

Innovative Federation and Inter-war Period repair of degraded
natural areas and their ecosystems: local government and
community restoration of Coast Teatree *Leptospermum laevigatum*
at Port Phillip Bay, Victoria, Australia

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Abstract

Concern to repair and then conserve degraded natural areas and ecosystems by intentionally reinstating their typical indigenous plant species had penetrated Australian conservation management thinking and practice by 1900. Coast Teatree *Leptospermum laevigatum* was healthily persistent along the east coast of Port Phillip Bay, Victoria, at the time of Traditional Owner custodianship. A range of settler environmental impacts are suspected of detrimentally affecting its persistence, and by approximately 1890 Coast Teatree was in serious decline along the east coast. Ecosystem service provision was threatened. Responding to this environmental crisis, local government and then community organisations initiated a series of innovative Coast Teatree rehabilitation projects, commencing in 1896. Donald Macdonald recognised that more ecologically aligned repair techniques had potential to reinstate significant levels of valued indigenous biodiversity.

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Introduction

In August 1927 the Field Naturalists Club of Victoria published its report into ‘the disappearance of the tea-tree from the foreshore of Port Phillip Bay’ (Anon ‘Doomed Tea-tree’ *Argus* 17 August 1927 p.19). The report concluded that Coast Teatree *Leptospermum laevigatum* (hereafter Coast Teatree) was both ‘dying out and being killed very rapidly’ in the narrow foreshore reserves of the east coast of the Bay, between Brighton and Mornington (Figures 1 & 2) (VICFLORA; Anon ‘Doomed Tea-tree’ *Argus* 17 August 1927 p.19).



Figure 1 'Port Phillip Bay' approximately 1930

Source: State Library Victoria

This article examines the decline of the Coast Teatree, and presents the innovative repair projects that attempted to reverse its decline. The historical significance and ecological character of the projects, and the prominent roles of local government, residents, conservationists and community organisations, are outlined.

Historical impacts on the landscape

Physical environmental attributes markedly influence the structure and persistence of plant species and communities; human cultures and their impacts can be a determinant too. It was on lands previously cared for by the clans of the Boon wurrung¹ language group of the Eastern Kulin Nation that the field naturalists conducted their 1927 investigation (Presland 2010).

Over many millennia, the First Nations of Australia formed relationships of respect, reciprocity and spirituality with Country (Rose, 1996). Regrettably, the impacts of settler occupation and frequent aggression resulted in the loss of substantial bodies of traditional cultural and ecological knowledge.

The extent to which the First Nations utilised cultural fire, and its ecological impacts, are matters of contention (Gammage 2011: 325-342).

Presland (2005: 143) concludes that the vegetation patterns of the Bay at the time of their occupation by Eastern Kulin clans were subject to at least two major influences: the existing physical conditions, and the activities of the local clan members. The species' composition, structure and means of persistence of the Port Phillip Bay indigenous plant communities that prevailed at the time of traditional Boon wurrung custodianship can be estimated, but only to a limited extent. European and early settler botanical descriptions often lacked

¹ Also known as Boon Wurrung, Boonwurrung, Bunurong

accurate detail, and subsequent settler impacts have obscured these communities and opportunities to estimate their historical condition (Presland 2005: 128). Historical sources and archaeological studies reveal details of the rich cultural life and complex landscape management techniques of the Eastern Kulin clans, but much information has also been lost (Presland 2005: 202-203).

Settler interactions with Australian natural ecosystems took several forms. At times, colonial governments and some settlers did carefully manage and conserve natural resources, primarily to secure ecosystem service provision (Barr, Cary 1992; Bonyhady 2000; Mosley 2012). However, the more common colonial outlook was to wrongly assume that the landscapes encountered, often reminiscent of faraway places, were consistently bountiful (Barr, Cary 1992).

These misconceptions spurred on the employment of intensive, often environmentally mismatched European modes of land management by the first and succeeding settlers, particularly in agricultural practice (Barr, Cary 1992). Indigenous biotic and abiotic resources were frequently degraded and destroyed; blatant exploitation occurred (Lines 1991; Barr, Cary 1992; Bonyhady 2000).

The first waves of colonial settlers rapidly transformed the landscapes of Port Phillip Bay; the indigenous plant communities that the field naturalists investigated in 1927 differed markedly to those managed by the Boon wurrung clans. A need for their repair had arisen.

The idea of repairing degraded, natural ecosystems

The act of repair referred to in this article encompasses the intentional reinstatement of lost indigenous biotic and abiotic qualities, and ecological functioning, to degraded, natural ecosystems. The two contemporary characterisations of this repair act are ecological restoration, and rehabilitation. An appreciation of these two distinct practices facilitates the development of informative evaluations of the ecological intensity and character of the various repair projects that were undertaken at Port Phillip Bay, and of the motivations and aspirations involved.

Ecological restoration engages in the ‘process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed’ (SERA 2017: 2). The practice of ecological restoration features an aspiration to reinstate to a degraded ecosystem the highest possible levels of indigenous biotic and abiotic qualities, to facilitate the renewal of all potential ecological function (SERA 2017: 13). The achievement of ‘the highest and best conservation outcomes’ is an essential ethic: ‘to substantially expand the area available to nature conservation’ (SERA 2017: 3). An influential viewpoint maintains that ecological restoration practice emerged as a response to the widespread devastation of natural ecosystems that arose from environmentally insensitive, colonial era settler behaviour, and concern at the ensuing, ongoing loss of valued indigenous biodiversity (Jordan III, Lubick 2011: 39; 75).

Rehabilitation shares many practice features with ecological restoration. However, rehabilitation practice aspires to the intentional reinstatement of a certain, but not the highest possible degree, of indigenous biotic and abiotic

qualities and ecological function to a degraded site, to enable ongoing ecosystem services provision (SERA 2017: 28).

Determining the ecological intensity and character of the Bay projects illustrates their historical significance as Australian and international degraded area repair undertakings. The projects were implemented between 1896 and approximately 1930, and were almost immediately followed by several, successful repair projects that are now regarded as exhibiting many similarities with ecological restoration (Jordan III, Lubick 2011: 75); more on the latter projects later, along with any real or possible links between them and the Bay projects.

