



VELS  
LEVEL  
6

# ‘Scorched Earth’: European Farming Techniques in Colonial Australia

**How did the arrival of Europeans affect the Australian environment?**

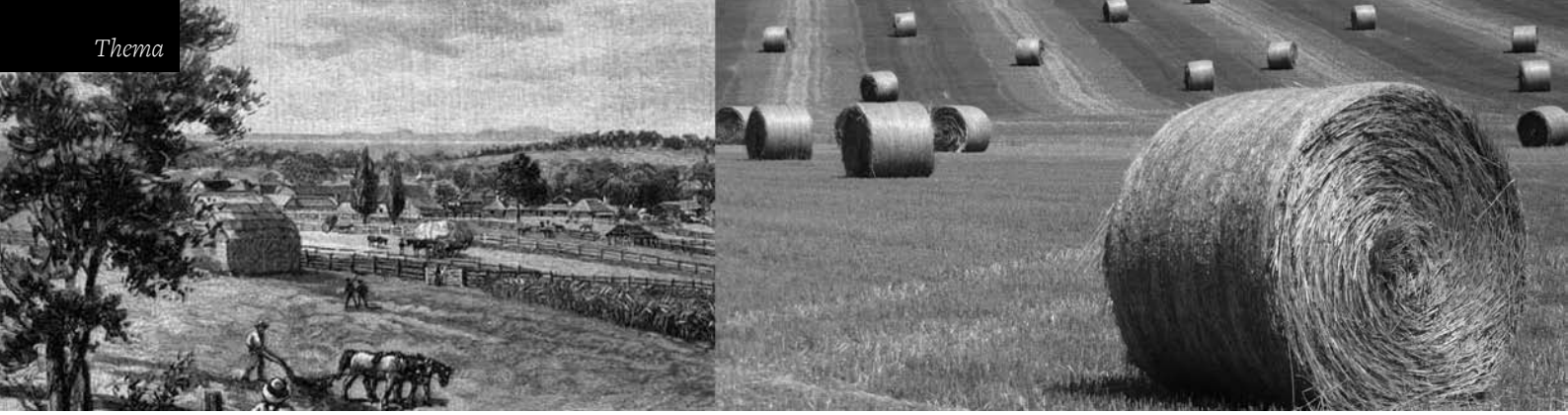
*Steve Thompson, Westbourne Grammar School*

Farming in Australia has been and still is a tenuous pursuit – farming in the 1800s was doubly risky, undertaken without technological advantages and with minimal understanding of native soils, climate and ecosystems. The response of colonial farmers was to carry on as if they were still in Europe, utilising familiar methods and processes, importing and transplanting foreign crops and livestock, adapting the terrain and local biota (plant and animal life) to suit the people, rather than vice versa. Not only did this cause untold environmental devastation to Australian ecosystems, it has held Australian farming hostage to practices and paradigms that are unproductive and unprofitable.

Australian farming practices, then as now, were primarily based on European models, despite the questionable productivity this has yielded and the ecological damage and disruption it has caused. European farming in non-European colonies is generally viewed as an act of ‘ecological imperialism’, imposing disruptive alien flora, livestock and methodologies onto a delicately-balanced and pristine ecosystem. With their new seeds, saplings and beasts, these farmers brought viral and bacterial infections that sometimes decimated native vegetation or wildlife.

It is not at all surprising that colonial farmers, seeing themselves as masters of their domains, used methods they knew rather than adapting to their new habitat. Like any colonist, the settler-farmer who established himself in Australia was confronted with a myriad of problems. The Australian land mass is a vast desert interior skirted by temperate and tropical rainforests, with only pockets of plain and pasture suitable for productive farming. The climate is unpredictable and drought-prone. The window for agricultural production is notably short: approximately seventy-eight per cent of Australian land has a growing season of less than five months, a stark contrast to Europe (twenty-five per cent) and the United States (twenty-seven per cent).<sup>1</sup> Australian soils are also problematic: most are ‘geologically old, infertile and underlain by salt’.<sup>2</sup>

Early farming, such as that in the initial settlement in New South Wales, was an abject failure despite early optimism. Our first colonisers had little inkling of Australian soil conditions, seasonal variations or temperature and precipitation levels. The seed-grain carried by the First Fleet mostly died in the earth and future plantings of grain and vegetable crops all failed to flourish. The subsistence of the colony became perilously reliant on visitation from British supply



ships.<sup>3</sup> Since the ‘tyranny of distance’ made this reliance on imported goods both impractical and dangerous, the search for both superior arable farmland and more successful farming techniques soon became a priority.

