

Restoring a grassland site at Random Harvest with minimal intervention. The site was previously used for grazing and infested with alien wattles...it had never been ploughed.



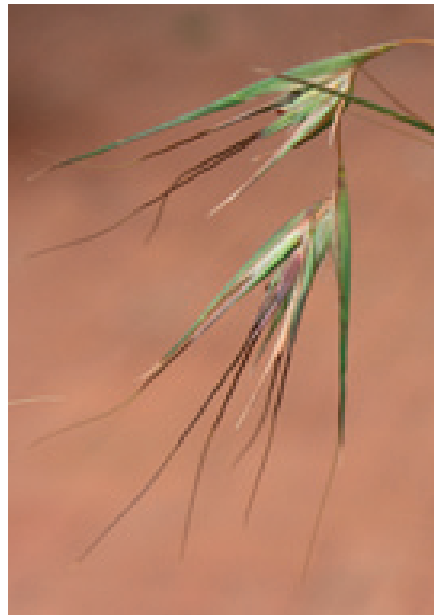
RESTORATION OF GRASSLAND

At Random Harvest, Muldersdrift, Gauteng

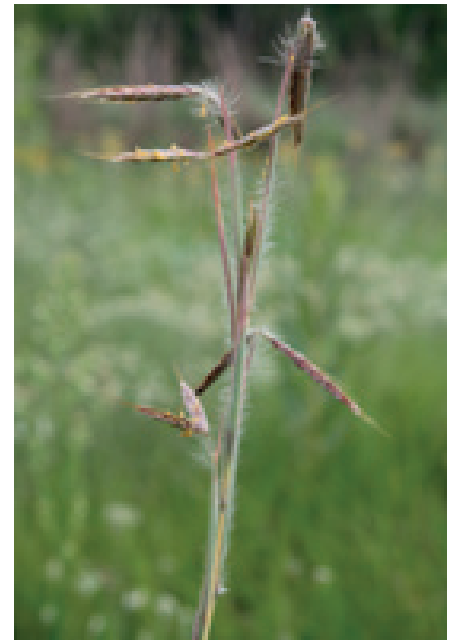




Eragrostis capensis (Heart-seed Love Grass): a subclimax perennial tufted grass that favours moist soil and flowers from September to May.



Themeda triandra (Rooigrass), a climax grass, has been coming up in the grassland. The long black awns are designed, when wet, to spiral the seeds down into the soil.



Hyparrhenia anamesa looks like *Hyparrhenia hirta* but its racemes point outwards and downwards. It grows in conjunction with the latter.

Random Harvest is best known for its indigenous plant nursery which grows and sources a wide selection of South African indigenous ornamental plants for both the wholesale and retail trades...but it is still a working farm with a dairy herd, poultry, vegetable garden and beehives. There are guest cottages available so that the farming experience, unknown to so many city dwellers, can be enjoyed; along with walking and bird watching, as the 21 ha property has a bird list of 146 species.

Nurserywoman Linda De Luca has become a great 'grassland enthusiast' over the years and now her love for grasslands knows no bounds. About 25 years ago, she and her mother (who is the farmer) decided to remove a dense invasion of Black and Silver Wattle (*Acacia mearnsii* and *A. dealbata*) from an area of disturbed grassland on the farm. They were determined to rid the area of this forest of invasive wattles and encourage the grass to re-establish itself, initially for grazing purposes. About 12 years ago her interest in grassland deepened and she became intent on restoring the site, which had never been ploughed, to as close to climax status as possible... with minimal intervention.

Carol Knoll, editor of Footprint Limited, has been watching and photographing this gradual restoration process over many years, and the past summer season with its good rains seemed like the right time to photograph the area thoroughly, with its escalating herbaceous species population... and discuss the procedures used to attain this restoration with Linda and her right-hand man, Jeffery Mapila.

This re-establishment has not been done in a strictly scientific manner but could probably still be designated as 'restoration ecology' ("The establishment on a disturbed site of the plant and animal community which existed there prior to the disturbance." *Oxford Dictionary of Ecology*) and is something that could be followed by property owners who have areas of degraded grassland and want to make a difference. Our grasslands are fast vanishing.

