

- Ingram LJ 2002. Growth, nutrient cycling and grazing of three perennial tussock grasses in the Pilbara region of NW Australia. PhD thesis, University of Western Australia, 280 pp.
- Morris C and Fynn R 2001. The Ukulinga long-term grassland trials: reaping the fruits of meticulous, patient research. Bulletin Grassland Society of Southern Africa 11(1): 7-22.
- Snyman HA 1998. Dynamics and sustainable utilization of the rangeland ecosystem in arid and semi-arid climates of southern Africa. Journal of Arid Environments 39: 645-666.
- Snyman HA 1999. Quantification of the soil-water balance under different veld condition classes in a semi-arid climate. African Journal of Range & Forage Science 6 (2 & 3): 108-117.
- Snyman HA 2003a. Short-term response in productivity following an unplanned fire in a semi-arid rangeland of South Africa. Journal of Arid Environments 56:465-485.
- Snyman, HA 2003b. Fire and the dynamics of semi-arid grassland: influence on plant survival, productivity and water-use efficiency. African Journal of Range and Forage Science 20(1): 29-39.
- Trollope WSW 1999. Fire behaviour. In: Tainton NM (ed.). Veld management in South Africa. University of Natal Press, Pietermaritzburg, South Africa, 472 pp.
- Whitford WG, Stinnett J and Anderson J 1988. De-composition of roots in a Chihuahuan desert ecosystem. Oecologia 75: 8-11.
- Zacharias PJK and Danckwerts JE 1999. Management of humid grasslands after burning in southern Africa. In: Proceedings VI International Rangeland Congress, Townsville, Australia 1: 527-528.

OPINIONS

G'day Alan

Am not sure if this is what you want but it is worth a try to see if I can start some sort of discussion forum? So here goes...

Cheers

Eugene Moll

I have been in the plant ecological field for several decades and my interests have been many and varied. As I come to the end of my active research life I am focussing down and am most interested in two topics/problems:

1. Management of small nature reserves, particularly those that are fragments of once much larger ecosystems. There are particular difficulties with managing such areas, and I would like to correspond to others who have a similar interest - and with those who have some experience managing such areas. My observations are that such reserves, once set aside, are then NOT MANAGED adequately.

Let me give one example of some Strandveld vegetation (now called Sub-Tropical Thicket) near Melkbosch Strand just north of Cape Town (in the modern era almost contiguous with the greater UniCity). From 1982 to 1992 I took my third year population and community plant ecology students to this area annually in February for them to collect structural/functional data of the higher plants. In those times the structure of the vegetation consisted of some 50-60% canopy cover of short thicket (average height about 1m) of evergreen (with some deciduous) shrubs, some spinecscence, mainly of a sub-tropical origin but with many Cape endemic species (examples are *Olea exasperata* and *Euclea racemosa*, others being *Rhus* spp., *Maytenus heterophylla*, *Putterlickia pyracantha*, *Cussonia thrysiflora*, etc.). In the gaps between the thicket clumps there were with sandy "pathways" that had some perennial dwarf succulents and in spring were filled with annuals and geophytes.

When I went to Melkbosch in 2004 I observed that the thicket patches had mostly closed over, and that the interstitial spaces were no longer being "maintained" for the succulents, the geophytes and the annuals. This change has occurred as the area is no longer extensively/intensively grazed/browsed by sheep, and certainly no longer patch-burned.

When I look at other reserves in my local area I note that --

The Renosterveld on Signal Hill (now Table Mountain National Park) and in the Tygerberg Nature Reserve is not being properly managed,

The Strandveld in the Cape Flats Nature Reserve has grown in height and density, as well as the fact that the gaps between the thicket patches have closed over,

The Fynbos above the Kirstenbosch Botanical Gardens was last burned in about 1970 and today is rapidly becoming Afromontane Forest, and there are other areas like Rondebosch Common that are nutrient sinks (dog and human poo enriched, plus aerial nitrogen from pollution, etc.), such that the nutrient status is no longer low and suitable for some Cape species (many local endemics, or at least species that have suffered tremendous range contraction in the modern era), but more suitable for others (mainly Mediterranean grasses),

And there are other areas that are all well "conserved", BUT the vegetation structure and composition is changing alarmingly rapidly in my assessment (and without baseline studies who really knows? But then I have some observations but not adequate qualitative data). Maybe this is a good thing? HOWEVER, I submit that such areas are too difficult to manage for a variety of reasons, and are simply protected (in some cases fenced off) and left to "manage" themselves!

This "management" does not meet the

requirements of biodiversity conservation and there is an urgent need to remedy what is a very complex problem.

I am sure that there are similar problem areas in and adjacent to all metropolises?

2. Fire as a management tool in the SW Cape, and the way in which modern human perceptions are influencing the application of fire management programmes. Thus I am not interested in the ecology of fire *per se*, but the way in which fire is perceived as a management tool. What I have observed over the last 40+ years is that modern humans are more and more dislocated from nature, and as such are starting to apply human morality and ethics to other species in ecosystems. Thus we are effectively interfering with natural processes, which now have an overwhelming socio-political dimension that is of great concern to me as the impacts over time (and I am not even talking of evolutionary time here) are becoming significant (and to me extremely worrying).

I guess this goes to the point of whether modern humans are interfering too much in a number of major management issues (elephant culling and the actions of PETA come to mind here too as examples that are current, even the so-called canned lion debate could be considered part of this!). We perceive a need in the modern era to consult all role players, assuming that all role players understand ecological principles and therefore management imperatives of fragmented ecosystems. Thus we are trapped in a modern paradigm that can be viewed as anti-nature and I am putting it that strongly to invoke a response!

But let me stay with fire, and fire management of ecosystems that are contiguous to urban areas. There are enough issues to debate without too many red-herrings around elephants, lions and certainly PETA!

ANY THOUGHTS? Contact the editor at alan.short@dae.kzntl.gov.za