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Introduction

Livestock rearing is a prime activity in Somalia's rural areas and adjacent regions of Ethiopia, Kenya and Djibouti. The pastoral nomads of this regions comprise 60-70% of the entire population.

Inspite of the importance of the camel in the region, it remains a gloomy fact that this valuable animal has been and is still neglected by planners and scholars, and the camel herder marginalized in his own society.

This paper is a pilot study. It is concerned with the husbandry and management of camels in the region, and contains some emic notes on the existing breeds or types of camels as perceived by the pastoralists.

The main questions raised are how do traditional camel herders perceive their environment and make efficient use of it? What systems of management and husbandry do they practice. Another point raised is «breeds» or «types» of camels in the area, and to what extent one may actually speak of different breeds or types, and to what extent differences are due to varying ecological conditions.

The information contained in this paper was collected during the years 1982/87. Several field trips were made to remote in-land dry season water resources, where normally large concentration of camel herds from different regions gather. At times cross boundary information exchange with scholars and/or officers of neighbouring regions of Somalia, Kenya, Ethiopia and Djibouti were conducted.

Background

According to the United Nations Food and Agricultural Organization (FAO, 1987) estimates, there are approximately 15.0 million dromedary in the world; of these 65% are in the Northeastern African states of Somalia, Ethiopia, Sudan, Kenya and Djibouti (Tab. 1).

Because of the seasonal migrations, crossing of national boundaries and reluctance of herders to give exact herd sizes, at times it is difficult to estimate the camel population in individual countries of the region.

Camels play an important role in the national economy of Somalia and to a lesser extent in Sudan. In the other countries of the region its role in the national economy is insignificant, but its role in the subsistence economy of the pastoralists is great.

While exact data are is not available of the monetary importance of the dromedary in Ethiopia, Kenya and Djibouti, in Somalia the export of camels account for 10% of the total revenues from livestock export and some 8% of the total export earnings (M.A. Hussein, 1987).

The importance of the dromedary arises primarily, however, from its provision of milk, meat within a subsistence economy and its use as animal of burden. Besides its economic importance, the camel has social and cultural importance to the pastoral herders of the region. Apart from its value as milk, meat, blood, transport and riding animal, camels are prized according to their role in the traditional social relations for payment of bride wealth and compensation of injured parties in tribal feuds.

Camels can also be seen as a sort of banking system or security against drought, diseases and other natural calamities that affect smaller stock more severely. A good exemple of this is the 1973/75 drought in the region.

Management and husbandry

Environment

The region has the following climatic zones:

1. Semi-arid and arid in the coastal areas.
2. Arid wooded savannah, covering most of the region.
3. Mild sub-arid wooded savannah in the northern mountain range areas.

There are two distinct rainy seasons: the «GU» extending April through June, and the «DEYR» extending from September through November. Light showers can be expected along a narrow belt during July and August in the south known as «HAGAIO», and along the northern

mountain range areas and the western parts of the region known as «HAIS».

There are two distinct dry seasons: the «HAGAA» extending from July to September, and the «JILAAL» extending from December to April. The timing of these seasons demonstrate great flexibility from year to year and are also variable between regions (Krokfors, 1983). Annual rainfall is 50 mm. in the arid zones, the central and eastern plateaus, and 600 mm. in the interriverine and northern mountain areas, and they are likely to be sporadic.

Management

The management system is dictated by the harsh environment, the seasonality of rainfall and browse availability.

During rainy seasons movement is less and watering infrequent because of the abundance of green browse. Camels are kept in their enclosures until late in the morning. During the dry seasons and/or during droughts herds are divided into dry/pregnant and milk/burden groups. The dry/pregnant herd along with few milk camels to supply the herders with food, is sent far from the family by their elders. The milk/burden camels, together with small stock, stay with the family, usually not far from urban centers where milk can be easily marketed. Prior to this division of the herd, the head of the family or one of the elders travel some 70-100 Km. over several days looking for a place with good browse, salt licks, and water where the herd and the family can be moved until the rains return. Then a meeting of the elders is called and a final decision made as to when and how to move to the new place. A sacrifice is made to the saints and/or ancestors, and the following morning the herd and the family move to their new location. This is very common with the Somalis, the Rendille of Kenya and Afars of Ethiopia.