After the alien invasive wattles had been felled and used for firewood by the staff, horses and cows roamed the area and ate the wattle saplings, helping to keep the

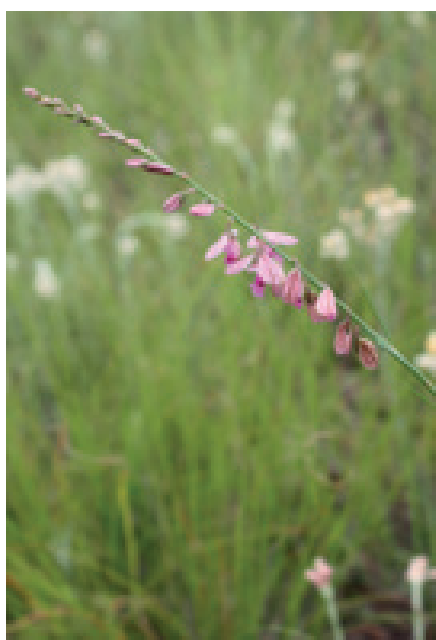
population under control. Linda says ridding the area of the wattles was a slow process over the years and, even to this day, a wattle sapling pushes its way through periodically from the original enduring seed bank. On part of the site, Linda's mother Rita planted a bush cluster of locally indigenous trees which were not cultivated but left to grow naturally. These trees look perfectly natural between the grassland and the wetland adjacent to the earth dam which was built on the farm 45 years ago and then clad with bentonite 16 years ago. The area in the process of restoration is about 6ha in extent, including the dam.

"Grass came up initially after the felling of the wattles and this was largely *Hyparrhenia hirta* (Common Thatching Grass) probably because it had been overgrazed in the past. When we made the decision to restore the grassland twelve years ago to attain as much biodiversity as possible, the journey really began. Firstly, the small herd of cows was removed," comments Linda.

"I started to learn about grasses initially from observation only...for example, that *Hyparrhenia hirta* seeded late in the season, once most of the more desirable grasses had finished seeding. We were able to cut and remove the *Hyparrhenia* before it seeded,



Pelargonium luridum (Waving Pelargonium) blowing in the wind on the re-establishing grassland. Peak flowering time is November/December.



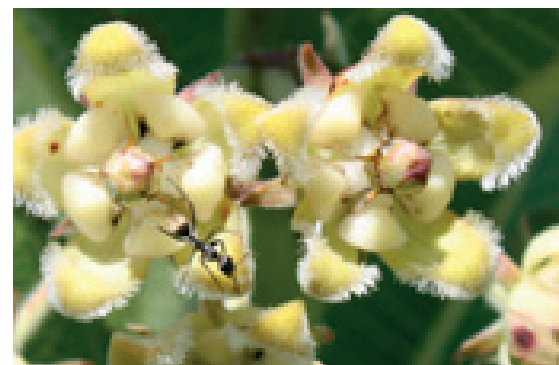
Polygala hottentotta (Small Purple Broom), species named after the Khoi-khoi people. *Polygala* (poly – much and gala – milk) refers to a myth that certain species of this genus would increase the milk yield of cows.



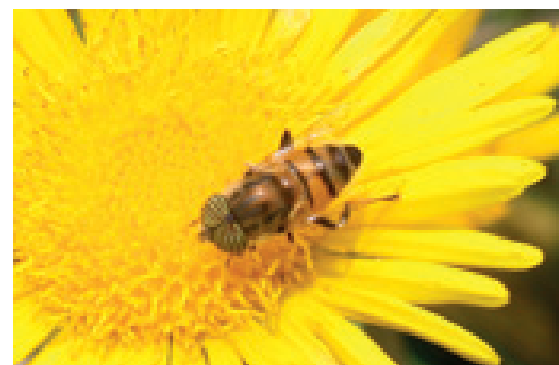
Hypoxis hemerocallidea (Star Flower) with its ranks of sickle-shaped leaves grows from a large tuber and is a flagship species of the grasslands – threatened by collection for the traditional medicinal trade because it is used to treat HIV... and is incorrectly assumed to be a cure for AIDS.



Vigna vexillata (Narrow-leaved Wild Sweetpea), a creeper in grassland habitats.



