

# Diachronic evolution of initial consonants in Buyang

LI Jingfang and ZHOU Guoyan  
Central University for Nationalities, Beijing

Buyang is a Kadai language which has only been described recently. People speaking the language are mainly distributed in a few counties in the west of Guangxi Zhuang Autonomous Region and the east of Yunnan Province in South China. Liang Min, and Li Jingfang have written articles to give some initial descriptions of this language (Liang 1990, Li 1996a, 1996b, 1996c). Based on these descriptions, we approach the diachronic evolution of the consonant system of Buyang in this paper.

The consonant system of Buyang is very complicated. It developed very fast, and differs greatly from one dialect to another. The consonant clusters have been lost in all dialects. The Ecun dialect has no aspirated consonants, and the voiced and aspirated voiced stops in the Baha dialect can not be found in other dialects. The Baha dialect keeps more old Buyang initial consonants than the others. In this paper we inquire into the historical evolution of all initial consonants in Buyang by comparing the Baha dialect with other dialects of Buyang, as well as with such languages as Gelao, Laki, Pubiao, Mulao and the Kam-Tai languages.

## 1. The Evolution of initial voiceless stops

The ancient Buyang language had initial voiceless stops *\*p*, *\*t*, *\*k*, *\*q*, which have only slightly changed by now.

	Baha	Yalang	Ecun	Langjia	Meaning
<i>*p</i>	-pat <sup>55</sup> pi <sup>322</sup>	-pat <sup>31</sup> pan <sup>53</sup>	-pat <sup>55</sup> -pe <sup>24</sup>	-pat <sup>11</sup> pan <sup>54</sup>	'eyeball' 'seed'
<i>*t</i>	tap <sup>55</sup> --	tap <sup>33</sup> taru <sup>53</sup>	tap <sup>55</sup> tau <sup>24</sup>	-tap <sup>54</sup> tau <sup>24</sup>	'liver' 'scar'
<i>*k</i>	ka:n <sup>322</sup> -kok <sup>55</sup>	-- ka <sup>33</sup>	ka:n <sup>24</sup> --	ka:n <sup>54</sup> --	'eat' 'foot'
<i>*q</i>	qui <sup>45</sup> --	qet <sup>53</sup> qon <sup>12</sup>	-- qon <sup>11</sup>	-- --	'cross (river)' 'hold in mouth'

In some places, the ancient initial voiceless stop *\*p* has changed to initial fricatives *f*, *v*.

Meaning	Baha	Yalang	Ecun	Langjia
'a six-fingered hand'	ve <sup>322</sup>	pe <sup>53</sup>	ve <sup>24</sup>	ve <sup>24</sup>
'ten'	vat <sup>55</sup>	pot <sup>33</sup>	put <sup>55</sup>	put <sup>54</sup>
'splash'	--	pat <sup>31</sup>	vat <sup>53</sup>	po:k <sup>11</sup>
'sprinkle'	--	puat <sup>55</sup>	vit <sup>55</sup>	vat <sup>11</sup>
'sow (seed)'	--	pan <sup>53</sup>	fa:n <sup>55</sup>	va:n <sup>54</sup>
'turn (back)'	pa <sup>33</sup>	pet <sup>33</sup>	pan <sup>24</sup>	ve <sup>31</sup>

The ancient initial voiceless stops *\*k*, *\*q* have partially merged, but a contrast between *k* and *q* exists in some places, so it is difficult for us to decide whether a word developed from *\*k* or *\*q*. The zero initial consonants in Ecun appear as *k*, *q* in some other dialects.

Meaning	Baha	Yalang	Ecun	Langjia
'swelling'	--	qau <sup>31</sup>	-kat <sup>55</sup>	-kat <sup>11</sup>
'(of food) cold'	koŋ <sup>45</sup>	--	qoŋ <sup>33</sup>	--
'chick'	qai <sup>322</sup>	qo <sup>53</sup>	ai <sup>24</sup>	qai <sup>54</sup>
'plait (pigtail)'	--	--	a:n <sup>34</sup>	qa:n <sup>54</sup>
'old'	qu <sup>33</sup>	kai <sup>33</sup>	u <sup>55</sup>	qu <sup>11</sup>
'wide'	--	--	uaŋ <sup>24</sup>	kuam <sup>24</sup>

## 2. The Evolution of initial voiced stops

The Baha dialect still retains the ancient pure voiced stops *\*b*, *\*d*, *\*g* now. According to the systematicness and harmony of phonetic systems, the ancient Buyang language must have had a voiced stop *\*G* contrasting to *\*q*. The Duolo dialect of Gelao, a languages related to Buyang, now still has a complete contrastive system of initial voiceless and voiced stops *p*, *t*, *k*, *q*: *b*, *d*, *g*, *G*. In Baha the ancient *\*G* has merged into *q* and other initial consonants, and *\*b*, *\*d*, *\*g* have merged into the corresponding initial voiceless stops and other initial consonants which are the same or close in place of articulation.

	Baha	Yalang	Ecun	Langjia	Meaning
*b	bua <sup>33</sup>	po <sup>33</sup>	-fa <sup>55</sup>	pha <sup>11</sup>	'chaff'
	ba:n <sup>45</sup>	--	--	pa:n <sup>11</sup>	'plate'
*d	du <sup>33</sup>	tai <sup>33</sup>	-tu <sup>55</sup>	-tu <sup>11</sup>	'plant ash'
	dok <sup>33</sup>	?do:k <sup>33</sup>	-?duk <sup>55</sup>	-?duk <sup>54</sup>	'itch'

*g	gu <sup>45</sup>	ku <sup>33</sup>	ha <sup>33</sup>	--	'classifier of flowers'
	ga <sup>11</sup>	--	--	guə <sup>11</sup>	'village'

'chaff': Kam(Dong) *pa*<sup>6</sup>, Sui *pja*<sup>6</sup>/ 'plate': Buyi *pam*<sup>2</sup>, Sui *pon*<sup>2</sup>/ 'plant ash': Zhuang *tau*<sup>6</sup>/ 'itch': Sanchong Gelao *dax*<sup>33</sup>, Muji Gelao *qa<sup>0</sup>dɔ<sup>24</sup>*/ '(classifier of flowers)': Tianlin Zhuang *ku*<sup>2</sup>, Sanchong Gelao *kau*<sup>33</sup>/ village: Pubiao *ga<sup>45</sup>/ya<sup>45</sup>*<sup>1</sup>

Examples of initial consonant *q* in even tones in Sui language may come from the ancient \**G*, some of which are related to Buyang words with *q*. In Gelao, some words with initial consonant *G* also relate to those in Buyang language. We can find some examples of initial *G* in ancient Buyang.

	Baha	Yalang	Ecun	Langjia	Meaning
*G	qa <sup>322</sup>	qau <sup>53</sup>	a <sup>24</sup>	qa <sup>54</sup>	'thatch'
	ko <sup>33</sup>	qhɔn <sup>33</sup>	--	--	'pick up'
	-yu <sup>322</sup>	-kai <sup>53</sup>	--	-qu <sup>54</sup>	'turtledove'
	qe <sup>33</sup>	iəʔ <sup>53</sup>	zak <sup>55</sup>	ɛk <sup>11</sup>	'excrement'
	--	--	--	qha <sup>24</sup>	'gadfly'

'thatch': Niupo Gelao *Guw*<sup>31</sup>/ 'pick up': Malipo White Gelao *Gau*<sup>21</sup>/ 'turtledove': Sui *qau*<sup>2</sup>, Muolao -*kau*<sup>2</sup>, Pubiao -*qau*<sup>51</sup>/ 'excrement': Sui *qe*<sup>4</sup>, Zhuang *hai*<sup>4</sup>, Muji Gelao *qe*<sup>55</sup>/ 'gadfly': Sui *qax*<sup>4</sup>, Laki -*ku*<sup>33</sup>.

Initial voiceless stops in some words in Baha are pronounced as voiced stops in Gelao, Pubiao and Li, and voiceless stops (coming from ancient initial voiced stops) in even tones in other Kam-Tai languages. These words might have been pronounced as initial voiced stops in ancient Baha, but became devoiced later. It shows that initial voiced stops in Baha dialect have changed into devoiced stops gradually.

'good'	Baha <i>ʔai</i> <sup>322</sup> , Niupo Gelao <i>gei</i> <sup>55</sup> , Muji Gelao <i>gi</i> <sup>55</sup> .
'move (house)'	Baha <i>pam</i> <sup>33</sup> , Muji Gelao <i>be</i> <sup>31</sup> , Pubiao <i>pan</i> <sup>51</sup> , Buyi <i>pum</i> <sup>4</sup> , Kam <i>pon</i> <sup>2</sup> .
'short /low'	Baha <i>ta</i> <sup>33</sup> , Pubiao <i>dən</i> <sup>213</sup> .
'line of the hand'	Baha <i>kui</i> <sup>322</sup> , Li - <i>gei</i> <sup>1</sup> .

*b, d, g* in Baha have become unaspirated voiceless stops *p, t, k* in other dialects. In Langjia, words with initial stops *p, t, k* have the feature of voiced glottal fricative in low tones. It is thus clear that the time when initial voiced stops became devoiced was not too long ago.

<sup>1</sup>Here we use tone categories for the Kam-Tai languages, e.g. 'chaff': Kam (Dong) *pa*<sup>6</sup>, Sui *pja*<sup>6</sup>, etc., but the phonetic value of tones for such languages as Gelao, Pubiao, Laki Buyang, e.g. 'itch': Sanchong gelao *dax*<sup>33</sup>, 'village': Pubiao *ga<sup>45</sup>/ya<sup>45</sup>*.

