On the Classification of Kenyah and Kayanic Languages

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Borneo has been described by Blust as a "hot spot" for linguistic change. The densely forested highlands and river systems are home to numerous communities, and a long history of human occupation has created a complex network of languages and dialects. Recently, Borneo has been the focus of numerous comparative works, many dealing with the Kenyah, Kayanic, Penan, and Sebop language groups of Sarawak and East Kalimantan. This paper addresses the Kayan-Kenyah hypothesis of Antonia Soriente. By carefully considering the linguistic evidence, it is shown that Soriente's hypothesis does not provide a convincing argument for a Kayan-Kenyah subgroup. Rather, there is a significant body of evidence for assuming that Kenyah, Penan, and Sebop form a single subgroup that does not include Kayanic. Furthermore, Soriente's Kayan-Kenyah hypothesis includes an internal subgrouping that places many demonstrably Kenyah languages within the Kayanic subgroup. This paper also addresses these issues, and proposes an updated internal subgrouping based largely on the regular and highly distinctive split in Proto-Austronesian voiced stops shared by all Kenyah, Penan, and Sebop languages.

1. INTRODUCTION.[1] Kenyah and Kayanic are two distinct groups of languages spoken in several communities on the island of Borneo over a wide geographic area, from the upriver areas along the Baram River in Sarawak (Malaysia), to the Kayan and Mahakam rivers and their tributaries in Kalimantan (Indonesia). Linguistic publications that focus specifically on the Kenyah or Kayanic languages are scarce. Blust has published several papers that use Kenyah and Kayanic as part of a larger argument (Blust 1972, 1974b, 1998, 2000, 2010), but published materials that deal specifically with the classification of these languages have been, until recently, less common. Douglas (1911) is a comparative wordlist with data comparing the Kenyah, Kayan, and Kelabit

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languages. In addition to these, Dyen (1965:43) and Hudson (1978) have both previously proposed that Kenyah and Kayan belong to the same group, but with questionable methods.

More recently, Soriente (2003, 2006b, 2008) has published several works on Kenyah classification that join Kayanic and Kenyah in a single Kayan-Kenyah subgroup and make explicit claims about the relationship of Kayanic languages to the North Sarawak (NS) group. Proposals that claim a Kenyah and Kayanic connection seem reasonable at first, given the striking cultural similarities between the two groups. Both inhabit overlapping territories in central Borneo, both live in similar styles of longhouses, both use large metal earrings to stretch their earlobes (especially women), and they have very similar styles of dress, dance, and music, including a culturally distinctive form of the *sape* (a traditional lute with between two and four strings).[2] Linguistic evidence supporting a Kayan-Kenyah subgroup is, however, not convincing. Besides the cultural similarities, there are few pieces of evidence that suggest any recent common ancestor. This paper takes another look at the classification of Kayanic and Kenyah, proposes an updated internal subgrouping of Kenyah along with Penan and Sebop, and offers a close scrutiny of Soriente's recent Kayan-Kenyah hypothesis. It is argued that despite Soriente's efforts, the evidence for a Kayan-Kenyah subgroup remain unconvincing.

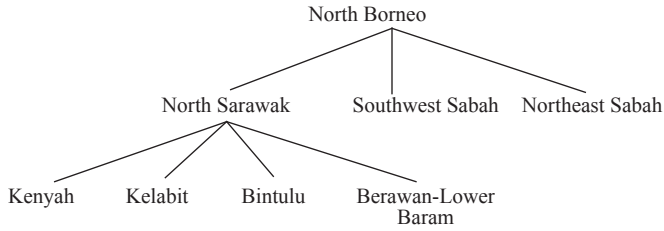
Data used in this paper come from several sources. The analysis is based on primary data collected in Sarawak in the summer of 2014, in Kenyah communities from Long San to Lio' Mato along the upper Baram river. This includes the dialects of Lebo' Vo', Uma' Pawe, Lepo' Gah, Lepo' Sawa', Lepo' Laang, Lepo' Tau, and Badeng. Data from this field trip were also gathered from two Kayanic languages, Long Naah Kayan and Ngorek. Data on Penan and Sebop languages come from Blust's unpublished fieldnotes (Blust n.d.). Soriente (2003) provides additional wordlists from Uma' Lasan, Uma' Alim, Òma Lóngh, Lepo' Ma'ut, Lepo' Ké, Bakung, Lepo' Ndang, Uma' Kulit, Uma' Ujok, and Lepo' Timai. Supporting data for many of the claims made in this paper can be found in the appendix, which contains wordlists from all communities where primary data were gathered.

2. THE KENYAH SUBGROUP. Kenyah is a term for a group of languages spoken in northern Sarawak and eastern Kalimantan that descend from a common ancestor, known as Proto-Kenyah (PKEN). PKEN and its daughter-languages form one of four coordinate branches of Proto-North Sarawak (PNS), which, according to Blust (2010), is part of the larger North Borneo group of languages (see figure 1). The varieties of Kenyah discussed in this paper include two closely related subgroups, namely Highland and Lowland,[3] as well as Penan-Sebop. The speakers of Highland and Lowland Kenyah belong to the cul-

2. Similar instruments are found throughout Southeast Asia, however, including the Thai *grajappi*, the Cambodian *chapey*, the Batak *hasapi* or *kacapi*, the Macassarese *kecapi*, and the Philippine *kudyapi*. All seem to have been introduced into the area during the Indianization of Southeast Asia (see Kunst 1968:15).

3. Blust has traditionally used the terms "highland" and "lowland" to distinguish between two main divisions of Kenyah languages. As it turns out, the classification of Kenyah into highland and lowland does not always correspond to physical locations in highland and lowland areas of Borneo, no doubt a product of migration. I will continue to use the terms here, however, for consistency.

FIGURE 1. THE POSITION OF KENYAH IN THE NORTH SARAWAK AND NORTH BORNEO GROUPS (after Blust 2007, 2010)



ture group identified by natives and outsiders as "Kenyah." The Sebop and Penan are not considered culturally Kenyah by most community members, although the languages spoken by these people seem to share an immediate ancestor with Kenyah "proper."

Blust (2007:7) identified several phonological innovations that define the Kenyah subgroup. Kenyah, however, is a fairly conservative NS language, and does not reflect many high quality innovations. Sound changes that distinguish Proto-Kenyah from Proto-North Sarawak are given below.

(1) *d > *l- (in a small number of cases)
*R > *h intervocalically preceding the last vowel, but Ø elsewhere
*s > *h > Ø word-finally
*i/*u > *e/*o before final *h from PNS *R or *s
devoicing of final stops
*-1> *-n
dissimilation of the sequence *sVsVC to *tVsVC
loss of the first CV- in CVNCVC reduplications.

Also shared by all Kenyah languages are reflexes showing an earlier conditioned split in the Proto–Malayo-Polynesian (PMP) series of voiced stops. Under predictable phonological conditions outlined in Blust (2010), geminated voiced stops underwent terminal devoicing, creating PNS *b^h, *d^h, *j^h, and *g^h. PKEN retained this series, and later simplified the voiced aspirates through either merger with the voiceless series of stops or through innovation of an imploded series. Distinct reflexes of PNS aspirated voiced stops are found throughout NS languages.

In addition to this phonological evidence, there are several unique lexical innovations and sporadic phonological changes in the pronominal (table 1) and numeral systems (table 2) that are not found in other groups.[4] Among the pronominals, the first person singular (PMP *aku > PKEN *akiʔ) and second person singular (PMP *i-kahu > PKEN *ikuʔ) provide high quality evidence for grouping both Highland and Lowland languages together.

The Kenyah numeral 'five' contains a highly distinctive sporadic sound change that serves as a diagnostic for inclusion in the Kenyah subgroup. Here, PMP *lima became PKEN *ləma, a change that does not seem to occur in any other language group in Borneo. Innovations for 'eight' and 'nine' can also be reconstructed to PKEN, but these may

4. In tables 1 and 2, "Sawa'" is the Lepo' Sawa' dialect spoken in Long Anap; Badeng is spoken in Lio' Mato; "Tau" is the Lepo' Tau dialect spoken in Long Moh; "Pawe" is the Uma' Pawe (or Uma' Pawa) dialect of Long Apu; and "Vo'" is the Lebo' Vo' dialect spoken in Long San.

