DRIVERS OF CHANGE IN DARWIN’S HINTERLAND

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I hereby declare that this work, submitted as a thesis for the degree of Masters by Research at Charles Darwin University, is the result of my own investigations and analysis. All the references and other works have been fully acknowledged. The work in this thesis has not been accepted, or submitted, for any other degree.
ABSTRACT

Today Darwin, the capital city of Australia’s Northern Territory, is a tropical modern metropolis of 120,000 people. Darwin’s hinterland displays a complex mixture of rural living; a multi-million dollar horticulture industry; conservation and water catchment protection areas; and Aboriginal lands. However, surprisingly this development did not occur through the traditional pattern of the transformation of rural land from agriculture. Darwin shows a startlingly different picture. Most of the lands in the hinterland, even in the 1950s, were tropical savannas essentially unchanged for thousands of years, except by the Aboriginal traditional owners of the land who hunted and gathered and managed the landscape with fire.

The development of Darwin, when mapped using GIS software, shows that counterurbanisation occurred in the 1960s when the savannas were transformed into rural residential lots. Later agriculture grew out of counterurbanisation from the enterprises of residential hobby farmers. This thesis examines why the development of Darwin departs from the traditional model.

Part of the explanation lies in the colonial history of Darwin. Historically Darwin was established as an administrative outpost for firstly the South Australian and later the Commonwealth Government rather than being a city that evolved organically. Land sold to speculators in the 1860s was not taken up until the 1960s. Commonwealth experimentation with agriculture continually failed because the environment did not respond to traditional European farming methods. Unlike most tropical savannas in northern Australia, the pastoralists never established a stronghold over Darwin’s hinterland. Finally and significantly, the land in the hinterland was mainly freehold land, while land in the urban area was successively made leasehold through compulsory acquisition by the Commonwealth Government.

The implication of this case study of Darwin is that settlement does not have to be premised on agriculture. Access to freehold land and the capacity to commute aided by the Commonwealth’s tight control of land and housing supply were the initial drivers of counterurbanisation in Darwin.
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Chapter 1
Introduction

The subject of this research, ‘Drivers of Change in Darwin’s Hinterland’, was derived from a desire to understand the factors which shaped the settlement and land use patterns in Litchfield, the municipality in the peri-urban hinterland of the capital city of Darwin in Australia’s Northern Territory. Darwin, in contrast to other Australian capital cities, has received little attention in studies of population growth, urbanisation and migration patterns in the fringe or peri-urban areas (Burnley & Murphy 2004; Buxton et al. 2006; Newton & Bell 1996). Holmes (2010a), in his study of Northern Australia’s tropical savannas, found that the Darwin-Katherine tropical savanna region developed differently and displayed counterurbanisation while none of the other tropical savannas displayed this settlement pattern. This thesis will seek to establish, if as Holmes suggests, counterurbanisation occurred, then what processes drove this settlement pattern.

RURAL TRANSFORMATION

The world is becoming more urbanised with more people living in cities than before in recorded history (Antrop 2004). The urban areas have expanded through the transformation of rural lands on the edge of cities through the processes of outward migration, and the development of commercial centres, manufacturing and warehousing. Hugo referred to this as a ‘new form of urbani(s)ation’ which is occurring in a transitional zone at the city’s edge’ (Hugo, Champion & Lattes 2003, p. 286).

The space at the edge of cities has been described as the fringe, the peri-urban, the exurban and the hinterland, and the process of migration from city centres has been conceptualised and described as peri-urbanisation, counterurbanisation, exurbanisation, amenity migration and the ‘turnaround’ (Adell 1999; Buxton et al. 2006; Cadieux & Hurley 2011; Champion 1988; Clark et al. 2009; Ford 1999; Gosnell & Abrams 2011; Hugo 1996; Luck, Race & Black 2011; Millward 2002; Mitchell 2004; Murphy & Burnley 1996; Taylor 2011). Researchers have used many disciplines to
study this phenomenon including; geography, ecology, economics, demography, political science, rural sociology, landscape and environmental management.

The growth of cities has been studied across the world in very different physical contexts. Despite the physical, economic, social and cultural diversity of settings there is an increasing recognition that many rural spaces on the edge of cities are being transformed into complex forms of land uses (residential, industrial, conservation uses, and major infrastructure) and are increasingly displaying multifunctionality where rural landscapes serve multiple functions (Argent, Smailes & Griffin 2007; Holmes 2006, 2010b; Marsden & Sonnino 2008; Smailes 2002).

This outward expansion has been the focus of public policy debates because of the significant implications for the protection of natural resources and biodiversity, the retention of agricultural lands, the impacts on landscapes, issues about urban containment, the provision of community services and effective use of infrastructure (Bunker & Holloway 2001; Buxton et al. 2006; Luck, Race & Black 2011; McGuirk & Argent 2011).

It was within this context that this thesis was conceived. The topic was the development of Darwin’s hinterland: a study of the drivers which shaped the rural fringe. Darwin\(^1\) lies within the tropical savannas zone characterised mainly by open woodlands with grass understoreys. Today the urban area of Darwin is very compact, and spreads a mere 30 kilometres south east of the peninsula where the city centre lies. The Municipality of Litchfield, which lies to the south east of the city, has been selected for this thesis to define the hinterland.

Figure 1.1 provides a map of the study area based on cadastral information provided by the NT Department of Lands, Planning and the Environment.

Much of Litchfield is now used for rural residential purposes, generally with lots ranging from to two to eight hectares in size. There are large areas that are used for conservation purposes to protect biodiversity or water catchments.

\(^1\) Latitude 12\(^\circ\) 27’S, Longitude 130\(^\circ\) 30’W
Figure 1.1 Municipality of Litchfield and neighbouring localities

There is also a profitable horticultural industry which provides tropical fruits, Asian greens and exotic flowers to local and southern Australian markets, as well as international markets. This industry occupies only a small area in contrast to Koolpinyah, a large pastoral station\(^2\) (93,660 ha) which also lies in Litchfield and less than 40 kilometres east of the city. The Australian Government (or Commonwealth Government)\(^3\) is another major land holder in Darwin’s hinterland; its land holdings

\(^2\) A pastoral station is like an American cattle ranch.

\(^3\) The Commonwealth Government of Australia is a system of parliamentary democracy comprising the federal union of six States and two mainland territories. The Commonwealth and State Governments derive their power from the constitution. The
being a legacy of the time when the Commonwealth controlled the Northern Territory from 1911 until 1978. The Northern Territory Government also holds large parcels in a ‘land bank’ for the future urban development of Darwin.

It was evident in 2010 when this research began that Litchfield, the rural hinterland of Darwin, displayed multifunctionality. The research soon uncovered that most of the lands in the hinterland had not, prior to the 1970s, been farmed, or used for grazing and other agricultural pursuits, as had been the case for other Australian capital cities (Buxton et al. 2006). In fact, the hinterland, until the late 1950s, had largely remained undisturbed by non-Indigenous settlers. Darwin had remained a small garrison town until after WWII (WWII), and despite being first established in 1870, Darwin failed to grow as a modern town until the 1960s. Even today, Darwin has the smallest population of any Australian capital city.

The Municipality of Litchfield’s story was different from the traditional model of urban growth which occurs through the conversion of rural or agricultural lands. This story needs to be set within the context of the Darwin area, and the fact that its development has been shaped by three inter-related main factors: remoteness, the hostile physical environment, and its history as a British and Commonwealth colonial outpost.

Australian Capital Territory and the Northern Territory are self-administered territories, while the other territories (small islands and Jervis Bay) are administered by the Commonwealth.

Each of the States and mainland territories has its own parliamentary system. The States and the Northern Territory also have a system of local government (not recognised by the constitution) where the council is elected by residents living in the districts. Local government districts vary in size from cities, shires and boroughs, and provide services and infrastructure to meet the needs of their local communities.

4 120,586 people
These themes will be used to explain the forces which have shaped the development of Darwin’s hinterland. This research was largely guided by two bodies of literature: counterurbanisation (Mitchell 2004) and multifunctionality (Holmes 2006).

**MAJOR CONCEPTS AND FRAMEWORKS USED**

**Urban/rural dichotomy**

Traditionally urban and rural are seen as a dichotomy. Rurality is interwoven with the concepts of agriculture and farming, and even though the ontological and epistemological bases of studies of rural societies have been wide ranging and disparate, the farming theme is omnipresent (Cloke 2006).

It has been recognised at least since the 1970s, that the countryside was being urbanised (Beale 1976; Cloke 2006). Hugo recognised in the face of growing urbanisation where ‘urban functions were being relocated in rural areas’ that there was a need to reconsider the urban-rural distinction (Antrop 2004; Hugo, Champion & Lattes 2003).

**Counterurbanisation**

Migration is a major component of settlement formation. Historically the dominant trend has been the ‘drift to the city’, which can be traced to at least the fourteenth century in France and the sixteenth century in Britain (Weber 1965). The migration into cities is now commonly associated with younger people seeking education or brighter opportunities than those offered in the countryside. Other people migrate to the cities during rural economic downturns and with the displacement of the rural labour force by increasing mechanisation.

There has also been outward migration of people from cities into the countryside, albeit on a considerably smaller scale than movement to the cities. This has often been seasonal shifts to country homes or summer retreats by the wealthy or aristocrats. This movement has been strongly linked to access to transportation. More recently, the countryside has become more accessible to the masses with the advent of rail and then the motor vehicle.
In the 1960s the ‘population turnaround’, the noticeable migration of city people to the country, was recognised. Beale is often cited as the first to record the ‘startling’ reverse trend of people migrating from cities into the countryside in the United States in the 1960s (Beale 1976, p. 956) and exceeding the growth in metropolitan areas.

This has become a world-wide phenomenon across developed countries, including Australia. The migration of people from the cities to the countryside has been conceptualised as ‘exurban’ (Clark et al. 2009; Murphy & Burnley 1996), ‘counter-urban’ (Halfacree 1994; Hugo 1996), ‘peri-urban’ (Buxton et al. 2006), ‘amenity migration’ (Argent et al. 2010; Gosnell & Abrams 2011; Taylor 2011) and the ‘turnaround’ or ‘seachange’ phenomenon (Burnley & Murphy 2004). This migration has blurred the distinction of urban and rural, and led to a profound shift in the ways rural was conceptualised.

Although there are differences between these concepts, exurban, counter-urban, peri-urban or amenity migration, implicit in these concepts is the notion of the ‘turnaround’. Superficially the term ‘exurban’ seems to be favoured by authors from the United States. The term was first coined by Spectorsky in his 1955 book ‘The Exurbanites’ describing the lives of affluent New Yorkers commuting to work in the city from the countryside (Spectorsky 1955). Taylor (2011, p. 331) asserted that:

‘(E)xurbia is best understood as a cultural landscape where the wild natural or pastoral rural landscapes of the imagination motivate exurbanites’ residential choices and individual land management decisions.’

Exurbia also seems to be captured in the term amenity migration, which is migration associated with ‘broadly, the purchasing of primary or secondary residences in rural areas valued for their aesthetic, recreational and other consumptive values’ (McCarthy 2005, p. 130).

However, exurbia, like the peri-urban zone, differs in that it is seen as a place on the edge of cities where people can enjoy the rural landscape while retaining a connectedness to urban networks, by commuting to employment or other services
(Taylor 2011). Amenity migration possibly entails migration to more remote locations. However, the literature is ambiguous.

On the other hand, ‘counterurbanisation’ appears more favoured as a term by British, Australian and Canadian researchers. Mitchell, with reference to Berry (1976), describes counter-urbanisation as the antithesis of urbanisation, where urbanisation is a process of population concentration while counter-urbanisation is a process of population deconcentration. However, according to Mitchell, ‘definitional confusion abounds’ in the international literature, and it is a ‘chaotic concept’ (Mitchell 2004, pp. 3, 6). Despite this confusion, for convenience ‘counter-urbanisation’ will be used throughout this thesis.

Counterurbanisation has been described as the ‘commodification’ of the rural landscape. The Macquarie Concise Dictionary, Fifth Edition (2010, p. 251) defines commodification as:

‘(T)he process by which something which is of great intrinsic worth, but no commercial value is turned into a commodity which can be bought or sold.’

This is evident in people’s migration to rural settings where they embrace the elements of the settings; the landscape, the housing, the artefacts and even the style of dressing. Halfacree writes of the importance of the ‘rural’ as a social construct. He also argues that independently of ‘voluntarist’ (pull) or ‘non-voluntarist’(push) explanations for counterurbanisation the ‘desire to live in a more rural residential environment is a crucial constitutive element’ of counterurbanisation (Halfacree 1994, p. 185).

Even though there may be other factors (job or housing led) which drive outward migration, the concept of rurality has been absorbed into popular culture, on television\(^5\) and in new concepts (Burnley & Murphy 2004; Halfacree 2008). For example, ‘Seachange’ was a popular Australian television series that ran in the 1990s, depicting Laura, a successful corporate lawyer, ‘downsizing’ to become a

\(^5\) Escape to the Country (Boundless Productions 2002-present)
magistrate in a sleepy coastal town. Kevin McCloud’s television series ‘Grand Designs’ regularly featured the construction of a new dwelling or transformation of an existing rural structure in the British countryside, and this desire to live in the rural idyll has now ‘gone global’ (Halfacree 2008; McCarthy 2005; McCloud 2011; Milbourne 2007).

**Post productivist transition and multifunctionality**

The concept of the ‘post productivist transition’ (PPT) has been employed by researchers to explain the declining role of agriculture in rural landscapes in the United Kingdom (Robinson 1994; Wilson 2001). It has been conceived as a complex phenomenon brought on by globalisation, changing environmental regulation and subsidisation of primary production, and agricultural practices. The changes to the agricultural system have been seen as shifts from:

- intensification of production to extensification or reduced production and decreased use of land for primary production
- concentration of farm ownership to dispersion of farmland into a wider distribution of ownership

The restructuring of the agricultural sector has also been accompanied by growing affluence and the development of a transport network which enabled people to commute easily to and from urban centres. These changes enabled non-agricultural people to move into the rural landscapes as a lifestyle change.

The utility of the PPT was keenly debated in the United Kingdom (Mather, Hill & Nijnik 2006; Wilson 2001). Halfacree commented:

‘The productivist/post-productivist framework ... is not one that has been completely accepted, even for Great Britain ... (S)uffice it to note that the model’s general applicability seems to dissipate as we go away from Britain’ (Halfacree 2006, p. 58).

---

6 A place in the Sun; Home or Away (Various 2000 to present)
By and large Australian researchers have rejected the PPT as having little relevance to Australia on the grounds of Australian conditions in terms of scale, the diversity of landscapes, and the regulatory environment (Argent 2002; Holmes 2006). Instead Australian researchers turned to the concept of multifunctionality to understand changing rural Australian landscapes (Holmes 2006, 2010a; Smailes 2002).

Multifunctionality in relation to agriculture was first coined by the European Council for Agricultural Land in recognition of multiple functions and provision of services by the farming sector (Marsden & Sonnino 2008). Building on the proposition of Wilson (2001), Holmes formulated the concept of the multifunctional rural transition (MRT):

‘The direction, complexity and pace of rural change in affluent, western societies can be conceptualized as a multifunctional transition, in which a variable mix of consumption and protection values has emerged, contesting the former dominance of production values, and leading to greater complexity and heterogeneity in rural occupation at all scales. This transition is propelled by three dominant driving forces, namely: agricultural overcapacity; the emergence of market-driven amenity values; and growing societal awareness of sustainability and preservation issues (Holmes 2006, p. 142).

**Modes of occupance**

As used by Holmes, the production mode of occupation relates to traditional farming practices, mining and extractive industrial uses. The consumptive mode of occupation relates to the use of the land for residential purposes, for the enjoyment of the landscape or the amenity of the area. The protection mode of occupation relates to the conservation of lands, biodiversity and the natural landscape. Modes of occupation have been conceptualised as dimensions, where the relative dominance of each of the three modes of occupation can produce entirely different scenarios from, for example, the traditional broad acre cattle or sheep grazing farms to the multifunctional fringe areas outside cities dotted with hobby farms, boutique vineyards, and bed and breakfast farms.
Holmes postulated seven modes of occupance\(^7\) for northern Australia with productivist agricultural, amenity and conservation/Indigenous occupation being the ‘monofunctional modes’ (Holmes 2006). Interestingly Holmes initially included Indigenous land occupation within the conservation mode but later reappraised his views in light of the complexities of ethno-cultural values associated with caring for country and traditional ownership of resources and set it aside as a separate mode (Holmes 2010b).

Notably Holmes studied Australia’s rangelands and tropical savannas and concluded that counterurbanisation had occurred in what he describes as the ‘Darwin-Katherine Hinterland’ (Holmes 2010a, p. 351). The tropical savannas of northern Australia are remote, sparsely populated areas with a difficult climate and are marginal lands in terms of conventional agricultural production, an outcome of which has been that much of the tropical savannas across northern Australia have typically been the domain of the pastoral industry. He attributes the occurrence of counterurbanisation in the Darwin region to the ‘flimsy mode of productivist occupation’ being displaced by other modes of occupance (Holmes 2010b, p. 265). That this is the only region in Australia’s northern savannas identified as displaying counterurbanisation deserved further exploration.

This raises two questions about why the Darwin-Katherine region is the only region in northern Australia’s savannas to exhibit counterurbanisation. Firstly, did the tropical savannas of the Darwin-Katherine area differ from Australia’s other tropical savannas, such as in areas around Broome, Kununurra, Mount Isa and Townsville? Secondly, what were the drivers of settlement patterns in this region? How and when did rural residential occupance displace ‘productivist occupance’, if at all?

This thesis will not analyse the possible differences between the Darwin-Katherine region and other tropical savannas, but rather concentrate on the second question.

\(^7\) Productivist agricultural, rural amenity, pluriactive, peri-metropolitan, marginalised agricultural and conservation(including Indigenous)
of what have been the drivers of change in part of the region in the Municipality of Litchfield in Darwin’s immediate hinterland.

**LINKS BETWEEN COUNTERURBANISATION AND MULTIFUNCTIONALITY**

It is now recognised that counterurbanisation has played a central role in the transformation of rural landscapes and this provides a nexus with the idea of multifunctionality (Marsden 1999, p. 514; Stockdale, Findlay & Short 2000; Wilson 2001 pp. 80-1). Indeed Halfacree and Boyle (1998) have argued that ‘the migration of people to more rural areas of the developed world ... forms perhaps the central dynamic in the creation of any post-productivist countryside’ (cited in Gosnell & Abrams 2011, p. 306).

**THE NATURE OF MIGRATION TO RURAL AREAS**

**Quantifying migration patterns**

Since the 1970s, many studies of counterurbanisation have quantified the redistribution of the population from urban to rural settings (Beale 1976; Champion 1988, 1994; Hugo 1996).

What is also evident from Australian and international research is that the rate of in and out-migration to and from cities has varied since the 1970s (Champion 1994; Dahms 1995; Dahms & McComb 1999; Halfacree 1994; Marini & Mooney 2006; Otterstrom & Shumway 2003). Burnley and Murphy documented how the different migration patterns have been strongly linked to changing economic and political forces shaping Australia, such as the restructuring of the agricultural sector, and Government policies such as regionalisation designed to bolster declining rural communities (Burnley & Murphy 2004).

In more recent times there have been criticisms that the analysis of migration patterns has been somewhat biased, and has failed to capture the complexity of movements in rural areas: migration within, migrations in and out, return migration, short and long distance movements, and movements over time (Beyers & Nelson 2000; Bijker & Haartsen 1012; Milbourne 2007). In fact there is evidence of
movements ‘up and down the urban hierarchy’ dating from 1800s in the United Kingdom (Pooley & Turnbull 1996, p. 516).

**Motivations for migrating**

Australian and international researchers have explained out-migration in terms of ‘pull/push’ factors (Burnley & Murphy 2004; Buxton et al. 2006; Fisher 2003; Gosnell & Abrams 2011; Halfacree 1994; Hugo 1996). The pull factors consistent with amenity migration include those behind the sea-change or tree change phenomenon and the search for a rural idyll or a more bucolic lifestyle.

Researchers have attempted to describe what attracts people to move to particular rural localities and to answer questions of whether the attributes of the locality, the amenity of the place, and the actual distance from or access to urban centres have influenced migration patterns (Salant et al. cited in Beyers & Nelson 2000; Burnley & Murphy 2004; Cadieux & Hurley 2011; McGranahan 2008; Smailes 2002). The migration to non-metropolitan localities along Australia’s eastern seaboard has been particularly prominent over the last few decades.

