Spatial Aspects on Seasonal Distributions of Camels in Southern Somalia

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In most of the semi-arid and arid Somalia, nomadic pastoralism is the only viable technology to convert the organic resources into forms useful for man. This is especially true for camel nomadism. Camels browse and graze in a way that does not exploit the vegetation as hard as for instance grazing by cattle. However, as a form of food producing technology (Carlstein 1980: 5-9, 103-146; Krokfors 1981: 109), camel nomadism is much neglected. Camel nomadism is normally looked upon as something ancient, something that resist modernization and represents a hard way of life. Therefore, camel husbandry is seldom discussed in connection with food strategies for arid and semi-arid lands.

Somalia is the African country which has the largest camel population (approximately 5 millions; Somali Academy... 1985: 15). Development of camel nomadism is therefore of outermost importance for an improved food situation. This can be done through more effective veterinary services, selective breeding, new management techniques, especially those which demand less input of labour. Preservation of the surplus produce that is not needed for local consumption and distribution of it to more distant markets is of basic importance if camel nomadism in an essential way should contribute to improved food situations in Somalia.

To develop the Somali camel husbandry, close cooperation has to be sought with the camel herders. To as large an extent as possible the camel herders' knowledge about camels and the camels' relation to different environmental and social conditions should be incorporated in every approach to an improved camel husbandry. A prerequisite for this is knowledge about the inter-and intra-seasonal movements of the camel herds, the ways that these movements relates to different physical environments, and how they are related to the social structure of the camel herding society.

The study which is reported in this paper accounts only for inter-seasonal movements. The aims of the study are threefold:

1. to identify macro-spatial variations in camel densities per square kilometer as an expression of the seasonal distribution of camel herds,
2. to compare changes in camel densities during different times of the year, and
3. to identify macro-spatial units that can be used at least as a first rough framework for strategies aiming at an improved nomadic camel husbandry, and also as reference for future, more detailed studies of inter-and intra-seasonal movements of camel herds.

The sources used in the study were maps showing camel densities per square kilometer and land system units. These maps were produced in connection with the Southern Rangelands Project by Watson (1985, figures 1 and 2). The maps are based on aerial photographs and show camel densities in November-December 1983 and March 1984. The first time roughly represents the end of the wet season in Southern Somalia, the second the dry season (Thompson, 1965: 44, 52-53; Samantar, 1986: 1). The information of the maps was analyzed through cartographic techniques. To identify areas with density extremes and changes in densities between the two surveys, Watson's originally eight density classes were transformed into three;

1. *low density*: empty areas, or areas with a maximum of 5.0 camels/Km^2
2. *medium density*: areas with a camel density between 5.1 to 40.0, and
3. *high density*: areas with 40.1 camels/Km^2 or more.

The cartographic identification of these density classes was undertaken both on the map showing camel densities in November/December 1983, and on the one for March 1984. The maps thus were superimposed on each other. The result is the map reproduced as figure 1. This map shows low, medium and high camel densities in November/December 1983 (I_1, I_2, I_3) and in March (II_1, II_2, II_3). The system of square and rectangles shows permanences or changes in camel densities between the two surveys. An area with squares represents permanence, an area with rectangles change. The map is thus both synthetic and dynamic.

The map shows that all nine possibilities or permanences or changes are represented in southern Somalia. These possibilities form nine different macro-spatial camel density units, and can be described as follows:

1. No change, high density (I_3, II_3)

There are only two very limited areas with high densities at the time of both surveys. Both are situated in Gedo region along the border to Kenya.

2. No change, medium density. (I_2, II_2)

The main part of the camel tracts in southern Somalia belong to this spatial unit. However, several sub-units can be identified:

a. most of Bakool and Bay regions
b. the coastal area from the southern part of Lower Juba region to Mogadishu. In Middle Juba and Lower Shebelle regions this sub-unit approaches the Shebelle river.
c. the northern part of Lower Shebelle and the eastern parts of Middle Shebelle regions north of Shebelle river.
d. parts of Middle Shebelle region in the northeasternmost part of the surveyed area
e. parts of western Gedo.

3. No change, low density. (I_1, II_1)

This spatial unit is predominating in the western parts of southern Somalia (southern Gedo, western parts of Middle Juba and Lower Juba regions). Some parts of this unit are «empty areas» during the wet season (eg. Lower Juba).

