar-Sadong

b. Southern Land Dayak

Jangkang, Ribun, Golik, Sanggau, Simpang

4.4 Summary of new proposals

The above section outlined new proposals or alterations to existing proposals considering the subgrouping of Bornean languages (Central Sarawak, the Basap-Barito group, the Barito Linkage, and the separation of Land Dayak into a Benyadu-Bekati' and Bidayuh-Southern Land Dayak group). Smith (2017a), however, contains numerous additional proposals, not included here. To summarize these other proposals, it is claimed (Smith 2017a, b) that the Merap (Mpraa) language of North Kalimantan is a highly aberrant dialect of Murik (Ngorek), which has undergone stress related changes much like Sa'ban of Sarawak (itself an aberrant Kelabit dialect). Smith (2017a) also provides rough phonological outlines of Kelai, Hliboi Bidayuh, Punan Bah, and an Iban dialect of the upper Kapuas. The goal of these phonological outlines is to give the reader more familiarity with the languages as they are, and to make public facts about languages which have received little attention in published linguistic works. These phonological descriptions are beyond the scope of the current paper, but may be of interest to readers curious about the phonology of these underreported but very interesting languages.

5 HISTORY OF POPULATION MOVEMENT IN BORNEO

Historical linguistic evidence can provide accurate accounts of homelands and centers of dispersal during population movement. In Austronesian linguistics, the most well-known example is the out-of-Taiwan hypothesis, which was defended on both linguistic and archaeological grounds in Blust (1984-85) and Bellwood (1984-85). The fact that this hypothesis has gained widespread acceptance is itself a testament to the power of historical linguistics to pinpoint homelands. Linguistic homelands are typically the area of highest diversity (in primary branches of linguistic subgroups). Because Taiwan is home to nine of ten Austronesian primary branches (Blust 1999) it follows that this is the Austronesian homeland. The same logic can be applied to subgroups in Borneo, with results that generally match local oral histories that point to a series of migration events throughout Borneo in the mid 1700's and early 1800's (Sandin 1994, Sellato 1994, Sutlive 1978). The most striking example is the Central Sarawak homeland, which includes Melanau, Kajang, Punan, and Müller-Schwaner. As discussed below, the Iban migrated into Sarawak from Kalimantan in two waves (first into western Sarawak, and later into the Rejang near the modern town of Song) and the Kayan left the Apo Kayan and moved downstream from the upper Rejang. These migrations had profound impacts on the history of Central Sarawak and its daughter languages.

5.1 The Punan Homeland

The current distributions of Punan speaking communities do not appear to coincide with any center of dispersal, but Punan dialects remain mutually intelligible. This provides evidence that the language was recently spoken in a more cohesive community, and was developing as a unit before the Punan moved to their current locations. Linguistically, the Rejang river is the most likely Punan homeland, although the upper Rejang is today dominated by Iban and Kayan. The Iban and Kayan languages, however, do not show a great degree of internal dialect diversity, which implies that they have only been in the Rejang for a short time. Punan Oral histories (Sellato 1994:21-48 Sellato 2001:33 F. de R. 1968, Sandin 1980) tend to point to the Baleh river as the most recent center of dispersal, and the larger linguistic picture agrees with this. The Punan are part of a larger Central Sarawak group, and Central Sarawak includes three subgroups currently located on the Rejang river (Melanau, Kajang, and Punan in the form of Punan Bah), and one, Müller-Schwaner, which is located on adjacent headwaters. The Rejang river is thus the center of linguistic diversity. Proto-Punan most likely developed out of a dialect of Proto-Central Sarawak that was itself spoken along the Baleh area (Kaboy 1974).

5.2 The Kajang Homeland

Linguistic evidence points to the upper Rejang river (Murum and Balui branches) as the homeland of Kajang. This agrees with Rousseau (1974a) who mentioned that the Kajang were forced downriver by invading Kayan. The evidence, interestingly, is in the form of borrowed words between Kajang languages and Western-Lowland Kenyah, a subgroup within the larger Kenyah group whose homeland is the Usun Apau watershed (Smith 2015b). The Murum headwaters of the Rejang river flow from highlands which separate the Tinjar, Baram, and Rejang watersheds, including the Usun Apau highland. There are no Kajang speakers in the Usun Apau area today, but the lexical residue suggests that there was a time where Lowland

Kenyah and Kajang speakers occupied geographically contiguous areas, before Kayan expansion pushed the Kajang into their current areas in the middle course of the Rejang. This is consistent with a hypothesis that the upper Rejang, specifically the Murum and Balui areas, are the Kajang homeland. The evidence for contact is presented in table 6 below, taken from Smith (2017a). In this table, Proto-Kenyah reconstructions are supported by data found in Smith (2015a, b, 2017a) and Proto-Kajang from Smith (2017a). Borrowing evidence is in the form of Kajang vocabulary found in Western Lowland Kenyah languages, where the reconstructed Proto-Kenyah word predicts a different word.