Argent, Smailes and Griffin (2007) formulated an index of amenity, where higher amenity areas are more likely to:

- have a higher annual rainfall
- have a rugged terrain and an altitude offering vistas
- be accessible with an availability of essential services
- be a longer established settlement and with a bucolic setting
- have irrigation water sources and the availability of a reliable water supply
- have employment in recreation and tourism and human services
- be close to the beach.

All of these attributes, to some extent, can be seen in the locations along the south eastern seaboard of Australia.

McGranahan has reported that there is a preference for savanna-like landscapes and higher migration rates to these areas (McGranahan 2008). Tropical savannas are the most prevalent landscape in the hinterland of Darwin.
The converse ‘push’ factors are less dependent on the rural setting which people move to, and include the desire to escape from the urban ‘evils’ such as crime or pollution, provide a safer environment to rear children, or to find employment or a more affordable environment. Bijker & Haartsen (2012) found by studying migration patterns to ‘less popular’ rural areas that the motives of people who moved differed from those who move to ‘more popular’ locations, in that being close to relatives was a central factor. In other words there are other explanations for people migrating to rural areas, apart from seeking rural amenity. Grimsrud found that family reasons and economic consideration also accounted for migration moves in Norway (Grimsrud 2011); while Milbourne found that the migration patterns of farm labourers had been relatively ignored (Milbourne 2007).

Mitchell proposes three concepts to describe the various forms of counterurbanisation, based on migration motivation (Mitchell 2004, p. 21):

- ‘exurbanisation’ relates to the migration of affluent people to ‘rural’ areas outside the metropolis but who continue to retain their relationship with the city by commuting to work
- ‘displaced-urbanisation’ relates to migration to seek employment, cheaper accommodation or lower costs of living
- ‘anti-urbanisation’ relates to the migrants not only wanting to live outside the metropolis but also wanting to work outside the ‘rural’ area.

These concepts are useful for integrating both ‘push’ and ‘pull’ factors. What is significant in Mitchell’s exurbanisation is the continuing strong interrelationship between the urban area and the outer metropolitan area. McCarthy (2008, p. 133) made a similar linkage and described the ‘exurbs’, despite being low density residential development, as ‘functionally suburbs’ where the residents have strong links to the city for employment, services and infrastructure.

Commuting patterns have been used to establish evidence of counterurbanisation. Newton & Bell cite Marchetti who postulated that the time people are prepared to

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8 This will be later referred to as the ‘Mitchell Model’.
commute is an innate human characteristic (Newton & Bell 1996, p. 9). This proposition has been used to define a ‘commuter shed’, the distance from an urban centre that people will commute. Over time the actual commuting distance has increased because of access to freeways or rapid transit systems, and with technology the nexus between work and place of living can be severed.

Temporal dimensions

There is also a need to acknowledge that migration patterns have a ‘temporal dimension’, in that the decision to move does not occur in just an instant (Milbourne 2007, p. 385). Movements to a locality can be initiated from holidays, purchasing a holiday home or weekender (Stockdale, Findlay & Short 2000), or even places where relatives had lived (Costello 2009).

Impacts of out-migration

Research has been conducted into the impacts of out-migration into rural spaces on:

- relationships between locals and immigrants and the clash of values
- demography of immigrants – whether they are older retirees, and/or more affluent people
- demand for new services and impacts on the economy of the community.

The results of out-migration vary with some migrants having negative impacts on the former community (Costello 2007, 2009; Mitchell 1998; Pahl 2008).

On the other hand, studies have found the newcomers contributed to the economy, and even helped to resuscitate a declining community (Beyers & Nelson 2000; Dahms 1995; Smailes 2002; Stockdale, Findlay & Short 2000). Possibly as Fielding said:

‘Counterurbanisation must be seen as both a threat and a blessing, a double-edged sword that has brought – and will continue to bring – far reaching change …’ [Fielding cited in Stockdale, Findlay & Short 2000, p. 244].
SETTLEMENT PATTERNS

The spatial patterns of settlement also provide insights into outward migration from cities. Murphy and Burnley distinguished between the outer suburban, peri-urban and the exurban with the peri-urban being enclaves or non-contiguous suburbs, and the exurban being ‘rural residential’. From this they postulated a typology of exurbanites which was somewhat similar to the Mitchell typology; the commuter, the battler, and ‘backwoods’ exurbanite (Murphy & Burnley 1996, p. 252).

Clark et al. (2009), using spatial analysis of settlements in the United States, found a more diverse typology of exurban settlement patterns within the ‘commuter shed’ than Murphy and Burnley. These types were defined as: clustered contiguous, unclustered, non-contiguous scattered or isolated, clustered isolated and linear (Clark et al. 2009).

William Travis (2007) looked at America’s West, which is the fastest growing region in the United States, seeking to understand development patterns. He described four development zones each with their own particular geography.

The ‘Metro zone’ was used to describe the sprawling cities or megapolitan areas in the west, like Los Angeles, Santa Barbara, San Diego and Las Vegas. Growth occurs with suburbanisation spreading along major highways.

The ‘Resort zones’ are a product of climate and geology, and most are surrounded by protected public lands. Catering for affluent tourists attracted by the backdrop of mountains or canyons, driven by tourism and recreation; golf courses in sandy deserts and ski fields. In the first instance the amenities of the localities attracted people. In the second instance it was the demand for real estate as people decided to move to the locality or have second home there. The impacts of resorts gathered momentum by driving further development into the surrounding areas as the large labour force moved out to find cheaper accommodation and goods and services.

The third is the ‘gentrified range’ where rangelands are either sold off unsubdivided or subdivided ranchettes to affluent new comers with little or no experience in land management; some attracted by a desire conserve or protect the land, others by a
desire for peace and privacy, but all attracted by the amenity of the location. Some of this development occurred in areas facing rural recession.

The fourth zone is the ‘Exurbs’ which Travis sees as ‘in between the suburban and the rural, a derivative of both but not truly either (2007, p. 126). Exurbs are low density residential development transforming natural landscapes, backdrops of mountains, foothills and canyons, but still basically metropolitan in nature because the residents continue to rely on cities and towns for urban services. Commuting is a feature of the Exurbs, although the frequency may depend on whether the newcomers still commute to work or whether the newcomers are retired or whether they use modern telecommunication to work from home. Citing evidence from the Texas Transport Industry that commuting time increased in 2000s Travis argued that this reflected growth of the Exurbs (2007, p. 132).

He conjectured that exurban development probably has the most damaging footprint because it perforates the rural landscape with roads and other infrastructure, and has the consequences of increasing the demand for urban services while also requiring the community adopt new procedures or practices, such as in the management of wildfire risks.

Buxton et al. chose to define the transitional zone between outer suburbs and rural areas as the peri-urban space (2006). Similarly:

‘the peri-urban interface is ... generally considered as a transitional zone between city and countryside, often described ‘not [as] a discrete area, but rather [as] a diffuse territory identified by combinations of features and phenomena, generated largely by activities within the urban zone proper’ (Nottingham and Liverpool Universities, 1998, cited in Adell 1999).

To synthesise the many studies into the peri-urban zone, it has been characterised as having the following features:

- rapid population growth (Burnley & Murphy 2004; Millward 2002)
- diverse/heterogeneous uses in terms of lot sizes and land uses (Buxton et al. 2006)
- within the commuter belt (Ford 1999)
• a transition zone between the metropolitan area and the rural areas (Buxton et al. 2006)
• economically significant for horticultural production; according to Houston’s estimates ‘the peri-urban regions in the five mainland States produce almost 25% of Australia’s total gross value of agricultural production’ (Houston 2005, p. 210)
• a contested space; the peri-urban zone has been described by a number of authors as one of the most contested zones for different land uses (Bunker & Holloway 2001; Buxton et al. 2006; Holmes 2006).

From this, it would seem that the distinction between exurb and peri-urban is not as clear as Murphy and Burnley would suggest. Mitchell (2004) has proposed that counterurbanisation can be described as a settlement system change where through migration the population changes and experiences net growth. It is commonly questioned whether this is part of urbanisation, although some authors have challenged this and attest that it is a different phenomenon (Beale 1976; Mitchell 2004).

Ford (1999) provides a useful model for analysing settlement system change, and argues that the growth in the fringe or peri-urban region occurs through four growth processes: suburbanisation, counterurbanisation, population retention and centripetal migration. She differentiates these four processes in terms of: the origins of migrants, connectivity with the metropolitan area, motivations of migrants, amenity value of the locality; accessibility to the metropolitan area and the form of the residential area. While there are overlaps between the categories, the model provides a useful framework for differentiating between growth processes. Fisher (2003), drawing largely on Ford’s framework, looked at three Statistical Local Areas (SLAs) in Adelaide and demonstrated that each of these SLAs had migrants with different demographics and different motives (Fisher 2003).

So one consequence of out-migration can be seen as the urbanising of the countryside. In fact Cadieux, citing Burube, has suggested that urban sprawl is not very different from exurbanisation except for ‘the additional amount of natural amenity’ that the exurbs have (20011; p. 343) Similarly McCarthy (2005, p. 131) talks of ‘urbanization of the rural’. Murphy & Burnley (1996, p. 254 suggest that
‘non-metropolitan growth has in fact been no more than decentralisation of population to exurban or peri-urban settings which are quite unambiguously, in terms of commuting, functionally part of the wider metropolitan region’.

**SIGNIFICANCE OF THIS RESEARCH**

Despite the fact that literature on internal migration patterns within Australia is plentiful, the Darwin region has been relatively ignored in this body of research. This is not a surprising fact. Historians have commented that the Northern Territory has been notably absent from ‘empirical histories’ of Australia’ (Stratton 1989, p. 41). Content analysis of the extensive literature review of the peri-urban by Buxton et al. found no references to the Northern Territory or to Darwin⁹ (2006). Burnley and Murphy chose to ignore Hobart and Darwin in their analysis of ‘seachange or population turnaround localities’ (2004). Thus it is timely to provide research into Darwin and its hinterland. Moreover the development of Darwin and the hinterland provides the opportunity to test whether the frameworks of the multifunctional rural transition and counterurbanisation apply here.

At the end of 2010 the Country Liberal Party, the then conservative opposition to the Northern Territory Government Labor Party, released a discussion paper *Planning for Greater Darwin – A dynamic harbour city* (Country Liberal Party 2010). This was quickly followed by the release of the *Greater Darwin Region Land Use Plan - Towards 2030* by Northern Territory Government (Northern Territory Government 2010). The relevance of these reports is that they showed that the Municipality of Litchfield would be the setting for most of the future development of Darwin. Given the strategic importance of Litchfield it was felt that a study of the land tenure patterns, how they had changed, and what were the drivers of these

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⁹ Granted there were no references to Hobart, although 11 to Tasmania. Perth received 16 references and West Australia had 2. Canberra received 69 references and the ACT had 6. Adelaide had 24 references and South Australia had 22. The most popularly cited were Brisbane (55), Queensland (115), Sydney (132), New South Wales (26), and Melbourne (384) and Victoria (227).
changes, could contribute to the planning debate about the development of Greater Darwin.

RESEARCH OBJECTIVES

Using the concepts of multifunctionality and counterurbanisation the principal objective of this thesis is to find what drove the development of Darwin’s hinterland. From this follows three research tasks, to:

- determine the migration patterns into the hinterland and whether they conform to Mitchell’s concepts of exurbanisation, displaced-urbanisation and anti-urbanisation and amenity migration, or conform to amenity migration.
- analyse the nature of settlement patterns and whether they can be described as urbanisation, counterurbanisation, population retention, or centripetal migration.
- determine what role did counterurbanisation play in the transformation of the Darwin’s hinterland into a multifunctional countryside.

Figure 1.2 Indicative location of Holmes’ Darwin-Katherine region and the study area
GEOGRAPHICAL AND HISTORICAL SCOPE OF THE STUDY

For the purposes of this thesis the boundary of the Municipality of Litchfield was used to define Darwin’s ‘hinterland’ and to serve as the main focus for the study. This is a considerably smaller area than what Holmes described as ‘the Darwin-Katherine region’, which extended south to Katherine (Holmes 2010a, p. 346). Figure 1.2 provides an indicative location of the region and shows the study area\(^{10}\).

The Municipality of Litchfield was established in 1985 and today has a population of approximately 20,000 residents (Litchfield Council 2012). Litchfield is a large area and has a wide variety of land uses. It is also very close to the urban centres of Darwin and Palmerston and is well within the ‘commuter belt’. On this basis it provides a highly suitable location to study counterurbanisation.

From an historical perspective the thesis will concentrate on the development of Darwin following WWII. However, this development will be placed within the historical context dating from the annexation of the Northern Territory to South Australia in 1863, through the Commonwealth Government takeover in 1911, to self-governance in 1978, and up until 2011.

THESIS STRUCTURE AND OUTLINE

The thesis contains the following chapters.

Following this Introductory chapter, Chapter 2 describes the methods used to collect data for this thesis and the modes of data analysis employed.

Chapter 3 discusses the physical and biophysical environment, including the climatic conditions, water and land resources and biodiversity.

Chapter 4 gives a brief historical overview of the traditional ownership of lands by Aboriginal people and the advent of Europeans to the Darwin area, and the development of Darwin and the hinterland until the end of WWII.

\(^{10}\) The green straight line shows the approximate boundary of the ‘Holmes’ region while the green circle gives a general indication of the location of the study area.
Chapter 5 discusses the settlement patterns of Darwin and its hinterland looking at historical sources, as well as the interviews with long term residents of Darwin and Litchfield.

Chapter 6 analyses the significant demographic changes in Darwin and its hinterland from 1872 to 2011. This focuses on migration patterns from 1991 to 2006.

Chapter 7 provides a spatial analysis of the settlement patterns in Darwin and its hinterland from 1911 to today.

Chapter 8 discusses the productivist modes of occupancy in Darwin and its hinterland.

Chapter 9 discusses the findings and conclusions.
INTRODUCTION

This thesis relies on the two frameworks of multifunctionality and counterurbanisation to describe the forces that shaped the development of Litchfield. Establishing land use and occupancy patterns was central to the study of multifunctionality, as it evolved over time. To research counterurbanisation it was decided to use a case study approach to guide the research and analysis into the question of what drove the settlement patterns in Darwin’s hinterland. Yin (1989), in his seminal work, *Case Study Research*, defines a case study as an empirical inquiry that:

- investigates a contemporary phenomenon within a real-life context; when
- the boundaries between phenomenon and context are not clearly evident; and in which
- multiple sources of evidence are used (Yin 1989, p. 23).

A case study is a ‘bounded system’ in ‘time and place’ (Cresswell 1998, p. 61). It allows for this study to be undertaken with a real-life context, in which the ‘case’ will be the Municipality of Litchfield. The use of a case study approach has the advantage that it allows for multiple sources of evidence to be used, including historical sources and quantitative data such as census data and agricultural survey data, to provide a context for research.

Also the approach allows for a blurring between the processes and interactions and the context or the setting. For instance, the migration of Darwin residents into Litchfield seeking an alternative lifestyle, changes the context but also can change the processes of how the land is developed and who may have had an opportunity to subsequently move into the area.
Many urban studies have used a case study approach possibly because it provides an approach with sufficient breadth to describe the complexity of the situation, themes and multi-causal inter-relationships.

**DATA SOURCES**

To capture the complexity and the breadth of the environmental, economic, social and political context, the following secondary data sources were used:

- the Northern Territory Integrated Land information System (ILIS) cadastral database
- Australian Bureau of Statistics (ABS) Census of Population and Housing (the Census)
- Natural resource databases held by the Northern Territory Department of Land Resource Management (LRM)
- the database from the joint Australian Government Bureau of Rural Sciences and the Northern Territory Government *Revised Land Use Mapping of the Northern Territory 2008* project across Litchfield, using the Australian Land Use Mapping (ALUM) classification
- the agricultural lease database held by the Northern Territory Department of Lands and Planning
- land sales statistics provided by the Australian Valuation Office (AVO)
- archival materials held by the National Archives of Australia (Northern Territory) and the Northern Territory Archives Service.

Further details of these secondary data sources are provided below.

The primary data source consisted of 13 in-depth interviews with long term residents of Darwin and Litchfield, conducted from November 2010 to June 2011.

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11 Now the Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES)
STUDY AREA

The concept of the ‘hinterland’ is used in this thesis and is defined operationally as the Municipality of Litchfield. Figure 1.2 shows the municipalities of Darwin, Palmerston, Litchfield and the surrounding locations. This was mapped using ArcGIS software, using the Northern Territory Government’s cadastral database (2010). Although there have been minor boundary changes since the municipality was first established in 1985, this administrative boundary provides a measurable spatial area all within the ‘commuter belt’ for which public documentation and databases are available.

In designing the research, Mandorah in the Wagait Shire on the Cox Peninsula across Darwin Harbour was deliberately excluded from the study. Wagait Shire’s urban settlement, Mandorah, is a 20 minute ferry ride across Darwin Harbour, but it is an hour and a half’s drive from Darwin’ Central Business District (CBD). Without the ferry service, this placed the settlement outside the normal definitions of ‘commuter’ territory.

The utility of using Litchfield as the study area was that it is a geographic and administrative area for which a fairly wide range of statistics was available since its establishment; in the form of the Census data, natural resource data, council records and historical documents.

Litchfield is a very large municipality (3500 square kilometres) with a wide variety of land uses (See Figure 2.1). It is also close to the urban centres of Darwin and Palmerston, and well within the commuter belt to these cities. On this basis it provides a highly suitable location to study counterurbanisation.

DEMOGRAPHIC ANALYSIS

Studies of counterurbanisation have typically analysed natural population changes and internal and external migration patterns. Limited Census data are available for Litchfield to measure migration patterns as Litchfield was not established as a municipality until 1985, and it was not until 1991 that the Litchfield Statistical Local Area (SLA) was separately enumerated from adjoining areas in the ABS statistics. To
make up for this deficiency other surrogate data sets have been used to examine migration patterns.

Since 1986, with the exception of 1991\textsuperscript{12}, the Census has asked the questions ‘What was your usual residence one year ago?’ and ‘What was your usual residence five years ago?’ Commissioned compilations\textsuperscript{13} of these statistics from 1986 through to 2006 provided significant data for analysis for this research.

**INDIGENOUS OCCUPANCE OF LAND**

As part of this research there was an attempt to understand how Aboriginal people occupied the hinterland, but this was found to be a difficult task. The Census was not greatly useful for this before the 1980s because of the low density of the population. Also, and critically, Aboriginal people in Darwin and the hinterland were not enumerated in the Census until a ‘proper’\textsuperscript{14} count in 1971 (See chapter 6 *Demographic analysis*).

One of the major rich sources of information came from a doctoral thesis by David Ritchie, who sought to document the narrative history of Darwin’s hinterland through the histories of two Aboriginal families: the Kenyon and McGuiness families (Ritchie 1998). Their histories were constructed from the dispute files held by the Northern Land Council, which had represented different Aboriginal family groups in their claim for native title. The second major source was the Federal Court case in which the representatives of the Larrakia people fought to have recognition of their claim to native title for land in and around Darwin. They lost their case, and were denied the right to appeal to the High Court of Australia (Federal Court of Australia 2006). The evidence provided in the case was most useful for this study.

\textsuperscript{12} The 1991 Census form only asked for the place of usual residence five years ago.

\textsuperscript{13} These were commissioned by the Northern Institute, Charles Darwin University

\textsuperscript{14} The Census only enumerated part of the Indigenous population. Remote communities were not included.
MEASURING LAND TENURE AND LAND USE PATTERNS

In the absence of sufficient Census data as the foundation for looking at out-migration, land tenure and subdivision patterns were used to plot development in the hinterland. This drew heavily on the use of Geographical Information System (GIS) analysis (using ArcGIS software) to analyse spatially-referenced data. This spatial analysis technology added a valuable dimension, especially when the data were analysed longitudinally.

The digital cadastral database of the Northern Territory Government, ILIS, with ArcGIS software, was used to map the subdivisions and changes in land tenure patterns of Litchfield. ILIS covers the whole of the Northern Territory. A unique land parcel identifier (LAISKEY) was used to link the cadastre polygon with data relating to the land parcels such as size, ownership, zoning, address and land title information. A variable relating to the last date of issuing of title was created. This generally corresponded to the subdivision of land, but a new title could be issued when an easement was created, or excision occurred, or if there was a change in land tenure, such as the conversion to an Aboriginal Land Trust. This last date of subdivision or change in tenure was created and then mapped to show how the cadastre changed over time.