TABLE 1. KENYAH PRONOUNS

	1SG	2SG	3SG	1PL.INCL	1PL.EXCL	2PL	3PL
PKEN	*akiʔ	*ikuʔ	*ia	*təpat/*ilu	*amiʔ	*ikəm	*ida
Sawa’	akeʔ	ikoʔ	ya	təpat / ilu	ameʔ pat	ikəm (pat)	ida (pat)
Badeng	akeʔ	ikoʔ	ya	təpat	ameʔ pat	ikəm pat	eda pat
Tau	akeʔ	ikoʔ	ia	təpat	ameʔ pat	ikəm	ida pat
Pawe	akiʔ	ikuʔ	ye	meʔ təw / ilu	meʔ təw	kəm təw	ira ini
Vo’	akeʔ	ikoʔ	yɨ	təpat	kəla / ameʔ	kəlu	irɨ
Kulit	akiʔ	ikuʔ	ieʔ	ilou	kami	ikam	ire rəlo
Ujok	akiʔ	ikuʔ	iyeh	lu	me	nam	dəttau
Timai	akeʔ	ikuʔ	ieʔ	ilou	ami	nəmtou	rəttou
Lasan	ahie	ihuə	iza	ilu	amiə	iham	iʔa
Lóng	aghi	ighu	zo	elə	ami	egham	eʔo
Ma’ut	aki	iku	ia	iu	ami	ekam	eda
Ké	ake	iko	ia	iu	ami	ekəm	ida
Bakung	ake	iko	ia	ilu	ame	ikəm	ida

TABLE 2. KENYAH NUMERALS 1–10

	1	2	3	4	5	6	7	8	9	10
PKEN	*jʰa	*dua	*təlu	*pat	*ləma	*nəm	*tujoʔ	*aya	*piʔən	*puluʔ
Sawa’	ča	dua	təlu	pat	ləma	nəm	tujoʔ	aya	piʔən	puloʔ
Badeng	ča	dua	təlu	pat	ləma	ənəm	tujuʔ	aya	peʔən	puloʔ
Tau	ča	dua	təlu	pat	ləma	nə̣m	tujuʔ	aya	piʔən	puloʔ
Pawe	se	lue	tələw	pat	ləme	nəm	tusuʔ	ai	piʔən	puluʔ
Vo’	ʃo	luɨ	təlu	pat	ləmɨ	nəm	tuʃək	ayɨ	piʔən	ʃo ʃap
Kulit	se	due	təllou	pat	ləmme	nəm	tusou	aye	piən	puluʔ
Ujok	se	due	təllau	pat	ləmme	nəm	tusu	ayi	piən	pulu
Timai	se	due	təllou	pat	ləmme	ənəm	tusuʔ	ayiʔ	piʔən	pulu
Lasan	ča	rua	təllu	pat	ləmma	nəm	tujue	aza	fiən	fuluə
Lóng	ču	devo	təllə	pat	ləmmo	nəm	tuju	azo	feən	fulu
Ma’ut	ča	dua	təllu	pat	ləmma	nəm	tuju	aya	peən	pulu
Ké	ča	dua	təllu	pat	ləmma	nəm	tuju	aya	piən	pulo
Bakung	ča	dua	təllu	pat	ləmma	nəm	tuju	aya	piən	pulo

be early borrowings from Kayan, given their irregular phonetic similarities (PKEN *aya and Kayan *saya?* ‘eight’, as well as PKEN *piʔən and Kayan *pitan* ‘nine’).

The phonological and lexical evidence above strongly supports a Kenyah subgroup of languages. Innovations in the pronouns and numerals are highly distinctive, and include at least two diagnostics, *ləma ‘five’ and *akiʔ ‘I, me’ that are found in no other languages in Borneo.

2.1 LEBO’ VO’: KENYAH OR KAYAN? Soriente (2008) lists Mboh, Long Tik, Long Tap, and Long Wat as part of the Mboh branch of the Kayanic family. The Mboh people refer to themselves as Vo’ (*mb > *v* in this dialect), and Mboh is used only by speakers of other dialects. Grouping Vo’ with Kayan is not supported by any evidence. Vo’ distinguishes between a set of plain voiced stops and imploded voiced stops in correspondence with past plain voiced and aspirated voiced stops. Nowhere in any of her publications on subgrouping (2003, 2006b, 2008) does Soriente take into account the aspirated voiced series, which is the result of a split that occurred after the breakup of

Proto-Austronesian (PAN), and as a result the Vo' languages were placed in the Kayanic group. Exceptions in expected sound changes are dismissed with passing remarks. For example, Soriente proposes the change *d > *r* as evidence for including Vo' in the Kayanic group. She explains exceptions to this sound change in Vo' as being due to extensive borrowing from Kenyah variants. Table 3 below shows the regular correspondences of these "exceptions" with **dʰ* as well as their absence in Kayan.

Inclusion of the Vo' dialects in Kenyah is thus strongly supported by evidence that these languages reflect a distinct series of aspirated voiced stops in both initial and medial position. Vo' dialects also show the pronominal and numerical innovations outlined above as defining the Kenyah subgroup, including the highly distinctive change PMP *lima > PKEN *ləma >Vo' *ləmɨ* and PKEN *akiʔ > Vo' *akeʔ*. Borrowing is not a likely explanation for similarities in such basic terminology.

TABLE 3. REFLEXES OF *d AND *dʰ IN VO'

PNS	Long Ikang	Long Selaan	Long San	Kayan	English
*dua	luəy	lui; luə	luɨ	duaʔ	two
*daRaʔ	laaʔ	laaʔ	laaʔ	daha	blood
*ədʰaw	dâw	dâw	dâw	daw	day
*ŋadan	karan	ŋaran	ŋaran	ŋaran	name
*madiŋ	mareə̨ŋ	mariə̨ŋ	mariŋ	mariŋ	new
*kədʰiŋ	nəkəɗeə̨ŋ	nəkəɗiə̨ŋ	nəkədiŋ	nəkəriŋ	to stand
*pədʰu	pəɗəw	pəɗəw	pəɗu	pərun	gall

2.2 UMA' KULIT: KENYAH OR KAYAN? In another recent publication, Soriente (2006b) investigates the linguistic position of Uma' Kulit and related languages (Uma' Kulit, Leppo' Timai, Uma' Ujok, Uma Kelep, and Nyibun). She concludes by placing these languages in the Kayan branch of Kayan-Kenyah, noting that this placement differs from local testimony that claims that these languages are Kenyah. The sound changes that she proposes as evidence for including Uma' Kulit under the Kayan branch are given in table 4. Soriente also offers some lexical evidence in support of her hypothesis. Some of that evidence is given here in table 5. What follows is a critical analysis, piece by piece, of the proposed evidence for including Uma' Kulit in Kayan.

***b > *β* / V_V.** This is a very frequent sound change in the world's languages. Also, while Soriente claims that Kenyah languages retain *b in intervocalic position, this is only partially true. Penan languages, which in this paper are claimed to subgroup with Kenyah, share the change *b > *β* / V_V. This change must have arisen as the result of independent parallel innovation, because *b* reflexes of *b in Highland Kenyah lan-

TABLE 4. EVIDENCE FOR INCLUDING UMA' KULIT IN THE KAYAN BRANCH (from Soriente 2006b)

PAN	Kayan	Kenyah
*b	b; β / V_V	p
*d	d; r / V_V	d
*j	d; r / V_V	d
*z	s	j; c

TABLE 5. SELECTED LEXICAL EVIDENCE FOR INCLUDING UMA' KULIT IN THE KAYAN BRANCH (from Soriente 2006b)

Kenyah	Uma' Kulit	English
baiŋ	malat	sword; machete
uwe	inai	mother
tinən	sinam	older woman
—	manuk	bird
—	avau	pig
nisəp	məddu?	drink
—	uko?	sit down
—	ariŋ-ariŋ	beginning
—	pa	and; also
—	bəka	but

guages show that Proto-Kenyah, from which Penan languages descend, did not weaken *b* in intervocalic position. Murik (also Ngorek) data provide further insight. Blust (1974a) argues for including Murik in what he terms Proto–Kayan-Murik (PKM), so any changes in Kayan languages not attributable to PKM must have been innovated at the Proto-Kayan level. Intervocalic weakening of *b* is one such case. Murik reflects *-b- as *-b-,* while all other Kayan-Murik languages underwent the change *b > *β, v*: for example, PMP *Rabun 'cloud' > Long Atip *avun* but Murik *abun*, and PMP *qabu 'ashes' > Long Atip *avu?* but Murik *abu?*. It is clear, then, that the lenition of *-b-* occurred as separate innovations in Penan, Lepo' Kulit, and Kayanic.

***d > *r* / V_V and *j > *r* / V_V**. Soriente proposes these two sound changes as separate pieces of evidence for the inclusion of Lepo' Kulit in Kayan. However, *j and *d merged long before Kenyah languages were ever spoken (see Blust 2007:6). What is really being dealt with here is a single sound change, PNS *d > *r* / V_V. Again, a very common sound change is put forward as subgrouping evidence. Penan languages, which subgroup with Kenyah, also underwent this sound change. The difference between Kenyah and Kayan languages is apparent in reflexes of words with aspirated voiced stops. Lepo' Kulit, according to the appendix in Soriente (2003), changed *d to *r* only in words that reflect the plain voiced stop, while *d^h is reflected by *d*, though she failed to point out this condition. The difference between Lepo' Kulit and Kayan languages is shown below in table 6. The Kayan data offer no evidence of a past distinction between plain voiced and aspirated voiced stops. Data for Lepo' Kulit come from Soriente (2006b) and for Baluy Kayan from Rousseau (1974b).

