BREMER CATCHMENT ASSOCIATION INC.

around the bremer

November 2020

Special points of interest:

The First Operational Meeting will be

18-02-2021

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Merry Christmas

President's Corner by Bill Steentsma

. Another year ending is insight. Our 25th! Not very difficult to be aware of it as we are having so many Christmas and end of year festivities advertisements in the media.

In October, BCA had its AGM. Yes, it is me again as your President

The Management decided to spread the working load, nominating the First Vice President and Junior Vice President. Furthermore, the Secretarial position in two parts, Correspondence Secretary and Minute Secretary. Also we created a Web-site master as well as a Facebook Master, hoping that both communication channels will be up and running in the New Year.

During the year we had great Meetings. Everyone in attendance participated to the fullest. In particular, the Guest speakers were of high standard.

The primary focus was – ref. Catchment Action Plan 2018-2021 (CAP), Executive summary – and often said by BCA Members, it is the Bremer Catchment. The CAP is endorsed by both Councils. Priority actions are On-Ground Actions and Research, Planning and Policy Actions.

Once again, this newsletter has some interesting topics. The "Bugs for Bugs" article came to us as a "surprise finding", visiting one of my DPI working locations, Mundubbera, in the Central Burnet.

BCA Management wishes you all a Merry Christmas, and Happy/Healthy 2021.
Most importantly, good weather for our valuable catchment.

Bugs for Bugs

Bugs for Bugs specialises in integrated pest management (IPM) and is one of Australia's leading suppliers of biological control agents. Our mission is to help Australian growers achieve best practice pest management with minimal pesticides.

We are a science-based company that:

- has been providing crop protection solutions and bio-control organisms for more than thirty years
- breeds beneficial insects and mites (good bugs to control bad bugs)
- is highly experienced in the field of fruit fly management
- offers a range of non-toxic alternatives to conventional pesticides
- conducts ongoing research and development into biological control and fruit fly management

provides contract research in the field of integrated pest management.

We are proud of our close relationship with other research providers including the departments of agriculture, universities and CSIRO.

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Our main insectary is located at the site of the old butter factory in Mundubbera. We operate more than 50 climate controlled rooms for the production of our biological control agents.

Beneficial insect production is very challenging. Maintaining continuous insect production of each beneficial species requires constant monitoring of the rearing systems and attention to detail. Bugs for Bugs uses around 250 tonnes of butternut squash and 24 tonnes of wheat per year for its beneficial insect production.

We currently produce more than 10 species of natural enemies available to help manage pest problems in a more sustainable way. Each of these rearing systems is complex and labour intensive. Our commitment to research is significant and we are constantly striving to streamline our existing mass rearing systems while searching for new organisms that can help growers with practical alternatives to conventional pesticides.

Our company has a long history of experience in crop monitoring to assist growers in achieving good IPM. We have provided IPM consulting services in countries such as Thailand, Jordan and Morocco.

Bugs for Bugs also offers contract research to evaluate IPM compatible materials including their effect on biological control agents.

Strategic earthworks projects helping to protect Moreton Bay from sediment inundation (HLW)

Healthy Land and Water's Natural Asset Management and Protection (NAMP) team has been busy completing small and large earthworks projects as part of the Healthy Catchments Program, funded by the Department of Environment and Science (DES). The aim of the program, which focuses on the engineered repair and vegetation of creek banks and gullies, is to reduce the volume of sediment entering the RAMSAR-listed Moreton Bay from the upper reaches of South East Queensland waterways.

Channel bank erosion is a major source of sediment and previous studies have identified the Upper Warrill, Upper Bremer, and Upper Laidley catchments as contributing high sediment export loads to Moreton Bay. Accordingly, the 2017-2020 program has focused on large in-stream bank stabilisation projects to reduce sediment and improve water quality in these priority areas. The sediment savings from the repair and stabilisation of actively eroding gullies and stream banks in the priority focal areas has been estimated at 9,072 tonnes annually – with a soil replacement value for this loss of approximately $272,160 (at $30/t).

The images below and above were taken from a site located along a 10-meter area of the Bremer River, which over the past 11 years had eroded 4 meters deep. Approximately 14,000 cubic meters of sediment had eroded, leaving the bank with little vegetation and even more susceptible to erosion than before. Engineered log jams were utilised at this site to ensure long term bank stability and erosion control.

