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# **LES ÉCHANGES ET LA COMMUNICATION DANS LE BASSIN DU LAC TCHAD**

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# **Linguistic evidence for the chronological stratification of populations South of Lake Chad**

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## **Abstract**

Les langues couramment parlées au sud du lac Tchad consistent en langues tchadiques, mélangées avec le Fali et les langues Adamawa plus au sud. Plus récemment, sont entrées les Nilo-sahariens, les Arabes Choua et les Peul. Cette communication discute les indications de la chronostratigraphie de ces populations, et leurs interactions, comprenant les apports du climat et de l'archéologie. Fondé sur l'analyse des reconstructions pour le lexique de subsistance dans le travail de Richard Gravina, on découvre que, sauf chez les Toupouri, il y a eu très peu d'échanges, ce qui mène à la supposition que ces peuples ont longtemps gardé leur propres stratégies de subsistance.

## **1. Introduction**

The current pattern of languages in the region south of Lake Chad shows extreme fragmentation, a mosaic of numerous small ethnolinguistic groups intertwined with one another (Seignobos 2000; MacEachern 2002, 2003; Sterner 2003). This suggests chronological stratification, individual populations expanding at the expense of others and assimilating resident peoples or breaking them into geographically distinct subgroups. So much is apparent from linguistic geography. But the consequences of such a pattern for language structures, society, genetic makeup and material culture has been barely explored and the archaeological signatures of these movements and assimilations have yet to be determined.

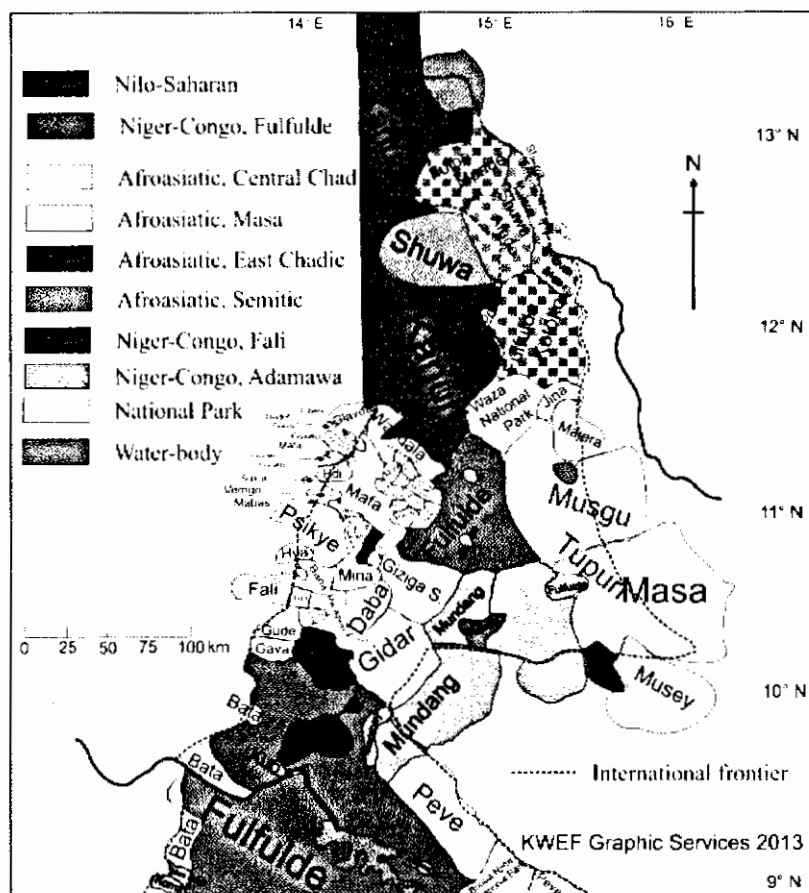
The languages spoken around Lake Chad today are Chadic (Yedina), Semitic (Shuwa Arab), Saharan (Kanuri/Kanembu) and even Atlantic (Fulfulde) (Map 1). The Shuwa Arabs arrived in the medieval period and the Fulbe still more recently, probably in the

eighteenth century. Nomads such as the Anagamba, a Fulbe subgroup, presumably preceded the militarised Fulbe who set up the Lamidates [Islamic polities] in the wake of the early nineteenth century Jihad of Usman dan Fodio. The peoples who inhabit the Lake itself, the Chadic-speaking Yedina (Buduma), are now encapsulated by the Kanembu, but their nearest relatives further south are the Kotoko cluster, speakers of Central Chadic languages. South of this are Fulbe-speaking zones, a national park and a further intrusion of Kanuri speakers. Below this are two blocks of Chadic, Central Chadic and Masa, split by a salient of Adamawa languages. Immediately abutting the southern edge of Central Chadic are the Fali languages, of uncertain classification but clearly Niger-Congo, and then more Adamawa languages. Central Chadic languages extend significantly further west into Nigeria, mixed with more Adamawa-speaking populations. East into Chad there are more Masa group languages and then the westernmost East Chadic languages, as well as isolated Adamawa populations such as the Kim group.