Camels can go without water for as much as 19-30 days. During exceptionally hot seasons, depending on vegetation available for browsing, they are watered every 6-7 days. Depending on the season, the available browse, the watering frequency, and many other factors, a camel may drink 80-200 litres of water at a time, with two or three pauses. In dry periods of the year, watering is the most laborious of all the activities of the camel herders. Water is mostly drawn from wells 5-20 meters deep, and therefore it is very difficult for one man to water a whole herd of 50-100 camels by himself. Herders normally help each other in the watering process, elders do not participate in the watering but usually supervise it from a distance.

Salt supplying is also another important management task. Salt is given to camels every six to eight months. If natural salt licks are not available nearby, either the camels are moved to a suitable area or salt is transported and distributed to them. Wells with brackish water and therefore high salt content are also used as an extra source of salt supply. Certain plant species with a high content of salt also supplement the camels salt supply and are often utilized by herders to help fatten their camels.

Movement Patterns

Annual rainfall, its distribution in time and space, the time of onset of effective rains after dry season, the availability of salt licks and browse, and the amount of effective manpower are the most important factors in camel management decisions.

The most difficult period is toward the latter part of the dry season, when critical decisions have to be made about the sale or slaughter of animals to see the family through to the relative abundance of the rainy season.

In the rainy season, camels get their basic water needs from surface water and green vegetation; while during the dry seasons camel herds are forced to drink regularly at home wells.

Besides limitations caused by forage, water and salt licks, movement patterns in the southern and central areas of the region are determined by the need to avoid biting flies. With all factors considered, movement is from the permanent waters into the dry interior after the «GU» rains, with a return to the permanent water sources in the «HAGAA»; a movement away again in the «DEYR» and a final return in the «JILAAL» (Map. 2). The annual migration cycle of camel herders is shown in Tab. 2.

This system of migration is in harmony with the harsh environmental conditions and unreliable rainfall; and camel herders make efficient use of their knowledge of their habitat.

Husbandry

Selection and breeding are the most important factors in husbandry. Selection is employed to maintain or improve productivity, endurance and drought resistence.

Camel herders of the region practice strict selection of mating pairs. When selecting breeding stock, they pay great attention to two main factors in a camel: on one hand its appearance and behaviour, and on the other hand, the characteristics of its ancestors.

One male is kept for the purpose of reproduction, and the rest of the males in the herd are either castrated, sold, or slaghtered. Since camel herders believe that the stud male is the prize possession of the herd they keep only «proven» males or males of outstanding geneology for reproduction. An outstanding male can service 150-200 females during the mating season. Such males are treated well, not required to bear burdens, and besides ordinary browse, receive supplements like ghee, sesame oil. During non-rutting seasons, it is kept separate from females and given special treatment.

Camel breeding coincides with the rainy season, and because of this camel herders to some extent control the

breeding for seasons and years when there is enough browse and water available and movement is restricted. Most of the female camels breed during the «GU» rainy season, while the remaining breed during the «DEYR» season. This seasonality ties in with the browse situation and, accordingly, the general physical conditions of the animal. However, according to information received from several ranches in Kenya, one can regularize to some extent the breeding throughout the year if certain conditions are met.

The gestation period of camels is 12-13 months. Normally camels are sexually mature at the age of four to five years, but camel herders rarely let them mate before they reach physical maturity at five to six years. Under normal conditions, a female camel that is giving birth every other year, will have eight to ten calves in her breeding life.

Calving may occur at any time of the day, with a slight tendency towards the cooler part of it. Several hours after delivery, the calf gets to its feet and suckles colostrum form its mother. This is a fact well reognized by camel herders, that the colostrum helps the calf to get rid of the firstfaeces and at the same time get antibodies against early infectious diseases, and the post-natal development process.

If the calf is male and the family's milk requirement is high, it is a common practice to slaughter it. In such a case the dried skin of the calf is used to cause the camel let down her milk when milking. In some cases the herder makes himself the milk letting down factor for the camel, for instance by wearing the skin of the dead calf. If this proves insufficient, the «Qallah» method (M. A. Hussein, 1986) can be applied, whereby the dam is made to amenable by discomfort.

