Land and Environmental Weed Management at the Copping Landfill Site Winter 2018

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Background

Since 2010 extensive land management at the Copping Landfill Site has been carried out, including mapping and managing of environmental weeds, such as Gorse, Spanish Heath, Pampas Grass, Serrated Tussock, African Boxthorn, Californian and Scotch Thistles and Horehound. In addition to ongoing weed management, further environmental management has included erosion and run-off control as well as an ongoing revegetation program.

All environmental weed sites have been visited and managed annually. Populations change yearly in response to weather events, such as bush fires or high precipitation events, as well as land alteration associated with land use and tip operations.

2018 Site Observations

Following observations from 2017, of Spanish Heath expanding in distribution, a similar situation was faced in 2018. Following a wet winter of 2016 Spanish Heath had expanded noticeably, populating new areas along the boundary track. Extensive work was carried out along newly invaded sites during the winter and spring of 2017 with high success rates. However, during work carried out over the past months, a similar picture was observed, this time along the road side of Blue Hills Road, as well as an area South-West of the tip. Spanish Heath has spread and expanded in distribution remarkably. Extensive work targeting the newly established Spanish Heath individuals and populations was conducted, also observing and targeting the spread of Gorse, as well as a new Serrated Tussock population within the same area.

Areas around the landfill site have been subject to development, involving earth works and minor clearing of vegetation. Bare ground provides an ideal environment for Serrated Tussock. The area subject to the recent land development is known to be populated by a managed Serrated Tussock population. A pro-active response of establishing a competing cover crop of Rye Corn, Rye Grass and native tussock (*Poa labillardierei)* followed by fertiliser and lime, established well, providing a ground cover. Early Serrated Tussock seedlings were outcompeted and establishment of plants limited.

Dense rye grass ground cover

Well established native tussock (*Poa labillardierei)*

The back paddock of the Copping Tip has been subject to weed management over several years. Target species included Gorse, Spanish Heath, Serrated Tussock and Pampas. In 2017/18 a lease was signed with a neighbouring agricultural business to expand their grazing land onto the property. Land covered by this lease included the back paddocks. Land was cultivated by the farmer, leading to concerns of weed spread associated with ground preparation and hence weed seed-bank disturbance. A cover crop of rye grass and rye corn, as well as fertiliser and lime was applied in areas formerly populated by Serrated Tussock. Only two Serrated Tussock seedlings were found and controlled during the winter works, proving the importance of a strong competing cover crop. Several Gorse and Spanish Heath seedlings were found and controlled as well, however plants are within the vicinity of old sites and little or no spread of populations has been found so far. The back paddocks will require further surveying and control where necessary in spring 2018.

In 2018 all known environmental weed sites were visited and treated accordingly. Weed management has been expanded into newly discovered populations and areas.

Environmental Weeds Management, May to August 2018

Gorse

Gorse has been on the target list since 2010. As in previous years, old populations in and around the back paddock were targeted, treating re-growth from previous management, as well as newly germinated seedlings. Outlier plants were treated along the North-Western boundary track and extensive Gorse control was conducted along Blue Hills Road. The Gorse population along the track to the pack paddock showed no re-growth or new seedlings for the first time in eight years.

Gorse management along Blue Hills Road. Photo taken two months after foliar application has been carried out. Plants are showing signs of die back.

Spanish Heath

Spanish Heath may have become the highest priority at the Copping Landfill Site. The weed has spread across the property in numbers and distribution rapidly over the past two years due to disturbance and weather events.

Several new and old Spanish Heath populations and individual plants have been treated along Blue Hills Road. Distribution has doubled over the past year throughout this area. In previous years extensive control was conducted annually, with very little follow up work carried out in spring. However management may be increased to bi-annual control to minimise the ongoing spread of this aggressive invader.

A further area of concern, which is subject to notable expansion of Spanish Heath lies to the South-West of the tip. Spanish Heath is among native heath in this area, thus difficult and time consuming to control. Spanish Heath is well established throughout this area with a staggering amount of seedlings. This area has been managed extensively during recent months, however will benefit from follow up work in spring 2018.

The Spanish Heath population in and around the old quarry south east from the landfill site has been treated extensively over several years. Less than 20 seedlings were controlled during this winter’s control, rewarding for ongoing relentless management and exhausting the weed seed-bank.

Spanish Heath management along Blue Hills Road. Photo taken two months after foliar application.

Spanish Heath management South--West of the tip among native heath. Photo taken two months after foliar application.

Pampas Grass

No Pampas grass plants were found around the old population in the ‘back paddock’, south from the landfill site, despite recent soil disturbance.

Serrated Tussock

Serrated Tussock populates several areas across the property and has been a management priority since management started. There is one main population, stretching over more than two hectares. Annual management of this site entails a range of herbicide applications depending on density and age of individual plants, as well as their location, being within the core or outliers. Further, every year, a competing population made up of native grasses, trees and shrubs have been established. Some years an annual rye corn or Rye grass was applied, providing dense, rapid seasonal growth, competing with germinating Serrated Tussock seedlings. Overall, success rates are very high, with the ecosystem changing from a dense Serrated Tussock mono-culture to a low density population among native rehabilitating vegetation.

In the winter 2018, annual herbicide application was combined with further native tussock (*Poa labillardierei)* plantings. No native trees and shrubs were planted this year, as a disappointing set back was recorded in 2017. Many planted native trees and shrubs had been damaged by an unidentified cause. Suspected causes include high winds, feral stock, such as sheep or deer, but most likely a combination of some of these factors.

Photo showing outlier Serrated Tussock seedling along track behind site office.

Pinus radiata

During a survey in early 2017, a rapid invasion of the neighbouring *Pinus radiata* plantation into native bushland at the Copping tip was noted. Saplings were treated in the winter of 2018. Management will be ongoing, as further sites threatened by its invasion are becoming apparent.

Pinus radiata becoming established across parts of the property

Future Management Recommendations

Over the past years environmental management at the Copping tip has been constantly adapted to suit environmental and seasonal conditions. Management has been proactive and responses reactive to observations of newly emerging environmental and land management issues.

A holistic approach to land management, combining herbicide use, mechanical removal of weed species, establishing native vegetation and cover crops has proven to be successful.

Some areas subject to ongoing weed and land-management have shown enormous environmental and ecological improvement, becoming weed free and naturally rehabilitating. Other areas however are subject to new weed invasion due to changing land use, disturbance, increased traffic and extreme climatic events.

Spring / Summer 2018/19

In the late spring to early summer 2018 Californian Thistle management will be conducted. Some follow up on this year's winter control will be carried out at the same time. Bi-annual control has proven to lead to higher success rates and in some areas to a decreased work load in winter.

In the spring and autumn, establishing of cover crops is recommended in areas subject to recent soil disturbance. In the winter of 2019, ongoing follow up work of known weed populations is recommended, in combination with continuous planting of native grasses.

Photos showing areas subject to recent disturbance

The wetland/ settling ponds at the Copping Tip are subject to Cumbungi invasion. Management of Cumbungi may be considered for spring 2019 or 2020.

Photo showing Cumbungi invasion of settling ponds.