

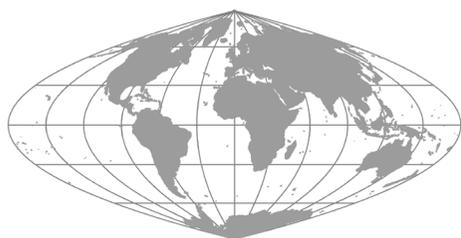
# Locational Analysis of Seasonal Migration of Nomadic Pastoralists in a Part of Northern Nigeria

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## ABSTRACT

There seems to be paradigm shift in the direction of seasonal migration among the nomadic pastoralists in southern Nigeria owing to recent social events and hostility confronting them in their communities. This study examined the new directions of seasonal migration among nomadic pastoralists, the migration pattern, distances covered during migration, period of return to the home area, factors responsible for the migration pattern, and the challenges encountered in the new area. The study relied mainly on primary data, which emanated from a survey questionnaire. The resultant data were used to elicit information on the relevant variables of the study. One hundred and twenty (120) questionnaires were randomly administered to pastoralists in thirteen (13) selected communities. The results showed that pastoralists embarked on short and long term seasonal migration, dictated by five indigenous seasons, which include Seeto, Dungu, Yawal, Dabbunde, and Cheedu respectively. Additionally, the movement of the herders was limited to locations within northern Nigeria, particularly to Gombe, Jigawa, Niger, Bauchi, and Kaduna States while some moved to the Niger and Chad Republics for pasture. Those who limited their seasonal migration to communities within northern Nigeria covered distances from 25 to 300km by foot, while those who crossed the international boundary covered distances between 500 and 600km. Finally, the study identified inadequate grazing land (40.8%), water scarcity (25%), drought/harsh weather conditions (15%) as the major challenges confronted them during transhumance. Other challenges were conflicts with the farmers (6.7%) and cattle rustlers (2.5%). The findings of this study advances/advanced our knowledge on the recent development in animal husbandry as herders limited their seasonal migration to northern Nigeria contrary to a more southward movement.

**Keywords:** Seasonal migration; nomadic pastoralist, northern Nigeria



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## INTRODUCTION

In West Africa, the largest pastoralist group is the Fulani, also known as Fulbe, Fula, and Peul, representing over 90% of pastoralists, straddling several West and Central African countries (Juang 2008; Oxford Bibliographies 2015; Commentary Africa 2017). Historically, their genealogy was traced to North Africa and the Middle East but they later intermingled with local West African ethnic groups. In West Africa, they are majorly found in countries such as Mauritania, Ghana, Senegal, Guinea, the Gambia, Liberia, Mali, Nigeria, Sierra Leone, Benin, Burkina Faso, Guinea Bissau, Cameroon, Ivory Coast, Niger, Chad, and Togo. They have an estimated population of 38 to 40 million people, with an estimated 12 to 13 million traditional pastoralists, making them the ethnic group with the largest nomadic pastoral community in the world (Levinson 1996; Appiah and Gates 2010; Harrison 2018). The Fulani are primarily known as nomadic, pastoralist people, but are also traders in some areas. They keep large herds of cattle, goats, and sheep across the vast dry hinterlands of their domain but live in a distinct settlement from the local agricultural populations. They are constantly on the move, searching for water and better pasture for their cattle on foot. As a result, they are found in every climatic zone and habitat of West Africa – from the deserts of the north, to the savanna and forests of the south.

In Nigeria, Fulani are found in 31 of the 36 States of the federation, but they constitute a majority ethnic group in the country's northern States (Habib and Jumare 2008), while being a minority group in southern Nigeria. A large number of them are dispersed over a distance of 4,500km from the Atlantic Ocean to Lake Chad, within the grassland savanna south of the Sahel and north of the main tsetse fly belts (Lambrecht 1976; The World Factbook 2013). This geographical distribution is dictated by the seasonal varia-

tions between the north and the south. At the onset of the dry season, they drive their cattle from the arid pastures in the north to wetter areas farther south where grassland, fallow fields, and surface water provide suitable grazing for their stock (Lambrecht 1976). In recent years, pastoralists in Nigeria have increasingly been migrating permanently or on seasonal transhumance southward from northern states in search of more favorable grazing conditions (UNOWAS 2018). Climate change and acute variability and unpredictability in rainfall patterns constitute the major factor in their migration patterns. Typically, this equates with a longer dry season and a shorter rainy season. Even where the total volume of rainfall has not decreased, it fluctuates more yearly and come in short bursts causing flash floods rather than steadily throughout the season. The fluctuation in rainfall, with greater annual variability over the past decade, is confirmed by scientific data in the Sahel (UNOWAS 2018). In addition, overgrazing in the far north has begun to lead to desertification across these regional areas of Nigeria (Ofem and Inyang 2014).

But in every location where the nomadic Fulani herders reside, they usually encounter conflicts with farmers over scarce resources. Studies revealed that whenever farmers and herders engaged in violent conflict, scores of houses are burnt, several farmlands and herds destroyed, and many lives are lost (Waters-Bayer and Bayer 1994; Nweze 2005; IRIN 2009; Adisa 2011a; Adisa 2012; Al Chukwuma & Atelhe 2014; Patience 2016). According to UNHCR (2018, cited in UNOWAS 2018), an estimate of 62,000 people were internally displaced in Nigeria in 2017 as a result of farmer-herder conflicts. The incessant conflicts between farmers and the herdsmen, especially in some part of southern Nigeria, led to a shift in the direction of seasonal migration of the nomads. As recent as 2017 the Kano State government and some stakeholders in northern Nigeria encouraged herders to return to their base area, contributing to a diversion in the direction of their seasonal migrations. But there has been an

uncertainty in the pattern of flow and scale of their movement, which has become subject of debate and research among scholars. In fact, several studies have tried to explain the causes, effects, and dimension of seasonal pastoralist migration.