Weaning is at 8-18 months, depending on the browse situation, the milk production of the dam, and the growth of the calf. Several different systems of weaning are practiced by herders of the different areas of the region. The most common are tying the dam's teat with softened bark «Maraç»; making a small incission in the skin of the calf's nostril and inserting thorns that will prick the dam if the calf tries to suckle it; making a small incision at the tip of the calf's tongue and inserting a piece of wood that will hurt the calf itself when it tries to suckle. Whatever the method, the calf will stop the suckling habit within three or four weeks.

After weaning is complete, selection for future sires is done, and males rejected at this stage will be castrated, sold or slaughtered. The objetives of castrating are prevention of unwanted breeding and easy handling and training of future burden camels. The most common system of castration practiced by traditional camel herders of the region is opening the scrotum and either breaking the epididimus or taking out the testes. The wound is then treated with traditional medicinal plants and normaly heals in a matter of two to three weeks.

Camel breeds and milk production

Attempts have been made earlier to classify camels of this region into types and breeds (Mason 1979, Hartley 1979, Congui 1953). Unfortunately these classifications were based on clan names, rather than upon strict constitutional and/or biological characteristics and geographical locations. The categories thus create classification problemes for future stages of the research programme.

Survers conducted in the research area during the years 1982/86, accounts for two main types of camels in the region.

1. Northern camels.
2. Southern camels.

The northern type is divided into three main sub-types:

a) Coastal camels —of northern Somalia, Djibouti and Asab region of Ethiopia.

b) Guban camels —of the mountain areas of Somalia.

c) Hawd camels —of the Nugaal area, the hawd and the eastern Ethiopia.

The southern type is also divided into three main sub-types:

a) Hoor —of central Somalia, and southeastern Ethiopia.

b) Siifdaar —of south central Somalia.

c) Eydimo —of western Somalia, north-eastern Kenya, and parts of south-eastern Ethiopia.

The average milk productions of camels in the region is 5-6 litres a day. The amount depends on the type of the camel, its age, the lactation period, the season, browse and water situation and the habitat. The lactation period varies from six to eighteen months. Milk production varies from 600 to 2,000 litres, per lactation. It is highest between the fourth and sixth months of lactation and thereafter drops sharply. An exceptional camel may produce or continue lactating well for 15-18 months. Moreover, camels which calved during the «GU» season had a higher and more stable milk yield than those which calved during the «DEYR» season. This fact is recognized by camel herders, and they make use of it for their breeding and selection activities.

Conclusions

Camel herders of the northeastern African states Somalia, Ethiopia, Kenya and Djibouti, are rational and goal-oriented in their husbandry and management. They clearly understand that the camel is, and for the coming decades will remain, their basic means of survival. Because of the semi-arid and arid conditions and the seasonal concentration of water and grazing nomadic camel patoralism characterizes the livestock husbandry patterns of most of the region; and it represents a highly rational adaptation of human life to a severe and adverse environment. It seems, that camel pastoralism in this part of Africa constitutes the only efficient way of exploiting many areas where cultivation and small stock raising are impossible.

