



Landscape history and vegetation change in the Violet Town–Longford region of Victoria

By Digby Race, David Duncan, Garreth Kyle and Wendy Merritt

Background

This report provides a summary of the major activities and events thought to have influenced the change in native woody vegetation in the Violet Town–Longwood area of Victoria [see Figure 1].

Aerial photography obtained for 1946 and 2006 indicated changes in the extent of native vegetation – both decreases and increases – in the Violet Town–Longwood area. There has been great variation in activity and events across the study area, with spatial variation related to the presence of remnant native vegetation, land tenure (e.g. private farmland and state forests), soil quality and agronomic potential (e.g. high-production cropping and sheep grazing), and historical events (e.g. areas affected by the 1965 bushfire).

Field visits and a three-hour 'landscape history workshop' were held over two days in October 2008. An important part of this method was the involvement in a guided conversation of a small group of people with considerable knowledge of the history of local land-use. The group of ten people included landholders, ecologists and environmental project managers. The participants collectively provided a preliminary understanding of some of the major causes of change in vegetation during 1946–2006, and when these changes occurred which has been summarised in this report.

Members of the project team are using this understanding to guide where they will undertake more in-depth photo analysis, site visits and interviews

with landholders during 2009. This research is part of a larger national research effort known as Landscape Logic, which aims to understand links between land and water management and environmental condition [see www.landscapelogic.org.au].

Early influences on native vegetation

Although this study has focused on the changes in the extent of native woody vegetation in the Violet Town–Longwood area during 1946–2006, it is necessary to understand earlier influences as they provide useful explanations for observed change.

The study area covers land traditionally owned by the Taungurong indigenous people¹, who are believed to have managed native vegetation to maintain food supplies, provide shelter and for cultural purposes.

The initial influx of Europeans to the area was largely to establish agricultural enterprises, initially with selection of large properties (e.g. greater than 40,000 hectares), then after the 1860s subdivision into properties of approx-

imately 200 hectares. Between 1860 and 1920 much native woodland vegetation was cleared as a source for construction timber, fencing and yards, and firewood, with scattered trees left as shade trees for livestock. The increase in livestock numbers and the presence of rabbits in plague proportions meant there was little regeneration of native vegetation on farmland from 1920 to the 1940s.

Changes in farming during 1946–2006

In broad terms, the level and type of agriculture in the Violet Town–Longwood area reflects much of what occurred nationally: the steady growth in the area of farmland, mostly for livestock farming, until at its peak in the mid-1970s. However, it was during the 1950s that the widespread promotion and establishment of introduced pasture species (mainly *Phalaris* and Sub-clover), together with increased applications of fertilizer (superphosphate), led to a notable increase in the productivity and profitability of farming.

