

# Historical settler understandings of Australian indigenous vegetation management: Walter Wilson Froggatt and 1930s restoration of locally indigenous vegetation, Balls Head, Sydney.

Peter J Ardill

October 2023

## Introduction

Following British invasion in 1788 and displacement of Aboriginal nations and their communities, widespread settler degradation of Sydney's indigenous<sup>1</sup> vegetation communities occurred. The plentiful Red Cedar (*Toona ciliata*) that grew along the banks of the Dyarubbin (Hawkesbury-Nepean River) was soon locally extinct, felled for its durable, attractive timber (Lines W. J. 1991 p.39). North of Sydney Harbour, mid to late nineteenth-century vegetation clearing undertaken to enable development of housing, roads and railways resulted in dramatic loss of Blue Gum High Forest (*Eucalyptus saligna*), now a critically endangered ecological community (NSW Department Planning Environment 2021).<sup>2</sup>

Botanist and Director of the Royal Botanic Garden, Joseph Maiden, in 1921 publicly lamented the destruction of Sydney's indigenous wild flowers. "The wild flowers which most need protection," added Mr. Maiden, "are the Waratah, the Rock Lily, Christmas Bush, and the Giant Lily of Gynea" (Anon. "Wild Flowers" *Sydney Morning Herald* 11 January 1921). Many of Sydney Harbour's foreshore precincts had lost much of their indigenous vegetation by 1920 (Anon. "Wild Flowers" *Sydney Morning Herald* 11 January 1921). Degradation and alienation of the harbour's public

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<sup>1</sup> Indigenous vegetation: occurring naturally, in the specified area. Locally indigenous vegetation: in the context of this article, the naturally occurring vegetation of Balls Head and environs. Indigenous vegetation local to Balls Head may also occur naturally in other areas. Introduced species: introduced to Australia (or exotic or non-indigenous to Australia or a species introduced from overseas).

<sup>2</sup> There were settlers who engaged in nature conservation. See Bonyhady T. (2000), Hutton D., Connors L. (1999), Mosley G. (2012).

spaces and indigenous vegetation, often by industry, developed into major 1920s Sydney conservation issues.

### Revegetation and conservation of Balls Head reserve

A concerted campaign to conserve prominent Sydney Harbour headland, Balls Head, as a public reserve commenced in approximately 1920 (Hay C. 2018 pp.15-16, 20-21). Balls Head is located on the north shore of the harbour. Part of the traditional lands of the Cammeraygal people and a repository of cultural heritage, the headland exhibits Hawkesbury Sandstone geology and was well vegetated at the time of Cammeraygal management (Hoskins I. 2019; Hay C. 2018 p.10).



*Illustration 1. Densely vegetated Balls Head (centre) Sydney Harbour. Approximately 1870s Source: Attributed to J. Paine. Mitchell Library, State Library of New South Wales.*

Balls Head appears to have largely retained its indigenous vegetation (locally indigenous vegetation) throughout the nineteenth century (Smith P., Smith J. 2010 p.44) (Illustration 1).

*Ball's Head was one of the old-day wild gardens where the lads of Balmain and Pyrmont gathered spring flowers and native currants, the latter being in great favour for Jam and Jelly making. Native roses, too, were plentiful, and good red bream could be caught in the deep waters around the headland. (Anon. "Ball's Head Park" Sydney Morning Herald 10 January 1931)<sup>3</sup>*



*Illustration 2. Steam ship rounding Balls Head Sydney 1930s*

*Source: National Library Australia*

Between approximately 1900 and the mid-1920s industrial development, frequent fires, vandalism and felling of trees for timber and firewood progressively degraded Balls Head's indigenous vegetation. In 1927 the headland was described as having

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<sup>3</sup> Native currant: possibly *Persoonia* sp. or *Coprosma quadrifida*. Native rose: possibly *Boronia serrulata*.

“very little vegetation” (Froggatt W. 1931; Anon. “New Reserves” *Sydney Morning Herald* 31 May 1927) (Illustration 2).

Over several years a powerful coalition of nature conservationists, including Annie Forsyth Wyatt (1885-1961),<sup>4</sup> Wollstonecraft Progress and Community Association, Bay Road Progress Association and administrators and aldermen<sup>5</sup> of North Sydney Council pressured the New South Wales (hereafter NSW) state government to dedicate Balls Head a public reserve (Simpson C. 2002; Anon. “Harbor Reserves” *Daily Telegraph* 14 April 1926; Hay C. 2018 pp.15-16, 20-21). Responding on 13 April 1926, NSW Premier, Jack Lang,<sup>6</sup> acted to conserve the headland (Anon. ‘Harbor Reserves’ *Daily Telegraph* 14 April 1926). Accompanied by government ministers, North Sydney Council aldermen and administrators, local conservationists and journalists, he visited the site and announced that Balls Head would be declared a reserve dedicated to public recreation, to be managed by North Sydney Council (Anon. “Harbor Reserves” *Daily Telegraph* 14 April 1926) (Government Gazette 1926) (Illustration 3). Originally 5.5 hectares,<sup>7</sup> the reserve now extends over 9 hectares.<sup>8</sup>