Table 6
Evidence for contact between Kajang and Western-Lowland Kenyah

English	Proto-Kenyah	Proto-Kajang	Borrowing Evidence
pinky	*ikiŋ	*ŋiw	Sebop <i>ijiw</i> , Eastern Penan <i>ojoʔ eniw</i> , Western Penan <i>ojuʔ eniw</i>
itchy	*gatən	*səli	Western Penan <i>səliʔ</i>
durian	*duian	*dəʔzan	Kajaman <i>peək</i> , Sebop <i>bua pak</i> , Western Penan <i>pakən</i>
chicken	*iap	*dik	Sebop <i>diək</i> , Western Penan <i>dek</i> , Lebo' Vo' Kenyah <i>dek</i> (used to call chickens home to feed)
run	*ŋasah	*təkədu	Eastern Penan <i>təkədəwʔ</i>
jump	*təpəjuk	*uduk	Sebop <i>uduk</i> , Western Penan <i>m-odok</i>

The linguistic evidence for a borrowing relationship between Kajang and Western Lowland Kenyah is small, but there are no alternative sources for the Sebop and Penan words listed as being borrowed from a Kajang source. The nature of that borrowing relationship is beyond the current discussion, but it is enough to provide support to the hypothesis that both Western Lowland and Kajang were in the Usun Apau area, separated perhaps by the Baram and Rejang watershed divide.

5.3 The Central Sarawak Homeland

It was shown above that the Punan and Kajang originate from the upper Rejang area. Melanau speakers have occupied the lower Rejang for as long as can be inferred, which puts the area of highest diversity in Central Sarawak along the Rejang river itself. Most major river systems in Borneo are also home to large subgroups (The Baram is home to North Sarawak. The Kapuas is home to Land Dayak and Malayic, the Barito is home to Barito languages, and the upper tributaries of the Kayan is home to Kayanic). It is thus expected that a major subgroup would have also developed along the Rejang river, the longest river in Malaysia. Furthermore, because the lower-mid Rejang and Baleh is currently dominated by Iban and the upper Rejang by Kayan,

it also follows that these two groups are responsible for both the contraction of Melanau, Kajang, and Punan territories and the expulsion of Punan from the Rejang river into Kalimantan. Again, this agrees with Iban, Kayan, and Punan oral history.

5.4 The homeland of other groups in Borneo

Identifying the Rejang river as the homeland of Central Sarawak explains the scattered distribution of Central Sarawak languages and the fairly homogenous block of Iban and Kayan that currently dominate the area. The history of other subgroups are outlined from Smith (2017a) below.

The only group native to central and eastern Kalimantan, for which evidence is available, was the Basap-Greater Barito dialect network. This dialect network was apparently severed when the Segai and Modang groups moved downriver into Berau and East Kutai. Southwest Sabah languages underwent a dramatic expansion when they moved from west to east and nearly wiped out Northeast Sabah languages. Their expansion ended in North Kalimantan, although there is no evidence of what languages might have been spoken in the area of the modern Sabah-Kalimantan border before the arrival of Southwest Sabah. It is not known what languages were spoken in the areas of modern Central Kalimantan to the west of the Barito river. Whatever linguistic diversity might have existed in this area was leveled when western Barito languages moved out of the Barito river into their current locations. Also, note that the Tamanic languages ultimately originate from South Sulawesi, although the specifics of how and why they ended up in the interior of Borneo remain unanswered.

6 CONCLUSION

This paper has outlined the most recent island-wide subgrouping proposal of the languages of Borneo. It is claimed that the languages of Borneo descend from a single language, Proto-Western Indonesian. Two primary branches (Greater North Borneo and Barito-Basap) are found on Borneo today. The composition of North Borneo (Northeast Sarawak, Southwest Sarawak, and North Sarawak) remains similar to that proposed in Blust (2010). A new Central Sarawak subgroup was proposed, and is defined by irregular phonological changes and lexical replacement innovations. It consists of the Melanau, Kajang, Punan, and Müller-Schwaneer groups and was originally spoken along the Rejang river. Within Central Sarawak, the Punan and Müller-Schwaneer languages are more closely related to each other than they are to the other Central Sarawak languages. An alternate internal subgrouping of Land Dayak languages was proposed, based largely on a split in reflexes of schwa in the penultimate syllable. This internal subgrouping includes a Benyadu-Bekati' group and a Bidayuh-Southern Land Dayak group. Finally, it was argued that the Barito languages form an innovation defined linkage, rather than a subgroup. This implies that the Barito languages developed through the slow differentiation of a larger dialect network, not from a discrete proto language. Further, a Basap-Barito subgroup was proposed on the grounds that a small set of exclusively shared lexical innovations shared between Basap and Barito indicate that these now distant languages were at one time joined together in a large dialect network that stretched from the Barito river to modern Berau, East Kalimantan.

The history of population movements in Borneo show how the movement of Kayan and Iban into the Rejang river area forced out the Central Sarawak languages. Punan linguistic evidence and oral histories point to the upper Rejang, along the Baleh branch, as their homeland.

Kajang languages show signs of a borrowing relationship with Lowland Kenyah languages, suggesting that these two groups were at one time adjacent. This, in turn, suggests that the Kajang homeland is the upper Rejang area near the Usun Apau watershed area, close to the Lowland Kenyah homeland.