Early squatters, for the most part, saw themselves as temporary rather than permanent inhabitants; they were ‘... restless people with short-term intentions toward the land...[and they intended to] sell it or exploit it in ways that despoiled prior ecological systems.’<sup>4</sup> Their approach to the natural environment was therefore utilitarian, exploitative and without attention to sustainability or long-term regeneration. Understanding of native ecosystems and natural processes was naïve at best and, in most cases, ignorant or indifferent. Their knowledge of farming in England or Ireland was often irrelevant or dangerously misleading in the Australian context; and there was scant attention to indigenous utilisation of the land (*terra nullius* being an agricultural principle as well as a legal one). The Kulin people of central Victoria, for example, engaged in methodical, controlled burning to stimulate replenishment and regeneration; they distributed ash as a crude natural fertiliser; turned over the earth with *kannan* or ‘digging sticks’; and routinely returned germinable parts of harvested plants back to the soil.<sup>5</sup>

Of course, the Kulin and other indigenous tribal groups had vested spiritual interests in the land that their European counterparts lacked. Still, it is clear that colonial farmers made little attempt to learn more about Australian ecosystems or consider the impact of farming on them, nor did they consider native species as viable farming options (except, of course, when using existing native pasture for grazing livestock). Flannery argues that this has led to the formation of a somewhat hollow ‘national identity’, constructed without ‘really attempting to understand the nuts-and-bolts workings of the land and its original inhabitants...any lasting notion of Australian nationhood must arise from

an intimate understanding of Australian ecosystems.’<sup>6</sup>

European farming methods have spawned many disastrous and detrimental effects. Salinity, exacerbated by mass clearing of trees, may prove to be the most costly. The colonial insistence on strip farming and the reliance on beasts of burden, then machinery, led to the removal of trees from both forests and lightly-wooded plains. Thousands of trees were sawn, pulled, poisoned, ringbarked or burnt, then replaced with grain crops, with their more shallow root systems and lower water needs. In time this has prompted an elevation in groundwater levels, which also raises salt – an abundant mineral in Australian dryland earth – through the soil layer and onto the surface, where it can prohibit new growth and contaminate water storages.<sup>7</sup>

There was little understanding of this process in the nineteenth century but the relationship was soon observed early in the next. When 8000 hectares of trees were ringbarked at Mundaring in Western Australia it increased run-off (the initial aim of this cull) but it also boosted salinity levels in a weir fed by this run-off. The trees were replaced seven years later and the salinity levels decreased.<sup>8</sup> Walter Wood, a railway engineer, published a ground-breaking scientific paper in 1924 that exposed the correlation between native trees and salinity levels – yet the clearing of trees persisted for at least another two decades.

The policies of land distribution naturally had a role in determining how Australian land was farmed and, as a consequence, its ecological impact. Population sparsity and a shortage of labour meant that small holdings were not feasible in the first century of European settlement, so large land claims were granted to statutory agencies such as the Australian Agricultural Company. After 1831 large freeholds were sold to ‘squatters’ who used the land for grazing livestock. This practice led to significant

- 1 Bruce Davidson, *European Farming in Australia: an Economic History of Australian Farming* (New York: Elsevier, 1981), 4.
- 2 Maria Taylor, ‘European farming methods blamed for soil degradation’ at *Landline* (internet), <http://www.abc.net.au/landline/stories/s116302.htm>. Accessed 30 August 2007.
- 3 Geoffrey Blainey, *The Tyranny of Distance* (Sydney: Macmillan, 2001), 43–4.
- 4 John Weaver, ‘Beyond the Fatal Shore: Pastoral Squatting and the Occupation of Australia, 1826 to 1852’ in *The American Historical Review* 101 (4) (October 1996), 982.
- 5 Glen Eira Council, *Mallanbool Reserve: ‘Pool with Reeds’*, 2004.
- 6 Tim Flannery, *The Future Eaters* (Sydney: New Holland, 1998), 17.
- 7 ABC Television, *Silent Flood* (documentary) 2002.
- 8 Bob Nulsen and Cecilia McConnell, *Salinity at a Glance* (Perth: Agriculture Western Australia, August 2000).





devastation: native grasses and shrubs were depleted or eradicated, soil was robbed of nutrients, topsoil disturbed and non-native weeds introduced via the hooves of animals, while pastoralists wiped out several native species like the thylacine, to protect their livestock from predation.<sup>9</sup>

Many early farmers, speculators and colonial politicians also suffered from the misconception that our arable land was hardier, richer and more capable of self-regeneration than it actually was (Australian soil is geologically old, generally high in salinity and largely infertile, in sharp comparison to that found in much of Europe.)<sup>10</sup> Towards the end of the 1800s methodological changes, such as crop rotation, improved wheat strains and the measured use of chemical fertilisers (usually superphosphate) led to improved yields per acre.

The colonial government of Victoria, buoyed by these higher returns and the post-gold rush population boom, introduced land reform policies to encourage close settlement and smaller freehold farm holdings.<sup>11</sup> Local politicians, ignoring Governor Gipps' advice that 'Australia is essentially a pastoral country and must remain so for ages',<sup>12</sup> instead visualised a future where thousands of yeoman farmers might spread across the south-western districts, using new resources and methods to return high yields from small holdings.<sup>13</sup> An impression formed that impediments to the profitable cultivation of the land had been overcome.

