especially the anthocarps. Anthocarps of *Boerhavia* are clavate or elliptic-clavate with 3–5 ribs or wings which can either be glandular or glabrous. Anthocarps of *Commicarpus* are cylindrical or fusiform with 10 obscure ribs and large, dark, mucilaginous glands scattered over the surface. Anthocarp shape, size, topography and indumentum are significant morphological characters that can be used to distinguish between the species of other genera in the Nyctaginaceae such as *Colignonia* and *Mirabilis*. The taxonomical value of anthocarp structure was investigated for *Boerhavia* and *Commicarpus*. Observations of the anthocarp structure of *Boerhavia* and *Commicarpus* show that each has its own unique arrangements of ribs, wings and mucilaginous glands, and these characters may therefore be applied to distinguish between the species.

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SAAB bursar

Seed bank status and dynamics of *Acacia saligna* at two sites in the Western Cape, South Africa

M. Strydom[a], K.J. Esler[a], A.R. Wood[b]
[a]*Department of Conservation Ecology and Entomology, Stellenbosch University, Matieland 7602, South Africa*
[b]*ARC-Plant Protection Research Institute, Private Bag X6006, Hilton 3245, South Africa*

Acacia saligna is the most damaging invasive species in the coastal lowlands of the south-western Cape. The gall rust fungus, *Uromycladium tepperianum*, has been highly successful as a biological control agent for *A. saligna* populations in South Africa and has effectively reduced the density, canopy cover and seed production of the tree. However, there are still concerns about the soil-stored seed bank and knowledge of seed bank status and dynamics is crucial for effective management. The study evaluated the effectiveness of two different sampling methods in assessing the status of the seed bank, how the seed bank of *A. saligna* at two different sites varies over time and how these findings compare to findings of other seed bank studies of *A. saligna* across southern Africa. Even with the reduction in seed production caused by biological control, numbers of seeds in the soil seed bank are high enough to maintain high levels of recruitment after management or natural disturbances. Both sampling methods (grid and random sampling) attempted were effective in assessing the vertical distribution of the seed bank and estimated the size of the seed bank to be within the same order of magnitude. However, random sampling will be more effective in assessing the seed bank size as it was found that the seeds have a clumped horizontal distribution. The vertical distribution of seeds in the seed bank was found to be influenced by soil properties. The largest portion of the seed bank is situated in the upper 0–10 cm of the soil and declines in size with depth.

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Impacts of ploughing and introduction of commercial fynbos species on the diversity of sandstone fynbos on the Agulhas Plain, South Africa

M. Treurnicht[a], K.J. Esler[a], M. Gaertner[b]
[a]*Department of Conservation Ecology and Entomology, Stellenbosch University, Private Bag X1, Matieland 7602, South Africa*
[b]*Centre for Invasion Biology, Stellenbosch University, Private Bag X1, Matieland 7602, South Africa*

The Agulhas Plain is an area of exceptional biodiversity and is currently threatened by a number of (mostly) anthropogenic activities. Consequently it has been the focus of many research initiatives and conservation planning activities in recent decades. Amongst other agricultural activities, commercial fynbos farming is widely practised in the Agulhas Plain. The flower industry uses both cultivated and wild (natural veld) harvested flowers. Recently there has been a growing trend away from 'natural veld' harvesting towards the intensive cultivation of certain fynbos species. Cultivation from 'natural veld' to produce economically desirable fynbos species includes the implementation of certain farming practices/techniques. Commercial fynbos farming has become a popular and lucrative industry which can potentially (according to our understanding) be detrimental to fynbos diversity. Our aim is to investigate impacts of commercial fynbos farming (focusing on harvesting from 'natural veld') on fynbos diversity in the Agulhas Plain. A vegetation survey will be performed to elucidate information about the impacts certain farming activities have on the structural and floristic composition of fynbos. We present preliminary results from our vegetation survey on the impacts such practices have on diversity. The insights gained from this study will aim to facilitate sustainable fynbos farming activities for the Agulhas area.

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SAAB bursar

The effect of water stress on the concentration of artemisinin and other metabolites in *Artemisia annua* L.

J.M. Van der Hout, J.J.M. Meyer
Department of Plant Science, University of Pretoria, Pretoria 0002, South Africa

Malaria is one of the deadliest diseases worldwide. An increasing problem is the malaria parasite's resistance to the existing anti-malarial drugs. The discovery of artemisinin from *Artemisia annua* L. has provided a new class of effective antimalarials. The extraction of artemisinin from *A. annua* plants remains the only source of the drug. Due to the low artemisinin content in *A. annua*, strategies to increase the artemisinin content must be evaluated. By applying water stress to *A. annua* plants we evaluated the effect on the concentration