	Baha	Langjia
'full'	diek <sup>33</sup>	tɕɔŋ <sup>11</sup>
'bend'	go <sup>322</sup>	kɕɔŋ <sup>11</sup>
'wash (clothes)'	bap <sup>55</sup>	pɕai <sup>11</sup>
'plant ash'	du <sup>33</sup>	qa <sup>0</sup> tɕu <sup>11</sup>
'wasp'	din <sup>33</sup>	ma <sup>0</sup> tɕɛn <sup>312</sup>

The development process of the voiced stops in Buyang language is like this:

*b, d, g*, (Baha) → *pɕi, tɕi, kɕi* (Langjia from voiced to voiced aspirate) → *p, t, k* (Yalang, Ecun from voiced to voiceless)

*b, d, g* in Baha dialect will finally merge into initial devoiced stops at last like those in other dialects.

Ancient Buyang had a series of aspirate voiced stops *\*bɕi, \*dɕi, \*gɕi, \*Gɕi*, parallel to the initial voiced stops *\*bh, \*dh, \*gh, \*Gh*. This kind of correspondence still partly retains in Baha dialect today, i. e. *b, d, g: bh, dh, gh*. Words with initial voiced aspirated stops are very few, and the voiced feature is reduced, but, examples of the correspondence between voiced stops and aspirated voiced stops still can be found, e.g. *go*<sup>45</sup> "to water" ~ *gha*<sup>45</sup> "dry" *ge*<sup>45</sup> "paw" ~ *ghe*<sup>45</sup> "bad, damage". According to Liang Min and Zhang Junru (1993), a parallel between initial voiced stops and initial aspirated voiced stops also existed in the Proto Kam-Tai language (the common language of both Tai and Kam-Sui branches). Later they had merged into *ph, th, kh* which developed from *\*xp, \*xt, \*xk* in Thai, Dai, Lao and the southern dialect of Zhuang (with a strongly aspirated, but weakly voiced feature). In such languages as Buyi, Lin-gao, the northern dialect of Zhuang and all languages in Kam-Sui branch (with a weakly aspirated, but strongly voiced feature), they had merged into *b, d, g, G* initially, and have become unaspirated voiceless stops *p, t, k* finally. We think these two sets of consonants once existed in the ancient Buyang, Gelao, Laki and Pubiao languages. They formed a systematic contrast of pure voiced consonants and aspirated voiced consonants parallel to *\*m: \*m̥, \*l: \*l̥, \*v: \*v̥*. This set of voiced aspirate consonants have merged into other consonants at the same place of articulation in course of historical development. Some of them might have decreased the aspiration feature and merged into *\*b, \*d, \*g, \*G* and finally become unaspirated voiceless stops *p, t, k, q* or aspirated voiceless stops *ph, th, kh, qh* (except Ecun). Some have merged into nasals at the same place of articulation, into pre-glottalized stops *?b, ?d* and into fricatives, and exist in today's language. The correspondence between words with an aspirated voiced stop in Baha and those in other Buyang dialects, as well as Gelao, etc., shows the development tendency of this set of consonants.

Meaning	Baha	Yalang	Ecun	Langjia	others
'lung'	ɕhap <sup>133</sup>	pɔt <sup>33</sup>	put <sup>55</sup>	put <sup>54</sup>	phau <sup>31</sup> (Sanchong Gelao)
'vagina'	ɕhai <sup>33</sup>	--	--	--	pɛ <sup>6</sup> (Muolao), ?bo <sup>2</sup> (Li)
'board'	ɕhi <sup>33</sup>	pin <sup>53</sup>	?ben <sup>24</sup>	-pɛn <sup>54</sup>	?men <sup>5</sup> (Sui) ?be:n <sup>2</sup> (Li)
'flat'	ɕhe <sup>45</sup>	?bia <sup>53</sup>	--	--	--

'carry' on back	ɸhu <sup>33</sup>	po <sup>12</sup>	pa <sup>11</sup>	pa <sup>11</sup>	pu <sup>33</sup> (Laki) pie <sup>45</sup> (Pubiao)
'broken'	ɸhen <sup>33</sup>	--	ʔban <sup>55</sup>	ʔben <sup>11</sup>	pot <sup>9</sup> (Dai, Dehong)
'fly'	ɸhia <sup>45</sup>	ʔban <sup>53</sup>	pi <sup>55</sup>	-ʔbin <sup>31</sup>	--
'pigtail'	ɸham <sup>33</sup>	-lam <sup>53</sup> (hair)	-θam <sup>24</sup>	-cam <sup>54</sup>	sam <sup>33</sup> (Pubiao, hair)
'snivel'	ɸhan <sup>33</sup>	--	--	--	san <sup>33</sup> (Anshun Gelao)
'run'	ɸhat <sup>33</sup>	--	ʔdit <sup>55</sup>	--	tau <sup>35</sup> (Sanhong Gelao, jump) sat <sup>7</sup> (Zhuang, jump)
'pull'	ɸhan <sup>33</sup>	teŋ <sup>33</sup>	--	tiŋ <sup>24</sup>	--
'dried-up'	ɸha <sup>45</sup>	qhe <sup>33</sup>	xa <sup>55</sup>	qha <sup>11</sup>	khe <sup>35</sup> (Laki)
'bad, damage'	ɸhe <sup>45</sup>	--	--	--	hi <sup>22</sup> (Sanhong Gelao) khə <sup>2</sup> (Maonan)
'mountain'	ɸhoŋ <sup>45</sup>	--	--	--	-khar <sup>31</sup> (Laki) gaε <sup>1</sup> (Li)
'pot'	ɸhu <sup>33</sup>	--	--	--	ŋo <sup>35</sup> (Laki) ka <sup>33</sup> (Sanhong Gelao)

In these words either Tai, Kam-Sui or Li has a pre-glottalized initial voiced stop *ʔb* or *ʔd*. The ancient consonant systems of these languages as reconstructed by some scholars all have these two consonants. In these languages, the ancient *\*ʔb*, *\*ʔd* have only slightly changed, but in some places, they have become *m(v)*, *n(l)* respectively. We suppose that these two initial consonants also existed in ancient Ge-Yang<sup>2</sup> language group, and gradually evolved into other consonant categories, but these two initial consonants still exist in many areas of the Buyang language and some areas of the Gelao language. According to Ni Dabai (1990) and Zhang Jimin (1993), these two initial consonants appear in the White Gelao language in Malipo in Yunnan province (belonging to the Duoluo dialect) and a kind of Gelao language in Shuicheng in Guizhou province (also belongs to the Duoluo dialect). In Malipo Gelao, the feature of pre-glottalized stop has been gradually lost, but in Shuicheng it is still very clear (the native language is only spoken among the old-aged people). For example, in Shuicheng Gelao: *ʔbau<sup>31</sup>* "pig", *ʔbə<sup>11</sup>* "satin", *ʔdie<sup>11</sup>* "do", *ʔda<sup>31</sup>* "grass". Baha, Gelao and Pubiao all have a group of words with initial consonants *b*, *d*, *g* corresponding to the words of initial consonants *p*, *t*, *k* in even tones (evolved from the ancient *\*b*, *\*d*, *\*g*) in the Kam-Tai languages. It shows that this group of words in the Baha (of Buyang), Gelao and Pubiao languages evolved from the ancient *\*b*, *\*d*, *\*g*.

Meaning	Baha	Niupo Gelao	Pubiao	others
'chaff'	bua <sup>33</sup>	-pu <sup>35</sup>	--	pa <sup>6</sup> (Kam, Maonan), və <sup>4</sup> (Lingao)
'plant ash'	du <sup>33</sup>	--	tau <sup>213</sup>	tau <sup>6</sup> (Zhuang, Buyi)
'(a) span'	ga:p <sup>11</sup>	ka <sup>35</sup>	kəp <sup>33</sup>	hu:p <sup>8</sup> (Buyi), ka:p <sup>8</sup> (Muolao)
'father'	pa <sup>33</sup>	-ba <sup>33</sup>	pie <sup>213</sup>	po <sup>6</sup> (Zhuang)

<sup>2</sup>A general term for Gelao, Buyang and such related languages as Pubiao, Laki, Yerong, Yiren, etc. which was placed by Liang Min in 1990.

'tell, talk to'	--	duŋ <sup>31</sup>	te <sup>22</sup>	toŋ <sup>4</sup> (Zhuang, Buyi)
'to sharpen'	--	--	bie <sup>33</sup>	pan <sup>2</sup> (Zhuang, Buyi)
'chopsticks'	daru <sup>33</sup>	dau <sup>55</sup>	dau <sup>213</sup>	tau <sup>6</sup> (Zhuang, Buyi)
Chinese prickly 'ash'	--	--	gət <sup>22</sup>	kat <sup>8</sup> (Zhuang, Buyi)

But in Ge-Yang languages, there are still a large number of words with initial consonant *b*, *d*, corresponding to *?b*, *?d* (evolved from ancient *\*?b*, *\*?d*) in Kam-Tai languages.