For instance, Arya (2010) discovered that seasonal livestock migration of the pastoralists was dictated by scarcity of water resources for irrigation and drinking as well as dearth of fodders and infrastructural facilities at the source region. Seasonal migration was therefore seen as a survival mechanism. However, studies reported that migration of the able-bodied men along with their cattle often lead to inadequate labor supply and productivity at the home area (Awogbade 1983; Blench 1994). It was further discovered that the absence of adult men for the period of 6 to 8 months every year from home, increased social and economic burden on spouses and children. Mirjam de Bruijn et al. (2011) revealed that the movements of the nomadic pastoralists were governed by natural climatological factors and political motivations. Nzeh (2015) found that the nomadic herders who migrated from northern Nigeria to Enugu State in southeastern Nigeria encountered violent conflicts with the local farmers. The conflicts were, therefore, attributed to competition on land, cattle trespass, leadership tussle, cultural differences, and corruption of government officials. Moreover, Olaniyan et al. (2015) found that the pastoralists in the study covered long distances during seasonal migration and intruded into lands occupied by the local farmers. In a similar study, Ducrottoy et al. (2017) reported that the nomadic Fulani engaged in seasonal migration in response to the need to migrate away from the zone of tsetse flies attack. It was further noted that herders from the savanna zone constantly moved their cattle to sub-humid zone further south during the dry season, when the risk from trypanosomiasis, sleeping sickness (spread by the tsetse fly), was lower.

Although studies have established causes and effects of seasonal migration of nomadic pastoralists and have confirmed that the pas-

toralists migrate from north to south, driving their cattle from the arid pastures up north to wetter areas farther south where grassland, fallow fields and surface water provide suitable grazing for their herds; the direction of seasonal migration and the pattern of movement within the north is sparse in the professional literature. Recently, the height of hostility in some communities in southern Nigeria due to the incessant conflicts between farmers and herders forced some herdsmen to divert their movement north and restrict their movement to some parts of northern Nigeria.

In light of these previous studies' findings, the study in this article examines the direction of seasonal migration of the nomadic pastoralists in a part of northern Nigeria and analyzes the pattern of their movement including the season of return to the home community. It also assesses distances covered during migration and factors responsible for the migration pattern, as well as examines the major challenges faced during seasonal migration.

## CONCEPTUAL CLARIFICATIONS

### Nomadic Peoples

Nomads are communities of people who live in secluded area, move cyclically, and usually returning to their home area at various times of the year. In 1995, their population was estimated between 38 and 40 million. There are three categories of nomads: hunter-gatherers, pastoral nomads, and peripatetic nomads. The hunter-gatherers most likely represent the original lifestyle of most indigenous people whereas nomadic pastoralists are the ethnic groups who keep livestock such as cattle, sheep, goats, and camels and go along with them to pastoral locations. They generally live in tents or other portable shelters with few things inside and move with their herds on foot. The peripatetic nomads are mostly found in industrialized nations, travelling from place to place, offering services such as craft or trade to the residents of

the places where they go (Karim 1991; Dawn 1996). Peripatetic nomads usually travel with their wagons, because wagons are better for carrying goods.

The majority of the nomadic groups follow a fixed annual or seasonal pattern of movements and settlements. Nomadic peoples conventionally travel by animal, canoe, or on foot, although a small percentage now ride motorcycles or travel by motor vehicle. Their seasonal migration is often connected to clearly defined routes and destinations with the ultimate goal of pursuing economic activities and ensuring their livelihood. This article however, focuses on the migration pattern among the nomadic pastoralists in a part of northern Nigeria.

#### *Characteristics of Pastoral Nomadism*

The following features are peculiar to the nomadic pastoralists:

- The pastoral nomads mainly depend on livestock as source of their livelihood. They provide milk, meat, animal skins, and hair for domestic and industrial use. Most industries use animal hair for clothing and tents. The animals are not usually slaughtered, although some dead ones may be eaten. The nomads take pride in the size of their herds and they use it to measure their power, prestige, and security during adverse environmental conditions.
- Pastoral nomads wander periodically across the countryside, but they have a very strong sense of territoriality. Each group of pastoralists controls a piece of territory and intrudes into another group's territory only when there is an emergency, or in a case of war. The goal of each group is to control a territory, which contains large pastures and water resources to sustain their livestock. Pasture is the grazing land containing grass and other plants for animals' feed. But the extent of land a group controls depends on its wealth and power.
- Some pastoral nomads practice transhu-

mance, which is the seasonal migration of livestock between mountains and lowland pasture areas. This pattern of movement led some anthropologists to describe pastoral nomadism as a form of transhumance.

#### *Theories of Nomadic Pastoralist Movement*

Two schools of thought put forth explanations on the factors that influence nomadic pastoralist movement. One argued that animal resources, mainly food and water (i.e., environmental factors) were responsible for nomadic movements (Barth 1961). The other approach postulated that aside from ecological factors, other factors, which were categorized as biological factors (e.g., tsetse fly), and non-biological factors (such as, economic and social relations with other groups, national governments, and social relations between individuals within a nomadic group) have potentials to propel movement of nomadic pastoralist (Barth 1961; Bates 1972, 1973; Spooner 1972).

However, these approaches were criticized by scholars in the 1970s (Bates 1973; Irons 1974; Burnham 1975; Elam 1979), arguing that, "...ecological studies demonstrated that the relation between nomadic pastoralists and their environment could generally not be viewed as being homeostatic and thus the theories of Barth (1961) and Spooner (1972), which had been based on this premise, were undermined" (Elam 1979, 153). It was further stated that both ecological and non-ecological factors were of equal importance in causing and shaping nomadic pastoralist movement and that this movement could be caused and shaped by all or any of the factors.

Gulliver (1975) however, observed that the pastoralists were always moving in response to ecological (resource) factors. But the manner in which they did so depends on the "opportunities of roughly equal pastoral advantage" (Gulliver 1975, 371). In other words, pastoralists had "a degree of freedom of action" (Gulliver 1975, 371) where socio cultural considerations could determine their course of movement. Similarly, Neville Dy-

son-Hudson (1972) opined that ecological and non-ecological factors could influence movement on different scales of precision. For instance, ecological factors could determine the general features of the migration patterns (such as, seasonal migrations from one ecological zone to another), while non-ecological factors determined the concrete details of movements and schedules (simplified in Figure 1)

However, this article adopted the view of Gulliver (1975) because of its precise relevance to the study. Specifically, the seasonal migration of the pastoralists under consideration was being propelled by resource variations between geographical areas (ecological factors) and socio-cultural considerations at the home area (non-ecological factors).