What is the likely chronological stratification of these different groups? We know that the expansion of the Kanuri into the area west of the Lake around Kuka and Ycrwa (Maiduguri) is relatively recent (Forkl 1983, 1985). However, the Saharan branch of Nilo-Saharan must be very old, and the relationship between Kanuri, Teda and Beria points to a long-term residence in the general area (e.g. Chonai 1998). Chadic-speakers must have arrived from elsewhere and expanded radially outwards from Lake Chad (Blench 1995, 1997, 2006). There is every reason to think the expansion into modern Borno by the Kanuri involved the displacement or assimilation of Chadic populations and that these would have been relatives of Yedina on the lake. One of the puzzles of linguistic geography is exactly how far north Adamawa languages were spoken and to what extent they have been assimilated or dispersed. This paper<sup>1</sup> looks at the interactions of the different language families south of Lake Chad, focusing primarily on Chadic and Adamawa.

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<sup>1</sup> Prepared for presentation at the Mega-Tchad meeting in Naples, September 13-15, 2012. Thanks to Gerhard Kosack, Richard Gravina, Nic David and Uli Kleinewillinghöfer for comments on the first version.



Map 1. Map of languages south of Lake Chad

## 2. Adamawa languages

The Adamawa-Ubangian languages were first defined by Greenberg in 1955, having been previously treated as 'isolated languages'. Greenberg (1963: 9 ff.) proposed that the large group of languages spread between Central Nigeria and Chad formed a distinct number. He called them 'Adamawa-Eastern', the term 'Eastern' referring to the languages today known as Ubangian, spoken mainly in CAR and

Sudan, consisting of Gbaya, Zande and similar groups. Bennett & Sterk (1977) were the first to link Adamawa-Ubangian with the Gur languages of Burkina Faso, and indeed the two share a striking common feature, the use of suffixed noun-class markers. However, proof that the Adamawa languages actually constitute a group has been sorely lacking, and Kleinwillinghöfer (1996b) later argued that the westernmost groups of Adamawa were more closely affiliated to Gur than to those further east. Kleinwillinghöfer (forthcoming) argues that there must also have been substantial interaction between Adamawa and Benue-Congo languages in Central Nigeria. This makes sense, as the expansion of Hausa southwards undoubtedly split apart a long chain of genetically related languages.

Two queries have arisen over Adamawa, the inclusion of the Chamba Daka group and the Fali languages. Chamba Daka is spoken around the Shebshi mountains in Nigeria, and shares a name with the Chamba [=Samba] Leeko languages spoken in north-central Cameroun. These are undoubtedly Adamawa, and Greenberg's (1963: 9) assignation of Chamba Daka to Adamawa was based more on the coincidence of name than any linguistic argument. Bennett (1983) first argued the Daka was Benue-Congo and this has generally been accepted by the linguistic community (e.g. Boyd 1989; Williamson & Blench 2000). Boyd (1994) discusses the lexical relationships of Daka in some detail without reaching any clear conclusion. Fali is a more complex problem. There are several ethnolinguistic groups called Fali in this region, most of them Chadic, but the Camerounian language cluster is usually treated as Adamawa (cf. Sweetman 1981a,b). The Fali have been studied ethnographically and in terms of their household architecture (Lebeuf 1961, Gauthier 1969). However, their language shows precious few connections with other Adamawa languages and it may well be an isolate within Niger-Congo (Blench 2006). Figure 1 shows a tentative representation of the current view of Gur-Adamawa linguistic relationships, using an expanded version of Greenberg's numbering system in Boyd (1989).