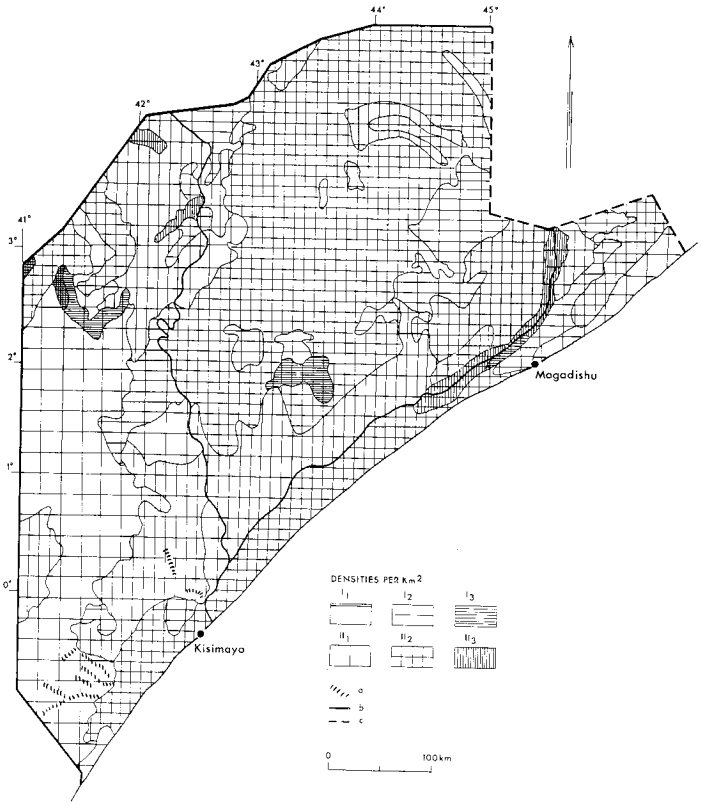

Figure 1. Macro-spatial camel density units. I_1, I_2, I_3 and II_1, II_2, II_3 low, medium and high densities in November/December 1983 and March 1984 respectively *a*) local high densities in March, *b*) international boundary, *c*) boundary of survey. For further explanations, see the text.

4. Change from low to medium density. (I_1, II_2)

Within this spatial unit, there are three well-defined, extensive sub-units:

a. in the western parts of Lower Juba region on the border to Kenya

b. the most extensive of these sub-units range from western Lower Juba, south eastern Middle Juba to southwestern Lower Shebelle.

c. eastern Gedo region

Some more limited sub-units are found in northern Gedo, northern Bakool and parts of Middle Shebelle regions.

5. Change from low to high density (I_1, II_3)

This unit is difficult to identify through the cartographic techniques used because of the scale of the mapwork. The areas representing this unit are usually found as small «pockets». There are, however, two areas of some extent in the north and east of Gedo region. High concentrations of camels can also be found in March (dry season) in Lower Juba region, mainly along small rivers. These areas are very swampy and eventually flooded during the wet season.

6. Change from medium to low density (I_2, II_1)

This unit has a limited range in southern Somalia. There are, however, three clearly observable sub-units:

a. in north of Gedo region

b. near to the Juba river in Middle Juba region

c. in southeast of Middle Shebelle region, south of the Shebelle river

7. Change from medium to high density (I_2, II_3)

This spatial camel density unit can be identified along the banks of the Shebelle river in Lower and Middle Shebelle regions.

8. Change from high to low density (I_3, II_1)

There is only one area representing this unit in the south of Gedo region (near Sidimo and Catama).

9. Change from high to medium density (I_3, II_2)

This unit is also represented by only one area in the southeastern part of Bay region.

The interesting point to be made from these identifications of macro-spatial variations in camel densities between the two surveys is that in southern Somalia roughly three spatial situations occur: 1. extensive areas where the camel densities are the same both during the wet and dry seasons, 2. widespread areas where changes occur, but do not have a dramatic quality, and 3. limited areas where changes between extremes occur.