### STUDY AREA

The choice of the study area is guided by the economic activities of the people, which is mostly arable and livestock farming. But in recent times, droughts, scarcity of water resources, and vegetation posed serious threat to the activities, which induced seasonal exodus of the herdsmen from their home community. The study area is in northern Nigeria, which comprises of three States: Kano, Yobe, and Borno (Figure 2). Generally they lie within latitudes of 9° to 14° north of the Equator, and between longitudes of 8° and

15° east (Iloeje 2001). With the exception of Kano, which is found in the north-central geo-political zone, others fall within north-east geo-political zone. Put another way, Kano lies within Sudan Savanna, while Yobe and Borno States situate in Sahel Savanna.

Their mean maximum temperatures are higher during the day, while at night the mean minimum temperatures are lower in the zone. For instance, the mean monthly maximum temperature in the hot months of April and May in the northeast zone can go as high as 40°C (104°F) and 48°C (118.4°F) for the city of Maiduguri, while in the same season frosts may occur at night. The relative humidity is generally high, but falls whenever the local winds (*barmattan*) are prevalent. The rainy season in the area last for only three to four months (June-September) while the rest of the year is hot and dry. The amount of rainfall is generally low, sometimes less than 300mm/year. The vegetation of the study area is described as Sudan and Sahel Savanna. The Sudan is characterized by shorter grasses and shorter trees while Sahel is desert vegetation with patches of grasses and sand. But due to the presence of mountainous terrain, rainfall variations, and edaphic factors, some other distinct vegetation types are supported within the study area.

Soils in the area are generally of a poor quality because of the acute dryness, which hardly supports luxuriant vegetation. How-

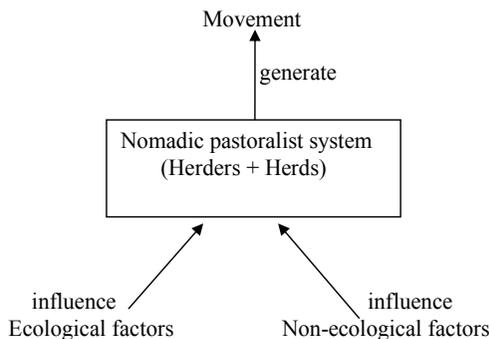


Figure 1: Determinants of nomadic pastoralist movement (after Dwyer and Istomin, 2008)

ever, there is luxuriant growth of trees around riverbeds and in mountainous terrains, which supports small-area farming and animal husbandry. Rivers draining the area include Komadugu gana, Yobe, Jawa, Hadejia, and inland drainages such as Lake Chad. There are about 200 ethnic groups in this zone, among which are the Tiv, Fulani, Bachama, Kutep, and Jukun, among others (TEE-REX 2003). But the population of the area is made up of both sedentary arable farmers and migratory herdsmen, mainly of the Fulani ethnic group.

## MATERIALS AND METHODS

This study utilized questionnaires to obtain information on the migration pattern of the herdsmen, distances covered during migration, methods adopted to minimize seasonal migration, and places migrated to, among other factors. One hundred and

twenty (120) questionnaires were randomly distributed among adult men who were household heads of the pastoralists in the selected communities. This number was believed to be representative as the nomads were found in scattered settlements and in small sizes. For instance, in all the settlements where the study was carried out, the numbers of tents/shelters counted were between 8 and 13, except for one large settlement in Kano State, which hosted 25 tents/shelters.

The study adopted simple random sampling technique because the communities of the nomads were built compactly and there was no road in between except the footpaths, which connected one tent to another. The questionnaires were administered in thirteen (13) settlements, within six (6) local government areas (LGAs) of the selected States to capture large area where the nomads were found. The selected LGAs include Konduga (Borno State), Fune (Yobe State) and Gwale,

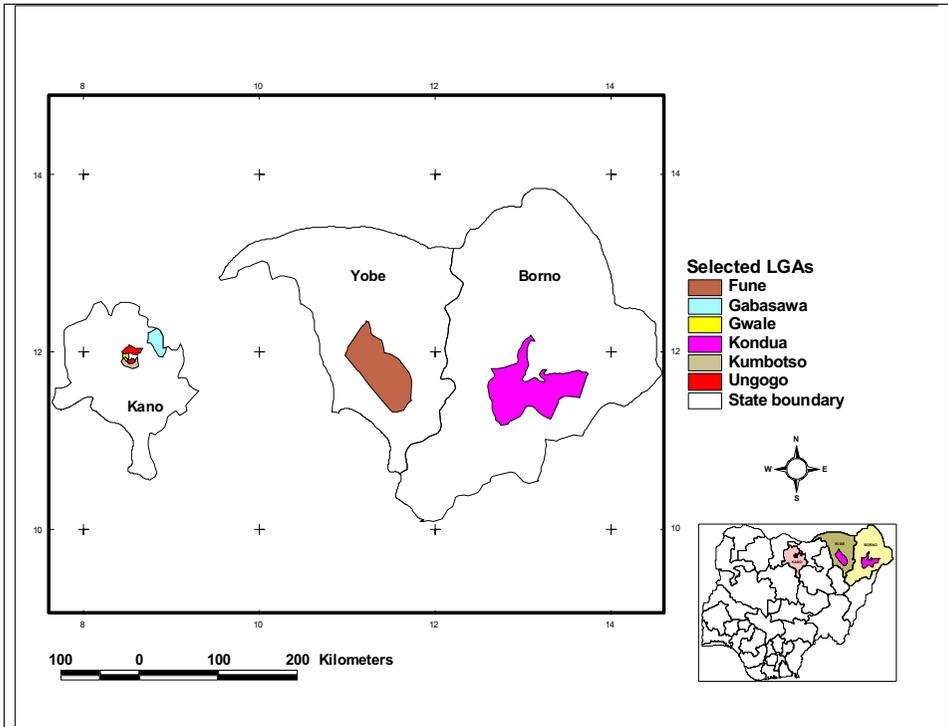


Figure 2: The Study Area

Nasarawa, Ungogo, and Kumbotso (Kano State) respectively (Figure 2).

