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Buffel Grass

An Augmented Landscape

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One year I deliberately chose to spend time in Alice Springs during early summer. Until then I had only visited in winter, the peak tourist season. This time I flew in rather than drove and met the first wave of heat through the parting glass doors at the airport.

I stayed at the usual place but was surprised to discover that it had come to life. At nightfall, the walls and windows hosted numbers of small pale geckoes lying in wait for insects, and chirruping loudly through the night. There were two that hunted from the outside glass panes of the window next to the kitchen table, and as I ate dinner I had an intimate view of their pale fawn underbellies and the sticky discs at their fingertips with which they clung to the sheer surface of glass. Their dark bulging eyes glistened as they lay in wait for the moths attracted by my kitchen light. At dusk, when I went walking through the ironwoods and hakeas, a sacred kingfisher darted through a low submerged greenish light that lingered beyond sunset. In the heat of the day a wasp came and went outside the door, building a nest against the side of the stone steps. Its nest was composed, so far, of three small mud cups joined together in a cellular pattern. In the undergrowth, lizards rustled when I passed; along the gravel driveway was a resident goanna about a metre long, and out on the road a large brown snake sunned itself on the bitumen. The first couple of nights were quite cool; but then, in the middle of the night, around 3 a.m., I was

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woken by the sound of distant wind approaching across the landscape—that particular sound wind has when it is imminent, a roil of motion approaching a pocket of stillness. I was sleeping with the door open and when the wind struck it was hot. A hot wind in the middle of the night was completely counter-intuitive to me, when one associates nights with cooling. A wave of heat was crossing the desert in the darkness.

I realised I was familiar with weather changing from across the sea: cool south-westerly changes coming in across Port Phillip Bay. Not waves of heat arriving from inside the continent in the dark. And from that night onward it grew steadily hotter and hotter, with clear crisp mornings, and evenings that were still hot, but where colour softened and the nearby ranges suddenly became comprehensible again as objects in space. During the heat of the day they seemed inaccessible, shrunken into the distance, and incomprehensible, shrunken under glare and the high, whitened colour of heat. At sunset, the edges of deep golds and burnished oranges across stone ridges brought them close again, as if the landscape had pieced itself together in the soft light.

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In my preoccupation with buffel grass (*Cenchrus ciliaris*) I spent a couple of weeks at the library at the Arid Zone Research Institute (AZRI), the Northern Territory Archives Service, and the CSIRO library. What had happened between imported seeds carrying such improving potential that, as one nineteenth century seedsman put it, they would 'cause streams of wealth, and happiness, and progress to meander through all our plains and valleys', to them later (at least in some instances), breeding a form of despair and alarm?[1] I had become preoccupied with buffel grass because of the diverse narratives it delivers about processes of placemaking in central Australia. It 'speaks' on a number of registers: as an 'instrument of colonial domination' during settlement and the expansion of pastoralism in the region;[2] it discloses scientific attempts to both remedy the destructive effects of overgrazing and make better economic use of the arid zone; it also reveals more recent ecological understandings of desert lands and their biota.[3] As with many introduced species, buffel grass divides opinion. A comprehensive report for the Desert Knowledge Cooperative Research Centre, evaluating benefits and risks associated with continued use of buffel grass for pasture, captures in its title the polarised

views the grass elicits: 'Buffel Grass: Both Friend and Foe'. These divided views reveal widely differing attitudes towards the desert land and landscape, and towards who and what might rightfully inhabit them. In this regard, the seemingly prosaic buffel grass functions much like the 'ocular metaphor of light diffracted through a prism' suggested by Donna Haraway for its capacity to produce 'an array of potential insights' into the myriad different ways nature and culture are combined.[4]

I had become preoccupied with buffel grass, too, as a material entity to 'think with' and to explore for its capacity to shape both research processes and narrative structures. Historian Libby Robin notes that 'Aldo Leopold famously urged forest managers in the United States to break out of their cultural preconceptions and take the perspective of natural elements, to "think like a mountain"'.[5] I have adapted this idea here to explore the process of 'thinking with buffel grass'. Michael Taussig describes an interrelationship between 'reality' and the writing process. 'It is', he writes, 'more like having the reality depicted turn back on the writing, rather than on the writer, and ask for a fair shake. "What have you learned?" the reality asks of the writing.'[6] Bearing this processual interrelationship in mind I asked: 'What kinds of stories might buffel grass unearth as a research tool? How might it shape the writing process? What kinds of landscapes might it reveal?'

While the concept of 'landscape' has been usefully critiqued for privileging sight over other senses, and for participating in the logic of both the nature/culture binary and colonial domination, I use it deliberately here as a more inclusive configuration delineated by Ross Gibson, as a 'place where nature and culture contend and combine in history'.[7] Gibson's notion of landscape as a place where nature and culture are at work with one another is in some ways similar to the idea of a 'cultural landscape', which 'acknowledges that landscape is not the work of unaided nature; it is the outcome of myriad decisions: whether to build, plant, clear, make a track, leave it alone'.[8] The latter recognises that landscapes are as much socially constructed as 'natural'. Gibson's articulation, however, suggests that both nonhuman and human forces might be considered equally for their agency. In an influential essay analysing 'landscape' and landscape aesthetics and their relationship to 'Western-ness', modernity and imperialism, W.J.T. Mitchell suggests that landscape might be profitably perceived 'as something like the "dreamwork" of

imperialism', disclosing 'both utopian fantasies of the perfected imperial prospect and fractured images of unresolved ambivalence and unsuppressed resistance'.[9] Buffel grass reveals something of this 'dreamwork' with all its unresolved ambivalence.

Finally, through a focus on buffel grass I was able to bear in mind James Clifford's well-known and candid interrogation of what might be deemed historical when wanting to understand a particular locale. 'I'm looking for history at Fort Ross', he writes, 'I want to understand my location among others in time and space. Where have we been and where are we going? But instead of a clear direction or process, I find different, overlapping temporalities, all in differing ways "historical".' These overlapping temporalities include the long rhythms of geological time; the cyclical temporalities of weather; dust; plants that 'keep their own times'; germs and viruses; histories of animals entwined with human histories; and 'the mix of human times we commonly call history', all 'organising and disorganising everything'.[10] Buffel grass is one way to trace some of the overlapping entities, processes and temporalities, all organising and disorganising everything, that comprise a locality and our understanding of its history.

What I found was a familiar enough story. Buffel grass's rapid expansion had been more or less an accident, an unforeseen consequence of experimenting with improved pasture species and soil stabilisation measures. The grass was originally from northern Africa, the Middle East across to India, and Indonesia. Pastoralists in central Australia began deliberately introducing it from the 1930s onward. The first herbarium specimen in Alice Springs was recorded in this decade by a government botanist.[11] In America during the same period buffel grass was introduced into Texas and northern Mexico where it is now equally rampant.[12] Scientists began advocating use of the grass in central Australia from at least the early 1950s.