The historical management of Coast Teatree – the Boon wurrung language group

The traditional lands of the Eastern Kulin Nation, comprised of five language groups, extended from Port Phillip Bay (also known as Nerm and Nairm), in south-eastern Australia (38.1732° S, 144.8731° E), north to the Murray River (36.1460° S, 144.7448° E). The eastern coast and hinterlands of the Bay were home to the six clans of the Boon wurrung language group. The Ngaruk willam clan occupied the Brighton to Mordialloc area; the Mayone bulluk clan occupied the Carrum Swamp, the northern area of the Mornington Peninsula and land east to Westernport Bay (Presland 2010: 24) (Figure 1).

The approximately eighty kilometres of east coast foreshore strip between Brighton and Mornington features beaches and dunes, interspersed by rock platforms and steep cliffs. At the time of Boon wurrung custodianship, the

coastal dunes were prominently vegetated by salt tolerant Coast Teatree (Figure 2), Coast Wattle *Acacia longifolia* ssp. *sophorae*,² Coast Banksia *Banksia integrifolia* and Drooping Sheoak *Allocasuarina verticillata*; a profuse range of intermediate shrubs, sedges, rushes, grasses and herbs grew (Presland 2005: 170). Today, the plant communities of the foreshore reserves are characterised as Coastal Dune Scrub, Coastal Headland Scrub and Coast Banksia Woodland (DSEV 2007).



Figure 2. Coast Teatree and east coast Port Phillip Bay south of Mornington
Source: P Ardill 2019

It is highly probable that fire, either in the form of wildfire, or cultural fire, or a combination of the two, played a role in renewing the coastal dune vegetation communities. Structurally diverse and vigorously persistent plant species and communities were the likely outcome.

² Also known as *Acacia sophorae*

Wildfire germinates the seed of Coast Teatree and many of the other east coast indigenous plant species, and at high temperatures can also kill plants. An historical account of a ca.1910 wildfire in the beach reserve at Ricketts Point, Port Phillip Bay, recorded the resultant species biodiversity. The fire ‘re clothed’ the burnt site with Coast Teatree and other indigenous plant species, ‘more varied, more attractive, than in its original state...’ (Macdonald 1913: 7).

The first Europeans to view Port Phillip Bay recorded landscapes comprised of swamps, scrub lined streams, grasslands and both thickly and thinly wooded areas. Groves of unspecified plant species described as ‘tea-tree’, and prominent stands of ‘sheoaks’³ and ‘honeysuckle’⁴ were noted, and there was ample evidence of recent fire; numerous animal species were sighted (Gammage 2011: 258-266). William Crook recorded in 1803 that ‘Perhaps a tenth part of the trees are burnt’ (Gammage 2011: 259). Gammage (2011: 266) asserts that these landscapes were the product of cultural fire, ‘a boundless estate, a lesson in utility and beauty’. At nearby Westernport,⁵ William Hovell observed in 1826 unspecified species of ‘Tea Tree brush ... very thick and in other parts it had been burned, and the young wood growing up between the old pallid trees...’ (Gammage 2011: 228).

Clans of the Eastern Kulin nation applied fire at intervals of three to five years to ensure a regular supply of the edible tuber Murnong, *Microseris lanceolata*; fire managed grasslands and woodlands facilitated hunting and travel within Eastern Kulin lands (Presland 2010: 72). Cool fires were utilised by Australian First Nations communities to mitigate the likelihood of dangerous wildfire

³ possibly Drooping Sheoak

⁴ Banksia, likely Coast Banksia

⁵ Or Western Port Bay

outbreaks (Gammage 2011). The Boon wurrung clans frequented the Bay coast during the warmer months and may have had an interest in using cultural fire to manage flammable vegetation such as Coast Teatree.

It is quite possible that a cultural fire regime had potential to foster the ecological persistence of Coast Teatree. Eastern Suburbs Banksia Scrub is a Sydney coast, sand-based vegetation community featuring Coast Teatree, and the small tree Wallum Banksia *Banksia aemula*. Lambert and Lambert (2015) suggest that applied, controlled fire renews Coast Teatree and the overall species' diversity and density of the community, if applied at regular, but not too frequent or infrequent intervals.

The historical management of Coast Teatree – settler impacts

Intensive European invasion of Port Phillip Bay commenced in 1835. The settlement of Melbourne expanded rapidly, and localities such as Brighton were being cleared of their indigenous vegetation from approximately 1840.

Their lands seized, the Boon wurrung clans entered a state of social and spiritual crisis; traditional land management practices rapidly ceased. As a result of introduced diseases and a drastic reduction in the birth rate, the Eastern Kulin population fell rapidly (Presland 2010).

In 1863 Eastern Kulin elders, seeking a refuge from settler impacts and aggression, led surviving clan members to a traditional camp site at Coranderrk, Healesville, subsequently declared a government reserve. Further dislocations, social disadvantage and hardship were to follow. The historical

documentation does not record that opportunities arose for Boon wurrung clan members to contribute traditional ecological knowledge to the Bay repair projects.⁶ Today, Eastern Kulin people continue to maintain physical and spiritual links with their traditional lands.

One possible contributing factor to the 1927 reported demise of the Coast Teatree may lie with its ecological relationship with fire. Settler expansion possibly caused a significant reduction in fire events along the east coast. Cultural fire practice ceased; wildfire impacts on the east coast vegetation communities may have been reduced, due to extensive vegetation clearing and manual extinguishing, especially near towns and villages.

Given this scenario, Coast Teatree possibly established ecological dominance within the east coast indigenous flora communities. Lambert and Lambert (2015) speculate that a reduction in the incidence of fire events was one contributor to the dominance of Coast Teatree observed in Eastern Suburbs Banksia Scrub.

In the event of a reduced incidence of wildfire, it is highly likely that a decline in seed germination and natural regeneration of Coast Teatree occurred, and that an increasing proportion of the Coast Teatree population, often occurring in dominant groves, matured to a senescent condition (Figure 3). That a decrease in the incidence of wildfire (and a corresponding fall in natural regeneration) did occur is tentatively suggested by the high number of ‘old and falling’ Coast Teatrees being observed by ca.1900 (Anon ‘Sandringham’ *Brighton Southern Cross* 8 June 1901 p.2). The 1927 report of the field

⁶ Pearce (2019) illustrates and discusses the non-participation of Australian First Nations people in ecological restoration projects and the detrimental ramifications.

naturalists' club observed that the Coast Teatrees 'at present round the shores and cliffs are all old specimens', and that the quality and quantity only improved towards Mornington (Anon 'Doomed Tea-tree' *Argus* 17 August 1927 p.19).