This variable would not have been so informative on its own, but for the discovery of a 1958 cadastral map from the Northern Territory Department of Lands and Planning; it was a ‘hang file’ (see Figure 2.1).

This map showed clearly that the cadastre of the hinterland had not been altered between 1869 and 1958. The original surveyed or ‘Goyder’ blocks, one mile by half a mile, or 320 acres, were still present like a mosaic. This meant that changes in land tenure were relatively recent and so plotting these changes usually represented the first instance of a change in land tenure for an individual lot.

15 The cadastre of the Northern Territory, the title records of properties and ownership, is stored as a set of polygons or shapes within a GIS database.

16 See Chapter 4
Before 1986, cadastral data in the Northern Territory were not digitised although copies of maps were ‘marked up’ as subdivisions occurred. This hang file was to become a base map, and was geocoded to show the cadastral changes over the years. Appendix A1 shows a larger copy of this map.

Figure 2.1 Cadastral map of Darwin and environs 1958 (Department of Lands and Planning 1958)
NATURAL RESOURCE DATABASES

The Northern Territory Department of Land Resource Development (LRD) is custodian of a database of the land resources of the Greater Darwin Region mapped at a 1:25,000 scale. This database is largely based on the report The Land Resources of the Elizabeth, Darwin and Blackmore Rivers of 1984. Even though it was compiled in 1984, it still is regarded as providing the most accurate and comprehensive data for the region at a scale of 1:25,000\(^{17}\) (Fogarty, Lynch & Wood 1984).

ArcGIS was used to map the digitised biophysical data set which covers:

- the area of ‘land units’ (which was converted from a spatial measure of ‘degrees’ to hectares)
- ‘land form’ which ranged from rugged hills and slopes; to low rises and gravelly side slopes; flat to gently undulating upland surface; gentle lower slopes; upland drainage lines; broad lowland plains; major channels and fringes; depressions and billabongs; and estuarine fringes
- ‘land units‘ which is a compilation of land units, site drainage, soils and vegetation
- vegetation structure which is based on a classification of vegetation communities by Specht (1970), as well as descriptions of major canopy, shrub layer and grass species
- drainage, which was based on a subjective assessment (Fogarty, Lynch & Wood 1984) of the rate at which excess water drains away from a land unit.

This data set was used to define the land capability and constraints affecting the use of land in Litchfield, specifically related to:

\(^{17}\) The link to the metadata can be found at:

• lands that are physically constrained by virtue of being water-logged during the Wet season\textsuperscript{18}, or having limited access to a reliable water supply either through a reticulated system or through access to bore water, or constrained by soil and topography (rocky outcrops), and

• soil type and fertility.

**AUSTRALIAN COLLABORATIVE LAND USE MAPPING PROGRAM**

In 2008, the former Australian Government Bureau of Rural Sciences and the then Northern Territory Department of Natural Resources, the Environment, the Arts and Sport (NRETAS) undertook a project as part of the Australian Collaborative Land Use Mapping Program (ACLUMP) to map land uses in parts of the Northern Territory using the Australian Land Use Mapping (ALUM) classification. One of the areas selected was the ‘Peri-Urban Intensive Agriculture Zone’ which corresponded to the boundary of the Greater Darwin and Blackmore area. This was mapped at a scale of 1:25,000 using the Northern Territory Digital Cadastre and augmented with satellite and aerial photographs and other data sets to attribute land uses. The data were then validated in the field to exceed an 80 per cent accuracy benchmark.

The ALUM classification (Version 6) divides land uses into primary, secondary and tertiary classes. The primary classes consist of:

1. Conservation and natural environment
2. Production from relatively natural environments
3. Production from dry land agriculture and plantations
4. Production from irrigated agricultural and plantations
5. Intensive uses where land has been extensively modified for residential, commercial or industrial uses

The land uses of the peri-urban area surrounding Darwin were mapped using ArcGIS to provide a picture of land uses. The database was reduced to include land only within the Municipality of Litchfield.

\textsuperscript{18} See Chapter 3
OTHER SECONDARY DATABASES

Agricultural Leases database

Early in the data analysis the evidence pointed to an absence of commercial agriculture, such as in cropping or horticulture, in Litchfield prior to the 1970s. There were pastoral activities, but an absence of cropping. To explore this further, records held by the Northern Territory Archive Services (NTAS) were accessed. One of the peculiarities of land tenure in the Northern Territory was that most of the land was held as leasehold rather than freehold title. The chapter Historical Context explains the history of this arrangement.

The Agricultural Leases database held by the NTAS was analysed. The agricultural licensing system is extremely complex because over time leases were often converted, surrendered or forfeited. The conversion of leases was further complicated by the fact that leases could be included in different agricultural lease registries, or could be converted to a miscellaneous lease or a grazing lease. There were also a few instances where the leases were converted to freehold title. Licences or licence conditions changed as a result of changing ordinances. As a consequence of all these factors it is difficult to identify how many land parcels were originally involved in agriculture.

However, the database had 697 non-duplicated agricultural leases which identified the location and when the lease was issued, resumed, surrendered, forfeited or converted to some other form of land tenure. Thus it was felt that the database was sufficiently robust to give a picture of agricultural activities temporally and spatially from 1885 to 1978 across the Northern Territory and, in particular, in Litchfield.

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19 The entries were hand written records, and so in some cases the databases contained duplicates of the same licences. The databases have since been digitised, and so it has been possible to identify duplicates.
Land sales statistics

Sale prices of land in Litchfield were used as a gauge of demand for land, to complement the subdivision or change in land tenure data. Digitised land sales statistics for Litchfield were provided by the AVO from January 1986 through to the end of 2011. These statistics were analysed in five-year cohorts by location. The database contained the sale price, the area of the lot, the date of sale, and the zoning of the land. Until around 2010, the sales figures did not systematically state whether there were any buildings or residences on the sites. The development on the site could vary from none, to access to bore water or reticulated electricity, to being a ‘donga’ (shack), or a certified building. To check for the influence of the size of the land parcel, a price per square metre was computed. Given the large size of the database – over 12,000 records – it was felt that the actual sale price, the price per square metre, and the number of sales provided the best available measures of the demand for lots in the hinterland.

Archives

Documents from the National Archives of Australia and the Northern Territory Archives Service were analysed to obtain an understanding of the development of Darwin and the hinterland, and how the land was used.

Records at Berrimah Farm, where the library of the Northern Territory Department of Primary Industries is located, were also analysed to assess the role of the agricultural industry.

The archival records of departmental correspondence to the Government Secretary of the Commonwealth Department of the Interior provided a rich source of information about the ‘important happenings’ or ‘important events’\(^20\) in the Northern Territory. An ‘important happening’ was defined as any occurrence of permanent interest in a historical sense (Director of Lands 1948). Each Northern Territory Department Head for the Departments of Mines, Education, Works, etc. was required to provide a report on the fifth of each month to the Secretary. In a

\(^20\) They were used interchangeably.
memorandum, the Department Heads were advised that the information was to be used by the Minister (of the Interior) to reply to questions in Federal Parliament.

**SEMI-STRUCTURED INTERVIEWS**

Thirteen semi-structured interviews were conducted with people who lived and worked in Darwin and Litchfield, people who had been involved with the first subdivisions and establishment of Litchfield, and who had been there in the days after Cyclone Tracy, which struck Darwin on 24 December 1974. These were people who had been ‘on the ground’ and could provide personal accounts of Darwin post WWII.

The sample of interviewees consisted of:

- two planners, one who had worked in the Territory in the 1960s, and one who had arrived just following Cyclone Tracy
- a horticulturalist who had worked for the Territory Government from the 1990s and was part of the growth of the horticultural industry
- a pastoralist who was deeply involved with the horticultural industry, as well as being involved in land tenure purchases and land ‘swaps’
- a local government representative for Litchfield
- two former Northern Territory politicians
- two respondents who had been involved with the very first subdivisions in Litchfield, and
- a former Territory Government employee with extensive knowledge of the land tenure and subdivision patterns.

The youngest respondent was in his fifties, and the oldest respondent was 89.

All interviewees were long-term Territory residents of more than 30 years and five had been born in the Northern Territory. All interviewees were interviewed individually except for a mother and son, and a husband and wife, who were jointly interviewed. The interviews were semi-structured but covered the interviewees’ life histories and their description of living and working in Darwin and Litchfield. In general the interview covered:
how a locality/localities had evolved over the years in terms of activities, appearance, and other dimensions
- the positives and the constraints of the localities
- issues that had emerged with regard to the use of land, changing needs of the community, and changing policies
- the future directions of the locality, including opportunities and constraints.

The interviewees were selected using a ‘snowballing’ technique in which initial interviewees spontaneously recommended other people who could provide relevant information about the history of Darwin and Litchfield (Barrie 2011, p. 208). Interviewees said things like ‘Oh you must talk to so and so’, and ‘she [or he] can tell you all about that’.

Interviews were recorded and transcribed. The interviewees were provided with a copy of the transcript to allow for editing and the opportunity to clarify or elaborate on their statements.

The interviews were analysed under thematic headings of:
- the localities of where people lived
- who moved into the hinterland and how they acquired land
- what attracted people to the area
- characteristics of the residents
- how the area and landscapes changed over time
- attitudes to the Litchfield Council

These interviews were not seen as providing representative views. Given the small sample, this would be impossible. Rather they were used to provide ‘snap shots’ of what the area was like at particular points in time and to suggest themes which needed to be explored through other evidence.

**SUMMARY**

A case study approach was used to develop a history of the development of Darwin’s hinterland, using the Municipality of Litchfield as the focus of the research. The primary source of data were the in-depth interviews with long term residents who had lived through the development of Darwin and Litchfield. Also wide range
of secondary data was drawn on - the biophysical context, land uses, subdivision patterns and land sales statistics - to describe the modes of occupance of Litchfield. The Census data were analysed to look for evidence to counterurbanisation which was corroborated with the accounts of the early settlers of Litchfield.
Chapter 3
Physical and Biophysical Context

This chapter describes the biophysical data relating to Darwin and the hinterland to provide a context for understanding the opportunities and constraints for development, which in turn determines how land is occupied and used. There is a fundamental link between human occupation of land and its physical and biophysical characteristics; the physical environment, the nature of the climate, the soils, the topography and the vegetation. Also the physical amenity, which is a more subjective dimension of the environment, is a gestalt of the physical and biophysical elements and plays a major role in settlement decisions. A hostile environment does not readily lend itself to occupance; but hostile environments can be settled.

![Figure 3.1 Mean monthly rainfall (mm) from 1941 to 2012 at Darwin Airport (Bureau of Meteorology 2012)](image)

Darwin is the northern-most capital city in Australia and is separated from other major cities by dry savannas, deserts and other hostile terrains. Darwin itself is located in the Wet-Dry tropics in areas dominated by savannas, and where it endures the extremes of tropical monsoons between November and April followed by a period of almost no rain. Even during the ‘Wet’ when there are heavy rainfalls, there is a high variability in the amount and duration of rain.
The daily maximum temperature throughout the year is fairly stable at between 30-33°C with the minima in June and July dropping to between 19°C and 20°C. The humidity, commonly over 70 per cent during the ‘Wet’, can be oppressive (Bureau of Meteorology 2012). From Figure 1 it is apparent that between May and October Darwin receives very little rain.

WATER RESOURCES

Historically, because of the almost complete absence of rain for seven months of the year, the residents of Darwin have relied on aquifers. The construction of the Manton Dam, about 70 kilometres south of Darwin, was completed in 1942. The water from Manton Dam was later supplemented from the Howard East aquifer and was used to supply water for Darwin’s civilian residents and the Defence Forces. Supplementation from the Howard East aquifer was meant to be a temporary measure but it still supplements the water supply today. Over time, reservoirs near Coolalinga and the McMinn’s Borefield have also supplemented the water supply. With the completion of the Darwin River Dam in 1972, Manton Dam became redundant as a water supply and became a recreation facility (Power and Water Corporation 2006).

As the population of Darwin has grown the future water supply has become an increasingly important issue. The Howard East catchment, in Litchfield, does not have reticulated water or a reticulated sewerage system, and thus residents rely on water tanks, private bores and septic tanks. The two threats to the Howard East Aquifer are the on-going tapping of water by both the Power and Water Corporation and the local residents with private bores, as well as the risk of contamination from the septic systems. Currently the continued use of the Howard Springs aquifer is a source of concern and, in 2010, the Northern Territory Government established the Howard East Water Advisory Committee to formulate

21 Water tanks are generally above-ground tanks for storing water. Bores are drilled into the sub-surface aquifers to pump water. Septic tanks are small scale treatment systems used to treat raw sewage on-site.
a water allocation plan to ensure the sustainable and equitable use of the groundwater.

**LAND SYSTEMS**

The soil types of the Greater Darwin Region are contained within a Northern Territory Government database derived from the report *The Land Resources of the Elizabeth, Darwin and Blackmore Rivers of 1984* at a 1:25,000 scale (Fogarty, Lynch & Wood 1984). Using the database the soil types were mapped for Litchfield\(^2\) and results are shown in Figure 3.2 and Table 3.1.

Table 3.1 Soil types in Litchfield

<table>
<thead>
<tr>
<th>Soil type</th>
<th>Land use potential</th>
<th>Area (hectares)</th>
<th>No. of land parcels</th>
<th>% of Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrosols - wet poorly-draining soils found throughout Litchfield</td>
<td>Poor drainage, Prone to be acid sulphate soils in coastal areas</td>
<td>103978</td>
<td>2016</td>
<td>32.91</td>
</tr>
<tr>
<td>Kandosols - found in the sub-coastal areas</td>
<td>Generally suitable for horticulture, Low fertility</td>
<td>109279</td>
<td>978</td>
<td>33.59</td>
</tr>
<tr>
<td>Rudosols - alluvial and sandy soils with little structure found in the alluvial coastal plains of the Adelaide River</td>
<td>Fertility dependent on the nature of parent material</td>
<td>59116</td>
<td>716</td>
<td>18.71</td>
</tr>
<tr>
<td>Tenosols – weakly developed or sandy soils</td>
<td>Poor moisture holding soils, Low fertility soils</td>
<td>1147</td>
<td>59</td>
<td>0.36</td>
</tr>
<tr>
<td>Vertosols - clays associated with coastal communities</td>
<td>Soils tend to crack when dry</td>
<td>40990</td>
<td>49</td>
<td>12.97</td>
</tr>
<tr>
<td>Wetlands</td>
<td>Not suitable</td>
<td>1434</td>
<td>45</td>
<td>0.45</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>315944</td>
<td>3863</td>
<td>100.00</td>
</tr>
</tbody>
</table>

---

\(^2\) This entailed removing records relating to parcels of land outside the boundary of the Litchfield Municipality. ArcGIS was used to map the soils.
Table 3.2 shows the percentage of Litchfield’s area covered by each main soil type derived from the spatial analysis. It is evident from this table that there is a narrow range of soils throughout Litchfield. The table also shows that large areas of

Figure 3.2 Soil classification in Litchfield\textsuperscript{23}

\textsuperscript{23} The metadata link is shown below:

Litchfield have soils that are of low suitability for agricultural production because of problems with waterlogging (hydrosols), being acid sulphate soils (coastal hydrosols), or because of poor structure (rudosols and tenosols). Many of the soils have low fertility because of leaching by the monsoon rains.

In the database, land within Litchfield has been assigned a ‘land unit’ description which provides an indication of land capability. The assessment is based on land form (slope, surface features and terrain), soils, vegetation communities, and drainage for different uses. The report provides a summary of the physical properties and vegetation of the land units and an assessment of land capability with regard to residential (urban subdivision and hobby farming), arable farming, pasture improvement and extraction (Fogarty, Lynch & Wood 1984, pp. 12-3). From the Fogarty report only Classes 2a1, 2b1 3a, 3b, 3c were judged to be suitable for residential uses. Only Classes 3a, 3b, 3c, 4a, 4b, 4c were considered suitable for pastoral uses. Although land capability is dependent on uses; generally high quality lands with freely draining soils are suitable for all uses, but engineering solutions can provide remedies (at a cost) for areas with poor land capability.

**WATERLOGGING**

Another variable, waterlogging, is contained in the Greater Darwin database. The Fogarty report indicates that all classes from 3e to 9c are prone to moderate to severe or inundation for extended periods of time (Fogarty, Lynch & Wood 1984). This variable has been partially derived from soil type, such as hydrosols, delineating areas most prone to waterlogging. Table 3.2 shows the area of land within Litchfield subject to waterlogging.

Table 3.2 shows that development and use of 46.8 per cent of land in Litchfield is constrained by moderate to very severe waterlogging, or that the land is an actual wetland. Indeed a map showing waterlogging is on display for residents and
potential purchasers of land in the Litchfield Council offices to warn them of possible problems.

Table 3.2 Waterlogging by area

<table>
<thead>
<tr>
<th>Area (hectares)</th>
<th>Nil to mild waterlogging</th>
<th>Moderate to severe waterlogging</th>
<th>Severe to extended inundation</th>
<th>Wetland</th>
</tr>
</thead>
<tbody>
<tr>
<td>168311</td>
<td>40636.1</td>
<td>105958.7</td>
<td>1433.8</td>
<td>53.2</td>
</tr>
<tr>
<td>% Litchfield</td>
<td>53.2</td>
<td>12.8</td>
<td>33.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Figure 3.3 Nil to low, moderate and severe waterlogging of soils in Litchfield (Department of Infrastructure, Planning and Environment 2004)
The waterlogging layer of the database was developed around 2000, some time after many subdivisions in Litchfield had occurred. Most of the subdivided land is shown to be in the ‘nil to mild waterlogging’ areas but it is known that some lands subject to higher levels of waterlogging have been developed. A recent decision by the Northern Territory Ombudsman found this to be the case (NT Ombudsman 2012).

The map of waterlogging characteristics and the cadastral database highlighting Litchfield Council controlled lands, shows that the Council now has the responsibility for extensive areas of waterlogged soils that have been excised from lots at the time of subdivision. This is a source of contention for the Council because it is difficult to protect and manage these land-locked parcels.

**Biodiversity**

The tropical savannas surrounding Darwin today have a rich array of native animals, including mammals, birds, reptiles and invertebrates, some of which are extinct in other parts of Australia (Woinarski et al. 2007). One reason for this is that until the 1950s much of the landscape was undeveloped and had a small human population. A second reason is a number of reserves have been set aside to protect the Howard East aquifer. Also the presence of billabongs and floodplains attract large flocks of birds, some migratory to Darwin’s hinterland. Even near the mangroves in suburban Darwin it is not unusual to see flocks of ibis, magpie geese, Torres Strait pigeons and cockatoos. Mammals, lizards, particularly skinks and dragons, frogs and insects are in abundance. The dragonfly is welcomed by residents as the portent of the coming of the ‘Dry’. Crocodiles (salt and freshwater) are also prevalent, even in Darwin’s harbour, and articles in the local paper report their sightings on a seemingly weekly basis.

Despite this rosy picture, in a very short period of time, a number of species have become threatened. Listings under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* and the *Territory Parks and Wildlife Conservation Act 2000* show that in 2007 for the Northern Territory there were 203 threatened
plant and animal taxa consisting of: 72 plants, 35 invertebrates, ten fish, one frog, 17 reptiles, 23 birds, and 45 mammals (Woinarski et al. 2007, p. 5).

Some of these threatened species are endemic to Litchfield. Some changes are a result of human intervention; the clearing of lands and the loss of habitat; the introduction of feral animals, including amphibians (the cane toad), weeds and diseases, and changes in vegetation management and fire regimes. National and conservation parks and reserves have played a role in the protection of endangered species, but many of these species occur on private land.

Local 'listed’ endangered species in Litchfield and possible reasons for their decline include:

- **Cycas armstrongi** (native palm) – endangered by land clearing for subdivision, as well as the impact of increased fuel load through introduced grasses, such as gamba and mission grasses
- **Habenaries rumphii** (terrestrial orchid) found in Humpty Doo. Endangered through sand mining and spread of exotic weeds and changes to fire regimes
- **Luisia teretifolia** (epiphytic orchid) found at the Black Jungle conservation reserve.
- **Malaxis marsupichila** (terrestrial orchid) found at Gunn Point
- **Ptychosperma macarthurii** (Darwin Palm) found at Howard Springs
  Threatened by changing fire regimes, as well as changes in the water supply in the springs due to greater drawdown
- **Tymponium taylori** found on the Howard River floodplain Endangered by sand mining, subdivisions and changing hydrology of the McMinns borefield
- **Uperolaia daviesae** (Howard River Toadlet) endangered by sand mining and urban expansion
- **Varanus mertensi** (Mertens water monitor) - found across the Top End and being dramatically reduced by cane toads
- **Varanus panoptes** (Yellow-spotted monitor) found across the Top End. Being dramatically reduced by cane toads
• *Dromaius novaehollandiae* (Emu) found across woodlands. Fire regimes have destroyed food sources and changed the vegetation

• *Ardeotis australis* (Australian bustard) although widespread, they are numerically small and are endangered by predation, changing fire regimes, and habitat disturbance

• *Geophaps smithii smithii* (Partridge pigeon – eastern species) although widespread there has been rapid decline in lower rainfall areas through predation by feral cats, and the replacement of native grasses by exotic grasses due to changing fire regimes

• *Dasyurus hallucatus* (Northern Quoll) found across the Top End. There has been a rapid decline in the population associated with cane toad invasion (Woinarski et al. 2007).