When prolonged drought and overgrazing reduced many areas in central Australia to bare ground during the 1950s and '60s, invasive strains were sown extensively in Alice Springs in the hope of combating dust storms so dense and frequent they interfered with flight schedules. Dust storms are legendary in many accounts of life in the centre. One memoirist recalls her family sitting at the dining table under large sheets so they could eat without dust sifting over their food.[13] Laundry hung to dry on outdoor clotheslines was stained red.[14] People ate and

drank red dust, slept with it between their sheets. Familiar landmarks were obliterated and transformed by mobile drifts that swallowed solid forms, turned them into encrypted shapes. Once buried, whole landforms remained so for decades, the familiar transformed and reconfigured. Fences and bits of discarded machinery and equipment, even buildings, disappeared; others that had lain invisible were excavated and made unexpectedly vivid.[15]

There is undoubtedly something portentous about a dust cloud, its imminence on the horizon, its ability to transcend geographic and continental boundaries, excavated from one site, deposited across borders onto city streets, in films across windscreens, patinating car duco, as if heralding doom.[16] There were a couple of dust storms in the city where I live last summer. The first time I hadn't heard any weather forecasts beforehand, so had no warning of its arrival. I was riding through the streets with the pall intensifying. I passed two workers by the roadside, and asked, 'What's burning?' 'Nothing,' they said, looking up from their digging. 'It's a dust storm.' Another time, returning cross-country from central Australia via Birdsville, a dust storm gathered on one horizon, a dense veil being drawn across the landscape. In the caravan park where we were staying people began battening down as if out at sea and preparing for a violent storm.

In 1963 the biologist and anthropologist, Donald Thomson, drove north up the Stuart Highway. He was making his second trip to central Australia, noting differences in the landscape since he'd passed through six years earlier. Drought had struck. Utter desolation met our eyes, he wrote. Evidence of overstocking was everywhere: big old mulga trees destroyed by cattle or sheep stripping back their bark and lower branches. Over hundreds of miles graziers had pulled out the remaining mulga shrubs with chains, or pushed them over with bulldozers, so cattle could eat their crowns. Sand then piled in the debris of dead trees. This, he said, was a grim man-made desert of equal disastrous proportion to the Dust Bowl country of the United States. Thomson's comparison is deliberate. He invokes the Dust Bowl of the US southern plains as an example of ecological insensitivity, whereby agriculturalists refused to recognise environmental limits to farming practices. As Donald Worster puts it in his classic environmental history of the region, *Dust Bowl*, 'the plains have become our cultural boneyard, where the evidences of bad judgment and misplaced schemes lie strewn about like bleached skulls'.[17] He

unequivocally argues that the Dust Bowl 'was the inevitable outcome of a [capitalist] culture that deliberately, self-consciously, set itself that task of dominating and exploiting the land for all it was worth'.[18]

In his drive northward, Thomson found himself surrounded by evidence of the same kind of wilful and misguided exploitation. Ironically, he suggested, with the improvement of roads in the mid-twentieth century leading to burgeoning tourist numbers travelling the centre, visitors came away under the illusion that this was 'true desert', its very bleakness and barrenness imparting a 'false glamour'.[19] 'We then did not know that a drought was on its way but that the country was in a sick condition … was very evident', pastoralist J.E. Brown wrote of the seas of drifting sand consuming the central Australian landscape in the mid-1940s, before drought had even struck.[20] Any native grasses that may have once graced his property in the 'old days' had by 1946 disappeared. Where dust was not billowing the denuded soil became *scalded*, sealing itself off with an impermeable waterproof layer.[21] This was a place afflicted.

In the Aboriginal view, anthropologist T.G.H. Strehlow wrote, 'the loved country, ruthlessly ripped from its original inhabitants, became a conquered land, unloved by its white robbers'. Strehlow worked extensively with the Aranda, and recollected the older people lamenting environmental change:

> 'Our country has been turned into a desert by the senseless whites', many of the older Aranda used to tell me … as they pointed to a land sadly reduced from its former state of fertility by years of unprecedented drought and overstocking, and by millions of introduced rabbits. They commented bitterly on the swift destruction of the natural food plants and the almost complete extinction of many of the formerly abundant species of marsupials, and said sadly—'The old men [who] knew how to summon the rain clouds, how to create the animals, and how to keep the country green, are dead now; and our land is dying too'.[22]

Biologist Steve Morton has noted that the rate of mammal extinctions in the Australian rangelands—desert areas used for grazing—is the highest in the world. He likens his own role as a CSIRO ecologist in the region to that of 'an ambulance driver arriving at the scene of a bad accident'.[23] Losses are particularly high for medium-sized herbivorous and omnivorous mammals. Some of these species are

now found only on off-shore sites (islands), or in less arid country. Others are extinct. In 1990 Morton published an article on the 'catastrophic impact' of European settlement on medium-sized mammals, proposing a conceptual model to account for their losses. As he points out, native birds and reptiles have fared much better in the arid zone, with no species certainly extinct. 'Of 38 terrestrial Australian mammals considered endangered or extinct, 23 (60 per cent) are or were present in the arid zone.'[24] In other words, mammal species of the arid zone have been more affected by European settlement than those of mesic (more moist) environments.[25] Morton grapples with these puzzles, arguing: 'Such a catastrophic impact demands explanation, especially in a nation increasingly interested in its unique biological heritage.' His conceptual model is grounded, quite literally, in arid Australia's ancient, weathered and highly sorted soils which cover a large proportion of the area. Plants growing on these infertile soils are poorly digestible and low in nutrients, meaning that much of inland Australia, from the herbivorous and omnivorous mammals' point of view, is 'nutritionally hostile'. Scattered across this 'sea of infertility' are fertile islands resulting from the flow of water creating enhanced moisture levels and more nutritious soil. Here plant growth is enhanced and digestible.

Because rainfall is highly unpredictable, with dry spells of irregular length interspersed with flooding deluges dumped by occasional cyclonic and monsoonal depressions, plant production follows suit.[26] Following the occasional wet years, fertile patches expand and coalesce. In the intervening long dry times they shrink and break up into smaller and smaller patches. When drought stretches out, many of them disappear altogether. This, then, is the landscape mammals are dependent upon: a landscape of change, of expanding and contracting habitats, and of dependable oases. It pulses and flourishes with life, then retracts.

Larger mammal species are mobile enough to recolonise expanded habitat after major drought-breaking rain, and to reoccupy patches that failed during drought. Small mammal species need less energy than larger species for survival, and can therefore persist in what are called 'refuge' patches during drought. They also have more suitable patches available to them in any given region. In the middle, medium-sized mammal species require rare large patches, but are less mobile than large mammals meaning their capacity to reoccupy habitat after rain is limited. It takes

time for them to spread out into a watered landscape. Even prior to the introduction of European animals, Morton believes medium-sized mammals experienced frequent local disappearance. Then Europeans arrived with their 'Pandora's box of foreign animals' and stock and rabbits degraded and destroyed suitable patches. Add to this scenario introduced predators such as foxes and cats, along with altered fire patterns caused by the diminishment of Aboriginal mosaic-burning, and medium-sized mammals were left without refuge both literally and figuratively.[27]

Buffel grass was introduced into such landscapes—having suffered irretrievable losses, emptied of a significant proportion of its life, scalded and billowing with dust.