The pastoralists were targeted in their communities at early hours of the day (between 6:30 and 7:00am, Nigeria Local Time) before setting out for work and in the evenings (from 6:00 pm Nigeria Local Time) when they were returning from the field – when the majority of them were available in the community. Five staff of the National Population Commission (NPC) were recruited as field assistants in each State. These include those who were Fulani by birth or tribe, those that can communicate in Fulfulde (the local Fulani lingua franca), and those who have friends among the nomads in the selected communities. These field assistants worked together with the principal researcher in all the selected communities, as these nomadic peoples live in a secluded area and can be hostile to strangers, whose origins are unknown.

In all the communities where the study was conducted, the heads of the communities were first consulted for consent and acceptance, who later mobilized the members of the community for their cooperation. It is important to note that most of the selected communities were not connected with roads, but rather footpaths, as they are situated in a remote area, farther away from the main town. To access the communities, motorcycles were hired for inter-village transport. The nomadic settlements can be classified as homesteads, and thus, a random sampling method was adopted in the distribution of the structured questionnaires.

## FINDINGS

Most scholars agree that nomads are people with no territorial boundary and land inheritance because of the never-ending search for new pasture (Ezeomah 1985; Blench and Dendo 2003). This claim, however, seems to be changing as nomads were found settled down in different communities, though still in a remote area, farther away from the main town. Although this study did not investigate the ownership of the occupied land or land

tenure system, it was evident nomads – at least in northern Nigeria – have a specific settlement they referred to as their home. This study therefore, helps confirm that nomads are settling down in what can be regarded as a community, even as they are still engaged in frequent seasonal migration.

### *Pattern of Seasonal Migration*

The Nomadic pastoralists engaged in two main migratory patterns: short and long seasonal migration. The short seasonal migration represents the movement of the herdsmen within the same home area, which is not far from their community. The long seasonal migration on the other hand is regarded as the movement of the herdsmen away from the home area for long period of time (usually 6 to 8 months). In this study, 37% embarked on short seasonal migration, while 63% were involved in long seasonal migration.

### *Factors Propelling Seasonal Migration*

In this study, five indigenous categories of seasons were responsible for seasonal migration. These seasons dictate when to move, when to return, and when the fodders were available in the home areas. These seasons are *Seeto* (May-July), *Dungu* (July-September), *Yawal* (October-December), *Dabbunde* (December-February) and *Cheedu* (February-April). The migration from the home area begins during the planting season, or *Seeto* (May-July). *Seeto* is the planting season in most northern Nigeria because of the availability of rainfall for the rain-fed crops, and this is also the time some nomads engage in migration to new locations. The reason is that after cultivation, only few lands are left vacant for sufficient for grazing. In fact, 16.7% of the herdsmen migrated from their home area to a new location during this time (Table 1).

The period of *Dungu* (July-September) is characterized by tsetse fly population and insufficient grazing land in most northern Nigeria. This is because virtually all available lands would have been cultivated for sufficient rainfall. This in effect leads to expanse

of tsetse fly population, which propelled the pastoralists to a safe location outside their home area. The insufficient grazing land resulted from large-area cultivation serves as a push factor away from the home area. Overall, 60% of nomads were involved in out-seasonal-migration from the home area during the period of Dungu (July-Sept) as they considered it as unsafe to keep their cattle in the home area because of the prevalence of tsetse fly and shortages of fodders (Table 1).

Yawal (October-December) is the period of return migration because most crops have been harvested and there are sufficient fodders to feed the animals. Additionally, the dry season has set-in by this time, and the home area is free from tsetse fly. However, the cattle are kept around the flood plains where pastures are still available. In this study, only 4.2% returned home during Yawal (Table 1).

Dabbunde (December-February) and Cheedu (February-April) represent periods of dryness and bareness in northern Nigeria because of the lack of precipitation. During this time, all the fields and water bodies are dried-up, the trees shed their leaves, and there are shortages of fodders for cattle. This situation poses danger to the life of the cattle and thus induces long seasonal migration. The long seasonal migration implies a longer stay of the seasonal migrants outside their home area, and data show 6.7% and 9.2% were away from the home area during Dabbunde and Cheedu, respectively (Table 1).

Table 1: Seasons determining out-migration from the home area

Season of migration	Frequency	%
Dabbunde (December-February)	8	6.7
Cheedu (February-April)	11	9.2
Seeto (May-July)	20	16.7
Dungu (July-September)	72	60.0
Yawal (October-December)	5	4.2
Migration	4	3.3
Total	120	100

## SEASON OF RETURN

Three major events dictate the period of nomadic herdsmen return of to their home community. These are the planting season Seeto (May-July), harvesting period Dungu (July-September) and festive time Dabbunde (December-February). However, the season of return is not uniform across the states because of the variations in the location of grazing areas and the distance covered during pastoral migration. In fact, 35.8% of the nomads returned to their home area in Dabbunde, a period that is characterized with celebratory and resting from the yearly exploit (Table 2). Additionally, at this time, there were enough fodders to feed the cattle in the home area because of abundance of straws/stalks that were left in the field after harvesting.

The Seeto, which is the planting season, attracted some pastoralists back home. As observed during the field survey, some pastoralists combined both arable farming and animal husbandry together. Such herdsmen were always available during the planting season, and sometimes even used their herd to till the ground. The festive period (Dabbunde) attracted 35.8% back home, while 25% made their way back home during the planting season (Seeto), and 18.3% returned in Dungu. There were still some pastoralists who came back home during Cheedu (15.8%) and Yawal (5%, see Table 2).

Table 2: Season of return

Season of migration	Frequency	%
Dabbunde (December-February)	43	35.8
Cheedu (February-April)	19	15.8
Seeto (May-July)	30	25.0
Dungu (July-September)	22	18.3
Yawal (October-December)	6	5.0
Total	120	100

**LOCATION MIGRATED TO AND THE DISTANCE COVERED BY PASTORALISTS FROM BORNO STATE**

Further investigation during the field work reveals that the pastoralists wandered with their cattle to different locations in search for pasture and sometimes they covered many kilometers on foot to their destinations – anywhere from 25 to 600 km – to the neighboring States and countries (Table 3). For instance, the nomadic pastoralists from Auno settlement, in Konduga Local Government Area of Borno State, embarked on seasonal migrations to Gombe, Yobe, and Chad Republics – locations considered safe for their lives and cattle (Figure 3). But those who limited their movement to Borno State covered a distance not less than 25km, whereas the remainder who travelled beyond the State in search for pasture covered the distance between 100km and 600km. It was further revealed that the animals were often

grazed along the river valley, flood plains, and the Chad basin, which confirms the discovery of Blench and Dendo (2003) who found that the Fulbe (Fulani) were pasturing their cattle along River Niger-Benue system especially, during the dry season.