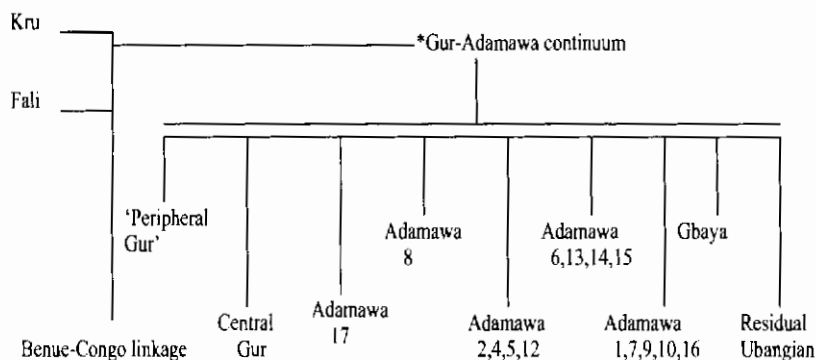


Figure 1. The Gur-Adamawa continuum

1.	Waja	8.	Kam	(15.)	Day
2.	Leeko	9.	Jen	(16.)	Bikwin [=Burak]
4.	Dii [=Duru]	10.	Longuda	(17.)	Ba [=Kwa]
5.	Mumuye	12.	Nimbari (†)		
6.	Kebi-Benue [=Mbum]	13.	Bua		
7.	Yungur	14.	Kim		

Table 1. Key to Adamawa numbered groups

I have adapted some of the subgroupings from the overview in Kleinewillinghöfer (1996a) but it is clear that much remains to be done in the area of classification. Former 3 and 11 are Chamba Daka and Fali respectively. Gbaya is now treated as a distinct branch rather than as Ubangian (Moñino pers. comm. 2011). 'Residual Ubangian' consists of five major groupings given in Moñino (1988). It is yet to be demonstrated that even these form a coherent branch of Niger-Congo, although a small number of common items suggest this is a possibility.

The Adamawa languages which Chadic borders in this region are principally group 6 (Mbum). This latter was rechristened 'Kebi-Benue' in a comparative study by Elders (2006), although it is unclear whether this reference name will be adopted.

The subgroup which forms a salient dividing Masa from Central Chadic consists of Mambay, Mundang and Tupuri, whereas immediately due south of Chadic are the Fali languages (Gariné 1981). The difficulty of classifying these points to the possibility that they are remnants of an earlier Niger-Congo movement into the region. Adamawa-Ubangian languages are a reasonably coherent branch of Niger-Congo, defined by the presence of either functioning or residual suffixed noun-class systems and common roots. Although we do not have a good date for their expansion eastwards, it is surely much later than Nilo-Saharan, which is so internally fragmented as to be the continued subject of questions as to its genetic coherence (c.g. Dixon 1997).

### 3. Chadic languages

Chadic is by far the most diverse of all of the subgroups of Afroasiatic and also the least well-documented, with new and distinct languages still being recorded for the first time. The internal classification of Chadic remains controversial. Greenberg (1963) left Chadic with nine rather ill-defined subgroups, but Newman and Ma (1966) reduced this to three major divisions, later expanded to four through the separation of the Masa group (Newman 1977), an argument not accepted by all Chadic scholars (Tourneux 1990). Figure 2 shows a tree which leaves Masa as a separate branch but co-ordinate with Central Chadic.

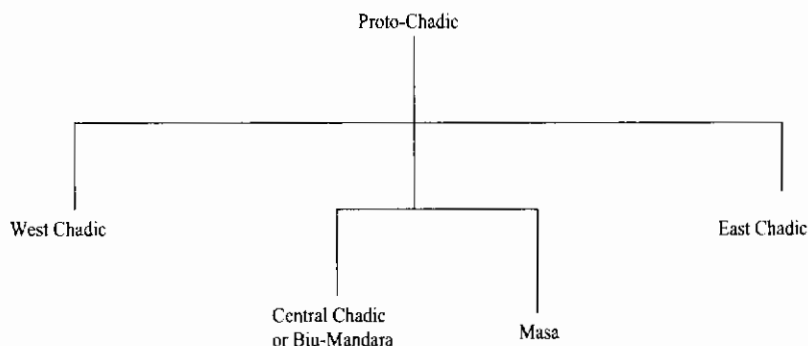


Figure 2. Internal structure of Chadic

Central Chadic languages are split into two major geographical zones, the Kotoko and Yedina languages on Lake Chad and on the affluents of the Logone, and the remainder, in the Mandara mountains and plains west into Nigeria as far as Gombe. This misled some earlier classifications to treat the divide between Kotoko and the remainder as a genetic split, but as Gravina (2007, 2011) argues, this is not supported by the linguistics. The internal classification of Central Chadic is by no means resolved.

Figure 3 shows one version of this following Gravina, with some abbreviation and modernisation of language names.