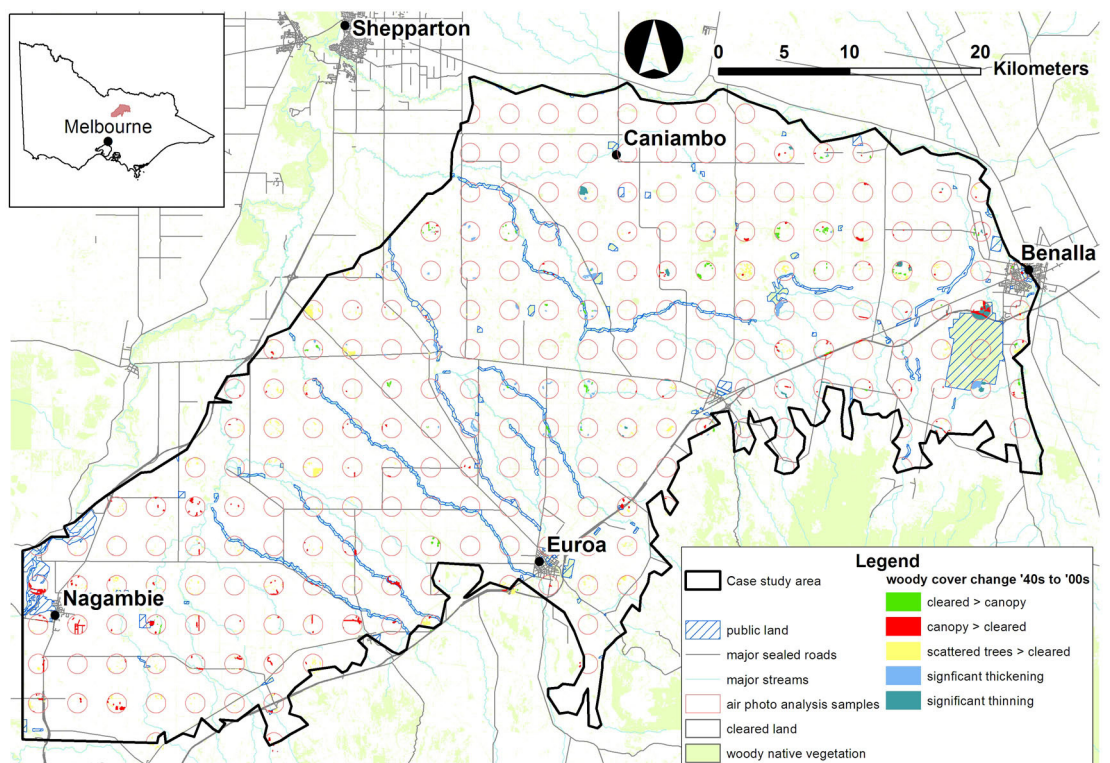


Figure 1: Map of the Violet Town–Longwood study area

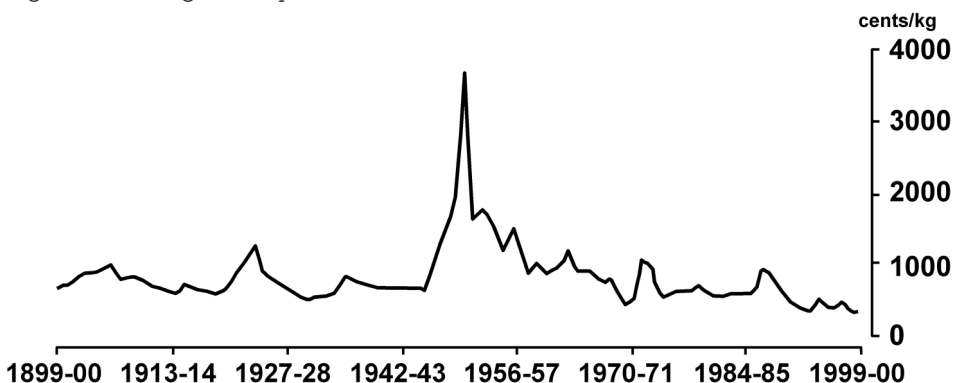
Returns for wool producers in particular were buoyant for many years, although prices fluctuated from year to year [Figure 2]. The establishment of introduced pastures during periods of high wool prices led to the decline of native grasses in pastures.

While wool production was the dominant farming use in the region by area, the flatter and more fertile farmland was used for cropping and cattle (beef and dairying). The wetter seasons during the late-1950s led to an increase in footrot amongst sheep, which prompted some farmers to move into beef cattle farming during the 1960s. Prices for beef cattle were reported to be strong in the late-1960s but crashed in 1974.

Until the early-1980s most of the agricultural sector comprised mixed-enterprise family farms, with much of the region's farm produce processed locally. The conventional knowledge at the time focused on assisting farmers to expand the area of farmland and increase levels of production. Several farmers reported how the numbers of livestock had fluctuated since the 1950s, primarily in response to wool prices and seasonal conditions.

Until the boom in wool prices (peaking around 1952–54), it was common for small-scale farmers and farm labourers in the Longwood area to be involved in timber harvesting in the 'off season', supplying sawn timber and firewood to Melbourne. Indeed, there were five sawmills operating in the Longwood area providing firewood for the Melbourne market until the 1950s. There was also a small enterprise that involved stripping the bark from Black Wattle (*Acacia mearnsii*) for the tanning industry in Melbourne, which lasted

Figure 2: Average wool price in Australia: 1900-2000.²



until the mid-1950s. It was reported that Black Wattle was previously a more common species in the region than today [2008]. Once farming became a viable business in its own right, interest in the hard work of harvesting timber and wattle bark declined.