These spatial situations are of first hand interest for further research on camel nomadism in southern Somalia. The first type of situation (1) seems to represent uniformity throughout the year. This is not necessarily the case. For instance, in Bay region the camel herders and their camels present in an area at one time during the year, might at another time have been replaced by another group of camel herders. There seems to be a certain succession of camel herders with their camels into specific areas (Bernhard Helander, personal communication) within these types of macrospatial units. To really earn insight and understanding of camel herding within these seemingly uniform macro-spatial units, much more detailed studies are needed of microspatial movements of camel herds, both inter- and intra-seasonal.

The interpretation of the macro-spatial situations where moderate density changes (2) occur has to be made with caution. The source material used in this study refers only to two points of time. The study is therefore nothing else than a preliminary case study. Nothing can be said from this study about the stability over time of the macro-spatial units. There are, bowever, some sources against which the spatial changes in camel densities expressed through the spatial units can be judged. Prothero (1961: 411) has in connection with a report on malaria eradication compiled a map showing population movements in the Horn of Africa. According to this map, the main directions of population movements in southern Somalia are towards the Shebelle and Juba rivers. If these movements are interpretated as dry season movements, they indicate the same concentration of people and their camels (and of course also other types of livestock) in areas near to the banks of the rivers, as figure 1 in the present study does.

A map presented in a forthcoming study by Mohamed Ali Hussein (1986, map 3) indicating the dry and wet season movements of camels in southern Somalia also in a qualitative way shows the same pattern of concentration towards the river areas during the dry season, and a dispersal to areas away from the rivers during the wet season. But again, further studies are needed if one really will gain insight into what movements are going on in these areas with moderate density changes. There are the following possibilities: some camel herds remain all the year around in these areas. Density increase is caused by immigration of herds from distant wet season pastures. Density decrease is caused by emigration to distant dry season pastures. Still there is one possibility — the changes in densities are caused by the presence of totally different camel herds during wet and dry seasons in these areas. Again, much more detailed field investigations are needed before one can judge which of the mentioned possibilities are the relevant explanation.

The last type of spatial situation where extreme density changes (3) occur, is of limited spatial range. The areas are shown on the map reproduced as figure 2. From that figure it can be seen that these highly dynamic spatial situations occur in four parts of southern Somalia: in Gedo, in the south of Bay, along the river Shebelle north and southwest of Mogadishu, and along small rivers in Lower Juba. Despite their limited range, these areas are of outermost interest for further research on Somali camel nomadism. The Gedo, Bay and Lower areas probably represent more traditional types of camel nomadism, while the areas along Shebelle might represent more commercialized nomadism in areas with high non-herding population density and access to the nearby Mogadishu markets. An intensive study of the dynamism of changes in these areas might give clues into the current transformation process of the Somali camel nomadism.

To reach an understanding of the dynamism and function of the camel nomadism in southern Somalia, not only the nomadism and the seasonal movements as such should be studied. The macro-spatial units must also be mapped with reference to environmental and socio-cultural conditions. Roughly, southern Somalia is the part of the country where mean annual rainfall is at highest, and the number of geoecological humid months at maximum for Somali conditions (Krokfors 1984; 296 and 305). However, in Thompson (1965: 54-56) the occurrence and length of rainfall is only expressed in approximate terms. The temporal and spatial distribution of precipitation and geoecological humidity determine the phenological development of browsing and grazing resources. The development of the pastures through the years are closely followed by the nomads, and they have their own geography to describe the resource potentials in different regions of southern Somalia (see Galaal 1968: 62 and 72-73; Mohamed Ali Hussein 1986).

This etno-geography can give content to the macro-spatial units mapped in this study and should therefore be mapped in detail. Through such studies insights will also be gained into the intra-seasonal movements of camel herds, the different types of pastures used under different ecological conditions, and the carrying capacity of the pastures, all of which are of outermost importance for a strategy aiming at improved camel husbandry.

