

People, Rangeland Change, & Sustain- ability in the semiarid northwest

No. 5A

PANRUSA Briefing Notes

PANRUSA, Poverty Policy and Natural Resource Use in Southern Africa. A DFID funded research project at the University of Sheffield UK.

Key points

- Marked spatial variability in vegetation exists, due to grazing impacts.
- Land users manage livestock movements to encourage recovery of affected areas.
- Competition for grazing resources due to more boreholes/more people is leading to fencing of the range.
- Fencing may reduce options during droughts, enhancing degradation and livestock die-offs.



Research areas:

1. Arid southwest:
 - a) Mier, South Africa
 - b) SW Kgalagadi, Botswana
2. Semiarid northwest:
 - a) Ghanzi Dist, Botswana
 - b) Omaheke, Namibia
3. Dry sub-humid southeast:
 - a) NW Province South Africa,
 - b) Barolong, Botswana

Marked changes in land use and land allocations have occurred in recent decades, but livestock production is still the dominant livelihood in the semiarid northwest. Investigations in 1999 and 2000 included ecological assessments and the construction of 'participatory maps' with livestock owners on whose land the research has been conducted (*methods are explained further in Briefing Note 1B*). This has allowed the state of the environment to be assessed, and land users' interpretations and responses to be understood.

Study farms

On both sides of the border the area supporting livestock activities comprises an undulating sandy plain with intermittent dry valleys and pans that have more calcareous soils. The natural vegetation of the area is bush savanna, dominated by tufted perennial grasses and an intermittent woody element, mostly of bushes rather than trees.

Omaheke, Namibia Three sites within communal areas have been investigated. **Netso** is a farm allocated in the 1980s, initially with strict guidelines about livestock and the rotational use of fenced paddocks. Since independence more households have entered the area. **Corridor Four** is a fenced farm abutting the Botswana border, with a complex land use history. It is now occupied by a large number of Herero and San households and is intensively grazed. Many Herero residents have other livelihoods away from the farm or have livestock at other locations, including at **Okonyoka**, a settlement within the larger Aminuis communal area.

Ghanzi, Botswana Investigations focused on the area between the Ghanzi commercial farms and the Ncojane TGLP leased ranches. This area has until recently been unfenced, with a limited number of widely spaced government boreholes. Since 1980 land allocations have allowed individual farmers or consortiums to sink boreholes and with future plans to allow them fence the range. Individual farms have 200-1000 cattle on them, as well as small stock. **Motlopi** borehole was drilled in 1987 and abuts the Namibia border adjacent to Corridor Four. **Springbok** is located further east and was also drilled in the mid 1980s, but a new borehole was sunk in 1997. **Kama** was allocated to a consortium of farmers in 1996, has had a borehole since 1997 but only in 1998 has it been functioning for livestock production.

Rangeland resources

Omaheke Vegetation on all study farms was notably patchy, with stands of dense bush and open grassland, but in all areas bare ground commonly exceeded 50% of the area. The most palatable perennial grasses represented no more than 20% of ground cover, at any location, and often less. On **Corridor Four** and **Okonyoka**, annual sour grass (*Schmidtia kalahariensis*) is the dominant cover, providing between 20 and 40% of total cover at many locations. High value perennials do however occur in relative abundance on **Okonyoka**, at locations distant from the borehole. Annuals were also dominant at many locations on **Netso**, particularly in intensively used paddocks, and comprised mainly of *Eragrotis biflora*, which is indicative of disturbance and has little grazing value. The intensity of grazing pressure at **Corridor Four** is indicated by dense bush stands dominated by the invasive *Acacia mellifera*.

Ghanzi Motlopi borehole showed the impacts of many years of intensive grazing, including extensive (50-90%) bare areas, dense stands of *Acacia mellifera*, and throughout the farm less than 10% palatable perennial grass cover. Ground cover at all locations is dominated by either sour grass or weeds. Despite also having extensive bare areas, **Springbok** shows a more variable situation, with notable bush stands but also palatable perennials covering up to 10% in some locations. The recent development of **Kama** is borne out by the prevalence of palatable grasses over other categories at most measured locations (see diagram). The exception was one zone 2.5km from the borehole, where sour grass dominates. This area has been utilised by livestock encroaching from an adjacent, older, borehole.

Kama grasses

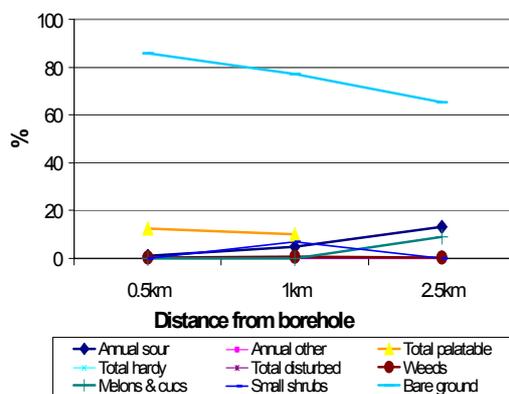


Photo opposite: The effects of grazing pressures on Corridor Four. This farmer identified 'drought' as the cause of his cow's death but across the border in Botswana perennial grasses showed no sign of drought.

How do people respond?

Ecological changes Livestock owners are well aware of the patchiness of the grazing resource on their land, and of severely degraded areas. Many were concerned about the dominance of sour grass on their lands, but also noted its grazing value at the beginning of its growth cycle. On most farms livestock movements are managed to facilitate recovery of poorer areas. This was not evident on heavily degraded **Motlopi**. On **Okonyoka** severely bush encroached areas were in fact valued as a browse resource during droughts, contributing to livestock survival and reducing pressures on grasslands and allowing their post-drought recovery. It was also observed that droughts and disease can contribute to bush die-backs, such that bush encroachment may not be a permanent problem.

Fencing Individuals and communities in **Corridor Four** and **Okonyoka** are fencing 'their' communal lands to reduce external pressures on the range. Perennial grasses may be returning in some locations as a function of this controlling of access, but excluded people and livestock will increase pressures on remaining open land. **Kama** syndicate members were also aware of the risk of stock encroaching from neighbouring farms, and intend to fence their farm's perimeter. This process has occurred at **Springbok**, where similar pressures were also a problem and cause of environmental degradation. Some farmers noted however that fencing reduced options for livestock in droughts.

The effect of grazing pressures, Corridor Four



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