will further our understanding of the role fungal endophytes play in the success and/or failure of invasive plant species in natural areas.

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Biodiversity assessment: Farm Kyffhäuser, Namibia

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Namibian relatives of southern African plant taxa are often neglected or omitted from taxonomic and systematic studies, in part due to limited knowledge available for Namibian taxa, and in part due to problems concerning the logistics of collecting and correctly identifying Namibian plants. Here we introduce a new initiative to document, identify and make botanical data available from the farm Kyffhäuser, located just south of the species-rich Naukluft Mountains in Namibia. We present an overview of the habitat diversity (including rainfall patterns, river drainage systems, elevation and topography) of the region, followed by an up to date list of all plant taxa collected and identified to date. We evaluate this botanical diversity by listing rare and or endangered taxa discovered, along with numerous taxa found to present range extensions into this region. We consider weeds and invasives common to this area, and highlight some interesting plants recorded from the farm. Finally we introduce the website that has been established for Kyffhauser, and invite future collaborations.

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Grassland ecology along an urban–rural gradient using GIS techniques in Klerksdorp, South Africa

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Urban areas represent complex assemblages of unique vegetation communities. The multitude of influences on cities adds to this complexity and understanding the underlying patterns and processes operating in urban areas becomes increasingly important with large scale urbanisation. The urban–rural gradient approach often used to study these patterns and processes, aims to quantify the existing gradient allowing comparisons of vegetation at different locations, each with diverse human influences. However, accurately quantifying the urban areas became difficult with the realisation that gradients are non-linear and complex. Previous studies were not truly comparative due to differences in measures used to quantify the gradient and a lack of a well-defined definition for urban areas. Our study in Klerksdorp (North-West Province, SA) focused on testing a model developed in Melbourne (Australia) in an attempt to contribute towards creating a standard set of measures to quantify the urban–rural gradient. The methods used in Melbourne aimed to set a general standard with which to globally compare urbanised areas taking into account the entire extent of the study area allowing multidimensional insights into the unknown gradients. In our study, satellite imagery and GIS techniques were used to calculate measures representing demographic and physical variables, as well as landscape metrics. PCA and subsequent factor analysis of the 12 chosen measures showed the observed variation explained by both landscape and demographic measures. One measure per group was chosen to further represent the gradient. In addition, potential changes in grassland ecology were identified with vegetation surveys studying both the extant vegetation and the soil seed bank. Results indicated clear differences in the vegetation composition of comparable grassland patches at different locations along the gradient. This shows that urbanisation does influence vegetation composition and survival. Patterns and processes emerging from these studies could drastically influence planning and implementation actions concerning human development.

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On the evolution of leaflessness and morphometric studies of the *Psoralea aphylla* complex (Fabaceae)

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Leaf morphology within the genus *Psoralea* is highly variable, ranging from a complete absence of leaves, to a reduction of leaves into scales, to simple broad leaves or tiny filliform leaves, up to compound leaves made up of 3 to 11 leaflets. The leafless members of this genus form a species complex variously included in *Psoralea aphylla* (here referred to as the "*aphylla group*"). All *Psoralea* are leafy at seedling stage and the aphylla group has secondary reduction or complete loss of leaves. Whether this complex represents a single polymorphic species or multiple taxa that need to be recognised as distinct entities is not clear. In this paper, the taxonomy of the aphylla group is revisited to test the hypothesis that the loss of leaves is a single evolutionary event and hence members of the aphylla group represent a monophyletic entity. A phylogeny of *Psoralea* based on nuclear and chloroplast DNA sequence data is presented. Ancestral trait reconstruction for the presence or absence of leaves is performed on the phylogeny using maximum likelihood. Taxon delimitation is inferred from a