High wool prices also led many farmers to invest in farm infrastructure (e.g. increase in drainage works) and equipment (e.g. purchase of tractors). The availability of tractors meant that farmers could cultivate greater areas for both pasture improvement and cropping. Overall, there was considerable investment in agricultural production during the 1950s to 1970s, with variable opportunities according to soil type [Figure 3].

This period was generally considered one of prosperity for most farm families. Continued investment in farming equipment led to increased cropping – initially lupins in the late-1970s and then canola, with more intensive cropping in the southern parts of the region during the 1980s. Larger farm machinery and stubble burning led to a decline in native vegetation on farmland, as trees and shrubs were

now often selling beyond its perceived agronomic value. For many farmers the poor returns for conventional livestock enterprises (wool, meat) and continued dry seasons has meant destocking much of the region's more marginal farmland – with an increase in the regeneration of native vegetation in de-stocked areas. Some workshop participants noted that the combination of declining use of superphosphate, and reduced cropping and lower livestock numbers, had led to an increase in native vegetation.

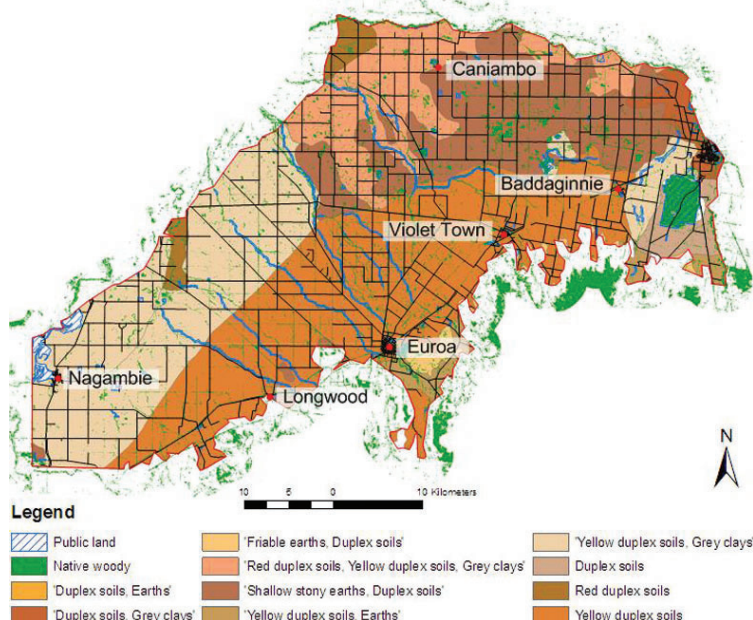
The workshop participants reported that small farming properties were far more common during the 1940s and 1950s than today, with the move towards larger commercial farms in the region noticeable in the south-west of the area from the 1970s. Also, since the 1990s, high-value racehorse studs have become noticeable in the Logwood area. It was reported that farming operations tend to be more specialised today [2008] than prior to the 1980s.

A changing community

Organised social functions, churches, schools and sporting clubs provided much of the communication and social networks amongst rural communities during the 1940s to 1970s. For example, Young Farmer groups provided a valuable opportunity for strengthening rural networks.

There were many small country schools that supported the local farming families (e.g. Miepoll, Molka, Pranjip) – with the 'rule of thumb' being applied that every child should be within 4 miles of a school, leading to a strong

Figure 3: Soil types in the Violet Town–Longford study area.



cleared for ease of cropping.

However, since the 1980s there has been a declining terms of trade for most wool producers. Also, during the past decade there has been an increasing cost for many inputs (e.g. fertilizers, fuel) with decreasing farm-gate returns, together with increasing land prices – with rural land

1 Horton, D.R. (1994) The Encyclopaedia of Aboriginal Australia, Aboriginal Studies Press for the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra, ACT.

2 Australian Bureau of Statistics (2001) Australian Agricultural: Agricultural Commodities Produced – historical data. ABS publication 7113, Canberra, ACT.

network of primary schools throughout the region. During this period, children tended to stay on the farm or in nearby towns when they finished school, with a vibrant social and sporting scene. Stimulated by the high wool prices in the 1950s, there was an increase in the population of farm workers and sharefarmers – with active local communities throughout the region.