***z > *s*.** This sound change only occurs in intervocalic position, and is the most interesting of the proposed changes. *z > *s* is a feature of Kayanic languages, and this is

TABLE 6. DIFFERENCES IN REFLEXES OF PLAIN AND ASPIRATED VOICED STOPS IN UMA' KULIT AND KAYAN LANGUAGES

PNS	Uma' Kulit	Baluy Kayan	English
*udu	urou	uro?	grass
*kəd^{h}iŋ	ngeddeng	nəkəriŋ	stand
*Rabun	avun	avun	cloud
*təb^{h}əŋ	nəbbəŋ	nəvəŋ	fell a tree

important in noting its distribution in Kenyah. Without context, the appearance of *z > *s* in both Kenyah and Kayanic is startling, suggesting a subgrouping relationship based on the rarity of such a change. However, the history of Kenyah migration patterns into Kayan territory may be offered as an explanation. Kenyah descends from Proto-North Sarawak, and represents an inland movement from the north coast.[5] Kenyah languages in eastern Kalimantan all represent ancient movements across the Iran Mountains and down towards the east, following the headwaters of the Kayan, Mahakam, and Malinau rivers and various tributaries into Kayan territory. The Kenyah languages in eastern Kalimantan are quite divergent (see Blust 2007 and Soriente 2006a for examples of Òma Lóngh, perhaps the most divergent Kenyah language), a situation that likely arose through contact with various linguistic communities, including Kayan and perhaps Modang, and isolation from other Kenyah communities. Kenyah and Kayan speakers in the highlands of eastern Kalimantan have thus been in close contact for centuries. It is no surprise, then, that the Kenyah languages that changed *z to *s* are just those languages that have been in historically Kayan lands for an extended period of time. The change *z > *s* can be explained as diffusion through close contact. While the Kenyah speakers in Kalimantan entered the region from Sarawak, Kayan speakers in Sarawak represent a more recent movement in the opposite direction. Kayan migration into Sarawak is said to have begun perhaps two and a half centuries ago (Metcalf 1974; Rousseau 1974a). The different Kayan communities in Sarawak are reported to be linguistically fairly uniform (Metcalf 1974), a situation that agrees with more recent migration. Kenyah languages in Sarawak show few signs of strong linguistic influence from the more recent Kayan migration.

The close contact situation that has existed between Kenyah languages in Kalimantan with Kayan languages is the best explanation for a number of "shared lexemes" between the two groups. But some of the non-Kenyah evidence appears in Kenyah languages beyond Kalimantan, and weakens Soriente's argument in favor of semantic convergence or extended borrowing (see table 5). The suggested shared lexeme *inai* 'mother' is a retention from PMP *ina-i; *manuk* 'bird' is not an uncommon semantic shift; and *tinən* is not 'older woman', but is rather a possessed form of *tina* 'mother', which is also found in Lebo' Vo' *tinən* 'mother'. Soriente (2008) claimed that Lebo' Vo' is a Kayanic language, so it is unclear under what conditions she proposes *sinam* as a Kayanic innovation. The form for 'pig' given in Soriente (2006b) is interesting, but is not evidence for subgrouping with Kayan, as there are no similar forms in Kayan languages. Other words in the list are more difficult to explain, and are likely the result of direct borrowing through the circumstances described above.[6]

According to the data in tables 1 and 2 (taken from Soriente 2003), Uma' Kulit dialects reflect PKEN *ləma with *ləmme* 'five' (with predictable lengthening after schwa), *akiʔ with *akiʔ* 'first person singular pronoun', and *ikuʔ with *ikuʔ* 'second person singu-

5. Local testimony maintains that the Kenyah people migrated from the highlands of central Borneo, specifically Usun Apau, into their present locations. This history only accounts for the past few hundred years of movement. The time depth for Austronesian settlement of Borneo, however, is closer to 4,000 years. Movement of Austronesian speakers inland took place long before the local histories of Kenyah people were developed.
6. Note also the lack of basic vocabulary in this list of lexical innovations.

lar pronoun'. These innovations serve as diagnostics for inclusion in the Kenyah subgroup. In addition to this evidence, table 6 shows that Uma' Kulit reflects a split in the voiced stops that Kayan does not. Because of this evidence, and the weakness of Soriente's argument, Uma' Kulit and other dialects are included in the Kenyah group.

2.3 PENAN AND SEBOP. The Penan are a formerly nomadic group scattered throughout the interior of central Borneo.[7] The Sebop are a distinct group who live along the Tinjar River, a tributary of the Baram. Penan and Sebop seem to share a common ancestor with Kenyah, and furthermore, the evidence suggests that Penan and Sebop form a subgroup within the larger Kenyah group. Evidence for a Penan-Sebop group is both lexical and phonological. The pronouns and numerals listed in tables 7 and 8 show several of these innovations, including innovation of final *h* only after *-a (*-a > *-ah*) and a glottal stop after final high vowels (*-i > *iʔ* and *-u > *uʔ*).

Soriente (2008) places Penan outside of the Kenyah subgroup. Numerous pieces of evidence, however, support the inclusion of the Penan and Sebop within the Kenyah subgroup. Penan and Sebop shows a conditioned split in the voiced stops. This evidence places both comfortably within the NS subgroup. Using reflexes of PAN *d/*j, this can be seen in table 9.

Exclusively shared lexical replacement innovations and sporadic sound changes also support placing Penan-Sebop within North Sarawak, and further lexical evidence supports placing Penan-Sebop in the Kenyah group. Note that the first item listed in table 10 shows that Penan and Sebop have both inherited reflexes of *ləma 'five', a highly distinctive innovation only present in Kenyah.

TABLE 7. PENAN-SEBOP PRONOUNS (Blust n.d.)

	1SG	2SG	3SG	1PL.INCL	1PL.EXCL	2PL	3PL
Sebop	aoʔ	kaʔuʔ	iah	itam	kami	kəluʔ	luʔ
Long Merigam	akəwʔ	kauʔ	iah	itam	amiʔ tələwʔ	kətələwʔ	rətələwʔ
Long Labid	akəwʔ	kaʔaw	iəh	itam	—	kaʔəh	irəh
Long Wat	akəwʔ	kaʔəw	iah	təpat	kami	kaʔah	irah

TABLE 8. PENAN-SEBOP NUMERALS (Blust n.d.)

	1	2	3	4	5	6	7	8	9	10
Sebop	jah	duah	təluʔ	pat	ləmah	nəm	tujək	ayah	piʔah	jə jap
Long Merigam	jəh	duəh	tələwʔ	pat	ləməh	nəm	tujuʔ	ayəh	piən	jəh poloʔ
Long Labid	jah	duah	təluʔ	pat	ləmah	nəm	tujək	ayah	piʔah	jə jap
Long Wat	jah	luah	tələw	pat	ləməh	nəm	tujək	ayəh	piʔən	jə ñap

7. Penan in this paper refers to a group of dialects that share an immediate common ancestor with Kenyah and are spoken by formerly nomadic hunter-gatherer populations. In Kalimantan, hunter-gatherer populations are referred to as "Punan." There, Punan is used as a cover term for any group of hunter-gatherers and does not necessarily refer to a homogeneous linguistic community (Brosius 1988). Published material in Wati Kurniawati et al. (2002), for example, contains a wordlist from self-identified "Punans" in Kalimantan at Long Lamein. The language, in this publication at least, is clearly a Segai-Modang language and is not closely related to Penan or Kenyah, nor does it have a special relationship with the languages of other Punan communities in Kalimantan. The distinction between Penan and Punan is, thus, quite important.

TABLE 9. PENAN REFLEXES OF *d AND *dʰ

PNS	Long Merigam Penan	Sebop	English
*dədʰuR	rədo	lədo	woman; wife
*kədʰiŋ	nəkədɛŋ		to stand
*pedʰu	pədun	pədun	bile; gall
*ŋadan	ŋaran	ŋaran	name
(PKEN)*madiŋ	mariŋ	mariŋ	new
*udu	urəwʔ	uruʔ	grass

TABLE 10. EXCLUSIVELY SHARED REPLACEMENT INNOVATIONS

PNS	PKEN	Penan-Sebop	English
*lima	*ləma	ləmah	five
*ñipən	*jipən	jipən	tooth
*likəR	*batuk	batok	neck
?	*buʔin	buʔin	domesticated pig
?	*iəŋ	iəŋ	mosquito
?	*təkəlit	kəlit	insectivorous bat
?	*sagaʔ	sagaʔ	dance
?	*usən	ucən/usən	salt
?	*kimət	kimət	feelings
*bəRay	*naʔ	naʔ	give
*gaduŋ?	*biləŋ	biləŋ	green
*taʔun	*uman	uman	year
*jauʔ	*jʰoʔ	joʔ	far
?	*sukaʔ	sukaʔ	house post
*əbʰaR	*abət	avət	loincloth
*apuy	*lutən	lutən	fire
*Raya	*biyoʔ	biyu	big
?	*ti	tiʔ	make

Penan-Sebop also reflects the sound changes listed in Blust (2007) that define the Kenyah subgroup. These include:

(2) a. *d > *l- (in certain lexemes): Sebop *lədo* < PKEN *ləd^{h}o < PNS *dəd^{h}uR 'woman'

b. *R > Ø word finally: Penan, Sebop *iko* < PKEN *iko < PNS *ikuR 'tail'

c. *s > Ø word finally: Penan, Sebop *ato* < PKEN *ato < PNS Ratus 'hundred'

d. *i/u > *e/o* before *-R/s, (see a–c)

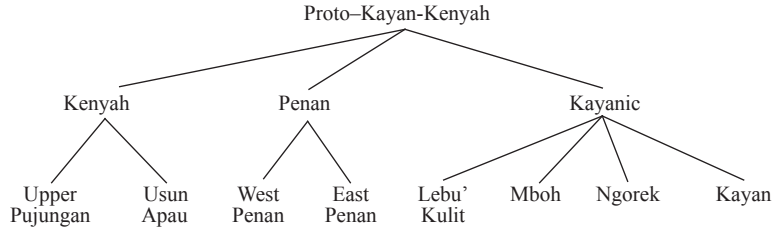
e. Devoicing final stops: Sebop *likut* < PKEN *likut < PNS *likud 'back'

f. Loss of first CV in CVNCVN reduplications: Sebop *vun* < PKEN *mbun < PNS *bunbun 'heap; pile'

This phonological and lexical evidence overwhelmingly supports including Penan languages in the Kenyah subgroup.