Moreover, it was gathered during the field survey that some pastoralists made return journeys home daily, weekly, and sometimes fortnightly. This is termed as the “short seasonal migration” in this study, and those within the range of 25-60km are categorized in this group. Pastoralists who migrated outside the State, however, spent months before returning home and sometimes erected temporary domicile structures (e.g., tents, shelters, and “booths”) along the way.

**LOCATION MIGRATED TO AND THE DISTANCE COVERED BY PASTORALISTS FROM YOBE STATE**

The pastoralists from Yobe State also engaged in seasonal migration to locations out-

Table 3: Location and distance covered by pastoralists from Borno State

Borno State					
Source community (x, y coord.)	LGAs of the source region	Destination (x, y coord.)	State/Country of destination	Characteristics of the destination	Distance from the source region
Auno X-1312451.34 Y-928816.58	Konduga	Mafa 1340628.55 1661035.79	Borno	River valley; Flood plain	60 km
Auno X-1312451.34 Y-928816.58	Konduga	Chad Basin 1570684.66 1584903.8	Chad republic	Chad basin	600 km
Auno X-1312451.34 Y-928816.58	Konduga	Baga, Doro-Gowon 1584770.27 1671781.96	Borno	Chad basin, Grassland	60 km
Auno X-1312451.34 Y-928816.58	Konduga	Gombe 1148092.61 1397202.97	Gombe	Flood plain, Grassland	280 km
Auno X-1312451.34 Y-928816.58	Konduga	Baga 1584770.27 1397202.97	Borno	Chad basin	600 km
Auno X-1312451.34 Y-928816.58	Konduga	Bukarti 1442367.61 1470074.96	Yobe	River valley; Flood plain	100 km
Auno X-1312451.34 Y-928816.58	Konduga	Chigam 1307179.59 1595218.61	Borno	River valley, Flood plain	25 km

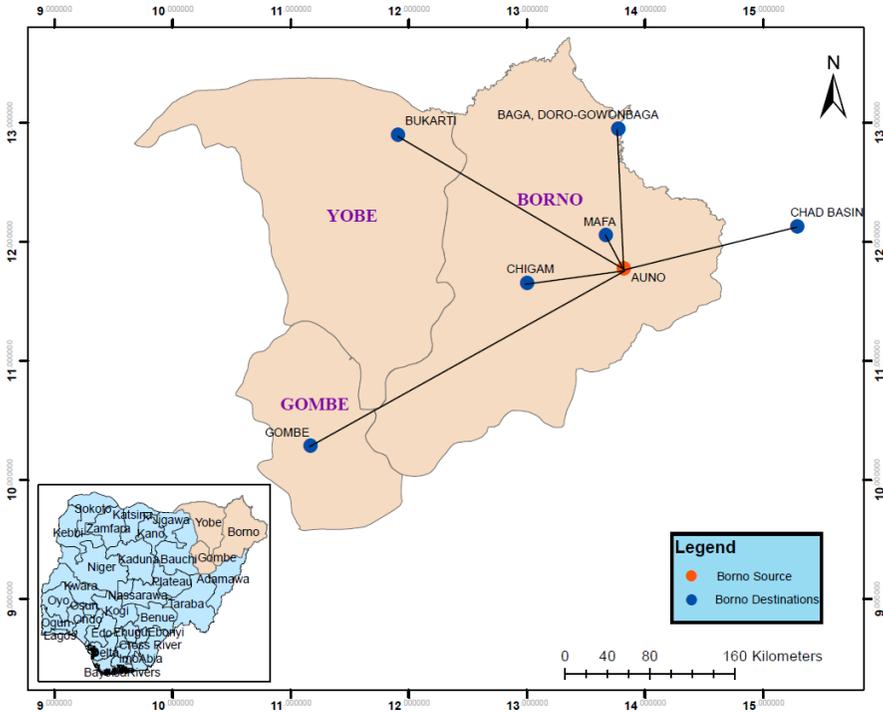


Figure 3: Pastoralist migration catchment area from Borno State

side their vicinity. For instance, the herders from Fune Local Government Area of Yobe State sought pasture in the surrounding States which seemed to be safe and had available pasture. These include Bauchi, Kano, and Jigawa States (Figure 4). Those who did not restrict their movement to Yobe State and travelled outside the State, covered a distance of 100-190km before returning home (Table 4). At these far-from-home destinations, cattle were grazed along the river valleys, flood plains, and mountainous terrains where there was green and fresh pastures.

**LOCATION MIGRATED TO AND THE DISTANCE COVERED BY PASTORALISTS FROM KANO STATE**

The pastoralists from Kano State – especially from Gwale, Nasarawa, and Ungogo Local Government Areas – engaged in seasonal migration to Jigawa, Kaduna, Bauchi,

Niger, and Katsina States. Others from Gwale migrated to Niger Republic in search of greener pasture (Figure 5). It is worthy of note that those who limited their movement to the Local Governments within the State did not cover less than 70km, with some traveling as much as 200km even within the State (Table 5). This suggests that the herders who migrated outside the State were involved in “long seasonal migration” because of the distance covered (i.e., 120-500km). It was found during the field survey that herders were trekking with their animals to the targeted locations that included grassland areas, river valleys, and the flood plains with fresh pasture were used for grazing in the destination areas.

