



CENWEST ENVIRONMENTAL SERVICES

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A Preliminary Report on Vegetation Dieback in the Narromine-Trangie Area and Possible Causal Links to Cotton Spray Drift Associated with the Autumn Cotton Harvesting Period.

Introduction

I have been contracted by Macquarie Valley Landcare Group Inc to determine if spray drift associated with cotton farming, particularly at harvest time, has impacted local vegetation communities. I visited the said area on Monday first of November 2021, driving various loops between Narromine and Trangie, along a sample transect approximately (34 x 1) km, inspecting impacted vegetation along the transect.

My Background

I have a background in plant physiology and landscape and wildlife ecology and have lived in the central west for nearly 50 years. I am very familiar with the range of native vegetation and fauna communities across the Central West. I have also interacted over many years with farming communities across the Central Western region in my role as head of the environmental studies unit at the Bathurst campus of Charles Sturt University and as the then Director of the Johnson Centre. I also had a long association with the now defunct Lachlan and Central West Catchment Management authorities, including a period as Deputy chair of the Central West Catchment Management Authority.

My findings and observations

The transect covered included a mosaic of traditional farms given over to grazing and crop production in amongst many cotton farms. Cotton production is associated with the use of many herbicides and pesticides. It is well known that immediately prior to the annual autumn cotton harvest, aerial spraying using various defoliant is used to kill the cotton to facilitate a cleaner and more effective harvest of cotton bolls. Genetically modified cotton is increasingly more difficult to kill and up to 3 over-sprays in one season may be required to kill plants before harvesting. It is also well-known that overspray can travel up to 20 km from the point source as micro aerosols. This is an acknowledged risk factor included in industry publications. I am also aware that cotton farming has been ongoing for around fifty years in this area, but that some cotton farmers have been farming for lesser periods.

Given the intermix of traditional farming and cotton farming properties, aerial spraying of cotton crops will result in micro-aerosols of herbicides at varying concentrations descending on vegetation. The concentration of herbicide drift will be variable depending on the timing of aerial spraying on various properties, prevailing wind speed, humidity, operator adherence to chemical application regulations and other physical factors.

It was very evident during my tour that there was widespread dieback of native and non-native vegetation in the sample transect which is unlikely attributable to the aftermath of the 2017-2020 extended drought. If one travels through other areas of the Bimble Box communities where cotton is not grown, these are mostly free of the dieback visible in the Narromine-Trangie area. Furthermore these 'control' areas have

mainly recovered from the worst effects of the recent drought, unlike the vegetation in the Narromine-Trangie area.

Tentative conclusions

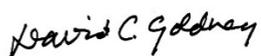
During my preliminary investigation extending over 6 hours plus reflection time, I have come to the following tentative conclusions;

1. Dieback across native and non-native vegetation (Trees, shrubs, herbs and forbs) is widespread, more-or-less continuous but with small and scattered areas of unimpacted vegetation, unlikely the result of the immediate past drought;
2. There appears to be a strong correlation between autumn spraying of cotton to kill cotton plants and adverse impacts on native and non-native vegetation (e.g. leaf necrosis, leaf death during autumn growth spurts, longer term impacts, when after years of ongoing herbicide exposure, native and non -native vegetation reach the point where vegetation death occur or stunted growth continues, leaf death more likely first occurring on canopy tops).
3. A number of landowners also indicated an inability to continue to grow vegetables on their properties because of adverse impacts occurring during the autumn cotton spraying period.
4. Correlation does not necessarily equate with cause and effect, or necessarily implicate cotton aerial spraying in causing dieback symptoms in non-target vegetation. However, it remains the 'best' hypothesis needing to be pursued, that native and non-native vegetation in the Narromine area has been significantly and adversely impacted by herbicides used for killing cotton, very likely causing harm, including death, of non-target vegetation in the drift zones.
5. Furthermore herbicidal concentrations in the multiple and overlapping drift zones may be greatly magnified by multiple spraying events on many properties as well as by local weather patterns.
6. Anomalies such as areas that appear to be not impacted can be explained by differing patterns of herbicide drift and localised micro-climate effects.
7. Given that the EPA have set up a half dozen or so sampling stations across the region, the data from these sources will likely corroborate my preliminary findings, assuming that these are regularly monitored by EPA staff and are fit for purpose.

A prima facie case

In my opinion there is a *prima facie* case that herbicide drift, particularly in the Autumn period prior to cotton harvesting, is very likely the causal agent in initiating the widespread dieback of native and non-native vegetation in the Narromine – Trangie area. I will address the issues that I have raised in this preliminary report in greater detail in my forthcoming substantial report due in late December 2021.

Yours Sincerely



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