

Scale insects on ericas

An apparently natural, unnoticeable threat to local biodiversity

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An excursion into the Limietberg Nature Reserve in the Bain's Kloof Mountains during the winter of 2006, one that I have undertaken regularly over the past ten years or so, had revealed a noticeably high number of dead and apparently dying individuals of *Erica* species. Against the backdrop of a seemingly unchanged landscape, these dead plants stood out like a sore thumb, largely because it was a somewhat familiar landscape to me. A closer inspection revealed a near invisible, seemingly unnoticeable threat.

What first caught my attention was the number of common honeybees swarming around and then diving into these ericas. This seemed strange behaviour because it was winter in the Western Cape and these ericas were past their flowering time. What could possibly have been attracting all these bees? Upon closer inspection, the answer became all too apparent. Along the stems of straggly-looking and near lifeless ericas, where numerous scale

insects, clustered together like puss-filled, charcoal-coloured sores festering on a long-infected wound. The bees were in fact sipping what appeared to be watery secretions oozing from the scale insects. This explained the presence of the bees on plants that were not in flower.

After carefully examining the scale insects, I noticed that the insects themselves were creamy to light brown in colour. What was causing the unsightly, black, charcoal appearance was the build-up of a growth called sooty mould, usually caused by saprophytic fungi. Sooty mould usually establishes as a secondary infection on plants infested with sap sucking insects such as aphids or scale insects which produce a sugary secretion called honeydew. As the honeydew drips down onto leaves and branches, it provides an ideal environment on which the sooty mould grows, a phenomenon more prevalent under damp (winter) conditions.

Sooty mould is generally not considered a disease because it typically does not infect the living plant tissue. Heavy coverage on the plant's surfaces by the fungus can, however, reduce photosynthesis, but does not appear to harm the plant in any other way. The presence of sooty mould is often an indication of insect activity, which has the potential for causing damage.

The real cause of the damage is the scale insects. These insects cause damage by sucking out vital plant sap, often stunting the plant's growth. In some instances, scale insects have been reported to weaken plants by making them susceptible to environmental extremes or damage from secondary pests such as borers, which may ultimately kill the plant. In addition, weakened plants may become more susceptible to a whole range of pathogens, particularly bacteria, that may enter the site of an infection. Death of heavily infested plants is possible in severe cases, as was evident in

The woody stems of many ericas were covered in numerous blister-like scale insects, their secretions causing the formation of charcoal-coloured sooty mould. July 2006. Photo: G. Maneveldt.



these ericas of the Limietberg Nature Reserve.

But what are scale insects? These are a peculiar group of insects that look quite different from those we encounter every day. Scale insects derive their name from the shell-like, protective covering they form over themselves. Upon hatching from eggs, immature scale insects are soft-bodied, mobile and are termed 'crawlers'. Those crawlers who secrete protective shells and mature to adulthood after finding suitable sites in which to feed, are all females. Mature male scale insects are small, fly-like, never eat and so usually die within a day or so, and are thus rarely seen. The small size and general lack of mobility of scale insects make them difficult to notice for the casual observer.

Scale insects are generally very difficult to control. While there are a number of chemical, organic and mechanical remedies to eliminate scale, by the time the symptoms are noticed, the effects of these insects have usually been under way for some time. This makes effective treatment and recovery of the plants particularly difficult.

After my initial encounter of this phenomenon in 2006, I assumed that it was probably a seasonal occurrence as I had never observed this in previous years. I have subsequently returned to this site every few months for two years and, while I have not observed any marked scale infestation or their sooty mould aftermath as I did in 2006, I have yet to find any recovery of those individuals that were so heavily infested. Notably, most of these individuals have died leaving a landscape dotted with straggly, leafless erica skeletons. Strangely, the interaction appears to have only been resident on ericas and then only in one location that I am aware of. While there appears to be no obvious danger to the rest of the local plant community, it certainly is very concerning that such localized loss of biodiversity is occurring apparently quite naturally. 🌱

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TOP: The surrounding landscape was dotted with such lifeless ericas. Note the number of dead individuals in the foreground. The scattered grey shrubbery in this landscape is all dead ericas. March 2008.

ABOVE: While the scale insects and the sooty mould may have disappeared over the preceding summer months, this erica had not recovered from the effects of the scale insect infestation of the previous winter. February 2007.

Photos: G. Maneveldt.

WHAT DOES THAT MEAN?

Fungus A plant-like organism that cannot produce its own food and so feeds off other organisms to survive. Fungi include mushrooms, yeasts, rusts, moulds, and mildews.

Hyphae The threadlike part of the growing portion of the fungus.

Pathogen An organism capable of causing disease. They are usually microscopic and thus invisible to the naked eye.

Saprophyte An organism that obtains its nutrients from dead, dying or decaying plant or animal matter.

BELOW: A close up showing a large blister-like scale insect. Note also the many fungal hyphae (visible as tiny hairy strands) growing on the stem of this *Erica*. July 2006.

BELOW RIGHT: Here a common honeybee is seen sipping honeydew from the scale insects. Note the many scale insects clustered like festering sores and the sooty mould completely enveloping the woody stems of this *Erica*. July 2006. Photos: G. Maneveldt.