These visions splendid were common, despite frequent warning signs that any spurt in agrarian productivity might well be short-lived; and that decades of farming and grazing had created as many problems as benefits. While native pasture was ideal for grazing imported Merino sheep, decades of this grazing – without ample pause for regeneration – had denuded most grazing land. Cloven hooves had compacted the ground, leading to topsoil degradation and erosion.<sup>14</sup> By 1851 there were 6.6

million sheep grazing in the region occupied by the Kulin nation; this virtually eradicated the myrnong or 'yam daisy', a staple food source for the Kulin people.<sup>15</sup> This depletion rendered further grazing impractical: by the 1890s it was estimated that one acre was required for every single sheep, so livestock farming for small landholders became nearly impossible.

Grain farmers fared little better. One landowner at Willaura reported that wheat could only be grown in sections of his land that were not stony and swampy, and even then the land had to be left fallow every three years.<sup>16</sup> Where wheat grew only moderately, weeds such as thistle, burr, blackberry and Patter-son's Curse flourished, running amok on many farm holdings. The introduction and wildfire-spread of rabbits in the south-west of Victoria also contributed to land degradation.<sup>17</sup>

The dry plains were not the only ecological setting disrupted by colonial farmers. The so-called 'wet frontier' – the broadleaf, coniferous and sclerophyll forests of the south-east coast – held some attraction for the bold and the energetic, largely because of their richer soil, proximity to settled ports, lower incidence of drought, more temperate climate and lower land costs. Forested land was explored, settled, cleared and razed to facilitate grazing and pasture farming; the less labour-intensive practice of 'slash and burn', a process seemingly derived from Scandinavia, Russia and northern Europe,<sup>18</sup> began in the 1820s and continued until the advent of farm machinery a century later. This adaptation of the terrain had catastrophic ecological impacts, including an influx of native and exotic weeds, the eradication or displacement of bird species leading to insect and larval infestations, and a marked increase in the incidence of frost.<sup>19</sup>

The colonial farmer strode into the Australian environment boots first and farmed as he understood the practice in the Old World. He dealt with prob-

- 9 Shepard Krech et al., *Encyclopedia of World Environmental History* (London: Routledge, 2004), 89.
- 10 Maria Taylor, 'European farming methods'.
- 11 Tony Dingle, *The Victorians: Settling* (Sydney: Fairfax, Syme and Weldon, 1984).
- 12 Ted Henzell, *Australian Agriculture: Its History and Challenges* (Sydney: CSIRO Publishing, 2007), 10.
- 13 Parliament of Victoria, *Victorian Parliamentary Debates*, 15 August 1907, 652–4.
- 14 Charles Massey, *The Australian Merino* (Melbourne: Viking O'Neil, 1990), 427.
- 15 Glen Eira Council, *Mallanbool Reserve*.
- 16 Age, 4 May 1905.
- 17 Eric Rolls, *They All Ran Wild: the Story of Pests of the Land in Australia* (Melbourne: Angus & Robertson, Melbourne, 1977), 28–9.
- 18 Stephen Pyne, *Vestal Fire: An Environmental History, Told through Fire, of Europe and Europe's Encounter with the World* (University of Washington Press, 1997).
- 19 Warwick Frost, 'Farmers, Government and the Environment: the Settlement of Australia's "wet frontier"', 1870–1920' in *Australian Economic History Review* 37 (1) (March 1997), 25–6.

lems by importing what he needed, planting what he liked and destroying whatever stood in his way. Yet there was one obstacle that cannot be slashed, burned, poisoned, ringbarked or shot. The Australian landscape and its myriad ecosystems are, for the most part, simply not conducive to European farming methods, a fact borne out by low levels of productivity per acre and profitability per invested dollar (0.3 per cent in 1996).<sup>20</sup>

The farming sector has been confronted with a range of problems in recent times: high debt levels and running

costs, low returns, cheaper food imports, declining terms of trade, ageing farming populations and depleted rural communities. Though there is now a stronger focus on agronomy and sustainability, and greater awareness of the impact of imported species, degradation and monoculture, Australia's farmers are yet to embrace wide-ranging change. Despite advances, the modern farmer still uses methods and paradigms inherited from his colonial predecessors, a fact that contributes both to his own plight as well as to continued environmental degradation.

<sup>20</sup> Australian Bureau of Agricultural and Resource Economics, cited in 'Multi-level Land Use: Creative Resource Use for Rural Australia' in *The Australian New Crops Newsletter* 10 (July 1998), 14.

# medieval·education

Hands on, multi-sensory and interactive programs that go far beyond just entertainment. We strive for meaningful and memorable education!

medieval.com.au  
1800 002 575  
info@medieval.com.au

From a single presenter for an hour, to a team of ten for a week: we will tailor a program to work for your school.

- Ancient and Medieval
- Primary and Secondary
- Victoria-wide
- Exceptionally Qualified Presenters
- Over 200 years of classroom experience

"All teachers were amazed at how much breadth and depth of understanding had been achieved during one day of medieval immersion"  
Kim Widdrich,  
Lavalla Catholic college



"I cannot recommend them highly enough... We do incursions throughout the year... But if there was one incursion the kids really look forward to, this is it..."

Michael Mclean - Flinders Christian Community College

"feedback from students was incredible"

Vicky Karataksaris, Bayside Secondary College