*Nature of Seasonal Migration*

The nature of the movement to a targeted location was also explored using the questionnaire. Data show that the pastoralists

Table 4: Location and distance covered by the pastoralists from Yobe State

Yobe State					
Source community (x ,y coord.)	LGAs of the source region	Destination (x, y coord.)	State/Country of destination	Characteristics of the destination	Distance from the source region
Shiduwa X-1295455.77 Y-780936.33	Fune	Bauchi 1148275.96 1251130.11	Bauchi	River valley, grass-land	190 km
Shiduwa X-1295455.77 Y-780936.33	Fune	Dabin-Kanawa 1327099.77 1143235.59	Kano	Flood plain	180 km
Koriji, X-1287581.59 Y-782704.80	Fune	Gujba 1286182.25 1477731.81	Yobe	River valley, Flood plain area	72 km
Shiduwa, X-1295455.77 Y-780936.33	Fune	Yadi 1333663.06 1144006.95	Kano	River valley, Flood plain area	180 km
Koriji X-1287581.59 Y-782704.80	Fune	Roni 1395112.52 1081859.72	Jigawa	River valley; Mountainous terrain	100 km
Shiduwa X-1295455.77 Y-780936.33	Fune	Olduri 1390383.87 1432641.12	Yobe	Grassland	2 km
Shiduwa, X-1295455.77 Y-780936.33	Fune	Azare 1300422.23 1285745.37	Bauchi	River valley, Grassland	150 km

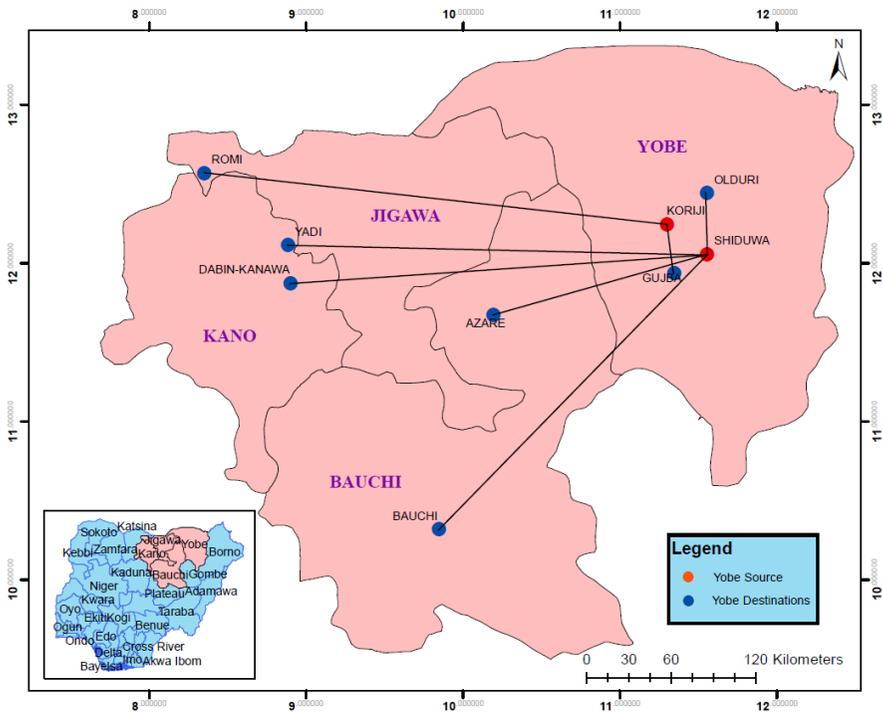
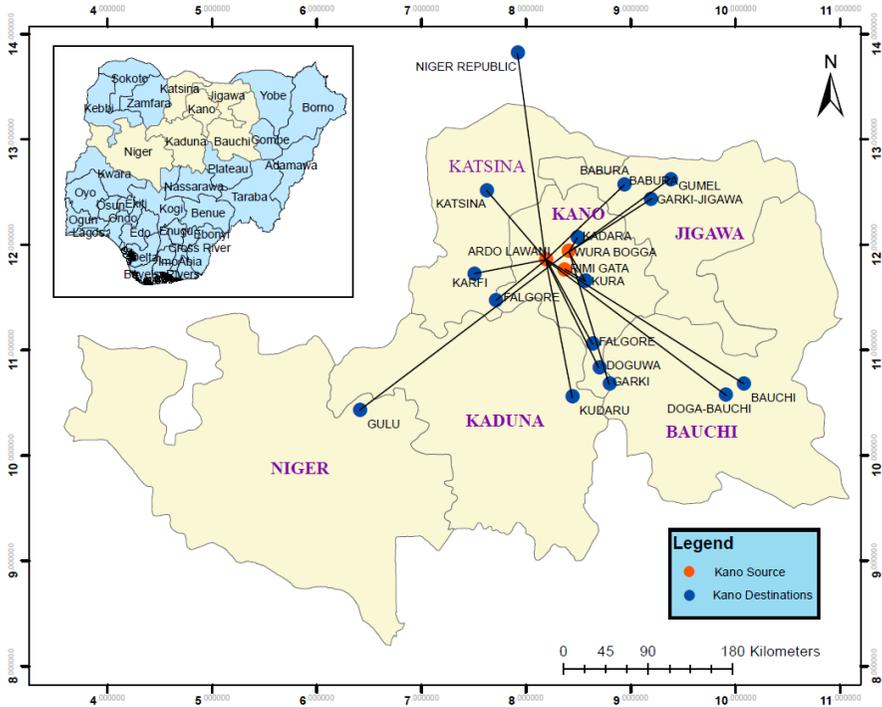


Figure 4: Pastoralist migration catchment area from Yobe State



**Figure 5: Pastoralist migration catchment area from Kano State. The movement of the pastoralists was limited to the catchment areas, which are in neighbouring States, except those who crossed the international boundary to Niger Republic for grazing.**

were always moving in group whenever they were going to the new location different from their home area, as 80% of the respondents indicated that they were going in group to the new location, while only 13.3% were going singly with their cattle to the grazing land (Table 6). As revealed during the field work, they preferred to travel in groups for companionship and security reasons.

*Size of Group Movement*

The study also examined the number usually involved in group seasonal migration, where not less than five herdsmen were involved in a group. For instance, 77.5% indicated that between five and ten pastoralists were moving together as a group, whereas 11 to 15 herders in a group constituted 19.2%, 16-20 herders in a group consisted

of 2.5%, and only 0.8% of the respondents were found in groups of 21-25 people (Table 7). An indepth interview revealed that the herders were always using unique symbols to demarcate their herds whenever they were moving to the new location as a group.