As the new managers of Balls Head reserve, North Sydney Council installed a path and seats in 1927. The council developed plans to landscape or establish vegetation on the headland, by planting “native trees” and a large number of “ornamental trees” (Anon. “New Reserves” *Sydney Morning Herald* 31 May 1927; Anon. “Historic Headland” *Evening News* 12 August 1927). These descriptions suggest that the council had chosen a selection of locally indigenous species, Australian indigenous species that were non-indigenous to Balls Head and introduced species (exotics). Whether the planting plans were implemented is unknown. At a meeting on 16 July

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<sup>4</sup> A founder of the Ku-ring-gai Tree Lovers Civic League in 1927 and the National Trust of Australia (NSW) in 1945 (Simpson C. 2002).

<sup>5</sup> Elected representatives and now referred to as councillors.

<sup>6</sup> Australian Labor Party.

<sup>7</sup> 14 acres.

<sup>8</sup> 22 acres. The original reserve was located on the prominent elevated, rocky headland and foreshore that constitutes Balls Head, as is the expanded, current reserve (Illustrations 1 & 2) (For reserve map see North Sydney Council 2022 p.97).

1929, North Sydney Council resolved to plant Port Jackson Fig (*Ficus rubiginosa*) at Balls Head, and in other local reserves (Anon. "Tree Planting" Sun 17 July 1929). Whether this plan was implemented is unknown. The fig is indigenous to Sydney and is a locally indigenous species, naturally occurring at Balls Head.<sup>9</sup>



*Illustration 3. Premier Jack Lang (centre), Balls Head, 13 April 1926, after announcing that the headland would be dedicated as a reserve<sup>10</sup> Source: National Library Australia*

Distinguished Australian entomologist and botanist, Walter Wilson Froggatt (1858-1937) had also been distressed by the destruction of Sydney's indigenous vegetation. Froggatt was a founder of the Wildlife Preservation Society of Australia, the Naturalists Society of New South Wales and many other conservation organisations (Hutton D., Connors L. 1999 p.49; McDonald 1981). A determined campaigner, he regularly contributed to Sydney's newspapers spirited, detailed

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<sup>9</sup> Present at Balls Head in 2010 (uncommon). A "main" species. See Smith P. Smith J. 2010 pp.16, 69.

<sup>10</sup> See Anon. "They're All Smiling" Sun 14 April 1926. Author's research revealed the correct details of this archived National Library of Australia photograph and four other photographs in the series. As at 02/09/2023 the five photographs in the series were inaccurately captioned "Group of men...at Bald Head New South Wales ca.1930s". Library notified of correct details.

articles on Australian botany and environmental issues. Froggatt is particularly remembered for his perceptive opposition in the 1930s to the introduction of the Cane Toad (*Bufo marinus*) to Australia (National Museum 2023).

Froggatt recognised that prior to settler degradation, Balls Head had been covered in dense stands of indigenous vegetation that featured a diverse range of plant species (Illustration 1). “Large angophoras, swamp mahogany, bloodwoods, interspersed with banksias, wattles and ti-trees covered this picturesque point” (Froggatt W. 1931).<sup>11</sup> This article will demonstrate that Froggatt aspired to restoration of the headland’s degraded indigenous vegetation, and its conservation.<sup>12</sup>

Conservationists appear to have become closely involved with the revegetation of Balls Head from approximately 1929. Walter Froggatt vigorously advocated that year for the planting of a wide range of NSW indigenous species in “nature reserves” around Sydney (Froggatt, W. 1929c). Quite possibly, he approached North Sydney Council and put forward proposals for the revegetation of Balls Head. “In 1929, suggestions to replant Balls Head Reserve by W.W. Froggatt were considered” (Hay C. 2018 p.17). Campaigning for state government regulation of a widespread, rampant tree felling culture, nature conservationist and president of the Australian Forest League (NSW), David Stead, complained in 1930 that “at Balls Head the arboreal growth had been completely denuded” (Anon. “Forest League Active” *Labor Daily* 7 November 1930). Representing local residents, Annie Wyatt corresponded in 1931 with North Sydney Council, seeking conservation of the headland’s remnant indigenous vegetation (Hay C. 2018 p.17). Subsequently, meetings were held

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<sup>11</sup> Froggatt was quite likely referring to Sydney Red Gum (*Angophora costata*), Swamp Mahogany (*Eucalyptus robusta*), Red Bloodwood (*Corymbia gummifera*), *Banksia* spp., Wattle (*Acacia* spp.), Ti-tree (*Leptospermum* spp.).