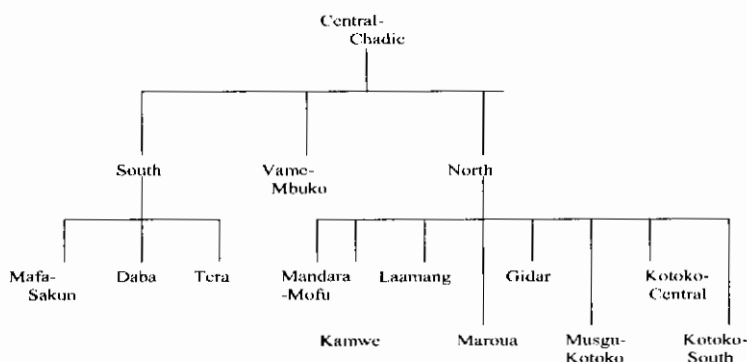
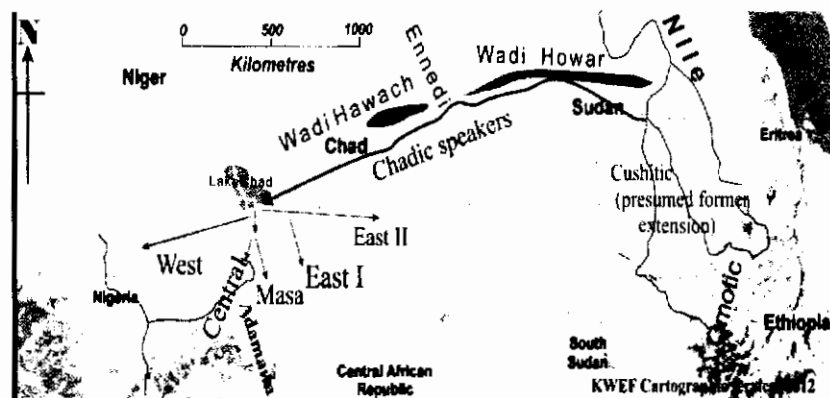


Figure 3. Central Chadic classification (Source: adapted from Gravina (2011))

It is important to emphasise that not all scholars would agree with this; in particular the split between Mafa-Sukur in the Southern group and Mandara-Mofu in the North. As often, however, cultural identities and linguistic affiliation can show significant mismatches. The Masa languages are today divided from Central Chadic by a northward salient of the Mbum group, the two languages Mundang and Tupuri, somewhat confused by the modern creation of a national park (Map 1). It is probably useful to think of the Masa group as heading southeast into the plains and the Mandara branches of Central Chadic as climbing into the mountains to begin their colonisation. Compared with the Masa group, Central Chadic is massively internally diversified, and this is presumably the consequence of reduced communication within the montane environment.

The place of Chadic within Afroasiatic has been much debated, but there is a strong case for linking Chadic with Cushitic, if speakers migrated along the now-dry Wadi Hawar from the Nile Confluence some 4-5000 years ago (Blench 1995, in press). They would have formed a patchwork with Nilo-Saharan speakers who would have spread across this region at an earlier period. This has found rather general support with genetic studies (e.g. Cerny *et al.* 2007, 2009) although these cannot support a particular date. The claim by Ehret (2006) that Chadic speakers settled south of Lake Chad as early as 6000 BC is difficult to reconcile with either the archaeological or linguistic evidence, especially as Ehret (*op. cit.* p. 62) claims that domestic sorghum and thus agriculture is reconstructible to proto-Chadic (cf. McEachern 2012)

Map 2 shows a hypothetical scenario for the expansion of Chadic westwards along the disappeared waterways of Central Africa and then outwards from the Lake Chad.



Map 2. Proposed origin and dispersal of Chadic speakers

From this situation it would seem likely that there would be significant cultural and lexical interchange between Chadic and Adamawa speakers, but this seems to be surprisingly limited, except for one case, Tupuri (Seignobos & Toumeux 2001). Tupuri borders on Masa and one of the East Chadic groups, Kera. Many Tupuri words are so similar to Chadic that it was thought to be Chadic in some earlier sources. Its morphology



leaves no doubt that it is Adamawa, but as Seignobos & Tournoux point out, its oral traditions suggest a complex multi-ethnic origin. It is also notable, however, that despite the large number of borrowings in Tupuri, these do not include many basic subsistence terms, except for 'transplant' (*repiquer*) sorghum, which may come from a later era, reflecting the introduction of *muskwari*, the dry season sorghum (Photo 1). Further west, this interchange has certainly occurred; Kleinewillinghöfer (1996) points to numerous lexical similarities between languages of the Tula-Waja group and the neighbouring Chadic language, Tangle.