*Duration of Shelter in a New Location*

The pastoralists were not spending weeks to construct their shelters in the new location. This is evident as 34.2% spent between one and five hours to construct new shelters (booths) for their dwellings, whereas about 22.5% spent between six and ten hours to erect a tent for their dwellings (Table 8). Although there were cases of individuals who spends more than five days to complete their tents/shelter (~30%). The process of tent making in a new location was disclosed

Table 5: Location and distance covered by the pastoralists from Kano State

Kano State					
Source community (x, y coord.)	LGAs of the source region	Destination (x, y coord.)	State/Country of destination	Characteristics of the destination	Distance from the source region
Ardo Lawani X-1322344.04 Y-441374.77	Gwale	Niger Republic	Niger republic	Grassland	500 km
Ardo Lawani X-1322344.04 Y-441374.77	Gwale	Babura 1396928.97 1146224.21	Jigawa	River valley	300 km
Ardo Lawani X-1322344.04 Y-441374.77	Gwale	Falgore 1272288.8 1014390.41	kano	River valley	180 km
Ardo Lawani X-1322344.04 Y-441374.77	Gwale	Doguwa 1203003.5 1124066.26	Kano	River valley	200 km
Ardo Lawani X-1322344.04 Y-441374.77	Gwale	Kudaru 1172131.21 1096117.94	Kaduna	River valley	250 km
Rugar Lawan X-1322344.04 Y-441374.77	Gwale	Bauchi 1189803.71 1276265.87	Bauchi	River valley; Grassland	350 km
Rugar Lawan X-1322344.04 Y-441374.77	Gwale	Falgore 1228637.52 1116689.83	Kano	Flood plain areas	180 km
Rugar Lawan X-1322344.04 Y-441374.77	Gwale	Doga, Bauchi 1185288.65 1276430.88	Bauchi	Grassland areas	120 km
Rugar Lawan X-1322344.04 Y-441374.77	Gwale	Katsina 1388066.59 1002929.85	Katsina	Flood plain areas	300 km
Ardo Lawani X-1322344.04 Y-441374.77	Gwale	Karfi 1299740.45 991250.65	Kano	River valley	70 km
Wuro Bogga X-1326326.47 Y-455076.74	Nasarawa	Gulu 1155160.13 873634.48	Niger	Flood plain	150 km
Wuro Bogga X-1326326.47 Y-455076.74	Nasarawa	Garki 1194070.46 1125057.32	Kano	River valley	80 km
Wuro Bogga X-1326326.47 Y-455076.74	Nasarawa	Kura 1306758.96 1091750.54	Kano	River valley	70 km
Wuro Bogga X-1326326.47 Y-455076.74	Nasarawa	Kadawa 1340583.47 1098284.55	Kano	River valley	90 km
Wuro Bogga X-1326326.47 Y-455076.74	Nassarawa	Gumel 1403753.46 1194618.77	Jigawa	Grassland	200 km
Wuro Bogga X-1326326.47 Y-455076.74	Nassarawa	Garki, Jigawa 1382250.67 520830.75	Jigawa	Grassland	123 km
Rimin Gata; Kwarin Adiya X-1322125.56 Y-435734.23	Ungogo	Kura 1306758.96 1091750.54	Kano	River valley	80 km

Table 6: Nature of seasonal migration

Movement style	Frequency	%
Group	96	80.0
Single	16	13.3
Any form	8	6.7
Total	120	100

Table 7: Size of group movement

Group size	Frequency	%
5-10	93	77.5
11-15	23	19.2
16-20	3	2.5
21-25	1	0.8
Total	93	100

Table 8: Time of erection of new tent in new location

Duration in tent erection	Frequency	%
1-5 hours	41	34.2
6-10 hours	27	22.5
1-2 days	11	9.2
3-5 days	5	4.1
Above five days	36	30.0
Total	120	100

Table 9: Strategies of minimizing periodic movement

Methods	Frequency	%
Dams construction	25	20.8
Grazing reserves	38	31.7
Veterinary services	2	1.7
Sanitation facilities	1	0.8
Market	1	0.8
All of the above	53	44.2
Total	120	100

Table 10: Challenges faced during seasonal migration

Challenges	Frequency	%
Health hazards	12	10.0
Conflicts with farmers	8	6.7
Cattle rustler	3	2.5
Water scarcity	30	25.0
Inadequate grazing land/straws	49	40.8
Drought & Harsh weather	18	15.0
Total	120	100

during the fieldwork, and involves clearing the land, searching for construction materials (e.g., woody trees, leaves, and/or grass to cover the roof), and utilizing other natural components (e.g., tree branches and plant stems) to make bed when mats are laid on them instead of regular foam mats used at home.

## STRATEGIES TO MINIMIZE SEASONAL MIGRATION

Nomads were asked what could be done to minimize their seasonal migration, which would allow them to benefit from the Federal government’s free education and health services. A strong majority (44.2%) supported dam construction, creation of grazing reserves, veterinary services, sanitation facilities, and market for their dairy product in their home area. However, only about 1/5 (20.8%) demanded dam construction for adequate water supply for the cattle, while almost 1./3 (31.7%) indicated creation of grazing reserves for their cattle. Some others in their various views supported veterinary services only (1.7%), sanitation facilities (0.8%), and a market place for the sales of their animal products (0.8%, see Table 9).

### Challenges Faced During Seasonal Migration

The herders faced a lot of challenges in the course of their seasonal migration. For example, 10% indicated health hazards as one of the challenges they faced during transhumance, including ailments such as joint pains (from walking long distances), gastrointestinal disorder (diarrhea) from the consumption of unhygienic water especially from ponds, oral infections from poor hygiene, and excessive consumption of sweet food (Table 10). Other challenges they faced were conflicts with farmers (6.7%), cattle rustlers (2.5%), and water scarcity (25%). Again, inadequate grazing land/straws (40.8%) and drought & harsh weather (15%) were serious challenges and threat to their livestock (Table 10).

