

Case Study – Tree Pear Trial Site

Implementing the Burnett Catchment Strategy

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Organisation Background

Integrated Catchment Management (ICM) is the philosophy that guides the BCCA in encouraging a coordinated approach by natural resource users to the management of natural resources in Queensland.

ICM involves the voluntary actions of stakeholders including government, rural landholders, industry, fisheries and urban dwellers that incorporate the goals of achieving and maintaining a healthy catchment for future generations.

The BCCA was initiated in 1994 and operates in conjunction with four subcatchment groups in the southern, central, eastern and northern areas of the catchment; each of these centres around Kingaroy, Gayndah, Bundaberg and Monto, respectively.

Background to Tree Pear (*Opuntia* spp.)

Prickly pear is the common term for many large, similar-looking cactus species with succulent stems. The stems are composed of fleshy leaf-like joints or pads that are generally flat but may be cylindrical. Each pad is capable of producing adventitious roots and forming a new plant if it falls to the ground. The plants are covered with numerous stout yellow spines that can injure livestock. Some of these plants may grow up to 7 m high and form impenetrable thickets. The flowers are yellow to bright orange and grow on the edge of the stem sections. The fruit is red to purple, pear shaped, fleshy, and contains many small hard-coated seeds that may remain viable for years.



Picture 1. Walls of Tree Pear at trial site

They were introduced to Australia in the early days of settlement, possibly as ornamental shrubs, hedge plants,



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fodder crops or as a plant host for cochineal insects which were a source of valuable carmine dye, in short supply at the time.



Picture 2. Plots of Tree Pear are treated by stem injection

They compete vigorously with more valuable pasture species. Prickly pear is also an alternative host for fruit fly, making it a potential hazard in horticultural districts. The control achieved between 1925 and 1932 with biological agents, mainly the cactoblastis moth (*Cactoblastis cactorum*), is one of the most spectacular examples of effective biological control of a weed anywhere in the world.

Prickly pears are drought resistant and remain vigorous in hot dry conditions. Birds, and animals eat seeds, and animals and floods can distribute pads. (Taken from DNR Pest Facts No. PP29, and Northern Territory of Australia Agnote No. 540.)

Integration of the Burnett Catchment Strategy

Pest management is an integral component of the Burnett Catchment Strategy. Plant pests reduce the productive capacity of the land because they compete for nutrients and water that would normally be used by the crop or pasture production and can be toxic to humans and livestock. They also have the capacity to significantly change the biodiversity of an ecosystem by suppressing the growth of a particular species until it disappears. It is acknowledged that some weeds are invasive and aggressive are not necessary due to mismanagement.



Project Background

The Tree Pear Trial Project was organised by the Burnett Catchment Care Association South Subcatchment Group in order to enhance community knowledge and understanding of pest management in the Burnett Catchment. The project was sponsored through Wondai and Kingaroy Shire Councils, DOW Agriscience Landcare/ICM Grants, Burnett Catchment Care Association, and the Department of Natural Resources and Mines. Dow AgroSciences provided chemicals applied during the project, in addition to a cash grant.

What did the project set out to achieve?

The project was designed to address a range of objectives, including:

- Advancing understanding and management of weeds in the Burnett Catchment;
- Enhancing community awareness and ability to identify areas of outbreak;
- Improving agricultural production through reducing loss of production time, equipment running cost, chemical-control use;
- Demonstrate the benefits of controlling weeds in a pastoral area of the South Burnett and enhancing productivity;
- Demonstrating the use of different chemical types and application methods;
- Promote future weed eradication programs in the district;
- Provide opportunity to trial methods and exchange information and ideas;
- Promotes future research and ongoing trials;
- Demonstrates an integrated approach to management of resources of the Burnett River Catchment and demonstrates Local Government, ICM, Landcare and chemical companies working together.

Project Methods/ Procedures

The Tree Pear Trial Project aimed to assess the effectiveness of various chemicals (**Access, Grazon DS, Garlon 600, Roundup, Starane 200, Access, and Tordon**), and application techniques (**high volume spray, basal spray, stem injection**) on the management of the pest.

The project began in August 1999 when suitable sites were identified at Burrandowan Homestead Rd and Paines Road, near Kingaroy, chosen to be close to the roadside for public viewing.

Essentially, the project involved subdividing trial sites into plots that were subjected to various combinations of chemical and application method. The treatment sites were photographed to develop a photo-monitoring report with the expectation of monitoring both long and short-term plant health to ascertain effectiveness and reliability of the various recommended chemicals and application techniques. After

treatments, the BCCA Association South Subcatchment Group monitored the sites to assess effectiveness of treatments.



Picture 3. A plot of Tree Pear prior to treatment.

The project implementation was undertaken with help from Landcare, Integrated Catchment Management, Local Government, Ag-force and Extension Officers.

The South Burnett Times was invited on the day to capture the community involvement and project development. Each treatment site was to be identified by a sign outlining the method and chemical used.

Project Outcomes

A Tree Pear Evaluation Field Day was held on April 13th, by the South Subcatchment, and was attended by interested landholders, council weeds officers, councillors, and DNR&M officers. Qualitative observations indicated the two most effective treatments were Straight Roundup CT applied by stem injection, and Garlon 600 applied as an overall spray. At the time of observation, both of these methods achieved approximately 90% success rates.

More recently, an inspection on the trial site on 3rd August 2001, approximately 21 months after the original treatment, showed some interesting results.

The original successful treatments of stem injection with Round-up CT, and overall spraying with Garlon 600 with both water and diesel were still showing no signs of regrowth. In addition, the plots which had been basally sprayed with Garlon and diesel (1-30) and Access and diesel (1-9) showed a 90% effective kill.

On previous inspections the clumps of tree pear had all collapsed but had produced numerous new shoots and the treatment had been considered ineffective.

Now almost all the shoots have died and only a few sickly one remain.

In addition, the plot stem injected with Grayon showed about 25% mortality after being quite healthy on previous inspections.

It appears that some treatments may be very slow acting.



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Picture. 4 Collapsed Tree Pear after treatment

For further information on the Burnett Catchment Care Association please contact a Project Officer at (07) 4131 5724. Or visit the BCCA Website at:
<http://www.widebay.net/icm/bcca/>



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