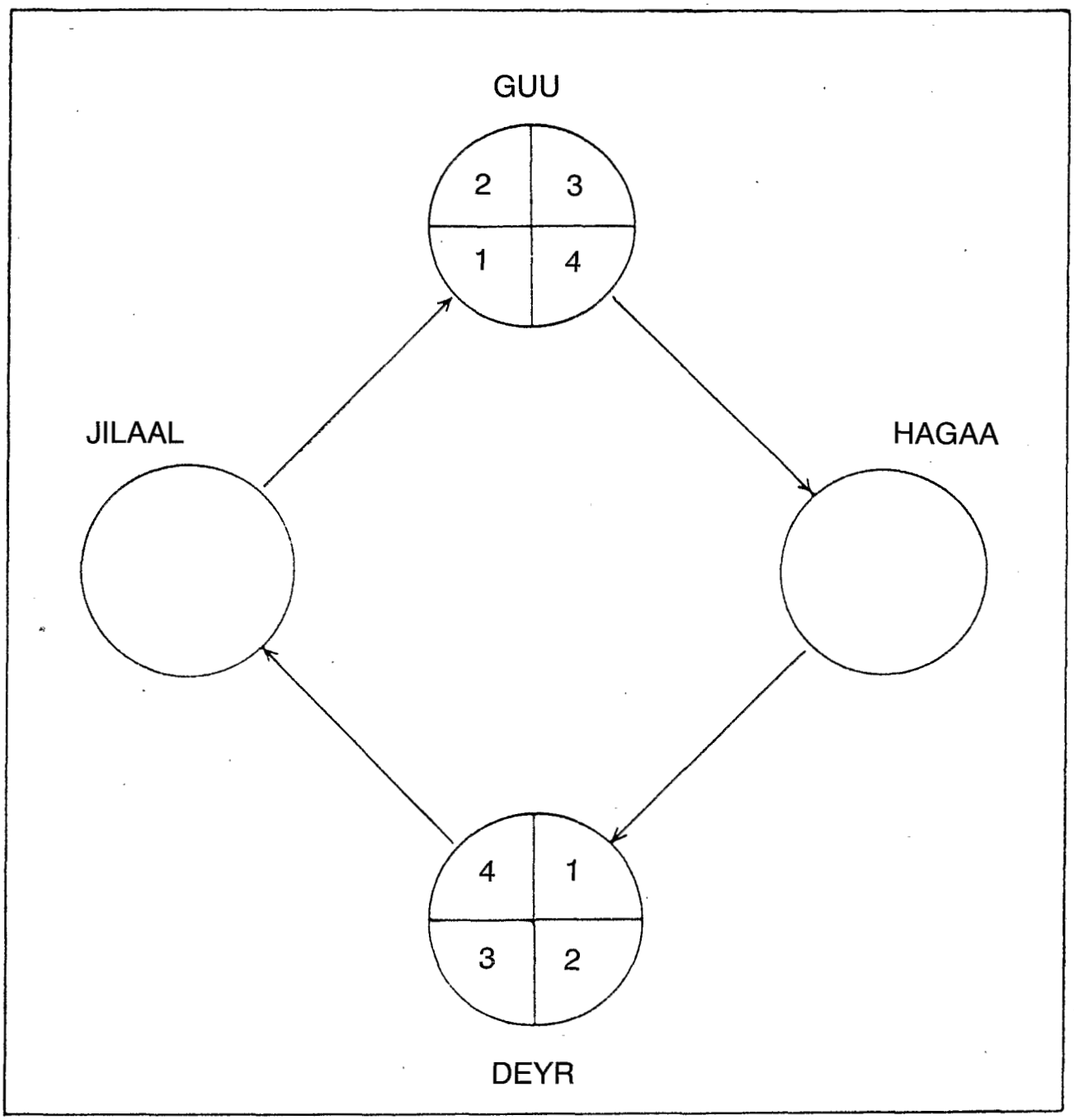