Meaning	Baha	Niupo Gelao	Pubiao	others
'blind'	buŋ <sup>11</sup>	--	--	?buŋ <sup>9</sup> (Dai)
'dumb'	ba <sup>31</sup> bo <sup>33</sup>	--	--	?bo <sup>4</sup> (Zhuang, Buyi)
'boat'	da <sup>322</sup>	-du <sup>31</sup>	--	?da <sup>1</sup> (Sui)
'bald sprout up through'	do <sup>322</sup>	--	--	?do <sup>5</sup>
'the earth'	--	bɛ <sup>33</sup> bɛ <sup>33</sup>	--	?boi <sup>1</sup> (Zhuang)
'star'	--	duŋ <sup>31</sup> dɛ <sup>55</sup>	--	?daru <sup>1</sup> ?di <sup>5</sup> (Zhuang, Buyi)
'bone'	--	-de <sup>13</sup>	-dak <sup>33</sup>	?dok <sup>7</sup> (Zhuang)
'hot'	--	-den <sup>31</sup>	--	?dat <sup>7</sup> (Zhuang), do <sup>3</sup> (Sui)
'bulky'	baŋ <sup>31</sup>	--	ba <sup>51</sup>	?duk <sup>7</sup> (Zhuang), bok <sup>7</sup> (Buyi)
'calabash'	--	--	bo <sup>22</sup>	?bu <sup>4</sup> (Zhuang, Buyi)
'leaf'	--	--	bie <sup>51</sup>	?bau <sup>1</sup> (Zhuang, Buyi)
'forehead'	--	--	djan <sup>51</sup>	-?daru <sup>1</sup> (Li)
'gallbladder'	--	--	dɛ <sup>51</sup>	?di <sup>1</sup> (Zhuang, Buyi)
'black'	--	--	diam <sup>33</sup>	?dam <sup>1</sup> (Zhuang, Dai)

We still can give more examples to show *b*, *d* in Pubiao, Shanchong and Muji Gelao corresponding to *?b*, *?d* in Kam-Tai languages. We suppose that there were pre-glottalized stops *?b*, *?d* in ancient Ge-Yang languages, later they merged into the pure voiced stops *b*, *d*, which already existed, and a few of them merged into other initial consonants because of such reasons as language contact and adjustment of the language itself. Only in Gelao and some dialects of Buyang, do *?b* and *?d* still exist. The pre-glottalized voiced stops *?b*, *?d* are mainly distributed in the languages to the south of the Yangtze River in China and South East Asia, and can seldom be found in other places. They mainly appear in languages of the Kam-Tai group. In some dialects of Chinese, some dialects or languages of Miao-Yao and Mon-Khmer groups, these two consonants also exist and development is unstable. In some languages, they may either have developed out of nothing or have disappeared, this phenomenon is mainly due to the influence of Kam-Tai languages (Chen Qiguang 1991, Li Jingfang 1990). The Buyang people who speak Yalang, Eacun and Langjia dialects must have had frequent contact with the ethnic groups speaking Kam-Tai languages in Guizhou before they moved into Yunnan and

Guangxi, so they still retain *?b, ?d* in their languages today, while those who speak the Baha dialect might have contacted intimately such non-Kam-Tai language groups as the Miao (Hmong) and the Yi (Lolo), thus creating a regional similarity which has continued to exist (both Miao and Baha of Buyang have the glottal consonant *q* and are rich in nasals, fricatives and laterals with voiced and voiceless contrasting), the dissimilarities have gradually been lost. *?b, ?d* in Baha have lost the feature of pre-glottalized stop, and have finally merged into *b, d*, some of them merged into *m, n* and *l*, etc., similar to the development of *?b, ?d* in Kam-Tai languages, which have merged into *m, n, l*.

Meaning	Baha	Yalang	Ecun	Langjia
'shoulder'	-ma <sup>33</sup>	-?bo <sup>33</sup>	-?ba <sup>55</sup>	-?ba <sup>11</sup>
'bore'	ma:ɿ <sup>31</sup>	?bet <sup>53</sup>	--	?bat <sup>11</sup>
'calabash'	maru <sup>45</sup>	?biru <sup>53</sup>	?bu <sup>24</sup>	?buə <sup>24</sup>
'come out'	no <sup>31</sup>	?duə <sup>53</sup>	--	--
'moon'	na:n <sup>322</sup>	?den <sup>53</sup>	?da:n <sup>24</sup>	?da:n <sup>31</sup>
'navel'	na:u <sup>322</sup>	-?du <sup>53</sup>	-?du <sup>53</sup>	-?duə <sup>31</sup>
'gallbladder'	ni <sup>322</sup>	-?da:n <sup>53</sup>	?di <sup>33</sup>	-?di <sup>31</sup>
'a classifier for sounds'	lim <sup>11</sup>	?dam <sup>53</sup>	?dam <sup>24</sup>	?dam <sup>31</sup>
'back (of a human being or any other vertebrate)'	-lan <sup>31</sup>	--	-?da:n <sup>33</sup>	-?di:n <sup>24</sup>

This development of *?b, ?d* in Baha of Buyang, etc. may have a relationship to the adjustment of the language itself. In Kam-Tai languages, in which *?b, ?d* are densely distributed, *?b, ?d* also lose the feature of pre-glottalized stop. This pair of consonants tend to be lost gradually (Zhang Junru, 1986). *?b, ?d* in Langjia of Buyang may follow the same development and merge into other consonant categories gradually.

### 3. The Evolution of initial nasals

Ancient Buyang had two sets of initial nasals with voiceless and voiced contrasting, i.e. *\*m, \*n, \*ɲ, \*ŋ: \*m̥, \*n̥, \*ɲ̥, \*ŋ̥*. This contrast is still retained in Baha, but has been lost in other dialects. Examples of ancient *\*m, \*n, \*ɲ, \*ŋ* follow:

	Baha	Yalang	Ecun	Langjia	Meaning
<i>*m</i>	--	-mu <sup>31</sup>	-mu:m <sup>33</sup>	mu:m <sup>312</sup>	'tiger'
	ma <sup>31</sup>	-me <sup>31</sup>	-me <sup>33</sup>	--	'tongue'
<i>*n</i>	nok <sup>11</sup>	nok <sup>11</sup>	--	-nuk <sup>11</sup>	'bird'
	--	no <sup>12</sup>	-na <sup>11</sup>	-na <sup>11</sup>	'mother's younger sister-in-law'

*ŋ	ŋum <sup>33</sup> --	ŋom <sup>31</sup> ŋan <sup>12</sup>	ŋum <sup>33</sup> ŋun <sup>11</sup>	ŋom <sup>11</sup> --	'dye' 'press'
*ŋ	ŋa <sup>31</sup> --	ŋau <sup>31</sup> --	ŋa <sup>33</sup> ŋau <sup>11</sup>	ŋa <sup>312</sup> --	'snake' 'dull'

'tiger': Kam, Sui *məm*<sup>4</sup>/ 'tongue': Kam, Sui *ma*<sup>2</sup>/ 'bird': Dai, Sui *nok*<sup>8</sup>/ 'mother's younger sister-in-law': Buyi *na*<sup>4</sup>/ 'dye': Zhuang, Buyi *ŋum*<sup>4</sup>/ 'press': Zhuang *nan*<sup>4</sup>, Kam *ɬam*<sup>6</sup>/ 'snake': Zhuang *ŋu*<sup>2</sup>, Dai *ŋu*<sup>2</sup>/ 'dull': Zhuang *ŋau*<sup>2</sup>.

The ancient \**m*, \**n*, \**ɲ*, \**ŋ* still remain in Baha. In other places, most of them have merged into *m*, *n*, \**ɲ*, \**ŋ*, a few of them have merged into other consonants with the same or nearly the same places of articulation, e. g.

	Baha	Yalang	Ecun	Langjia	Meaning
* <i>m</i>	m̄hai <sup>33</sup> m̄hu <sup>31</sup> m̄hi <sup>33</sup>	-- mai <sup>53</sup> ma <sup>31</sup>	mai <sup>33</sup> mu <sup>24</sup> mɛ <sup>33</sup>	mai <sup>11</sup> -mu <sup>54</sup> mɛ <sup>312</sup>	'mole' 'pig' 'drunk'
* <i>ŋ</i>	ŋhuŋ <sup>322</sup> ŋha <sup>322</sup> ŋai <sup>33</sup>	təŋ <sup>33</sup> -na <sup>31</sup> --	təŋ <sup>55</sup> -- nai <sup>55</sup>	?dun <sup>24</sup> -- nai <sup>11</sup>	'turbid' 'tomorrow' 'tired'
* <i>ɲ</i>	ɲham <sup>33</sup> ɲhe <sup>33</sup>	-- nje <sup>1</sup> (Yanghuang)	ɲen <sup>55</sup> --	zɪm <sup>33</sup> --	'quarrel' 'sea'
* <i>ŋ</i>	ŋhi <sup>33</sup> ŋjan <sup>45</sup> ŋhu <sup>322</sup>	-- kan <sup>12</sup> ŋau <sup>6</sup> (Zhuang)	ŋui <sup>33</sup> -- --	-- -- --	'listen' 'ice' 'sweet'

'mole': Zhuang *mai*<sup>1</sup>, Maonan *mɛ*<sup>1</sup>/ 'pig': Zhuang *mou*<sup>1</sup>, Muolao, Sui *m̄u*<sup>5</sup>/ 'drunk': Zhuang *maŋ*<sup>1</sup>, Maonan *mɛ*<sup>1</sup>/ 'turbid': Zhuang *noŋ*<sup>5</sup>, Li *nuŋ*<sup>1</sup>/ 'tomorrow': Muolao *-m̄ɔ*<sup>3</sup>, Kam *-mu*<sup>3</sup>/ 'tired': Zhuang *nan*<sup>5</sup>, Muolao *nɛ*<sup>5</sup>/ 'quarrel': Zhuang *ɲun*<sup>5</sup>, Kam *nan*<sup>5</sup>/ 'listen': Zhuang *ŋi*<sup>1</sup>, Maonan *?ni*<sup>3</sup>/ 'sweet': Zhuang *ŋau*<sup>6</sup>. In Baha, *m̄h*, *nh*, *ɲh*, *ŋh*, especially *nh*, *ɲh*, *ŋh* are tending to be lost, so only a few examples of these initial consonants can be found.

Some words with *m*, *n*, \**ɲ*, \**ŋ* in Baha are pronounced as voiceless nasals or as voiced nasals with odd tones (having come from ancient voiceless nasals). This shows that voiceless nasals in ancient Buyang have merged into voiced nasals in Baha.

Meaning	Baha	Others
'dog'	ma <sup>31</sup>	ma <sup>1</sup> (Zhuang) ma <sup>1</sup> (Sui)
'flea'	mat <sup>11</sup>	mat <sup>7</sup> (Sui, Muolao)
'thick'	na <sup>322</sup>	na <sup>1</sup> (Zhuang, Kam) ?na <sup>1</sup> (Sui)



‘paste’	nə <sup>24</sup>	nim <sup>1</sup> (Buyi) njem <sup>1</sup> (Maonan)
‘chew’	ŋam <sup>11</sup>	ŋam <sup>3</sup> (Zhuang, Buyi) ŋom <sup>3</sup> (Li)
‘cry’	ŋit <sup>11</sup>	ŋe <sup>3</sup> (Muolao, Maonan)
‘yellow’	ŋam <sup>45</sup>	ŋam <sup>3</sup> (Muolao)
‘dull’	ŋak <sup>11</sup>	ŋoŋ <sup>5</sup> (Zhuang)

Like ancient Tai and Kam-Sui languages, ancient Buyang might also have had a set of pre-glottalized nasals, i.e. *?m, ?n, ?ŋ, ?ŋ* (these consonants still exist in some dialects of Kam-Tai, and Gelao languages). Some words with simple nasal consonants in Baha correspond to words with pre-glottalized nasals in Kam-Tai languages. These words might also have been pronounced as pre-glottalized nasals in the Buyang language in ancient times, e.g.