Overall the major threat to all these species in Litchfield comes ultimately from the loss, degradation and fragmentation of habitat.

**HAZARDS TO HUMANS**

The Darwin Harbour contains a substantial mangrove habitat which was protected by the Northern Territory Labor Government in 2002. The mangroves impose an additional constraint to development in that they provide habitat for biting insects, namely *Culicoides omatus* or biting midges and *Aedes vigilax* or salt marsh mosquitoes. While mosquitoes are more hazardous to humans, being vectors for Ross River and Berrimah Fever, midges are a major irritant and bites can be readily infected. The Northern Territory Department of Health’s Entomology Branch has produced guidelines which recommend a 1.6 kilometre buffer between biting insect habitat and residential development. These buffer distances have generally been incorporated in the design of recent subdivision layouts in Darwin in the last six years.

**SUMMARY**

The chapter has sought to provide a biophysical context for the thesis. From this it can be concluded that the physical and biophysical environment of Darwin and the hinterland is a fairly hostile one in terms of human settlement. It also shows that
there are a number of physical constraints; including low nutrient soils, soils prone to waterlogging, and an irregular and unpredictable rainfall which have influenced the development of Darwin and its hinterlands. However, there may be other attributes, such as having a rugged terrain and a natural open savanna setting which are consistent with amenity migration (McGranahan 2008). These will be further discussed in later chapters.
Chapter 4
Historical Context

INTRODUCTION

This chapter provides a historical context for the development of Darwin and its hinterland. The chapter will provide a brief overview of pre-European occupation, the time of the British garrisons, early Colonial control, the period of the South Australian Government’s control from 1863 until the Commonwealth takeover of the Northern Territory in 1911, and then an account of the Commonwealth control up to the end of WWII. Darwin developed in a different way from other tropical savannas, and indeed from other capital cities in Australia, and many of these historic forces can explain some of the differences.

PRE-EUROPEAN OCCUPATION

Darwin and its hinterland are the traditional lands of the Larrakia, Wulna, Warrai and Kungarakany Aboriginal people (Tindale 1974). The Larrakia people referred to the area around Darwin as ‘sweet water country’ in that the crystal-clear water from the Top End is naturally filtered through sand, clay, rocks and plants giving it a delicious ‘sweet taste’ (Power and Water Corporation 2006, p. 3).

The lands of the Larrakia included Darwin Harbour down to an area near where the Manton Dam is located, and east to around Humpty Doo (see Figure 1.1). Further to the east and along the Adelaide River were the traditional lands of the Wulna, while lands further south were the lands of the Warrai and Kungarakany.

There is considerable evidence of interaction and trade between Aboriginal people in the Top End of the Northern Territory and traders from today’s Indonesia and Malaysia and other Asian countries for centuries before Europeans arrived on the shores of the northern part of Australia (Cross 2011; Powell 2009). Overall this interaction generally appeared to be mutually beneficial. In contrast the impact of the arrival of the British was to have profound and disturbing impacts on the lives and culture of the traditional Indigenous people.
The desire to settle Northern Australia was borne out of colonial aspirations of the British to establish a military presence to deter the French, and possibly the Dutch, from laying claim to northern Australia (Cameron 1999).

The first two attempts at settlement were garrisons: Fort Dundas on Melville Island (1824-1829) and Fort Wellington in Raffles Bay on the eastern end of Cobourg Peninsula (1827-1829). Both settlements were soon abandoned. There were many reasons for failure, including disease and malnourishment, but one of the recurring themes was the disinterest and intermittent support of the remote British Government (Bauer 1964; Powell 2009).

It took nearly a decade before there was support for a new settlement at Port Essington on the Cobourg Peninsula in November 1838. This time not only was there the military strategic importance of claiming sovereignty of the Top End, there were the added motivations of wanting to have an outpost for survivors of
shipwrecks and a deep port for vessels trading in Asia, along with the desire to exploit the commercial and agricultural capabilities of the ‘North Coast of New Holland’ (Cameron 1999).

Port Essington was intended to be a settlement and a trading centre, but the British Admiralty decided that it should first be established as a military outpost (Roberts 1968). These plans for settlement were never put in place. The outpost survived until 1845, but suffered from lack of reliable supplies as well as ongoing bouts of malaria (Cameron 1999). Bauer suggests it was seemingly abandoned by the British Government and describes a lack of morale among the troops as a major reason for its failure (Bauer 1964).

**SOUTH AUSTRALIAN ACQUISITION**

Even before the establishment of the South Australia colony, there were attempts in the early 1830s by founders of the colony to extend the boundary to the Indian Ocean (Cross 2011). The boundary for the colony was finally set at the 26th Parallel. The South Australia colony was established by British free settlers in 1836 under the Wakefield Scheme\(^{24}\) and had prospered with immigration and diggers returning from the Victorian Goldfields. The Adelaide Establishment, many of whom were self-made men (apparently not women), who had made their fortunes through mining, pastoral activities and land speculation, were interested in expanding their cattle runs in the Victoria River area in Northern Territory (Powell 2009). John McDouall Stuart’s expeditions to Northern Australia between 1858 and 1860 were sponsored by Chambers and Finke, both wealthy Adelaide businessmen, keen to expand their pastoral lands. Stuart, on each of his expeditions, took cattle on part of the journey and established runs (pastoral land).

\(^{24}\) Under the Wakefield Scheme a colony was established with free settlers rather than with convicts. This was funded by the sale of land with the ensuing funds being used to provide free transportation for settlers who would be the labour force for the new colony.
His 1861 expedition was Government sponsored, because of the Government’s desire to acquire the northern lands in order to extend a telegraph line through an underground cable from Singapore (Bailey 2006; Cross 2011). Adelaide had already achieved the pinnacle status in telegraphy with an overland link from Adelaide to Melbourne, so that news, as ships arrived from Europe, could be quickly spread to the eastern cities.

In 1861 Governor MacDonnell won the agreement from the Colonial Office for the northern lands, ‘nominally part of New South Wales’ to be transferred to South Australia, although the northern boundary had not been agreed to (Powell 2009, p. 57). At that time claims for the northern lands were also made by Queensland, but the South Australian claim was possibly stronger because of Stuart’s success in reaching the Arafura Sea. On 26 May 1863 the lands to the north and lying between 129 and 138 degrees of longitude were annexed to South Australia.

As part of this ‘grab for land’ the South Australian Government enacted the _Northern Territory Act 1863_ which provided for:

> ‘the sale of 500,000 acres of country lands and 1552 town lots, the first 250,000 acres to be sold for 7/6d per acre in blocks of 160 acres (or multiples thereof), each purchaser entitled to select one town lot. The second 250,000 were to be sold in the same way, but for 12/- per acre and without the town lot bonus. Sales were to be conducted in Adelaide and London’ (Bauer 1964, p. 50).

The land sales were held in Adelaide and London in 1863; approximately half the country land lots were sold, and only slightly more than half of the town lots, were selected. At the time of the sale the land had not been seen, nor surveyed, and was purchased with the provision that the land would be surveyed within five years and become freehold land.

The South Australian Government sold the lands under a modified Wakefield scheme; the new northern lands were meant to pay their own way. The ‘land sales money was not used for European immigration; there was no emphasis on equal numbers of men and women (preferably married couples); and the funds were not
set aside for establishing churches, organising philosophical groups and building school’ (Fletcher 2011, p. 2).

Most of the land-orders\(^\text{25}\) were bought by speculators possibly spurred on from the entrepreneurial successes of Wakefield’s scheme in Adelaide (De La Rue 2004). The speculators never came to the Northern Territory and the lands remained undeveloped.

Escape Cliffs at the entrance of the Adelaide River was selected in 1864 as the site for the new settlement under the command of Boyle Travers Finniss, the first Government Resident of the South Australian Government. Before long an on-going dispute about the location of the settlement emerged between Finniss and the surveyor Manton who believed the site unsuitable. This was exacerbated by major problems with the local Indigenous people, morale problems, the land being inundated during the wet, and a lack of a potable water supply.

Finniss was eventually recalled to Adelaide and was later found culpable by a Royal Commission of ‘mismanagement, neglect of instruction, failure to select a suitable site and an instigation of punitive action against the natives’ (Bauer 1964, p. 53). Escape Cliffs was abandoned in January 1866 and still no site for a settlement had been selected.

Two further unsuccessful expeditions by McKinley in 1866 and Cadell in 1867 were dispatched from Adelaide to find suitable settlement sites. By 1867 only a tenth of the original funds from the land sales existed. The South Australian Government was faced with the dilemma of abandoning the Territory or continuing to try to find a site for the new settlement (Cross 2011).

Legal action was taken by the London-based North Australian Company and the South Australian Court found in favour of the land-order holders, who were to be refunded their investment plus 10 per cent interest. The South Australian

\(^{25}\) At this point they were land-orders or options because the land had not been surveyed and titles could not be issued. Once title was issued all the land became freehold.
Government lost an appeal and was issued with a decision to pay costs (Parsons 1907). Overall the sale of lands in the Northern Territory was a failure on a number of fronts. By the end of 1873 the cost of establishing the settlements\(^\text{26}\) (surveying costs, salaries, legal costs) was in excess of £333,000 (not including borrowings) while the income amounted to £115,500. In terms of take-up, only half of the originally offered parcels of land had been purchased in 1863, and when the Government, to avoid refunding purchasers and paying compensation, offered to double the area of the lots from 160 to 320 acres, only 701 of 1566 land-order holders were prepared to take up the land.

**Goyder**

In 1868, when the five year time limit had arrived and no site had been selected for the settlement, the offer by the South Australian Surveyor General, George Goyder, to survey the northern lands for £25 000 was accepted. It is not clear who selected Darwin Harbour, although Goyder in his communications to the South Australian Government was enthusiastic about the site (Goyder Kerr 1971).

Goyder landed in February 1869 on the shores of Darwin Harbour and by September had surveyed 665,866 acres and sufficient land to meet the half million acres required by the Act. Goyder surveyed the area on the peninsula, on what was intended to be the City of Palmerston (the name was subsequently changed to Darwin in 1911) into half acre lots (frontage 104 feet by 209 feet). Goyder’s subdivision layout was similar to the layout of Adelaide, with its parks, lot sizes and street layout, although the proposed site posed some challenges, being on a peninsula at an oblique angle.

Goyder was also instructed to survey three other sites for future townships: Southport along the Blackmore River, Virginia on the Elizabeth River and Daly on the Adelaide River. Pastoral leases of between 25 and 300 square miles in area were also drawn up (Bauer 1964). Table 4.1 shows how the lots were surveyed (Bauer 1964).

\(^{26}\) Escape Cliffs and Palmerston (Darwin)
Table 4.1 Goyder 1869 surveyed lots

<table>
<thead>
<tr>
<th>Lot configuration</th>
<th>Number of acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four townships (½ acre lots)</td>
<td>4 428</td>
</tr>
<tr>
<td>Palmerston</td>
<td>2 506 ½</td>
</tr>
<tr>
<td>Southport</td>
<td>498 ½</td>
</tr>
<tr>
<td>Virginia</td>
<td>628 ½</td>
</tr>
<tr>
<td>Daly</td>
<td>794 ½</td>
</tr>
<tr>
<td>1 708 blocks of 320 acres</td>
<td>546 560</td>
</tr>
<tr>
<td>208 blocks of 160 acres</td>
<td>33 280</td>
</tr>
<tr>
<td>330 irregular blocks</td>
<td>73 964</td>
</tr>
<tr>
<td>Roads and reserves</td>
<td>7634</td>
</tr>
</tbody>
</table>

(Source South Australian Parliamentary Papers 157/1869-70 cited in Bauer 1964)

The 320 acre lots were intended for the yeoman, the small farmer. Goyder used 320 as the standard lot, a half mile by a mile, which had been used in South Australia. In Europe and the United States lots of 640 and 320 acres were commonly used as a ‘selection’ or ‘section’ for settlement, such as in the Mid-West of America. It was based on the rationale of an area that a family could realistically farm, allowing for crop rotation. Instead of the lots being sold to the yeoman, they were sold to wealthy speculators in South Australia and England who never took up their land (Hillock 2005).

Following Goyder’s survey the South Australian Government acquired lots for its own use and for a railway line. The original purchasers finally were able to select their lots in July 1870, and each rural 320 acre lot included a free half acre lot in the planned towns of Palmerston, Southport, Virginia or Daly (Welke & Wilson 1993).

**Expansion of the settlement**

A critical feature of the colonisation of the northern part of Northern Territory (or the Top End) was the fact that it was established by sea rather than by forging a cross country route. In the initial days, access by sea was easier than overland, but

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27 An acre is equivalent to 0.405 hectares.
the lack of a land route meant that the Top End continued to remain a remote outpost.

Although gold had been found at Escape Cliffs it was not until gold was found near Pine Creek, about 224 kilometres south of Darwin, by the telegraph line workers in 1870, that mining began in earnest. The rush ‘fizzled’ by the end of January 1873, when most of the miners had left. Gold never brought great riches but it played a significant role in the settlement of the Top End. Chinese miners were recruited by the mining companies and the Government Resident, Douglas, in 1874 personally visited Singapore to sign up 187 ‘coolies’ (Cross 2011; De La Rue 2004). These Chinese miners engaged in alluvial mining while the Europeans engaged in reef mining. During the dry season there was insufficient water for alluvial mining, and so the Chinese stayed in Darwin and some established businesses and some sought other employment. De La Rue reports that there were between two and four thousand Chinese in the Northern Territory in 1888 during the construction of the Pine Creek Railway. Powell reports that the number of Chinese reached as many as 7000, but this dropped to 1352 by 1910 (Powell 2009, p. 90).

A number of other schemes were proposed to populate the Territory, including the import of Indian labour, the settling of 40 000 Mennonites from the United States, Russia, Mauritius and India, and the importing of ‘middle-class’ Japanese (Cross 2011). None of these schemes was realised. During the early South Australian term the ‘European’ population of Darwin remained small, and was stratified into public servants and a varied group of labourers.

Although the sentiments in the southern states of Australia at the time strongly favoured a ‘White Australia’, in Darwin there was more tolerance of the Chinese as settlers. Overall the Chinese were accepted as part of the community, and as an essential contributor to the labour force in commerce and market gardening for Darwin (Powell 1996, p. 135, Donovan 1984, p. 3).

The Town of Southport, part of Goyder’s survey, became an established thriving city during the 1870s because it provided, via the Blackmore River, faster and more convenient sea access to the southern gold fields and a considerable saving in
overland travel. It was a trading centre, and became a ‘boom’ town with a population exceeding Palmerston. Naturally the hotels were a significant part of life in Southport for travellers to and from the gold fields. Southport also had a Chinatown. But by 1889, once the gold mining waned and the railway by-passed the town, the businesses closed their doors, and by 1890 nearly everyone had left. The titles to land in Southport were issued in the 1870s, but a third of the lots were never sold and remained Crown land (Duminski 2005). Today it is a small village outpost still not serviced but the original layout of lots remains.

The town of Palmerston failed to thrive. Of the 502 lots selected only 19 were occupied by 1874 by selectors, although the South Australian Government held onto 250 unselected lots which were used to provide sites to build housing for public servants (Welke & Wilson 1993). Moreover, by 1882, only four of the 1019 town lots were occupied by their owners (Sowden 1882). The other 40 occupiers were leasing lands from the ‘absentees’ at high rentals. While speculators sought exorbitant prices for their land this meant that there was virtually no freehold land available for locals to purchase. Many township lots lay vacant and were used as dumping grounds for rubbish (De La Rue 2004).

Even when land was available for sale the purchase had to be authorised through the South Australian Government, which kept all the title deeds. There were delays of more than a year to process an application for land, which was a major deterrent to the expansion of European settlement (De La Rue 2004).

Thus the establishment of the Palmerston under the modified Wakefield scheme, and the sale of many of the lots to absentee landholders had large repercussions for the future development of the outpost.

**INDIGENOUS LANDS**

These developments took place with scant regard for the fact that the land around the original township of Palmerston was the domain of the Larrakia Aboriginal people. With the establishment of the settlement, the Larrakia people were displaced to the edge of the town. Not only were they being dispossessed of their lands by Europeans, but other Aboriginal groups began to move into their territory.
as well. The Wulna, who lived further to the east near the Adelaide River, began to move into Palmerston. They had encountered Europeans at the failed Escape Cliffs settlement, and were attracted by what the Europeans could offer. Later, groups from the Alligator River district further east of the Adelaide River moved into Darwin. Figure 4.2 shows a schematic view of the language groups of Aboriginal people in the Greater Darwin area.

The new Europeans were ‘drawcards’ for the Aboriginal people, offering tea, tobacco, sugar, flour and alcohol. Through the provision of ‘exotic commodities’ the Europeans modified traditional settlement patterns. Aboriginal lifestyles were also significantly modified as Aboriginal people were used as a domestic labour force.

The Larrakia fought off intrusions by the Wulna and other outlying tribes into their territory at Palmerston. But the attraction of the town was too strong. Tindale, in his seminal work *Aboriginal Tribes of Australia*, mapped the tribes’ domains around Darwin based on studies by a number of anthropologists. He reported that the tribes in the vicinity of Darwin had been ‘disrupted’ by the turn of the 19th century (Tindale 1974).

Figure 4.2 Language groups in the Greater Darwin area (Bauman 2006, p. xiii)
When the Commonwealth took control of the Northern Territory in 1911 the Aborigines Act 1910 was enacted which had the stated aim to protect and to control Aboriginal people. A report by the Aboriginal inspectors noted that in 1913:

‘[W]e noted that tribes extending over a very wide radius are represented in the various camps scattered around the town. Though the Larrekeya\textsuperscript{28} (in whose tribal district Darwin is situated) preponderate the Wulna Yowitch (West Alligator) Abiddul (East Alligator) Woolwonga and others are met with. All of these aboriginals fraternise and live upon the most amicable terms. Tribal differences and animosities appear to be matters of ancient history’ (Federal Court of Australia 2006, p. 302).

By 1923, a report by Aboriginal protection inspectors recorded that the Kahlin Compound housed Larrakia, Wagaits, Melville and Bathurst Islanders, Mulak Mulak, the Anson Bay tribe and the Wool Wonga tribe (Federal Court of Australia 2006). People were confined to the Kahlin Compound unless they were working, and there was a curfew at night.

Later, in the 1920s, the Chief Protector of Aborigines became guardian of the ‘half-caste’ children in Darwin who were removed from their families. In the 1930s, following a campaign from the Half-Caste Progress Association, and with the support of the powerful North Australian Workers Union, the Aboriginal Ordinance was amended to allow ‘half-castes’ to be exempt from the restrictions, but this was subject to carrying an identification card (‘dog tag’). Many did not apply (Australian Human Rights Commission 2007; Larrakia Nation Aboriginal Corporation 1998).

In 1938, the Bagot Aboriginal Reserve was gazetted and, in the following year, the residents of the Kahlin Compound were moved out to the Bagot Reserve. Originally it was 300 hectares, but over the years the Commonwealth Government made excisions for residential expansion, so that today only 23 hectares remain.

Koolpinyah Station, near the Adelaide River, was established as a pastoral station in 1908. It was leased by Charles Edward Herbert, a South Australian Government Resident from 1906 to 1910. The property was transferred to the two sons, Evan

\textsuperscript{28} There is some variability in the spelling of different tribes.
and Oscar Herbert. In 1910, the southern portion of the station was referred to as Humpty Doo. Both areas became settlements for a number of tribes, such as the Larrakia, Limilngan, Warrai and Wulna, many of whom became an informal workforce in the cattle industry. The journals from the station recorded that people left Koolpinyah temporarily in 1927 to attend corroborees at Kahlin Compound (Federal Court of Australia 2006, p. 313). Also Aboriginal people from Darwin attended corroborees at locations outside Darwin, such as Shoal Bay (Federal Court of Australia 2006).