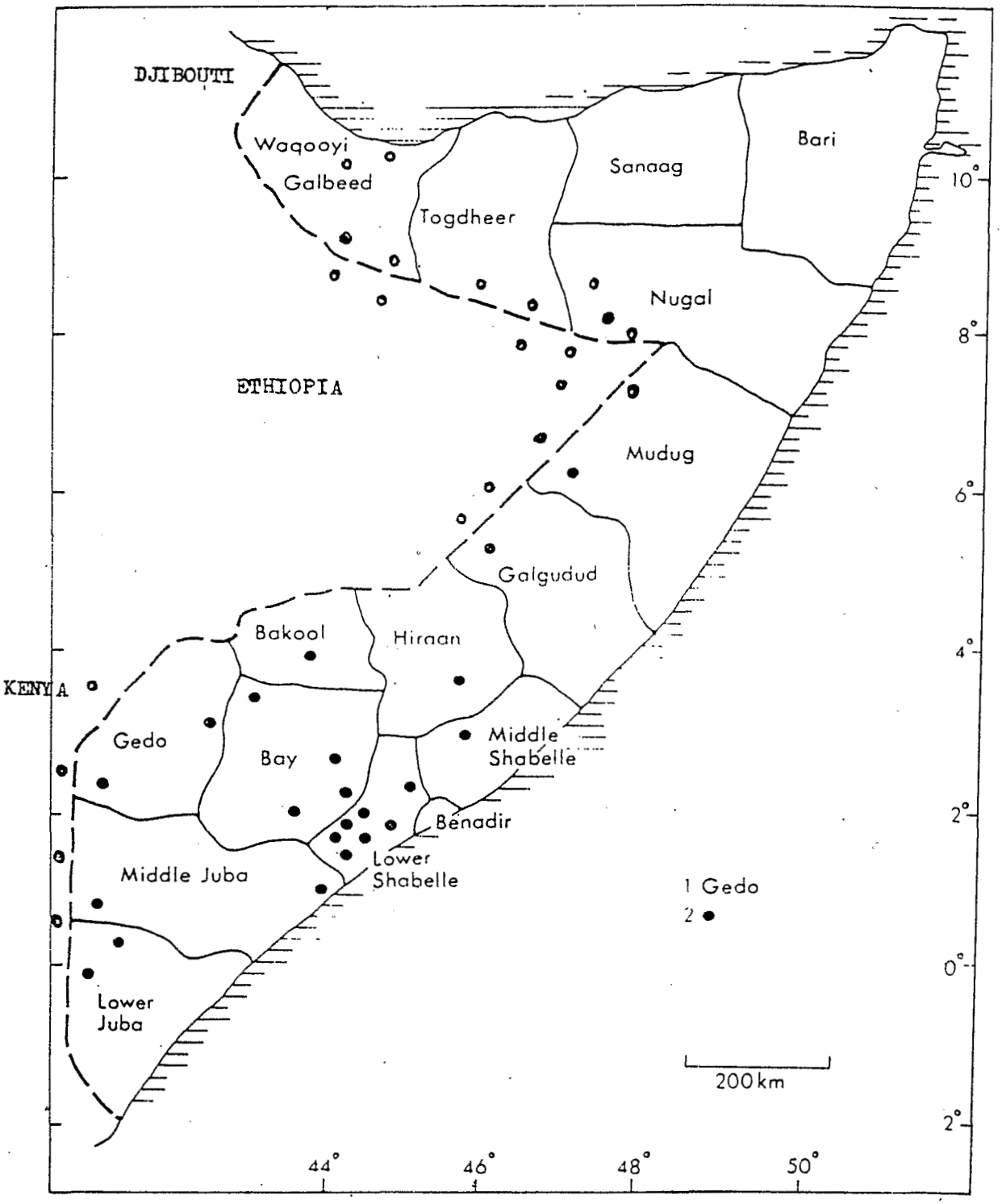