<sup>12</sup> Commissioned by North Sydney Council to survey the “native vegetation, flora and fauna of North Sydney local government area”, P & J Smith Ecological Consultants identified four vegetation communities at Balls Head reserve (Smith P., Smith J. 2010 p.1). They state that three of these communities were present prior to settler degradation: Angophora Foreshore Forest, Sandstone Foreshore Scrub and Kunzea Scrub, all Hawkesbury Sandstone vegetation communities. The fourth community was Disclimax Sandstone Scrub: “A (secondary) community occurring on disturbed sites that would originally have supported eucalypt forest (often indicated by the presence of dead trees, stumps or saplings)” (Smith P., Smith J. 2010 p.22). Author’s note: disturbance likely caused by extensive settler tree felling and frequent fires that occurred prior to 1926.

between North Sydney Council aldermen and an array of conservationists (Hay C. 2018 p.17; Froggatt W. 1931). Council's Parks and Beautification Committee met with the "Tree-Lovers Civic League,<sup>13</sup> Town Planning Association, Australian Forest League, Field Naturalists,<sup>14</sup> Wild Life Association, Wattle League and School Branch of the Australian Forest League" (Hay C. 2018 p.17). A Balls Head Beautification Scheme sub-committee was established in 1931 (Hay C. 2018 pp.17-18).

Froggatt had a plan to regenerate and conserve the indigenous vegetation of Balls Head, and explained his plan in a *Sydney Morning Herald* newspaper article published on 24 July 1931. A specific restoration objective was outlined: to establish at Balls Head "a new beauty spot, a home for the trees, flowers and birds of old-time Sydney Harbour" (Froggatt W. 1931). "A combined committee has been formed to carry out the regeneration of the flora, and the replanting of more native trees" (Froggatt W. 1931).<sup>15</sup> Implementation of Froggatt's plan commenced in approximately June 1931, when the precious remnant indigenous vegetation of Balls Head was assessed and recorded, to serve as a restoration guide.<sup>16</sup>

*A working bee, comprising nature lovers and members of the North Shore Council and their officers, spent a day on the ground. They cleared away grass and undergrowth, and marked each tree with a numbered stake. Some made catalogues of all the trees and shrubs which have persisted in growing despite ravages of 20 years (Froggatt W. 1931).*

The newly formed committee, or Beautification Scheme sub-committee, organised an initial Arbor Day tree planting event (Hay C. 2018 p.18). "Ball's Head will come

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<sup>13</sup> Likely Annie Wyatt's Ku-ring-gai Tree Lovers Civic League.

<sup>14</sup> Likely Walter Froggatt's Naturalists Society of NSW.

<sup>15</sup> Most likely the Balls Head Beautification Scheme sub-committee.

<sup>16</sup> Restoration guide: see SERA (2021). Froggatt propagated Australian indigenous plants (Froggatt W. 1935). Quite likely, he would have collected locally indigenous plant seed for propagation and future planting on the headland.

into its own again tomorrow. Many years ago it was a well wooded point and was clothed with Hawkesbury sandstone flora” (Froggatt W. 1931).

The planting event was conducted on 25 July 1931, with the “object of restoring the head to the condition in which it was before many of the trees were destroyed” (Anon. “Arbor Day” *Sydney Morning Herald* 27 July 1931). Local, state and federal politicians, administrators, members of the Naturalists Society, Linnean Society, Town Planning Association of NSW, Australian Forest League and many other community and conservation groups, scientists, residents and local school children participated (Municipality of North Sydney 1931).



*Illustration 4 Aerial view Berrys Bay and Balls Head approximately 1932 Source: Attributed Hall & Co. Courtesy Stanton Library Historical Services*

Marine biologist, conservationist and president of the Australian Forest League (NSW), David Stead (1877-1957), attended the Arbor Day event (Hutton D., Connors L. 1999 p.49; Walsh G.P. 1990). Addressing the participants, he drew their attention to natural regeneration of locally indigenous tree species that was occurring in the



reserve (Illustration 4). “The day had been when the headland was covered with magnificent timber, which had grown and flourished on barren sandstone. Some of the trees were undergoing natural regeneration” (Anon. “Arbor Day” *Sydney Morning Herald* 27 July 1931).<sup>17</sup>

Walter Froggatt would have been keen to nurture natural regeneration of locally indigenous vegetation that was occurring at Balls Head. As revealed, he advocated for the “regeneration of the flora” at Balls Head, clearly distinguishing between natural regeneration and replanting as revegetation techniques (Froggatt W. 1931). In fact, Froggatt had a considerable interest in degraded area restoration and natural regeneration. At the same time that he was initiating his project to recover the indigenous vegetation of Balls Head, in two *Sydney Morning Herald* articles Froggatt pushed for the restoration of River Red Gum (*E. rostrata* syn. *E. camaldulensis*) and Red Cedar communities devastated by timber cutting, grazing and commercial irrigation flooding. He promoted natural regeneration as an effective way to restore these two communities (Froggatt W. 1928; Froggatt W. 1929).