Alternatively, the high incidence of old trees may be fully or partially explained by the further range of settler impacts to be outlined. Also, wildfire is likely to have been impacting on the east coast vegetation communities to some degree, as high levels of indigenous plant biodiversity were still being observed. Professor Thomas Hart, member of the Victorian Field Naturalists Club and the Royal Society of Victoria, compiled a Brighton to Moorabbin regional list of 300 indigenous flora species in 1900, many to be found only amongst the Coast Teatree communities (Hart 1900: 4). In 1903 naturalist Gustav Weindorfer recorded that between Black Rock and Beaumaris 'About eighty species of the flora peculiar to this part of the Victorian coast were seen in flower' (Weindorfer 1903). As reported, a coast wildfire at Beaumaris renewed the local plant community in approximately 1910.

Brighton, Moorabbin and Mornington Councils managed the popular east coast foreshore reserves throughout the latter decades of the nineteenth century. Local residents and Melbourne's holidaymakers enjoyed picnics and camping in the shade of the Coast Teatrees, and their twisted, gnarled trunks were much admired (Figure 3). However, a range of impacts continually inflicted serious environmental damage on the Coast Teatree and the reserves.

Coast Teatree seedlings were devoured by wandering domestic stock. The mature trees were excellent firewood: loaded barges supplied Melbourne for

decades. As well as firewood collection, unauthorised clearing, often to create beach access and visitor facilities, was rife: the Brighton Council surveyor reported in 1866 that ‘considerable damage had been done by the removal of the scrub of tea-tree on the beach’ (Anon ‘Borough Councils’ *Argus* Tuesday 20 November 1866 p.7). Juvenile and mature Coast Teatrees were damaged and trampled by beach-users, a regular event. The ‘beautiful tea-tree groves between Hampton and Beaumaris’ were being so heavily used by 1905, that ‘one of Victoria’s chief beauty spots would in another decade, become stripped of all its charm of waving leaf and bough, and lose the melody of birds’ (Anon ‘Black Rock Progress League’ *Herald* 27 May 1908 p.3).

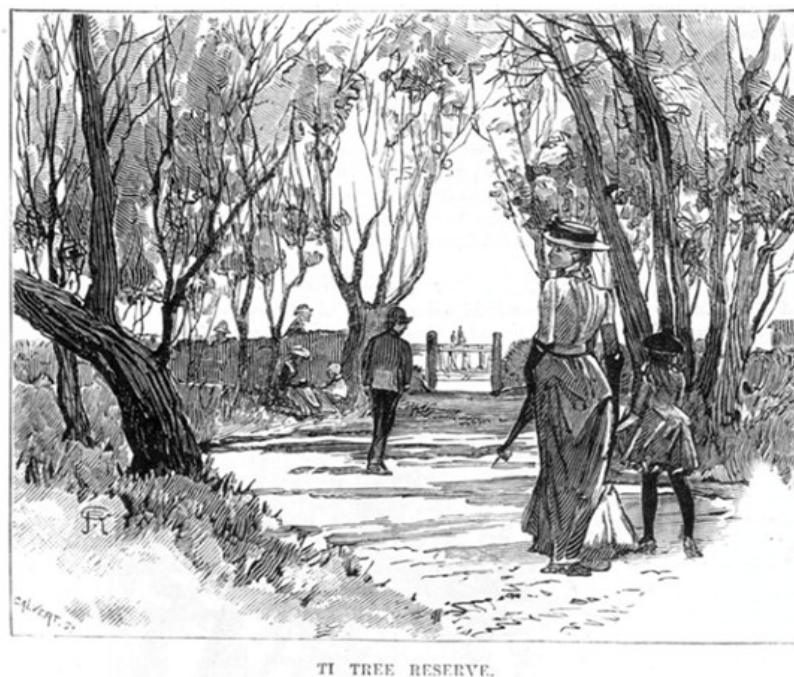


Figure 3. ‘Ti Tree Reserve’ 1886 Source: S Calvert State Library Victoria

By ca.1890 expanses of the foreshore reserves at Brighton, Sandringham, Beaumaris and Mornington had been reduced to a degraded condition, featuring scattered, collapsing Coast Teatrees. ‘There was some fear that the relentless destruction of the coastal ti-tree would lead to its complete

extinction...' (Macdonald 1907: 33). The councils and local merchants regarded the groves as a valuable commercial asset; to lose them was a worrying prospect. These amenity and economic factors played a dominant role in motivating the repair projects to be presented in this article.



Figure 4. 'Red Bluff, Brighton' 1880-ca.1900. Remnant Coast Teatrees Source: State Library Victoria

However, as this narrative will reveal, the focus on the decline of the Coast Teatree and its amenity values masked the wider environmental malaise that was afflicting the east coast of the Bay: the steady degradation and disappearance of the indigenous plant species and communities, and their associated fauna (Figure 4). Some Melbourne residents, including prominent journalist, nature writer and conservationist Donald Macdonald, not only engaged with the loss of the Coast Teatree, but also with the issue of sustaining the valued indigenous biota of the east coast.

The repair projects of the Federation Period

The projects are arranged in two chronological blocks: the Federation Period, followed by the Inter-war Period of the 1920s and 1930s. Within each chronological block, the projects are grouped according to locality, historical and governance criteria.

Federation series – Brighton

In June 1896 Brighton councillors approved a plan to plant Coast Teatree along the 'beach frontage' (Anon 'Brighton Council' *Oakleigh Leader* 13 June 1896 p.3). Commercial considerations motivated the councillors. As one newspaper journalist explained,

it is only a question of time when the whole of the beautiful foreshore is a bleak open beach. Its popularity as a holiday resort would be lost forever... (Anon 'Passing Comments' *Brighton Southern Cross* 27 June 1896 p.2).