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At Honeymoon Gap on the outskirts of Alice Springs, Dave's kids played in thick beds of coarse sand in the river bed, digging holes, building forts and sandcastles, decorating them with smooth river pebbles, pieces of bark, sticks and leaves from overhanging river red gums.

We turned back to buffel grass. Dave, a local botanist, explained that when it is densely established, buffel can change an important ecological process—the fire regime of a plant community. Because of its bulk and density, buffel generates higher temperature fires than the plants it commonly displaces, has the capacity to withstand fire itself, and rapidly accumulates fuel after fire. As a result, the intensity and frequency of fires often increases in areas dominated by buffel.[28] Native species most vulnerable to too-ferocious fire are those slow to reach reproductive age from seed (such as mulga) and species with heat-sensitive seeds. Mulga 'seeds profusely after a burn with seed that can remain viable for over sixty years, or until sufficient rains germinate it'. If, however, 'one fire rapidly succeeds another' the fires can consume mulga seedlings before they have capacity to become reproductive, thus destroying 'the prospects for replenishment'.[29]

River corridors such as the one where we were seated are also at risk. Buffel seed spreads along them with big rains, readily establishes in the rich soils, building up huge fuel loads beneath vulnerable old river red gums.[30] Something of buffel's fecundity can be grasped in this simple detail: botanists estimate that buffel grass carries around ten million seeds per square metre.[31] This picture is further complicated by post-1788 changes in Indigenous burning practices. In 1969, Rhys

Jones coined the now widely used phrase 'fire-stick farmer' to characterise the deliberate use of fire by Aboriginal people. As Tim Rowse points out, debate has surrounded how much 'agency' was (and is) involved with the use of fire-stick farming for hunting, food gathering, clearing corridors for travel and favouring certain animals that 'were in a sense husbanded' by burning practices.[32] For a number of writers, however, there is no doubt that fire was used with detailed knowledge as to its results. In his influential history of Australian fire ecology that traces how 'the island continent opted for fire', Stephen J. Pyne writes that 'Aborigines fashioned an analogue of farming' through 'their skilful manipulation of fire', which was a 'means by which to massage the indigenous environment into serving their particular needs'.[33] Anthropologist Deborah Bird Rose writes of Aboriginal people creating 'nourishing terrains' through 'their knowledge of the country, their fire-stick farming, their organisation of sanctuaries, and their rituals of well-being'.[34] Country, she suggests, is a place 'that gives and receives life. Not just imagined or represented, it is lived in and lived with ... [People] speak to country, sing to country, visit country, worry about country, feel sorry for country, and long for country'.[35] Burning, which 'lifts the country up' and keeps it 'clean', is part of looking after country.[36] Indeed, Rose argues, the 'centrality of fire in Aboriginal life cannot be overestimated'.[37] Ethno-botanist and life-long resident of central Australia, Peter Latz, explains how central Australian Aborigines manipulated fire to create complex mosaics that ensured 'maximum production' from twelve key plants 'considered most important to the traditional Aboriginal economy'.[38] Latz suggests that 'the judicious use of fire was, in the past, the single most important aspect of the desert economy'. Burning increases quantities of plant foods, and also reduces effort expended in harvesting. It influences the distribution of food plants and the ease with which they can be found. Further, because the twelve key plants mentioned above have differing degrees of fire tolerance, they require a calibration of different fire treatments. In all, the fire system employed by Aboriginal people in central Australia 'produces a mosaic of plant communities in different stages of fire recovery.'[39] In the past, it also protected certain sites and regions from wildfire by lessening fuel loads through regular and controlled burning.[40] Pyne argues that with the widespread relocation of central Australian Aborigines from the 1920s onward, and the consequential cessation of long-lived fire practices, 'the entire biota had to

readjust'. A pattern of very large wildfires began in the 1920s, which, over fifty years, 'shredded' the old mosaic patterns, and attended mammal extinctions.[41] Buffel grass compounds the complexity of this biotic readjustment.

'Buffel is now spreading fast,' Dave said. 'It's getting into places it's never been before.' Cultivars are hybridising. The grass has become naturalised in the region ('naturalised' meaning a non-native organism that can sustain itself through its own reproduction).[42] Some estimates show that by the year 2000 buffel grass had naturalised between thirty and fifty million hectares in Queensland alone.[43] Species thought to be at risk include a small brown and yellow butterfly known only from a small number of collected specimens, called a desert sand skipper (*Croitana aestiva*). Little is known about the skipper, and buffel grass is now the dominant ground cover throughout its habitat. Scientists think that buffel probably displaces the skipper's larval food plants.[44] Ecologist Steve McAlpin believes the proliferation of buffel grass may also have contributed to the local disappearance of a skink known as *Egernia slateri*.[45] But it is a picture changing so fast the full impacts on biodiversity are yet to be grasped. What is known is that buffel out-competes local plant species, creating dense monocultures in which native groundcovers and grasses cannot access enough moisture and light.

'One of the key questions', Dave said, 'is how long native seeds can remain viable within buffel grass monocultures.' He had removed buffel grass from his own property several years earlier and estimated that seeds of the 120 species that subsequently re-established themselves had probably lain dormant for as long as ten years.

His passion makes a neat counterpoint to sentiments of a century earlier, testing the desert for wealth and coming away disappointed. The dry lands had seemed then both indifferent and impervious to human desires. Colonel Warburton, for example, at the conclusion of his expedition that crossed west from the Overland Telegraph Line to the coast of Western Australia in 1879 summarised this immense span of terrain in a letter to his patron Thomas Elder as a 'vast ... extent of continuous bad country'.[46] His response was typical of the times. In her study of shifting perceptions of the Australian desert, Roslynn Haynes notes that 'few other landscapes have been so variously perceived or have elicited such diverse responses as the Australian desert. In the two centuries since European settlement of the

continent it has been promoted from "best forgotten" oblivion to centre stage prominence.'[47] Warburton's account belongs to a period of exploration that occurred once the telegraph line had been established in 1872.[48] He had much in common with other nineteenth-century explorers 'whose diaries detail horrid deprivations in the central wastelands', perpetuating the widespread idea of the 'intractability of Australian nature'.[49]

In Patrick White's *Voss*, the wealthy solicitor, Mr Pringle, says to explorer Voss before he sets out to cross the interior: 'it seems that this country will prove most hostile to anything in the nature of planned development. It has been shown that deserts prefer to resist history and develop along their own lines.'[50] Through Dave's peeling back of the layer of buffel grass, though, he suggests a world that could rapidly become lost: a vulnerable world, far from timeless or ahistorical.