Government policies have directly influenced the size of rural properties, with the establishment of 'soldier settler' properties during the 1950s, where about 2,000 hectares near Miepoll was allocated for subdivision. More recently, local government regulations require a minimum property size of 80 hectares (200 acres) in rural areas before a building permit will be issued.

Landcare emerged in the region during the 1980s (e.g. Shepparton), with the first of the local Landcare groups formed in 1983. The initial focus of Landcare in the area was soil protection, with one strategy being to increase the revegetation of farms with native trees.

Since the 1990s, the interests of Landcare groups in the area have evolved to include restoring local understorey plants, increasing habitat for native fauna and encouraging natural regeneration. Farm plantings tend to be linear along fence lines, with natural regeneration most active in sites with healthy remnants and where grazing is reduced or removed. Several people mentioned that their local Landcare groups were particularly influential in the community in raising awareness about the value of native vegetation, as well as other local conservation program delivered by Doug Robinson, and the activity of Susan Sleigh and Barry Oswald. Flowing on from the increased awareness in native vegetation management initially created by Landcare, there is a growing interest in the conservation covenants promoted by Trust for Nature.

While several workshop participants emphasised the social capital generated by Landcare (e.g. strengthening relationships between neighbours), they also reported the financial support offered to landholders had been critical to increasing the level of revegetation and vegetation protection undertaken (e.g. contributing to fencing and revegetation costs).

Fire, flood and drought – catalysts of change

Critical environmental events that affected native vegetation in the area

include wildfires, floods and droughts. The fire in 1965 that began around Miepoll and spread south towards Euroa was noted as particularly severe, although it only burnt a small part of the area. Where the fire occurred, much of the native woody vegetation that was burnt was subsequently cleared and converted to pasture or crops.

The floods of 1956 and 1993 were reported as significant events in the region. The 1956 flood led to the spread of liver fluke and caused considerable stock losses. The 1993 flood led to an increase in awareness and concern about dry-land salinity, although the recent dry seasons have seen salinity become less of a priority for NRM programs in the area.

It was also noted that during the mid-1990s there was a growing interest in raised-bed cropping (to avoid waterlogging). Several workshop participants mentioned the noticeable increase in River Red Gum (*Eucalyptus camaldulensis*) after wet years, although these seasons also tended to exacerbate the effects of salinity, leading to a loss of established paddock trees.

The study area has experienced highly variable rainfall during the 1920–2006 period [see Figure 4], as is common in many parts of Australia. However, the drought during 1982–83 was mentioned as having far-reaching consequences for land management and native vegetation. This drought was reported to be a catalyst for the exit from commercial agriculture of a significant number of farmers, allowing a noticeable influx of 'lifestyle' rural

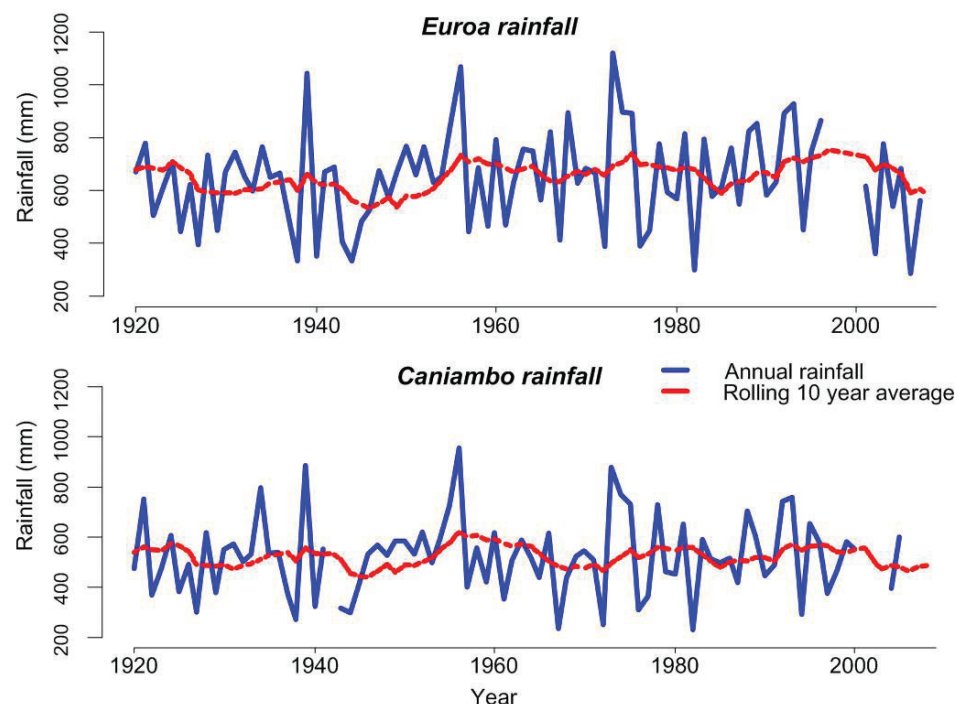
landholders (mainly in the vicinity of towns). The increase in small 'lifestyle' properties would also have effectively removed some farmland in the Violet Town–Longwood area from production, some of which is being recolonised by native vegetation. This drought also encouraged farmers to use practices to minimise any run-off (e.g. by increasing the number and capacity of dams) and conserve soil moisture (e.g. establish perennial pastures, retain stubble and direct-drill). Several people at the workshop suggested that a combination of these factors had significantly reduced run-off into creeks and the larger rivers (e.g. the Goulburn River).

