

# The origin and composition of

**T**he history of domesticated livestock forms an integral component of the history of the people to whom they belonged (Curson & Thornton, 1936). Archaeological findings indicate that a Stone Age society resided in the eastern parts of South Africa (ranging from the Eastern Cape, KwaZulu-Natal, the southern parts of Mozambique and Swaziland), which entered the region between 2000 and 1500 BC.

It is commonly accepted that cattle were present in large numbers along the south-east African coast and the immediate interior by the 17th century, based on diaries kept by sailors passing these coasts at that time as well as remains found at archaeological diggings (Bisschop, 1937). Robinson (1872) mentioned that as far back as 1689, some shipwrecked mariners described Natal (currently KwaZulu-Natal) as “full of cattle”, and these were likely the ancestors of present-day Nguni cattle.

The current African cattle originated from three different sources. Firstly, the domestication from Asia along the Nile Valley and onwards through Egypt. The second domestication event emanated through the “horn” of Africa or from the East Coast towards and through Madagascar. The third theory stated that a domestication event took place within the African continent. Therefore, the centre of origin of the primitive Sanga cattle was most likely, East Africa (Figure 1).



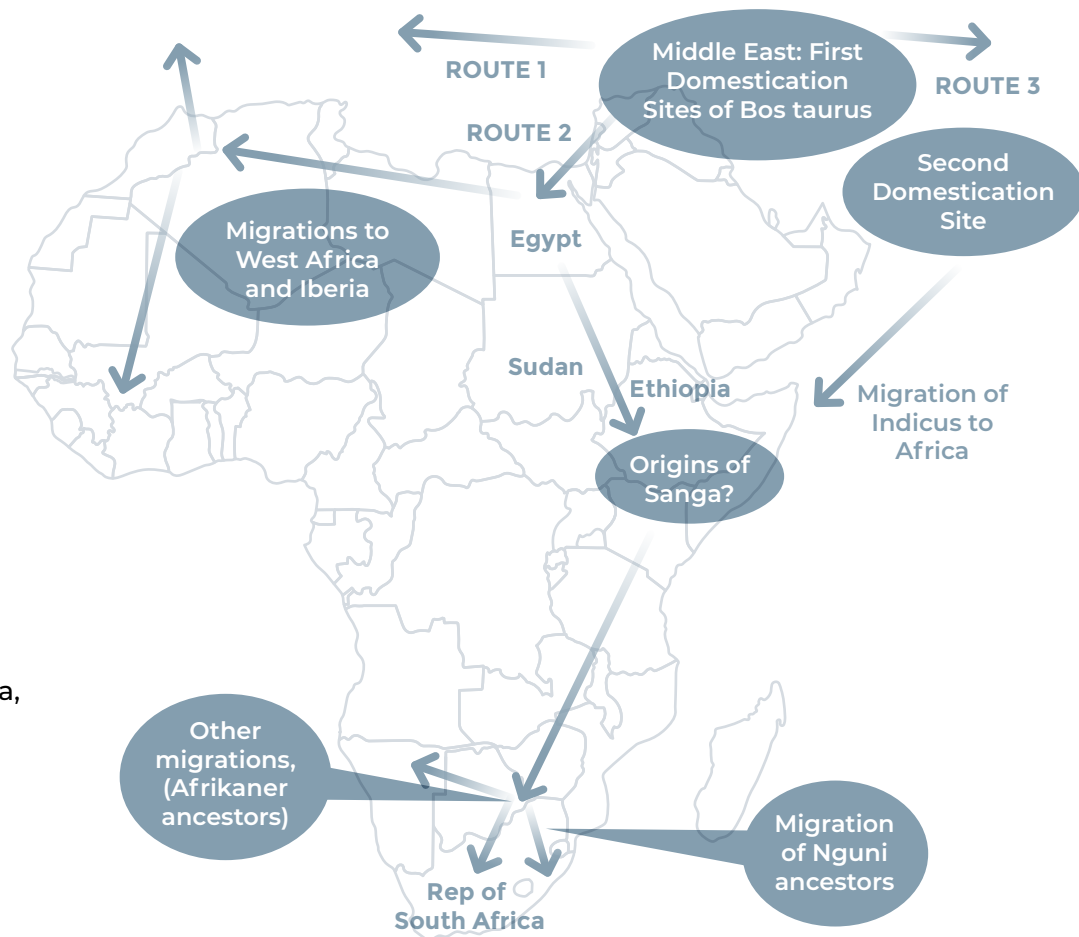
# nd genetic

## NGUNI CATTLE IN SOUTH AFRICA

**FIGURE 1**

Ancient people migrated through Africa from Egypt and as they traded along the east coast of Africa from India, new strains of cattle were developed (Curson, 1936). Today, African cattle can be classified into three major groups: African *B. taurus*, *B. indicus* and Sanga types (African hump-less *Bos taurus* x humped *Bos indicus*) (Rege, 1999). >>

**FIGURE1:** Schematic representation of postulated domestication sites and migration routes of bovines through Africa, a condensed excerpt of current data (Brown, 1959; Loftus et al., 1994; Bradley & Cunningham, 1999).



African taurine cattle are widely distributed throughout west and central Africa and are divided into longhorn (*B. taurus longifrons*) and shorthorn (*B. taurus brachyceros*). Indicine cattle are mainly found in the eastern and dry parts of West Africa, while the Sanga breeds are mainly found in eastern and southern Africa.

Studies on the Y chromosome and DNA studies suggest that Zebu (*indicus*) introgression on the African continent was primarily through males (Bradley et al., 1994; Hanotte et al., 2002; Porto-Neto et al., 2013). It is also important to note that all African cattle carry taurine mitochondrial DNA, indicating that there are no pure Zebu *B. indicus* cattle on the African continent (Mwai et al., 2015). Mitochondrial DNA is only inherited through the maternal line.



According to Bradley & Cunningham (1999), some 120 breeds of cattle have been identified in Africa. The majority of these breeds are found north of the trypanosomiasis belt and are classified as Zebu (*indicus*). Those found in Central and Southern Africa are of an intermediate type i.e. have a cervico-thoracic hump are classified as Sanga types.

The fact that Sanga group of cattle possess a cervico-thoracic hump, which is likely derived from admixture between the thoracic-humped Zebu (*indicus*) and hump-less African *B. taurus* cattle (Epstein, 1971; Hanotte et al., 2002).

An important observation is that Sanga cattle from southern Africa, such as the Afrikaner and Nguni, south of the trypanosomiasis belt, share the metacentric Y-chromosome in common with that of *B. taurus*, whereas Sanga cattle, currently found north of the trypanosomiasis belt, share the acrocentric Y-chromosome in common with the Zebu (*indicus*) (*B. indicus*) types (Meyer, 1984). The

Zebu (*indicus*) types are susceptible to trypanosomiasis (Murry et al., 1982), which is distributed by the tsetse fly and it postulated that the Zebu (*indicus*) -like genotypes were eliminated from the population as the cattle migrated south. The trypanosomiasis belt is indicated in Figure 2. In view of the aforementioned, Meyer (1984) proposed using the names *B. taurus taurus* for the hump-less European cattle, *B. taurus indicus* for the Zebu types and *B. taurus africanus* for the Sanga cattle of Southern Africa.