

two days. After removal of visible outliers from the training set Principle Component Analysis plot, 100% cross-validation was achieved for all four methods. To-date, the ability of the calibrated Cyranose® 320 instrument to categorise cane internodes at varying stages of deterioration has been limited. These results suggest that the (1) receptive fields of the hardware sensors are inappropriate for the application, (2) signal processing is unsuitable or (3) the data are inseparable. Currently, Artificial Neural Network analysis is being used to clarify which limitation may be applicable.

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### Vegetation studies of feral horse habitat in the Namib Naukluft Park, Namibia

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The feral horse population on the periphery of the Namib Desert near Aus originated from horses lost during colonization and First World War activities in the early 1900s. Studies indicated that these horses could be a unique population due to their exposure to high selection pressure in an extreme environment. Controversy started to surround the Namib horses when their habitat was included within the Namib Naukluft Park (NNP) in 1986 and different interpretations were given to Nature Conservation ordinance protecting national parks. A purist perceived the horses as exotic with no right to exist in a national park and the horses are therefore a threat to the natural environment. Horse enthusiasts admired the survival ability and freedom of the horses while some animal activists felt the horses were struggling under the harsh conditions. None of the proponents of these arguments had, however, any scientific data available on which to base or contest any of their claims. A study was, therefore, undertaken to evaluate the justification of the horses to remain inside NNP and also to provide baseline information and recommendations regarding management of these horses. This poster only addresses certain aspects of the botanical component of the study. The vegetation composition was studied as basis for further vegetation studies. Five major plant communities and 11 sub-communities were identified. Grazing capacity values were calculated with conventional methods and then compared and adjusted using real animal numbers and field experience of the study area. This resulted in a proposed range of numbers of animals that could be sustained in different communities, based upon total rainfall of the preceding 12 months. The proposed numbers are within the range that the horse population

has fluctuated during the past 10 years. These numbers should be used at any specific time to serve as a forecast or warning of possible emergency situations arising, rather than as an indication to initiate population control actions.

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### Lack of reward promotes outcrossing: Nectar supplementation experiment with *Disa pulchra* (Orchidaceae)

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One explanation for the widespread absence of floral nectar in many orchids is that it causes pollinators to visit fewer flowers on a plant, and thus reduces self-pollination. This, in turn, could increase fitness by reducing inbreeding depression in progeny and promoting pollen export. The few previous investigations of this hypothesis have all involved bee-pollinated orchids and some have given contradictory results. We studied the effects of adding artificial nectar (sucrose solution) to the spurs of a non-rewarding long-proboscid fly-pollinated orchid, *Disa pulchra*. Addition of nectar significantly increased the number of flowers probed by flies (2.6 fold), the time spent on a flower (5.4 fold), the number of pollinia removed per inflorescence (4.8 fold), and the proportion of removed pollen involved in self-pollination (3.5 fold). The level of self-pollination increased dramatically with the number of flowers probed by flies. Experimental self-pollination resulted in fruits with only half as many viable seeds as those arising from cross-pollination. Pollinators were more likely to fly long distances (>40 cm) when departing from non-rewarding inflorescences than when departing from rewarding ones. These findings provide support for the idea that floral deception serves to reduce pollinator-mediated self-pollination.

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### Do we have the answers to the fairy circles yet?

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