Later that day, after we'd packed up and driven home from Honeymoon Gap, I was driving into town to pick up supplies and passed one of Dave's colleagues, an ethno-botanist, by the roadside. He was in a ditch pulling out great handfuls of buffel grass and loading them onto the back of his ute. I mentioned it to Dave later. 'Oh yes,' he said. 'You see him out all the time around here, doing battle with buffel, especially before it goes to seed.' It struck me as vaguely disturbing in its urgency and potential futility, his figure bent under the sky-filled landscape, like a gleaner in a Millet painting, but instead of picking up stray grains after harvest, he was struggling with some powerful force of destruction.

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In the district around Alice Springs during the 1870s and 1880s there was a land boom. Pastoral lease numbers were designated to grids drawn across maps of the landscape.[51] Almost anyone could apply for a grazing licence, as long as they showed they were putting the land to use by grazing livestock, erecting fences, sinking bores, and building dams. They were beholden to these 'improvements' with lease inspectors from the Lands Department checking on progress. Licences could be withdrawn from those who failed to fulfil their industrious and transformative obligations. By 1932 what had been considered one of the farthest frontiers of settlement west of Alice Springs, the station at Coniston situated in a belt of granitic hills, was pushed further when pastoralist and miner William Braitling traced the granite hills westward. Where they tapered he established his station Mt Doreen at

their feet.[52] Marginal allotments that lacked surface waters were taken up within this ever-increasing web of possession right through until the middle of the twentieth century.

Inspection reports made by the Lands Department give glimpses into lives being sketched out on brand new parcels of land. Under the heading 'improvements' come: 'Homestead: Sydney Williams Angle Iron Hut, concrete floor. Station Well: 22 ft deep timbered 4 ft. 3 Plums Well, with tower, tank, pump, troughing. Rinkabeena Well. Blue Bush Well. Homestead Dam. Yards with fencing. Eastern boundary extended 2 miles. Curringa Bore. Yundich Bore. Kliwan Bore.'[53]

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For a brief period the artist Albert Namatjira held a grazing licence for a piece of land flanking a station west of Alice Springs near what is now known as Papunya. He lodged an application for the licence on 4 October 1949, and a portion of the land was granted on 1 November 1949. The licence was cancelled on the 24 April 1950, meaning he held it for the sum total of five months. I stumbled across reference to Namatjira's licence in a station resource appraisal found while spending my days at the AZRI library in Alice Springs. Curiosity piqued, I delved into further archives. What is fascinating about this seemingly incidental event is the way in which assumptions about race and landscape are revealed through the 'storm' of scrutiny that occurred once the granting of Namatjira's licence was made public.[54] The profound limits to who, exactly, was eligible to hold a grazing licence are revealed.

Namatjira applied for a tract of land extending from the Haasts Bluff Reserve boundary in the south to the Siddeley Ranges in the north. He was assisted in his application by Pastor Gross of the Finke River Mission at Hermannsburg and Rex Batterbee, his early painting mentor and later a key member of the Aranda Arts Council and the Lutheran Mission Art Advisory, the two main marketing bodies responsible for Namatjira's and others' paintings.[55] He was granted only a portion of the land he applied for—a swathe of sandhills and salt lakes. The Siddeley Ranges, which would have made the grazing licence worthwhile, being most likely to harbour water and feed, were not included. The ranges lay at that time on Crown Land, and no reason was given as to why they were withheld, aside from the conditional granting of the reduced area, recommended by the Director of Lands:

> I do not think that any country North of the salt marshes should be granted. These marshes could form the North boundary of a reduced area of 460 square miles. If the applicant makes good on the South side of the marshes, consideration can then be given to a later extension.[56]

Pastor Albrecht, also of the Finke River Mission, on being informed that Namatjira's licence did not include the Siddeley Ranges wrote to the Acting District Superintendent of the Native Affairs Branch (NAB), requesting the northern end of Namatjira's grazing licence be extended to the ranges. Otherwise his country would include only 'some of the worst type of sandhills to be found in Central Australia' and his 'whole undertakings would be doomed to failure from the start'. 'His only hope is the inclusion of those ranges with some timber and herbage growing after rains,' wrote Albrecht. 'Although I am very much in favour of Albert going out there with cattle, instead of drifting into Alice Springs, as has been his tendency lately, I feel I would be dishonest to him by not warning him.' [57]

Albrecht's warning set off a chain of events that concluded with the cancellation of Namatjira's licence—the first case that the NAB knew of in which a 'full-blooded Aboriginal' had applied for a grazing licence. The to and fro of paperwork shows the quandary and lack of policy in response to this apparently unimaginable pairing: Aborigine with grazing licence. Field Officer Greatorex and Patrol Officer Penhall were sent out to inspect the land Namatjira had applied for, accompanied by Namatjira. On 7 February 1950 the party set out from the boundary of Haasts Bluff Reserve, making their way northward. In their reports, the landscape is described in close detail. Greatorex, for the Lands and Survey Branch of the Northern Territory Administration, summed up the country as unsuitable for any settler. He summed up Namatjira too:

> Extreme caution should be used before *any* grazing license or pastoral lease is granted to Namatjira, as although Albert is probably considerably more advanced than most natives, I do not consider that he, or his sons, are sufficiently mentally developed, particularly in their sense of responsibility, or educated, to enable them successfully to manage a pastoral undertaking.[58]

In a telling recommendation, Penhall suggested that the area Namatjira had applied for be proclaimed as an addition to the Haasts Bluff Reserve. He wrote: 'I do not

recommend this addition to the Reserve solely because the country is of no use commercially and so to be given to the natives.'[59] One can't help wondering how often this was otherwise the case.

Further up the lines of command, William McCoy, the Acting District Superintendent of the NAB fell into agreement with the two reports: 'I agree … that Namatjira is not sufficiently advanced intellectually to manage a cattle station without constant supervision and that it would be unwise for him to be given an area where he could not be controlled.'[60] Two years later the Minister for Territories, Paul Hasluck, encapsulated the episode in advice to Senator Robertson: 'Namatjira himself agreed that he could not run cattle on this sandhill country, and the Grazing Licence was cancelled and all fees paid were refunded. Again, however, Namatjira was not prevented from running cattle, as he could have established his own herd on the Aboriginal Reserve, as has been done by other aboriginals.'[61]