The Koolpinyah Station journals also describe how some of the local Aboriginal people went on forays into the hinterland:

‘In particular, there are numerous references to the collection of geese eggs by Bennedy and Gerrard between 1913(sic) and 1941. There are also references to Gerrard shooting geese and fishing. Burning-off was also conducted on the station, with references to Gerrard and Bennedy burning the grass: ‘3 August 1937 ... Gerrard went footwalk to burn grass at Koorabun, got a good fire going ... 10 August 1937 ... Evan took all here [visitors from Darwin] to Korrabum to see the result of the burning off Gerrard did last week. Grass beginning to spring’ (Federal Court of Australia 2006, p. 344).

When WWII commenced, Aboriginal people from Darwin and the hinterland were relocated to Cox Peninsula, Knuckey Lagoon, Howard Springs, Shoal Bay and Koolpinyah, but once Darwin was bombed many were transferred by train to Mataranka, 400 kilometres south of Darwin (Federal Court of Australia 2006). In 1942, the Native Control Settlements were established for Aboriginal people of full descent.

In 1945 the Berndts, noted anthropologists, were commissioned by the Australian Investment Agency (Vesteys) to undertake some anthropological studies on pastoral stations to understand why the Aboriginal populations, especially ‘bush’ Aborigines, on these stations were diminishing (Berndts & Berndts 1974). Aboriginal people were the main source of labour for the pastoralists. One of the stations surveyed was Koolpinyah, which was recorded as having a population of about 300 Aboriginal people in April 1945. The people at Koolpinyah were a diverse population with 31
language groups: some came from the Bagot Community in Darwin; some from Bathurst and Tiwi islands; and a ‘fairly large mob’ from Milingimbi in north-central Coastal Arnhem Land who had ‘caused friction’ in another camp and was moved to Koolpinyah (Bauman 2006, p. 157). Following WWII most of the Koolpinyah Aboriginal residents were scattered; some returned to the Bagot community in Darwin. A small number of Tiwi Islanders moved to Tree Point on the coast of the Koolpinyah Station, which today is Aboriginal land. By 1947, there were permanent settlements of Indigenous people on Cox Peninsula, and at the Bagot community. But there were other groupings of Indigenous people in the hinterland.

David Ritchie sought to establish a social history of the coastal plains of Darwin using the narratives of Aboriginal people whose families had inhabited Darwin’s hinterland (Ritchie 1998). Using anthropological studies of the area, and files held by the Northern Land Council regarding Aboriginal land claims, he assembled a picture, post 1900s, of the coastal plains. It was a loose occupation of the hinterland by Aboriginal and non-Aboriginal people, roaming the hinterland hunting feral pigs, buffaloes and crocodiles, and moving with the seasons to avail themselves of different vegetation and different habitats to afford protection from the monsoonal rains. Koolpinyah and Humpty Doo Stations were often staging places for these hunting forays. There were marriages and subsequently children were born, creating alliances between Aboriginal clans; Ritchie used Levitus’ description of the lifestyle as a ‘fossicking occupance’ (Ritchie 1998, p. 27).

Although buffalo hunting was an important source of employment and income for Aboriginal people in the Top End, by the turn of the twentieth century most of this occurred east of the Adelaide River, and not in Litchfield. Feral buffalo hunting ceased for a time in 1970 with the Brucellosis and Tuberculosis Eradication Campaign to ensure that domestic cattle were not infected. Buffalo hunting has never been re-established in Litchfield.

Elsewhere in Australia, Aboriginal people were mainly dispossessed of their lands by squatters and pastoralists. The history of Darwin differs in that the land in the hinterland was sold to Europeans in the 1860s, but most of the purchasers did not
take up their lands. The land was assumed to be *terra nullius* and there was little recognition of the sovereignty of the traditional Aboriginal owners. The surveyor, Goyder, acknowledged that the killing of one of his party by local Aboriginal people was justifiable because:

‘we were in what to them appeared unauthorised and unwarrantable occupation of their country’ (Goyder Kerr 1971, p. 146).

However, until WWII their lands in the hinterland were not disturbed by non-Indigenous people. This is a critical difference between Darwin and other Australian capital cities. The land was not fenced or farmed. Any non-Indigenous people, who went into the hinterland to hunt or prospect, basically had to adopt traditional Aboriginal ways of surviving. It would have been a very harsh environment.

**PRIMARY PRODUCTION**

So if much of Darwin’s hinterland was not farmed or used for pastoral activities, where did these activities occur?

Cattle were introduced in 1872 from Queensland and South Australia to provide meat to the workers on the Overland Telegraph Line, and by 1881 three quarters of the Territory had been taken up in pastoral leases (De La Rue 2004). However, the pastoral industry did not play an important role in the settlement of Darwin. As mentioned earlier, Koolpinyah\(^{29}\) run by the Herbert Brothers, was the only pastoral station in Darwin’s hinterland.

Since the early days, the settlement was virtually dependent on ships for supplies from South Australia, but the Chinese market gardens around the town provided most of the fresh fruit and vegetables. However, as the Chinese population declined so did production of fruit and vegetables.

Maurice Holtze, who was appointed Government Gardener in 1878, demonstrated that it was possible to grow commercial quantities of fruit and vegetables at the time of the fledgling Palmerston settlement (*Northern Territory Dictionary of*

\(^{29}\) Including Humpty Doo)
It is significant that Holtze had a free labour force of prisoners from the jail.

Sugar production was one of the early agricultural enterprises promoted by the South Australian Government with an offer of a bonus in 1882 for the first person to produce 100 tonnes$^{30}$ of sugar. Sugar plantations were established on the Daly River and on the Adelaide River, on Cox Peninsula, and at Shoal Bay. An estimated 40,000 hectares was taken up by southern investors, but by 1892 sugar cane production was abandoned (Northern Territory Dictionary of Biography 2008; Barrie 1982; Cross 2011; De La Rue 2004). The theme of speculation and opportunism is evident here. Southern investors dispatched agents to Palmerston with limited experience in growing sugar, and no experience of growing in the tropics, and the scheme failed.

The construction of the railway line between Palmerston and Pine Creek was completed in 1889, which brought a considerable injection of funds from the South Australian Government. It also brought labour. But by the end of the 1880s South Australia was in the throes of an economic depression, and could ill afford to support the remote fledgling town of Palmerston.

**COMMONWEALTH TAKEOVER**

Following the Federation of Australia in 1901 negotiations began to transfer the Northern Territory to the Commonwealth. It took nine years of protracted negotiations regarding the *Northern Territory Acceptance Act (1910)*, and the Northern Territory languished because neither Government wanted to commit resources while negotiations were incomplete. At the end of the day the Commonwealth agreed:

- to take over responsibility for South Australian debts of £3 931 086
- to construct a transcontinental railway from Pine Creek to the South Australian border

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$^{30}$ A tonne is approximately equivalent to a metric ton.
• to purchase the Port Augusta to Oodnadatta railway (£2 239 462) and connect it to the Northern Territory transcontinental railway (Payne and Fletcher Report 1937, p. 4).

When the Commonwealth Government took control in 1911 the citizens of the Northern Territory were disenfranchised. While under the control of South Australia the Territorians had two elected members in the South Australian Legislative Assembly. Territorians had no such political rights with the Commonwealth (Powell 2009). Finally, after intense lobbying by the powerful Darwin branch of the Australian Workers Union (AWU), the Northern Territory was given a seat in the Commonwealth House of Representatives, although without any voting rights. H. G. Nelson, an organiser with the AWU, became the first elected independent member in 1922 (Powell 2009).

The town was renamed Darwin on 2 January 1911, as if to expunge the experience of the South Australian control. The Commonwealth Government lavished its new Territory with schemes for experimental farms and new Indigenous arrangements with enthusiasm, but these were soon dissipated with the advent of the First World War (WWI) and then the closure of the Vestey’s meat works left Darwin with a high number of unemployed men, many of whom then left the Territory. The closure of the Vestey’s meatworks had disastrous implications not only for local employment and the economy, but it damaged the Northern Territory’s reputation as a place to invest (Payne and Fletcher Report 1937).

There is evidence that the depression commenced in Darwin in the 1920s (Powell 2009; Sager 1993). The town failed to grow ‘organically’; it was predominantly male with few families. The public service was the main employer with few other jobs available.

Faced with the failing economic circumstances and development prospects for the Northern Territory in 1926, the Commonwealth Government enacted legislation so that the Northern Territory was divided into ‘North Australia’ and ‘Central Australia’. The division was set at the latitude of 20° South. This system was
abandoned in 1931, because of administrative and jurisdictional problems, and the Northern Territory came under one administration again.

To summarise events from the Commonwealth takeover until 1929, Grenfell Price described the agricultural experiments, the mining subsidies, the improved water supplies on stock routes and the agreement to extend the railway to Katherine in exchange for Vesteys building a meatworks in Darwin:

‘Unfortunately, these efforts at expansion combined with lavish increases in the number of salaries of officials, together with ruinous arbitration awards, involved Australia in an enormous expenditure, which was quite unwarranted by the results achieved. Between 1910 and 1928-29 the population rose from 3,301 to 3,982, railway mileage from 622 to 1,219, cattle from 513,000 to 835,000, cattle exports from 37,000 to 55,000 beasts and pearl shell from £10,030 to £19,800. On the other hand, the Government proved divided, unsympathetic and weak, both railways showed enormous losses, the total of exports fell, agriculture made no real headway and mineral production almost disappeared. This was the Federal achievement to the merry tune of nearly £10,000,000’ (Dr Grenfell Price, Macrossan Lectures, 1930, cited in Abbott 1950, p. 25).

During the early 1930s Darwin, like the rest of the world, was in the throes of a major depression. But Darwin was garrisoned by the military in 1932 and slowly began to grow (Welke & Wilson 1993).

There was expansion in the construction of Commonwealth Government housing during the 1930s in the Darwin suburbs of Stuart Park, Parap and Fannie Bay and the Navy’s acquisition of the Larrakeyah area. Increased construction activity also flowed from the large acquisition of land for the expansion of the Air Force base and the Bagot Aboriginal Community.

The relative isolation of Darwin was reduced during the 1930s by the advent of regular air services between Australia and Europe, with Darwin being the main entry point for overseas visitors. By 1937 Darwin received five aeroplanes per week
and a flying boat service commenced in December of that year (Welke & Wilson 1993).

In December 1938, a major civil and defence works program was approved and construction commenced on the military barracks at Larrakeyah in the northern part of the Darwin peninsula, housing for public servants on the Esplanade, a power station, the Manton Dam, and the extensions to the Air Force base. Also, two banks and the Hotel Darwin were being constructed (Northern Standard (Darwin) 1940; Northern Standard (Darwin) 1939). This was a boom time for Darwin with a large influx of construction workers.

C. L. A. Abbot, the Commonwealth’s Administrator, recalled:

‘As 1939 and 1940 passed defence works obtained absolute priority and civil plans were shelved entirely except where they assisted the war position. The Army built modern barracks, and houses for its married officers, the supply of electricity was doubled, trebled and quadrupled, roads were constructed and the white population continued to grow. Darwin had come to life’ (Abbott 1950, p. 65).

According to Welke & Wilson (1993, p. xvi), between 1939 and 1941, there was a massive construction program which saw the construction of 57 houses for public servants and 560 privately owned dwellings, with settlement expanding into Fannie Bay and Parap. Despite this, there was no provision by the Administration for housing for the civilian labour force, who had to organise their own make-shift accommodation.

All construction activity was halted with the first Japanese air raid on Darwin on 19 February 1942. Darwin was placed under the control of the Defence Department shortly following the air raid.

In effect, from the 1930s until 1944, the development of Darwin was driven by the defence needs of the nation. The Defence Department underwrote the local economy, but Darwin was controlled from afar. Decisions about the war effort were mainly made in Melbourne. The Territory remained as major defence outpost with 100,000 people in the Army, Navy, Air Force and Civil Construction Corps. The war
spurred road construction in 1942 to deliver supplies when shipping became more dangerous. This had dramatic implications for the Top End; for the first time there was a passable road link from Adelaide to Darwin. Army farms were commenced to feed the forces, seemingly proving that there was finally potential for primary production.

In 1947 the Northern Territory Legislative Council was formed. This superficially seemed to be a step towards self-governance, but in effect the majority (7) of the 13 members were nominated by the Commonwealth Government. The role of the Council was to frame legislation but the Governor-General of Australia could disallow any decision made by the Council (Donovan 1984).

**SUMMARY**

This chapter provides a brief overview of the history of Darwin up to WWII. It took five attempts before a permanent white settlement in Darwin was established after first contact. The development of Darwin was hampered by remoteness from other Australian cities. In a sense for a large part of the history of Darwin it was treated like a colonial outpost. The land had been sold in Adelaide and in London to speculators, many of whom never claimed their lands, so they remained undeveloped. Aboriginal people were able to continue to use the lands in the hinterland in their traditional ways.

To help readers follow the significant drivers of the development of Darwin and the hinterland, a chronology of major events has been prepared (See Table 4.2). For convenience this chronology has been extended to cover the period from WWII to 2004 (discussed in more detail in the next chapter).
### Table 4.2 Chronology of major events which impacted on Darwin and the hinterland

<table>
<thead>
<tr>
<th>Pre and post contact</th>
<th>Home of the Larrakia, Djermanga and the Wulna</th>
</tr>
</thead>
<tbody>
<tr>
<td>1824</td>
<td>Fort Dundas established on Melville Island.</td>
</tr>
<tr>
<td>1825</td>
<td>Raffles Bay established on Cobourg Peninsula.</td>
</tr>
<tr>
<td>1825</td>
<td>Northern Territory incorporated into New South Wales.</td>
</tr>
<tr>
<td>1829</td>
<td>Fort Dundas and Raffles Bay abandoned.</td>
</tr>
<tr>
<td>1838</td>
<td>Port Essington established on Cobourg Peninsula.</td>
</tr>
<tr>
<td>1839</td>
<td>Stokes lands in Darwin Harbour and names it after the naturalist Charles Darwin.</td>
</tr>
<tr>
<td>1849</td>
<td>Port Essington abandoned.</td>
</tr>
<tr>
<td>1863</td>
<td>Northern lands annexed from New South Wales (nominally) to South Australia.</td>
</tr>
<tr>
<td>1864</td>
<td>500 000 acres of rural land and 1552 town lots sold to speculators in Adelaide and London.</td>
</tr>
<tr>
<td>1864</td>
<td>Finniss arrives as the first Government Resident and settles in mouth of Adelaide River. The settlement fails in less than eighteen months.</td>
</tr>
<tr>
<td>1865</td>
<td>Gold found by Fred Litchfield along the Finniss River.</td>
</tr>
<tr>
<td>1866</td>
<td>McKinley arrives to find suitable land for settlement but fails.</td>
</tr>
<tr>
<td>1869</td>
<td>Palmerston (now Darwin) is selected as the site for settlement. Goyder and his team arrive at Palmerston and survey nearly 700 000 acres, pastoral lots and four towns.</td>
</tr>
<tr>
<td>1872</td>
<td>Overland Telegraph connects Port Darwin to Adelaide.</td>
</tr>
<tr>
<td>1871</td>
<td>Major gold field near Pine Creek but soon peters out by 1873.</td>
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<tr>
<td>1874</td>
<td>Chinese arrive in Darwin to work the gold field.</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>1880s</td>
<td>Boom times with pastoral and mining activities.</td>
</tr>
<tr>
<td>1889</td>
<td>Palmerston to Pine Creek railway line completed.</td>
</tr>
<tr>
<td>1890s</td>
<td>World-wide depression.</td>
</tr>
<tr>
<td>1897</td>
<td>Palmerston (now Darwin) damaged by a cyclone.</td>
</tr>
<tr>
<td>1911</td>
<td>Northern Territory transferred from South Australian to Commonwealth Government control and Palmerston renamed Darwin.</td>
</tr>
<tr>
<td>1912</td>
<td>Establishment of experimental farms at Batchelor and Daly River.</td>
</tr>
<tr>
<td>1914-20</td>
<td>Vesteys meatworks - from construction to closure.</td>
</tr>
<tr>
<td>1915</td>
<td>Darwin Town Council established.</td>
</tr>
<tr>
<td>1917</td>
<td>Railway from Darwin to Pine Creek extended to Katherine.</td>
</tr>
<tr>
<td>1922</td>
<td>H. G. Nelson becomes the first representative in the Federal House of Representative, although he did not have any voting rights.</td>
</tr>
<tr>
<td>1929</td>
<td>Railway line from Oodnadatta extended to Alice Springs, and Darwin line extended to Birdum.</td>
</tr>
<tr>
<td>1929-30s</td>
<td>World-wide depression.</td>
</tr>
<tr>
<td>1932</td>
<td>Commencement of build-up of military presence in Darwin.</td>
</tr>
<tr>
<td>1934</td>
<td>Darwin becomes a stopover for regular air service between England and Australia.</td>
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<tr>
<td>1938</td>
<td>Bagot Aboriginal Reserve gazetted.</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
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<tr>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>1939</td>
<td>Darwin Town Management Board formed.</td>
</tr>
<tr>
<td>1943</td>
<td>Sealed road from South Australia to Darwin completed.</td>
</tr>
<tr>
<td>1945</td>
<td>Commonwealth compulsory acquisition of all freehold lands within 10 miles of Darwin.</td>
</tr>
<tr>
<td>1946</td>
<td>Civilians return to Darwin.</td>
</tr>
<tr>
<td>1946</td>
<td>Survey of Katherine-Darwin Region by the CSIRO.</td>
</tr>
<tr>
<td>1947</td>
<td>First meeting of Northern Territory Legislative Council.</td>
</tr>
<tr>
<td>1947</td>
<td>Beatrice Hills Research Station commenced.</td>
</tr>
<tr>
<td>1949</td>
<td>Discovery of uranium at Rum Jungle.</td>
</tr>
<tr>
<td>1950</td>
<td>Concept of ‘wardship’ for Indigenous people repealed.</td>
</tr>
<tr>
<td>1956</td>
<td>Territory Rice commences at Humpty Doo (closed 1961).</td>
</tr>
<tr>
<td>1959</td>
<td>The Territory’s House of Representatives member given the right to vote on Territory matters.</td>
</tr>
<tr>
<td>1957</td>
<td>Formation of new Darwin City Council.</td>
</tr>
<tr>
<td>1960</td>
<td>Forster Report on agriculture in the Northern Territory presented.</td>
</tr>
<tr>
<td>1968</td>
<td>Northern Territory member in the House of Representatives given full voting rights.</td>
</tr>
<tr>
<td>1968</td>
<td>Official representatives on the Legislative Council replaced by elected members.</td>
</tr>
<tr>
<td>1973</td>
<td>Compulsory acquisition of land for Darwin East.</td>
</tr>
<tr>
<td>Year</td>
<td>Event</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>1974</td>
<td>Legislative Council replaced by Legislative Assembly.</td>
</tr>
<tr>
<td>1974</td>
<td>Cyclone Tracy devastates Darwin.</td>
</tr>
<tr>
<td>1975</td>
<td>The Northern Territory given representation on the Senate.</td>
</tr>
<tr>
<td>1975</td>
<td>The Municipality of Litchfield was established.</td>
</tr>
<tr>
<td>1979</td>
<td>Kakadu National Park gazetted.</td>
</tr>
<tr>
<td>1978</td>
<td>Self-rule for Northern Territory proclaimed.</td>
</tr>
<tr>
<td>1982</td>
<td>The first lots in Palmerston (Darwin East) were sold.</td>
</tr>
<tr>
<td>1986</td>
<td>Litchfield National Park gazetted.</td>
</tr>
<tr>
<td>2004</td>
<td>Ghan railway line connects Darwin and Adelaide.</td>
</tr>
</tbody>
</table>
Chapter 5  
Settlement from WWII

This chapter describes the settlement patterns of Darwin and its hinterland following WWII through to today. It complements Chapter 7 which describes the subdivision patterns that display counterurbanisation and seeks to find explanations for these patterns reviewing both historical sources, as well as interviews with long term residents of Darwin and Litchfield.

**DARWIN CONTEXT POST WWII**

Darwin in 1945 was in the throes of being handed over from military control to civilian control. The Navy still held large reserves of land and prime parcels within the town of Darwin. There had been widespread destruction of Darwin as a result of the enemy bombings during WWII, but possibly on a wider scale there was also the vandalism of civilian houses caused by military personnel (Forrest & Forrest 2012, p. 51; Grose 2009, pp. 151-61; Lockwood 1972, p. 169).

