

Short report on plant species survey done in Lower Tokai in 2019

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1. Introduction

A plant species survey was done in October and November 2019 for the lower section of Tokai Park for Parkscape. Eugene Moll contacted myself to do the survey and he introduced me to the site in October 2019. A plant species list produced by Tony Rebelo was provided. This list covered a wider area and included the more mountainous parts of Tokai. The main aim of the survey was to provide a definitive list of what was currently occurring in Lower Tokai Park (the part below Orpen road). The iNaturalist website was also used to include species that were not seen in the November 2019 survey. I was also asked to provide various trait data (e.g. longevity, growth form, abundance, distribution) for each species as well as their current red list status. The site was visited twice and several hours were spent searching through all the different parts and recording plant species seen. My brief was to provide an excel spreadsheet of the data, and this short report to summarize the findings was requested afterwards.

2. Findings

2.a. Comparison of the list provided and what was found

The list provided included 622 species. The exact area that was covered by this list was never clarified, nor the date when the list was produced, but it seems that most of the list was generated based on entries on the iNat website. About 71 % (445 species) of the species on the list provided were not recorded in the Lower Tokai area, neither by my survey or on iNat.

2.b. Brief description of what was found

The plant species survey found a total of 314 plant species occurring in the lower section (below or north of Orpen road) of Tokai Park, of these 69 were exotic species and a further 18 species are "indigenous" species that were planted or introduced and that would not have occurred on the site naturally in its pristine condition. Further, there were 7 red listed species that have been established on the site that probably did occur on or near the site historically, and two of these are extinct in the wild. Thus in 2019 there were only 220 species naturally occurring or truly indigenous species on the site.

A thorough scan of plant species entries on iNat added 103 species to the list of species seen in the 2019 survey. An assessment of these species shows that most of them are species that appear only in the first or few years after fire, and so were probably only existing in seed form, or as dormant geophytes, at the time of the survey. Six of these species were exotics. Thus, if the indigenous species recorded on iNat are added to the list of species seen in the 2019 survey then the total number of species was 314.

A total of 128 species were added to the original list that was provided. It is not clear as to why these species were missing from that list, but for the most part they are probably just obscure species that are easily overlooked. However, it is strange that 16 of these 128 were added by searching through iNat entries (i.e. they were not seen in the 2019 survey), because one would think that if the list was

generated by using iNat, then these species should have been included in the list provided. 74 of the 128 species added to the list were exotics.

2.c. Analysis of red listed species

A total of 31 red listed species were recorded on the site. 12 of these were present as a result of being re-introduced (either by sowing seed or planting young plants). 2 species (*Erica turgida* and *Erica verticillata*) listed as “Extinct in the Wild” had been successfully re-introduced. Of the 7 species listed as “Critically Endangered” 5 had been re-introduced. A recently described species, *Schoenus inconspicuus*, listed as “Critically Endangered”, was discovered on the site during the 2019 survey. There were 9 species listed as “Vulnerable”, 4 as “Endangered”, and 9 as “Near Threatened”. Previously unlisted, *Ficinia fastigiata* (listed as “Vulnerable”), was found in the wetter section of the park, and where the soil is deeper and tall specimens of Keurboom, *Virgilia divaricata*, are found. This suggests that the habitat where these plants grow might be able to support indigenous forest, but only if those areas were protected from fire for long enough time for them to properly establish. However, fires represent the key to the recovery, maintenance and long-term conservation of fynbos biodiversity, and this fynbos ecosystem supports more of the red listed species. Further, there is considerable doubt about whether Forest or dense thicket was ever well established here.

It is interesting to note that only 15 of the species found and listed have a distribution that is limited to Cape Flats Sand Fynbos. The other indigenous species are more widespread and are not limited to this habitat. Further, almost half of them (7 species) have been specially reintroduced to the site (i.e. they did not recover naturally from existing seed banks).

2.d. Note on restoration and conservation importance

Considering the history of what has happened, this site demonstrates the extraordinary ability of the natural fynbos ecosystem to recover and flourish, if the natural ecosystem processes (i.e. fire) are used for restoration. Although the site might appear to be dominated by a few common indigenous species and many weeds, there are also many less common indigenous species present, many of which are of conservation concern. The site includes a variety of wetland habitats as well as a complicated array of plant communities linked to soil type and depth, and the extent of seasonal water logging. The large number of exotic species recorded, that includes many invasive species, shows how vulnerable the system is to being transformed. There are numerous other threats to the restoration of this site, and without the appropriate management interventions, it seems likely that the biodiversity will become more impoverished with time. The site represents a unique opportunity to conserve a critically endangered ecosystem in an urban setting.

2.e. Note on additional data in the spreadsheet

Other trait data provided with the spreadsheet has not been analyzed in this report. However, this information can be used to decipher how vulnerable the species are to becoming locally extinct. One of the remarkable features of the site was how few individuals were seen of some of the less common species, but what was more remarkable was that they were present, and that the potential for their population numbers to grow exists.

3. Summary and conclusion

This plant species survey has helped to highlight the conservation importance of the site. It has also shown that producing a species list based on citizen science (i.e. the iNaturalist website) is not necessarily going to capture all the species, and that surveys by experts will produce a more accurate

assessment of what occurs on the site. It is extremely important to conserve this critically endangered fynbos remnant.

4. Acknowledgements

Parkscape for initiating and funding the survey. Eugene Moll for introducing me to the site and provided guidance in compiling the spreadsheet. Tony Rebelo for providing the species list for the wider area. The iNat website for providing the data so that species not visible at the time of the survey could be included. Friends of Tokai for the alien clearing work and other conservation efforts. Table Mountain National Park for allowing access and protecting the ecosystem. Tammy Elliot and Muthama Muasya for describing *Schoenus inconspicuus* so rapidly.