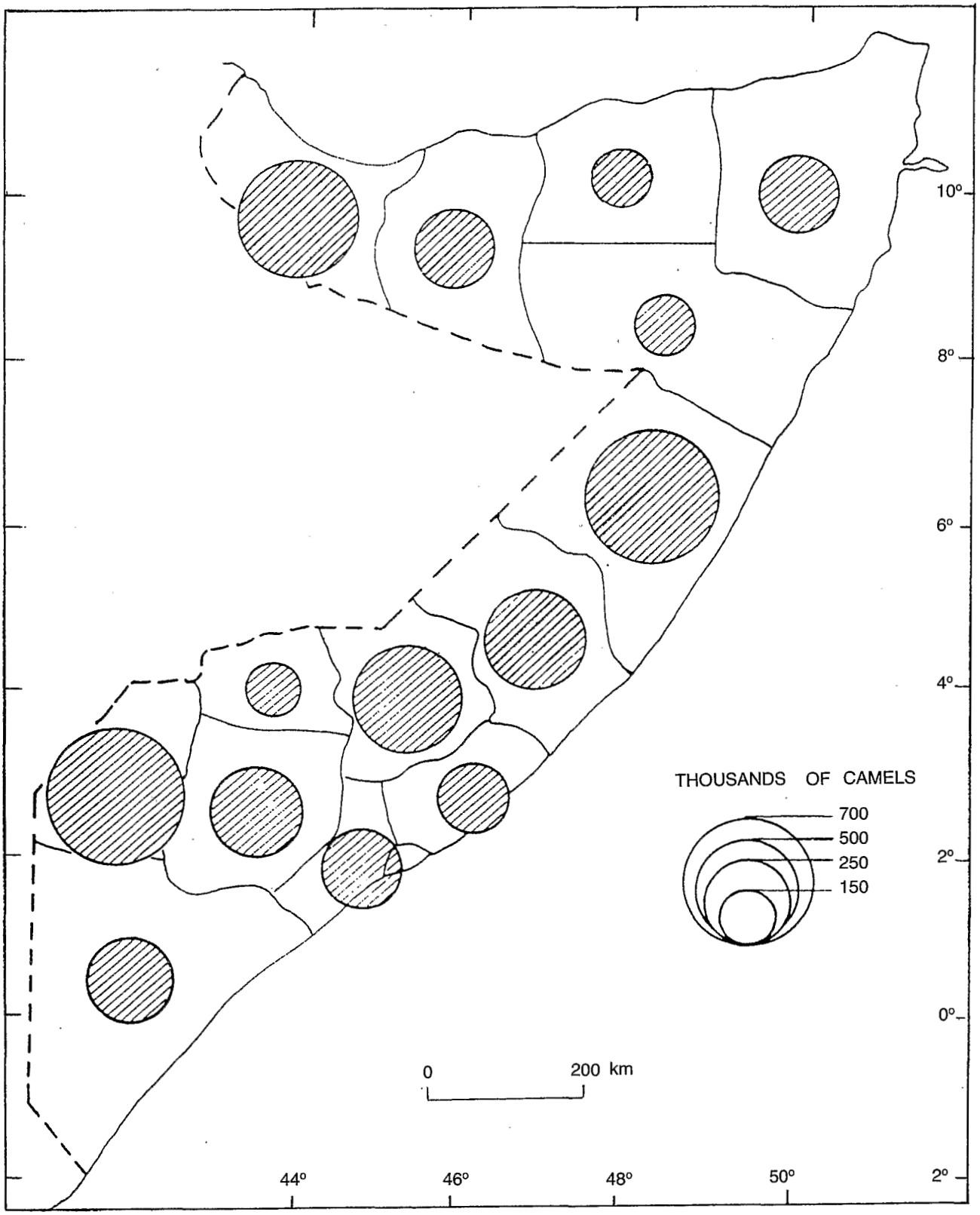
Fig. 1. Seasons and decision makings in Somali camel husbandry. *GUU:* 1. *hogo:* plant growth period (mid-April - early May). 2. *sina*: livestock breeding period (mid-May - early June). 3. *ragal:* best grazing (June - July). 4. *baldaaq:* use of agricultural residues (July - August). *HAGAA:* August - October. *DEYR:* 1. *hogo:* mid-October. 2, *sina:* mid-November. 3. *ragal:* December. 4. *baldaaq:* January - February. *JILAAL:* January-- April.