Meaning	Baha	Others
‘bear’	mi <sup>322</sup>	?mi <sup>1</sup> (Sui)
‘snow’	ni <sup>31</sup>	?nui <sup>1</sup> (Sui)
‘give’	na:k <sup>11</sup>	?nak <sup>7</sup> (Maonan)
‘lean on’	neŋ <sup>45</sup>	?niŋ <sup>3</sup> (Sui, Maonan)
‘dirty’	ŋin <sup>31</sup>	?no <sup>13</sup> (Dafang Gelao)
‘cry’	ŋit <sup>11</sup>	?ŋe <sup>3</sup> (Sui)
‘sesame’	ŋa <sup>31</sup>	?ŋa <sup>1</sup> (Sui)
‘nod’	ŋup <sup>55</sup> ŋap <sup>31</sup>	ŋwat <sup>7</sup> (Sui)

#### 4. The Evolution of initial fricatives

Generally, the modern Buyang language has such voiceless and voiced fricatives as *f, v, θ, ð, ç, z, h*. The Eçun dialect also has a glottal voiceless *x*, the Baha dialect has a voiced velar fricative *ɣ* and a set of aspirated voiced fricatives *ɣh, z̥h*. Some of the modern fricatives are inherited, others developed later. The following are our reconstruction of the ancient Buyang fricative consonant system (those in parentheses are not used in the modern language): *\*v, \*ɣ (\*ʔv), (\*s), (\*z), \*z̥, \*z̥ (\*ʔz̥), (\*x), \*ɣ, \*ç, (\*ɸ), \*h, (\*fi)*.

Voiced *v* was the only labiodental consonant in ancient Buyang, the voiceless counterpart was developed later. There was an aspirated voiced fricative *\*ɣ* corresponding to *\*v*, but now, *\*ɣ* has merged into *v* in most dialects, only Baha still has *v, ɣ (ɣh)*, but the latter has only a few examples, most instances of the original *ɣ* having merged into *v*.

	Baha	Yalang	Eçun	Langjia	other	Meaning
<i>*v</i>	-van <sup>33</sup> vuŋ <sup>45</sup>	-van <sup>31</sup> vuŋ <sup>31</sup>	vən <sup>24</sup> -vuŋ <sup>33</sup>	van <sup>54</sup> vuŋ <sup>11</sup>	van <sup>2</sup> (Dai) vuŋ <sup>2</sup> (Zhuang)	‘sun’ ‘sulfur(s)’
<i>*ɣ</i>	ɣhuŋ <sup>32</sup> ɣha <sup>322</sup>	-- --	vaŋ <sup>33</sup> --	vaŋ <sup>312</sup> --	voŋ <sup>1</sup> (Maonan) va <sup>5</sup> (Zhuang)	‘high’ ‘skirt (trousers)’

The ancient Ge-Yang languages were rich in pre-glottalized fricatives. Modern Gelao language has only  $\lambda$ , which might have existed in ancient Buyang and merged into  $\nu$  later, but it is difficult to find examples to show an evolution from  $*\lambda$  to  $\nu$ .

The correspondence of  $f$  among Buyang dialects is uneven, obviously it is a late developed consonant, mainly coming from ancient  $*p$ ,  $*b$ ,  $*\eta b$ , but some coming from Zhuang and Han Chinese loan words. Baha and Yalang have very few words with  $f$ . In Pubiao, which has close relationship with Buyang,  $f$  only appears with newly borrowed Han Chinese words.

	Baha	Yalang	Ecun	Langjia	Meaning
*p	pui <sup>322</sup>	pei <sup>53</sup>	fi <sup>24</sup>	pui <sup>54</sup>	‘fire’
	pio <sup>33</sup>	--	fa <sup>55</sup>	--	‘sediment’
*b	buat <sup>33</sup>	--	fat <sup>55</sup>	fat <sup>54</sup>	‘lash’
	bua <sup>33</sup>	--	-fa <sup>55</sup>	--	‘chaff’
* $\eta b$	--	$\eta be$ <sup>53</sup>	fuə <sup>24</sup>	--	‘(a) bowl (of rice)’

The following are examples of consonants coming from Han Chinese loan words (some of them are reborrowed from Zhuang): Langjia:  $tu^{\Delta 11} fu^{31}$  ‘bean curd’,  $fan^{31}$  ‘ten thousand’,  $ta^{11} fu\eta^{24}$  ‘place, local’,  $fu\eta^{24}$  ‘(a) letter’. Examples of consonants coming from Zhuang loan words are: Ecun:  $ma:k^{55} fo\eta^{24}$  ‘apricot’,  $fon^{33}$  ‘folk song’,  $fo\eta^{24} fu\eta^{24}$  ‘window’.

Ancient Buyang had a contrastive pair of voiceless and voiced contrasted apical fricatives  $*s$ ,  $*z$ , which are very common in modern Ge-Yang, but in modern Buyang language, they have merged into other consonants. The tongue position of the ancient  $*s$  has moved forward in the Baha, Yalang, and Ecun dialects and become inter-dental fricative  $\theta$ ; in Langjia it has become a dorsal fricative  $\zeta$  (most of the words with  $\theta$  in the Langjia dialect are loan words from Zhuang).  $*z$  has become  $\delta$  in the Ecun and Langjia dialects, and has merged into  $r$  in Baha, only a few of them merged into Baha  $\delta$ . In the Yalang dialect this consonant has become the voiceless aspirated lateral fricative  $\lambda$ .

	Baha	Yalang	Ecun	Langjia	Meaning
*s	$\theta u$ <sup>322</sup>	$\theta ai$ <sup>53</sup>	$\theta ui$ <sup>24</sup>	$\zeta ui$ <sup>54</sup>	‘firewood’
	$\theta a$ <sup>322</sup>	$\theta au$ <sup>53</sup>	$\theta a$ <sup>24</sup>	$\zeta a$ <sup>54</sup>	‘two’
	$\theta ip$ <sup>55</sup>	--	$\theta ip$ <sup>55</sup>	$\zeta ip$ <sup>54</sup>	‘centipede’
	--	--	$-\theta i$ <sup>24</sup>	$-\zeta i$ <sup>54</sup>	‘rat’
	--	--	$-\theta i$ <sup>55</sup>	$-\zeta i$ <sup>11</sup>	‘full’

‘firewood’: Pubiao  $sa:m^{51}$ , Laki  $\zeta i^{55}$  / ‘two’: Anshun Gelao  $su^{33}$ , Laki  $su^{33}$  / ‘centipede’: Zhuang, Buyi  $sip^7$  / ‘rat’: Niupo Gelao  $fei^{55}$ , Muji Gelao  $tai^{53}$  / ‘full’: Laki  $se^{13}$ , Mulao  $sei^{24}$ .

	Baha	Yalang	Ecun	Langjia	Meaning
*z	--	ɬou <sup>31</sup>	-ða <sup>33</sup>	-ða <sup>312</sup>	'ear'
	--	ɬaru <sup>12</sup>	ðaru <sup>11</sup>	ðaru <sup>24</sup>	'rinse'
	ri <sup>11</sup>	ɬai <sup>12</sup>	-ði <sup>11</sup>	-ði <sup>11</sup>	'ailment'
	ruŋ <sup>11</sup>	ɬoŋ <sup>12</sup>	ðuŋ <sup>53</sup>	ðuŋ <sup>11</sup>	'broken'
	--	ɬiŋ <sup>31</sup>	ðuŋ <sup>55</sup>	ðuŋ <sup>54</sup>	'loose'
	ri <sup>11</sup>	ɬai <sup>12</sup>	ði <sup>33</sup>	ði <sup>24</sup>	'long'
	ri <sup>31</sup>	ɬa <sup>53</sup>	-ðe <sup>33</sup>	-ðe <sup>54</sup>	'bee'

'ear': Anshun Gelao *zau*<sup>44</sup>/ 'wash (hand)': Anshun Gelao *zau*<sup>13</sup>/ 'ailment': Niupo Gelao *ze*<sup>33</sup>, Anshun Gelao *zai*<sup>13</sup>/ 'long': Laki *zei*<sup>44</sup>, Pubiao *zai*<sup>22</sup>.

Ancient Buyang had a simple dorsal fricative \*z and a contrastive aspirated voiced fricative \*zh, as well as a pre-glottalized \*ʔz. All the dialects of Buyang have \*z, but in some words, it has become a voiceless ç or affricates ts, tsh. Baha mostly retains \*z (\*zh), in some words it has become z or voiceless ç, θ, etc. Ancient Buyang might also have had \*ʔz (some dialects of Gelao have this consonant), but it is not easy to inquire into its development.