Establishment of the plantation necessitated the adaptation of horticultural mindsets attuned to reproducing the formal park and garden settings of European cities, to the novel task of replanting an indigenous plant species in a little understood and degraded coastal dune ecosystem. As reported some years after the event by Donald Macdonald, 'It was fortunately discovered that the groves may always be replanted provided that the young trees are not put too close to the older ones...' (Macdonald 1907: 33).

Initial uncertainty was revealed by the strong sense of relief, even surprise, that pervaded the success of an innovative project subsequently referred to as an experiment. In 1897 council 'curator' Mr WH Kelly reported to councillors that 'the plantation of ti-tree had been a decided success', and 'suggested making a plantation every year' (Anon 'Brighton Town Council' *Caulfield and Elsternwick Leader* 15 May 1897 p.3). The council 'Planting Committee' subsequently recommended that 'ti-tree, myoporums and sheoaks be planted in the 'Beach Reserve' (Anon Brighton Town Council *Brighton Southern Cross* 12 June 1897 p. 2).

'Sheoaks',⁷ as well as Coast Teatree, were planted in at least one beach reserve, in unknown quantities (Anon 'Beating the Bounds' *Caulfield and Elsternwick Leader* 16 October 1897 p.3). 'Myoporums',⁸ possibly up to 1000 plants, were planted in Elsternwick beach reserve in 1898, 'where all else had failed' (Anon 'Brighton Town Council' *Caulfield and Elsternwick Leader* 29 April 1899 p.2). 'Myoporum' had been observed growing naturally along the beach: 'It stood the strong winds admirably', and would be 'a better break-wind than the ti-tree' (Anon 'Brighton Town Council' *Brighton Southern Cross* 11 July 1896 p.2).

In 1898 curator Kelly reported to councillors that the plantations of young Coast Teatrees were growing 'remarkably well', and proposed the further planting of 1,000 plants, in the 'Beach reserve' (Anon 'Brighton Town Council' *Oakleigh Leader* 11 June 1898 p.2). The following year the planting committee reported on 'the reserves selected for replanting in the past three years': 'The

⁷ Unspecified species. Drooping Sheoak *Allocasuarina verticillata* is indigenous to the Bay area <https://vicflora.rbg.vic.gov.au/flora/taxon/08e8dacc-5804-4ce7-9dec-f3e34960d801> Accessed 05/02/2020

⁸ Unspecified species. Common Boobialla, *Myoporum insulare*, is indigenous to the Bay area <https://vicflora.rbg.vic.gov.au/flora/taxon/d00a01e6-8d9f-492f-9da5-2199636e8a20> Accessed 05/02/2020

experiment is quite successful and we anticipate a complete renewal of...the old ti-tree...' (Anon 'Brighton Town Council' *Brighton Southern Cross* 29 April 1899 p.2).

By 1903, the council staff were confidently engaging in effective conservation management of the Coast Teatree, with a set of fenced reserves opening to the public on a rotational basis. Curator Mr Marsh reported that they were 'progressing favourably' (Anon 'Brighton' *Brighton Southern Cross* 15 August 1903 p.2[3]). The fate of the myoporum and sheoaks appears to have gone unreported.

Federation series – Hampton, Sandringham, Black Rock, Beaumaris

The need for active conservation management of the indigenous foreshore reserves administered by Moorabbin Council,⁹ to the south of Brighton, had been recognised by ca.1890. At an unspecified location in Beaumaris, resident Mr Bryan Moore enlisted the council's support in 1890 and conducted an 'experiment', designed to preserve the

*ti-tree, acacia, the native cherry,¹⁰ and the honeysuckle¹¹ and other shrubs ...The idea has become general that this native vegetation ought to be preserved, but those of this mind have not gone further than to leave the scrub alone...a policy of masterly inactivity is not sufficient... for the sea coast near Melbourne... (Anon 'Ti-Tree Scrub Experiment at Beaumaris' *Argus* 9 December 1890 p.6).*

⁹Moorabbin Council administered the Hampton, Sandringham, Black Rock and Beaumaris localities until 1917, when their governance passed to newly formed Sandringham Council.

¹⁰ Possibly Native Cherry *Exocarpos cupressiformis*. Indigenous to Port Phillip Bay
<https://vicflora.rbg.vic.gov.au/flora/taxon/10a16917-01e0-46cc-8bd8-359df2467806>

¹¹ Banksia likely Coast Banksia

Designated sections of a foreshore reserve were set aside for public use, in the hope that the remainder and its vegetation would be left alone. The fate of Moore's innovative experiment in conservation management went unrecorded, but at their meeting of March 20 1893, Moorabbin councillors were examining ways to

protect the Ti-tree along the whole stretch of the beach. It was clearly pointed out by Councillors that unless some very stringent measures were taken, it would not be long before the beauty and attractiveness of the whole foreshore would become despoiled (Anon 'Ti-tree Protection' Oakleigh Leader 25 March 1893 p.4).



Figure 5. 'View from Sandringham House 1900' (House/Palace). Beach Road and Melrose Street. Coast Teatree plantation along fence. See also Figure 9 Source: State Library Victoria

In July 1896 the councillors resolved to plant a ninety metres expanse of the Sandringham beach reserve with Coast Teatree¹² (Figure 5) (Anon 'Moorabbin Shire Council' *Oakleigh Leader* 25 July 1896 p.2 [2]). Due to ongoing vandalism, in 1901 the council found it necessary to arrange for the 'protection of young tea-trees with barbed wire in Sandringham reserve, opposite Melrose Street' (Figure 6) (Anon 'In and About the Councils' *Brighton Southern Cross* 26 October 1901 p.3). Further replanting of Coast Teatree was carried out in the same beach reserve in ca.1910, and the Sandringham Progress League contributed to the cost of this work (Anon 'Moorabbin Council' *Brighton Southern Cross* 8 July 1911 p.8).