In this study, conflicts between farmers and herders were not pronounced, perhaps

because the nomads shared the same custom and religion with the northerners, and there was mutual understanding. Or perhaps there were not many farmers on their routes. It is important to note, however, that due to recent activities of the insurgency, many farmers and villagers were displaced from their communities, which consequently reduced farming activities in most of northern Nigeria. This may explain unpronounced herder-farmer conflicts discovered in the study. Still, inadequate grazing land and water scarcity for the cattle were the major challenges found in the study, which corroborate the claims of Azuwiye and Enwerem, (2010), Blench (2010), Ofem and Inyang (2014), Nzeh (2015), and Olaniyan et al. (2015).

## DISCUSSION

Iro (2017) asserted that mobility of the pastoralists is necessary because pastoral resources are non-static and gaining access to them will require movement. Pastoralists, therefore, engage in seasonal migration for pasture and to avoid harmful insects, extreme weather, livestock thieves, tax assessors, and hostile social environment. In this study, the period of seasonal migration from the home area and the time of return were dictated by five indigenous categories of seasons. Seto (May-July) is the planting season and is characterized by insufficient land for grazing. It is at this time the pastoralists begin the seasonal migration to a new location with perceived sufficient grazing land for their cattle. However, they remained in the new location until the expiration of Dungu (July-September), which is the period characterized by tsetse population and insufficient grazing land in most northern Nigeria. The implication is that the seasonal migrants often spent about six months or more away, before returning to the home area. During Yawal (October-December), most pastoralists returned home. This is because most crops have been harvested in the home area and there was sufficient fodders to feed the animals. Dabbunde (December-February) is the festive period,

while Cheedu (February-April) is the period of tillage for the rain-fed arable crops.

Similar seasonal mobility cycle of Wodaabe herds and households was reported by Schareika (2017), but in their case, recognition of soil quality and plant growth was used as determining factor by herders for seasonal migration. As observed by Arya (2010), seasonal migration of pastoral nomads constituted major proportion of human population in the Shivalik foothill villages of the Haryana State, and this associated with the absence of water resources development in the water-scarce regions. Gefu and Kolawole (2002) captured the migratory pastoralists in their study and discovered that the migrants had between 50 and 200 cattle. These animals were grazed on Fadama lands in dry season and returned to upland areas during the rainy season to avoid areas with tsetse flies and other diseases. It was also reported that the location of farming communities which provided crop residue for grazing and markets for sale of their animals largely determined the mobility patterns of the herders.

By contrast, this study discovered that the nomadic pastoralists from Borno and Kano States traveled across the international boundary to Chad and Niger Republics, respectively in search for pasture through unauthorized routes. It is important to note that Nigeria has over one hundred international boundaries where the immigration officers, custom officers, and other security operatives keep surveillance. In spite of all these, many clandestine activities remain unabated. If the Nigerian government could employ modern technology such as UASs (Unmanned Aerial Systems) to enhance the activities of the security operatives along the international boundaries, it would go a long way to detecting all clandestine activities and other unlawful activities such as importation of ammunition through illegal routes, child trafficking, kidnapping, and more, all of which has recently characterized this international boundary. The study further noted that tenth and hundreds of kilometers were covered during seasonal migration to the new

location by foot. Although their eating habit was not investigated in the study, temporary booths (shelters) were constructed along the way, which were later removed or abandoned when relocating to new area. The movement was always in group because of companionship and safety, especially when migrating to unfamiliar area.

Another interesting discovery in the study is the restriction of the pastoralists to some parts of northern Nigeria, even as they keep their cattle along the river valleys, flood plains, and locations where there were sufficient pastures for their cattle. Northern Nigeria is characterized with poor climatic condition, where eight months of dryness and four months of wetness is experienced (Adejuwon 1979; Udo 1979). The implication is that if the pastoralists captured in the study could adapt to the poor climatic condition in the north, then pastoralism could thrive well under ranching with adequate animal resources. Recently, the incessant conflict between herders and farmers has raised demands for ranching and grazing reserves for herders across the country. This has also induced Kano State government to order the herders to return back home while those in the north were advised to limit their activities to northern States.

This study further revealed that the nomadic pastoralists have a place they refer to as home, which is contrary to earlier assessments. Although studies have affirmed that nomads are people with no territorial boundary and land inheritance because of the never ending search for new pasture (cf., Ezeomah 1985; Blench and Dendo 2003), in each community where this study was carried out, nomads claimed the ownership of the lands and referred to them as their home. That said, the land tenure system or the methods of land acquisition was not asked (or discussed), and could be a focus of further research.

Finally, the nomads had challenges in the course of transhumance. These include: health hazards, conflicts with farmers, cattle rustlers, water scarcity, inadequate grazing

land/straws, and drought/harsh climatic condition. Nzeh (2015) however, remarked that the majority of pastoralist challenge, especially in terms of arable farmland, could be related to competition between land, cattle trespass, struggle for leadership, conflict of culture, and corruption by some officials. Indeed, IRIN (2009) opined that the continuing Fulani Pastoralists' militancy for the survival of their cattle makes fierce struggle and violent conflicts with farmers inevitable.

## CONCLUSION

The new direction of seasonal migration and the migration characteristics of nomadic pastoralists from a part of northern Nigeria were investigated in the study. The study found that the herders had limited their transhumance to some parts of northern Nigeria contrary to the established north-south seasonal migration while some others moved to far Niger and Chad Republics, respectively, for pastures. This is not unconnected with the height of hostility confronting them in some communities in southern Nigeria, and the recent directives from Kano State government, which ordered them back home. The study further found that five indigenous seasons (i.e., Seeto, Dungu, Yawal, Dabbunde and Cheedu) constituted major factors responsible for seasonal migration while also limiting potential grazing to locations considered safe for herders'/nomads' lives and cattle. Finally, the study revealed that in all the locations where the pastoralists migrated to, cattle were grazed around the river valleys, flood plains, grassland areas, and Chad basin where there were fresh pasture, even though those lands were not adequate for such a purpose. This inadequate pasture for cattle, combined with regular water shortages, constituted major challenges of the pastoralists in the new areas. What this suggests, is that seasonal migration is needless if the push factors at the home area are experience the same major challenge at the destination. Significant decline in seasonal migration of the pastoralists could potentially be achieved

if intensive irrigation is adopted at the home base for crop and fodder productivity.

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