**COMPULSORY ACQUISITION OF DARWIN**

On 17 January 1946 the Commonwealth compulsorily acquired land from the city Post Office to a boundary set around the ‘10 mile’ limit along the Stuart Highway, converting previously freehold land to leasehold (see Figure A2.7.131). This acquisition was to enable the Commonwealth Government to rebuild Darwin as a new modern city; to create a ‘tropical’ Canberra. The first plan had been formulated in 1937 when Darwin had suffered major damage from a cyclone. Ultimately four plans were developed.

The plans to rebuild Darwin were a battle between four Commonwealth departments: the Department for the Interior, Defence, Post-War Reconstruction, and Works. The main point of contention was the Navy’s land claims for the southern section, including the Administrator’s (C. L. A. Abbott) residence. The Commonwealth inter-departmental rivalries were no doubt driven by the prizes of

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31 In Appendix 2
control over the key parcels of land as well as the post-war reconstruction budget. The Navy held (and still does) key sites within Darwin’s city centre.

At the time of acquisition, private land owners had no political representation at the Federal level since their local member of the Federal Parliament, A. M. Blain, was imprisoned in Changi until September 1945. Donovan suggests that the acquisition would not have happened if Darwin had been a more ‘politically sensitive area’ (Donovan 1984, p. 159). See-Kee, who was then Abbott’s Private Secretary, commented about Darwin when he returned after the War:

‘The whole of Darwin was taken over by the government. Nobody owned anything ... No one had anywhere to live because they ... took Darwin as a vacant piece of land. They didn’t take any notice of existing streets or buildings. They had to be erased. Like Cavenagh Street [Chinatown], they disappeared’ (Interview of Charles See-Kee by Diana Giese, Giese 2009, p. 9).

It was not until 1951 when the conservative Government ousted the Labor Government and a new and junior Minister (Paul Hasluck) was appointed as the Minister for Territories that plans to redesign Darwin were shelved.

The failure to resolve the planning of Darwin created uncertainty and delayed the rebuilding of Darwin by six years because there was no agreement on the layout and servicing of land. This happened despite the fact that there was a growing population, not only of people returning to Darwin, but also new immigrants from Europe.

**CIVILIAN RETURN FROM 1946**

The former residents slowly returned after 1946; many finding that their homes had been destroyed and that the Commonwealth had effectively taken control of all the land and housing in Darwin. There was a critical shortage of civilian housing (Grant 1990, p 120). Post-war non-military settlement was confined to the Darwin Township and the suburb of Parap, as well as to ex-military structures and huts in Fannie Bay and Nightcliff. There was no sewerage system (Barter 1994, p1). Giles, 32

32 A Japanese prisoner of war camp in Singapore
the Acting Administrator, described the housing situation as ‘severely taxed’, and to
deal with the shortage married men and families were allowed to move into the
former Royal Australian Air Force (RAAF) hospital huts in the suburb of Nightcliff
and to fashion sheds out of old materials left by the Defence forces (Northern
Territory Archive Services 1946, p. 5). The Nightcliff ‘hutment’ was only demolished
and cleared in 1959 (NTRS2500/P1, April 1959).

Although there was an on-going shortage of housing for all civilians, the
Commonwealth gave priority to housing public servants in order to provide
incentives to attract staff (Northern Territory Archive Services 1948, p. 4). It was
not until much later that the Commonwealth recognised the need to provide land
and houses for the Northern Territory Housing Commission’s ‘substantial
requirements’ for rental accommodation (NTRS2500/P1, December 1959).

It was estimated that there were only 171 habitable homes in Darwin in October
1945, while 500 civilians had returned by February 1946 (Powell 2007, pp. 235-7),
and by June 1946 the civilian population had increased to about 3000 (Welke &
Wilson 1993, p. xvi). Residents found themselves in the invidious situation of
renting their own premises while still waiting for compensation because of the
compulsory acquisition. Negotiations were protracted and the amount of
compensation was pitifully low. According to a report by the Chief Surveyor to the
Government Secretary only 70 per cent of claims had been settled by 1948
(Donovan 1984, p. 160). Even if residents accepted compensation they still only had
short term leases, so they were reluctant to build anything permanent and banks
were reluctant to lend money for housing under these circumstances. It was not
until February 1949 that an ordinance came into operation that allowed former
owners to lease back their original lands on a 99-year-lease (Welke & Wilson 1993,
p. xvii).

By June 1947 the Census found that the population of the Town of Darwin was
2,538 and the population of the district of Parap, from Fannie Bay through to
Nightcliff, which included the ‘hutments’ and makeshift housing on the fringe of
town in the old Defence sites, was 3,005. There were more than two men for every
woman. In 1948 Driver, the Administrator, reported that since the end of the war only ten houses had been completed by the Department of Works and Housing in the whole of the Territory, although another 100 had been reconditioned (Northern Territory Archive Services 1948, p. 4). He also advised that the former army camps were housing 600 people (Northern Territory Archive Services 1948, p. 9). This would appear to be a gross undercounting of the population based on the Census.

The housing situation had not improved by 1949 and only 38 new houses had been built in the Northern Territory since the end of the war, and the housing section was finding it impossible to satisfy the increased demand for housing (Northern Territory Archive Services 1949, pp. 4 and 8). The slowness of re-building Darwin was due to the slowness of servicing lots, and the lack of surveyors, drafters, supplies and labourers (NTRS2500/P1, June 1955). But Driver stated that ‘factors militating against process and harmony are those of remoteness and divided control’ (Northern Territory Archive Services 1949, p. 3), possibly a veiled reference to the Darwin Plan.

Finally, in April 1949, 82 new lots were put up for auction, at which about 70 people attended. Of these 38 sold for well above the reserve price (NTRS2500/P1, April 1949). Also in March 1949 the Town of Nightcliff was proclaimed, in recognition of the fact that a significant part of the population was living there in makeshift housing. Finally in October 1949, the surveying of blocks for housing in Fannie Bay commenced (NTRS2500/P1, November 1949).

By January 1951, ninety-nine pre-war land owners had gained access to their original lots or substitute lots (Welke & Wilson 1993, p. xvii). Lots were still leasehold for a period of 99 years. Reconstruction was very slow and even by 1951, Darwin remained in its bomb-damaged and vandalised state. Hasluck, the new Minister for the Interior, on his first inspection of Darwin in 1951 commented:

> ‘The Esplanade, apart from a small patch at the football ground, was a wilderness of high brown grass from which the rubbish of war had not yet been cleared. Doctors Gully was a junk yard. The old post office was a roofless ruin. The harbour had not been cleared of the wrecks left by war time raids ... in the main street none of the war
scarred buildings had been repaired ... The skyline of Darwin was dominated by the vandalised bulk of the meatworks’ (Paul Hasluck cited in Carment 1996, p. 16).

Post-war housing development accelerated in the 1950s to ameliorate the housing shortage and saw the new subdivisions of Fannie Bay, Parap, Ludmilla and Nightcliff being developed. The Darwin Municipality rapidly developed to the point that the boundary was extended in 1957 from 4,920 to 12,000 hectares (Heatley 1986, p4). The 1954 Census showed the Greater Darwin area had grown to 8,518 people with there being 1.6 males to every female. Darwin became even more multi-cultural than it had ever been, with new immigrants arriving from Post-War Europe.

The government reports during the 1950s continued to note the ‘heavy demand for residential blocks’ (NTRS2500/P1, May 1955), but also this had extended to demand for blocks for light industry by ‘recently arrived builders and kindred tradesmen, who wish to erect a building to house the machinery of their trade’ (NTRS2500/P1, June 1955). An auction held in March 1956 sold every one of the 87 lots on offer. These blocks were not sold as freehold, rather they were subject to a 99 year lease and covenants set by the Commonwealth. These covenants specified the values of the building to be constructed, building materials and the commencement and completion dates. By 1956 it is evident that some purchasers of blocks were being pursued for failing to build houses on the lots as required by covenants (NTRS2500/P1, June 1956). Again, in April 1957, all but one of 82 blocks was sold (NTRS2500/P1, April 1957).

In 1960 there was still high unmet demand for housing. Land auctions attracted large crowds and lots were sold at premium prices. In 1960, between 600 and 700 people attended an auction for lots of Darwin Town Leases (NTRS2500/P1, November 1960).

With the in-fill of the inner suburbs complete by the early 1960s the new northern suburbs of Millner and Rapid Creek were developed and the mid-1960s saw the

33 56 residential blocks, 24 business and residence blocks, six heavy industry lots and one light industry block
further expansion of the suburbs of Jingili, Moil, Wagaman, Nakara, Wanguri, Anula and Wulagi. The population in 1961 for Greater Darwin had risen to 15,426 with there being 1.4 males to every female. Although the housing situation had improved for the public service sector, and public housing became available for the first time, the housing provision for non-public servants was still very difficult. In April 1961 a new ordinance was introduced which allowed for private subdivision to occur, which the administration hoped would ‘relieve the Commonwealth of some expenditure’ (NTRS2500/P1, April 1961).

In June 1968 when there was no serviced residential land available to auction in Darwin, bidding was restricted to those who had not held land in the Northern Territory during the previous five years (Cossill, Chapter 15, pp. 10-1)\(^{34}\).

1960S RURAL SUBDIVISION

In the 1950s, the hinterland was still bushland, although legally the land consisted of vacant privately owned Goyder lots of 320 acres. People, Indigenous and non-Indigenous, could hunt, roam and camp without constraint. Koolpinyah\(^{35}\), owned by the Herbert Brothers, was the only established pastoral station.

The hinterland was sparsely occupied mainly because of poor access. Before WWII the Stuart Highway was literally a ‘track’ that was impassable during the Wet. During WWII the need for strategic supplies to the Top End necessitated that an ‘all weather’ road link be constructed. The war requirements had improved road construction into places such as Howard Springs and Berry Springs, where the Army had constructed swimming holes and also communication establishments. Rice Farms at Humpty Doo and the CSIRO experimental farms at Tortilla Flats and Middle Point further opened up the hinterland in the 1950s (see Chapter 8). Furthermore, increasing ownership of cars created the opportunity for people to move into the

\(^{34}\) This manuscript is still marked as draft and the pages have been consecutively numbered.

\(^{35}\) Including Humpty Doo
hinterland. Thus the constraints to populating the hinterland were slowly being removed.

In 1959 the Department of Lands received requests for the first time for access roads in the hinterland to be constructed. This was one of the first indications of migration into the hinterland. ‘There is steady demand for the provision of access roads to freehold lots on which development is taking place for the first time in their history’ (NTRS2500/P1, September 1959).

The fact that there was a ‘steady’ demand in 1959 indicates that there were people living there on Goyder blocks before the lots were subdivided, but there is limited evidence of who these people might have been, although the available evidence suggests the population would have been low.

The interviews with long term residents of Darwin provided pictures of what the hinterland looked like. The hinterland was essentially bush land with very few residents. Also there were limited roads:

‘I can always remember driving out to Humpty Doo in the truck. Up and down creeks. It was just a dirt track. Two wheel track. And all it went to was basically Humpty Doo. …When the rice farm came the roads were dramatically improved’ (IX).36

‘In the 50s as a teenager in this community going bush (other than going out to Lee Point and the northern suburb beaches) was when you headed “down the track”. You headed for the 13 mile swimming hole, which is now Marlow’s Lagoon, the second place you headed for was the Howard Springs recreational reserve which had the history of being developed by the military. It was a good swimming hole for teenagers. A third area was Berry Springs. My memory was that they were all sealed into those spots. Anywhere you went off the track there were dirt roads everywhere. There was very little residential component. … If you went further than Berry Springs you were going camping’ (FAS).

36 Each of the interviewees was assigned pseudo initials to preserve their anonymity.
‘Well Jenkins Road was never there then. We were out here 30 or 40 years before the road went through. We were living on the farm at the time. And when the river was running I would literally swim across the river with my clothes on my head and go on the other side. Because at that stage it was very tough.’ (JL).

‘To give you an idea it used to take over an hour to get to Darwin from there. Because Whitewood Road went around the Lagoon. It was only a dirt road. And slowly across Dutchies Lagoon was done in tiers, depending on when it flooded. ... When Dutchies Lagoon came up they couldn’t get out so they could be locked in’ (QB).

These comments were referring to the 1950s when access was still constrained during the Wet season with water logged soils.

In Chapter 7 the subdivision patterns across the Municipality of Litchfield from 1959 through to 2010 will be discussed. The patterns showed how people moved progressively outwards from the nuclei of family subdivisions.

The first signs of subdivision occurred in the Knuckey Lagoon and Howard Springs areas in 1959. The Howard Springs land was subdivided down to two hectare lots. One of the developers was a British immigrant. Another person interviewed had inherited the land from her father.

Some of these were subdivisions of the parent title by creating battle-axe blocks\textsuperscript{37} without direct road access, only easements.

QJ’s parents were immigrants from Germany who arrived in the early 50s. His father was a plumber but he bought some land and began a dairy farm and commenced subdividing part of his land.

‘A lot of their friends in town said they were mad, and crazy to do that. And when they started the first subdivision at Howards Springs ... And then they started (to subdivide) the southern part of Whitewood Road to get an income in’ (QJ).

Another married couple who moved out in the 1960s said:

\textsuperscript{37} A battle-axe block refers to a rear lot which is accessed through an easement from the road through the front lot.
'When we came out here. They said 'why are you going out there you silly young buggers'. And now they say “You were shrewd’” (JL).

So to move out into the hinterland in the 1960s was unusual and seen as somewhat irresponsible.

**Acquiring the land**

During the interviews the respondents were asked how they acquired their rural land, given that a substantial number of lots were owned by absentee landholders. Some responses were:

‘And we made enquiries through Lands Titles about who owned this land. It was an old man in South Australia and so we bought it off him. And we got it for 35 shillings an acre. It was a lot of money then’ (MO).

‘My father bought it when I was a kid. A square mile in the bush. He believed in land. And of course it is right too. Because you don’t grow more land’ (JX).

Another early settler in Litchfield who was raised in Darwin remembers buying Goyder lots:

‘Well I bought my block from a person who had bought it out of England. And I paid two dollars an acre in 1965. And I bought my 91 acre block in 64 and the 160 acre in 65. So two dollars an acre in those days was a lot of money to me but that’s what I did ’ (QZ).

**What were the attractions?**

The interviews were analysed to ascertain why people moved into the hinterland. What were the ‘push and pull’ factors? The following quotes gave a broad overview as to the reasons:

‘People wanted to get out and have a piece of their own land. And get out of town’ (QB).

‘I think they wanted space. Generally you can put a cost of things. You can’t put a cost on space. And space is becoming more and more valuable’ (MO).

So it was just a lifestyle thing. They wanted to live in the bush. ... A bit of space. You haven’t got somebody looking over your back fence.
They used to drive to town for work. It’s just my theory that Darwin was starting to become a country town if you like. Or a more sophisticated country town. We were just starting to get to the late 60s. And you had a lot of people in it who were used to living a different lifestyle. They were attracted to go to the rural area because they could continue with that lifestyle they were comfortable with’ (QB).

These comments attest to the fact that having space, privacy and the ability to continue a fairly simple lifestyle without neighbours judging one’s behaviour was important to the early settlers. Darwin had begun to change and residents had possibly become less tolerant to some behaviours, such as excessive drinking and style of dress, which had been part of the old Darwin life as a frontier town.

Unlike the Argent, Smailes and Griffin’s findings (2007) that high amenity areas consisted of established settlements with essential services, these settlers who moved out did so to locations which were unserviced, and had no water, power or sewer. The roads were poor. Any services, such as shops, were in town.

They weren’t worried about how far it was to get to services because services were pretty basic and always had been. And it didn’t matter if you took an extra ten minutes to get there’(QB).

Also there were elements of a pioneer spirit, and the capacity to endure primitive conditions.

‘They actually did what they wanted to do, on a salary or a wage. And the early parts of Litchfield and its development was around those people that wanted to go and build a shed first, maybe a fly wire room to keep the flies out, then build a bedroom, then build a bathroom, and then build this that and the other. And then when they got enough money they would go and drill for water. And they progressively got on their feet without a $350 000, or whatever it is today, loan.

And a lot of people felt it was the only way they could get ahead. ... It was a “Can Do” society in those days. We can make do. And the hardship and so forth we go through, at the end of the day we’ll have something’ (QZ).
It also gave people access to freehold land instead of to the Commonwealth leasehold land which had strict conditions regarding how the land could be developed.

“We were living in suburbia in a government house. We wanted to have private freehold. Our own piece of freehold rather than renting a government house. We wanted our own property. ...

I suppose you’d say that freehold gives you a certain amount of elasticity with being able to do things on the block, a larger block whereas leasehold controls virtually everything. The lease controls every aspect of the use of the land’ (UN).

In terms of the ‘pull’ factors there are a number of themes: the lifestyle, the importance of space and owning land. Therefore it is conjectured that many of the settlers who went out to the hinterland in the 1960s saw it as not only as a lifestyle choice, but also as a way of gaining access to freehold land and ultimately housing.

There was also a sense amongst the respondents that the move was ‘relatively’ affordable. It was also something that was accomplished through self-reliance, and possibly being a pioneer. These were the attractions.

Another pull factor was that the hinterland was not regulated, as land was in the city. There was no local government; there were no rates and no planning controls. The absence of planning controls also meant that there were no building controls because planning controls in Darwin were used to regulate building, as well as land use.

In relation to ‘push’ factors, during the 1960s the housing situation in Darwin remained bleak. There was preferential allocation of housing to public servants and preferential allocation of lots to ex-servicemen. The Commonwealth was unable to meet the supply of land or rental accommodation. Trades people were arriving and there were increasing requests for land for industrial purposes, but the actual release of industrial land was virtually zero. Thus the hinterland was a cheaper and more accessible option for owning land where plant and equipment could be stored.
Another ‘push’ factor seemed to be that Darwin was changing and becoming ‘more sophisticated’ and more populated. People wanted to continue their simpler lifestyle, and this was becoming increasingly less possible in Darwin.

Who were the first in-migrants?

‘They were from all walks of life because they wanted to do something else. A lot of them didn’t have a lot of money. I’d say that those people who without a lot of money could afford to buy the block of land and pay it off’ (QU).

‘Some of those people were part time farmers, usually public servants in town, who chose to start developing some commercial horticulture. Others chose it for lifestyle choices. …

The public servants, and just wanted space around them. … A mixture. The first lot were a bit older generations. 40s to 50s. There weren’t a lot of kids in those days’ (FS)

‘They were sort of battlers. A lot of them were battlers. Some of them could afford to buy a freehold block. Some of them five and two acres. A lot of the two acre lots were taken up by people who had enough money to buy a two acre block out there rather than renting a place in Darwin …

Middle aged people mostly. A lot of them had jobs either there or close in to Darwin. A lot of commuting. Well I used to’ (UN).

‘There was a lot of little trade people because it meant that they could work on their thing, and they could tend their trees or their crops, during the week. Electricians, plumbers, carpenters, the whole shooting match. … [It was a] cheaper place to live and build. You could have a decent workshop on your property, and you could do a lot of work from home. You could put your mangoes in so that when things went bad with the trade you still had an income. And you had room to let the kids run around and go wild. Public servants moved out there for the space and also they thought they were going to make a fortune by putting mango trees in the ground’ (ID).

The first immigrants were commuters because there were few if any jobs in the hinterland. They apparently were older which suggests that perhaps they had time to accrue financial resources. Some were public servants who would have had
access to relatively cheap and reasonable quality housing in the city, but who chose to move to the hinterland probably because of the lifestyle.

DRIVERS OF CHANGE IN THE 1970S

In the 1970s there were three dramatic events which influenced the development of Darwin and the hinterland. First Cyclone Tracy hit Darwin on Christmas Eve in 1974. Second the Commonwealth Government enacted the *Aboriginal Land Rights Act (Cwth)* in 1976. The third event was the assent to self-government of the Northern Territory in July 1978.

Prior to Cyclone Tracy

By 1974 numerous planning studies had been undertaken regarding the future development of Greater Darwin. In 1974 there was a sense of growth and optimism. Pak Poy and Associates (a major planning consultancy firm) had released a Darwin Regional Strategy Study, commissioned by the Cities Commission which was part of the then Commonwealth Department of Urban and Regional Development (DURD) (Pak-Poy & Associates 1974). The role of the Cities Commission was to plan for the future development of strategically selected cities, including Canberra and Darwin.

