

AABR is willing to assist locals with future ecotourism involving the visitors attending working bees in The Regen. However, this would require at least a few more locals to be involved in the botanical surveys and on-ground works so that the visitors are assisting the locals rather than replacing them. Ways to increase this interest include utilising the momentum from the August visit to run *occasional* working bees in the Reserve. We suggest any such work be deliberately

planned for community engagement and be held on a weekend – after consultation with Landcare, bushwalkers and Barrier Field Naturalists with publicity through the service groups.

AABR will follow up with Council the potential to share the tour booklet and additional information with the Desert Archive and the Broken Hill Tourist Information Centre. The Albert Morris documentary will be an important ongoing project.

Plant life of the West Darling (1975) Book Review

PAUL ADAM

Compiled from the writings of Albert Morris by the Barrier Field Naturalists Club 2nd edition
ISBN 0 9598430 0 0

The arid and semi-arid zones of Australia occupy much of the continental landmass. The rangelands within the zone are capable of supporting valuable agricultural enterprises, but only if properties are large and the human population is small. Large population centres could not be sustained by local agriculture and only developed when other resources, principally minerals, were discovered and exploited. Scattered across the zones are the relics of numerous mines which after brief booms were abandoned when the resources were either exhausted or became uneconomic to exploit. A notable exception is Broken Hill in western New South Wales, where one of the richest mineral deposits in the world has been mined continuously for well over 100 years. Currently only two mines are operational but the output still contributes substantially to the economic prosperity of the state.

Broken Hill grew rapidly and soon had the trappings of prosperity in the form of imposing buildings of late Victorian municipal architecture, including the Courthouse, Town Hall and Police station and Post Office – buildings which contributed to the heritage listing of the city. Despite the prosperity, life in the city was not easy – work in the mines was dangerous, as shown by the Miners' Memorial which commemorates the lives of all those killed in accidents and the climate was harsh. The Common around the city soon became a barren waste, devoid of vegetation as a result of overgrazing and felling of trees for firewood. In consequence, windblown sand was a major problem, requiring regular removal to keep open access to houses.

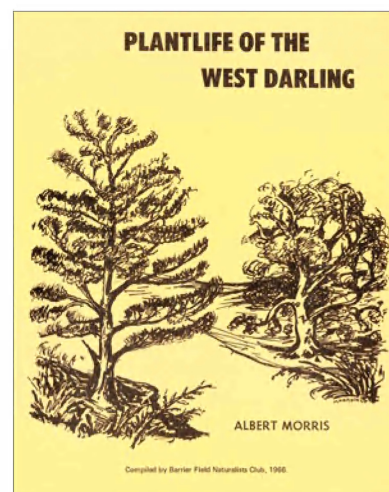
The city was fortunate in that amongst the population were Albert Morris and his wife Margaret, dedicated botanists and natural historians. For many years they had

been documenting the flora of the surrounding area and Albert had been presenting lectures, illustrated with lantern slides hand-painted by Margaret. (The original photographs were taken by Albert, using a small folding Kodak camera.

He developed the film himself and transferred the images to glass slides). The substantial collection of glass slides has been preserved for posterity in the Charles Rasp Collection in the Broken Hill City Library. In 1920, with local GP, Dr MacGillivray, Albert founded the Barrier Field Naturalists Club (BFNC), named after the Barrier Range. The Club is still active and was one of the groups who organised the celebration to mark the 80th anniversary of the regeneration project commenced by Albert

Albert had experimented with growing native and other arid adapted species in his garden and had long advocated revegetation of the Common. Albert was able to commence the project but tragically died long before completion, but he had seen the first stages.

In 1966 the BFNC published 'Plantlife of the West Darling' compiled from the writings of Albert Morris. The revised second edition was published in 1975.





View over the Mundi Mundi Plains, North of Broken Hill. Photo: Paul Adam

This book is a classic work on arid zone botany and ecology, and a memorial to a remarkable pioneer. The Foreword is by Sir Maurice Mawby, then the Chairman of CRA (Conzinc Riotinto of Australia) and a leading figure in the mining industry. Sir Maurice had been born in Broken Hill, and was familiar with the BFNC and its work, and as the Mill Superintendent in the mid 1930s was instrumental in seeking Albert's advice as to how the sand drift issue could be addressed. He points out that Albert's work had considerable influence on the mining industry worldwide. Margaret Morris provided a concise but informative biographical sketch of her husband. The first of Albert's writings is an account of 'The Flora between the River Darling and Broken Hill' which was written at the request of the Mine Managers' Association for the use of those scientists attending the 1923 Pan Pacific Congress who visited Broken Hill. This demonstrates that his skills and knowledge were already recognised by the mine managers and that he was able to write for his botanical peers. Another chapter is 'Notes on the Flora of Cockburn District' which was written at the request of J M Black, the author of the 'Flora of South Australia', as access to the area was easier for Morris than it would have been for Black. Black clearly had sufficient respect for Morris's botanical skills to rely on his information in compiling his Flora. Other chapters deal with the flora of the Mt Robe district and the area between Broken Hill and Mootwingee.