In this study only camel nomadism is considered. To reach a full understanding of the ecological and socio-cultural conditions within the macro-spatial units identified, camel nomadism must be appraised in relation to 1) herding of other types of livestock, 2) occurrence of agropastoralism, and 3) relation between pa-

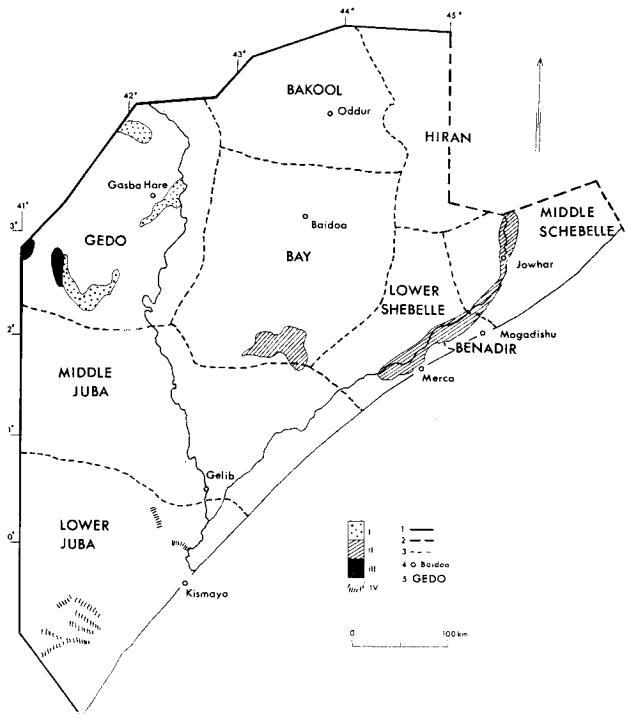

Figure 2. Areas with highly dynamic changes in camel densities or permanently high densities. I high to low, II very high to medium, mediun to very high, III permanently high, IV high during March, 1) international boundary, 2) boundary of survey, 3) regional boundaries, 4) regional headquarters, 5) name of region.

storalism and agriculture. Such investigations certainly show complicated webs of relations. Further, if one still considers the transformations that camel nomadism is passing through because of labour shortages and commercialization (Somali Academy... 1985: 24-25 and 37) the picture will be one of a very changed camel husbandry, especially in the densely populated regions of Lower and Middle Shebelle. Studies on camel nomadism in the central, and parts of the northern rangelands, certainly will indicate more traditional and more «pure» camel husbandry (I.M. Abyan, personal communication).

The purpose of this study has been to identify macro-spatial units representing variations in camel nomadism. The simple cartographic technique used have shown that such units exist and that camel husbandry in southern Somalia on a macro-level shows clear regional differencies as far as dynamics of seasonal distribution of camels are concerned. It has also been stressed that there is a need for detailed studies on micro-levels of the inter- and intra-seasonal movements of camel herds if the aim is an understanding of the complex web of ecological and socio-cultural relations that the camel husbandry in southern Somalia represents.

References

Carlstein, T. 1980, Time Resources, Society and Ecology: On the Capacity for Human Interaction in Space and Time. Part. 1: Preindustrial Societies, *Meddelanden från Lunds Universitets Geografiska Institution. Avhandlingar*, LXXXVIII.

Galaal, M. H. I. 1968, *The Terminology and Practice of Somali Weather Lore, Astronomy and Astrology.* Mogadishu. Mimeo.

Krokfors, C. 1981, «Resursplanering och traditionella system for resursutnyttjande», *Norsk Samfunnsgeografisk Forening. Skrifter*, 8: 108-116.

Krokfors, C. 1984, «Environmental Considerations and Planning in Somalia», *Proceedings of the Second International Congress of Somali Studies, University of Hamburg, August 1-6, 1983.* Volume 3 Aspects of Development, pp. 293-312.

Mohamed Ali Hussein 1986, «Traditional Practices of Camel Husbandry and Management in Somalia», forthcoming in *Camel Forum* and *Proceedings of the Third International Congress of Somali Studies, Rome, May 26-30, 1986.*

Prothero, R. M. 1961, «Population Movements and Problems of Malaria Eradication in Africa», *World Health Organization, Bulletin* 24: 405-425.

Samantar, M .S. 1986, «Economic Impact of Development Projects in the Juba Valley», Paper presented to the Third International Congress of Somali Studies, Rome, May 26-30, 1986. *Abstract.*

Somali Academy of Sciences and Arts 1985, «Somali Camel Research Project. Research Proposal for Fiscal Years 1985/86 and 1986/87», *Camel Forum, Working paper N. 9.*

Thompson, B. W. 1965, *The climate of Africa*, London.

Watson, R. M. 1985, *A Photogrammetric Sampling of Camels to Deduce the Age Structure of their Populations in Southern Somalia,* Mogadishu, (unpublished).