Photo 1. Wall-painting of sorghum [?maize] in Logone Birmi

#### 4. Subsistence terms and clues to interactions in prehistory

The interpretation of early population movements in this region can be best understood through hypotheses about subsistence strategies, which should in turn be supported by linguistic reconstructions. Tables of key subsistence terms in Central Chadic and nearby Adamawa and Fali languages were compiled, including cow, goat, fish, crocodile, millet/sorghum. It is striking that there are virtually no common lexemes with Adamawa and Fali. Chadic typically has *la* for 'cow' [also reflected elsewhere in Afroasiatic] and Adamawa languages *\*naa*, a widespread Niger-Congo root. A term which clearly can be reconstructed to Proto-Chadic is *\*kirif* 'fish', which is not borrowed into Adamawa. The importance of fisheries for Chadic peoples is testified by their riche repertoire of fish names and fishing techniques (cf. Photo 2 and Photo 3). Roots for cereals such as sorghum and millet are extremely variable suggesting that these are relatively late introductions. Ehret (2006) claims that sorghum can be reconstructed to proto-Chadic, but this is simply erroneous; as MacEachern (2012) points out, this is flatly in disagreement

with the archaeobotanical evidence which suggests that millet (not sorghum) first enters the archaeological record by 1200 BC (e.g. Klee & Zach 1999; Neumann 2003). Magnavita (2002) records one of the few finds of sorghum in the Lake Chad region.



Photo 2. Muyaung plunge-basket



Photo 3. Masa fish-fence

The importance of fisheries in Central Chadic subsistence strategies is reflected by the easily reconstructible terms for 'fish' and 'crocodile'. 'Cow' and 'goat' are also reconstructible, reflecting a strategy of pastoralism combined with fisheries, comparable to modern groups such as the Dinka. However, there are no grain crops which can be reliably reconstructed to proto-Central Chadic, and it is reasonable to assume that these were only adopted subsequent to speakers' dispersal.

Similarly, Adamawa terms for grain crops are diverse and do not resemble Chadic. Some Adamawa terms for 'cattle' resemble the Niger-Congo root *#naa*, strongly suggesting a distinct stream of cattle introductions. The small humpless taurines kept in this region are clearly the oldest layer of livestock-keeping, suggested by the many rituals surrounding them. Whether these were dispersed by Chadic speakers as they moved south remains an open question. But the lack of linguistic interaction in the region south of Lake Chad, suggests that Chadic speakers initially expanded as fishers and herders into territory that was barely populated, and that they came into contact with Adamawa-speakers, who were primarily foragers, only after much of the diversity of Central Chadic was already in place.

### 5. Archaeology

The archaeology of the southern basin of Lake Chad is still very patchy, as MacEachern (in press) points out. Although there have been surface finds of Acheulcan and MSA artefacts in the Mandara Mountains, these are out of context and do not indicate continuous settlement. There is no evidence for human occupation prior to the Holocene;<sup>2</sup> during the Pleistocene hyper-arid the region must have fairly empty. For the next few millennia only isolated finds, such as the remarkable 8000 year-old Dufuna canoe, point to possible subsistence strategies (Breunig 1996). Konduga, southeast of Maiduguri, has pottery at the similar period, but this is an isolated site (Breunig *et al.* 1996). By around four thousand years ago evidence of human occupation appears with sites such as Gajiganna at ca. 1800 BC, southwest of Lake Chad (Wiesmüller 2001; Breunig & Neumann 2002; Wendt 2007). The pottery of Gajiganna has wide affinities across the Sahel; geographically it maps against the Nilo-Saharan phylum quite well, but it could also express its value as part of a widespread exchange chain. A thousand years later, more settlement sites appear, for example the evidence for agriculture in the Diamaré

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<sup>2</sup> Robert Soper recorded the presence of pebble tools in the region suggesting very ancient human settlement.

plains and in the Mandara mountains (MacEachern in press). Magnavita *et al.* (2004) document the increasing size and complexity of settlements in the Lake Chad Basin, and this must be connected with agricultural intensification, although evidence for a suite of crops is lacking.

For the Mandara Mountains themselves, evidence for any ancient settlement is peculiarly recalcitrant (MacEachern 1996). MacEachern (in press) has a table summarising all the known radiocarbon dates and apart from the sites of Doulo Igzawa and Gréa Chefferie, which date from the first millennium BC, almost all other sites are less than a thousand years old. After there is an accelerating suite of dates leading to the earliest dates for the DGB complex no earlier than 1300 AD<sup>3</sup> (cf. David 2008). All of this points strongly to the expansion and diversification of Chadic-speaking peoples during this period, and very little interaction with any pre-existing occupation. Only when they reach the Fali-speaking area do they encounter already-established populations of unknown antiquity.

## 6. Synthesis

The following points suggest a chronological ordering of events in the ethnolinguistic peopling of the region south of Lake Chad.