Top Soil Down The River

Article from QT (14 Feb.1980 by Bill Steentsma)

Rain has eroded good topsoil from cultivations in the Ipswich area into local roads and rivers.

This is the direct result of the recent months of heavy storms, according to the Ipswich DPI district soil conservation adviser, Mr Bill Steentsma.

"Most people would notice that the Bremer River does not look very clear," he said.

'Small samples have been taken at random points along the river just after the December heavy storms. These show that silt is passing those points at approximately 6000 tonnes per day during peak periods."

Unprotected

Mr Steentsma said that much of the sloping, cultivated land was unprotected against high intensity storms which usually happened during November, December and January. The least loss had occurred from land which had been either well covered by grass, or from cropping areas which had been protected by soil conservation work.

"There are many farming systems within the Bremer River catchment which use land for agriculture, grazing and horticulture"

"There are many farming systems within the Bremer River catchment which use land for agriculture, grazing and horticulture" said Mr. Steentsma., "Soil conservation should receive a much higher priority."

The Ipswich DPI office has three farm notes written by local officers which explain how to retain valuable top soil.

They are titled, "Soil Conservation Measures for South East Queensland", "Benefits and Costs of Soil Conservation" and "Soil Conservation: A Breakdown Approach".

A section of the 100 km long Bremer River

Paterson's Curse and the Cats Claw Creeper—biocontrol—submitted by Phillip Pulley (Scenic Rim Council)

At our last BCA Meeting Members showed interest in a 'weed profile' for Paterson's Curse and the Cats Claw Creeper (biocontrol) - the Jewel Beetle – helping to manage cats claw creeper. Phillip Pulley (Natural Resources Officer) sent the following information to be included in the newsletter..

Weed Profile:

Paterson's Curse, (*Echium plantagineum*) also known as Salvation Jane and Riverina bluebell has made its presence known in the Christmas Creek Catchment affecting a number of pastures after being spotted and treated by Scenic Rim Regional Council along the roadside.

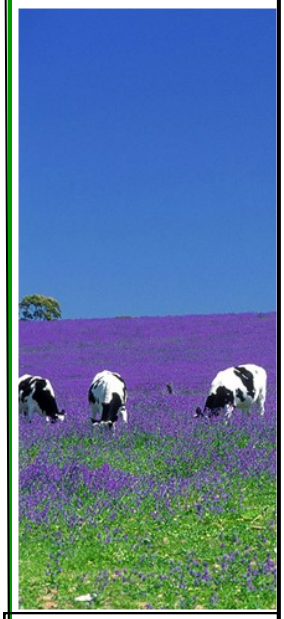
Follow-up inspections are showing that the weed is populating nearby pastures and paddocks. Landholders throughout the Region will need to be vigilant with the onset of the wet season with new weeds likely to have been transported through and to the region with movement of hay and fodder from interstate. Report new and unknown weeds to your local Biosecurity Officer at Council or Biosecurity Queensland.

Information about treatment and control is available in the 'Weeds of Southern Queensland Book' and online from various sources.

Further information and a previous articles on Paterson's curse are available below:

https://www.abc.net.au/news/2020-10-12/patersons-curse-is-invading-canberras-green-spaces-this-spring/12752154

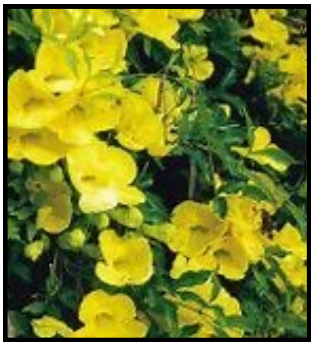
https://www.mla.com.au/research-and-development/animal-health-welfare-and-biosecurity/poisonings/toxic-plants/patersons-curse/



Paterson's Curse in Pastures

Cats Claw Creeper *Dolichandra unguis-cati*

A rampant climber with stems that eventually become very robust and woody in nature. Its oppositely arranged leaves consist of two leaflets and a distinctive three-clawed tendril. Its very showy yellow flowers are tubular (4-8 cm long) with five petal lobes. Its mature fruit are dark brown and strap-like in appearance (15-50 cm long and 8-12 mm wide). These fruit contain numerous papery, winged seeds.

