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Browse ranking in Zimbabwe

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· Introduction

This short paper reports on the use of browse ranking in southern Zimbabwe. Two types of ranking were conducted. First, a simple scoring of a full list of all available trees in the area was carried out. Next, a more focused matrix ranking explored a few key species against a range of criteria. In combination these ranking exercises provided important information for a local woodland management project.

Browse scoring

A recently compiled dictionary of local tree names (Wilson, 1987) was the main requirement for the initial ranking exercise. This listed all the trees found in the area with vernacular and scientific names. This list provided the checklist prompt for a discussion held with five livestock owners. For each tree named on a card the group indicated three pieces of information. These were:

- The tree part eaten (leaves, litter, bark, fruit);
- The effect the tree has on grass growth (promotes, no effect, hinders); and,
- A rating of fodder preference (highly favoured, eaten on occasions, only eaten in drought, never eaten).

The group indicated their assessment using local markers (e.g. maize grains or stones as counters). This process was repeated three times for different livestock species (cattle, donkeys, goats) (Scoones and Madyakuseni, 1987).

Since there were 120 trees on the list, this exercise took several hours on two occasions. The composition of the group changed over the period (with the exception of two people who remained throughout). This did not appear to matter as there was remarkable consistency in response and rarely a sustained dispute over the ratings. All informants were however adult men; the question of whether women or children would have rated the species differently was not pursued on this occasion.

The 32 browse species rated by the farmers as highly favoured by cattle were compared with Walker's (1980) recommendations based on such factors as crude protein content, digestibility etc. The availability of each species was also considered in the comparison. This information had been gathered in a separate study of browse availability in the area. Table 1 lists the results of the comparisons for cattle.

The results showed that livestock owners' rankings tally closely with quality assessments based on chemical analysis. A similar correlation between chemical analyses of browse material and herders' rankings has been shown by other studies. For instance Wolfgang Bayer found that the top third of 30 species ranked by Fulani pastoralists in central Nigeria had significantly higher nitrogen and phosphorous contents, as well as dry matter digestibility, than the middle third of the species ranked (Bayer, 1990).

Matrix ranking and scoring

Matrix ranking and scoring can be used to explore the criteria of choice between different trees in more detail. Table 2 shows the results of one such exercise.

During a discussion on drought, the importance of browse for sustaining cattle was

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raised. Mr Shanduka mentioned five trees that he regarded as particularly important in sustaining cattle both in droughts and in other years. Samples were found of each of the trees from around the homestead. These were laid on the ground in a row. To establish the important criteria each tree was compared with another in turn, with the questions "what is good about this tree?" or "what is bad about this tree?". This probing continued for some time until the full range of criteria had been mentioned. In this case only five criteria were offered.

We then proceeded to the matrix scoring. 20 beans were allocated to each criteria and Mr Shanduka showed how he believed they should be distributed between the five trees.

Table 1. Trees 'highly favoured' by cattle, plus indicators of (1) local availability and (2) whether important browse species according to scientific analysis

Local shona name	Botanical name	1	2
Mubhondo	Combretum apiculatum	*	*
Mububuhnu	Grewia flavescens	*	*
Mubvumira	Kirkia acuminata		*
Muchakata	Parinaria curatellifolia		*
Muchechete	Mimusops zeyheri		
Mudyahudo	Strychnos potatorum		
Mudzviri'nombe	Vangueria sp.	*	
Mupwezha	Combretum collinum/fragrans		*
Mususu	Terminalia sericea	*	*
Mufupa	Tarenna neurophylla		
Mugaragora	Boscia albitrunca		*
Muhumbakumba	Bridelia mollis		
Mujerenga	Acacia nilotica/rehmannii	*	*
Mukamba	Afzelia quanzensis		
Mumveva	Kigelia africana		
Munanga	Acacia nigrescens/polycantha		*
Mununguru	Flacourtia indica	*	
Muonde	Ficus sur		
Mupanda	Lonchocarpus capassa	*	*
Mupane	Colophospermum mopane	*	*
Mupangare	Dichrostachys cinerea	*	*
Mupfura	Sclerocarya birrea		*
Mupumbu	Acacia galpinii		*
Murungu	Ozora insignis		
Mushuku	Uapaca kirkiana		
Musumha	Diospyros mespilliformis		*
Rusungwe	Euphorbia tirucalli		
Musvimwa	Lannea stuhlmanni		
Musvita	Ficus sycamorus		
Mutarara	Gardenia spatufolia		*
Mutechani	Combretum hereroense		*
Mutehwa	Grewia bicolor	*	*

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Table 2. Matrix ranking by S. Shanduka

Criteria	Mupane	Mubhondo	Mupanda	Mususu	Mupwezha
Early shooting of leaves	7	4	5	2	2
Good taste; salty	7	4	5	2	2
High water content	-	-	13	-	7
Dry leaves can be eaten	1	-	-	19	-
OVERALL	1	4	3	2	5

At the end of the discussion Mr Shanduka was asked to rank the trees in terms of overall preference. This was investigated further when a scoring of the criteria was explored. This showed that early shooting was by far the most important criterion (13 beans). This was followed by the importance of dry leaves as fodder (5 beans). Taste/salt and water content were not regarded as so important (1 bean each). The weighting of the criteria meant that *mopane* (*C. mopane*) and *mususu* (*T. sericea*) were ranked highest in the overall ranking

· Discussion

Ranking exercises may provide apparently complex information very easily, but the investigator must be aware of some of the drawbacks or potential complications. The following guidelines may be important in the context of browse ranking.

- *Do not confound preference with availability.* Livestock may eat virtually any browse if it is available and other, more preferred fodder, is not. This does not mean that such species should be concentrated upon for browse development, as there may be other less common, and so less known, species that may have potential.
- *Differentiate between livestock species*. The results reported here have all referred to cattle (although rankings were done for other species). Due to differences in mouth parts and digestive physiology different livestock species can make use of different browse species.
- *Differentiate between plant parts*. Different parts of a browse tree can be eaten (leaves, twigs, bark, pods/fruits) and in different states (fresh or dry). This may be important in differentiating between species. For instance, *T. sericea* was found to be highly favoured because of the fodder quality of dry leaves in the dry season.
- *Take note of seasonal phenology.* Particular species may be important during particular times. For instance, fruiting (e.g. of *Acacia* pods) may be highly seasonal. Similarly the palatability of leaves may vary due to the build up of tannins and other secondary chemicals.
- *Drought years are often different.* The extreme conditions of a drought year may provoke very different foraging patterns. For instance, in the drought years of 1991 and 1992 in Zimbabwe totally new species were used by livestock. Such species should not be ignored in fodder development plans, even if they are only used occasionally, as they may be critical for the long-term sustainability of livestock populations.
- *Investigate with different informants.* Knowledge about browse fodder is not evenly distributed within herding communities. It is important to repeat ranking exercises with different people to get the full range of ideas. For instance, children often know a lot about foraging behaviour from their observations while herding animals. Older people may offer insights into patterns of use in the past and may suggest browse species that had once been common and could be the focus for regeneration.

· Conclusion

Browse ranking with livestock owners can be a quick and effective way of finding out about fodder preferences and availability in an area. Rankings of fodder quality by livestock owners are highly correlated with indicators of fodder quality derived from chemical analysis. Such ranking exercises can thus provide high

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quality information without the need for expensive and time-consuming laboratory analysis. Ranking methods can therefore be useful planning tools for helping to design fodder improvement programmes with herd owners.

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