	Baha	Yalang	Ecun	Langjia	Meaning
*z	zin <sup>31</sup>	zut <sup>31</sup>	zut <sup>55</sup>	zut <sup>11</sup>	'rain'
	zin <sup>33</sup>	zut <sup>53</sup>	zen <sup>55</sup>	--	'stand'
	za <sup>24</sup>	--	zan <sup>24</sup>	zan <sup>31</sup>	'look after (children)'
	--	zot <sup>31</sup>	--	zut <sup>11</sup>	'straight'
	zat <sup>55</sup>	tsot <sup>31</sup>	çut <sup>55</sup>	çut <sup>11</sup>	'tail'
	zoŋ <sup>322</sup>	tsuə <sup>53</sup>	-θoŋ <sup>24</sup>	-çoŋ <sup>54</sup>	'tooth'
*ʔ	-zhu <sup>33</sup>	-zau <sup>31</sup>	-zo <sup>33</sup>	-zo <sup>312</sup>	'neck'
	zhit <sup>11</sup>	--	zuai <sup>33</sup>	zit <sup>31</sup>	'stretch out (hand)'
	zhu <sup>33</sup>	--	-θu <sup>24</sup>	-çu <sup>54</sup>	'pillar'
	zha <sup>45</sup>	--	θe <sup>33</sup>	--	'bamboo fish hamper'

'rain': Pubiao *sau*<sup>213</sup>/ 'stand': Sanchong Gelao *zan*<sup>13</sup>/ 'look after (children)': Sanchong Gelao *zun*<sup>13</sup>/ 'straight': Sanchong Gelao *ze*<sup>31</sup>, Muji Gelao *zau*<sup>24</sup>/ 'neck': Buyi *ʔjeu*<sup>4</sup>/ 'stretch out (hand)': Zhuang *ʔjiŋ*<sup>7</sup>/ 'pillar': Zhuang *sau*<sup>1</sup>, Maonan *zau*<sup>1</sup>.

Except a few loan words, ç doesn't correspond consistently in any dialect of Buyang; the modern voiceless fricative ç mainly comes from ancient \*s, \*z.

Ancient Buyang had the following three groups of backed fricatives: velar fricatives \*x, \*ɣ, uvular \*χ, \*ʁ, glottalized \*h, \*ɦ. Of these only ɣ, χ, h still exist in modern languages, Baha retains only ɣ, and only Ecun retains χ, and only a few examples can be found. Great changes have taken place among these groups of fricatives; most of them have not developed stably except h. In most cases, χ, ɣ

have become voiceless stops *k*, *kh*, *q*, *qh*, some of them have merged into *h*. Ecun *x* didn't necessarily come from the ancient *\*χ*, some of them might have come from *\*g*, e.g. "dry out": Baha *ga*<sup>24</sup>, Ecun *χa*<sup>55</sup>. The evolution of *\*x*, *\*ɣ*, *\*f* is even more difficult to approach. It is possible that they have merged into other stops and fricatives whose places of articulation are the same or similar.

## 5. The Evolution of initial laterals and trill

Ancient Buyang had two laterals *\*l*, *\*l̥*, both of which still exist in Baha, but in other dialects *\*l̥* has merged into *l*. But only a few examples of *l̥* (*lh*) can be found in Baha, most of them having merged into *l*.

	Baha	Yalang	Ecun	Langjia	Meaning
*l	--	lɔ <sup>33</sup>	--	-la <sup>11</sup>	'charcoal'
	--	--	-lie <sup>33</sup>	-liə <sup>312</sup>	'armpit'
	-luŋ <sup>322</sup>	-lɔŋ <sup>53</sup>	luŋ <sup>24</sup>	-luŋ <sup>54</sup>	'stomach'
	lan <sup>31</sup>	-lɔn <sup>31</sup>	--	-lan <sup>312</sup>	'at the back'
	la:k <sup>11</sup>	lɛ <sup>21</sup>	la:k <sup>53</sup>	la:k <sup>11</sup>	'child'
*l̥	lhok <sup>24</sup>	--	-luŋ <sup>24</sup>	-luŋ <sup>24</sup>	'umbrella'
	lhɔk <sup>24</sup>	-lɔp <sup>31</sup>	lup <sup>55</sup>	-lup <sup>11</sup>	'bamboo hat'
	lham <sup>33</sup>	lam <sup>53</sup>	lom <sup>24</sup>	lum <sup>11</sup>	'be defeated'

'charcoal': Pubiao *liā*<sup>213</sup>, Xilin Zhuang *ljeu*<sup>2/</sup> 'armpit': Pubiao *lii*<sup>33</sup>, Dai *-le*<sup>4/</sup> 'stomach': Kam, Sui, Muolao *lor*<sup>2/</sup> 'at the back': Niupo Gelao *-lan*<sup>31</sup>, Laki *-lin*<sup>13</sup>, Pubiao *-lin*<sup>33</sup>, Kam, Sui, Maonan, Muolao *-lən*<sup>2/</sup> 'child': Zhuang *lu*<sup>8</sup>, Sui *la:k*<sup>8/</sup> 'umbrella': Zhuang, Buyi *liŋ*<sup>3</sup>, Pubiao *liəŋ*<sup>33/</sup> 'be defeated': Xilin Zhuang *lom*<sup>1</sup>, Laki *liup*<sup>55</sup>.

The Baha dialect still has some words with initial *lh* which cannot be related to those in the other dialects of Buyang, but they can be related to some related languages, e.g. "few": Baha *lhau*<sup>24</sup>, Pubiao *lu*<sup>213</sup>, Li *rau*<sup>2</sup>; night: Baha *lhar*<sup>33</sup>, Mulao *la*<sup>55</sup>. It is possible that Baha has kept the old pronunciation of these words, but a few of these words with initial *lh* in Baha may have come from other voiced initial consonants, e.g. "black": Baha *lham*<sup>322</sup>, Yalang *ʔdam*<sup>53</sup>, Ecun *ʔdam*<sup>24</sup>, Langjia *ʔdam*<sup>31</sup>, Pubiao *diam*<sup>35</sup>, Zhuang *ʔdam*<sup>1</sup>.

Ancient Buyang might also have had a pre-glottalized *ʔl*, which can be commonly seen in Gelao language, some words with initial *l* in Buyang corresponding to *ʔl* in Gelao, e.g. "home": Ecun *luk*<sup>55</sup>, Niupo Gelao *ʔlei*<sup>31</sup>. The initial consonant of this kind of words might been *ʔl* in ancient Buyang, but merged into *l* later.

Ancient Buyang had an alveolar trill *\*r*. Now it is only kept in Baha. It has merged into *l* in Yalang, and into *l*, *ʃ* in Ecun and Langjia.

	Baha	Yalang	Ecun	Langjia	Meaning
*r	roŋ <sup>31</sup>	luə <sup>31</sup>	-loŋ <sup>33</sup>	-loŋ <sup>312</sup>	'star'
	roŋ <sup>11</sup>	--	-laŋ <sup>33</sup>	laŋ <sup>24</sup>	'shed'
	ra <sup>322</sup>	-lit <sup>31</sup>	lit <sup>55</sup>	-lit <sup>11</sup>	'penis'
	raŋ <sup>11</sup>	-loŋ <sup>31</sup>	-laŋ <sup>11</sup>	-laŋ <sup>11</sup>	'hawk'
	-rat <sup>11</sup>	--	ðat <sup>55</sup>	--	'crab'
	raŋ <sup>24</sup>	--	-ðo <sup>11</sup>	luŋ <sup>312</sup>	'valley'
	raŋ <sup>45</sup>	--	-ðo <sup>11</sup>	-ðoŋ <sup>312</sup>	'ditch'
	rai <sup>45</sup>	la <sup>12</sup>	ðai <sup>11</sup>	--	'write'

'star': Pubiao *liuŋ*<sup>13</sup>, Zhuang *ɣoŋ*<sup>6</sup> (bright)/ 'hawk': Pubiao *-laŋ*<sup>51</sup>, Laki *-li*<sup>33</sup>, Anshun Gelao *-li*<sup>13</sup>/ 'crab': Pubiao *-zat*<sup>35</sup>, Muolao *ljai*<sup>6</sup>/ 'valley' Zhuang *luk*<sup>8</sup>/ 'ditch': Sanchong Gelao *lo*<sup>35</sup> *ŋ*<sup>31</sup>/ 'write': Xilin Zhuang *laŋ*<sup>2</sup>, Buyi *zaŋ*<sup>2</sup>.

Some of the words with *r* in Baha come from the ancient voiced fricative \**z* (see above "The Evolution of Fricatives").

Ancient Buyang might also have had a voiceless trill \**r* contrasting to \**ʀ*, later it merged into *r* in Baha, and is pronounced as *h*, etc. in other dialects.

	Baha	Yalang	Ecun	Langjia	Meaning
*r	raŋ <sup>11</sup>	liə <sup>31</sup>	haŋ <sup>55</sup>	ðeŋ <sup>11</sup>	'arid, dry'
	ram <sup>45</sup>	ham <sup>33</sup>	--	--	'drink'

### 6. The Evolution of initial affricates

The correspondence among affricates in Buyang is uneven, showing that they have different origins. There were no affricates in ancient Buyang; this is similar to early Kam-Tai languages (Zhang Junru, 1983). Moreover, initial affricates in some Han Chinese loan words are usually pronounced as initial fricatives (a few of them as initial stops) in Buyang, or pronounced as initial fricatives here, but as affricates there. This can also prove that there were no initial affricates in ancient Buyang.

Baha	Yalang	Ecun	Langjia	Guangyun	Meaning
-toŋ <sup>31</sup>	--	--	-taŋ <sup>54</sup>	精冬合一平禡	'ancestor'
--	ɬat <sup>31</sup>	ɕet <sup>55</sup>	ɕut <sup>54</sup>	精質開三入臻	'lacquer'
zuŋ <sup>11</sup>	-tsuə <sup>12</sup>	ɕoŋ <sup>11</sup>	ɕoŋ <sup>11</sup>	崇陽開三平宕	'bed (table)'
tsaŋ <sup>31</sup>	-tsaŋ <sup>31</sup>	ɕaŋ <sup>33</sup>	-ɕaŋ <sup>31</sup>	昌證開三去曾	'steelyard'
--	-tsiŋ <sup>33</sup>	ɕiŋ <sup>33</sup>	-tiŋ <sup>312</sup>	精靜開三上梗	'well'

Most modern Buyang dialects have initial affricates *ts*, *tsh*, but the Ecun dialect has only *ts* (*tsh* appears in one or two modern Han Chinese loan words only). These initial affricates have mostly come from the ancient fricatives, some of them may have come from initial stops, others from consonant clusters. The

evidence for this evolution is that a specific consonant is pronounced as an affricate here but kept as an early fricative or a stop there, and some correspond to consonant clusters in Gelao. Some words with consonant clusters in Gelao (in ancient Buyang there might also have been consonant clusters) are pronounced as fricatives, some as affricates. There are two possibilities for this point, one is that initial consonant clusters of ancient Buyang were pronounced as fricatives or affricates respectively in different places; another is that they all became fricatives at first, but some of them changed into affricates later.