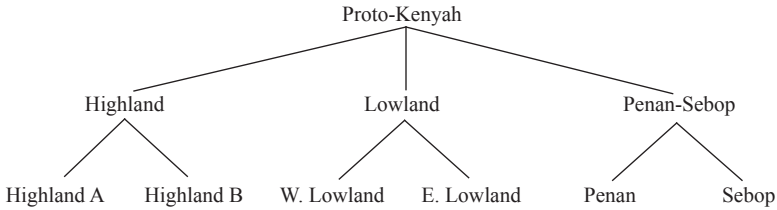
3. AN INTERNAL CLASSIFICATION OF KENYAH. Soriente (2008:59) includes a family tree with internal subgrouping of Kenyah (as well as Kayanic), which is reproduced here as figure 2.

FIGURE 2. KENYAH SUBGROUPING ACCORDING TO SORIENTE (2008)



After reassessing the evidence, it has become necessary to propose an alternative internal subgrouping of Kenyah languages. This subgrouping hypothesis includes three branches, Highland Kenyah, Lowland Kenyah, and Penan-Sebop. Lebo' Vo' and Uma' Kulit languages, in the new analysis, are placed in what is called the "Lowland" group. Highland languages reflect the voiced aspirated series with voiceless stops: for example, *pəd^{h}u > *pətu* 'gall' or *təb^{h}u > *təpu* 'sugar cane'. The lowland group reflects the same stops with implosives: *pəd^{h}u > *pədu* or *təb^{h}u > *təbu*. The revised family tree presented in figure 3 relies heavily on both reflexes of aspirated voiced stops and nasal-stop sequences. Detailed explanation of the tree follows.

FIGURE 3. REVISED KENYAH FAMILY TREE†



† Highland Kenyah dialects: (Highland A) Lepo' Gah, Lepo' Sawa, Lepo' Laang, Lepo' Ma'ut, Lepo' Ké, Bakung, Lepo' Ndang; (Highland B) Lepo' Tau, Badeng, Uma' Lasan, Uma' Alim, Òma Lóngh.
Lowland Kenyah dialects: (Western Lowland) Lebo' Vo'; (Eastern Lowland) Uma' Pawe, Uma' Kulit, Uma' Ujok, Lepo' Timai.

3.1 HIGHLAND (A AND B). PKEN had a series of homorganic nasal-stop clusters that are retained in all Highland dialects. Some Lowland dialects also retain nasal-stop sequences, but many have undergone cluster simplification. The separation of Highland Kenyah into two subgroups relies on innovations in Highland B, where nasal-stop sequences were devoiced. Examples of this change in Lepo' Tau, contrasted with a Highland A language (Lepo' Sawa'), are given in table 11

Data from the appendix of Soriente (2004) show that this change has also occurred in the Lepo' Tau communities in Kalimantan, which rules out areal influence in Sarawak as

TABLE 11. REFLEXES OF *mb AND *nd IN HIGHLAND KENYAH

PKEN	Lepo' Sawa' (A)	Lepo' Tau (B)	English
*(l/n)əmbam	ləmbam	nəmpam	tomorrow
*məmbe	məmbe	məmpe	blow nose
*mbaʔ	mbaʔ	mpaʔ	primary forest
*sambeʔ(?)	sambeʔ	sampeʔ	sape
*ambay	kəlimbay	kəlimpay	type of female ear piercing
*kələmbit	kələmbit	kələmpit	shield
*mbeʔ	mbeʔ	mpeʔ	uncle / aunt
*kundan	kundan	kuntan	egret
*ndoŋ	ndoŋ	ntoŋ	nose
*lunduʔ	lundoʔ	luntoʔ	sleep
*məndu	məndu	məntu	sit by fire
*məndəm	məndəm	məntəm (new moon)	dark
*ndaʔ	ndaʔ	ntaʔ	under
*ndiŋ	ndiŋ	nteŋ	wall
*kayu ndok	kayu ndok	kayu ntok	firewood
*nduʔ	ndoʔ	ntoʔ	bathe

a factor. Because devoicing of a voiced stop in the environment N_ is unexpected, parallel innovation is unlikely.[8] This change is best attributed to a single ancestor from which all Highland B languages descend.

3.2 LOWLAND (WESTERN AND EASTERN). Reflexes of nasal-stop sequences also play a role in the internal classification of Lowland Kenyah. In Western Lowland, all nasal-stop sequences have been simplified. In the case of *mb, this created a new phoneme, *v.* In other cases, innovation led to merger with existing phonemes. Eastern Lowland has retained the nasal-stop sequences mostly unchanged. Reflexes of *nd are given in table 12, to show the split. Western Lowland has also simplified *mb to *v,* *nj to *j*, and *ŋg to *g,* while Eastern Lowland retains all three. Examples include Lebo' Vo' *vaʔ* but Uma' Pawa *mbəʔ* 'primary forest'; Lebo' Vo' *ləji* but Uma' Pawa *lənje* 'sunset'; and Lebo' Vo' *sigət* but Uma' Pawa *siŋgət* 'every'.

TABLE 12. REFLEXES OF *nd IN LOWLAND KENYAH

PKEN	Lebo' Vo'	Uma' Pawa	English
*kundan	(payan)	kundan	egret
*ndoŋ	roŋ	ndoŋ	nose
*lunduʔ	luroʔ	lunduʔ	sleep
*məndəm	mərəm	məndəm	dark
*ndaʔ	raʔ	ndaʔ	under
*ndiŋ	reŋ	ndiŋ	wall
*kayu ndok	kayu rok	kayəw ndok	firewood
*nduʔ	roʔ	nduʔ	bathe

8. Murik (Ngorek) languages in the upper Baram also show this change. Murik shares an immediate common ancestor with Kayanic languages, so this may be an instance of parallel innovation. However, Murik languages have been in Kenyah territory for an extended period of time and show significant signs of contact, while other Kayanic languages in Sarawak show fewer signs of contact. It is unclear if this is a truly independent innovation, or a case of diffusion.

Eastern Lowland vowels also support the separation of Lowland Kenyah into Eastern and Western varieties. Final high vowels diphthongize in Eastern Lowland, giving rise to a new series of diphthongs not present in Western Lowland, *əy* and *əw*. It is important to note, however, that this change is an areal feature in coastal Sarawak and is found in Lower-Baram languages and Bintulu. It remains to be determined if this innovation is a result of areal influences, and if it is as strong as other pieces of evidence in this paper. A short list is given in table 13 as supporting evidence.

In Eastern Lowland, *a in the final syllable was raised to *e* when in word-final position, but to *ə* when closed with a glottal stop.[9] In Western Lowland, only word-final *a was raised, and it surfaces as *i* or *ə* rather than *e*. Examples can be found in table 14.

TABLE 13. REFLEXES OF FINAL HIGH VOWELS

PKEN	Lebo' Vo'	Uma' Pawe	English
*pəlaki	pəlaki	pəlakəy	eagle
*tali	tali	taləy	rope
*laki	laki	lakəy	man
*balu	balu	baləw	widow
*təlu	təlu	tələw	three
*ulu	ulu	uləw	head

TABLE 14. REFLEXES OF FINAL *-a AND *-aʔ

PKEN	Lebo' Vo'	Uma' Pawe	English
*ləma	ləmɨ	ləme	five
*dua	duɨ	due	two
*mata	matɨ	mate	eye
*ləmaʔ	ləmaʔ	ləməʔ	soft
*kəlawaʔ	kəlawaʔ	kəlawəʔ	spider
*mbaʔ	vaʔ	mbəʔ	primary forest

3.3 PENAN-SEBOP AND LOWLAND KENYAH. In his historical phonology of the Òma Lóngh Kenyah dialect, Blust (2007:6) places Penan and Sebop specifically within the Lowland subgroup. This hypothesis is based on the correct observation that Penan and Sebop, like Lowland Kenyah varieties, reflect the PNS voiced aspirates with voiced rather than voiceless stops, as shown in table 15.

This argument, however, is based on the assumption that the innovative forms in Penan and Sebop went through an earlier stage where *b^h, *d^h, *j^h, and *g^h were reflected as implosives that were later merged with the plain voiced series. Although the linguistic evidence does show that Penan and Sebop once distinguished plain and aspirated voiced stops

TABLE 15. REFLEXES OF ASPIRATED VOICED STOPS

PKEN	Highland	Lowland	Penan-Sebop
*b^h	p	ɓ	b
*d^h	t	ɗ	d
*j^h	č	ʃ	j
*g^h	k	ɠ	g

9. This change occurs in many but not all words that reflect *-aʔ. The conditions for this sound change remain unclear.

(as shown above with reflexes of *dʰ in medial position; cp. table 9), there does not seem to be any indication that these stops were ever imploded. In other words, there is not much reliable phonological evidence to place Penan-Sebop specifically in the Lowland group. The most supported hypothesis, then, places Penan-Sebop within Kenyah with no special relation to any lower level subgroup. However, some lexical evidence may be put forward to further support the Penan-Sebop-Lowland connection. A partial list is given in table 16, but the list is not yet complete, so the evidence remains preliminary. Some of the items appear in only a single Lowland dialect and a single Penan-Sebop dialect. For example, PKEN *bʰaʔ 'mouth' is reflected in Uma' Pawa as *ɓaʔ*; the innovative form *muʃu* is found only in Lebo' Vo', with *ujun* in Penan and Sebop. Whether this was innovated in an immediate common ancestor is unclear, because an inherited word for mouth remains in Uma' Pawa. In fact, many of the shared lexemes in table 16 are found only in Penan or Sebop and Lebo' Vo' (Western Lowland). Only *asuʔ* 'floor' and *jaʔaw* 'big' are found in Penan-Sebop and Uma' Pawa (Eastern Lowland), but not Lebo' Vo'. Thus, there is a mixed picture, with many, but not all, of the shared innovations appearing in only Western Lowland and Penan-Sebop. As more data are gathered, the list may come to show a clearer connection between Lowland and Penan-Sebop, with consequences for subgrouping.

