Box-Ironbark Experimental Mosaic Burning Project

Newsletter No. 5, November 2013

Welcome to the fifth newsletter of the Box-Ironbark Experimental Mosaic Burning Project! This issue describes work being conducted to document forest structure and how it may change as a result of planned burns. Please refer to the details at the end of this newsletter if you would like to be added to the mailing list for future issues.

The importance of forest structure

'Forest structure' refers to most of the things you see when walking through a forest: the number and size of trees, the presence of shrubs and ground-cover plants, logs, stumps and leaf litter. Combined, such elements define the characteristics of a forest, and each can vary through space and time. Forest structure plays an important role in providing habitat for both plants and animals. It is also important for ecosystem processes such as nutrient cycling.

Victoria's Box-Ironbark forests are highly modified as a result of timber harvesting, gold mining and grazing. This has resulted in some important structural features (e.g., large trees, deep litter layers) now being exceedingly rare. Consequently, it is important to know how planned burns may further alter forest structure, and what effect they may have on already limited forest resources.

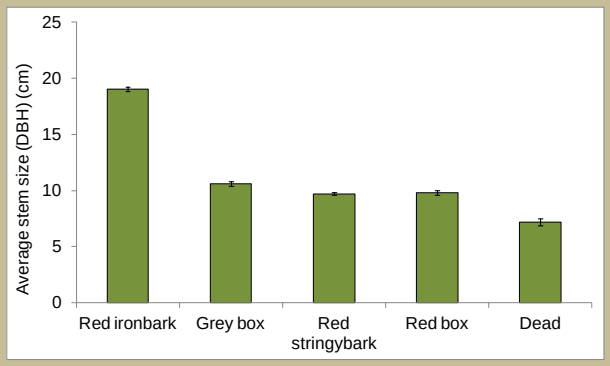
Count, measure and repeat

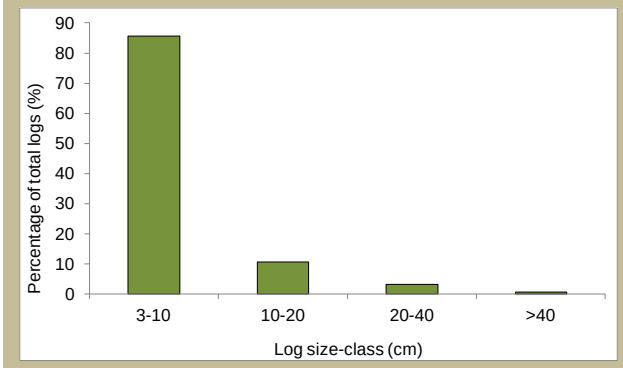
Obtaining data on forest structure involves lots of painstaking fieldwork. For this project, 264 monitoring points were established across the 22 study blocks. At each point a 20 metre by 20 metre plot is marked out. In each plot a variety of counts and measures relating to forest structure are made, including: the number, size and identity of tree stems, the number and size of logs and stumps, the nature of the ground-cover (e.g., litter, vegetation) at 40 separate points, depth of litter, and the complexity of understorey vegetation. Collecting this data typically takes a team of six people about 10 days! Forest structure data was collected before burns were conducted, and has also been recorded at regular intervals after burning.

What does the forest look like?

Collecting information on forest structure allows the nature of a forest to be visualised. Data from initial (pre-fire) surveys of the Heathcote-Rushworth Forest are found below.

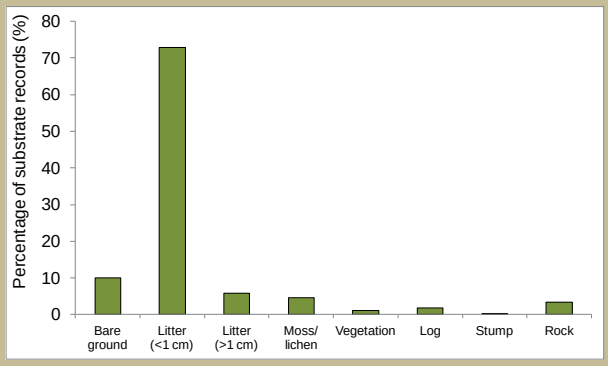
Across the 264 monitoring points, more than 5,500 trees were counted and measured (this equates to more than 8,000 stems, owing to many trees having multiple stems). Large trees are rare; the average stem size was less than 20 cm diameter at breast height for all species.





More than 10,000 logs were counted and measured. About 85% of these logs were in the smallest size-class, having a diameter of between 3-10 cm. Less than 5% of all logs recorded had a diameter greater than 20 cm.

The substrate (material at ground-level) was recorded at more than 10,500 points. The dominant substrate was litter with a diameter of less than 1 cm (small twigs, leaves), accounting for more than 70% of records. Bare ground made up 10% of records, with other substrate types being less common.



The data above give a general impression of the Heathcote-Rushworth Forest: a relatively open forest dominated by small trees and with little in the way of large fallen timber. However, of most interest to this project is how planned burns alter these characteristics, if at all. Work is currently underway to compare pre- and post-fire data and key results will be detailed in future issues of this newsletter.

If you would like to receive future issues of this newsletter please provide an email or postal address to: Greg Holland (Project Officer, Deakin University)
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