

George Brockway: the forgotten conservationist

by Roger Underwood

My career as a forester, and the career of famous forester George Brockway, overlapped by exactly two days. On January 2nd, 1963, immediately after graduation from Forestry School, I took up my appointment as an Assistant District Forest Officer, posted to the Forests Department's Mundaring District, whose Headquarters was at Mundaring Weir. On my second day on the job, a distinguished gentleman called in to the office, and I was introduced to him. It was Mr George Brockway, who was retiring on that very day, and nostalgically revisiting the scene of his first appointment, nearly 40 years previously.

Mr Brockway was a tall, spare, slightly stooped man in his mid-60s, with the sort of deep-set eyes and steady gaze of a man who has spent many years in outback Australia, as indeed he had. He greeted me courteously, and gravely shook my hand and wished me well in my future career, before heading out for a day in the bush with my boss, DFO Peter Hewett. I never met him again, but through talking to others and reading his articles and listening to his broadcasts, I came to know him, and I was inspired by his achievements and his lifetime devotion to his profession. I also discovered that the old hut I was batching in at DHQ at the time had been built for George in the 1920s, giving me a direct link to the great man.

And a great man he was. George Brockway was widely regarded as one of Australia's greatest foresters, and had well and truly earned the nickname (bestowed nearly 30 years later) of being "the forgotten conservationist" (see footnote ¹).

George Ernest Brockway (always known to his colleagues as George, but as Ern to his family) was born in 1902 in the Perth suburb of Claremont². He had an uncle who was an orchardist at Karragullen in the Perth hills, the property bordering on the jarrah forest. George spent a lot of his youth working in the orchard and exploring the neighboring bush, experiences which led to his desire to become a forester. He studied forestry at the University of Adelaide under the great pioneering forester Norman Jolly. He graduated in 1922 and was appointed as a Forest Officer in the embryo Forests Department of WA; he was one of the first four Australian-born professional foresters to work in this state³.

Aged only 21, Brockway was sent to Mundaring Weir and placed in charge of the department's Mundaring District. This was the first forestry district established in the south-west forests, and it was an important one. The main responsibility was management and restoration of the degraded forests on the Helena Catchment - the water supply catchment for the Goldfields Water Supply Scheme. Effective catchment protection underpinned the entire water supply venture.

Brockway had to build up the administration of the new forestry district from nothing, as well as instituting professional management on forests that for many years had been ravaged by uncontrolled timber cutting, ringbarking and intense bushfires⁴.

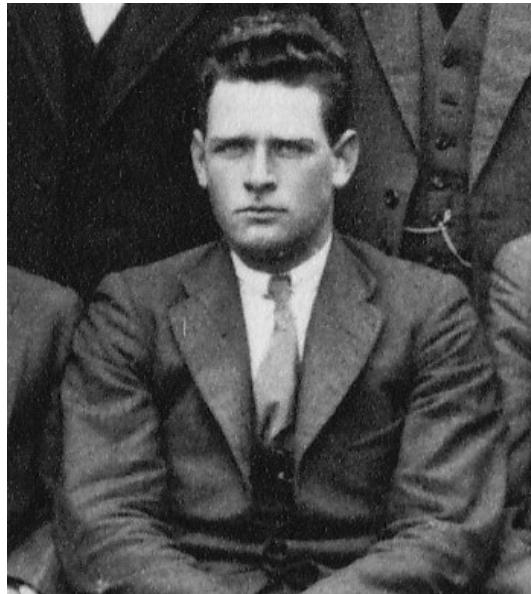
¹ Fordham, H (1981): *George Brockway: the forgotten conservationist*. The Western Australian Naturalist, Volume 17 pp 94-96

² Biographical information provided to the author by George Brockway's nephew David Brockway

³ The others being Stephen Kessell, Allan Harris and George Nunn

⁴ The story of the forests of the Helena catchment is told in Underwood, Roger (2017): *The Weir and the Woods*. York Gum Publishing, Perth WA

His most notable achievement in those years was the evolution of a systematic approach to bushfire management. He built the State's first fire lookouts (at Mt Dale and Mt Gungin), installed the first field telephone lines, recruited and trained the first forestry fire crews, built roads and was the first to lay down the procedures for effective forest firefighting. He also instituted the systematic 'controlled burning' of strategic fire breaks to assist with controlling wildfires⁵. The fire control system Brockway developed for the Helena Catchment State Forests was ultimately extended right across the forests of the south-west, and later still adopted by forest services in all the other Australian states.