TABLE 16. SHORT LIST OF POSSIBLE LOWLAND–PENAN-SEBOP LEXICAL REPLACEMENT INNOVATIONS

PKEN	Lowland	Penan-Sebop	English
*taʔi	aniʔ	aniʔ	excrement
*bʰaʔ	muʃu	uju-n	mouth
*tənaʔi	bure	bure	intestines
*ujan	imaʔ	imaʔ	rain
*saləŋ	padəŋ	padəŋ	black
?	aŋat	aŋat	intestinal worms
*butaʔ	ɓəŋ	bəŋ/ɓəŋ	blind
*təŋgan	asuʔ	acu	floor
*bioʔ	jaʔaw	jaʔaw	big
*sigut	səgit	səgit	dirty

3.4 SOUND CORRESPONDENCES FOR NORTH SARAWAK AND KENYAH SUBGROUPS. The sound changes discussed above, which serve to delineate subgroups within Kenyah, are listed in table 17. This list compares Highland A and B, Western and Eastern Lowland, as well as Penan-Sebop to PNS.

4. KAYANIC AND KENYAH. The most recent hypothesis linking Kayanic and Kenyah was proposed by Soriente in her doctoral dissertation (Soriente 2003) and a follow-up paper (Soriente 2008). The latter work claims that Kenyah, Penan, and Kayan form primary branches of a proposed Kayan-Kenyah subgroup, and is based on a set of shared phonological innovations. Still more recently, Soriente (2013) placed the proposed Kayan-Kenyah subgroup within Blust's North Sarawak group (Blust 1974b, 2010), thereby modifying the original proposal of North Sarawak, which did not include a Kayan-Kenyah branch.

TABLE 17. PNS AND KENYAH SOUND CORRESPONDENCES

PNS	Highland A	Highland B	W Lowland	E Lowland	Penan-Sebop
*bʰ	p	p	ɓ	ɓ	b
*dʰ	t	t	ɗ	ɗ	d
*jʰ	c	c	ʃ	j	j
*gʰ	k	k	ɠ	g	g
*b-	b	b	b~ɓ	b	b
*-b-	b	b	ɓ	v	v
*-b	p	p	p	p	p
*d-	d	d	l	l	d
*-d-	d	d	r	r	r
*-d	t	t	t	t	t
*j- (*z-)	j	j	j	j/s	j
-j- (-z-)	j	j	j	j/s	ʔ
*-R-	Ø	Ø	Ø	Ø	h
*mb	mb	mp	v	mb/v	v
*nd	nd	nt	r	nd	r
*nj	nj	nc	j	nj	ʔ
*ŋg	ŋg	ŋk	g	ŋg	ʔ
*-i	i	i	i	əy	əyʔ /iʔ
*-u	u	u	u	əw	əwʔ/uʔ
*-a	a	a	ɨ	e	ah/əh
*-is, *-iR	e	e	e	e	e
*-us, *-uR	o	o	o	o	o

4.1 SORIENTE'S EVIDENCE FOR A KAYAN-KENYAH SUBGROUP. In Soriente (2008), twelve separate sound changes are presented as the main body of evidence for a Kayan-Kenyah subgroup. Although a list of twelve shared innovations may seem like a substantial body of evidence at first glance, none of these stands up to close scrutiny, and none is supported by language data in the publication. The full list is given in table 18. After a quick glance at that table, one is struck by the commonness of the sound changes. Several of the innovations listed provide only weak subgrouping evidence, while others are not innovations at all. I address each proposed innovation in the following list, and conclude that there remains no solid evidence based on exclusively shared innovations that link Kenyah and Kayanic into a single subgroup.

TABLE 18. KAYAN-KENYAH EVIDENCE (from Soriente 2008:56)

1	*z > j / # _
2	*R > x > h
3	*q > Ø, ʔ
4	*l > n _ V [+hi]
5	*S > Ø
6	*s > Ø / _#
7	*a > ə / (C)_CVCVCC
8	* ə > Ø / #_
9	Devoicing of final stops
10	Reduction of PAN reduplicated roots
11	Deletion of nasals in NC clusters
12	Lowering of PAN high vowels *i and *u in penultimate syllable

1. *z > j / # _. In the history of Austronesian scholarship, PAN *z has been used to represent what was likely [ʤ]. In Dahl (1973), for example, *z is clearly listed along with the affricate series while *j (listed in Dahl as *g') is listed as a palatalized velar. The proposed change *z > *j*, then, is simply the result of an orthographic tradition within the field and can be discarded.

2. *R > *x* > *h*. Most Kenyah languages show the sound change *R > Ø: for example, reflexes of *baRəq 'boil' in Pawe, Lepo' Sawa, and Lebo' Vo' are *baaʔ* 'swell; boil'. However, there is evidence that this change went through an intermediate step with *h* rather than *x*, which is retained in Penan languages in words like *bahəʔ* < *baRəq 'a boil' or *dahaʔ* < *daRaq 'blood'. The change *R > *h* > Ø is widely attested in Austronesian (AN) languages and has little value for subgrouping. The change *R > *h* is even more common, especially when considering the fact that many AN languages that reflect *R with Ø likely went through an intermediate step.

3. *q > Ø, *ʔ*. This is one of the most common sound changes in the Austronesian family, and provides very weak evidence for subgrouping. Nearly all reflexes listed in the *Austronesian comparative dictionary* outside of a handful of Formosan and Philippine languages reflect *-q with either Ø or *ʔ*. The Malayo-Chamic group reflects **q* with *h*, and Moken, along with several Oceanic languages, reflects *q with *k*. This does not, however, detract from the point that *q > Ø, *ʔ* is very common throughout the language family. In addition, this innovation includes an apparent unconditioned split that is not addressed in Soriente's publications.

4. *l > *n* _ V [+hi]. There is no basis for this sound change and evidence from numerous Kenyah languages show *l* appearing before high vowels without any nasalization. Examples include *likud 'back', reflected with initial *l* in all languages for which data are available; *taliŋa 'ear' and *talih 'rope' are also reflected with medial *l*. Unless some special condition acts on this change that was not stated explicitly in Soriente (2008), it does not seem to be a valid piece of evidence.

5. *S > Ø. PAN *S was likely a voiceless alveolar fricative [s] (Ross 1992:38ff) distinct from *s, which was a voiceless palatal fricative. There was a single change in PMP, *S > *h, that is inherited in all of the languages outside of Taiwan, so this sound change should be restated as *h > Ø. The immediate issue at hand is that there is no way to rule out independent parallel innovation, especially considering the volatility of *h* in the world's languages. PMP *h was lost in most daughter languages, with some exceptions in the Philippines and Soboyo of the Central Malayo-Polynesian subgroup (Blust 1981), where it is retained. Retention of *h in Soboyo suggests that reflexes of *h (<*S) as Ø elsewhere are the result of independent parallel innovations.

6. *s > Ø / _#. Not all Kayan languages reflect word final *s with Ø; rather, they retain an intermediate stage where *s > *h*: for example, Kenyah *pana* 'hot' but Kayan *panah*, and Kenyah *bete* 'the leg below the calf' but Kayan *betih*. Because Proto-Kayan retained *s as *h in final position, the proposed sound change is not usable as evidence for Kayan-Kenyah. Any Kayan language that might have deleted final *h* (< *s) must have done so independently.

7. *a > *ə* / (C)_CVCVC. The reduction of *a to schwa in prepenultimate syllables is a retention in Kenyah from Proto-North Sarawak (Blust 2010), at the very least. It is a com-

mon change throughout Borneo: for example, PMP *balakaŋ 'hips' > Malay and Iban *bəlakaŋ* 'behind'. This change is also found in languages scattered throughout the Austronesian family, including, for example, Atayal on Taiwan (Rau 1992). This sound change thus provides only weak evidence, and is likely the product of convergent sound change.

8. *ə > Ø / #_. Using PMP *epat 'four', it can be shown that the loss of initial schwa is quite widespread and cannot be used as strong evidence for a subgrouping hypothesis. Not only does this loss occur in many languages in Sarawak, it occurs in several languages not closely related to Kenyah or Kayanic. Examples taken from Blust and Trussel (ongoing) include (organized by area):

(3) Taiwan: Bunun *pat,* Puyuma *pat,*
Philippines: Maranao *pat,* Tboli *fat,*
Borneo: Bintulu *pat,* Melanau (Mukah) *pat,* Kenyah *pat,* Kayan (Uma Juman) *pat,*
Western Indonesia: Lampung *paʔ,* Javanese *pat,*
Eastern Indonesia: Komodo *paʔ,* Manggarai *pat,* Rembong *pat.*

The list could go on. The fact that two languages that show this change happen to be in close proximity is not enough to rule out independent parallel innovation as an explanation.