At this time Darwin East was planned to ‘become the centre for the general Darwin region as well as the surrounding area’ (Pak-Poy & Associates 1974, p. iii). Earlier in 1973, the Commonwealth had compulsorily acquired land for the new centre making all the land leasehold out as far as the Howard Springs area.

Between 1961 and 1971 the population of Darwin was rapidly growing. It had increased by an average annual rate of 9.1 per cent and the growth rate between 1973 and 1974 was 8.9 per cent (Darwin Reconstruction Commission 1975, p. 1).

Using a high growth rate scenario, the Pak Poy and Associates’ report estimated that the capacity of Darwin East could be 100 000 persons and the population capacity of Greater Darwin could be realised by about 1995.

The relocation of the airport was a central component of the strategy; not only to free up land in the northern suburbs of Darwin for urban development, but also to
create a more integrated community layout rather than settlement that essentially had been ‘gutted’ with the central core taken out for an airport (Pak-Poy & Associates 1974, p. 81).

The strategy also proposed rural villages. Howard Springs and Humpty Doo were seen in the short term as suitable village sites while Berry Springs, Tumbling Water and Livingstone Field were seen as long term village developments. The strategy explicitly gave support to the rural residential lifestyle.

It was proposed that rural subdivision criteria should be restricted to ‘meeting the genuine demand for living on large blocks’ with lots between two and four hectares, and only essential services provided – water (preferably from bores), electricity, road access (generally unsealed with no kerbing or guttering) and septic tank disposal systems (Pak-Poy & Associates 1974, pp. i-iv).

A snapshot of the rural subdivisions was also provided in their report (Pak-Poy & Associates 1974, p. 45), which clearly describes small lot subdivisions occupied by hobby farmers and people seeking ‘open-space’ and a ‘natural’ life-style (Pak-Poy & Associates 1974, pp. 45-7). There was a dairy and a large chicken farm as well as several other farms in Noonamah (Pak-Poy & Associates 1974, pp. 49-0), while Humpty Doo had several farms and a roadside vegetable store. The report also noted that an area adjacent to the Coastal Plains Research Station (a CSIRO facility) was intended to be released for intensive agricultural purposes (Pak-Poy & Associates 1974, pp. 50-1).

Thus in a little more than 15 years the hinterland had been transformed not only by counterurbanisation, but also by people beginning to grow horticultural products on land for the first time.

**Cyclone Tracy**

On 20 December 1974 a weak tropical low in the Arafura Sea about 700 kilometres east of Darwin developed into a cyclone which became named Tracy. Despite cyclone alerts being issued, many residents carried on normal activities in anticipation of Christmas. The cyclone had tracked past Melville and Bathurst
Islands to the north of Darwin until the morning of 24 December when it began to track directly towards Darwin. On Christmas Eve people partied or went to Church as if there appeared to be nothing wrong, but it soon became evident that the cyclone had increased in intensity. Tracy finally hit just after midnight on 25 December (Natural Disasters Organisation 1975, p. 7). It was estimated that 65 people died (Powell 2009). Ninety per cent of housing in Darwin was seriously damaged or totally destroyed, with the major devastation occurring in the northern suburbs. It was estimated that half of the housing stock, mainly in the north eastern suburbs was ‘written off’ and only six per cent of the housing stock was ‘mainly intact’ (Cities Commission 1975b, p. 6).

The Commonwealth Natural Disasters Organisation (NDO) was notified of the disaster at 4.50 am on 25 December 1974 by the Secretary of the Department of the Northern Territory. The Commonwealth responded quickly and by 1.00 pm on the same day a RAAF plane left for Darwin with Major Stretton, the Director General of the NDO, surgical teams and medical supplies (Natural Disasters Organisation, pp. 9-21).

Once Major Stretton landed in Darwin the city was under his control. One of his first steps was to initiate a mass evacuation. Amazingly few families wanted to leave Darwin. It was only when families were offered a return plane ticket that Stretton was able to evacuate most of the women and children and reduce the population from about 46,000 to about 11,000, mainly men who were capable of getting Darwin back to a functional condition.\(^{38}\)

**Darwin Reconstruction Commission**

The Commonwealth Government responded quickly to the disaster and decided to establish a commission to deal with the rebuilding of Darwin. The Interim Darwin Reconstruction Commission (IDRC) was established within two weeks of the cyclone, and met for the first time on 6 January 1975 (NAA- E171(75/696) 1975a).

\(^{38}\) According to the NDO a total of 35,362 people were evacuated from Darwin (Natural Disasters Organisation 1975, p. 33)
The *Darwin Reconstruction Act* (1975) was proclaimed on 28 February 1975 and established the Darwin Reconstruction Commission (DRC). There was considerable opposition to the quick passage of this legislation and the proposal to build a new Darwin. In the Northern Territory Legislative Assembly Mr Withnall, who had been a member of the Planning Board, described the process as a ‘Roman holiday’ (Hansard 1986, p. 11, 11 February).

The conflicts between the Department of Northern Territory, DURD and the Cities Commission, and the Department of Housing and Construction were apparent in the DRC minutes. This is not surprising given that they were vying for substantial funds for reconstruction, considerable kudos and the opportunity to stamp their mark on Darwin (NAA-E171(75/696) 1975a, 1975b, 1975c; NAA-E171/T1(75/696) 1975).

Two weeks after Cyclone Tracy the Commonwealth released the report *Planning Options for Future Darwin*, prepared for the Cities Commission. The destruction of Darwin was seen as an ‘opportunity ... to remedy past mistakes in the planning and development of Darwin and to ensure that the DRC with the people of Darwin builds a new city which conforms to modern town planning and urban concepts’ (Cities Commission 1975b, p. 1).

It was envisaged that the acquisition program in the northern suburbs, the most damaged sectors of Darwin, would be ‘comprehensive’ (Cities Commission 1975b, p. 20). Basically lessees were expected to surrender their leases while the report recommended that no building be allowed in the northern suburbs ‘for at least a period of three years’ (Cities Commission 1975b, p. 20). Not surprisingly, the document resulted in outrage, especially from residents who had lost homes in the northern suburbs. The report also acknowledged that the rebuilding of Darwin would be slowed by the fact that a new building code was needed. It was thought that reconstruction might start in April 1975.

A second planning report - *Darwin Planning Guidelines* - was released by the Cities Commission on 14 March 1975. By the time of the release of the second report the
views of local people wanting Darwin to be built ‘the same as before’ had been recorded (Cities Commission 1975a, p. 1).

This is hardly a revelation. This was then nearly three months after the cyclone and it was still the Wet season, and no new housing had been built. By this time it was estimated that an additional 11,000 people had arrived in Darwin. Some would have been people returning to Darwin, but also there were many people arriving for the first time: labourers and professionals engaged in the reconstruction of Darwin.

By June 1975 the DRC programs had been plagued with delays. The issue of storm surge had emerged but was unresolved, and decisions about compensation had not been made. Not only were people limited in the extent to which they could repair their houses, but those in the storm surge areas were actively prevented from undertaking any repairs. Approval had to be given to undertake any structural repairs (Darwin Reconstruction Commission 1975, p. 25).

One of the respondents interviewed recalled what it was like living in Darwin after Cyclone Tracy:

‘Then they decided “OK this was a chance to redesign the whole of Darwin.” And you couldn’t do a thing. You weren’t allowed to repair [your home]’ (KS).

The matter of compensation was unresolved. According to a local planner interviewed:

‘I think in those days it was something like $60 million, and no one was ever going to find this’ (FA).

Finally in December 1975 the decision was made to allow people to build in the storm surge zone because compensation could not be provided to these residents.

By December 1975 only one new dwelling had been constructed, and this was allocated to a senior public servant. People had been effectively stymied from rebuilding.
Migration to the hinterland

One aftermath of Cyclone Tracy was a substantial movement of people from the city into the hinterland. It is reasonable to assume that instead of waiting for the DRC to give approval to rebuild in the city, many Darwin residents decided to move to the hinterland. In 1990 the strategic plan for ‘Regional Darwin’ reported:

‘The destruction of Darwin by Cyclone Tracy in 1974 provided a significant settlement of many two and eight hectare freehold lots. People escaping the vulnerability of Darwin were attracted by the availability of freehold land as opposed to the lease-hold system prevailing in Darwin, the absence of rates and land use controls and the perceived immunity from interference with lifestyle caused by closer settlement’ (Northern Territory Department of Lands and Housing 1990a, p. 6).

One of the planners, who was interviewed for this research, remembers:

‘People lived in the rural area long before that [Tracy]. And after Tracy there was a very noticeable move out there, in part, because people who had been here for a bit, and had decided they were going to stay, a fair percentage of those had bought a block with an idea of one day building themselves a house out on the freehold land. You know, a different lifestyle. … When Tracy knocked over all of the houses some of those said we might as well do it now’ (FA).

Another former public servant recalls moving out into the hinterland:

‘We had actually bought the government house at Fannie Bay. We lived at Fannie Bay. And Cyclone Tracy cleaned that up in 72 [1974] we were then left to rely on Gwen’s block. And 14 people decided to live on the block after the cyclone because we have nowhere else to go. Yes we camped in swags and things on the floor. The roof wasn’t complete’ (UN).

‘(A)fter the cyclone, there were a lot of contractors in Darwin who built up equipment, earth moving equipment. They bought blocks of land and went out and did other subdivisions at Knuckey Lagoon and further out about at 20 mile just before you turn left at the Arnhem Highway’ (FS).

From these quotes it is evident the people were planning to move out into the hinterland and the cyclone had accelerated the movements out.
Guidelines for the Darwin rural area

In 1975, the DRC had commissioned a study of the rural area. This study was undertaken by Dr Angie Comar to look at the need for subdivision controls to ‘avoid either misuse or the pulverisation of rural holdings’ (1975, A.2.2). In his report he referred to ‘a reverse process to “urbanism” [that] drives many people to seek nature and freedom’. These people included: the commuters seeking a different lifestyle and possibly the opportunity to farm, and the weekenders seeking relocation and ‘physical and creative activity as holiday farming’ (Comar 1975, B.1.1)\(^{39}\).

In December 1976, the DRC produced ‘Guidelines for the Darwin Rural Area’, a proposed planning scheme. In the introduction the guidelines refer to:

> ‘The post-cyclone acceleration (emphasis added) in the development of the area gives urgency to the need for rational development controls in the interests of both the present and future residential and the broader community’ (Darwin Reconstruction Commission 1976, p. 2).

The guidelines stated that development in this area was driven by the proximity to Darwin; the dominant freehold land tenure; the early ‘Goyder Grid’ survey; topography; and the transport/service spine (Darwin Reconstruction Commission 1976, p. 2). The guidelines proposed the use of different zones to regulate different subdivision lot sizes and land uses.

MIGRATION IN THE 1980S AND 1990S

In Chapter 7 evidence will be provided regarding on-going subdivision in the 1980s and 1990s, and from the interviews it is contended that there was also continued out-migration from Darwin into the hinterland. A respondent who moved out in the 1980s remembered:

> ‘And I spent a bit of time down there and I loved it. So I started looking for a block down there too. And Darwin was getting busy and

\(^{39}\) This report was not paginated but the paragraphs were numbered.
expanding and again we were having traffic lights. And so I thought I am out of here. And so I went to Bees Creek’ (ID).

Here the theme of Darwin changing and becoming ‘busy’ re-emerges. One of the other respondents\(^{40}\) had described how Darwin was becoming more complex, and so people moved out to regain a slower life-style.

In the 1980s a new ethnic group moved into the hinterland; the Vietnamese.

**Vietnamese migrants**

Today the Vietnamese are seen as an integral part of Darwin’s horticulture industry in Darwin’s hinterland. The story of the Vietnamese farming community is part of the local mythology, caught up with images of ‘boat people’. It is commonly believed that these refugees came from farming backgrounds, but this is wrong.

In 1980, the Commonwealth Government and the new Northern Territory Government\(^{41}\) entered into an agreement to take relatively large numbers of Vietnamese refugees into Darwin. A deliberate decision was made to create a Vietnamese ‘community’ in Darwin to increase the population. This was an assisted program where the Northern Territory Government would bring in Vietnamese refugees who matched pre-selected criteria from refugee camps in Thailand, Singapore, Malaysia and Indonesia. The Northern Territory Government wanted to take well educated, skilled, urban refugees in contrast to rural or peasant refugees (Haines 2001, p. 11). The criteria also included ‘young families’ and precluded single unattached uneducated males. Since then, through interstate migration, a number of single males have been attracted to Darwin by the opportunities to work in the farming and fishing industry (Haines 2001, p. 103).

By 1982, 170 Vietnamese refugees had arrived in Darwin, and a further 122 Vietnamese migrants went to Alice Springs or Darwin sponsored by this program (Tran & Nelson 1982, p. 2). Haines estimated that, in total, more than 1000 Vietnamese arrived in Darwin in the early 1980s. However, by 1986 more than half

\(^{40}\) On page XX

\(^{41}\) The Northern Territory attained self-governance in 1978.
of these had migrated interstate to find better employment opportunities than were available in Darwin (Haines 2001, p. 60). The ones who stayed were more likely to have found employment and to have family support (Haines 2001, p. 105).

Tran, herself a refugee, undertook a study of the settlement of Vietnamese refugees in the Northern Territory. Her report noted:

‘The expectation that refugees would be employed in the primary industries of fishing and agriculture appeared unfounded as only three persons were engaged in this time of employment’ (Tran & Nelson 1982, p. 20).

The refugees were not selected for having farming skills and indeed little assistance was offered to the farmers in the early 1980s. It was only when the Vietnamese working in agriculture substantially increased in numbers that the Northern Territory Government began to offer assistance.

Haines reported that there were 21 farmers in Berrimah, Howard Springs and Humpty Doo in 1995. These often had little knowledge or experience of farming. According to his research many gravitated into farming because speaking English was not a requirement for farming and it provided a pragmatic solution to providing for the family (Haines 2001, pp. 83-5).

The above section provides evidence that there were other motives, not related to amenity migration, which have led to the development of Darwin’s hinterland.

Conflicts in the rural idyll

Cracks started to emerge in the ‘rural idyll’ in Darwin’s hinterland by the 1980s.

‘People wanted to change the whole concept of rural living. Why can’t I have five B&B [bed and breakfast] units on my block? It’s a big block. Why can’t I have a workshop on my block? Why can’t I do my welding all weekend on my block? ... There was a huge issue with people knocking down huge swathes of bush and planting mango trees and spraying them night and day when they had problems with insects’ (ID).

A planner involved with the development of the 1990 Structure Plan recalled:
‘The 1990 plan was the first identification of areas with good soils associated with good water. The identification of the importance of protecting horticulture activities. And then we started working on the 2002 Litchfield Planning Concepts Darwin Land Use Objectives that had developed to deal with the conflict between people who wanted to live in the rural area and people who wanted to do horticulture’ (CA).

So the ideal of having unrestrained use of freehold rural land, free of any planning controls, had a downside in that it assumed that people’s use of their lands would be compatible. In essence there were three main land uses which, if unchecked, were incompatible; these were residential, industrial and horticultural land uses.

In 1984 the Northern Territory Government released the *Darwin Regional Structure Plan*. The 1981 Census had reported that there were 56,487 people in the Greater Darwin region. And although this was a time of ‘national economic downturn’, the report believed that Darwin’s future was ‘buoyant’ and that it was reasonable to plan for a future population of ‘up to 200,000 people’ (Northern Territory Department of Lands 1984, p. (i)). The plan looked at the development options including increased densification, development of the constrained land north of Palmerston, urban development of the rural hinterland, and new town development near Weddell (about 20 kilometres south of present-day Palmerston).

The report dismissed densification as an option, saying that ‘higher density residential land use ... will be a feature of the 1990s or later, not the 1980s.’ (Northern Territory Department of Lands 1984, p. vii). The report clearly did not support any broad scale urban development in the hinterland. The report proposed to ‘leave undisturbed those people who have settled, developed and wish to remain in such an environment’ (Northern Territory Department of Lands 1984, p. vii). This was possible because the Northern Territory Government held considerable tracts of undeveloped land near Weddell, and so could ‘avoid the mutual pain of acquisition’ (Northern Territory Department of Lands 1984, p. viii). The report also did not rule out development of Cox Peninsula, even though it acknowledged it was subject to the Kenbi Land Claim.
Critically this report did not foresee agriculture playing a major economic role in Darwin’s hinterland.

‘The opportunity for commercial agriculture is limited, partly because good arable land is very limited. Where pockets of good land exist and land use proposals are not constrained by ownership or other factors, intensive agriculture may be encouraged’ (Northern Territory Department of Lands 1984, p. (xiii).

Establishment of planning controls

The above section reported that the first attempts were made to establish planning controls in the rural hinterland by the DRC. The Litchfield Municipality had not been established at that time, so the planning controls related to the unincorporated rural areas around Darwin. The DRC planning controls were limited to using zones to regulate subdivision lot size and land uses.

Initially the lack of controls was welcomed by local residents. In fact, given the planning constraints over land in the Darwin city area, it could be envisaged that local people living in the rural areas would view planning control in the hinterland as an anathema.

‘[T]here was a real impetus for development in the Litchfield Municipality following Cyclone Tracy because people wanted to escape the apparent interference with their lifestyle that was happening in Darwin. And in those days Darwin was leasehold land. And everyone had a lease purpose42; what they could use their land for. Freehold land in the Litchfield Municipality was considered to give them more freedom to do what they wanted to do. The initial planning controls out there –when we looked at introducing the first plan there was suggestions for commercial areas and that sort of thing and we were told to go away. “We want 20 acres to five acres and we will do what we want on our blocks.” It wasn’t until we started getting panel beaters and industries setting up on blocks that you got people saying “Hey stop them they’re interfering with my lifestyle” … As the area matured we got the conflict’ (CA).

42 Lease purpose; this refers to a lease having land use conditions attached.
But by the 1980s there was the realisation that some controls were needed to manage conflicts between different land uses.

**Self-government**

When the Labor Party came to power in Canberra in 1972, the Northern Territory was promised more powers of self-governance. On 20 November 1974 a fully elected Northern Territory Legislative Assembly met for the first time, although the roles of the new body were still not clearly formulated (Donovan 1984, pp. 231-42). The Liberal Government came to power in Canberra in December 1975, after the demise of the Labor Government, and with promises to the Northern Territory of statehood within five years. Steps were taken from 1976 for the transfer of state-type functions to the Assembly, but ultimately statehood was not achieved. The Northern Territory would receive limited powers, but the Commonwealth would retain control of Aboriginal affairs and uranium mining. Furthermore, the Commonwealth had the power to disallow any Northern Territory legislation passed by the Northern Territory Legislative Assembly within six months of its passage (Powell 2009, p. 171).

On 1 July 1978, the Northern Territory attained a form of self-governance after 105 years of being controlled by the South Australian Government and then the Commonwealth Government.

A respondent remembers the period well.

> ‘They were exciting times. There was a sense of ownership. And people who had been critical of the way the Feds[Commonwealth Government] ran the place they were suddenly heading up departments, and divisions in departments. And everyone was going to put the world to rights in five minutes’ (ID).

One of the offshoots of self-governance was federal funding for upgrades to the Stuart Highway and the construction of the Arnhem Highway. Access into the hinterland played a crucial role in settlement patterns. Upgrades to the Stuart Highway made it possible for people to move further south, while still being able to commute to the city. Also, the discovery in the 1980s of uranium, at what was to become the Ranger Mine at Jabiru, 250 kilometres to the south east of Darwin, led...
to the construction of the Arnhem Highway, and the upgrade of roads that had formerly led to the rice farms. This enabled more people to move further east from Darwin.

**LITCHFIELD MUNICIPALITY**

The 1980s were also significant for the hinterland because the Litchfield Municipality was gazetted in 1985. It is significant that the push to establish the municipality was not coming from the local residents. One of the respondents was involved in the formation of the Litchfield Municipality said:

‘So it was an external push. We got this area with 12,000 people living in it with no one looking after it. So the Government [Northern Territory] established an advisory committee to report to it on what should happen. I happened to be on that committee. ... It wasn’t just from Canberra, it was also from our own Treasury. Because they could see a pot of gold that they could get their hands on.

The Government recognised that the rural people would not cop being governed by the Darwin City Council. Palmerston [Council] didn’t exist in those days. So the municipality was established’ (QB).