George Brockway in 1923 when he was DFO at Mundaring Weir

After setting the Mundaring forests on the right course, Brockway was transferred south where he worked on the establishment of professional forestry in the Kirup and Pemberton areas. However, at about this time he had a falling-out with the departmental hierarchy and resigned, becoming a surveyor⁶. According to Eric Hopkins (who started his forestry career under Brockway and became his protégé), George was a man who "did not suffer fools gladly", nor did he appreciate the old-fashioned attitudes and rigidity of the Public Service of the day. Moreover, Brockway was a teetotaler, and something of a purist, setting very high standards of behaviour on and off the job for himself and his staff. It is not hard to see how characteristics like this might have led to some career challenges.

However, it was not long before he was brought back into the fold. In 1929, foreshadowing his future passion, he published a remarkable pamphlet called *Advice to Settlers* in which he argued against the widespread clearing of farms because of the devastating effect on soils and water resources. This document is now considered to have been the first prescription ever published for conservation in the WA wheatbelt.

Brockway recommended:

⁵ The development of fire control in the Mundaring district is described by Brockway in a seminal paper, one of the first papers ever published on bushfire management in Australian forests: Brockway GE (1923): *Fire control organisation and fire fighting operations in Mundaring District*. Australian Forestry Journal Vol 6 pp 257-263

⁶ Part of the training of professional foresters in those days (and this persisted right into the 1960s when I studied forestry) was proficiency in surveying. George Brockway would have had all the skills of a qualified surveyor.

Prior to commencement of clearing, [settlers] should give serious consideration to the importance of maintaining in its natural state a fair proportion of the existing timber.

He went on to emphasise that:

...the many advantages provided by trees, including fuel, timber, shade, shelter for stock and habitat for birds, and the aesthetic appeal of trees, cannot be gainsaid.

It would be another 25 years or more before these ideas became acceptable in agricultural WA.

In 1933 Brockway was transferred to Kalgoorlie and appointed Officer in Charge of the department's Goldfields Region. Now began his life's work. Although there had been ranger staff in the Goldfields since the 1890s, Brockway was the first professionally trained forest officer to work there. It was an enormous challenge and a vast jurisdiction. As Eric Hopkins remembers:

I was a high school student in Kalgoorlie just after the war and I managed to secure a vacation job in the forestry nursery, watering the seedlings. My first recollection of Mr Brockway was seeing him drive up to the nursery in a very dusty, but well-maintained Ford utility after one of his bush trips. He spent most of his working life driving, camping and inspecting the rangelands and woodlands from Halls Creek in the north to Esperance in the south and from Northam in the west to the Nullarbor in the east⁷.

As the Goldfields forester, Brockway had four main duties, all of which required him to spend the bulk of his time in the bush. The first was oversight of the massive firewood industry supplying the mines and the Water Supply pumping stations⁸. He (and his ranger staff) had to lay out the cutting areas, ensure good standards of utilisation and then manage the regeneration of the cut-over forests. This work was carried out over a huge area west and south of Kalgoorlie, with the woodlines extending hundreds of miles into the bush.

The second was the control of the sandalwood industry. Sandalwood harvesting took place all over the rangelands, with small, isolated teams of independent contractors pulling trees and producing the cut wood for transport to the market in Perth. It was Brockway's job to police the regulations about what size trees could be cut, allocate pulling areas and carry out spot checks on operations and on the quantities of wood harvested. He also undertook the first studies into the complexities of sandalwood regeneration.

The third job was the mapping the forests and elucidating the botanical resource of the inland. Brockway was an expert botanist, and discovered a number of new tree species (one of these, the Dundas mahogany, was named after him, with the botanical name *Eucalyptus brockwayi*). During his field work Brockway became one of the first people to make a systematic collection of seed from the native trees of the region - something that led to two of his greatest achievements: firstly, the development of nurseries raising seedlings of our native trees, and secondly the export of seed from WA's super-tough inland trees to India, Pakistan, Israel, Portugal, Morocco and Argentina, where they were used for reforestation of degraded lands in arid climates⁹.

