MIDCOAST council

Weed management

Q&As Aerial Spraying for Bitou Bush

Photo: Bitou Bush infestation at Elizabeth Beach.

Q:Why do we need to remove weeds from our coastal areas?

Weeds have major economic, environmental and social impacts in Australia, causing damage to natural landscapes, agricultural lands, waterways and coastal areas. It is estimated that the agricultural cost of weeds to Australia is in the vicinity of $4 billion per annum. The cost to nature conservation and landscape amenity is thought to be of a similar magnitude.

Weeds:

- impact severely on agriculture by competing with production, contaminating produce and poisoning livestock;
- impact on biodiversity by out-competing native plants and degrading habitat - with other invasive species, weeds now arguably pose one of the most significant threats to biodiversity;
- cause severe allergic reactions in people, contributing significantly to Australia's health care costs;
- interfere with recreational activities on the water and in the bush.

Q: Does MidCoast Council comply with regulations on coastal spraying? What do NSW Government guidelines recommend?

Yes, MidCoast Council complies with State and Federal regulations relating to pesticide use.
Because of the associated risks, pesticide use and pesticide users are subject to a range of NSW and Commonwealth controls. The Australian Pesticide and Veterinary Medicines Authority (APVMA) assesses and registers pesticides before they are permitted to be used in NSW. The APVMA also reviews the registration

of existing pesticides to ensure they continue to meet current environmental, health and trade standards. Where particular activities or uses are not identified on label of specific pesticides, the APVMA may issue off-label permits to allow certain evaluated practices.

The EPA regulates the proper use of pesticides through the provisions of the Pesticides Act 1999. Many Commonwealth and NSW government agencies, as well as other stakeholder organisations, have a role in managing pesticides in NSW. The EPA's Managing Pesticides in NSW webpage explains the roles of some of these organisations.

Why does the joint team of MidCoast Council, NPWS and OEH undertake aerial spraying?

Bitou bush is a 'high priority' weed species in NSW and a Weed of National Significance (WoNS). In 1999 bitou bush and boneseed were listed collectively as a 'Key Threatening Process' under the NSW Threatened Species Conservation Act 1995 (TSC Act), and later under the Australian Government's Weeds of National Significance initiative.

In 2006 an approved threat abatement plan (TAP) under the TSC Act was released for the 'Invasion of Native Plant Communities by Chrysanthemoides monilifera (bitou bush and boneseed)'. The TAP aimed to abate, ameliorate or reduce the threat posed by bitou bush and boneseed to threatened species, populations and ecological communities. It identified 158 native plant species, three endangered plant populations and 26 ecological communities as being at risk from bitou bush invasions in NSW and 169 high priority sites where control would result in significant benefits to the biodiversity at risk.

The MidCoast region contains many priority sites as identified in the TAP, and numerous other significant areas along our diverse coastal strip that are under threat from invasion by Bitou Bush and many other environmental weeds.

Aerial spraying for the control of bitou bush is undertaken under strict guidelines developed by the NSW Office of Environment and Heritage (OEH) following decades of trials and monitoring (since 1989). This method of control is one of several management actions implemented by key stakeholders to reduce the impacts of bitou bush along the coastal environment, and is particularly useful for inaccessible cliff zones, and expansive infestations.

The high cost of manual control of weeds along cliff zones (via abseil) is somewhat limiting. The cost efficiencies of aerial spraying for bitou bush has enabled MCC and NPWS to treat the majority of the bitou bush infestation along our coastline over the last 10 years.

Photo: Bitou Bush in flower.

Are there any other alternatives to Aerial Spraying? Are new measures considered?

Aerial spraying is just one facet of a comprehensive integrated program.

Weed management in the MidCoast Council area is undertaken utilising Integrated Pest Management principles (IPM). Weed management is an ongoing process dependant on the amount of time a particular species has been present in the environment. One treatment in an area for a species long entrenched in an ecosystem is unlikely to totally control the infestation due to re-emergence from established seed banks.

A variety of controls are used to manage weeds depending on a range of factors such as density and distribution of species, position within the landscape, site specific conditions, effectiveness of available chemicals on specific species and of course label, permit and regulatory restrictions.
MCC proactively investigates the use of new and emerging weed control methods and technologies, and are partners with research agencies, such as DPI, OEH and private consultants in this field.

Given the scale of the weed problem in the MCC area, Council is obliged to maximise efficiencies in the use of public funds to control priority weeds, and as

such, will continue to investigate and utilise a range of treatment methods, such as: bush regeneration techniques, physical controls, mechanical controls (including the use of fire), biological controls, low and high volume spraying, aerial spraying (including the use of drones).