Meaning	Baha	Yalang	Ecun	Langjia	Gelao
'pound (in a mortar)'	tsia <sup>55</sup>	tsiə <sup>753</sup>	θiak <sup>55</sup>	ɕuk <sup>31</sup>	--
'move'	tsak <sup>322</sup>	tshe <sup>53</sup>	ɕak <sup>55</sup>	tsak <sup>11</sup>	--
'tremble'	--	-tsat <sup>53</sup>	θen <sup>55</sup>	-ɕen <sup>11</sup>	--
'kiss'	--	tsɔp <sup>53</sup>	ɕɔp <sup>55</sup>	ɲup <sup>54</sup>	--
'gold'	tshai <sup>45</sup>	--	--	--	ɬ <sup>35</sup> (NP)
'wet'	tsok <sup>33</sup>	ɬak <sup>31</sup>	θak <sup>55</sup>	θak <sup>11</sup>	--
'cheek'	--	tsim <sup>11</sup>	--	--	blɛ <sup>13</sup> (SC)
'tooth'	tsɔŋ <sup>322</sup>	tsue <sup>53</sup>	--	-ɕɔŋ <sup>54</sup>	plɔŋ <sup>31</sup> (NP)
'thin, light'	plai <sup>45</sup>	tsit <sup>53</sup>	--	-tset <sup>11</sup>	plei <sup>33</sup> plei <sup>33</sup> (NP)
'pick up'	ko <sup>33</sup>	kiap <sup>33</sup>	--	tsip <sup>54</sup>	plau <sup>35</sup> (SC)
'split, chop'	maŋ <sup>45</sup>	tsiə <sup>753</sup>	--	pha:k <sup>11</sup>	plɔ <sup>31</sup> (NP)
'ask'	tsham <sup>45</sup>	tsai <sup>33</sup>	ɕam <sup>33</sup>	ɕi <sup>24</sup>	plɛ <sup>33</sup> plɛ <sup>33</sup> (NP)
'red'	tse <sup>45</sup>	--	--	--	pla <sup>31</sup> (SC)
'sour'	tse <sup>45</sup>	--	--	--	pla <sup>13</sup> (SC)

(Note: NP=Niupo, SC=Sanchong)

'pound (in a mortar)': Kam sak<sup>9</sup>/ 'move': Laki ɕ<sup>11</sup>, Buyi ɕa<sup>5</sup>/ 'tremble': Laki ɕa<sup>35</sup>, Sui ɕan<sup>6</sup>, Maonan zan<sup>2</sup>/ 'kiss': Zhuang ɕup<sup>7</sup>/ 'wet': Pubiao ɕa<sup>45</sup>, Sui ?yak<sup>7</sup>, Muolao jak<sup>7</sup>/ 'tooth': Laki sei<sup>55</sup>, Pubiao suaŋ<sup>55</sup>/ 'thin, light': Zhuang ɕwi<sup>7</sup>/ 'ask': Anshun Gelao sai<sup>55</sup>, Kam ɕai<sup>3</sup>, Laki tci<sup>33</sup>, Muji Gelao plɛ<sup>53</sup>.

Modern Han Chinese loan words are the main source of initial affricates in Buyang, but only a few loan words with affricates retain their original pronunciation in all dialects of Buyang. Usually they are pronounced as affricates in one dialect, but as fricatives or stops in the others. In most cases, they are pronounced as affricates in Yalang and Baha, but as fricatives or stops in Ecun and Langjia. Moreover, there are some words with affricates from Zhuang.

Meaning	Baha	Yalang	Ecun	Langjia	WMZhuang
'rob'	tshat <sup>33</sup>	--	--	ɕit <sup>54</sup>	--
'weight'	tsaŋ <sup>31</sup>	tsaŋ <sup>33</sup>	ɕaŋ <sup>33</sup>	ɕaŋ <sup>31</sup>	--
'wall'	--	-tsiŋ <sup>12</sup>	ɕiŋ <sup>11</sup>	ɕiŋ <sup>11</sup>	--
'money'	--	tseŋ <sup>11</sup>	ɕeŋ <sup>11</sup>	-ɕeŋ <sup>11</sup>	--
'the first month of a lunar year'	-tsam <sup>45</sup>	-tsiŋ <sup>33</sup>	-ɕiŋ <sup>32</sup>	-tsiŋ <sup>24</sup>	--

'cool'	ɕam <sup>11</sup>	tsam <sup>12</sup>	ɕam <sup>11</sup>	ɕam <sup>11</sup>	ɕam <sup>4</sup> (XL)
'rope'	--	tse <sup>33</sup>	-ɕaik <sup>53</sup>	-ɕaik <sup>11</sup>	ɕaik <sup>8</sup>
'play'	--	tsem <sup>53</sup>	θam <sup>24</sup>	ɕam <sup>54</sup>	ɕam <sup>2</sup>

(Note: WMZhuang=Wuming Zhuang, XL=Xilin)

### 7. The Evolution of initial consonant clusters

Initial consonant clusters have disappeared from modern Buyang. But by studying the difference of consonants in all the dialects and the correspondence with such related languages as Gelao, Pubiao, Laki, etc., we can see that initial consonant clusters did exist in the ancient Buyang language. As far as we know now, initial consonant clusters in ancient Buyang were generally combined from two parts, the first part was *p, t, k, m*, etc., or there might be *b, d, g, q* etc., the second part was *l, r*, etc. Here we have two formulas to show the split of the Buyang initial consonant clusters :

	→ p (t, k)		
*pl (*tl, *kl)	→ l	*pr (*tr, *kr)	→ p (t, k)
	→ pj		→ r

Some words with ancient initial consonant clusters have become two-syllable words in modern Buyang language. The first consonant is in the first syllable, the second consonant is in the second syllable, *\*pl* may become *pj*, but we have not found examples of *\*tl, \*kl* becoming *ti, ki*.

	Baha	Yalang	Ecun	Langjia	others	Meaning
*pl/*ml	ma <sup>31</sup>	-me <sup>31</sup>	-me <sup>33</sup>	ma <sup>0</sup> lɛn <sup>11</sup>	pau <sup>31</sup> (Mulao), li <sup>13</sup> (Laki)	'tongue'
	m̄hok <sup>33</sup>	lɔŋ <sup>53</sup>	luŋ <sup>24</sup>	--	ba <sup>0</sup> laŋ <sup>31</sup> (Muji Gelao)	'belly'
	puan <sup>33</sup>	lem <sup>31</sup>	lam <sup>33</sup>	lam <sup>312</sup>	plɛ <sup>31</sup> (Muji Gelao)	'die'
	vaŋ <sup>33</sup>	--	--	liŋ <sup>54</sup>	plei <sup>31</sup> plei <sup>35</sup> (Niupo Gelao)	'steep'
	piat <sup>33</sup>	piat <sup>53</sup>	piari <sup>55</sup>	piari <sup>11</sup>	plei <sup>35</sup> (Judu Gelao)	'arm spread'
	--	piam <sup>12</sup>	--	piar <sup>11</sup>	-pla <sup>53</sup> (Niupo Gelao)	'bedbug'
	piai <sup>45</sup>	pa <sup>33</sup>	--	pai <sup>11</sup>	vlai <sup>31</sup> (Anshun Gelao)	'arrange, put'
	phiau <sup>45</sup>	--	--	--	phlu <sup>35</sup> (Niupo Gelao)	'silver'
	-pioŋ <sup>322</sup>	--	pa <sup>55</sup> luŋ <sup>55</sup>	piŋ <sup>33</sup> (11) luŋ <sup>54</sup>	--	'courtyard'

phiaŋ <sup>33</sup>	--	paŋ <sup>55</sup>	--	--	'face'
--	--	ma <sup>0</sup> luə <sup>11</sup>	pi <sup>24</sup> luə <sup>11</sup>	plu <sup>24</sup>	'lusheng (a reed-pipe wind instrument)'
		(flute)	(flute)	(Anshun Gelao)	

'tongue, lick': the meaning of these two words is usually mixed, Biaomin Yao *blin*<sup>4</sup>, 'tongue'/'stomach': Pubiao *mhok*<sup>33</sup>, Li *pok*<sup>7</sup>/'die': Anshun Gelao *pen*<sup>33</sup>, Laki *plei*<sup>1</sup>/'steep': Laki *pu*<sup>33</sup>*lie*<sup>35</sup>/'arm spread (for measure)': Hongfeng Gelao *mpe*<sup>13</sup>, Laki *-pio*<sup>35</sup>, Pubiao *phaŋ*<sup>33</sup>, Maonan *phje*<sup>5</sup>/'silver': Muji Gelao *phlau*<sup>24</sup>, Laki *phio*<sup>33</sup>, Pubiao *phio*<sup>213</sup>/'face': Anshun Gelao *lau*<sup>31</sup>, Laki *m*<sup>35</sup>, Pubiao *mia*<sup>213</sup>/'lusheng (a reed-pipe wind instrument)': the meaning in Buyang has changed to "bamboo flute", for Buyang people no longer use this kind of instrument. *pi*<sup>24</sup>*luə*<sup>11</sup> means "bamboo flute" in the Langjia dialect of Buyang, *pi*<sup>24</sup> is not a prefix, so it is possible that "*pi*<sup>24</sup>*luə*<sup>11</sup>" comes from ancient "*pl*<sup>-</sup>".

In the Gelao language, it is not difficult to find out the rule that "*pl*" changed into "*pi*", and one or two examples can also be found to show that "*ki*" comes from "*kl*", e.g.