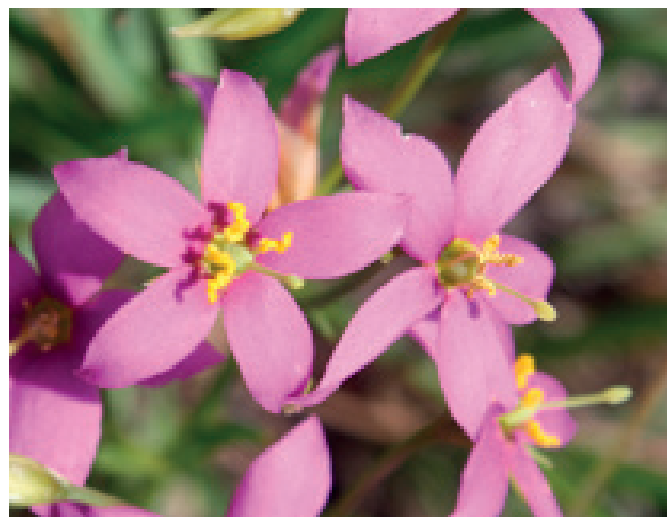
Xysmalobium undulatum (Milkwort) is a grassland plant of the Milkweed family which attracts a multiplicity of different insect species and is widely used medicinally.



Haplocarpha scaposa (False Gerbera) being visited by a fly which is a honey-bee mimic but has no sting.

which helped to curtail its invasive behavior. We also found the slashed grass to be a good resource and were able to make larger quantities of compost. Brands Tree Felling does the chipping for our compost heap.

“Jeff and I spent a lot of time in the grassland at Random Harvest and went to places like Suikerbosrand...and what we did at the outset came mainly from gut feel. When Frits van Oudtshoorn’s ‘Guide to Grasses of southern Africa’ was published, many interested people like ourselves were able to increase their knowledge....learning more about the fire/grassland relationship and grass/plant succession...and we started to identify grasses as the biodiversity increased in our grassland.”



Chironia purpurascens (Chironia): the anthers on the stamens are strongly twisted and come unravelled once the insect has visited – possibly a bee species which ‘buzz pollinates’ the flower to collect pollen, as small anthropoid bees are believed to do to *Chironia baccifera* (Christmas Berry) in the Cape (see explanation in Editorial Comment on page 3). The lefthand flower (see above right) has unravelled anthers indicating that it has already been visited.

Linda emphasises that no supplementary seeding has been done in the grassland, so that everything that has grown there (other than the bushes) has come up naturally.

Slashing is done with a tractor-drawn Falcon slasher and nowadays this is carried out with one third of the site being slashed in March, another third in spring, while the remaining third is left untouched – the three procedures are alternated annually on the three sections. Grass under the bush clump is carefully slashed with brushcutters. Regular weeding is done by a large team of staff and casual labour after good rains, when hand-pulling of tough weeds such as the Tall Verbena species (*Verbena bonariensis* and *V. brasiliensis*) and the notorious Pompom Weed (*Campuloclinium macrocephalum*: (see page 4) is much easier, and most of the root system can be eradicated. The staff has learnt to recognise the weeds and they are very vigilant in their surveillance of the site. There is an ongoing battle against Kikuyu. No tools such as spades or forks are used as these are inclined to disturb the earth unnecessarily making space for more weeds.

Linda relates that at the start of the project, she had done one tentative burn but now the grass is burnt approximately every three years and the increase in both grass and herbaceous diversity has been astounding. She comments that she will never forget the excitement when the first *Hypoxis hemerocallidea* (Star Flower – incorrectly called the African Potato) appeared about eight or nine years ago and the absolute thrill of the first flowering *Pelargonium luridum* (Waving Pelargonium or Stork’s Bill). And now they are everywhere: the Star Flowers with their three ranks of hairy leaves, the plants growing in rows and clusters with their

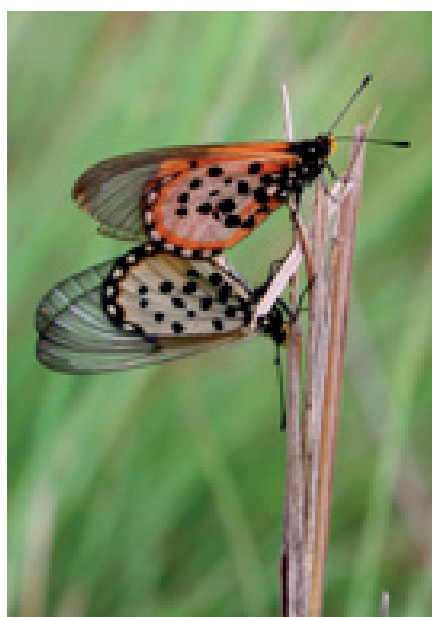
bright yellow flowers in early summer; and the fragile pale pink, cream or beige flowers of the pelargonium waving in the wind on their long stalks...sometimes both flowers and seeds in the shape of storks’ bills are on the same inflorescence.