9. Devoicing of final stops. While it is true that Kenyah devoiced final stops, the same cannot be said for Kayanic, where final voiced stops remain voiced: *b > *m/v;* and *d > *n/r.* This can be seen in, for example, PMP *huab 'yawn' > PKEN *nuap but Kayan *uham,* Kayan (Uma Juman) *huav*; PMP *likud 'back' > Kenyah *likut,* but Kayan *te-likun* 'to sit back to back'; PMP *takəd 'to climb' > Kenyah *takət* but Kayan (Uma Juman) *takər.* Devoicing of final stops cannot be attributed to Soriente's proposed Kayan-Kenyah subgroup due to Kayanic evidence that voiced stops were retained in final position. At most, any devoicing that might be found in modern Kayanic languages is a modern change, and resemblance to Kenyah words is by chance convergence. The fact that only Kenyah devoiced final stops is further evidence to separate Kenyah and Kayan.

10. Reduction of PAN reduplicated roots. The reduction of reduplicated roots did not happen only within the proposed Kayan-Kenyah subgroup, but rather can be attributed to Proto-North Sarawak (and possibly an even earlier ancestral language). In PNS, reduction of reduplicated roots was one sound change that created aspirated voiced consonants. Examples include PMP *bəjbəj > PNS *bəbʰəd 'tie by winding', PMP *bəkbək > PNS *bəbʰək 'pulverize', PMP *butbut > PNS *bubʰut 'pluck; pull out', and PMP *dakdak > PNS *dədʰak 'tamp earth' (Blust 2010). This is a retention from PNS in Kenyah languages, not an innovation. Because of this, it cannot be used as evidence linking Kayanic and Kenyah.

11. Deletion of nasals in NC clusters. Nasal-consonant clusters were not deleted in Proto-Kenyah, nor were they deleted in Proto–Kayan-Murik. It is not clear on what basis Soriente claims NC deletion as a shared innovation, but inherited NC clusters from PMP appear throughout both language groups: for example, PMP *diŋdiŋ > PKEN *ndiŋ > Lepo' Sawa' *ndiŋ,* Badeng *ntiŋ* 'wall'. Ngorek (Murik) also retains the cluster from PMP *diŋdiŋ > *lentiŋ*. Reduction of NC clusters through the deletion of the nasal cannot be attributed to Soriente's proposed Kayan-Kenyah group. Lebo' Vo', as shown in table 12, has deleted nasals in NC clusters; however, this cannot be attributed to Proto-Kenyah. If a

Kayan language also happens to show this change, it must have arisen through independent parallel sound change.

12. Lowering of PAN high vowels *i and *u in penultimate syllable. The vagueness of this sound change makes it difficult to evaluate. There are very interesting examples of high vowel lowering in a few lexical items throughout Kenyah. The most important for subgrouping may be lowering of *i* to *ə* in *ləma* 'five'. This, however, is not a *regular* sound change, and is confined to this single lexeme. This does not support a Kayan-Kenyah subgroup, but a separation of the two language groups. Òma Lóngh is one Kenyah language that has lowered penultimate high vowels as part of a more wide ranging sound change (Blust 2007; Soriente 2006a), but the same is not true for other Kenyah languages, and it cannot be attributed to PKEN.

After reviewing each proposed innovation, one must conclude that they do not stand up to close scrutiny. Proposed changes like *z > *j* show a lack of familiarity with comparative Austronesian literature, while others, like innovations 4, 11, and 12 are demonstrably false. As it turns out, there is more evidence against the Kayan-Kenyah subgroup in these twelve "innovations" than there is support.

4.2 WHERE DO KAYAN LANGUAGES FIT IN? This question is by no means easy to answer. In contrast to Soriente (2003, 2008), this paper has shown that the Kayan-Kenyah subgroup cannot be accepted with the evidence available. While Blust has hypothesized in various publications that Kenyah languages are rather straightforwardly assignable to PNS, the Kayan languages offer no such luxury for the historical linguist. The defining feature of the NS subgroup, distinct reflexes of plain voiced and aspirated voiced stops, is absent in Kayan. The picture is obscured due to significant borrowing: Kayan speakers share cultural ties with Kenyah speakers, they occupy overlapping territories, and have traded and intermarried for centuries. Future work might very well show that Kayan languages form a branch of PNS, but such a work has yet to emerge.

Kayan languages share the lexical and semantic innovations that define Greater North Borneo. The evidence is restated here, with a few additional sources. Baluy Kayan data are from Rousseau (1974b), Uma Juman data are from Blust (1977), Uma' Laran, Hueng Bau, and Pua' are from Soriente (2003), and the rest are from Blust (2010); PGNB = Proto-Greater North Borneo.

(4) PGNB *tuzuq 'seven' > Baluy Kayan, Uma' Laran, Hueng Bau, Pua', Uma Juman, *tusu*
PGNB *lipəs 'cockroach' > Baluy Kayan *lipah*
PGNB *tiuŋ 'talking grackle; hill mynah' > Balyu Kayan *tioŋ*
PGNB *lamin 'room' > Baluy Kayan *amin*
PBNG *butbut 'crow pheasant' > Kayan *manuk but*
PGNB *kubuŋ 'flying fox' > Kayan *kuvuŋ*
PGNB *sakay 'stranger' > Baluy Kayan *hake* 'visitor; stranger'
PGNB *kuini 'mango' > Kayan *kuini* 'species of sweet mango'
PGNB *təgap 'sturdy; firmly built' > Kayan *tagəp* 'firm; immovable'
PGNB *tukul 'hammer' > Kayan *tukun*
PGNB *saʔay 'large loud frog' > Uma' Laran, Pua' *haʔai,* Hueng Bau *haʔe*

Any subgrouping inference beyond this level is very difficult, because Kayan languages do not have any evidence of the split reflexes of voiced stops present in North Sarawak languages. It is possible that a past split in the voiced stops has been covered up by subsequent sound change. If, for example, *bʰ, *dʰ, *jʰ, *gʰ merged with the plain voiced stops early in the history of Kayan languages, their historical presence would be undetectable. It is thus necessary to rely on separate sound changes and lexical evidence when classifying the Kayan languages. Perhaps the most salient sound change in Kayan is the innovation of word final glottal stops in the environment -V_ followed by deletion of inherited glottal stops in the same environment, as shown in table 19. This sound change, however, does not appear in other languages of Borneo, and does not seem to offer evidence that Kayan subgroups with any of its neighbors. Other uncommon sound changes that occur in Kayan are *z > *s* and nasalization of final voiced stops. With regard to the latter, Uma Juman Kayan does not reflect final voiced stops as nasals, so this change must have occurred after Proto-Kayan split and cannot be used in a subgrouping argument. The change *z > *s* is present through borrowing in some Kenyah languages and as a separate innovation in Berawan. These two changes provide little assistance in subgrouping.

Much work remains to be done in classifying Kayan languages. Other language communities in Kalimantan, notably Modang and Segai, may provide clues to the history of Kayan. While many anthropological works assume a Kayan connection to Segai-Modang (Avé and King 1986:11; Conley 1975:15; King 1993:44), no comparative linguistic evidence has been put forward other than a short description of morphology in Soriente (2013). Most of the information available on these languages is quite old, and the accuracy of phonetic transcriptions cannot be guaranteed. The issue of Kayan classification needs to be left to future work. Learning about other languages in Kalimantan, especially Segai-Modang, has the potential to shed more light on the linguistic position of Kayan.

TABLE 19. FINAL V AND V? IN KAYAN

PMP	Kenyah, Lepo' Gah	Kayan, Long Naah	English
*duha	dua	dua?	two
*təlu	təlu	təlo?	three
*lima	ləma	lima?	five
*bahaq	pa	ba?	mouth
*tuzuq (point)	tujo?	tusu	seven
*puluq	pulo?	pulu	ten
*daRaq	daa?	daha	blood

5. CONCLUSION. This paper has offered an updated classification of Kenyah languages, based on exclusively shared sound changes and lexical innovations. The Kenyah subgroup has been shown to include Kenyah, Penan, and Sebop languages, based on reflexes of PNS aspirated voiced stops and several other sound changes discussed above. The internal classification of Kenyah into Highland, Lowland, and Penan-Sebop is well supported by both phonological and lexical evidence. Further, Highland and Lowland languages are divided into Highland A and B, and Western and Eastern Lowland, respectively. The classification offered here differs significantly from recent proposals by Soriente. There does not seem to be any reliable evidence that either Lebo' Vo' (Mboh) or

Uma' Kulit subgroup with Kayanic languages. Rather, Lebo' Vo' and Uma' Kulit dialects are shown to share relevant sound changes with Kenyah, supporting their inclusion in the Kenyah subgroup. This paper has also evaluated the Kayan-Kenyah hypothesis, offering a close scrutiny of the evidence given in Soriente (2003, 2008). The twelve sound changes proposed by Soriente do not offer strong evidence for Kayan-Kenyah. Several of the proposed sound changes are invalid, while others are so common that they are likely products of parallel innovation. In short, there is still no strong evidence for grouping Kenyah and Kayanic languages together.

APPENDIX. KENYAH AND KAYANIC WORDLISTS FROM SMITH (N.D.)