Does Council keep up to date with new methods of environmental weed control?

Yes. MidCoast Council maintains a solid network with weed management professionals from within NSW and nationally, and has strong connections with NSW DPI and other weed scientists. Weed management staff training is ongoing with skills being continually developed and improved.

Are the herbicides Council uses safe? Can they affect marine and wildlife?

MidCoast Council only uses chemicals currently approved for use on specific herbicide labels or associated permits.

Different herbicides are utilised to manage specific weeds in a variety of ways depending on many site specific conditions. Council uses all pesticides in accordance with label and permit requirements. Council also alternates the use of chemicals to help manage herbicide resistance.
In regards to aerial spraying of bitou bush, toxicological and ecological reports contained within the MSDS of both chemicals and other supporting literature indicate, that when applied as per directions on the label (or off label permits) there is a very low risk of either acute or chronic impacts from the use of these herbicides.

To minimise the risk of off-target damage to desirable species, aerial spraying is undertaken during the main flowering period of bitou bush being autumn and winter. At this time of year the plant is in its most vulnerable state and only very low concentrations of herbicide are required to effectively control the bitou bush.
Impacts to the tougher native plants are significantly reduced, with them being able to withstand the low rates of herbicide applied during a dormant stage in the native's growth cycle.

The current aerial spraying program is being undertaken using the chemical metsulfuron methyl. Metsulfuron methyl is is a member of the sulfonylurea family of herbicides and is not a scheduled poison. Sulfonylurea herbicides are used for weed control at extremely low rates (grams per hectare).

The reason sulfonylureas are so effective at these extremely low rates is that they interfere with the activity of an enzyme (acetolactate synthase) found only in plants. Because sulfonylureas are designed to affect only a specific plant enzyme, they have minimal effects on humans, animals and insects.

What happens when it rains after spraying?

The label of specific pesticides contains information regarding timing of applications before rain is expected. These timeframes are adhered to as far as reasonably practical utilising various technology to guide decision making including broad scale Bureau of Meteorology projections and locally collected data. Council officers and contractors they engage monitor weather conditions prior to undertaking any activities involving pest management, and adjust delivery programmes as required.

Weather forecasts are not 100% accurate and are used as a guide to manage risk. The likelihood of rain needs to be closely monitored to maximise efficiencies, ensure continuation of scheduled programmes and for the protection of the community and environment.

Council is required to maintain records for chemical use on land under its care and control. In regards to aerial spraying bitou bush, general conditions are assessed and updated during a day's activities. Prior to the delivery of each load the following measurements are taken and recorded:

- wind speed
- wind direction
- ambient temperature.

Photo: Bitou Bush berries are dispersed by birds and animals.

What results has the joint team achieved with coastal aerial spraying?

In general across both Council and NPWS managed lands, native plant recovery has been very successful following bitou control. Many areas before treatment had bitou bush density greater than 50% that has now been reduced to <10% and in some areas <1%. Two particular sites on Council managed land can boast the following achievements:

Yacaaba Peninsula (Hawks Nest) - in 2006, this area was mapped and the vegetation was dominated by bitou bush (more than 90% coverage). By 2010, the extent of mature bitou bush had been reduced to less than 5%, and native dune species had colonised the area. In 2017, the vegetation is still undergoing change, and the ecosystem is more diverse and complex than prior to the commencement of aerial spraying in 2007.

Nine Mile Beach (Tuncurry) has also undergone significant change through the delivery of an integrated weed management program that has included aerial spraying, bush regeneration methods high volume weed spraying crews, and the tireless work of Tuncurry DuneCare.

What is Council's environmental record?

MidCoast Council has an excellent record as far as environmental protection is concerned. Protection of the environment is a key consideration in planning any activities it undertakes.

Why are people excluded from the area when spraying if the chemicals aren't toxic / harmful to people?

Excluding people from areas during an aerial spraying program isn't only about the risks associated with chemical application. Council has a duty of care under NSW Work Health and Safety Legislation to protect people from harm. The areas managed during aerial spraying activities are work sites, and the level of risk to the community needs to be managed relevant to the activities undertaken. Council considers many factors to keep people safe, sometimes implementing short term inconveniences.

How does the joint team publicise aerial spraying each year?

A comprehensive and collaborative media program is implemented prior to and during an aerial spraying program, which includes paid newspaper advertisements, media releases, website and Facebook notifications, and specific interpretative signage at affected areas.

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