*I have seen hundreds of red gum seedlings covering the ground on the Gunbower Forest, under the head of a felled red gum...If we study the natural conditions under which the red gum grows and distributes its seed, there should be no great difficulty, not only in regenerating the cutout [logged] forests, but in extending the area over the adjacent alluvial flats (Froggatt W. 1928).*<sup>18</sup>

Further tree planting events were organised at Balls Head during the 1930s (Illustration 5). They appear to have been conducted by interested community and conservation groups and North Sydney Council. In August 1932 a large number of

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<sup>17</sup> By natural regeneration, Stead was referring to natural recovery of locally indigenous trees. Natural regeneration could have occurred at Balls Head in two ways. First, by germination of naturally distributed, soil stored locally indigenous plant seed and growth of seedlings to maturity. Also, degraded tree trunks and rootstocks may have naturally regenerated i.e., developed new foliage and matured, once protected from axes, vandals and fires.

<sup>18</sup> Gunbower Forest: quite likely Gunbower Creek and Forest, Murray River floodplain, Victoria. Now subject to conservation measures including the international Ramsar Convention. See VEWH (2022).

“Blackbutt”<sup>19</sup> were planted by members of the Naturalists Society and aldermen of North Sydney Council. The newspaper report noted that “the species was among the original flora of the area” (Anon. “Ball’s Head Trees” *Sydney Morning Herald* 1 August 1932). By 1933 “extensive planting of native trees and shrubs allied to those which originally covered the area” had occurred in the reserve (Anon. “Ball’s Head Beautification” *Sydney Morning Herald* 28 July 1933). A planting event conducted in August 1934 added another 300 trees to the reserve. Mayor of North Sydney Council, Alderman Hodgson commented that “Balls Head is the most striking point along our Harbour foreshores... We are endeavouring to add to its beauty by restoring some of the timber formerly destroyed” (Anon. “Ball’s Head” *Sydney Morning Herald* 6 August 1934).



Illustration 5. “Alderman George B. Brainwood<sup>20</sup> attends annual tree planting ceremony, Balls Head Reserve” Dated “c.1931” Source: courtesy Stanton Library Historical Services

<sup>19</sup> Probably Blackbutt (*Eucalyptus pilularis*). Locally indigenous species (Smith J., Smith P. 2010 pp.16, 69).

<sup>20</sup> Photograph possibly taken at the 25 July 1931 planting event, or a subsequent event. George Brainwood was a jeweller with a shop in North Sydney. His exact opinion is unknown, but he did have reason to favour development of the reserve as a botanical garden and resort, to attract visitors and hopefully compensate for anticipated loss of trade in North Sydney after the opening of the Harbour Bridge.

A wide range of state and national conservation organisations, local community groups and schools continued their participation in the tree planting events (Anon. "Planting Trees" *Sun* 4 August 1934). According to one newspaper estimate, approximately 1,500 trees had been planted in the reserve by 1936, of which approximately 200 had "not thrived" (Anon. "1500 Trees" *Sun* 4 July 1936).

### Non-local Australian indigenous species and introduced plant species

Australian indigenous trees species that were not indigenous to Balls Head (non-local Australian indigenous species) and introduced plant species (exotics) were planted in the reserve. Walter Froggatt commented in 1934 that "they were bringing back the old flora formerly on Balls Head, as well as new trees. The place was becoming a botanical garden, in which shortly would be found specimens of all the Australian flora" (Anon. "Ball's Head" *Sydney Morning Herald* 6 August 1934). Commissioned by North Sydney Council to survey the "native vegetation, flora and fauna of North Sydney local government area", P & J Smith Ecological Consultants reported in 2010 that Balls Head reserve "has an extensive area of old native plantings (mainly non locally indigenous species) that ... nevertheless supports a good variety of locally indigenous understorey species" (Smith P., Smith J. 2010 pp.1, 50).<sup>21</sup>

Quite a range of non-local Australian indigenous and introduced species are likely to have been planted in the reserve (National Trust Report 2018 p.6). For example, in October 1931 women of the Waverton Progress Association planted "more than 30 tree ferns and Christmas trees..." (Anon. "Balls Head" *Sydney Morning Herald* 6 October 1931). Quite possibly, the tree ferns and Christmas trees were not locally indigenous species.<sup>22</sup> At some time prior to 1935, Froggatt arranged for non-local

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<sup>21</sup> See map Smith P., Smith J. (2010) p.46.