- a) Prior to 10,000 BP the region is occupied by highly diverse foragers, of which the Laal in Chad and Jalaa in Nigeria may be the only remaining survivals
- b) The greening of the Sahel at this period attracts westward expansion of Nilo-Saharan speakers associated with fisheries, hippo-hunting and pottery
- c) Saharan languages become established around Lake Chad and Songhay splits away and moves to the Niger Bend
- d) Gur-Adamawa languages move eastward, ca. 4-5000 bp, hunting large plains animals, but already familiar with dwarf cattle. Their is likely to be around the modern site of Garoua, rather than in the Mandara proper. They perhaps preceded by other Niger-Congo speakers, now represented only by the Fali

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<sup>3</sup> Although DGB sites do incorporate broken grindstones from an earlier occupation that may well go back to the preceding millennium.

- e) Chadic speakers reach Lake Chad from the Nile Confluence as fishermen and herders rather 4500 bp
- f) Central Chadic/Masa speakers expand southwards initially still as herders and fishermen 4-3000 bp, leaving some fishing populations behind in the core area
- g) They encounter a salient of Fali and Adamawa-speakers and split into two subgroups, the Masa spreading east to the plains and the western group begin the colonisation of the Mandara mountains, probably with the adoption of millet and sorghum cultivation
- h) Chadic and Adamawa speakers border one another, but between the two the Fali may have acted as a buffer, limiting cultural interchange
- i) With the exception of the Tupuri, evidence for interaction Adamawa/Chadic is surprisingly limited. The archaeology suggests the Mandara mountains were only very sparsely inhabited until as late as 600 AD, and that the Central Chadic speakers spread into a largely unoccupied area.
- j) Shuwa Arabs arrive on shores of Lake Chad in the thirteenth century
- k) Fulbe herders arrive in the Lake Chad area in the eighteenth century but establish political hegemony in the nineteenth century following the jihad
- l) Expansion of the Kanuri kingdom from the eighteenth century pushes Kanuri further south and isolates the Kotoko.

## **7. Conclusion**

The region south of Lake Chad has a highly complex linguistic geography, whose earliest layers south of Nilo-Saharan are Adamawa and Chadic languages. An exploration of subsistence vocabulary from different language groups yields surprisingly little evidence of interchange, and this suggests populations keeping to their own subsistence niches to a great extent. Archaeology of the region is very much skewed by a richer knowledge of sites immediately adjacent to Lake Chad while materials further south are very much more limited. Chadic subsistence vocabulary is quite well-known, but it is yet to be compiled for most Adamawa languages. The key to a more in-depth understanding will be further work in these fields as well as explorations of DNA and material culture.

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<sup>4</sup>[http://www.mandaras.info/electronicISBNpublication/MacEachern\\_DuKunde\\_PhD.pdf](http://www.mandaras.info/electronicISBNpublication/MacEachern_DuKunde_PhD.pdf)

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## **Appendix: key terms in early Chadic subsistence**

### **1. Cow, cattle**

- \*la is generally proposed for Proto-Chadic, although it is only attested in Central and part of West Chadic. However, it is also in Southern Cushitic, which suggests that it must be reconstructed to a deep level in Afroasiatic. It is throughout Central Chadic, pointing to its dominant role in the lives of speakers of the proto-language.

<b>Appendix Table 1. Terms for 'cow'</b>		
<b>Language</b>	<b>Attestation</b>	<b>Source definition</b>
<b>Central Chadic</b>		
Proto Mandara	əla	vache
Proto Margi	la	vache
Proto Mofu	la	vache
Podoko	la,-a	vache, bœuf
Glavda	lā	(female)
Mandara	éla	bœuf
Malgwa	əthla	cattle
Bura	la, li	cow
Kilba	la	cow
Margi	la	cow
MargiS	thla	cow
Gemzek	la	bœuf
Zulgo	la	vache f.
Merey	la	bœuf
Dugwor	la	vache
Mofu-Gudur	la	bovin, vache
Mofu North	lā	bovin, vache, bœuf.
Moloko	la	vache, bœuf
Ouldeme	qlā	bœuf
Giziga Marva	la	bœuf
Giziga Marva	la	vache
Giziga Moutourwa	la	vache
Mbazla	la	vache
Vulum	lay	vache
Mulwi	le	bœuf
Gidar	waliya	vache, bœuf
Gidar	waliya	vache
Mbuko	la	bœuf, vache
Vame	ālā	bœuf
Psikye	la	
Bana	la nf	vache
Kirya	la	
KamweNkafa	la	
Hdi	la	la vache variété zébu

