

Chapter One

1. Introduction

1.1. The Origin, Domestication, Distribution and Population of Camels

Origin of Camel

Camels originated in North America when the land masses were still joined. These animals were not larger than Hares (larger rabbits) (about 50 cm high). They remained in this area from the upper Eocene period throughout the territory period into Pleistocene epoch, a period of about 40 million years. From North America the animals migrated to other parts of the world in the late Tertiary period, finally disappearing from their original habitat entirely. By adapting to various areas to which they migrated, the camels evolved into different species of the camel family as they are known today.

Domestication

The dromedary was probably domesticated on the south coast of Arabian Peninsula in the region of the present Yemen and Oman around 3000 to 4000 years ago and then introduced with spice trade into North Africa and the horn of Africa. It is expanded with expansion of Muslim religion.

The bactrian camel was probably domesticated at the same time in the present day Turkey and in Northern Persia, spreading from there westward to Anatolia and east to Northern China. The world stock of bactrian camels

is estimated at 2 million. The areas of distribution of the two camels overlap only slightly (Iran, Afghanistan, Russia and Turkey).

In this area of overlap the hybrids of these two types are found, though nothing is known about their numbers. The wild forms of both types are now extinct.

Distribution

In general terms the camel is considered as an animal of the tropics but much of its present-day normal range is extra-tropical. About 20% spread rather thinly over a vast area found outside tropics.

Factors governing the distribution of camels include:

- a. Environmental factors
- b. Social factors
- c. Economic factors

a. Environmental factors

Camel is tropical in general climatic terms with very few exceptions found in areas where rainfall occurs in a relatively short period followed by a long dry season which is often hot for most of the time and lasts over 8 months of the year. The padded feet are in some cases disadvantageous; they are not suitable to walk on stony, swampy and /or permanently wet areas. Increased humidity, weather from high rainfall or from more or less permanent bodies of surface water is unfavorable to the camel. Presence of tsetse or other

biting flies are detrimental for the survival of camels since camels do not have panicles muscles in the skin.

b. Social factors

Mode of living of people: Camel is essentially nomadic animal, and permanent cultivation areas are uncommon for camel production. Cultural and religious taboos: The recent distribution of camels came after the advent of Islam. As the Arabs poured from their heartland to conduct their Holy wars they took their camels with them.

c. Economic factors

After the advent of motorized transport and monetarization of certain nomadic economies, camel remained only as beast of burden for the personal transport in the areas to which it was adopted. So far, there has been little reduction of the camel's range due to economic factors although current numerical trends in the areas affected would lead one to expect such a reduction in the future. The increased cost of motorized transport and the increased world demand for milk and meat will have the opposite effect.

Camel Population (numbers)

During the last two decades, despite the advent of mechanized transport in arid and semiarid regions, the world camel population has increased approximately by 40%. The major part of this increase has been registered in tropical Africa, and is, therefore, an increase in the number of dromedaries.

There have been substantial increases in the dromedary population in most Sahelian countries, whereas the dromedary population has declined in the oil rich states of western Asia. The reasons for the increase of dromedaries in Sahel and north east Africa is that in these regions aridity and land degradation has increased during the last two decades and livestock owners have been forced to depend on camels for a larger proportion of their subsistence production. On the other hand, the camel population data suggests that bacterian camel population in central Asia may be in decline.

The continent Africa contains about 75% of the World's camel population. The major concentration of camels in African tropics is in the north east of the continent. One-third of the total world camel population is found in Somalia and almost 60% within the borders of Ethiopia, Kenya, Somalia and Sudan. Ethiopia has an estimated camel population of 1.05 to 1.7 which is found mainly in the lowlands of Afar, Somalia and Southern Oromia regions. This figure of camel population is believed to be very sketchy and underestimated although it has placed Ethiopia in the third position in Africa and fourth in the World.

Camel population (in million head)

World	Africa (whole)	Eastern Africa only
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18.9	14.2	11.5
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Source: FAO, 1989

Camel population in eastern Africa (in million head)

Somali	Sudan	Ethiopia	Kenya	Djibouti
>6	2.7-3.1	2-3	0.6	0.5
53.8 DHB	18 DHB	3.7 DHB	7.76 DHB	30.8 DHB

DHB- Domestic Herbivores Biomass

Source: FAO, 1989

1.2. Natural Habits of Camel

The camels are migratory, and their habitat ranges from rocky mountain massifs to flat arid desert, stony plains and sand dunes. Conditions are extremely harsh – vegetation is sparse, water sources are limited and temperatures are extreme, ranging from as low as –40 °C in winter to 40 °C in summer. The camels’ distribution is linked to the availability of water, with large groups congregating near rivers after rain or at the foot of the mountains, where water can be obtained.

The main primary problems of the area are scarcity of water and high ambient temperature. The availability of water is the most important limiting constraint of the environments. During most of the periods of the year there is no sufficient rainfall. Other water sources such as rivers and streams are also very scarce and very seasonal. Drying up of these water sources is common due to high dehydration as a result of lack of cloud cover. The available ones, if at all, are salty. The radiant energy falling on the ground is very high ($1000 \text{ kcal/m}^2/\text{hr}$). The heating of the ground results in updraft of the hot air which forms a twisted air. This twisted air contains dust and fine sand which interferes respiration.

Plants growing in these areas are salty and their availability is seasonal. They have also undergone various xerophytic adaptations to withstand the harsh environment. These adaptive features include:

- Reduction in leaf size, and replacement of leaves by thrones-to reduce evaporative surface
- Increment of phenolytic substances on the surface of leaves and steams-insulating substance to minimize evaporation

- Sparse distribution of plants-minimizes competition for ground water
- All the above characteristics of plants make them unpalatable and inedible by most of the domestic animals.