Are Highveld grasslands treeless because of nutrient limitations on growth?

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Trees are often absent from Highveld grasslands that can support woody vegetation in the absence of fire. Numerous mechanisms have been proposed for the exclusion of trees from these areas, including anthropogenic causes, frost, fire, grass competition and impeded drainage. We hypothesised that a lack of nutrients in the Highveld soils limits tree seedling growth resulting in increased fire-sensitivity of the seedlings. *Acacia karroo* and *Acacia sieberiana* seedlings were grown in an irrigated pot experiment, in soils collected along an altitudinal gradient from savannas up into grasslands. Growth was recorded over 6 months. The higher altitude grassland soils were more nutrient poor than the savanna soils with pH and T-value strongly negatively correlated with altitude ($r^2=0.94$, $p<0.01$; and $r^2=0.70$, $p<0.01$ respectively). Plant growth was most strongly correlated with B and N ($r^2=0.36$, $p<0.01$; and $r^2=0.28$, $p<0.01$ respectively). Overall there was a negative correlation of plant growth with the altitude from which soils were collected ($r^2=0.12$, $p<0.01$). Seedlings grown in high-altitude grassland soils gained *ca.* 0.64 of the biomass of those grown on low-altitude savanna soils. We estimated that this would equate to 1.5-2 years longer to reach fire-escape height. Although soil nutrients had a strong influence on sapling growth, climate related factors in combination with fire more generally explain the lack of trees in upland grasslands.

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Achievements of the African Plants Initiative in South Africa

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The African Plants Initiative was initiated in South Africa in 2004 following a successful grant application to the Andrew W. Mellon Foundation. Coordinated, at the time, by Aluka, the initiative aimed to digitise type specimens of African plants, linking them to a range of related information, and providing easy access to scholars via the web. In South Africa the initiative expanded to include projects such as: Medicinal plants of southern Africa, Synopsis of the Lycopodiophyta and Pteridophyta of Africa, Madagascar and neighbouring islands, Grasses of southern Africa, Aloes of the world, and Documenting taxon protologues of the mesembs (Aizoceae). Here we explore what was achieved by this initiative and what we have to show for it.

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Two South African hybrid swarms in the genus *Salvia* - with parents of the same and different pollination syndromes

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Two hybrid swarms in the genus *Salvia* were found at different localities in the Western Cape: between the bee-pollinated *S. africana-caerulea* L. and the bird-pollinated *S. lanceolata* Lam. as well as the latter and the bird-pollinated *S. africana-lutea* L. The hybrid status was supported by multivariate analysis and both hybrids were characterised morphologically. Concerning vegetative and floral characters, nectar data as well as the pollination syndromes, the hybrids are in between their parents, reaching from one parent to the other. Crossing experiments showed seed set between all of the three *Salvia*-parents. Open pollination seed set of *S. africana-caerulea* x *S. lanceolata* was significantly lower than that of the parents, but that of *S. africana-lutea* x *S. lanceolata* was similar to *S. lanceolata*. Breakdown of mechanical isolation seems to be caused by birds and pollen collecting honey bees.

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Expression analysis of the defence gene *SGT1* (suppressor of the G2 allele of *skp1*) in pearl millet (*Pennisetum glaucum*) during salicylic acid treatment

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Pearl millet (*Pennisetum glaucum*) is a staple food crop to millions of people. It is drought tolerant and not susceptible to many diseases, making it suitable for disease-pathogen interaction studies. Previous studies indicate that salicylic acid (SA) is capable of inducing systemic acquired resistance (SAR) in plants and in particular that it induces resistance to a rust fungus (*Puccinia graminis*) in pearl millet. Since *SGT1* is a gene that plays a central role in disease resistance, it should be expressed during SAR. The aim of the study was to confirm the expression of *SGT1* during SA treatment in *P. glaucum*. Primers based on conserved regions of *SGT1* were designed for RT-PCR. Since the complete genome sequence of *P. glaucum* is not available, conserved regions were identified from *SGT1* orthologs present in four cereal crops. These *SGT1* orthologs contain three conserved domains. Plants were treated with SA and leaf material was subsequently harvested at 12 and 24 h. cDNA was used to amplify an 820 bp fragment from the 12 h SA treated sample, which was subsequently cloned and sequenced. Sequence analysis revealed that the *P. glaucum* fragment of SGT1 contains over 75% amino acid similarity to orthologs from other cereal crops. The fragment spans 282 of the 373 amino acids that