The following wordlist contains data from two Lowland Kenyah languages (Lebo' Vo', a Western Lowland language, and Uma' Pawe, an Eastern Lowland language) and five Highland Kenyah languages (Lepo' Gah, Laang, and Sawa', all Highland A languages, and Lepo' Tau and Badeng, both Highland B languages). Two Kayanic languages, Ngorek (Murik) and Long Naah Kayan are also listed, for comparison.

	1SG	**2SG**	**3SG**	**1PL.IN**	**1PL.EX**
PNS	*aku	*kahu	*ia	*kita	*kami
PKEN	*akiʔ	*ikuʔ	*ia	*ilu	*amiʔ
Lebo' Vo'	akeʔ	ikoʔ	yɨ	təpat / ilu	ameʔ
Uma' Pawe	akiʔ	ikuʔ	ye	meʔ təw	meʔ təw
Lepo' Gah	akeʔ	ikoʔ	ya	təpat	ameʔ pat
Lepo' Laang	akeʔ	ikoʔ	ya		ameʔ
Lepo' Sawa'	akeʔ	ikoʔ	ya	təpat / ilu	ameʔ pat
Lepo' Tau	akeʔ	ikoʔ	ia	təpat	ameʔ pat
Badeng	akeʔ	ikoʔ	ya	təpat	ameʔ pat
Ngorek	akoʔ	ikaʔ	iha?	itaʔ	kameʔ
Kayan	akoy	ikaʔ	ihaʔ	itam	kaloʔ
	2PL	**3PL**	**one**	**two**	**three**
PNS	*ikəm	*ida	*əjʰa	*dua	*təlu
PKEN	*ikəm	*ida	*jʰa	*dua	*təlu
Lebo' Vo'	ikəm	irɨ	ʃo	luɨ	təlu
Uma' Pawe	kəm təw	ira	se	lue	tələw
Lepo' Gah	ikəm	ida	ca	dua	təlu
Lepo' Laang	ikəm	ida	ca	dua	təlu
Lepo' Sawa'	ikəm (pat)	ida	ca	dua	təlu
Lepo' Tau	ikəm	ida	ca	dua	təlu
Badeng	ikəm pat	eda pat	ca	dua	təlu
Ngorek	kəloʔ	tənan	nji	luaʔ	təloʔ
Kayan	kəloʔ	dahaʔ	niʔ	duaʔ	təloʔ
	four	**five**	**six**	**seven**	**eight**
PNS	*əpat	*lima	*ənəm	*tujuʔ	*walu
PKEN	*pat	*ləma	*nəm	*tujuʔ	*aya(ʔ)
Lebo' Vo'	pat	ləmɨ	nəm	tuʃək	ayɨ
Uma' Pawe	pat	ləme	nəm	tusuʔ	ai
Lepo' Gah	pat	ləma	nəm	tujoʔ	aya
Lepo' Laang	pat	ləma	nəm	tujək	aya
Lepo' Sawa'	pat	ləma	nəm	tujoʔ	aya
Lepo' Tau	pat	ləma	nəm	tujoʔ	aya
Badeng	pat	ləma	nəm	tujoʔ	aya
Ngorek	pat	lemaʔ	nəm	tusu	sayaʔ
Kayan	pat	limaʔ	nəm	tusu	sayaʔ

	nine	**ten**	**and**	**back**	**bathe**
PNS	*siwa(?)	*puluʔ	*ŋan	*likud	
PKEN	*piʔən(?)	*puluʔ	*ŋan	*likut	*nduʔ
Lebo' Vo'	piʔən	ʃap	ŋan	likot	roʔ
Uma' Pawe	piʔən	puluʔ			nduʔ
Lepo' Gah	piʔən	puloʔ	ŋan	likut	
Lepo' Laang	piʔən	jap	ŋan	likut	
Lepo' Sawa'	piʔən	puloʔ	ŋan	likut	ndoʔ
Lepo' Tau	piʔən	puloʔ		likot	ntoʔ
Badeng	peʔan	puloʔ	ŋan	likut	ntoʔ
Ngorek	pitan	pulu	bain	laʔoŋ	ntoh
Kayan	pitan	pulu	dahin	laʔoŋ	du
	beginning	**big**	**bird**	**black**	**blind**
PNS		*Raya	*manuk-manuk	*mitən	*buta
PKEN	*adiŋ(-adiŋ)	*bioʔ	*sui	*saləŋ	*butaʔ
Lebo' Vo'	n-ariŋ (begin)	bioʔ	sui	paɗəŋ	bəŋ
Uma' Pawe		jaʔaw	manok	saləŋ	butəʔ
Lepo' Gah	n-adiŋ (begin)	bioʔ	sui	saləŋ	butaʔ
Lepo' Laang		bioʔ	sui	saləŋ	butaʔ
Lepo' Sawa'			sui	saləŋ	butaʔ
Lepo' Tau	n-adeŋ (begin)	bioʔ	sui	saləŋ	butaʔ
Badeng	n-adiŋ (begin)	bioʔ	sui	saləŋ	butaʔ
Ngorek	n-ari (begin)	ayaʔ	manok	pitəm	botak
Kayan		dəkayaʔ	manok	pitəm	butaʔ
	blow nose	**but**	**cloud**	**cockroach**	**dance**
PNS			*abun	*ipəs	
PKEN	*məmbe inat	*tapiʔ	*abun	*lipah	*sagaʔ
Lebo' Vo'	məve inat	tapeʔ	aɓun	lipah	saɠaʔ
Uma' Pawe	məmbe	tapiʔ	avun	lipe	ŋanjət
Lepo' Gah	məmbe inat	tapeʔ	abun	lipa	sagaʔ
Lepo' Laang	məmbe		abun	lipa	sagaʔ
Lepo' Sawa'	məmbe inat	tapeʔ	abun	lipa	sagaʔ
Lepo' Tau	məmpe inat		abun	lipa	
Badeng	məmpe enat	boka	abun	nepa	
Ngorek	məmpeh		abun	aŋkiŋ ayaʔ	ŋaraŋ
Kayan	nələhaʔ	biʔ	əp	lipah	nivaŋ
	dark	**day**	**dirty**	**drink**	**eagle**
PNS		*ədʰaw		*inum	
PKEN	*məndəm	*dʰaw	*sigut	*isəp	*pəlaki
Lebo' Vo'	mərəm	ɗaw	səgit	nəsəp	pəlaki
Uma' Pawe	məndəm	ɗaw	sigut	mədûʔ	pəlakəy
Lepo' Gah	məndəm	taw	sigut	mədəp	pəlaki
Lepo' Laang	məndəm	taw	mano	isəp	pəlaki
Lepo' Sawa'	məndəm	taw	sigut	isəp	pəlaki
Lepo' Tau	məntəm	taw	mano	nisəp	pəlaki
Badeng	məntəm	taw	jaməŋ	n̪esəp	p̪əlaki
Ngorek	lintəm	ro(?)	lano	ñərup	nau
Kayan	lidəm	daw	masap	duʔiʔ	nioh?
	egret	**every**	**excrement**	**eye**	**far**
PNS			*taʔi	*mata	*jauʔ
PKEN	*kundan	*siŋgət	*taʔi	*mata	*jʰoʔ
Lebo' Vo'	payan	sigət	aniʔ	matɨ	ʃoʔ
Uma' Pawe	kundan	siŋgət		mate	suʔ
Lepo' Gah	kundan		taʔi	mata	coʔ
Lepo' Laang	kundan		taʔi	mata	coʔ
Lepo' Sawa'	kundan	siŋgət	taʔi	mata	coʔ
Lepo' Tau	kuntan		taʔi	mata	coʔ
Badeng	kontan		taʔi	mata	coʔ