<sup>22</sup> Species recorded at Balls Head by P & J Smith Ecological Consultants that resembled "tree ferns" were Rough Tree Fern (*Cyathea australis*) (uncommon) and King Fern (*Todea barbara*) (uncommon) (Smith P., Smith J. 2010). The "Christmas trees" were probably Christmas Bush (*Ceratopetalum gummiferum*) but this species was

Australian indigenous species, Weeping Pittosporum (*Pittosporum phillyraeoides* syn. *Pittosporum angustifolium*)<sup>23</sup> to be planted in the reserve (Froggatt W. 1935). He quite likely donated many more non-local Australian indigenous species, as each year he supplied approximately 200 trees for planting events in the reserve (Anon “Memorial Tablet” *Sydney Morning Herald* 6 July 1936). At least one introduced species was planted at the 1931 Arbor Day event, possibly as a memorial tree: Tulip Tree (*Liriodendron* spp.) (Hay C. 2018 p.18).<sup>24</sup> In 1939, introduced species, Jacaranda tree (*Jacaranda mimosifolia*),<sup>25</sup> was planted by a visiting dignitary, and in 1942 an avenue of non-local Australian indigenous species, Camden Woollybutt (*Eucalyptus macarthurii*),<sup>26</sup> was planted (Anon. “Lady Gowrie” *Daily Advertiser* 2 August 1939; Anon. “Trees Planted” *Sydney Morning Herald* 6 July 1942). The heavy resource demands of World War Two (1939-1945) appear to have finished off the revegetation program commenced in 1931.

### Managing Australian indigenous vegetation in the 1930s

The historical documentation demonstrates that Walter Froggatt had an intention to restore to Balls Head the locally indigenous vegetation that thrived there prior to settler degradation. He was correct to believe that “many years ago it was a well wooded point, and was clothed with Hawkesbury sandstone flora” (Froggatt W. 1931).<sup>27</sup> His stated restoration objectives were unambiguous: “bringing back the old flora formerly on Balls Head”, to “carry out the regeneration of the flora” and to establish “a home for the trees, flowers and birds of old-time Sydney Harbour” (Anon. “Ball’s Head” *Sydney Morning Herald* 6 August 1934; Froggatt W. 1931). The locally indigenous flora was carefully surveyed and catalogued. As revealed,

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not recorded at Balls Head by P & J Smith Ecological Consultants (Smith P., Smith J. 2010). None of these species were listed as main species of the four Balls Head vegetation communities (Smith P., Smith J. 2010).

<sup>23</sup> Indigenous to regions of moderate to low rainfall (approx. <500mm) in central and western NSW, and other states. At his home in suburban Croydon, Sydney, Froggatt propagated a wide range of Australian plant species and distributed them to individuals and community groups. He propagated Weeping Pittosporum (Froggatt W. 1935).

<sup>24</sup> North America or East Asia depending on species.

<sup>25</sup> South America.

<sup>26</sup> Indigenous to the Southern Highlands of NSW. Listed NSW and Commonwealth endangered species.

<sup>27</sup> See Smith P. and Smith J. (2010).

Froggatt had an interest in natural regeneration and the restoration of degraded ecosystems and their indigenous vegetation.

Why then, were non-local Australian indigenous and introduced tree species planted at Balls Head reserve? Natural regeneration and planting of locally indigenous plant species would have promoted recovery of the highly degraded Balls Head vegetation communities, and locally indigenous animals. Deleterious ecological impacts were likely to arise when non-local Australian indigenous and introduced species were planted at Balls Head, including impacts arising from the development of environmental weeds (Groves R.H. 2001).<sup>28</sup> What can the revegetation project at Balls Head tell us about how 1930s Australian conservationists and public commentators on environmental issues perceived vegetation species and communities, their functioning and management?

Commercial considerations quite possibly influenced the Balls Head revegetation project. Premier Lang reserved the headland for the purpose of public recreation. In 1927 North Sydney Council installed recreation facilities in the reserve, and a road was completed in 1931 (Anon. "Ball's Head Park" *Sydney Morning Herald* 10 January 1931). Excellent views of the completed Sydney Harbour Bridge<sup>29</sup> would be available from the elevated headland, and in early 1931 it was hoped that thousands of people would visit the reserve to view the bridge (Anon. "Ball's Head Park" *Sydney Morning Herald* 10 January 1931) (Illustration 3). A botanical garden of Australian indigenous plant species would be a further attractive, recreation drawcard. "The Mayor (Alderman Primrose) is planning to place a number of suitable young trees in position this season as the first step in the work of beautifying the area" (Anon. "Ball's Head Park" *Sydney Morning Herald* 4 June 1931). Although unconfirmed, quite possibly the beautification and botanical garden plan was one component of a larger scheme to attract visitors to the North Sydney commercial precinct, to compensate for anticipated loss of retail trade to the much larger Sydney business

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<sup>28</sup> Many of the exotic and indigenous species introduced to Balls Head have behaved as environmental weeds (National Trust Report 1987 p.6).