Pest animals

While rabbits were commonly hunted for fur and meat during the 1920s to 1940s, it was the release of myxomatosis in the mid-1950s in the region which was particularly effective in reducing the rabbit population. With the reduced pressure from rabbits and buoyant wool prices around this time, many farmers began to invest in improving their pastures. Several people at the workshop reported that myxomatosis was particularly effective at killing rabbits in rocky (inaccessible) areas, which then allowed greater regeneration of native vegetation.

Several people reported that kangaroo numbers began increasing during the 1970s and have remained high since the 1980s, with suggestions that they have had a damaging impact on native vegetation, particularly understorey, in localised areas.

Figure 4: Annual rainfall and rolling ten-year average rainfall for Euroa and Caniambo: 1920–2006.



Conclusion

Influences on the extent of native vegetation can be immediate (e.g. conversion to cropping) or incremental (e.g. native species favoured by decline in use of fertiliser), and direct (e.g. revegetation or seed sowing) or indirect (e.g. control of rabbits, change in demographics). Furthermore, some influences might be highly visible (e.g. clearing for town settlements) while other influences might only be significant in aggregate (e.g. drought plus increases in pests).

Observable changes in land-use and specific events have been recorded on a timeline [Figure 5]. However, it should be noted that these may not be the only, nor necessarily the primary, influences on changes in native vegetation at a localised site in the area since 1930.

The workshop had insufficient time to fully explore the influence from a variety of government (Commonwealth, state and local) policies, regulations and programs.

More detailed research by the project team in 2009 will seek to enhance the understanding of the major influences on changes in the extent of native vegetation in the Violet Town-Longwood study area.

For more information about the study described in this report please contact Dr David Duncan, Department of Sustainability and Environment [email: david.duncan@dse.vic.gov.au; phone: (03) 9450 8750]. Alternatively, if you would like to know more about the research supported by Landscape Logic, visit www.landscapelogic.org.au

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LANDSCAPE LOGIC is a research hub under the Commonwealth Environmental Research Facilities scheme, supported by the Department of Environment, Water Heritage and the Arts. It is a partnership between:

- six regional organisations – the North Central, North East and Goulburn–Broken Catchment Management Authorities in Victoria and the North, South and Cradle Coast Natural Resource Management organisations in Tasmania;
- five research institutions – University of Tasmania, Australian National University, RMIT University, Charles Sturt University and CSIRO; and
- state land management agencies in Tasmania and Victoria – the Tasmanian Department of Primary Industries & Water, Forestry Tasmania and the Victorian Department of Sustainability & Environment.

The purpose of Landscape Logic is to work in partnership with regional natural resource managers to develop decision-making approaches that improve the effectiveness of environmental management.

Landscape Logic aims to:

1. Develop better ways to organise existing knowledge and assumptions about links between land management actions and environmental outcomes.
2. Improve our understanding of the links between land management actions and environmental outcomes through historical studies of the effects of private and public investment on water quality and native vegetation condition.

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Figure 5: Timeline of key activities, events and changes in the Violet Town-Longwood study area: 1930-2006.