Repeatedly in the paperwork comes the regretful comment: I had thought that Namatjira was *familiar with* this country. Indignation surrounds the fact that Namatjira did not *know* the country. As Olive Pink made clear in a spirited outcry, the licence did not lie in his 'native clan country', but in Pintupi and Warlpiri country whose rights had thus been betrayed.[62] In no other grazing licence application that I viewed was this level of scrutiny applied, either of the applicant, or of the land itself along with its traditional owners. Settlers in the region hailed from Melbourne, Adelaide, Perth, rural Queensland, Sussex, Germany. That they could and did arrive ignorant of their new land was taken as a given. That in some cases they were setting up on stretches of land lacking permanent surface water did not concern any of the authorities.[63] That they could make a go of it without prior experience running livestock was part of an enterprising frontier spirit. White settlers were allowed to arrive with a vision, a hope, a dream, something impelling them—sense of adventure, fortunes to be made, opportunities to be grasped, awe, desire, lack of other choices, destitution, bridges burnt, fresh beginnings—to try life out here in the dry lands. But Namatjira was doomed to failure before he'd even begun.[64]

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In 1956 the scientist C.S. Christian noted in the inaugural *Arid Zone Newsletter* how 'even in our short history of land use the worst features of over exploitation of other

lands can be paralleled here.'[65] He was referring to environmental depredation not racial prejudice and dispossession. Numerous scientific studies conducted since the mid-1960s trace the same story of degradation caused by 'initial over-optimistic assessment of carrying capacity, the subsequent heavy overstocking, the futile attempts to keep stock on country gripped by what we now know are inevitable droughts, the eventual catastrophic losses, and the failure of the country ever to carry the original numbers of stock again'.[66]

In 1956 Christian stated that grazing practices needed to be adjusted so the main natural resource of the region—native vegetation—could be 'maintained in equilibrium' with the new grazing pressure.[67] That he identified the main exploitable resource in the arid zone to be native vegetation is more telling than it would at first seem.[68] Much more glamorous and ambitious plans for the desert lands fall away in his simple statement.

Because of increasing population pressure, settlement of 'empty lands' became a global preoccupation in the wake of World War I.[69] Australia was no exception, and its sparsely populated areas were closely scrutinised for their 'potentialities'. As environmental historian Tom Griffiths explains it, 'nationalist anxieties and prophecies were played out in debates about environment, population and race'. The backdrop to these debates was often central and northern Australia. 'There,' Griffiths says, 'according to much of the rhetoric of the visionaries, were the "vast, empty spaces", the beckoning continental potential of Australia. "Space" was an environmentally neutral word, a quantifiable national resource that was demonstrably underused.'[70] The 'absolute blanks' of the nineteenth century had become 'vast empty (or open) spaces' in the parlance of the twentieth century. Public debate about the uses these beckoning spaces should be put to was fuelled by a proliferation of popular authors who travelled to central and northern Australia, reporting back to their audiences.[71] For many of these writers, it seemed that with the right will, determination, and optimism the deserts could be made to flourish.

In summary of her travels, one of the more celebrated authors, Ernestine Hill, wrote: 'I have used the word desert often enough in these pages, but mainly in the dictionary sense of desertion.' What she saw instead was water everywhere 'could it be conserved' and rich desert soils lying idle. The desert was a garden waiting to bloom through the application of irrigation, aeroplane, radio, motor car, all

'changing the face of nature'. She painted this new face of nature as set eagerly toward the imminent coming of the 'king-tide of colonisation … setting to the full'.[72] For Hill, and many others of her cast of mind, making use of dry lands by transforming them through new technologies was the culmination of the colonial enterprise expanding to its most glorious potential.[73]

The desert is conveyed as having somehow rested in abeyance over the millennia, awaiting this opportunity through white settlement to transform into its truer more complete self, like a chrysalis of mythic proportion. It was a desert in need of redemption. Paradoxically, through integrating it into what Meaghan Morris terms a 'high-tech' future 'Australian Society', it would in turn become redemptive.[74] Others were sceptical of visions of an inland 'invested with mythical fertility and fabulous possibilities', and dubbed their proponents the 'boosters'.[75] Boosters included a number of the most popular and prolific of the authors, Frank Clune, William Hatfield, Ernestine Hill, Ion Idriess and Michael Terry.[76] Those opposed, on the other hand, to what they considered to be the 'dangerous myth' of vast potentialities, included A.O. Barrett, historian W.K. Hancock, geologist C.T. Madigan, scientist Francis Ratcliffe and geographer Griffith Taylor.[77]

Margriet Bonnin argues, though, that by the 1940s the fervour of nationalistic optimism about the country's 'vast open spaces' (which, she suggests, may have served as an acronym for Patrick White's *Voss*) had subsided. As Sydney Upton, author of *Australia's Empty Spaces*, put it: 'Some folk … talk about the Island Continent as if they were writing a prospectus for a dishonest company.'[78] And Griffith Taylor was able to state that his contentious forecast made twenty years earlier was 'now generally accepted by Australians': 'It was to the effect that the future millions of Australia are going to find their dwelling places and occupations in the lands already known by 1865. The "Empty Lands" of Australia are a burden to the Commonwealth rather than an asset'.[79]

So it was in this more sober climate that Christian identified the major natural and exploitable resource in the arid zone to be native vegetation. 'The prospect … is that there does not seem to be any scope for converting the major part of the Aust. arid region into more mesic [moist] territory,' he summarised in marked understatement.[80] He rejected large-scale projects such as rainmaking or pumping water into the desert from the sea then desalinating it via nuclear energy because

they were economically unviable, rather than philosophically or conceptually unsound.

Arid zone science was gaining new focus, momentum and government sponsorship, both nationally and internationally. In comparison with countries such as India and Africa, Australia's scientific knowledge and understanding of its own deserts, which, scientists acknowledged, occupied around 70 per cent of the continent, was embarrassingly lacking.[81] In 1951, UNESCO established an advisory council on Arid Zone Research. To begin with, the council's attention was focused on redevelopment of 'war-torn deserts' of the Middle East and northern Africa, along with India and Israel. In 1952, representatives from Australia and Peru were added. Libby Robin suggests that 'Australia was embarrassed by its lack of information for even simple questions posed by UNESCO'S Advisory Council, because its arid-zone science was so patchy, and lacking co-ordination.'[82] With the scientific community concentrating their gaze on the desert, the first *Arid Zone Newsletter* delineated in 1956 a number of clear fields of future investigation: regional surveys and assessments; investigation of water in all its aspects; investigation of native plant communities under conditions of grazing; investigations into the use of exotic crop pasture and tree species; investigations concerned with running and adapting livestock to desert conditions. In other words, the arid zone was to be developed into a more efficient pastoral zone.[83]

To complete a thought: buffel grass was to play a special part in the 'modifying or augmenting' of native vegetation.[84] Its spread in Western Australia and Northern Australia was seen as an encouraging sign that efforts in that direction would be worthwhile. Exotic species including buffel grass were to be grown under irrigation then 'introduced into the native plant communities, or be used to replace native communities'.[85] Experimental farms were established in and around Alice Springs by the CSIRO, and trials began. The way pastoralist Brown tells it, the CSIRO had been advocating the use of buffel grass in central Australia even earlier than this. 'So right from the beginning I had this concept if mankind was to occupy Central Australia on a sustainable basis then something had to be done about the pastures,' Brown writes.[86] Otherwise, central Australia was about to become a second Sahara Desert. Brown wrote to the CSIRO in Canberra for advice on pasture improvement. They wrote back to him in 1951 and sent him 'a couple of pounds of two kinds of white

buffel grass. They too felt that a good perennial grass was the best solution.'[87] Buffel grass was to be used to stitch back together broken and diminished country.