⁷ Notes provided to the author by Eric Hopkins in 2008

⁸ This industry is well-described in Bianchi, Phil (2019): *Woodlines. A comprehensive history of the Goldfields Woodlines*. Hesperian Press, Perth Western Australia

⁹ The story of seed export from the WA goldfields for overseas reforestation projects is told in an informative article by forester Ian Keally: *Eucalypt Emigrants*, in: *Landscape Magazine*, Summer 1990/91, Department of Conservation and Land Management, Perth WA

Finally, Brockway played a huge role in the conservation of remnant vegetation in the wheatbelt, and in promoting trees on farms. He was responsible for the creation of hundreds of reserves from Vacant Crown Land which later became the system of small nature reserves that still exist, scattered across the agricultural region.



Dundas mahogany (*E. brockwayi*) in the Goldfields woodlands [Photo courtesy of FPC]

In promoting the protection of remnant vegetation and the planting of trees on farms, Brockway was *the* pioneer. Initially it was a lonely task, as the culture of the day was all for clearing trees, not keeping or planting them. George wrote numerous articles for agricultural journals and country newspapers, and delivered talks on the ABC's country hour ... mostly to an unsympathetic audience. In one exchange that became famous, he wrote an article that set out 16 reasons why wheatbelt farmers should plant trees. An officer of the Department of Agriculture responded, setting out 17 reasons why farmers should never plant trees. Number 17 was that the farmer might drive into one of these trees on his way home from the pub on a Friday night.

Nevertheless, Brockway persisted. His first move was to establish a nursery at Kalgoorlie, the first in Australia that focused entirely on raising seedlings of native trees. These were used in a wonderful project of tree planting in the city of Kalgoorlie itself, the end result being an inland, and dryland city with perhaps the finest street trees in the world. Brockway designed the entire project, with a different species on each street, and with a focus on rare and unusual eucalypts with beautiful

blossom. He even developed a new hybrid species (the Torwood) which became a very popular ornamental tree¹⁰.

Brockway was eventually superseded at Kalgoorlie by another famous "inland forester" Phil Barrett, allowing George to focus all his attention onto the wheatbelt. He arranged for the Kalgoorlie nursery to be transferred to Dryandra, and then later into Narrogin. During this time, as Eric Hopkins recalls:

... George installed a series of arboreta throughout the wheatbelt, the aim of which was to demonstrate which tree species were most suitable for planting for varying purposes and on varying soil types. The arboreta were established on farms with the assistance of a small number of forward-looking farmers, and they ranged from Geraldton to Esperance and everywhere in between. George's main interests were in creating shelter to minimise soil erosion, but he also promoted trees as ornamentals for planting around homesteads. His special favourites were the coral gum (*E. torquata*), the red flowering mallee (*E. erythronema*), and the ever-popular *E. erythrocorys* and *E. caesia*. By 1950 interest was beginning to focus on salinity, and George began to include salt-tolerant species in his plantings, although at this stage the concept of trees as pumps to lower the saline groundwater had not yet taken hold.

George's knowledge about trees was also made use of by the Rottnest Island Authority. In the 1950s, areas of the island were becoming degraded by spray off the salt lakes. Brockway demonstrated how this could be ameliorated by planting moort (*E. platypus*), a species naturally occurring in areas subject to sea spray on the south coast. Moort¹¹ is now found all over Rottnest and considered by most people to be native to the island.

An interesting aspect of George Brockway's field work was that Mrs Brockway often accompanied him. This is perfectly acceptable these days¹², but was frowned upon fifty years or more ago. Mrs Brockway was an enthusiastic artist, and loved to sketch and collect images on the field trips. However she lost some of her enthusiasm for bush camping in later years, as forester Phil Shedley recalled¹³ :

In September 1951 I was assigned to accompany George Brockway on one of his field trips up to the Carnarvon/Murchison area where there was a dispute simmering between pastoralists and banana growers over the cutting of mulga fence posts and poles on pastoral leases. My job was to share the driving and camping duties and gain experience. Mrs Brockway was accompanying George, as usual.

I was greatly impressed with George's knowledge of the flora, his ability to live off the land and cope with harsh conditions and above all to make me and everyone we encountered feel at ease in his presence. The dispute with the banana growers and pastoralists was sorted out amicably.