<sup>29</sup> Under construction in 1931. Completed 1932. Replaced ferry service between North Sydney and Sydney CBD.

district when the bridge was completed (see Illustration 5 footnote). The focus on beautification persisted throughout the 1930s: “to make the spot an attractive resort” (Anon. “Ball’s Head” *Sydney Morning Herald* 1 July 1935).

Walter Froggatt’s behaviour and public comments indicate that he supported North Sydney Council’s beautification plan, and was pleased that a botanical garden featuring a wide range of Australian indigenous species was being established at Balls Head, alongside locally indigenous species (Anon. “Ball’s Head” *Sydney Morning Herald* 6 August 1934). Although unconfirmed, it is quite possible that he proposed the creation of the botanical garden. Froggatt keenly supported the development of botanical gardens, as he believed they promoted scientific research and community education, and in a 1929 newspaper article he proposed that at least several major botanical gardens comprised of regional indigenous species should be established in NSW (Froggatt W. 1929a). As revealed, Froggatt contributed at least one non-local Australian indigenous species to the Balls Head planting program, and probably many more. There is no record of him expressing concern that planting introduced and non-local Australian indigenous species on the headland could lead to degradation of the locally indigenous bushland remnants.

That ecology was a young science in the 1930s partially explains Froggatt’s apparent lack of concern. The British Ecological Society was founded in 1913, and the Ecological Society of America in 1915. The academic study of plant ecology in Australia appears to have commenced in the 1920s, at the University of Adelaide, South Australia, with visiting British ecologist R. S. Adamson and university professors T. G. Osborn and J. G. Wood (Robin L. 1997; Robin L. 2007). Until the latter half of the twentieth century, mainly small groups of ecologists practised in Australia, and they tended to be geographically and institutionally separated (Slatyer R. O., Saunders A. 1999). The Ecological Society of Australia was founded in 1960.<sup>30</sup>

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<sup>30</sup> Aboriginal nations and communities developed deep, detailed knowledge of their traditional lands.

Froggatt, Stead and other Australian botanists and naturalists of the 1930s were aware that discrete Australian indigenous vegetation communities existed, and that these communities were adapted to local geology, soils, climate and other natural environmental features. Froggatt's conservation instincts and awareness of distinct vegetation communities inspired him to publicly advocate for the establishment of fenced, indigenous vegetation conservation reserves near the "country towns" of NSW (Froggatt W. 1929a). However, as Froggatt's comments about Red Gum natural regeneration reveal, many prominent, ecologically and commercially vital Australian indigenous plant species, communities and their functioning had not been the subject of much formal research: "If we study the natural conditions under which the red gum grows and distributes its seed, there should be no great difficulty... in regenerating the cutout forests..." (Froggatt W. 1928).<sup>31</sup> As University of Sydney ecologists, Professor Eric Ashby and Dr Ilma Pidgeon explained, "There is need to study the rate and nature of natural regeneration in this country" (Pidgeon I. Ashby E. 1940).

The hazards associated with the introduction of overseas plants and animals were well known in 1930s Australia e.g., European rabbit (*Oryctolagus cuniculus*), Scotch thistle (*Onopordum acanthium*), Bathurst burr (*Xanthium spinosum*), Prickly pear (*Opuntia* spp.). Of course, these exotic species had posed a measurable financial risk to tangible commercial interests, and determination of their pest status was relatively straightforward.<sup>32</sup> Whether governments had learnt lessons from these experiences is doubtful. The Australian Government's Council for Scientific and Industrial Research (CSIIR) had only been established in 1926.<sup>33</sup> Froggatt was quick to recognise in the mid-1930s the dangers of introducing Cane Toads to Australia, but his good advice was ignored (National Museum 2023). David Stead was a fierce critic of the foolish acclimatisation proposals that were still being approved by

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<sup>31</sup> In 1936 University of Adelaide Professor of Botany, J.G. Wood, published research that revealed the ecological conditions required for natural regeneration of saltbushes (*Atriplex* spp.), a vital pastoral industry fodder resource (Wood J.G. 1936).

<sup>32</sup> Interestingly, conservationists at Susan Island, Clarence River, Grafton, NSW, acted in 1894 to control lantana (*Lantana camara*) that posed a threat to the ecological integrity of an intrinsically valued vegetation community, *Lowland Rainforest on Floodplain* (Ardill P. 2019 p.26). Intrinsically valued: valued for its inherent characteristics, such as vegetation community uniqueness and beauty.

<sup>33</sup> Forerunner to the Council for Scientific and Industrial Research (CSIRO).

