

Death among an unrecognised South African jewel, *Euphorbia ingens*.

Prepared by Johan van der Linde

The Euphorbiaceae is one of the most diverse and largest plant families in the world. This extraordinary family includes 300 genera and 7500 species, of which 870 are known to be succulent. Several species occur in South Africa, of which *Euphorbia ingens* (naboom) is the largest. This tree, with a succulent crown and woody main stem when mature, can reach heights of up to 10 meters. This huge size is reflected in the name of this tree as the Latin word “ingens” refers to.



Figure 1: A healthy *E. ingens*

Euphorbia ingens has a wide distribution in South Africa occurring in different soil types, habitats and geographical locations. Places of occurrence include the Limpopo Province, Gauteng, KwaZulu-Natal, Mpumalanga, North West province as well as Swaziland, Mozambique and Zimbabwe.

As we all know beauty comes with a price and with *E. ingens* it's no different. The succulent colossal branches of *E. ingens* contain a milky latex which is known to be poisonous. This latex is very irritating to the skin, leading to the burning and eventually the formation of blisters on the skin. When in contact with the eyes this latex can cause temporary blindness with cases of permanent blindness. Local cultures consume the latex mixed with sugar with the belief of curing cancer and ulcers – fatalities have occurred with the overdose of this dangerous latex.

In the last 20 years it has been observed that the *E. ingens* trees in the Limpopo Province are becoming diseased and are starting to die very rapidly. In 2006 a survey was conducted by Mrs. Rentia Malan at the National Zoological Gardens Biodiversity Conservation Center (NZG) in Mokopane (Potgietersrus). Her shocking report revealed that more than 90% of the *E. ingens* trees in this area are diseased and dying. In 2007 Prof. Jolanda Roux (CTHB) collected samples from diseased and dying trees in three surveys from the NZG in Mokopane. The aim was to describe the disease on the trees and identify the fungi and insects that are possibly associated. Various genera of fungi were isolated including species of *Cibiessii*, *Fusarium*, *Lasiodiplodia* and three genera of the Ophiostomatoid fungi including two which represent undescribed species. Insects found included genera in the Curculionidae family (Roux et al. 2008, 2009).

At the end of 2008 Prof. Jolanda Roux proposed the need and urgency of a project to investigate the mortality of *E. ingens* in more detail. My MSc project will thus focus on the naboom, *E. ingens*, and I will try to come to a better understanding of why these magnificent trees are dying. I started my project with a field trip to the Limpopo Province, together with Prof. Roux and two fellow students, in March 2009. On this field trip I came to realize the reality and severity of the decline and death of these trees. I also very quickly learned the reality of working with these trees and their milky latex!

During my first field trip to collect samples for my study we visited two sites where *E. ingens* trees have been observed dying. The first was the Last Post Private Nature Reserve and the second was the National Zoological Gardens Biodiversity Conservation Center in Mokopane. We observed different symptoms, ranging from the grayish discolouration of the branches, to brown discolouration and collapse of branches. Various spots and growths were found on the segments of the succulent branches from which I have already some isolations. We also logged specific trees with GPS coordinates at both areas visited for disease progress studies that will be done throughout the year at three month intervals.



Figure 2: Battling with the mighty *E. ingens*.



Figure 3: Standing with the incredible *E. ingens*, from left to right, Lorenzo Lombard, Johan van der Linde and Tuan Duong Anh.



Figure 4: (A) Typical symptoms of a diseased *E. ingens* tree, (B) A dead collapsed *E. ingens* tree.