

Sustainable semi-arid grazing management based on indigenous Shona practices prior to introduction of western ideas in Zimbabwe

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Introduction In the Shona culture the land, i.e. the plants, animals, soil, water, air and others, evolved with herding animals. Hence, the absence of one results in the destruction of the other. It is argued that the conventional grazing management belief that too many animals cause overgrazing is a misconception of the semi-arid savanna environments of Southern Africa where these environments evolved with thousands of herding grazers and mega-faunas such as elephants, wildebeests and buffalo. The objective of the research is to establish that grazing with an adequate recovery period for grazed plants, as a result of domesticated animals being managed effectively rather than staying on the same piece of land too long (continuous grazing) or returning too soon to the grazed area (rapid rotational grazing systems), can reverse the process of land degradation and the low water table of semi-arid rangelands, and can improve biodiversity by engaging in communal herding of livestock.

Materials and Methods The research is a four-year study which started in October 2002 at Njeremoto Biodiversity Institute near Chatsworth ICA in Zimbabwe. The results of the first two years of the study are reported. The systems study involves intervention strategies which are being implemented in two areas, which are grazing and arable areas. The grazing area, which is 200 hectares in extent, is divided into three zones, A, B and C, and is grazed as shown in Table 1 below:

Table 1 Period of controlled grazing

Period	A	B	C	Arable
Early summer grazing (Nov. to Jan.)	X			
Late summer grazing (Feb. to May)		X		
Full summer recovery (Nov. to May)			X	
Dry season grazing in arable area (June to Oct.)				X

Communal herding of livestock is practiced in summer once in each zone. Monitoring of vegetation is done through transect and fixed-point methods. As well as this data, information is also recorded by means of fixed-point photography, video recordings and field work notes.

Intervention strategies in the arable area, which is 50 ha in extent, include organic farming, permaculture, water-harvesting, fodder production, and planting multi-purpose and fruit trees. The area is grazed in the dry season (June to October) after harvest.

Results The following are the results of the study obtained to date. Controlled grazing with high animal impact causes many plants to grow with tight plant spacing and increased vigour. The recovery times used has produced a multi-species pasture of healthy, tight plant communities with a good age distribution. There is increased grass cover, as well as reduced mature capping, bare ground, gully formation and sheet erosion. There is an increase in productivity of stover, feed, fruits and fodder on the arable area. The social structure through the community herding of cattle is changed and is beneficial to the young children who will be the environmental managers of the future.

Conclusion The research findings to date reveal that indigenous knowledge systems complemented with modern methods of investigation may result in effective and productive, and potentially sustainable land management practices for semi-arid rangelands.