Australian governments in the 1930s (Anon. "Importing A Pest" *Maitland Daily Mercury* 20 April 1937;<sup>34</sup> Anon. "Tragedies of Australian Acclimatisation" *Queanbeyan Age* 4 March 1938).

There is a possibility that by the 1930s there were still few or even no cases where Australian indigenous plant species had developed into environmental weeds, after they had been introduced to localities in Australia outside their natural range. Where Australian indigenous species were behaving as environmental weeds, quite possibly their observed colonising behaviour had not been identified as ecologically problematic, as the subject had been so little researched. Endemic<sup>35</sup> to the Cootamundra-Temora region, NSW and now declared noxious in many Australian localities because of its behaviour as an environmental weed, Cootamundra wattle (*Acacia baileyana*) had been extensively cultivated throughout south-eastern Australia by 1900. By 1929 the species was nationally and internationally cultivated, and in a newspaper article Froggatt celebrated the wattle's silver foliage, bright flowers and immense popularity (Froggatt W. 1929b). He made no mention of any problems with the species, most likely because it had not yet developed into an environmental weed or because any observed weed behaviour had not been identified as seriously concerning.<sup>36</sup>

Froggatt deplored the proliferation in Australia of introduced overseas tree species such as Privet (*Ligustrum* spp.), Camphor laurel (*Cinnamomum camphora*) and Monterey pine (*Pinus insignis* syn. *Pinus radiata*). He enthusiastically encouraged the planting of Australian indigenous tree species in horticultural, conservation and landscaping projects, whether within or outside their natural range, and did not refer in his newspaper articles to the ecological benefits that arose from using local indigenous species, those species that occurred naturally in proximity to a proposed planting site (Froggatt W. 1929c).<sup>37</sup>

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<sup>34</sup> In this case, Californian quail, for shooters and their expeditions.

<sup>35</sup> Endemic: naturally occurring only in the specified area.

<sup>36</sup> Reported as an environmental weed in Balls Head reserve ca.1980 (National Trust Report 1987 p.6).

<sup>37</sup> By the 1930s, there were residents, landowners and conservationists in Australia intentionally restoring local indigenous flora to degraded sites. See Ardill (2023).



Conservation groups, such as David Stead's Australian Forest League (NSW), also actively discouraged the planting of introduced species. Unfortunately, in ca.1930 he appears to have been unaware of the ecological hazards associated with the planting of Australian indigenous species outside their natural range, and enthusiastically endorsed the indiscriminate planting of Australian indigenous species in conservation projects (Anon. "Forest League" *Daily Telegraph* 6 August 1926; Anon. "Arbor Day" *Sydney Morning Herald* 27 July 1929). The planting of valuable timber tree, non-local Australian indigenous species Hoop Pine (*Araucaria cunninghamii*)<sup>38</sup> as a school student project near Sydney was highly commended by Stead, reflecting his deep, quite justified concern at the "destruction and neglect of Australia's forest assets" (Stead D. G. 1931). Use of locally occurring indigenous species was not actively encouraged, although he did advise of the necessity to carefully consider whether local environmental conditions would suit a species proposed for planting (Stead D. G. 1932).<sup>39</sup>

Judged by the prevailing environmental standards and available ecological knowledge of 1930s Australia, the Balls Head revegetation project was a commendable, successful, much needed nature conservation event, prominently conducted in the centre of Sydney and addressing multiple urban planning issues. The individuals and organisations involved must have been very pleased with the outcomes.

From its earliest days, the project set a long-standing precedent for nature renewal and conservation in urban Sydney, commencing with Annie Wyatt's 1930s campaign to conserve the Blue Gum High Forest vegetation community at Dalrymple-Hay reserve (Hay C. 2018 pp.18-19).<sup>40</sup> Walter Froggatt, David Stead and Annie Wyatt successfully advocated for conservation of the remnant locally indigenous vegetation

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<sup>38</sup> Indigenous to coastal rainforests of northern NSW, and coastal Queensland.

<sup>39</sup> Interestingly, Stead was an early proponent of rewilding Australian indigenous animal species (Stead D. G. 1935).

<sup>40</sup> Located approximately fifteen kilometres north of Balls Head.

at Balls Head. Natural regeneration of locally indigenous trees would have greatly pleased them. The good variety of locally indigenous understorey species reported by P & J Smith Ecological Consultants in 2010 supports a speculation that natural regeneration of shrub and ground-layer species improved during the 1930s due to a decrease in the occurrence of arson and fires following the appointment of reserve rangers (Smith P., Smith J. 2010; Anon. "Arbor Day" *Sydney Morning Herald* 27 July 1931) (Illustrations 3, 4). As revegetation progressed and a degree of habitat was restored, locally indigenous bird, insect and reptile species must have benefited, even if introduced and non-local Australian indigenous species were planted. Additionally, the endorsement and planting of Australian indigenous tree species by prominent politicians and community members was well publicised in Sydney's major newspapers, an important objective for Wyatt, Froggatt and Stead's Australian Forest League, focused as they were on achieving the conservation of Australia's natural resources (Hutton D., Connors L. 1999).<sup>41</sup> Considering these pleasing outcomes, the previously degraded condition of the headland and the limited amount of formal ecological knowledge available at the time, any detrimental impacts that arose from the planting of non-local Australian indigenous species and introduced species would have been easily overlooked.