Figure 6. '1900 Sandringham Palace' (Palace/House). Beach Road. Melrose Street at rear of Palace. Row of Coast Teatree seedlings visible at base of barbed wire fence. See also Figure 9. Source: Stout and Griffith, State Library Victoria

The worried Moorabbin councillors also approved a second Coast Teatree repair project in September 1896, to 'fill gaps with plants where ti-tree is dead'

¹² The exact date of implementation was not recorded

in the Picnic Point reserve, Hampton, located between Brighton and Sandringham (Anon 'Moorabbin Shire Council' *Brighton Southern Cross* 26 September 1896 p.2). The reserve had been 'replanted' by 1901, with the intention of creating a reserve 'second to none for beauty on the whole of the foreshore' (Anon 'Sandringham' *Brighton Southern Cross* 8 June 1901 p.2).

The Hampton Progress League, in partnership with Moorabbin Council, initiated its own replanting effort in 1911, as the foreshore reserve was 'gradually being denuded of trees' (Anon 'Municipal Notes' *Brighton Southern Cross* 10 June 1911 p.8). The plan envisaged a plantation of approximately 2400 square metres and 700 Coast Teatree plants enclosed by protective fencing, all costing a substantial seventy pounds. The plan was implemented over several working sessions. The need to reinstate amenity features certainly motivated the project: as one councillor stated, 'when the tea-tree disappeared, then the attraction of Sandringham and Black Rock would also disappear' (Anon 'Municipal Notes' *Brighton Southern Cross* 10 June 1911 p.8).

However, that the 'systematic replanting of tea-tree' preserved the 'natural state' of the coastal strip of indigenous vegetation and valued biological diversity, as well as amenity qualities, was not lost on Melbourne's naturalists (Anon 'General News in the Tea-tree' *Herald* 11 September 1911 p.8). The author of this 1911 conservation piece called for the protection of the foreshore vegetation, as botanists and ornithologists were lamenting the loss of their traditional field work sites, and the disappearance of avifauna species, in the Melbourne area.

Colonial interest in nature study, science and environmental conservation had developed considerably in the latter decades of the nineteenth century. For example, in 1853 Ferdinand von Mueller was appointed the first government botanist of Victoria. The Field Naturalists Club of Victoria (1880) and the Australian Association for the Advancement of Science (1887) were established. Ku-ring-gai Chase reserve, Sydney, New South Wales (NSW), seemingly Australia's first dedicated indigenous flora and fauna conservation area, was gazetted in 1894 (Mosley 2012: 193-194). Hutton and Connors (1999) argue for the development of a founding Australian environment movement from the late nineteenth-century.



Figure 7. 'Half Moon Bay looking north' ca.1900-1930

Source: Soffa, State Library Victoria

The members of the Black Rock Progress Association, perhaps inspired by the recent, successful campaign to preserve nearby Wilsons Promontory, had failed in a 1908 bid to establish a coastal national park at Black Rock, located

between Sandringham and Beaumaris (Anon 'Moorabbin' *Brighton Southern Cross* 21 November 1908 p.6). In 1913 association members conducted a working bee in the foreshore reserve at Half Moon Bay, Black Rock, for the purpose of erecting protective fences and planting young Coast Teatrees; residents were invited to participate (Figure 7) (Anon 'District News' *Brighton Southern Cross* 30 August 1913 p.4 [3]).

Donald Macdonald, a popular journalist and nature writer employed by the influential, nationally circulated *The Argus* newspaper, was a resident of Black Rock and an active member of the progress association.¹³ He was a 1908 founding member of the Victorian National Parks Association, and maintained connections with prominent naturalists and conservationists (Mulligan, Hill 2001: 112-116). In the course of developing a serious interest in the repair of degraded natural areas, he came to realise that more ecologically aligned repair techniques had potential to reinstate and conserve the high levels of indigenous biodiversity and ecological function that he so much appreciated.

Macdonald publicised the holistic, ecological features and interactions of the foreshore reserves, and pressed repair, conservation and ethical themes.

Is it not possible for the Moorabbin Shire, which has done something, not merely to save but to restore the tea-tree, native to the coast, to preserve also the wild life that makes it attractive...everything that adds to the interest of this pretty band of coastland is not merely the gain of the holidaymakers of today, but the inheritance of the generations to come (Macdonald 1904: 4).

¹³ For more on Macdonald see Griffiths T (1996) *Hunters and Collectors* (Cambridge: Cambridge University Press)

A keen ornithologist, he wrote with joy of the foreshore groves of ‘honeysuckle’,¹⁴ which were ‘full of birds, and bees, and music...all along the eastern shores of Port Philip, the groves are at intervals...’ (Macdonald 1905: 4).

Macdonald absorbed the ecological lessons to be learnt from a ca.1910 wildfire in the beach reserve at Ricketts Point, Beaumaris, just south of Black Rock. The fire ‘re clothed’ the burnt site with a ‘dense scrub growth, more varied, more attractive, than in its original state’, and demonstrated ‘an easier and cheaper means than hand-planting, for restoring the scrub, where areas have been almost, if not quite denuded’ (Macdonald 1913: 7).

By ‘scrub’, Macdonald was clearly referring to a species’ diverse indigenous plant community, and not solely to Coast Teatree. His favourite ornithological haunts, the Coast Teatree and Coast Banksia communities of the Black Rock and Beaumaris foreshores, were being ‘stripped’ of ‘waving leaf and bough’ from ca.1900, as these areas were settled (Anon ‘Black Rock Progress League’ *Herald* 27 May 1908 p.3). There is no doubt that Macdonald aspired to their intensive repair and ecological renewal by the application of managed fire. However, there is no record of fire being utilised in any of the Bay repair projects; damage to adjacent urban infrastructure was a likely concern.

Federation series – Mornington

The small, south Bay village of Mornington had developed into a popular seaside resort by the 1860s; tourism was a vital component of the local economy. In 1902 the shire president reported that the village beaches were becoming ‘denuded of ti-tree and the sand in some places, encroaching very

¹⁴ Banksia, likely Coast Banksia

badly' (Anon 'Mornington Shire Council' *Mornington Standard* 15 February 1902 p.3).

The council was offered sound restoration advice by landowner Mr GP Mill, of Tanti Creek, Mornington, in 1902 (Figure 8). He called on the councillors to conserve the 'natural shelter' and 'natural beauty' of the Coast Teatree by fencing out cattle, and allowing 'Nature to make her own replacement of decay' (Anon 'Destruction of Ti-tree' *Mornington Standard* 23 August 1902 p.2). Mill had observed that the eroded foreshore areas beyond the reach of cattle produced a 'beautiful growth of honeysuckle, oak¹⁵ and ti-tree'. Unfortunately, his advice was ignored.