Ngorek	pontan	piŋkət	taʔe	mataʔ	su
Kayan	kəlabaway		taʔe	matan	su
	feelings	**fell**	**ear piercing**	**fire**	**firewood**
PNS				*apuy	
PKEN	*kimət	*nəbʰəŋ	*ambay	*lutən	*kayu ndok
Lebo' Vo'	kimət	nəvəŋ	avay	lutən	kayu rok
Uma' Pawe	kimət	nəɓəŋ	sələgoŋ	apuy	kayəw ndok
Lepo' Gah	kimət	nəpəŋ	samy ambay	lutən	kayu ndok
Lepo' Laang	kimət	nəpəŋ	ambay	lutən	kayu ndok
Lepo' Sawa'		nəpəŋ	kəlimbay	lutən	kayu ndok
Lepo' Tau	kimət	nəpəŋ	kəlimpay	lutən	kayu ntok
Badeng		nəpəŋ	ampay	lutən	kayu ntok
Ngorek	pəlulup	nəbəŋ	ampay	api	kayoʔ entoʔ
Kayan		nəvəŋ		apuy	kayoʔ tayuŋ
	floor	**flying lemur**	**gall**	**give**	**grass**
PNS			*pədʰu		*udu
PKEN	*təŋgan	*kubuŋ	*pədʰu	*naʔ	*udu
Lebo' Vo'	təgan	kuɓoŋ	pədu̇	naʔ	uru
Uma' Pawe	asuʔ	kuvuŋ	pədə̇w	nəʔ	urəw
Lepo' Gah	təŋgan	kuboŋ	pətu	naʔ	udu
Lepo' Laang	tiloŋ	kubuŋ	pətu	naʔ	udu
Lepo' Sawa'	təŋgan		pətu	naʔ	udu
Lepo' Tau	təŋkan	kuboŋ	pətu	naʔ	udu
Badeng	təŋkan	pinulit	pətu	naʔ	udu
Ngorek	bərat	koboŋ	pərun	maʔeh	oroʔ
Kayan	təgan	kələbuan adaŋ	pəron	ok	uroʔ
	green	**head hair**	**head**	**hot**	**house post**
PNS	*gaduŋ	*əbʰuk	*ulu	*panas	
PKEN	*biləŋ	*bʰuk	*ulu	*pana	*sukaʔ
Lebo' Vo'	biləŋ	ɓok	ulu	pana	sukaʔ
Uma' Pawe	biləŋ	ɓuk	uləw	lasuʔ	sukəʔ
Lepo' Gah	biləŋ	pok	ulu	pana	sukaʔ
Lepo' Laang	biləŋ	pok	ulu	pana	sukaʔ
Lepo' Sawa'	biləŋ	pok	ulu	pana	sukaʔ
Lepo' Tau	biləŋ	pok	ulu	pana	sukaʔ
Badeng	ɓeləŋ	pok	ulu	pana	sokaʔ
Ngorek	n̤əmit	bok	taŋah	pusoʔ	ji
Kayan	n̤əmit	bok	kahoŋ	lasu	jiheʔ
	hundred	**insect bat**	**intestinal worms**	**intestines**	**leg (calf)**
PNS	*Ratus			*tinaʔi	*bətis
PKEN	*ato	*təkəlit		*tənaʔi	*bəte
Lebo' Vo'	ato	təkəlit	aŋat	bure	bəte
Uma' Pawe	ato	pəndan	aŋat	tənaʔiʔ	bəte
Lepo' Gah	ato	təkəlit	kua	tanai	bəte
Lepo' Laang	ato	təkəlit	kua	tənaʔ	bəte
Lepo' Sawa'	ato	təkəlit		tənaʔi	bəte
Lepo' Tau	ato	ləsiwən	kua	tənaʔi	bəte
Badeng	ato	təkəlit		tənaʔi	bəte
Ngorek	atoh	pəntan	kəñəwaʔ	tənaʔeʔ	bəteʔ
Kayan	atuʔ	pəndan		bureh	bətih
	loincloth	**blood**	**make**	**man**	**mosquito**
PNS	*əbʰaR	*daRaʔ		*laki	
PKEN	*abət	*dahaʔ	*ti	*laki	*iəŋ
Lebo' Vo'	aɓət	laaʔ	ti	laki	yəŋ
Uma' Pawe	aveət	laaʔ	təy	lakəy	təlukuk
Lepo' Gah	abət	daaʔ	ti	laki	yəŋ
Lepo' Laang	abət	laaʔ	ti	laki	yəŋ
Lepo' Sawa'	abət	daaʔ	ti	laki	iəŋ

Lepo' Tau	abət	daaʔ	ti	laki	yəŋ
Badeng	abət	daaʔ		laki	yəŋ
Ngorek	bah	raa	na	lakeʔ	
Kayan	bah	daha	naʔ	lakeʔ	təlukoʔ
	mother	**mouth**	**name**	**neck**	**new**
PNS	*t-ina/*ina-i	*əbʰaʔ	*ŋadan	*likəR	*bəʔəRu
PKEN	*inay/*inaʔ	*bʰaʔ	*ŋadan	*batuk	*madiŋ
Lebo' Vo'	inaʔ	muʃu	ŋaran	batok	mariŋ
Uma' Pawe	inay	ɓaʔ	ŋaran	batuk	mariŋ
Lepo' Gah	ueʔ	paʔ	ŋadan	batok	madiŋ
Lepo' Laang	ueʔ	paʔ	ŋadan	batok	madiŋ
Lepo' Sawa'	ueʔ	paʔ	ŋadan	batok	madiŋ
Lepo' Tau	ueʔ	paʔ	ŋadan	batok	madiŋ
Badeng	weʔ	paʔ	ŋadan	batok	madiŋ
Ngorek	nay	ba		kəraʔ	mareŋ
Kayan	inay	baʔ		kəran	mariŋ
	nose	**parang**	**pig**	**primary forest**	**rain**
PNS	*uduŋ/ənduŋ		*babuy		*ujan
PKEN	*ndoŋ	*baiŋ	*babuy	*mbaʔ	*ujan
Lebo' Vo'	roŋ	baiŋ	baɓuy	vaʔ	imaʔ
Uma' Pawe	ndoŋ	malat	bavuy	mbəʔ	usan
Lepo' Gah	ndoŋ	baiŋ	babuy	mbaʔ	ujan
Lepo' Laang	ndoŋ	baiŋ	babuy	mbaʔ	ujan
Lepo' Sawa'	ndoŋ	baiŋ	babuy	mbaʔ	ujan
Lepo' Tau	ntoŋ	bayəŋ	babuy	mpaʔ	ujan
Badeng	ntoŋ	baiŋ	babuy	mpaʔ	ujan
Ngorek	oroŋ	paʔeh	mabiʔ	toʔan	usan
Kayan	uroŋ		babuy	tuʔan	usan
	room	**rope**	**salt**	**sape**	**shield**
PNS	*lamin	*tali			
PKEN	*lamin	*tali	*usən	*sambeʔ(?)	*kələmbit
Lebo' Vo'	lamin	tali	usən	saveʔ	kələvet
Uma' Pawe	amin	taləy	usən	sapeʔ	kələvit
Lepo' Gah	amin	tali	usən	sambeʔ	kaləmbit
Lepo' Laang		tali	usən	sambeʔ	kələmbit
Lepo' Sawa'	amin	tali	usən	sambeʔ	kələmbit
Lepo' Tau	amin	tali	usən	sampeʔ	kələmpit
Badeng	amin	tali	osən	sampeʔ	kələmpit
Ngorek	amin	taleʔ	yaʔ	sampeʔ	kələmpit
Kayan		taleʔ	iyaʔ	sapeʔ	kələbit
	sit by fire after childbirth	**sit down**	**sleep**	**soft**	**spider**
PNS			*tiduR		
PKEN	*məndu		lunduʔ	*ləmaʔ	*kəlawaʔ
Lebo' Vo'	ŋəru	məñon	luroʔ	ləmaʔ	*kəlawaʔ
Uma' Pawe	mərəw	ukoʔ	lunduʔ	ləmaʔ	kəlawaʔ
Lepo' Gah	məndu	madoŋ	luroʔ	ləmaʔ	kəlawəʔ
Lepo' Laang	məndu	madoŋ	lundoʔ	ləmaʔ	kəlawaʔ
Lepo' Sawa'	məndu	maduŋ	lundoʔ	ləmaʔ	təlawaʔ
Lepo' Tau	məntu	madoŋ	luntoʔ	ləmaʔ	kəlawaʔ
Badeng	m̥əntu	adoŋ	luntoʔ	ləmaʔ	təlawaʔ
Ngorek	ñənto?	aroŋ	təroh	ləma	təlawaʔ
Kayan	nidoʔ	məloʔ	tudu	ləma	təlawaʔ
	stand	**sunset**	**tail**	**tomorrow**	**tooth**
PNS	*diRi		*ikuR		*ŋipən
PKEN	*kediŋ(?)	*ɗʰaw ləŋja	*iko	*[l/n]əmbam	*jipən
Lebo' Vo'	nəkəɗeŋ	ɗaw ləji	iko	vam	jipi
Uma' Pawe	kəɗiŋ	lənje ɗaw	iko	məsut	jipən
Lepo' Gah	nəkəjəŋ		iko	nəmbam	jipən

Lepo' Laang	nəkəjəŋ	taw lənja	iko	nəmbam	jipən
Lepo' Sawa'	nəkəjəŋ	lənja taw	iko	ləmbam	jipən
Lepo' Tau	nəkəjəŋ	lənca taw	iko	nəmpam	jipən
Badeng	nəkəjəŋ	taw lənca	eko	nəmpam	jipən
Ngorek	nəkəreŋ		ekoh	roʔ neʔ	nepən
Kayan	nəkəriŋ	daw hirəp	ikoh	jimaʔ	ipən
	uncle/aunt	**under**	**wall**	**widower**	**woman**
PNS			*diŋdiŋ		*dəd^{h}uR
PKEN	*mbiʔ	*ndaʔ	*ndiŋ	*amban	*ləd^{h}o
Lebo' Vo'	veʔ	təraʔ	reŋ	avan	ləḍo
Uma' Pawe	mbiʔ	ndaʔ	gəlaŋ	avan	ləḍo
Lepo' Gah	mbeʔ	ndaʔ	ndeŋ	amban	ləto
Lepo' Laang	mbeʔ	ndaʔ	ndiŋ	amban	ləto
Lepo' Sawa'	mbeʔ	ndaʔ	ndiŋ		ləto
Lepo' Tau	mpeʔ	ntaʔ	nteŋ	ampan	ləto
Badeng	mpeʔ	ntaʔ	ntiŋ	ampan	ləto
Ngorek	mpeʔ	tentah	lentiŋ	aban	roh
Kayan	amay	hida	lidiŋ	avan	doh
	yawn	**year**			
PNS	*huab	*taʔun			
PKEN	*nuap	*uman			
Lebo' Vo'	nuap	uman			
Uma' Pawe	nuap	uman			
Lepo' Gah	nuap	uman			
Lepo' Laang	nuap	uman			
Lepo' Sawa'	nuap	uman			
Lepo' Tau	nuap	uman			
Badeng	nuap	oman			
Ngorek	nuap	loman			
Kayan	muham	duman			

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