On this occasion, George had arranged for Mrs Brockway to stay at the New Norcia mission, and to use this as a base while doing some painting while we were away camping further north. On reaching the monastery buildings we took her bags upstairs to her room. It was a warm spring day and the whole building was swarming with blowflies and bush flies. There was no flywire on any of the doors or windows. To George's dismay, Mrs Brockway put her foot down and refused to

¹⁰ The story of Torwood is told in Underwood, Roger (2019): *The World's Tallest Tree*. York Gum Publishing, Perth, Western Australia pp 77-81

¹¹ Originally named *E. platypus* var. *heterophylla*, this is now a species in its own right: *E. utilis*

¹² There is a wonderful story by Fiona Kealley, wife of modern-day inland forester Ian Kealley in: Underwood Roger (2017): *Women of the Forest*. York Gum Publishing, Perth WA. Fiona often accompanied Ian and acted as his volunteer Technical Assistant as well as keeping him company on long lonely field trips.

¹³ Notes provided to the author by the late Phil Shedley in 2008

stay there, leaving George the embarrassing task of cancelling the booking without offending the monks - a task he was able to fulfil with his diplomatic skills. We diverted to Dongara, where Mrs Brockway was installed in the hotel, while we headed off on our field work, picking her up a few days later on our way home.

By this time Brockway had transferred to Narrogin. Here he was responsible for the Dryandra and Highbury forests where the department had established valuable plantations of brown mallet. This species is very fire-tender, and Brockway once again found himself designing and implementing a fire control system, as he had done at Mundaring many years earlier. This was so successful that after the mallet bark industry folded¹⁴ the plantations were still able to be used for production (from thinnings) of timber for axe and hammer handles. Today the Dryandra forest is a haven for endangered wildlife and is one of the State's most admired conservation reserves

In fact, if it had not been for George Brockway, Dryandra might not be there at all. Forester Steve Quain¹⁵ remembered :

In 1960 when I was stationed in the jarrah forest at Gleneagle, I was put in charge of the Narrogin district during the time D/F Jack Currie was on long service leave. Mr Brockway took me down there to brief me on my duties. He introduced me to all the staff and to the mallet bark industry, the nursery and a number of outlying reserves.

We camped several nights in the bush, and it became quite obvious to me that he wanted to make sure I was on-side with the need to preserve Dryandra and the surrounding reserves. He was well aware that there was a faction in the department, led by George Nunn, who wanted to get rid of the whole Narrogin/Dryandra complex, as it would become a financial burden when the bark industry ended, as was imminent. There was also serious pressure on the reserves from neighboring farmers who wanted to expand their properties.

George did not have any trouble converting me to his vision of the conservation of the Narrogin district forests, and later I was very happy when I heard his views had prevailed.

Pressure to release crown land for farm expansion was almost continuous during the 1940s and 1950s¹⁶. Once the techniques for farming "light land" and gravel soils - the very areas the first settlers had avoided - farmers all over the wheatbelt started covetously looking at bushland over their fences and putting in applications to have them alienated. George Brockway was adamant in opposition, and resolutely refused to approve any alienation of crown reserves or of bushland on vacant crown land. One of his techniques was to ensure that any request for alienation of bushland must be first assessed for the value of the flora and fauna by the Fauna Protection Authority, of which he was a member; another was to promote the concept of bushland corridors so as to ensure continuity of reserved lands as a means of wildlife conservation. These concepts are part of standard thinking today, but were revolutionary in land management at the time.

A good example of Brockway's ¹⁷conservation work is given in a paper by Steve Hopper about the history of the Chiddacooping Reserve, today regarded as one of the most important flora and fauna

¹⁴ Mallet bark was used for the extraction of tannin, used in making leather. The industry based on brown mallet trees folded after the invention of synthetic tannin. See Underwood, Roger (2019): *Brown mallet*. In *The World's Tallest Tree*. York Gum Publishing, Perth WA pp 110-112

¹⁵ Notes provided to the author by Steve Quain in 2008

¹⁶ I was still dealing with applications from farmers (supported by the Department of Agriculture) for the alienation of State forests in the early 1980s at a time when the Narrogin forestry complex was part of my jurisdiction.

¹⁷ Hopper, SD (2000): *Creation of conservation reserves and managing fire on granite outcrops a case study of Chiddarcooping Nature Reserve in the Western Australian wheatbelt*. Journal of the Royal Society of WA (83).

reserves in the State. During the late 1950s a number of requests had been made to alienate the bushland on the reserve and adjacent lands for farming. The Forests Department was asked to comment and the response was written by Superintendent GE Brockway. He noted that Chiddarcooping reserve had negligible forestry value, with only odd patches of wandoo and a few salmon gums, but argued against release for agriculture and for expansion of the size of the reserve to include all the granite outcrop country to the west and north of Chiddarcooping Hill.