Figure 8. 'Tanti Creek bridge Schnapper Point' ca.1880

Source: State Library Victoria

The following year the Mornington Progress Association, a commercially focused community organisation, initiated a series of annual, degraded area repair projects, involving the 'replanting' of thousands of Coast Teatrees along

¹⁵ Likely Drooping Sheoak, *Allocasuarina verticillata*

the denuded foreshores by members of the association, south to Fishermans Beach; wandering stock ate most of them (Figure 9) (Anon 'News of the Week' *Mornington Standard* 15 August 1903 p.2 [2]). Mornington Shire sponsored the project, with the objective of improving amenity services for beach-users: one supportive councillor noted that 'the attractiveness of the town was one of its principal assets' (Anon 'Mornington Shire Council' *Mornington Standard* 11 June 1904 p.2). Further replanting events, involving hundreds of Coast Teatree seedlings per session, were conducted between 1906 and 1911 (Anon 'Mornington Progress Association' *Mornington Standard* 5 August 1911 p.3).

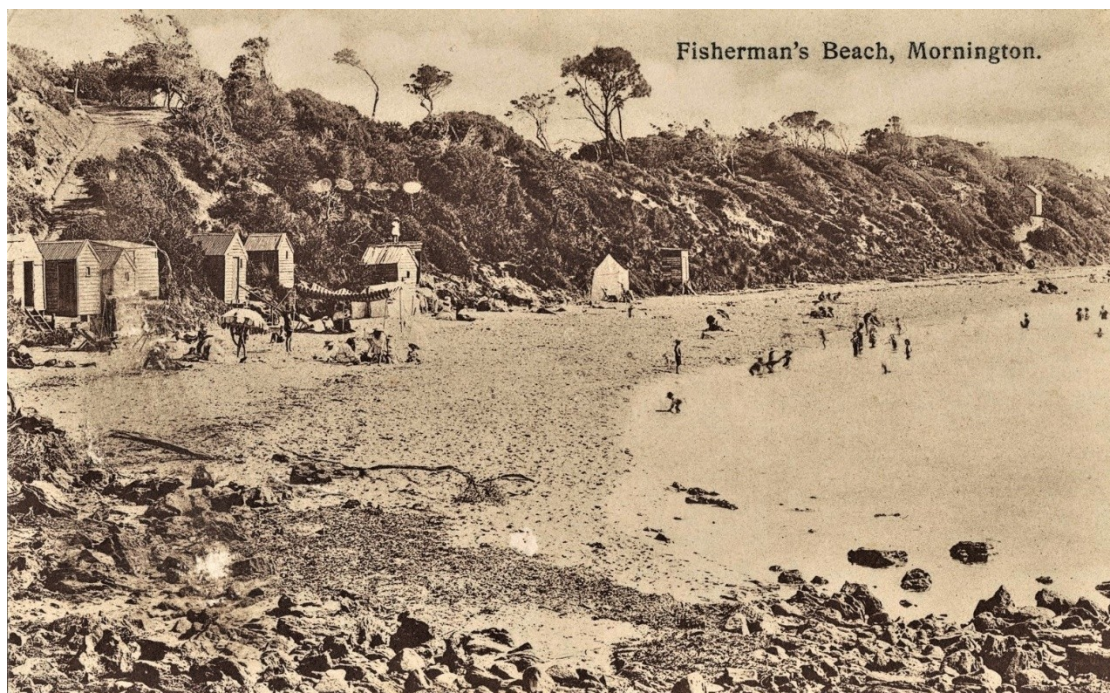


Figure 9. 'Fishermans Beach Mornington' approximately 1909

Source: State Library Victoria

These were the first community repair projects to be undertaken along the Bay coast. Despite the initial setback with wandering stock, they must have met with some success, and perhaps inspired the subsequent community projects previously reported, at Hampton (1911) and Black Rock (1913).

The repair projects of the Inter-war Period of the 1920s and 1930s

Inter-war series – Brighton, Sandringham, Beaumaris

The demands of the First World War (1914-1918) appear to have temporarily curtailed the undertaking of further foreshore repair projects, and it is likely that work did not resume until the 1920s. Brighton Council claimed to have planted 6000 seedlings in 1927, 'removing old trees from the reserves and replacing them with new plants...' (Anon 'Bayside Tea-tree' *Argus* 18 August 1927 p.16). Sandringham Council conducted regular Coast Teatree replanting projects throughout the 1920s, involving thousands of seedlings each year.

Despite these efforts, controversy engulfed the Bay councils in the 1920s: their management of the Coast Teatree and foreshore reserves was roundly criticised. In fact, environmental controversy was not unusual during the Australian inter-war period. Widespread and keenly contested discussion concerning the despoliation of timber, soil and water resources occurred (Griffiths 1996: 156).

Donald Macdonald regarded Sandringham Council's replanting efforts as 'much too costly, the areas...are too small, few, and far between to be seriously considered as a step towards restoration' (Macdonald 1922: 4). In the same article, he advocated for the more ecologically effective option of utilising managed fire to repair and renew the indigenous flora communities of the Sandringham to Black Rock coast.

Burning-off has this advantage, that it causes a growth not only of tea-tree, the most valuable of the native vegetation thereabout, but also of she-oaks, banksias, coastal wattles, and a few other species native to the locality.

Macdonald also supported the broadcasting of Coast Teatree seed over pre-treated, scarified ground, and for highly degraded bare areas, the replanting of the 'trees native to the place'.

Macdonald's criticisms of Sandringham Council's replanting efforts may have produced tangible outcomes. The council, residents and a community organisation teamed up at Beaumaris to implement a Coast Teatree replanting scheme, commencing in 1924.

Beaumaris residents have organised to keep the beach foreshores clothed with tea-tree. Parties take sections of the foreshore and make themselves responsible for their care and maintenance, the Sandringham Council supplying the plants and tree guards (Anon 'News in Brief' Herald 14 May 1924 p.9).