Lamang	lá	
Buduma	ha	vache
Afade	la, girim	vache
Malgbe	la	vache
Lagwan	nla	vache
Zina	àsà	vache
Mazera	kisa	vache
Mpade	shá	vache
Mser	sa	bœuf
Daba	ɣà la	vache, le bétail
Mbudum	ɣa	bœuf
Buwal	ɣa	bœuf
Gavar	ɣa	bœuf
Mafa	ɣe	bœuf
Cuvok	ɣa	bœuf
Sukur	ɣə	general term for cattle
Tsuvan	ɣakən	la vache
Jimi	lan	bœuf
Sharwa	la nf.	vache
Tsuvan	ɣa	bœuf
Gude	la	
Nyimatli	ɣe	
Nyimatli	ɣa	(female)
Mbara	wurɣay	
Tera	ɣa	
<b>Fali</b>		
Proto-Fali	*naayu	cow
<b>Adamawa</b>		
Tupuri	dây	vache
Karang	ndây	bœuf

## 2. Goat

Gravina (p.c.) reconstructs \*ɗawik for proto-Central Chadic, but the presence of cognates in Hausa (àwàakii) and East Chadic Toorom (\*àwàk-o) points to the d- being a later addition. There is no doubt at all that 'goat' should be reconstructed to proto-Chadic and was part of the pastoral lifestyle of Central Chadic speakers.

<b>Appendix Table 2. Terms for 'goat'</b>		
<b>Language</b>	<b>Attestation</b>	<b>Source definition</b>
Proto Mandara	*agwe	chèvre
Proto Margi	*kwi	chèvre
Proto Mofu	*awak	chèvre
Mbuko	awak	chèvre
Vame	āwāk	chèvre
Ouldeme	āwāk	chèvre
Moloko	awak	chèvre
Dugwor	awak	chèvre
Gemzek	awak	chèvre
Zulgo	awak	chèvre f.
Zulgo	awāk	chèvre f.
Muyang	awak	chèvre
Gemzek	awak	chèvre
Mercy	wak	chèvre
Mofu-Gudur	ḍakw	chèvre, caprin
Mafa	ḥakw, ḥakway, ḥakwiy hay	chevre
Cuvok	ḍakw	chèvre
Glavda	aagw	goat
Glavda	á:gʷà	
Lamang	ógò	goat
Hdi	gu	la chèvre
Glavda	ḍwágw	
Gidar	hawa	chèvre
Mbazla	áwū'	chèvre
GizigaMoutourwa	'aw	chèvre
GizigaMarva	aw	chèvre
Zina	àwà	chèvre
Malgwa	nawc	
Podoko	nawá,-ə	chèvre
Mandara	náwime	chèvre
Mbara	we	bouc
Kilba	kwa/ku	
Bura	kwi	goat
Margi	ku	

Kamwe Nkafa	kwə	goat
Psikye	kwə	
Bana	kwə nm	chèvre
Kirya	kù	goat
Kamwe-Futu	kwo	
Sharwa	hwə	chèvre
Sharwa	hwə	chèvre
Tsuvan	ahwe	le chèvre
Gude	əhwá	goat
Buwal	ɣhwa	chèvre
Gavar	ɣhwa	chèvre
Mser	ng̃ho	chèvre
Vulum	yek	chèvre
Muskum	yaw	chèvre
<b>Fali</b>		
Proto-Fali	*bviw	goat
<b>Adamawa</b>		
Mambay	vúù	chèvre
Tupuri	běě	chèvre
Karang	gúy	chèvre
Day of Bouna	bòróng yí	bouc

### 3. Fish

Gravina (p.c.) reconstructs \*kiriŋ for proto-Central Chadic, but again this has cognates across all branches, for example, Hausa kíffí, Zime kéréf, ? Dangaleat parpo. The lexeme for 'fish' is dominant in Central Chadic and clearly indicates that fish were salient for speakers of proto-Chadic.

Appendix Table 1. Terms for 'fish'		
Language	Attestation	Source definition
Proto-Mandara	*kilifi Y	poisson
Proto-Margi	*kilfa Y	poisson
Proto-Mofu	*kilif Y	poisson
Proto-Higi	*kilipi	poisson
Proto-Lamang	*kilipi	fish
Proto-Maroua	*kilif Y	poisson