Some early introductions were reported upon favourably. In 1956–57 pasture improvements were attempted by staff of the welfare branch of the Northern Territory Administration at the newly established Aboriginal community of Warrabri, south of Tennant Creek. Clover, rye and buffel grass were introduced. 'The buffel grass flourished and is expected to spread through the whole area,' states a welfare branch conspectus.[88] However, many of the initial CSIRO trials were seen to be only modestly successful, and it wasn't until drought finally broke with big rains in the 1970s that buffel really took off. This unexpected 'success' encouraged its further use for both pasture and soil stabilisation. Since the mid–1990s the grass has spread significantly, particularly in the big rainfall period of 2000–01. Well established not only throughout station country, it has more recently spread into the West MacDonnell National Park.[89] The CSIRO now runs conservation management programs to control the grass. Whether the grass should officially be declared a weed is a topic of debate.

So through my days spent in Alice Springs libraries it was possible to trace in this one exotic grass broader patterns of human desire in the desert landscape: desire for wealth, desire to settle more extensively and comprehensively across the colonised landscape, desire to overcome the perceived limitations of the arid lands, with little comprehension of where these 'improvements' might lead and what unforeseen consequences may result.

While desert exploration in the late nineteenth century had been marked by its deep and bitter disappointment with what the desert had to offer—so little water, so few pastures—arid zone science of the mid-twentieth century was marked by its objectives to describe, document and learn more thoroughly about desert terrain and its resources in order to put them to most efficient economic use, while also counterbalancing the destructive effects of over exploitation. Equally striking was its firm belief in making well-founded modifications, augmentations and alterations. The desert was a place that could be tinkered with.

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I took some of my lunch breaks in the AZRI 'social club', among locked fridges stocked with alcohol, a pool table with a wooden cover over the top, two televisions, a set of cow horns mounted on the wall, bar stools and a dining table covered with a transparent sheet of plastic. Air conditioners hummed. From outside came the piercing squeal of a bird of prey. Sometimes I sat outside instead. The building was surrounded by a patch of green lawn that ended abruptly beyond the reach of sprinklers. There were no benches, so I sat on the grass and within minutes large ants detected me. I spent the time watching for their approach, brushing them from my legs, throwing crumbs to divert them. There were no shops nearby, and at midday each day a pie van arrived, with an announcement made over the loudspeaker inside about its imminent arrival.

One day, back inside the library, I watched a short film produced in the 1970s on 'pitting'. It had no sound, and I had very little idea of what, precisely, was being undertaken by the Primary Industries Board that produced it. I watched a tractor creating low soil embankments in parallel strips along a modest patch of open ground. A metal cylinder studded with squares of protruding metal rolled along the earth. Without sound or explanation, it seemed some primal dream were being imprinted in the soil, rolled out by the studded metal drum. And it struck me as being at once ridiculously simple—a machine working at and rearranging soil—and full of intent and purpose. The camera focused on the ground, so I was given no glimpse of the tractor driver. Now and then a pair of legs was caught as if by accident in the peripheries of the frame, surveying the scene. At the far end of the room, the librarian worked at her terminal. Through closed windows came more high-pitched squeals of the hawks that eddied in slow spirals above the AZRI building.

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[1] *The Argus*, 31 October 1855, p. 4, cited in Linden Gillbank, 'The Origins of the Acclimatisation Society of Victoria: Practical Science in the Wake of the Gold Rush', *Historical Records of Australian Science*, vol. 6, no. 3, 1986, p. 365.

[2] Michèle D. Dominy, 'Hearing Grass, Thinking Grass: Postcolonialism and Ecology in Aotearoa-New Zealand' in *Disputed Territories: Land, Culture and Identity in Settler Societies*, ed. David Trigger and Gareth Griffiths, Hong Kong University Press, Hong Kong, 2003, p. 56.

[3] Ecologists tend to prefer the terms 'arid zone' or 'drylands' to 'desert'. The Commonwealth Department of Environment and Heritage commonly refers to 'desert' as 'rangelands', meaning an area suitable for pastoralism rather than intensive agriculture. Libby Robin and Mike Smith, 'Science in Place and Time: Archaeology, Ecology and Environmental History' in *Animals of Arid Australia: Out on Their Own?,* ed. Chris Dickman, Daniel Lunney and Shelley Burgin, Royal Zoological Society of NSW, Mosman, 2007, pp. 189, 191.

[4] Matthew Gandy, *Concrete and Clay: Reworking Nature in New York City*, MIT Press, Cambridge, Mass., 2003, p. 12.

[5] Libby Robin, 'Migrants and Nomads: Seasoning Zoological Knowledge in Australia' in *A Change in the Weather: Climate and Culture in Australia*, ed. Tim Sherratt, Tom Griffiths and Libby Robin, NMA Press, Canberra, 2005, p. 52.

[6] Michael Taussig cited in Stephen Muecke, *Joe in the Andamans*, LCP, Sydney, 2008, p. 106. Taussig describes his essays collected in *Walter Benjamin's Grave* as sharing a 'love of muted and even defective storytelling as a form of analysis'. Of the eponymous essay he writes: 'I try to let the landscape overwhelm history such that the tragedy lies bare and the words, seeking some sort of redemption, fall aside. If I can't have my stories, then at least there has to be a swerve in the writing itself because the writing is the theory and the swerve is what trips up thought'. Michael Taussig, *Walter Benjamin's Grave*, University of Chicago Press, Chicago, London, 2006, p. vii.

[7] Ross Gibson, *Seven Versions of an Australian Badland*, University of Queensland Press, Brisbane, 2002, p. 2. For analyses of the term 'landscape' and its privileging of sight see for example: George Seddon, *Landprints: Reflections on Place and Landscape*, Cambridge University Press, Cambridge, 1997, pp. 96–7; Val Plumwood, 'The Concept of a Cultural Landscape: Nature, Culture and Agency in the Land', *Ethics and the Environment*, vol. 11, no. 2, 2006, pp. 115–50; Mary Louise Pratt, *Imperial Eyes: Travel Writing and Transculturation,* Routledge, London, New York, 1992; Rob Giblett, 'Nature's Fairest Forms: Aesthetics of Nature', *People and Places of Nature and Culture*, Intellect, Bristol, Chicago, 2011, pp. 63–76; Julian Thomas, 'The Politics of Vision and the Archaeologies of Landscape' in *Landscape: Politics and Perspectives*, ed. Barbara Bender, Berg, Providence and Oxford, 1993, pp. 20–5; Barbara Bender,

Introduction to *Landscape: Politics and Perspectives*, ed. Barbara Bender Berg, Providence and Oxford, 1993, pp. 1–3.