The chapter of most interest to restoration ecologists is 'Broken Hill fight Sand-drift,' written for the popular magazine 'Walkabout'. (An abridged version of this article appears in this issue). This provides an overview of the sand drift problem and its solution. Particularly interesting in the light of modern concerns is the discussion of what would now be called provenance, and the reasoning behind reliance on the in-situ propagule bank. Given that the regeneration area had been barren for a number of decades the success of natural regeneration once disturbance was excluded was remarkable.

There is a chapter on growing native plants from seed – information and techniques which would now be commonplace, but at the time, before much attention was given to native plants, would have been innovative.

Albert Morris was much involved with what would now be called outreach, giving many lectures and writing articles for the local media. A number of these are reproduced in the book, and provide a demonstration of his range of interests and of the education style of the time.

In terms of his thinking about the restoration of degraded land and his practical dedication to achieving a successful outcome, Albert Morris was well ahead of his time. The establishment of the Regen was a first in Australia. Albert kept up with work overseas, and had undertaken seed exchanges with several overseas



Sturts Desert Pea (*Swainsona formosa*). Photo: Paul Adam



View of Broken Hill from the Line of Lode. As well as the surrounding Regen areas, the environment of the City has been enhanced by extensive street plantings. The prominent building with the covered veranda is the Palace Hotel, venue for the Awards dinner. Photo: Paul Adam.

workers, but his ideas about regeneration using natural processes of recruitment and establishment were very much his own. The 1930s were the dustbowl period in the USA and as part of the New Deal substantial resources were employed on soil conservation measures and revegetation. However, programs in the USA were not influenced by Morris's work, but the Broken Hill regeneration and major projects in the USA started at roughly the same time - possibly a case of necessity being the mother of invention, leading to a convergence of ideas. In Australia the Broken Hill approach was followed at other arid zone mine sites, but it is much more recently that the importance of Broken Hill as an exemplar of best regeneration practice has been recognised by ecologists and environmentalists.

A review of a book last published more than 40 years ago would seem to be of academic interest only, but the Barrier Field Naturalists Club still has some copies available.

Copies can be ordered from BFNC at: bfnbrokenhill@gmail.com for \$20 including postage anywhere in Australia (as of early 2018). Please contact BFNC for details of payment.

The book is soft cover and has been reproduced from a type written master, with line drawings and black and white photographs. Some of the taxonomic nomenclature is outdated, but it is easy enough to update species names.

Broken Hill Fights Sand Drift

Extract from Plant life of the West Darling

BY ALBERT MORRIS

This article was abridged by James Bourne, Secretary of the Barrier Field Naturalists Club from the article which originally appeared in 'Walkabout' in November 1938, and was reproduced in Plantlife of the West Darling. Omissions from the original printed versions are indicated by [...]. Plant names in the originals were not in italics or underlined, and that convention is followed here. Nomenclature is as in the original.

"Erosion - wind erosion - is what we will have to fight if we are to put our new Broken Hill works where they should go; the position is open to the south and west winds, which pile the sand over every fence and low building in the area. How can the new works be protected?"

That was the question facing the management of the Zinc Corporation in 1936. The outlook was not encouraging, as the country stretched for miles without the vestige of anything green, and each stone or old tin can had a streamer of sand tailing out from it. The fences were piled high with sand, inside and out, and it looked as if the intended railway lines would just be buried every dusty day, which was every windy day.

One could put up iron fences, but in wind-swept areas they would only form sandhills and need endless labour to keep them clear. If only there were trees to break the wind! Could we plant anything that would grow on that wind-swept area?

At this stage, Mr Mawby, the Mill Superintendent, remembering my love for botany and interest in plants,

asked me two questions: "Can we grow anything, and do you think it will help?" My reply was: "It will not only help, but it will wholly remove the problem. There are a great number of trees and shrubs you can grow, and the grasses and sub-shrubby plants will come back after the first rain, providing you fence a fairly large area with stock- and rabbit-proof fencing, and give some help for the first few years."

This perhaps sounded too good to be true, but, after seeing the results of some of my experiments in previous years, the Manager, Mr. A. J. Keast, was convinced that it was worth a trial. The management of the Zinc Corporation deserves great credit for being enterprising enough to try and find a cure for this great problem, and, when they were ready to spend money to give it a trial, I offered my fullest cooperation, although my position as an officer of another mine limited the help to my spare time.

My studies over many years have been mostly directed toward desert and semi-desert plant forms, both Australian and from other arid parts of the globe, and I am quite convinced that Australia has all the plants she needs to regenerate her dry places. It is necessary to select plants according to similar rainfalls and temperatures, soils and the like, and to take for purposes only seeds from plants growing under arid conditions, in types of plants having a wide range. The propagation of native vegetation has many peculiarities, and, while studying such a wide field, the best methods for the propagation have not been overlooked.



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