Western Wildlife

REGISTERED BY AUSTRALIA POST
PRINT POST: 100001740

NEWSLETTER OF THE LAND FOR WILDLIFE SCHEME

April 2015 | Vol. 19, Number 2

CHRONIC DEFOLIATION OF FLOODED GUM

Allan Wills

Flooded Gum (*Eucalyptus rudis*) is a widespread tree in south-west WA along watercourses and lower parts of the landscape. On agricultural land, remnant Flooded Gum is important for soil stabilisation and erosion prevention, and in some areas contributes to the stability of the groundwater table and prevention of salinisation. Remnant trees provide habitat for the relict biodiversity, particularly for birds.

Across large areas of its distribution Flooded Gum is suffering severe, progressive dieback of its canopy. Insect attack is in most cases the cause of this dieback. Flooded Gum is renowned for carrying high levels of leaf-feeding insects and can suffer severe chronic defoliation by insects across extensive areas. Insects associated with this defoliation are Flooded Gum Leafminer (*Perthida* sp.) and Western Horn Lerp (*Creiis periculosus*). Both species can be active singly or in combination in the same dieback event and sometimes another defoliator, the leafblister sawfly *Phylacteophaga froggatti*, can be active as well.

Flooded Gum Leafminer is closely related to the Jarrah Leafminer. The damaging life form of both species of moth is the larval stage which excavates a blotch mine under the epidermis of affected tree species. After October a case is formed by excising the epidermis of both sides of the leaf. The larvae fall to the ground leaving an oval hole in the leaf. Severe attack by leafminer causes

Upper: Healthy Flooded Gum, 2km west of Bridgetown.
Lower: Flooded Gum with chronic defoliation leading to crown dieback, Balingup.
Photos: Allan Wills

continued on page 4

continued from page 1

Flooded Gum Dieback

browning of the leaves, which are then shed prematurely. New leaves sprout in spring and summer and are then attacked during the following winter. Repeated severe leaf shedding leads to loss of crown vigour and recession of the crown. Leafminer outbreaks can last for decades.

Western Horn Lerp is a sapsucking insect. The nymph stages construct a distinctive, starchy, tapered casing and have mouthparts that pierce the living phloem vessels of leaves. Lerp infestation causes leaf necrosis and leads to premature leaf senescence and leaf shedding. As with leaf miner, new leaves sprout which are then attacked by the next generation of nymphs and the repeated severe leaf shedding leads to crown recession. Little is known of the life cycle and biology of Western Horn Lerp in WA. Outbreaks of the related *Creiis lituratus* in eastern Australia are associated with waterlogging of soils.

Western Horned Lerps and necrotic, senescent leaf. Photo: Allan Wills

Severe insect attack is usually considered a secondary symptom of tree stress. Causes of stress can be a combination of many factors such as climatic changes leading to extreme weather events or drying trends; salinisation of the landscape; waterlogging; nitrification;introduction of pathogens; fire; competition with exotic plant species; and loss of understorey diversity.

Understorey plant diversity is often degraded in agricultural landscapes, with consequent loss of predatory and parasitoid faunas controlling insect outbreak populations. Loss of understorey is often coincident with other land-use changes that favour outbreaks of defoliating insects such as nutrient enrichment of landscapes and waterlogging.

Allan Wills is Senior Technical Officer, Parks and Wildlife, Manjimup, with a particular expertise in forest entomology. He can be contacted on allan.wills@dpaw.wa.gov.au

Some background

Not long after *LFW* first started, in 1999, there was great concern about massive defoliation that was occurring in Flooded Gum trees, both on the Swan Coastal Plain and further inland, around Williams. Public meetings were held, and research undertaken to determine the cause, and possibly the control, of what was seen as a potentially devastating pest. *Western Wildlife* reported this concern in two articles *Dieback in Flooded Gum* by Ian Abbott in *WW* 3/4 (October 1999) and *Flooded Gum Dieback* by Vanessa Yeomans in *WW*4/1 (January 2000). The first article described what was known about the problem, and raised a lot of questions. The second described some current research along the Preston River at Donnybrook. (Both *WW* issues are available on *LFW's* website and are still relevant today.) In later years, the trees seemed to recover, other problems came to the fore and this one faded into the background.

But Flooded Gum dieback has not gone away. It remains a problem in the Preston Valley, and around Balingup and Quindanning. Peter White, of Parks and Wildlife Narrogin, wrote a report in October 2014 that describes the extent of some of the Quindanning outbreak and suggests contributing factors that need to be taken into account. Although this is an unpublished report, containing observations, not rigourous research, it makes very interesting reading. If anyone would like a copy in pdf format, please contact the Editor.

There have been suggestions in the past that fire will affect the quantity of the insects that cause the problem, by burning the pupae in leaf litter beneath the crowns and so reducing the population. Perhaps the fires in the Hotham area may provide a possible opportunity to investigate this, using paired burnt/unburnt sites?

Are there any academics/students who would like to investigate this? It could provide useful data concerning control. Please contact the author or *LFW*.

Penny Hussey

Myrtle Rust has been found in Tasmania

Since 2002, *Western Wildlife* has alerted readers to the devastating plant disease Myrtle Rust which, in Brazil, jumped onto eucalypts from its usual host, guava trees.

The pest arrived at a plant nursery in NSW in 2010 and has since established itself, both on cultivated plants and in the wild, in NSW and Queensland.

In February 2015, it was identified in gardens in Birnie, in Tasmania's north-west. An incident control team is trying to eradicate it – very chancy.

In *Western Wildlife* 17/3 (July 2013), an article by Ian Dumbrell outlined the 'Adopt a tree to help guard against Myrtle Rust' programme. If you would like to remind yourself of this, and see how you can help, go to: http://agspsrap31.agric.wa.gov.au