[8] Martin Thomas, *The Artificial Horizon: Imagining the Blue Mountains*, Melbourne University Press, Melbourne, 2003, p. 30.

[9] W.J.T. Mitchell, 'Imperial Landscape', *Landscape and Power*, University of Chicago Press, Chicago, London, 2002, p. 10.

[10] James Clifford, *Routes: Travel and Translation*, Harvard University Press, Cambridge, Mass., pp. 301–2.

[11] Recorded by C.T. White in 1930. M. Friedel, H. Puckey, C.O. 'Malley, M. Waycott, A. Smyth, G. Miller, 'Buffel Grass: Both Friend and Foe', *A Report to the Desert Knowledge Cooperative Research Centre on the Dispersal, Impact and Management of Buffel Grass*, Desert Knowledge Report no. 17, Alice Springs, 2006, p. 4.

[12] Where it is now spreading 'exponentially', as it is also in Arizona, parts of the Hawaiian islands and parts of Africa where it is not native. Friedel et al., p. 5.

[13] Myrtle Noske, *Where Ever Thou Goest: (A Life in the Mulga Country),* Hyde Park Press, Richmond SA, 2005, p. 10.

[14] Des Nelson, personal communication with the author.

[15] Kim Mahood describes 'strange buried things come to light', *Craft for a Dry Lake*, Anchor, Sydney, 2000, p. 163.

[16] W.G. Sebald writes of Flaubert's preoccupation with dust and sand: 'Time and again, said Janine, vast dust clouds drifted through Flaubert's dreams by day and by night, raised over the arid plains of the African continent and moving north across the Mediterranean and the Iberian peninsula till sooner or later they settled like ash from a fire on the Tuileries gardens, a suburb of Rouen or a country town in Normandy, penetrating into the tiniest crevices. In a grain of sand in the hem of Emma Bovary's winter gown, said Janine, Flaubert saw the whole of the Sahara.' *The Rings of Saturn*, Harvill Press, London, 1998, p. 8.

[17] Donald Worster, *Dust Bowl: The Southern Plains in the 1930s*, Oxford University Press, New York and Oxford, 1979, p. 3.

[18] Ibid., p. 4.

[19] Donald Thomson, *Bindibu Country*, Nelson, Sydney, 1975, pp. 132–3.

[20] J.E. Brown, Pasture Improvement in Central Australia, unpublished manuscript, Alice Springs, 2002, p. 7.

[21] Ibid., pp. 4, 6–7.

[22] T.G.H. Strehlow, *Central Australian Religion: Personal Monototemism in a Polytotemic Community*, Australian Association for the Study of Religions, South Australia, 1978, p. 49. Strehlow used the spelling 'Aranda'. Alternative spellings include 'Arunta', 'Arrarnta' and 'Arrernte', according to different orthographies.

[23] Robin and Smith, p. 192.

[24] Steve Morton, 'The Impact of European Settlement on the Vertebrate Animals of Arid Australia: A Conceptual Model', *Proceedings of the Ecological Society of Australia*, vol. 16, 1990, p. 202.

[25] Mesic is one of a triad of terms to describe the amount of moisture in a habitat. Mesic is a habitat characterised by a moderate amount of water, hydric with a plentiful supply and xeric with a scanty amount.

[26] Mark Stafford-Smith and Steve Morton, 'A Framework for the Ecology of Arid Australia', *Journal of Arid Environments*, vol. 18, 1990, p. 260.

[27] Morton, pp. 201–8.

[28] Dave Albrecht, personal communication with the author.

[29] Stephen J. Pyne, *Burning Bush: A Fire History of Australia*, University of Washington Press, Seattle and London, 1991, p. 44. Pyne argues that 'strictly speaking', mulga environs 'are not informed by fire'. In other words, unlike eucalypts they inhibit rather than promote fire.

[30] K. Finnane, 'Buffel Grass is Out of Control', *Alice Springs News*, 22 March 2000, <http://www.alicespringsnews.com.au/0712.html accessed 25/08/2005>, p. 1.

[31] Ibid.

[32] Tim Rowse, *After Mabo: Interpreting Indigenous Traditions*, Melbourne University Press, Melbourne, 1993, p. 123. The term, 'husbanding' animals through burning practices is Pyne's, p. 126.

[33] Pyne, p. xviii.

[34] Deborah Bird Rose, *Nourishing Terrains: Australian Aboriginal Views of Landscape and Wilderness*, Australian Heritage Commission, Canberra, 1996, p. 72.

[35] Rose cited in Ross Gibson, 'Changescapes' in *Halfway House: The Poetics of Australian Space*, ed. Jennifer Rutherford and Barbara Holloway, UWA Publishing, Crawley, 2010, p. 25.

[36] On 'lifting country up' see John Bradley, 'Fire: Emotion and Politics, a Yanyuwa Case Study' in *Country in Flames: Proceedings of the 1994 Symposium on Biodiversity and Fire in North Australia*, ed. Deborah Bird Rose, Biodiversity Unit, Department of Environment, Sport and Territories and the North Australia Research Unit, ANU, Canberra, Darwin, 1994, p. 26. For discussion of the moral and aesthetic connotations of using fire to keep country 'clean' see Rowse, pp. 125–6.

[37] Rose, p. 69.

[38] Peter Latz, *Bushfires and Bushtucker: Aboriginal Plant Use in Central Australia*, IAD Press, Alice Springs, 1995, p. 22.

[39] Latz, p. 22.

[40] Pyne, p. 126. See also Rose for discussion of areas that are not burnt, for example 'the area around a sacred site is kept free of fire and serves the function of refuge for plant and animal species', p. 68.

[41] Pyne, p. 126.

[42] A.G. Cameron, 'Buffel Grass: A Pasture Grass for Sandy Soils', *Agnote* 283, no. E28, February 2004, p. 1.

[43] Friedel et al., p. 5.

[44] Cooperative Research Centre for Australian Weed Management, *Threatened Cute and Furries Drowning Under Sea of Weeds*, 2 September 2004, np.

[45] Finnane, p. 1.

[46] Peter Egerton Warburton, *Journey Across the Western Interior of Australia*, facsimile edition, Hesperian Press, Victoria Park, 1981 [1875], p. 300.

[47] Roslynn Haynes, *Seeking the Centre: The Australian Desert in Literature, Art and Film*, Cambridge University Press, Cambridge, New York, Melbourne, 1998, p. 3.

[48] The major expeditions of this period involved the Forrest brothers, William Gosse, Ernest Giles, Peter E. Warburton and William Tietkens. They used the overland telegraph line's depots and stations as a base or as a destination. Philip Jones, 'The Horn Expedition's Place Among Nineteenth-Century Inland Expeditions' in *Exploring Central Australia: Society, the Environment and the 1894 Horn Expedition*, ed. S.R. Morton and D.J. Mulvaney, Surrey Beatty & Sons, Chipping Norton, 1996, p. 20.