Brockway put forward four reasons:

1. The area is rough and agriculturally unattractive, consisting of some very large massive granite outcrops, large areas of sand much of it with minor granite outcrops, some gravel areas and breakaways;
2. At the time of the (land) classification the rocky areas provided a habitat for some form of rock wallaby;
3. The dense wodgil thickets to the north of the granite rocks provided good protection for mallee fowl; and
4. There are considerable areas of unoccupied land in this locality which appear less unattractive as agricultural propositions but which have not the same suitability for fauna protection.

In August 1960, Brockway again inspected the Chiddarcooping reserve and adjacent areas, this time in the company of the State's Fauna Protection Officer HB Shugg. Brockway later submitted a report in which he advocated the full protection of the existing reserve and the creation of a much larger reserve by incorporating additional bushland. He noted that "The rugged inaccessible nature of much of this country, which ensures a large measure of protection to both flora and fauna, coupled with its generally low value for agricultural purposes, makes it well suited for reservation as a flora and fauna reserve. My own view, based on an intimate knowledge gained many years ago as a member of the party which carried out the land classification of this area, plus a recent short refresher examination of it with Mr Shugg, is that the whole area outlined in red should be reserved for the protection of flora and fauna. From the flora angle, I was particularly impressed by several groups of an outstanding strain of Gungunnu (*Eucalyptus caesia*). This is one of the most colourful and popular of our flowering Eucalypts and the colour and size of the blossoms of the Chiddarcooping trees surpass anything I have seen elsewhere – cultivated or otherwise."

It was this strain of *E caesia* that later became the popular ornamental tree known as Silver Princess, today found in nearly every urban park in southern Western Australia.

In 1952 the Forests Department received a request from the government of Pakistan, with funding from FAO, to help with reforestation of degraded land and famine mitigation in the Punjab. George Brockway was the perfect man for the job.

He made a number of trips to the subcontinent and to north Africa, spending in all three years on this work, overseeing the establishment of nurseries, firewood plantations and early versions of what today is termed "agroforestry".

Eric Hopkins again:

...there had been visiting "experts" in [the Punjab] before George, but there was absolutely nothing on the ground to show for their labours. George immediately realised the problem and refused to move until supplies of barbed wire and fencing materials were provided so that new plantings could be protected from grazing animals and the starving populace. They were utterly dependent on firewood for cooking and would even "harvest" newly planted seedlings. George devised a

nursery system using earthenware pots and other local materials that were freely available in the local economy. Establishing firewood plantations were his first priority and he also set out in a manual the way these must be managed.

In the late 1950s, Brockway, now one of the Forests Department's most experienced and senior officers, was transferred to Head Office, where for a while he served as Deputy Conservator of Forests. But his interest was not departmental administration from an office in the city. He spent most of the 1950s on FAO projects helping with reforestation in Pakistan and India.



Brockway at an FAO conference in Rome in 1958

George Brockway retired in 1963, and lived only for a few more years. He left behind a magnificent legacy: the street trees of Kalgoorlie, the restoration of degraded lands in Pakistan and India, a network of sandalwood and conservation reserves in the Goldfields and wheatbelt, the wonderfully regenerated Goldfields woodlands and the botanical treasure trove of the millions of trees all over WA, whose seed he collected, which were raised in his nurseries and were planted under his direction. He was also "the father" of trees-on-farms, a concept that today is embraced on all sides and has become an agribusiness in its own right.

Further reading:

Brockway, GE (1929): *Advice to new settlers*. Departmental file 1603/53

Brockway, GE (1941): *Forests of the arid Goldfields region of Western Australia*. Empire Forestry Review Vol 34 (1) pp 31-41

Brockway, GE (1949): *Forests of the drier areas of Western Australia*. Paper presented to the Australian Forestry Conference in WA. Forests Department, Perth.

Brockway GE (1955 and 1956): *Reports on forestry matters and the forests of the arid areas of the Punjab*. Parks and Wildlife library, Como

Brockway, GE (1959): *Grazing effects on shrub and tree growth of arid and semi-arid regions of WA*. Unpublished report, Parks and Wildlife Library, Como.

Brockway GE (1959): *Tree establishment in the wheatbelt*. Bulletin 2616, Department of Agriculture, South Perth

Brockway GE (1965): *Reserves in the Cuballing Shire*. Departmental file 800/62

Brockway GE (1967): *Tree establishment in the wheatbelt*. Ten ABC Talks. Parks and Wildlife library Como