Niupo	plaŋ <sup>31</sup>	→	Sanchong	piaŋ <sup>31</sup>	'tooth'	
Anshun	plau <sup>13</sup>	→	Qinglong	pio <sup>53</sup>	'split'	
Muji	plau <sup>53</sup>	→	Sanchong	piau <sup>35</sup>	'wine'	
Pingba	plaŋ <sup>33</sup>	→	Qinglong	piaŋ <sup>55</sup>	'peach'	
Anshun	kle <sup>33</sup>	→	Qinglong	kie <sup>55</sup>	'flow'	
Baha	Yalang	Ecun	Langjia	others	Meaning	
*bl/*ʔbl	--	ʔbuə <sup>33</sup>	ʔbuə <sup>32</sup>	-le <sup>312</sup>	-blaŋ <sup>55</sup> (NP)	'widow'
*pr/*ʔbr	raŋ <sup>322</sup>	ʔia <sup>31</sup>	ʔaŋ <sup>33</sup>	piaŋ <sup>312</sup>	biaŋ <sup>213</sup> (PB)	'spike'
	raŋ <sup>31</sup>	ʔboŋ <sup>53</sup>	ʔbuŋ <sup>24</sup>	ʔbuŋ <sup>31</sup>	boŋ <sup>51</sup> (PB)	'skin'
	roŋ <sup>45</sup>	--	-fok <sup>55</sup>	phok <sup>11</sup>	plek <sup>7</sup> (Zh, split)	'crack'

(Note: NP=Niupo Gelao, PB=Pubiao, Zh=Zhuang)

'widow': Muji Gelao *-plaŋ*<sup>33</sup>, Zhuang *-maŋ*<sup>5</sup>, Kam *-ljiŋ*<sup>5</sup>/'spike': Sui *bjiaŋ*<sup>1</sup>, Kam *mjeŋ*<sup>2</sup> crack: Lingao *lek*<sup>7</sup>/'split': Mulao *phya*<sup>5</sup>, Sanchong Gelao *pl*<sup>31</sup>.

Baha	Yalang	Ecun	Langjia	others	Meaning	
*tɿ	--	tuə <sup>31</sup>	luŋ <sup>11</sup>	luŋ <sup>11</sup>	--	'copper'
*tr	reŋ <sup>322</sup>	ʔdia <sup>53</sup>	ʔdiaŋ <sup>24</sup>	--	--	'leaf'
	ram <sup>322</sup>	tam <sup>53</sup>	tam <sup>24</sup>	-tam <sup>54</sup>	zuŋ <sup>1</sup> (Li)	'egg'
	ra <sup>11</sup>	thu <sup>33</sup>	θue <sup>33</sup>	thuə <sup>24</sup>	tu <sup>33</sup> (Pubiao)	'near'
	ra <sup>55</sup> ru <sup>35</sup>	--	-tu <sup>53</sup>	-tu <sup>11</sup>	tau <sup>31</sup> (Pubiao)	'saliva, sputum'



ru <sup>33</sup>	tai <sup>53</sup>	-tu <sup>24</sup>	-tu <sup>54</sup>	ɣau <sup>1</sup> (Zhuang)	'head louse'
rat <sup>55</sup>	rət <sup>33</sup>	-tut <sup>55</sup>	-tut <sup>54</sup>	tat <sup>22</sup> (Pubiao)	'wind (from bowels)'
ru <sup>33</sup>	tau <sup>31</sup>	tu <sup>33</sup>	tu <sup>312</sup>	tu <sup>53</sup> (Pubiao)	'seven'

'copper': Zhuang *toŋ*<sup>2</sup> Buyi *luŋ*<sup>2</sup>, Pubiao *tuŋ*<sup>13</sup>/ 'leaf': Pubiao *-zəŋ*<sup>213</sup>, Mulao *-lu*<sup>24</sup>, Sanchong Gelao *di*<sup>31</sup>, Zhuang *yoŋ*<sup>1</sup>/ 'egg': Muji Gelao *-toŋ*<sup>31</sup>, Lingao *num*<sup>1</sup>/ 'near': Niupo Gelao *-lu*<sup>55</sup>, Mulao *-za*<sup>31</sup>, Thailand Seak *tləʔ*<sup>3</sup>/ 'saliva, sputum': Sui *-tjo*<sup>3</sup>/ 'head louse': Pubiao *-tau*<sup>51</sup>, Muolao *khɣo*<sup>1</sup>/ 'wind (from bowels)': Niupo Gelao *tsan*<sup>35</sup>, Laki *tɛ*<sup>11</sup>/ 'seven': Sanchong Gelao *tsau*<sup>35</sup>, Li *thou*<sup>1</sup>.

	Baha	Yalang	Ecun	Langjia	others	Meaning
*kl/*ql	-li <sup>31</sup>	--	--	-qam <sup>54</sup>	klo <sup>55</sup> (PDG)	'grandson'
	-khu <sup>45</sup>	-luə <sup>12</sup>	-loŋ <sup>11</sup>	--	kləw <sup>55</sup> (ASG)	'inside'
	qui <sup>322</sup>	qei <sup>53</sup>	-lui <sup>33</sup>	-lui <sup>312</sup>	klai <sup>33</sup> (ASG)	'flow'
	--	kiə <sup>33</sup>	-la <sup>11</sup>	--	kia <sup>33</sup> (Pubiao)	'seedling'
	khua <sup>45</sup>	kiap <sup>33</sup>	lip <sup>55</sup>	lip <sup>11</sup>	--	'hoof'
	qaru <sup>322</sup>	lu <sup>31</sup>	-luə <sup>33</sup>	-luə <sup>312</sup>	kya <sup>2</sup> (Muolao)	'drug'
	kak <sup>33</sup>	ka <sup>12</sup> <sub>ɔ</sub> <sup>12</sup>	a <sup>0</sup> la <sup>11</sup>	qa <sup>0</sup> la <sup>11</sup>	kjen <sup>1</sup> (Zhuang)	'hard'
*kr	-ru <sup>33</sup>	qau <sup>12</sup>	-hu <sup>53</sup>	qhu <sup>11</sup>	qau <sup>213</sup> (Pubiao)	'knee'
	rat <sup>33</sup>	kit <sup>53</sup>	hiet <sup>55</sup>	qet <sup>11</sup>	khue <sup>31</sup> (Laki)	'gnaw'
	rai <sup>322</sup>	--	-hi <sup>24</sup>	-qhi <sup>54</sup>	ləp <sup>7</sup> (Zhuang)	'scissors for cutting rice'
	ru <sup>322</sup>	kai <sup>53</sup>	-u <sup>24</sup>	-qou <sup>54</sup>	qau <sup>53</sup> (Pubiao)	'horn'

(Note: PDG=Puding Gelao, ASG=Anshun Gelao)

'grandson': Anshun Gelao *ku*<sup>55</sup>, Muji Gelao *lin*<sup>33</sup>/ 'inside': Pubiao *kur*<sup>51</sup>, Laki *ku*<sup>55</sup>/ 'hard': Muolao *kya*<sup>3</sup>, Laki *khin*<sup>33</sup>, Mulao *lo*<sup>53</sup>/ 'knee': Laki *-kue*<sup>33</sup>, Li *gwou*<sup>3rou</sup><sup>1</sup>/ 'gnaw': Mulao *qu*<sup>24</sup>, Lingao *ka*<sup>?</sup>, *le*<sup>?</sup><sup>7</sup>/ 'horn': Sui *qau*<sup>1</sup>, Maonan *ɲau*<sup>1</sup>.

It is still unknown whether there were such palatalized consonants as *pj*, *kj*, etc. in ancient Buyang language, but some examples show that there were once such labialized consonants as *kw*, *ɲw*, etc.

	Baha	Yalang	Ecun	Langjia	Meaning
*kw	kai <sup>45</sup>	via <sup>33</sup>	uaŋ <sup>24</sup>	kuam <sup>24</sup>	'wide'
*ɲw	va <sup>322</sup>	--	va <sup>24</sup>	-ɲa <sup>11</sup>	'flower'
*nw	va <sup>33</sup>	--	--	na <sup>312</sup>	'rice field'
*hw	van <sup>31</sup>	vət <sup>31</sup>	hot <sup>53</sup>	--	'bamboo'

## 8. The Evolution of initial aspirated consonants

Ancient Buyang didn't have any aspirated consonants. Later, due to the adjustment of the initial consonant system itself, aspirated consonants were created in some dialects, but in Eacun dialect, no aspirated consonants appeared at all. The borrowing of Han Chinese words have promoted the creation of aspirated consonants in some dialects of Buyang language.

Words with aspirated consonants in Baha, Yalang and Langjia correspond unevenly. There are very few words with aspirated consonants in all these three dialects. It shows that initial aspirated consonants have no common origin, they appeared in each dialect after the split of the language, e.g.

Baha	Yalang	Ecun	Langjia	Meaning
ga <sup>45</sup>	khen <sup>33</sup>	ɕin <sup>33</sup>	-tshien <sup>24</sup>	'light'
ari <sup>322</sup>	qhɛi <sup>53</sup>	ŋa <sup>55</sup>	ŋai <sup>24</sup>	'good'
ga <sup>24</sup>	qhɔ <sup>33</sup>	xa <sup>55</sup>	qha <sup>11</sup>	'dry'
vat <sup>33</sup>	pat <sup>33</sup>	fat <sup>55</sup>	phat <sup>54</sup>	'puckery'
--	kiam <sup>31</sup>	ha:m <sup>11</sup>	qhɑ:m <sup>11</sup>	'salty'
hum <sup>322</sup>	qo:m <sup>33</sup>	hop <sup>55</sup> hu <sup>11</sup>	qhɔm <sup>11</sup>	'surround'
paŋ <sup>31</sup>	phəŋ <sup>53</sup>	paŋ <sup>53</sup>	paŋ <sup>54</sup>	'bake'
qhan <sup>33</sup>	kat <sup>33</sup>	at <sup>55</sup>	qhɑt <sup>11</sup>	'cigarette'
qhan <sup>45</sup>	qat <sup>33</sup>	--	--	'iron'
phai <sup>33</sup>	-pha <sup>33</sup>	fai <sup>24</sup>	phai <sup>24</sup>	'cotton'
haŋ <sup>33</sup>	qhɑŋ <sup>24</sup>	qhia <sup>53</sup>	qhɑŋ <sup>33</sup>	'steel'

Modern Buyang has five aspirated consonants, i.e. *ph*, *th*, *kh*, *qh*, *tsh*. Some of the voiceless aspirated stops developed from the ancient voiced stops, some of them from fricatives, but most of them developed from the ancient initial consonant clusters. The aspirated feature is a kind of compensation for the loss of the second consonant in some initial consonant clusters. e.g. *\*pl*, *\*pr* → *ph*, etc., but the creation of some aspirated consonants may be due to the loss of the first consonant in the consonant clusters, e.g. *\*sk* → *kh*. There are very few examples of aspirate fricative *tsh*, in all dialects. Its origin is also similar to aspirated voiceless stops.