In 1925 the council was requested to supply loads of Coast Teatree 'to enable local ratepayers to continue a scheme of replanting in the local foreshore reserves' (Anon 'In the Suburbs' Age 15 October 1925 p.6). A series of Saturday community planting days for both children and residents were conducted in June and July 1926.

Systematic planting of the foreshore with tea-tree supplied by the Sandringham council has been carried out from Honeysuckle Dell at Ricketts Point to Beaumaris, with the idea of preserving the natural beauty of the foreshores (Anon 'Foreshore Ti-Tree' Age 15 July 1926 p.5).

The Beaumaris Improvement League lobbied the council for more planting sessions, and at least one was held in 1927, with plants supplied by the council (Anon 'Tea-Tree for Beaumaris' *Herald* 15 July 1927 p.21). However, this appears to have been the final session: the Australian economic credit crisis of 1927-1928, and then the onset of the Great Depression in 1929, may well have finished off the scheme.



Figure 10: 'Sandringham 1921'. Eroded, fragmented foreshore reserves. Sandringham Palace/House centre. Also see Figures 5 & 6. Source: WH Hanson State Library Victoria

Melbourne's population and urban footprint continued to expand during the inter-war years. The foreshore reserves and their Coast Teatree steadily succumbed to a series of degrading impacts: erosion, fragmentation, built recreation infrastructure development (Figure 10). In 1924 it was claimed that the Coast Teatree 'nurseries' of Brighton and south to Hampton had been

‘practically stamped out of existence’ by picnickers (Anon ‘Beach Rubbish’ *Herald* 8 March 1924 p.8). The town clerk of Sandringham acknowledged in 1927 ‘that the tea-tree was being destroyed faster than it was being replanted’ (Anon ‘Bayside Tea-tree’ *Argus* 18 August 1927 p.16).

Still uncertain as to the precise reasons for the decline of the Coast Teatree, in 1927 Donald Macdonald publicly appealed to the Field Naturalists Club of Victoria to conduct an investigation (Macdonald 1927: 6). The club took up the cause. President Edward Pescott,¹⁶ Victorian government entomologist Charles French and club members undertook a one-day inspection of the eastern Bay foreshore reserves on July 23 1927 (Anon ‘Doomed Tea-tree’ *Argus* 25 July 1927 p.16).

Their report identified widespread senescence (rather than drought), lack of natural regeneration brought on by human impacts, vandalism, disease and insect attack as factors that were significantly contributing to the demise of the Coast Teatree. ‘There are too many bodies controlling these areas...They are doing little or nothing for the preservation of the tea-tree’ (Anon ‘Doomed Tea-tree’ *Argus* 17 August 1927 p.19). Stung by the criticism, both Brighton and Sandringham Councils insisted that they continually replanted many thousands of the trees (Anon ‘Bayside Tea-tree’ *Argus* 18 August 1927 p.16).

The report called for the creation of a network of plantations, their appropriate conservation management, and the establishment of a single controlling authority. The regenerative ability of fire was noted, but applied fire management was not formally recommended; there was no mention of Eastern Kulin people and cultural fire.

¹⁶ Victorian government pomologist but also an indigenous flora enthusiast

Despite a subsequent publicity campaign, little came of the 1927 field naturalists' investigation and report into the decline of the Coast Teatree. They received no support from either state or local government agencies. At the time, environmental law options were non-existent.

Inter-war series – Mornington

The issue of how the Coast Teatree should be managed also erupted at Mornington. As part of their July 23 inspection tour, the field naturalists met with members of the Mornington Foreshores Committee of Management. Formed in approximately 1915, the committee was variously comprised of councillors, council staff and members of the progress association. It managed the built infrastructure, and the indigenous and introduced vegetation communities of the foreshore reserves.

The field naturalists were shown 'thriving plantations recently made', and at Fishermans Point,¹⁷ 'efforts to renew the tea-tree by replanting and natural regeneration were explained' (Anon 'No Birds' *Frankston and Somerville Standard* 29 July 1927 p.7[3]). That a technique described as 'natural regeneration' was being practised is noteworthy, but no further details appear to be available. An indeterminate proportion of this work was possibly being applied to the landscaping of visitor infrastructure, and not to the repair of degraded indigenous plant communities: Fishermans Point featured a 'picnicking ground sheltered by arbors of tea-tree [sic]', and a parking area planted with Coast Teatree (Anon 'Holiday Resorts' *Age* 30 October 1928 p.12; Anon 'Riverina News' *Age* 1 September 1927 p.14).

¹⁷ now Linley Point

The field naturalists were distinctly unimpressed with the conservation management being implemented at Mornington.

from Seaford to Mornington the...trees are still present in abundance. From Mornington for several miles the belt is almost continuous. How long, under the present management, will this abundance prevail? (Anon 'Doomed Tea-tree' Argus 17 August 1927 p.19)

Possibly the field naturalists had observed the car park authorised by the committee and installed along the Mount Martha foreshore at Balcombe Creek, 'with a gravelled road leading to the beach' (Anon 'Riverina News' Age 5 May 1928 p.27). An expanse of indigenous vegetation that had fringed the foreshore was cleared for its construction; the committee may have intended to recreate the vegetation on an adjacent site.

Responding to the criticism, foreshore committee chairperson and council engineer George Maughan rejected the field naturalists' 'strictures' (Maughan 1927). He assured 'Lovers of Nature' that the indigenous flora of Mornington's foreshores was flourishing, with barbed wire protected plantations resulting in 'a greater growth of tea-tree and native shrubs on our foreshore reserves than 14 years ago' (Maughan 1927). The committee claimed to have planted 10,000 Coast Teatree plants, presumably since its formation in approximately 1915 (Anon 'Horticultural Notes' *Australasian* 17 September 1927, page 20 [2]).

Maughan reported in 1934 that 'each year hundreds of tea-tree plants, sheoaks, honeysuckles and boobyala [sic] have been planted out' in clusters; the precise sites were unspecified (Maughan 1934). An indeterminate amount of this planting may have been landscaping: the committee worked closely

with the local progress association to develop and promote tourism infrastructure. For example, at the popular Red Bluff visitor destination, the reserve of two and a half hectares was 'beautified' in 1930, with an 'eight-foot walk' installed and two hundred Coast Teatrees and 'oaks'¹⁸ planted (Anon 'Riverina News' *Age* 21 June 1930 p.24: 2).