Map 1

AREAS WHERE CAMEL HUSBANDRY PRACTICES WERE INVESTIGATED,

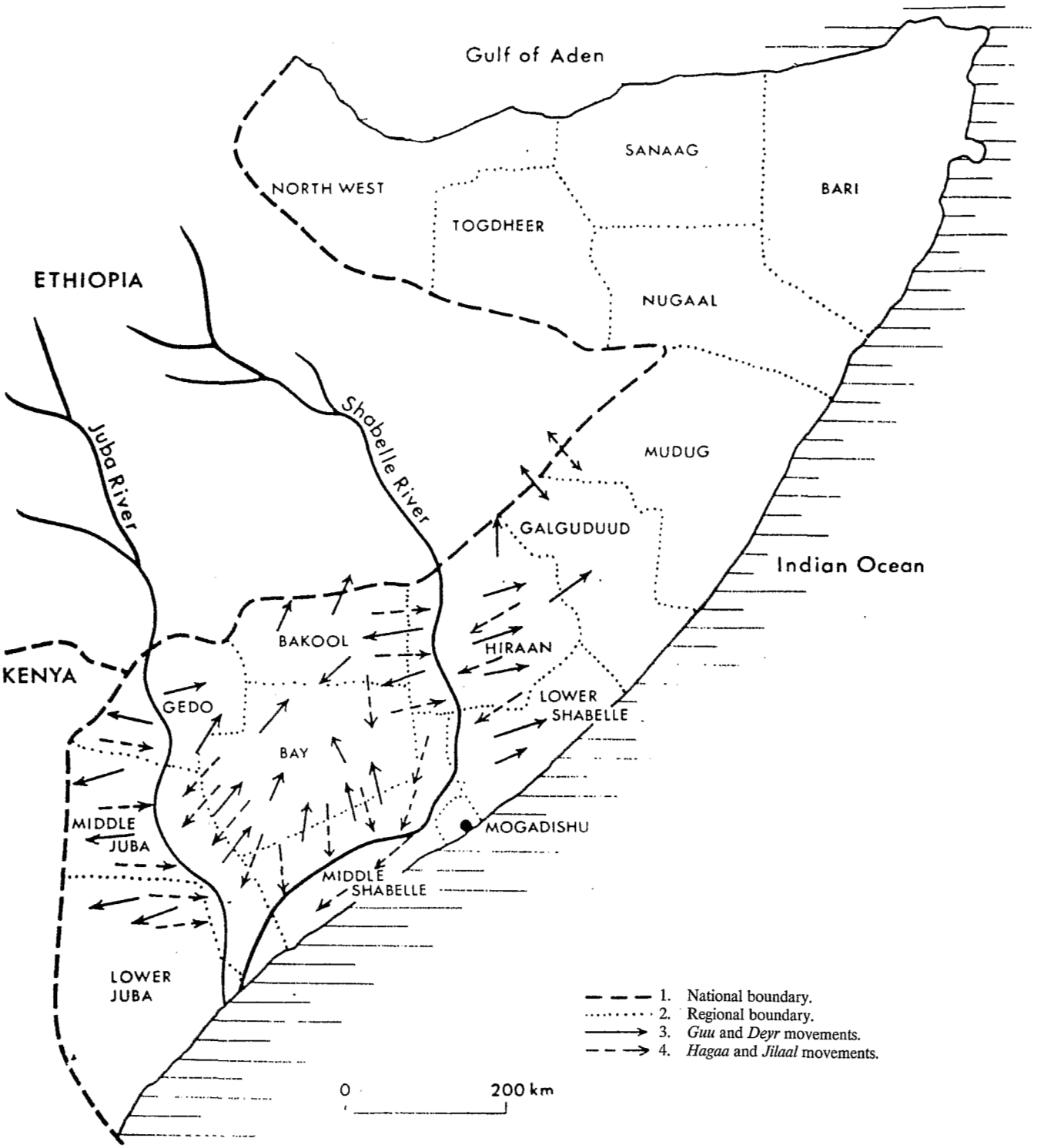
1. NAME OF REGION, 2. PLACES WHERE INTERVIEWS WITH CAMEL HERDERS AND OTHER OBSERVATIONS WERE UNDERTAKEN.



Map 2

DISTRIBUTIONS OF SOMALI CAMELS PER REGION.

Source: SOMAC/SAREC.



Map 3

SEASONAL MOVEMENTS OF CAMELS IN SOUTHERN AND CENTRAL SOMALIA.

It is therefore important that the more successful aspects of camel pastoralism be identified and preserverd to become the bases for future development. What is needed is integrated research that accounts for the customs, lifeways, and internal logic, both social and economic, of the pastoral system.

Table

MIGRATION CYCLE OF CAMEL HERDS

SEASON	CLIMATE	PERIOD	AREA OF STAY
«GU»	Cool/Rainy	April/July	Inland/Scattered
«HAGGA»	Warm/Dry	July/October	Home Wells
«DEYR»	Hot/Rainy	Oct./Decem.	Inland/Home Wells
«JILAAL»	Hot/Dry	Decem./April	Home wells/River zone

This system of migration practiced by the herders is in harmony with the harsh environmental conditions and unrealiable rainfall.

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