BEAUTY AND THE BEAST
A Cape orchid pollinated by horseflies

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Nature is full of surprises, including the most unlikely partnerships between flowers and animals. Mice pollinate some proteas, bats pollinate many tropical trees and sex-starved male wasps pollinate orchids that smell like female wasps.

But who would have dreamed that horseflies, those most reviled of insects, could be the agents responsible for pollinating beautiful Cape flowers, including many ericas, gladioli and pelargoniums? Anyone who has ventured outdoors during the Cape spring will know that female horseflies are fond of sucking blood in true draculian fashion. The protein-rich blood is used for nourishing their developing eggs. But both the male and female horseflies require large amounts of energy for flight: they obtain this energy from nectar which is rich in sugar. Most of the Cape horseflies have long syrinx-like mouthparts which they use for sucking nectar out of deep, tubular flowers.

The discovery that Disa draconis, a beautiful Cape orchid, is pollinated by horseflies was made a long time ago (see accompanying box) and then forgotten until we began searching for the pollinators of disas. After two years, and many painful horsefly bites, we eventually caught horseflies on Table Mountain carrying the large and unmistakable pollen masses (pollinia) of D. draconis. The flowers have long spurs into which the horsefly plunges its proboscis in search of nectar. As the fly probes deep into the flowers, pollinia are neatly attached to the base of the proboscis. Then, as the fly moves between the flowers, pollen from the dangling pollinia is deposited onto the...
stigmas of successive flowers, completing the process of pollination.

There is a twist in this biological tale of beauty and the beast; *Disa draconis* has beautiful flowers, but is really the 'beast' as it offers no nectar in exchange for pollination. The flies probe the flowers in vain, deceived by the attractive flowers with their empty promise of nectar. Horseflies, despite their evil reputation and beastly appearance, are actually invaluable to the plant community - without pollination by these creatures many plants such as *Disa draconis* would not produce seeds and therefore not reproduce. So spare a thought for those poor persecuted horseflies, without which the Cape flora would be a lot poorer in plant species.

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**THE VALUE OF HERBARIA**

Herbaria contain not only plant specimens but also valuable correspondence from the past. During research at the University of Cape Town's Bolus Herbarium we found a tiny painting of a horsefly accompanied by a letter addressed to Harry Bolus (who had written a book on South African orchids). An extract from the letter, written by schoolteacher Celestine du Plessis in 1911, reads as follows: 'I thought the enclosed drawing might interest you. It is a lifesize copy of a bee or fly brought to me by one of my pupils; it was dead when found, but had a perfectly fresh pollinium of an orchid adhering to its chin. As far as I could discern, the only orchids flowering at the yellow Satyrium. Judging by the insect’s long proboscis and the appearance of the pollinium as seen under a magnifying glass, I should think it had been visiting a *draconis*'.

The teacher was right: horseflies do pollinate *Disa draconis*. There are two lessons in this story. Firstly, the wisdom in preserving seemingly trivial correspondence which may turn out to be of great interest to researchers in the future (in this case eighty years later). Secondly, the public can contribute substantially to our knowledge of natural history simply by recording unusual observations made in the field.