[49] Ross Gibson, *South of the West: Postcolonialism and the Narrative Construction of Australia*, Indiana University Press, Bloomington, 1992, pp. 66–7.

[50] Patrick White, *Voss*, Penguin, London, 1960, p. 62.

[51] W.A. Low, *Resource Appraisal of Central Mt Wedge Station Pastoral Lease 807*, Prepared for Conservation Commission of the Northern Territory, Alice Springs, by W.A. Low Ecological Services, 1986, p. 26.

[52] C.T. Madigan, *Central Australia*, Oxford University Press, Melbourne, 1944, p. 261.

[53] Northern Territory Archive Service (NTAS), Department of Lands, Alice Springs, NTRS 608, Grazing licence files with 'GL' prefix, 1956–1980, Item GL 1372.

[54] H.C. Barclay, Director of Lands, wrote, 'Our attempts to assist a full-blooded aborigine seem to have aroused a storm, and it is therefore recommended that the Grazing Licence be cancelled ', Barclay to The Administrator, 12 April 1950, NTAS, NTRS 3347, GL 1377.

[55] See Alison French's *Seeing the Centre* for detail on the relationship between Namatjira and Batterbee. Alison French, *Seeing the Centre: The Art of Albert Namatjira 1902–1959*, National Gallery of Australia, Canberra, 2002.

[56] H.C. Barclay, 21 October 1949, NTAS, NTRS 3347, GL 1377.

[57] Albrecht to Native Affairs Board, 17 November 1949, NTAS, NTRS 3347, GL 1377.

[58] Greatorex, Memorandum for Chief Clerk, Lands and Survey Branch, Darwin, 20 February 1950, NTAS, NTRS 3347, GL 1377.

[59] L.N. Penhall, Memorandum for Chief Clerk, Lands and Survey Branch, Darwin, 20 February 1950, NTAS, NTRS 3347, GL 1377.

[60] McCoy to Director of Native Affairs, Darwin, 21 March 1950, NTAS, NTRS 3347, GL 1377.

[61] P. Hasluck to Senator Robertson, 8 October 1952, NTAS, NTRS 3347, GL 1377.

[62] Olive Pink to H.C. Barclay, 2 September 1950. See also O. Pink, lettergram to Barclay, 25 July 1950, NTAS, NTRS 3347, GL 1377. In fact, according to claimants in the Central Mount Wedge Land Claim, the area of land lay in Warlpiri, Luritja and Anmetjyerre country. Petronella Vaarzon-Morel and Lee Sackett, *Central Mount Wedge Land Claim: Anthropologists' Report*, Central Land Council, Northern Territory, 1997, p. 14.

[63] Bill Waudby, for example, discusses the lack of surface water on Central Mount Wedge station when he first took up his licence in 1947. NTAS, TS698, Oral History Unit, Interview with Bill Waudby, 1991, p. 6.

[64] Later, a portion of Namatjira's short-lived licence was incorporated into another licence, that of Central Mount Wedge. In 1958 a pastoral lease was taken up by the Coppock family on a piece of land almost identical with that applied for by Namatjira, including the Siddeley Ranges in the north and salt lakes and sandhill country to the south. Although, as Hasluck and others concluded, 'it would not be possible for anyone to establish a successful pastoral business on it' with its regrettable sandhills stretching to twenty or thirty feet in height, spinifex, desert oak and desert poplar, the lease was named Newhaven and run as a pastoral property, with the main homestead bore sunk at the foot of the ranges.

[65] C.S. Christian, *Arid Zone Newsletter*, issued by Arid Zone Research Liaison Officer, C.S. Christian, Land Research and Regional Survey Section, CSIRO, Canberra, 1956, p. 8.

[66] Morton, p. 204.

[67] Christian, p. 8.

[68] Ibid., p. 7.

[69] Carolyn Strange and Alison Bashford, *Griffith Taylor: Visionary, Environmentalist, Explorer*, National Library of Australia, Canberra, 2008, p. 128.

[70] Tom Griffiths, *Hunters and Collectors: The Antiquarian Imagination in Australia*, Cambridge University Press, Cambridge, Melbourne, 1996, p. 186.

[71] Margriet Bonnin, 'A Study of Australian Descriptive and Travel Writing, 1929–1945', PhD Thesis, University of Queensland, 1980, pp. i, 39.

[72] Ernestine Hill, *The Great Australian Loneliness*, Angus & Robertson, Melbourne, 1963 [1940], p. 340.

[73] Meaghan Morris argues that the descriptive writing used by popular non-fiction writers such as Hill was used as a way 'to foster a broad public debate that was less about "landscape" in any simple or nostalgic sense, than it was about exploring competing scenarios for a future—and usually "high-tech"—Australian Society'. 'Panorama: The Live, the Dead and the Living' in *Island in the Stream: Myths of Place in Australian Culture*, ed. Paul Foss, Pluto Press, Leichhardt, 1988, p. 171. Similarly, Bonnin writes: 'In one sense the writers were not romantics. They advocated a new civilisation based on modern technology, which would take advantage of the economic and spiritual benefits that they felt the inland had to offer. They also sought to prick the consciences of Australians in the hope that action would be taken on the preservation of the natural environment. The conservation of native flora and fauna, and the combating of erosion were discussed in most of the books.' Bonnin, p. ii.

[74] Morris, p. 171.

[75] Bank of NSW circular on 'Australia's Vast Open Spaces', 1936, cited in Bonnin, p. 175.

[76] Bonnin, p. 156.

[77] Ibid., pp. 70, 175–8.

[78] Upton cited in Bonnin, pp. 178–9.

[79] Taylor cited in Strange and Bashford, p. 154. The authors trace a trajectory in Taylor's status from 'pariah' to that of internationally respected academic. Although his geographic thought came to be associated with definitions of environmental determinism that were deemed outmoded by the twentieth century's leading geographers, it is now given renewed recognition. 'Ironically, concerns over global warming, drought, salinity, and unsustainable resource exploitation have prompted environmental scientists, such as Tim Flannery, to restore respect for Taylor's early "deterministic" predictions. Indeed, some recent commentators on Taylor declare that the one-time pariah ought to be hailed as a prophet', p. 5.

[80] Christian, p. 7.

[81] Libby Robin, *How a Continent Created a Nation*, UNSW Press, Sydney, 2007, pp. 112–13.

[82] Robin, *How a Continent*, p. 113.

[83] Christian, pp. 3–4. See also Robin, *How a Continent*, p. 112.

[84] Christian, p. 8.

[85] Ibid., p. 4.

[86] Brown, p. 5.

[87] Ibid., p. 8.

[88] National Archives Australia, *Conspectus of the Work of the Welfare Branch of the Northern Territory*, NAA A452 1959/876, Administration for the Period August 1954 – February 1959, p. 92.

[89] Dave Albrecht, personal communication with the author.