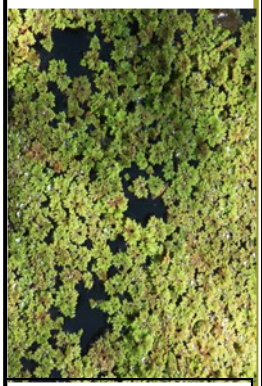


Cats Claw Creeper

TWO WATER-LOVING FERNS by Barry Jahnke , Education Officer

Ferns, like mosses produce two types of spores. The first are the sexual spores which we usually overlook because they are so microscopic and the others are called vegetative spores and we are aware of them by the brown marks on the fern leaves. All ferns need some water for that sexual part of their lifecycle when the male microspores swim to the female macrospores. Freshwater streams and their flood areas are the habitats for two well-known genera of aquatic ferns. One floats on the water and the other needs to be inundated at some stage for spore release.

Azollas are decorative small plants which float on the surface of the water. They belong to the plant family Azollaceae which has only one genus, *Azolla,* and here in Australia, there are two species. The one most commonly seen is *A. pinnata,* which is the larger of the two even if it is only about 3cm long. Large rafts of them may occur in streams and ponds if the water is still and has a high plant nutrient load. When viewed from a distance the surface of the water may look like a manicured lawn but if there is strong sunlight the plants may take on a reddish colour. The cover may be so dense that little sunlight is able to penetrate into the water which results in the decline of the water's ecological balance..



Azollas Pinnata Coulsons

The name comes from the Greek 'aza' for dryness and 'ollyo' for to kill which relates to the plants dying when their supporting water dries up. They produce some spores for survival but when they are in water most of the reproduction is done vegetatively by the plants dividing.

The upper lobes of the plants contain the Blue-green Algae *Anabaena azollae* which fixes nitrogen for the benefit of its host. It is estimated that there may be up to 50 kilograms of nitrogen per hectare being fixed so in some parts of Asia Azolla is incorporated into the rice paddy-fields where it grows well until the rice over shadows it and the dying Azolla then releases the nitrogen to fertilize the rice. An excellent example of the use of a natural cycle

The second fern is usually seen on the stream's floodplains. This in our catchment area is usually *Marsilea hirsuta* (Short-fruit Nardoo) which always looks like a four-leaf clover as the leaves have four radiating lobes. These plants may be extremely abundant in areas where they can be covered by floodwaters. They survive during the dry times by having underground stems called rhizomes.

Most ferns produce their spores under their leaves in brown structures called sori but the Nardoos have separate club-like structures called sporocarps which they produce when they are not inundated. When the floodwaters come these sporocarps rupture to release the spores.

There are about sixty species of Nardoos in the world with six of them in Australia but despite some of them having large distributions, none are found in Tasmania.

The generic name *Marsilea* was given by the Swedish naturalist Linneaus who named it after the Italian botanist Count Luigi Ferdinando Marsigli (1656-1730). The local *M. hirsuta* which means hairy or shaggy, was named by Robert Brown who named many Australian plants. The hairs are important for the plants to shed water which would hinder the leaf's normal functions. (Continue on page 7)

TWO WATER-LOVING FERNS by Barry Jahnke

This Short-fruit Nardoo may not be as hairy as *M. drummondii* (Nardoo) which was named after the first Government Botanist of Western Australia, James Drummond who collected the type specimen from near the Swan River.

This specie is widespread in Australia and has been romanticised by its association with the Burke and Wills expedition when all the party remaining at the Cooper Creek camp, apart from King, died from starvation and malnutrition.

Because this specie produces an abundance of sporocarps on long stalks the local aboriginals collected them and produced a type of flour which was used for baking thin cakes, which are reputed to be unpleasant to eat and so are a supplement and not a staple part of the diet. The flour needs to be washed with water to reduce the enzyme thiaminase which when eaten in large amounts destroys thiamine (vitamin B1) and causes beri-beri. Wills in his diary describes an illness similar to this disease. To make matters worse the party's earlier emergency diet contained camel and horse meats which are known to be low in thiamine.

Marsilea Hirsuta Coulson

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