### Contemporary management of Balls Head reserve

Walter Froggatt died in March 1937. A memorial to him and his contributions to the headland revegetation project was erected in July 1937, and may be seen in Balls Head reserve (Monument Australia 2023). Since 2003, the Invasive Species Council of Australia has presented its annual Froggatt Awards, to celebrate distinguished campaigners against "invasive species" (Invasive Species Council n.d.). Nature conservationist Annie Wyatt is remembered as a prominent founder of the National Trust of Australia (NSW).

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<sup>41</sup> The 1930s were a period of heightened concern about sustainable use of Australia's natural resources. See Griffiths T. (1996).

Reflecting the innovative character of Walter Froggatt's restoration vision for Balls Head and its indigenous vegetation communities, and the campaigning of many dedicated nature conservationists, at the initial tree planting event held in July 1931 David Stead remarked that "he hoped the day would come when Balls Head would be a natural monument to those who had worked for its restoration to its early glory" (Anon. "Arbor Day" *Sydney Morning Herald* 27 July 1931). That wish has been fulfilled.

Approximately fifty years after the initial revegetation project commenced at Balls Head, pioneering bushland restoration and conservation activities recommenced in the reserve.<sup>42</sup> From 1980, Annie Wyatt's National Trust undertook professional bushland assessment and bush regeneration work in several North Sydney Council reserves, including Balls Head reserve, to "encourage the reinstatement of the native [locally indigenous] plant communities which occurred prior to urbanisation" (National Trust Report 1987 pp.7, 4; North Sydney Council n.d. p.102; Smith P., Smith J. 2010 p.49). Focused on the same objective, volunteer bushcare recommenced in approximately 1990 (Scott A. 2022). Although non-local Australian indigenous and introduced species behaving as environmental weeds have replaced industrialisation and vandalism as threatening processes, the locally indigenous vegetation communities at Balls Head have made a strong recovery (National Trust Report 1987; Smith P., Smith J. 2010). North Sydney Council Bushcare Officers have liaised with the Cultural Heritage Unit of the Metropolitan Local Aboriginal Land Council, to protect Aboriginal cultural heritage in council reserves (Hoskins I. 2019).

The 1930s restoration and revegetation project undertaken at Balls Head reserve by Walter Froggatt and North Sydney Council did feature tree planting that was, by contemporary standards, ecologically inappropriate. Horticultural, beautification and landscaping themes influenced the work. However, the restoration objectives and ideals promoted by Walter Froggatt vividly illustrate that interest in the recovery of degraded natural ecosystems has permeated the Australian settler environmental

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<sup>42</sup> Pioneering: see Buchanan R. (2007).

ethic for many decades. As Walter Froggatt, David Stead and Annie Wyatt would have hoped, restoration of Australia's degraded natural heritage continues today.

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**Acknowledgements.** The author acknowledges the Traditional Owners and Custodians of Sydney Harbour, and the significance of Balls Head as a place of Aboriginal cultural heritage and values. The National Library of Australia's invaluable Trove research facility was utilised. National Library of Australia, Mitchell Library State Library of New South Wales and Stanton Library North Sydney supplied documents and illustrations. The wonderful botanical resources of PlantNET New South Wales Flora Online (The Royal Botanic Gardens and Domain Trust) were utilised. Andrew Scott (Bushcare Officer North Sydney Council) and Louise Brodie (Australian Association of Bush Regenerators Inc.) thoughtfully provided additional historical documents. Environmental repair colleagues continue to inspire.

**Disclosure.** Independent, self-funded research. The analysis and opinions presented in this article are those of the author, and not of any other individual or organisation unless cited in the text. Peter Ardill BA LLB (Uni. Syd.) MA (UNE) is a member of the Australian Association of Bush Regenerators Inc. (AABR) and the Society for Ecological Restoration Australasia (SERA). The author accepts responsibility for all errors and omissions.

**Citation.** Ardill P. J. (2023) "Historical settler understandings of Australian indigenous vegetation management: Walter Wilson Froggatt and 1930s restoration of locally indigenous vegetation, Balls Head, Sydney" *Repair Press* Sydney.

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ISBN: 978-0-6451146-2-1

Peter J Ardill

The Repair Press

PO Box 7183 Leura NSW 2780

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