Succeeding decades

Throughout the 1930s conservationists such as Edward Pescott and Charles Barrett spoke up about the decline of the Coast Teatree, with no success. The Victorian Tree-planters Association also expressed alarm in 1937; in response, Brighton Council claimed to be planting thousands of the trees annually (Anon 'Vandalism Not Rife' *Herald* 9 April 1937 p.2). The Sandringham Council effort appears to have entirely lapsed (Anon 'Saving Land from the Sea' *Herald* 25 January 1935 p.6).

As the 1940s progressed, the demise of the Coast Teatree appears to have waned as a public issue in Melbourne. The resource and administrative demands of the Second World War must have played some role in this development. The evolution of a more cautious and conservative national political atmosphere, changes in recreation pursuits, and reduced involvement in conservation advocacy by a now bureaucratised science sector, may have been contributing post war factors (Hutton, Connors 1999).

Early forms of ecological restoration practice

¹⁸ Possibly Drooping Sheoak *Allocasuarina verticillata*

The Port Phillip Bay repair projects immediately preceded the development of several pioneering, degraded area repair projects that notably anticipated, in many respects, the contemporary repair practice, ecological restoration; they were undertaken in Australia, and the United States of America (USA). The American project commenced in 1935, at the University of Wisconsin Arboretum. Professional ecologists set out to 're-construct', as participating ecologist Aldo Leopold explained, samples of the 'original', but long destroyed county ecosystems (Jordan III, Lubick 2011: 75-77). Interest in the biological qualities and research value of these ecosystems was a significant motivating factor.

Two 1930s Australian degraded area repair projects appreciably resembled ecological restoration. As in the USA, science knowledge played a prominent role in their development. However, the Australian projects, as was the case with many of the Bay repair projects, were essentially volunteer efforts; volunteer based projects emerged in the USA in the 1970s (Jordan III, Lubick 2011: 73).

In 1935, dairy farmer Ambrose Crawford, alarmed that the 'trees of the big scrub area were becoming extinct', launched his successful attempt to restore and conserve a degraded Big Scrub, or Subtropical Lowland Rainforest, remnant at Alstonville, northern NSW (Anon 'Scrub Trees' *Northern Star* 15 August 1935 p.5; McDonald in Jordan III, Lubick 2011: 72-73). Crawford liaised with NSW government forester and aspiring ecologist Wilfrid de Beuzeville to select appropriate rainforest flora species for replanting (Anon 'Classifying Trees' *Daily Examiner* 20 October 1936 p.8).

Arid zone botanist and field naturalist Albert Morris, devastated by the degradation of the regional saltbush and mulga ecosystems of western NSW, initiated the Broken Hill regeneration area project in 1936. He successfully revived the biological qualities and ecological functioning of those ecosystems and conserved them; utilitarian objectives featured too (Ardill 2017; McDonald in Jordan, Lubick 2011: 73-75).

Two further interesting, albeit unsuccessful, 1930s Australian natural area repair projects appeared to target the reinstatement and conservation of biological qualities for the sake of their inherent interest and value. In ca.1930 biologist David Stead launched an unsuccessful attempt to reinstate to NSW, from Queensland, the much slaughtered and ecologically critical 'native bear', or koala (Anon 'Native Bears' *Sydney Morning Herald* 18 July 1928 p.19).

In 1931 retired entomologist Walter Froggatt¹⁹ partnered with volunteers and North Sydney Council, NSW, to promote a repair project that the available evidence convincingly suggests aspired to the reinstatement of high levels of ecological function to a degraded natural area. His aim was to re-create 'a home for the trees, flowers and birds of old-time Sydney Harbour' at Balls Head reserve; 'Hawkesbury sandstone flora' served as his vegetation model, or indigenous reference ecosystem (Froggatt 1931: 8; SERA 4). Promising work was undertaken, but Froggatt's death in 1937 saw the project disintegrate into landscaping.

There is no evidence to suggest that any of the early Australian repair practitioners directly communicated with each other. Although not confirmed,

¹⁹ Froggatt attracted ridicule in 1935 for opposing the introduction of the Cane Toad to Australia for use as a biological control.

it is quite possible, in this author's opinion, that Albert Morris read and benefited from Donald Macdonald's nature articles in the widely circulated 'The Argus' newspaper.

Conclusion

The Bay series of repair projects appear to represent the earliest, currently known attempts by settler Australians to intentionally achieve the enduring repair of selected, degraded natural areas by reinstating one or more typical indigenous plant species. The projects contribute to and confirm an emerging historical picture of substantial engagement in twentieth-century Australia with natural area repair thought and practice.²⁰

In common with contemporary rehabilitation practice, the prioritised target of the Bay projects was the maintenance of ecosystem service delivery, with practitioners aspiring to the replanting of a particular indigenous plant species in order to realise that outcome; indeterminate levels of ecological function were recovered. A specific, completed project, revealing details of aspiration to reinstate complex or all potential levels of indigenous biota and ecological function to a defined, degraded indigenous ecosystem, is not clearly identifiable.

That local government, and community volunteers, featured prominently in the execution of the Port Phillip Bay projects is noteworthy. Historically, state governments have played the more influential role in Australian land

²⁰ As well as the Port Phillip Bay projects, and those of Crawford, Morris, Stead and Froggatt, see Ardill (2017), Bonyhady (2000), Good & McDonald (2016) and Radi (1993) for further examples of natural area repair thought and practice in twentieth-century Australia

management administration, and any ensuing conservation activism has tended to operate at a state, rather than at a federal level of engagement, until the 1960s (Robin 2007: 163). However, delegating land management decision-making responsibilities to local government and appointed trustees is a long-standing state practice. The Bay repair projects reveal historically early and sustained local government engagement with conservation management and a specific environmental crisis. Productive conservation partnerships with community volunteers and advocates were established.

Scattered remnants and intact strips of the Port Phillip Bay east coast indigenous vegetation communities persist today (Figure 2). New threats now confront them: introduced plant species that have steadily displaced indigenous plant species and communities; climate change. Unsurprisingly, the engagement of Australian local government and regional communities with the repair of degraded natural environments continues today, at Port Philip Bay, and throughout Australia.

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