Proto-Musgum	*hīlif Y	poisson
Proto-Hurza	*kilaf	poisson
Proto-KS	*kilfi	poisson
Proto-Daba	*kilif Y	poisson
Proto-Mafa	*kilaf Y	poisson
Proto-Bata	*kirifi Y	poisson
Proto-Tera	*yirvi W	poisson
Sukur	kirif	fish
Bata	qərɣyēe	fish
Jimi	həryəfən	poisson
Sharwa	kuryəfi	poisson
Gude	hərəfina	fish
Tsuvan	wulfin	les poissons
Malgwa	kəfe	fish gen.
Mandara	kelfe	poisson
Podoko	kələfe, -ə	poisson
Dghwede	kife	fish
Glavda	kiilfa	fish
Hdi	kəlipi	le poisson
MofuNorth	kələf	poisson (nom gen.)
Moloko	kələf	poisson en général
Gemzek	kələf	poisson
Merey	kələf	poisson
Dugwor	kələf	poisson
Mbuko	kələf	poisson
Cuvok	kələf	poisson
Mafa	kələf	nom gén. pour les gros poissons
Daba	kilif	le poisson
Mbudum	kəl:if	poisson
Gavar	ŋkilif	poisson
Buwal	ŋkələf	poisson
Ouldeme	kəlif	poisson
GizigaMoutourwa	kilif	poisson (général)
Mbazla	kilif	poisson
Mbazla	kiliv	poisson
GizigaMarva	kilef	poisson
Zulgo	kilif	poisson m.
Gidar	kilfi	poisson
Bura	kilfa	general name for fish

Kilba	kalfi	fish
MargiS	kalfi	fish
Margi	kyifi	fish
Kirya	kàrèpá	fish (general)
Bana	kàrpi	poissons (pl)
Kamwe-Futu	kələpə	fish
Psikyc	kələpə	fish
Bana	k(ə)lipə	poisson
Vulum	hilif	poisson (générique)
Zina	həlfə	poisson
Mazera	kilfa	poisson
Nyimatli	yurvu	fish
Tera	yurvu	fish
<b>Fali</b>		
Proto-Fali	*ʃiidʒi	fish
<b>Adamawa</b>		
Mambay	kyāh	poisson
Tupuri	ʃēē	poisson
Karang	nzúy	poisson
Day of Bouna	ɗʒi	poisson

Other reconstructions indicative of an aquatic environment for Chadic-speakers include ‘crocodile’;

Proto-Chadic	*karam	J & I (1995: 44).
Proto-Fali	*tiim	Sweet (1981)
Mambay	sígò	Anonby
Tupuri	sĩĩ	Ruelland
Karang	mĩĩrĩ	Ulfers (2007)
Day of Bouna	mbààrà	Nougayrol

#### 4. Sorghum/millet

The literature on terms for sorghum and millet in Chadic is made problematic by the use of the common term *mil* in the French literature. There is no clear evidence that cereal cultivation was part of the repertoire of early Chadic speakers.

daw

<b>Appendix Table 2. Terms for 'millet' I</b>		
<b>Language</b>	<b>Attestation</b>	<b>Source definition</b>
Cuvok	daw	mil (saison de pluies)
Mafa	daw	mil (nom gén.)
Gemzek	daw	mil millet
Zulgo	daw	mil
Merey	daw	millet (rainy season)
Mbazla	daw	mil
Mbuko	ndaw	mil millet
<b>Adamawa</b>		
Day of Bouna	dāā	mil

hiyə

Another, unrelated root occurs in the Central Chadic languages, found in the Mandara Mountains, principally in Northern Cameroun. Appendix Table 5 shows this root, reconstructed by Gravina (p.c.) as something like #haya;

<b>Appendix Table 3. Terms for 'millet' II</b>		
<b>Language</b>	<b>Attestation</b>	<b>Gloss</b>
Podoko	hiyá,-ə	mil
Hdi	hiya	le sorgho, le mil
Mandara	hiá	mil (m)
Lamang	xíyá	millet
Sharwa	hayən	graine
Tsuvan	he	le mil
Ouldeme	hāy	mil
Moloko	hay	mil
Vame	āháy	mil
Gidar	haya	mil
Psikye	xá	millet, corn
Bana	xà	mil (nom générique)

Source: Gravina (ined.)

It is possible that it was from this region that the millets of the Cameroun sites derive, but we would need more evidence from the poorly

documented Adamawa languages that today exist in the region between the two language areas.

fiyo

<b>Appendix Table 4. Terms for 'millet' III</b>		
<b>Language</b>	<b>Attestation</b>	<b>Source definition</b>
Malgbe	fiyo	millet de Guinée, petit mil
Lagwan	vio	millet de Guinée, petit mil
Buduma	fiyow n.f	mil (saison de pluies)
Afade	feyo	mil (saison de pluies)
Mpade	mfò	mil (saison de pluies)
Mpade	fiò	sorgho (saison des pluies)
Vame	vìyàw	mil

Others

<b>Appendix Table 5. Terms for 'millet' IV</b>		
<b>Language</b>	<b>Attestation</b>	<b>Source definition</b>
proto-Fali	*tidu	millet
Mambay	tùrà	mil
Tupuri	ʔfoore	mil
Karang	nàŋ	mil