

Introduction

I have inspected your site as requested on the 16th January 2017. The site being Lot 7, 619 Orton Road, Oakford. You have asked me to provide an opinion as to the possible causes of vegetation deaths at the site.

Site

The site has a vegetation complex typical of the sandy soils of the Swan Coastal Plain. The site houses Melaleuca/Banksia association with *Melaleuca preissiana* common throughout the site suggesting the site is subject to periodic water logging. In a small area in the north east section the property Marri/Jarrah association is evident.

Observations

Traversing the property from south to north no areas of vegetation collapse were observed in the majority of the site. Isolated tree death was observed throughout the site however I would not consider this to be abnormal. A significant area of vegetation collapse was observed in the north west corner of the site immediately opposite the neighbour's leachate retention pond. The area of vegetation collapse extends from the boundary fence for c.150m south east into the property. A further area of vegetation collapse was observed along a drain running east west along the northern boundary of the site.

These two areas of vegetative collapse had the following characteristics:

- a) The vegetation deaths seem to have occurred concurrently across a range of species suggesting some form of perturbation rather than a gradual attrition process.

- b) The vegetation species which have died includes species susceptible to *Phytophthora cinnamomi* root rot and species not normally associated with death caused by *P.cinnamomi*. As such it is unlikely that the observed vegetation deaths are caused by *P.cinnamomi* root rot.
- c) It may be possible to attribute the vegetation deaths to a rise in soil salinity levels. While this may be a possible cause of the ulcer next to the leachate dam it does not explain the vegetation death along the drainage line. A check of the water sampling being undertaken should confirm whether salt is a possible cause.
- d) It is unlikely that the ulcers were caused by a climate event as the ulcers are too isolated. If a climatic event was to be the cause of the vegetative collapse I would expect to find similar ulcers elsewhere on the site.

In an attempt to explain the ulcers I have examined a series of aerial photographs taken from 26 May 2008 to 11 January 2017. The photographs show that the vegetation within the new ulcers was in good condition until 2013 where the first signs of decline appeared. By January 2014 the ulcers are clearly evident.

It is noteworthy that the Standing Committee on the Environment and Public Affairs Report⁴⁵ reported a discharge from the Bio-Organic's site onto an adjacent property (the subject property) which was found to contain elevated levels of nutrients. It is particularly noteworthy that the reported discharge occurred in August 2013.

The Standing Committee goes on to explain that the facility immediately adjacent to your property "was able to receive at least 87 million litres of Controlled Waste without the authorisation, or apparent notice of the regulatory authority". For this and other reasons "Comprehensive investigations and ground water monitoring have commenced in accordance with the Contaminated Sites Act 2003 and until those investigations conclude the nature and extent of contamination is unknown".

Conclusion

Given that I am unable to identify the cause(s) of the vegetation collapses on the northern boundary of your site and the coincidental timing of the collapse and a discharge event I would suggest observing the ground water monitoring process very carefully particularly results from around 2013/14.