Despite recent growth in linguistic studies of the languages of Borneo, large swaths of the island remain poorly understood. The least studied languages of Borneo are on the Indonesian side of the border. Among these, the Segai-Modang languages, with fascinating phonological systems, remain almost unstudied. Although numerous shorter linguistic and anthropological studies on Segai and Modang have been published (Wati et al 2002a, 2002b Revel-Macdonald 1982, Astar et al 2002, Guerreiro 1983, 1989, 1996b), there are no dedicated large-scale linguistic studies on these languages. Elsewhere, Basap is highly endangered, and little is known about the languages. Without further study, they may be lost without any in-depth linguistic investigation. Bidayuh and Land Dayak languages in Kalimantan are also understudied, including Hliboi Bidayuh, which was discussed briefly in Smith 2017a, but otherwise has been the subject of no dedicated linguistic study. Thus, while our understanding of the linguistic position and diversity of Bornean languages has seen significant improvement in recent years, there remains much work to be done on languages that have not typically been the subject of linguistic study

Appendix

The following family tree is a full reproduction of that found in Smith 2017a, and includes the positions of every language found in the dissertation. Italics indicate multiple languages/dialects that are grouped under a single category for convenience, but which may represent multiple subgroups.

WESTERN INDONESIAN

1. GREATER NORTH BORNEO

a. North Borneo

i. Northeast Sabah

- Bonggi
- Idaanic

ii. Southwest Sabah

- Greater Dusunic

Bisaya-Lotud-Dusunic

Bisaya-Lotud

Bisaya, Brunei Dusun, Lotud

Dusunic

Rungus, Kadazan, Kujau, Minokok, Dusun,
Dumpas

Paitanic

Beluran, Lingkabau, Lobu, Kuamut, Murut

Serudong

- Greater Murutic

Tatana

Papar

Murutic

Murut (Nabaay, Timugon, Paluan, Tagol, Kalabakan), Gana, Tingalan, Kolod, Abai, Bulusu, Tidung (Bengawong, Sumbol, Kalabakan, Mensalong, Malinau)

iii. North Sarawak

○ Bintulu

○ Berawan-Lower Baram

Berawan (various dialects)

Lower Baram

Miri, Kiput, Narum, Belait, Lelak, Lemeting, Dali'

○ Dayic

Kelabit

Bario, Pa' Dalih, Tring, Sa'ban, Long Seridan,

Long Napir

Lun Dayeh

Long Bawan, Long Semadoh

○ Kenyah

Highland

Lepo' Gah, Lepo' Tau, Lepo' Sawa, Lepo', Lepo'

Laang, Badeng, Lepo' Jalan, Uma' Baha, Uma'

Bem, Oma Lóngh

Lowland

Eastern Lowland

Uma' Pawe, Uma' Timai, Lebo' Kulit

Western Lowland

Lebo'Vo'

Sebop

Penan (eastern and western varieties)

b. Central Sarawak

i. Melanau

Dalat, Sarikei, Mukah, Balingian, Matu, Sibul, Kanowit

ii. Kajang

Kajaman, Sekapan, Lahanan

iii. Punan-Müller-Schwaner

○ Punan

Punan Bah, Punan Tubu, Sajau, Latti

Punan Lisum, Punan Aput, Beketan, Ukit, Buket

Sru

○ Müller-Schwaner

Hovongan

Kereho

Aoheng, Seputan

- c. Kayanic
 - i. Kayan-Murik-Merap
 - Kayan
Baram river Kayan, Rejang-Busang Kayan, Bahau, Data Dian Kayan
 - Murik-Merap
Ngorek, Pua', Huang Bau, Merap
 - ii. Segai-Modang
 - Segai
Gai, (Punan) Kelai
 - Modang
Kelinjau Modang (Long Wai), Wahau Modang, Long Gelat
- d. Land Dayak
 - i. Benyadu-Bekati'
Benyadu, Bekati', Rara, Lara
 - ii. Bidayuh-Southern Land Dayak
 - Bidayuh
Bau-Jagoi, Bukar-Sadong, Sungkung, Hliboi, Biatah
 - Southern Land Dayak
Golik, Jangkang, Ribun, Sanggau, Simpang
- e. Malayic
 - i. West Bornean Malayic
 - Kendayan-Selako
 - Ibanic
Iban, Mualang, Seberuang, Keninjal
 - Besemah
 - ii. *Other Malayic*

2. BASAP-GREATER BARITO

- a. Greater Barito Linkage
 - Northwest Barito
Kadorih, Siang, Murung
 - Southwest Barito
Ngaju, Kapuas, Bakumpai
 - Sama-Bajaw
Yakan
 - Southeast Barito
Maanyan, Dusun Witu, Malagasy
 - Central-East Barito
Dusun Malang, Dusun Bayang
 - Northeast Barito
Taboyan, Lawangan, Bentian, Pasir, Benuaq
 - Tunjung
- b. Basap

3. *OTHER WESTERN INDONESIAN*

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