Examples of aspirate consonants developing from ancient voiced stops:

	Baha	Yalang	Ecun	Langjia	Meaning
*b	-- pin <sup>11</sup>	pha <sup>33</sup> --	paŋ <sup>24</sup> --	-- phan <sup>33</sup>	'cloth' 'become'
*d	te <sup>53</sup>	tɛ <sup>312</sup>	--	-thɛ <sup>24</sup>	'roundworm'
*g/*G	-- ga <sup>24</sup>	qɔt <sup>31</sup> qhɔ <sup>33</sup>	-- xa <sup>55</sup>	khut <sup>11</sup> qha <sup>11</sup>	'dig' 'dry'

gau <sup>45</sup>	kup <sup>31</sup>	hur <sup>55</sup>	qhur <sup>11</sup>	'hold in both hands'
qheŋ <sup>33</sup> -	qhɔŋ <sup>33</sup> -	-aŋ <sup>33</sup>	-qaŋ <sup>24</sup>	'forest'
--	qheu <sup>33</sup>	--	--	'thin'

'cloth': Bo'ai Zhuang pu<sup>6</sup>, Pubiao phai<sup>33</sup>/ 'become': Zhuang pan<sup>2</sup>/ 'roundworm': Buyi -te<sup>6</sup>, Maonan te<sup>6</sup>/ 'dig': Pubiao ku<sup>33</sup>, Laki qua<sup>31</sup>, Li gwat<sup>7</sup>/ 'dry': Pubiao ka<sup>51</sup>, Muji Gelao qau<sup>24</sup>/ 'hold in both hands': Maonan ŋgop<sup>7</sup>/ 'forest': Pubiao zəŋ<sup>22</sup>, Laki ŋo<sup>33</sup>, Li gar<sup>1</sup>/ 'thin': Laki qu<sup>33</sup>, Niupo Gelao gau<sup>55</sup>, Sanchong Gelao ŋau<sup>53</sup>.

Examples of aspirated consonants developing from ancient fricatives:

	Baha	Yalang	Ecun	Langjia	Meaning
*ɣ	ɣa <sup>33</sup>	qhau <sup>53</sup>	ha <sup>24</sup>	qha <sup>24</sup>	'a classifier for river'
	ɣai <sup>31</sup>	khui <sup>53</sup>	--	khui <sup>54</sup>	'ride on (a horse)'
	khai <sup>33</sup>	ŋat <sup>31</sup>	--	--	'bind'
*χ/*h	--	qhem <sup>12</sup>	ham <sup>24</sup>	qhām <sup>24</sup>	'stride over'
	-ka <sup>45</sup>	qhon <sup>53</sup>	hun <sup>24</sup>	-qhun <sup>54</sup>	'road'

'a classifier for river': Laki kia<sup>13</sup>, Lingao hui<sup>2</sup>/ ride on (a horse): Pubiao khuei<sup>51</sup>, Laki -hu<sup>13</sup>, Lingao xəi<sup>4</sup>/ bind: Pubiao kan<sup>51</sup>, Zhuang har<sup>8</sup>/ 'stride over': Pubiao ham<sup>33</sup>, Buyi, Zhuang ham<sup>33</sup>, Dai xam<sup>3</sup>, Li hjam<sup>1</sup>/ road: Laki khin<sup>35</sup>, Mulao xe<sup>24</sup>.

Examples of aspirated consonants developing from ancient consonant clusters:

	Baha	Yalang	Ecun	Langjia	Meaning
*pl	-meŋ <sup>33</sup>	-ʔbo <sup>33</sup>	ʔboŋ <sup>55</sup>	phoŋ <sup>312</sup>	'arm'
	ask (see sec. 6 "The Evolution of Initial Affricates")				face (see sec. 7 "The Evolution of Initial Consonant Clusters")
*pr	crack (see sec. 7 "The Evolution of Initial Consonant Clusters")				
*pw	--	pɔt <sup>31</sup>	fan <sup>24</sup>	phan <sup>54</sup>	'rub'
	--	-phɔ <sup>53</sup>	fa <sup>33</sup>	phai <sup>54</sup>	'lid'
	vat <sup>33</sup>	pat <sup>33</sup>	fat <sup>55</sup>	phat <sup>54</sup>	'puckery'
	phai <sup>33</sup>	-pha <sup>33</sup>	fai <sup>24</sup>	phai <sup>24</sup>	'cotton'
	--	phoŋ <sup>53</sup>	fuŋ <sup>24</sup>	fuŋ <sup>24</sup>	'a (letter)'
*tl	ta <sup>31</sup> lɔ <sup>322</sup>	thɔ <sup>12</sup>	-to <sup>24</sup>	-tɔ <sup>31</sup>	'rabbit'
	near (see sec. 7 "The Evolution of Initial Consonant Clusters")				
	--	thau <sup>33</sup>	θiu <sup>24</sup>	thiu <sup>24</sup>	'lift'
	--	thut <sup>53</sup>	θot <sup>55</sup>	thot <sup>11</sup>	'take off'
*sk/*sq	θau <sup>322</sup>	θau <sup>53</sup>	θau <sup>33</sup>	qharu <sup>54</sup>	'clean'

‘arm’: Niupo Gelao *-plaŋ<sup>31</sup>*/ ‘rub’: Pubiao *pai<sup>22</sup>*/ ‘lid’: Buyi *va<sup>1</sup>vai<sup>5</sup>*/ ‘puckery’: Laki *pa<sup>11</sup>*, Buyi *vuu<sup>7</sup>*, Li *pun<sup>3</sup>* (This word may also have come from the earlier *\*\*pl-*), San-chong Gelao *-pli<sup>31</sup>*, Muji Gelao *-pla<sup>24</sup>*/ ‘cotton’: Pubiao *pu<sup>22</sup>*, Laki *pla<sup>33</sup>*, Zhuang, Sui *fa<sup>5</sup>*, Maonan *wa<sup>5</sup>*/ ‘a (letter)’: Zhuang, Buyi *fuŋ<sup>1</sup>*, Sui *xoŋ<sup>1</sup>*, *hoŋ<sup>1</sup>*, DX *phum<sup>1</sup>*/ ‘rabbit’: Laki *tha<sup>33</sup>lo<sup>33</sup>*, Pubiao *thu<sup>213</sup>*, Lingao *lən<sup>3</sup>*/ ‘lift’ Pubiao *thi<sup>51</sup>*, Zhuang *yi<sup>3</sup>*, Li *hju<sup>3</sup>*/ ‘take off’: Pubiao *hwei<sup>33</sup>*, Laki *lia<sup>13</sup>*, Zhuang *tu<sup>7</sup>*/ ‘clean’: Muji Gelao *qhu<sup>24</sup>*, Zhuang *seu<sup>5</sup>*, Muolao *sja<sup>5</sup>*, Maonan *seu<sup>5</sup>*.

Initial consonants in earlier language (Proto Ge-Yang, Kam-Tai ) might have been *\*\*pl*, i.e. *\*\*pl* → *\*pw* → *ph*, *p*, *f*. Words of this kind in Langjia are aspirated because of the loss of *-w-*, in Yalang, some are aspirated (e.g. lid, cotton), others are not (e.g. rub, puckery). The cause of this formation in Yalang is now still unknown to us. Maybe it has something to do with the height of tones or the final of the syllables. In Ecun, they all become *f*.

Some of the initial aspirated consonants in Buyang come from Han Chinese loan words, some of them are aspirated consonants in Han Chinese originally, some are fricatives. It is not easy to tell the difference between the old and the new loan words, e.g.

Baha	Yalang	Ecun	Langjia	Guangyun	Meaning
--	phiŋ <sup>33</sup>	--	phiŋ <sup>24</sup>	并庚開三平梗	‘level’
--	tshoŋ <sup>53</sup>	--	--	清東合一平通	‘onion’
qeŋ <sup>322</sup>	kia <sup>53</sup>	ɕaŋ <sup>24</sup>	tshen <sup>54</sup>	見陽開三平宕	‘ginger’
təŋ <sup>24</sup>	thuŋ <sup>53</sup>	θuŋ <sup>33</sup>	thuŋ <sup>11</sup>	定唐開一平宕 (音同唐)	‘sugar’
--	kiam <sup>31</sup>	ha:m <sup>11</sup>	qha:m <sup>11</sup>	匣咸開二平咸	‘salty’
--	--	θik <sup>55</sup>	thik <sup>11</sup>	禪支開三平止	‘ladle’

Note: level: Baha *taŋ<sup>33</sup>*, Ecun *taŋ<sup>53</sup>* (corresponding to *toŋ<sup>6</sup>* “plain, field plain” in Zhuang language, this is a native Kam-Tai, Buyang word)/ salty: Baha *raŋ<sup>33</sup>*, Muji Gelao, Zhuang *?daŋ<sup>5</sup>*. This is a native Kam-Tai, Buyang word, “*shi* <ladle>” in Guangyun is not a checked syllable, the word in Buyang might have been borrowed from a dialect pronouncing this word with a checked syllable.

The factors checking the creation of aspirated consonants in the Ecun dialect is still unknown at present.

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Department of Linguistics  
Central University of Nationalities  
Beijing 100081 China