Linda points out that the Star Flower was chosen as a flagship species indicating the health of our grasslands, as there is a high demand for the fleshy rootstock, the infusions of which are used in traditional medicine. The plant has been much publicised as a “cure” for HIV/AIDS, meaning that it is under threat from over-collection.

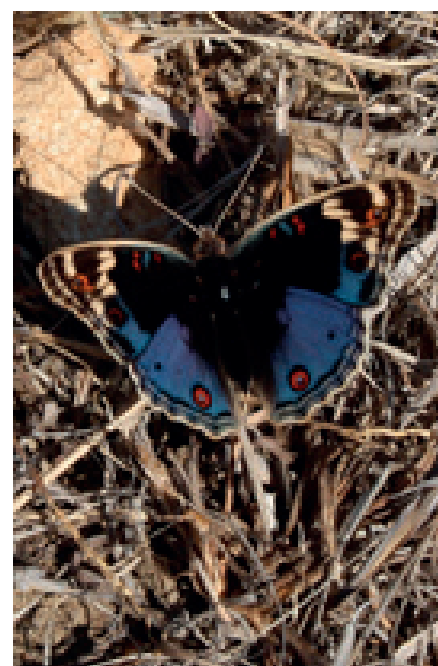
Jeffery interjects with a reminder that the Giant Bullfrog (*Near Threatened* on the Red Data List) is also a flagship species of the grasslands, as the populations are in

decline, because of habitat destruction and degradation, human persecution and illegal collection for the pet trade. Jeffery who has taught himself photography has a good record of most of the species in the re-establishing grassland at Random Harvest and in the marshland around the dam, where in some years the Giant Bullfrogs have bred. The adjacent grassland which is improving in species richness attracts the bullfrogs, as it provides an increasing source of food in the form of insects, rodents, reptiles and small birds.

“The journey of the re-establishing grassland has meant that two Highveld flagship species have returned to Random Harvest. Our piece of grassland changes all the time and is a continual source of joy to all of us,” comments Linda.



Garden Acraea butterflies mating on a grass stalk. Their larval food is the leaves of the Wild Peach (*Kiggelaria africana*) which grows in bush clusters, in grasslands and savannas.



The Eyed Pansy which is seen, invariably singly, on Random Harvest’s grassland in all seasons.

Regular weeding of the grassland being done by the Random Harvest staff.



Grassland birds are on the increase with, amongst many others, species such as the Pin-tailed Whydah, a number of Cisticola species, Cape Longclaw (previously Orange-throated Longclaw), Spotted Thick-knee (previously Spotted Dikkop), African Stonechat, and the

African Wattled Lapwing. The latter breeds in the grasslands at Random Harvest. The Zitting Cisticola with its distinctive - zit, zit, zit - call is a typical sound in the long grassland at Random Harvest. Marsh Owl nests have been found in the grassland and the Black-

crowned Night-Heron has been seen in the vegetated margins of the dam.

Jeffery is collecting grass seed from *Imperata cylindrica* (Cottonwool Grass) in the damp grassland where it occurs naturally round the dam and he is growing plugs from it. These plugs will be replanted in proximity to the dam to enhance the growth of this species and thereby, hopefully, encourage the Vulnerable Grass-Owl to breed there; a procedure recommended by Matt Pretorius of the Anglo-African Grass-Owl Project of the Endangered Wildlife Trust (EWT). Linda reiterates that this seed is only being taken from the immediate vicinity. No ex-situ seed has been brought in during this restoration project.

Article by Carol Knoll. All photographs taken at Random Harvest's grassland by Carol Knoll, except the bullfrog photograph which is by Jeffery Mapila.



The Giant Bullfrog in the grassland at Random Harvest: populations of this *Near Threatened* amphibian are in serious decline in Gauteng.