‘Eventually someone decided we would have a local government. Nobody wanted it because local government meant rates and nobody was paying rates. It was forced on us by the government. Finally we accepted the inevitable. And then we wanted a flat rate. If you’ve got one acre and I’ve got a hundred acres we pay the same rate. Because our rates pay for three things. Three R’s; roads, reserves and rubbish dumps. You might be on one acre. You still use the roads and the reserves and the rubbish dumps. This was agreed by everyone. And the subject came up of people getting old. One of the things we wouldn’t have out here. People being rated out. They can be if you use capital value rating’ (MO).

While it was accepted that a municipality was to be established the residents wanted a minimally interventionist Council, and one which did not provide elaborate services.

The respondents were asked about their dealings with the Litchfield Council:

‘And one of the mottos is roads, rubbish to a certain degree ... and ... for minimal funding’ (QJ).
‘They do the roads but they don’t do much. They look after roads and rubbish and recreation reserves. That’s basically what the municipality does. … I think the general consensus of people is they should do what they do but they should do it more efficiently. With less cost to us. … Every year the rates go up but the services don’t. … And the number of staff in the municipality go up’ (QB).

The local member of the Legislative Assembly, Noel Padgham-Purich, described the ethos of the Litchfield Municipality in 1986:

‘The Litchfield Municipality Council does not conduct its business quite as the Palmerston City Council does. There are no mayor’s or president’s cars, no robes, no increases in meeting salaries and no Sheraton-style civic buildings. The people on the Litchfield Municipality Council know the value of a dollar and they try to make their dollars go as far as possible. … The Litchfield Municipality office is the demountable building at Fred’s Pass. The President’s office is in a converted room in it and the public meetings are held on the verandah. This is indicative of the wish of Municipality Councillors to use the money allotted to them for the running of the Litchfield Municipality in the most advantageous way’ (Hansard 1986, p. 747, 28 August).

Implicit in the above comments are beliefs that the residents want the council to provide only basic services at minimal costs.

**Litchfield today**

The motto of the Municipality is ‘Community effort is essential.’ The logo embodies the following values:
It represents a person standing with open arms, welcoming everyone to Litchfield Municipality, giving a feeling of the friendliness of being in the country, as well as openness and kindness. The round circle at the top represents the sun, giving life and energy to the community. The white part represents the roads, encompassing the whole Municipality. As a perspective from all angles, the Council is the nucleus of the whole centre. The green leaves at the bottom of the logo represent the bush and rural lifestyle prevalent in the Municipality (Litchfield Council 2012).

Figure 5.1 Municipality of Litchfield’s motto

The logo embodies friendliness and openness and possibly a non-judgemental acceptance of people. The significance of the road is embodied in the ‘roads rates and rubbish’ mantra, and emphasises the importance of roads for access. Significant also is the importance of the rural lifestyle. There is further evidence that today the residents of Litchfield are still attracted by these values which define the rural amenity of the locality.

Survey of Residents

In 2008 the Litchfield Council employed consultants to conduct a mail survey of residents to ascertain what issues were important to them, their satisfaction with Council services, and opinions on particular issues, such as an Olympic swimming pool in the municipality. The results gave a glimpse of the attitudes of residents. The survey found a number of themes. Rubbish, rates and to a lesser extent roads were dominant themes, as were claims that respondents were not receiving value...
for money from the rates. The lack of control of feral and domestic dogs was a major issue.

With regard to living in Litchfield many responded that they liked the rural lifestyle and rural environment; the peace and quiet; the space; privacy; community spirit; large blocks; and freedom.

Almost half the respondents (49 per cent) thought the Litchfield Council rates were too high, while 41 per cent said they thought they were just right, five per cent didn’t know and two per cent said they were too low. The issue of rates is quite central for many of the local residents. The rates paid by Litchfield residents, in comparison to Darwin and Palmerston residents, are considerably lower, but possibly their resistance to rate increases stems from the fact that they do not want to pay for ‘embellishments’, including a domestic garbage collection.

Only 41 per cent were prepared to pay additional rates for a pool, but aged services rated high on the priority list. The report attributed this to the fact that 46 per cent of the respondents were aged 50 or over. Only four per cent of the respondents were aged less than 29 years of age, and 49 per cent were aged between 30 and 49 years.44

More women (51 per cent) than men answered the survey and most of the respondents had lived in the municipality for more than ten years.

It is clear that many of the residents, who responded to the survey, lived in Litchfield for the rural ambience. Typical answers were:

- We like living in a rural setting with larger blocks of land
- Sense of community, access to bushland for walking, recreation area (Fred’s Pass), lifestyle
- The rural lifestyle - peace and quiet and friendly
- The lifestyle/ freedom/ space/ ambience/ community feel
- The `mind your own business’ attitude of most people
- Size of rural block / property

44 One per cent did not provide their age.
Peace and privacy

Space, rural living, relatively easy access to larger centres e.g. Palmerston, Coolalinga

Space, trees and fresh air (Michels Warren Mundy 2008, p. 18)

From this it is apparent that lifestyle and the rural amenity are central to why people are attracted to Litchfield. It is a lifestyle characterised by having space, tranquillity, privacy and a rural setting. Here is clear evidence of amenity migration.

There is also evidence that many residents are still dependent on urban services in Darwin and Palmerston such as employment, retail, entertainment and medical services and education facilities. Litchfield residents are prepared to commute to obtain these services. In the demographic chapter it will be established through Census journey to work data that most residents commute. This would also be consistent with Mitchell’s exurbanisation migration. Moreover, these residents do not want urban services, kerbside garbage collections, bitumen roads, reticulated water and sewer.

There also seems to be some parallels with Travis’s findings of ‘wildcat’ subdivisions in Arizona in unincorporated areas, where developers do not need to provide the ‘niceties’ of urban subdivisions, like paved roads, reticulated water and sewers (2007, p. 130). People form districts to maintain roads, and provide other services if needed (Travis, 2007, p. 131). In reality it would appear that affordability would be the main driver of these settlements (Lot-splits Versus Subdivisions in Rural Arizona 2012). Many of the early residents of Litchfield are similar in that they did not require the ‘niceties’ of urban living before moving out to the area.

Newcomers

During the interviews conducted for this thesis, the respondents who lived in Litchfield were asked about newcomers moving into the municipality.

‘And from the day the council sets up there will always be someone who moves in, whether it be interstate or from within Darwin or Palmerston, who moves out with the same expectations that they have got in Darwin. For instance they don’t have a garbage pick-up if you come to the rural area. You have to take it to the local transfer...
station. And the transfer station might be a long way from where you live. And all these expectations they’ve got living in an urban environment is not in Litchfield. Even though they jump before they really fully appreciate some of the issues. It’s a long way to travel to work every day to go into Darwin. So there are a lot of issues like that which will cause the area to evolve but not as fast as those people would hope, because they are still minority groups’ (QZ).

‘Well all of the Darwin stuff, the bylaws they still want. They don’t really want to live in the rural area. They want to live in the town area where they still say that dog pooped on my doorstep. ... There are a lot of different people out here, been living here for ages, who think completely and utterly different from the people in town. ... The real people who are still out here are much more laid back. Much easier to talk to. They don’t mind if they go to the stores with no shoes on. I’m not talking about the women. I’m talking about the blokes. Everyone knows each other. The older people, the people out here, it’s very easy to talk to them. Darwin has become too sophisticated. And a lot of those people have moved out. And that makes it a bit sad’ (LJ).

‘Too many townies. They come out because the rates are cheaper. And they have more space. They want the school bus to pass them. They want the telephone on yesterday. They want a bitumenised road. And they don’t like the smell of horse manure next door. Or the dogs barking at the back of them. So they want all the benefits of here with the town benefits as well’ (MO).

‘It was attracting people who were more used to having facilities around them. And when they arrived in an area which hasn’t got them there is an expectation that they [the services] will be there or they will be coming very shortly. We moved there because there were no traffic lights. There were no drains. There were no footpaths’ (ID).

There was a fairly thinly veiled hostility to newcomers from the older residents. They saw them as ‘townies’ with ‘sophisticated’ values whereas the older residents were more ‘genuine’ people. They perceived the newcomers as having an expectation of being provided with urban services, while also seeking to pay lower rates; the benefits of the rural lifestyle with benefits of the town services. The newcomers were seen as a threat to the rural ambiance and their lifestyle.
ABORIGINAL LAND RIGHTS

The impact of Aboriginal land rights and native title legislation on the development of Darwin and its hinterland needs to be included in this chapter because of the possible influence on the occupance of land.

Following the recommendations of Justice Woodward\(^45\), the *Aboriginal Lands Rights (Northern Territory) Act 1976* (ALRA) was enacted. An aim of the ALRA was to provide inalienable freehold title to Aboriginal people where they could demonstrate continuity of attachment to land by meeting three criteria: membership of a local descent group; primary spiritual responsibility (for sites) to country; and the right to forage. Since its inception an estimated 50 per cent of the land of the Northern Territory has been made inalienable freehold Aboriginal land ([http://www.dfat.gov.au/facts/Indigenous_land_rights.html](http://www.dfat.gov.au/facts/Indigenous_land_rights.html)). During the 1970s, the first lands were transferred to traditional owners under this legislation, although in actual fact it entailed the transfer of existing Aboriginal reserves. The ALRA also established four Land Councils as statutory bodies to represent the traditional Indigenous owners in the Northern Territory.

Between the 1970s and 1990s a number of parcels of land within the Municipality of Litchfield were transferred to Aboriginal people. These lands account for only 1.5 per cent of the total land in Litchfield. This is because the ALRA excludes lands within town boundaries, and land that has been alienated from the Crown (such as freehold land). Given that a considerable proportion of Litchfield had been freehold since 1869 these lands would have been exempted from the ALRA.

Figure 5.2 shows the locations of these Aboriginal lands in Litchfield using the 2010 Cadastral Database.\(^46\) Table 5.1 provides the legend to the localities. Only three parcels of land were transferred under ALRA; Yirra Bardoo, and the two Delissaville Wagait Larrakia Aboriginal Land Trusts. The remainder were transferred to an ‘enhanced freehold title’ which occurred where Aboriginal living or community

\(^{45}\) Chair of the Aboriginal Land Rights Royal Commission

\(^{46}\) This was plotted using ArcGIS.
areas were excised under the provision of the *Miscellaneous Amendment (Aboriginal Community Living Areas) Act 1989*.  

Figure 5.2 Aboriginal lands in Darwin’s hinterland in 2010\(^{47}\)

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\(^{47}\) From the Northern Territory Cadastral database in 2010
Although the ALRA enabled the reserves to be transferred there was first the requirement to establish who were the traditional owners. Resolving the competing land claims between Aboriginal people from the late 1970s was a painful process. Subsequently to the ALRA, the (Cwth) Native Title Act (NTA) 1993 was enacted following the determination of the Australian High Court in the Mabo vs. Queensland case, which ruled that the original occupants have a right to the possession of their traditional land for customary uses.

One of the longest standing land claims in the Statutes was the Kenbi Land Claim lodged in 1979. In an attempt to ‘thwart’ anticipated land claims following the enactment of the ALRA the Northern Territory Administration in December 1978

48 Deborah Bird Rose was involved in the claim by the Mak Mak people for lands south near Batchelor. She described the process as ‘a long and hurtful history surrounding the question of ownership’ (Rose et al. 2011, p. 97).
used the *Town Planning Act* (1978) to extend the Town of Darwin’s boundaries from 144 square kilometres to 4350 square kilometres. At the same time, the Administration also sought to extend the town boundaries of Alice Springs, Tennant Creek and Katherine to ensure land within these town boundaries could not be claimed under the ALRA. It has been alleged that the conservative Northern Territory Government spent more than $20 million on fighting the Kenbi Claim⁴⁹. In September 1989, Justice Gray, the Aboriginal Land Commissioner, dismissed the Northern Territory’s attempt to change town boundaries as an improper use of the powers of the *Town Planning Act* (Justice Gray 2000, p. 16; Larrakia Nation Aboriginal Corporation, pp. 16-7).

The *Darwin Regional Land Use Structure Plan 1990* proposed that Cox Peninsula be one of four options for the future urban development of Darwin. Justice Gray was extremely critical of the planning process and the proposal to develop the Cox Peninsula as a future major development site:

> ‘The 1990-1991 planning exercise seems to have had more to do with defeating this land claim than with attempting to plan for the possible future expansion of Darwin. Indeed, it is hard to avoid the conclusion that the aim was to defeat this land claim. The Land Rights Act and the claimants are the subject of express criticism. ... The options are examined in very different ways, using different criteria, so as to ensure that only one can succeed. Aboriginal interests are given little or no weight, whereas much emphasis is placed on the desirability of providing vast areas for people who might wish to live in low-density, rural-residential environments. A proper approach to planning for a considerably expanded Darwin would involve determining the optimal use of all available land and a recognition of the interests of a broad range of people’ (Justice Gray 2000, pp. 175-6).

In 2000 Justice Gray determined in favour of the Kenbi land claimants, determining that only the Tommy Lyons group were the traditional owners, that the subject land be made a land trust, but that all the claimants (Larrakia, Danggalaba and Belyuen

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⁴⁹ Article commenting on public release of Northern Territory Cabinet papers from the Northern Territory Archives Services (Adlam 2013, p. 4)
groups) should have conditional rights of access to the trust land. The Northern Territory Chief Minister lodged an appeal, but in 2002 this appeal was withdrawn when the Labor Party became the government for the first time since self-governance.

The Kenbi Land Trust Bill was passed in the Northern Territory Parliament on 24 November 2011. In June 2011 a historic Heads of Agreement was signed by the Prime Minister of Australia, the Chief Minister of the Northern Territory and the Northern Land Council, which represented the traditional owners of the land. This ‘Heads of Agreement’ entailed the transfer of a portion of lands (13,000 hectares) formerly held by the Commonwealth, to the Larrakia Development Corporation (LDC)\(^{50}\), as freehold land. This was achieved through an Indigenous Land Use Agreement (ILUA), and the Kenbi Land Trust Bill\(^{51}\), which waived Aboriginal land rights over this land in order for the land to be developed. The agreement meant that there was a capacity to develop land on the western side of Darwin Harbour on the Cox Peninsula. In the *Greater Darwin Plan 2012* it is claimed that Cox Peninsula has the potential to accommodate up to 10,000 people. The remaining land which was subject to the land claim (52,000 hectares) was declared ALRA Trust land for the use of the successful claimants.

In contrast to the success of the Kenbi land claim, the Larrakia people were not successful in gaining native title rights over their traditional lands within and surrounding Darwin. This claim was different from the Kenbi Land Claim although some of the same Larrakia people were parties to both claims. In August 2006 the Federal Court determined the Larrakia people did not have native title rights and

\(^{50}\) There are two groups which represent Larrakia people’s interest; the Larrakia Nation Aboriginal Corporation and the Larrakia Development Corporation (LDC). These groups are staunch opponents. Thus for the Governments to enter into an agreement with one sector of the Larrakia people is a controversial one.

\(^{51}\) The Kenbi Land Trust Bill was passed in the Northern Territory Parliament on 24 November 2011.
interests over the area that included Darwin and Palmerston. This followed the Larrakia people appealing an earlier decision by Justice Mansfield who determined that the Larrakia people’s connection to their country and their observance of their traditional laws and customs had been ‘substantially interrupted’ during and after WWII (Federal Court of Australia 2006, para 835). This finding related to the fact that during WWII Aboriginal people in the Top End had been forcibly relocated into camps, and then following WWII, the government’s policies of assimilation disrupted the observance of Larrakia traditional laws and custom.

While Justice Mansfield accepted that occupancy of the land was not essential to the continuity of observance of tradition and custom, he determined the Larrakia people had failed to demonstrate the laws and customs had been ‘handed down from the pre-sovereign society’. Further, Justice Mansfield argued there had not been a ‘continued observance of traditional law and custom since sovereignty’. He also dismissed evidence of cultural revitalisation which occurred later.

Subsequently, in 2007, the Aboriginal and Torres Strait Islander Social Justice Commissioner expressed concerns about this determination, and said in particular:

‘I am concerned that the requirements of society and continuity are open to an interpretation that is unjustly harsh on Indigenous peoples and their ability to gain recognition of their native title. I am concerned that the requirements are out of step with the reality of contemporary ideas of how societies evolve. That it is too narrow and constraining. And, most particularly, that it fails to recognise that government policies like forced removal and assimilation contributed to a break in continuity. Nor does it give a place to the resurgence and revitalisation of culture and tradition. The latter is an important aspect to the human rights of Indigenous peoples’ (Australian Human Rights Commission 2007, p. np).

During the case, Judge Mansfield accepted the evidence provided about Larrakia people hunting, fishing and foraging for food in the Darwin area, and using bush foods for medicines and crafts since European settlement to current times (Federal Court of Australia 2006, para 825). Possibly it was the blurring of the boundaries
that raised questions about the claim area. In considering the evidence Justice Mansfield stated:

‘It seems common enough ground amongst the witnesses that Larrakia country is bounded on the coast by the Adelaide River and by the Finniss River. It is its inland boundary which has been the subject of some inconsistent evidence: it was said to extend to Darwin River Dam (Patrick Briston), to the Adelaide River Manton Dam (Keith Risk and others), to 47 Mile, to the Daly River (Jocelyn Archer), and to and past Pine Creek (Lorelle Fejo). Indeed, some members of the Fejo family took a quite expansive view of the extent of Larrakia country, including extending it east and west beyond the two rivers referred to. Others who were said to be some of the senior people in the course of evidence did not describe with any precision the extent of Larrakia country boundaries’ (Federal Court of Australia 2006, p. para 734).

In keeping with Justice Mansfield’s perception of inconsistencies, spiritual linkages with traditional lands do not translate well when confronted with the rules of legal evidence. Despite this, there is clear evidence that there was an Aboriginal occupation in the hinterland that was largely unhindered by Europeans until the 1960s. Although there were Europeans out there mining or buffalo hunting, prospecting and crocodile shooting, they were migratory following different camps and the seasons. It was only after subdivisions commenced that the Indigenous people were actively displaced from parts of the hinterland.

Current status of native title claims

Figure 5.3 shows the current status of native title claims (National Native Title Tribunal 2012).

In 2012 there were three native title claims: Weddell, Howard Springs Forestry Reserve and Section 2934 Hundred of Strangways. The Weddell claim was lodged in 2000 by the Northern Land Council and is a registered claim. The land claim affects 2540 ha. This is the site of the proposed new city of Weddell.

The second site, Howard Springs Forestry Reserve, is a lodged, but not registered, claim. It was lodged in 2011 by the Northern Territory Government. This site was
set aside for higher density residential development by the former Northern Territory Government in its policy document *Urban Villages* (Northern Territory Government 2011).

The third site was also lodged by the Northern Territory Government in 2012 but is not registered. This land is strategically located south of Zuccoli, the latest Government greenfield residential subdivision.

Figure 5.3 Location of Native Title claims (National Native Title Tribunal 2012)
Discussion of native title claims

The Municipality of Litchfield has been relatively untouched with the passage of ALRA and the NTA because most of the land was freehold and therefore exempt from native title legislation. There were transfers of small parcels of land to Aboriginal people in Litchfield from the 1970s, but it was land that had been held as Aboriginal reserves or as community living areas. Also the land was mostly marginal; the Durduga Tree Point land is largely mangroves, while the Delissaville Wagait Larrakia and Limilingan-Wulna Trust lands are prone to severe water logging. While the Kenbi Claim may be nearing some resolution, the Larrakia people appear to have lost their major claim for land in Litchfield.

Of three current native title claims, only one (Weddell) has been registered. During the Labor Government, Weddell had been mooted for development in 2014, which would possibly have triggered some resolution of the native title claim. With the change of government in August 2012 the development program for Weddell appears on hold.

The status of the other two unregistered native title claims is unknown. It is not clear whether the new Country Liberal Government will pursue this course of action.

SUMMARY

This chapter has documented how Litchfield changed after WWII, in part through the experiences of long term residents interviewed for this thesis, as well as through archives and other government reports.

The compulsory acquisition of land within a ten mile limit of Darwin in 1946 had a major impact on the housing of the residents. The conversion of all these lands to leasehold meant that the Commonwealth had control over access to lands and housing. It is argued that this was one of the drivers of counterurbanisation which commenced in the 1950s.

At that time the hinterland was still bushland, although there was a small number of people living on Goyder blocks. Essentially Indigenous people could have used their
traditional lands without constraints during this period. However, once access into the hinterland had improved during the war, people were able to commute. Small subdivisions began to occur from 1959 and from then there was an ongoing outward migration into the hinterland.

It is also evident that counterurbanisation was well entrenched by 1974 and the 1974 Planning Strategy reinforced the legitimacy of this rural residential development.

Following Cyclone Tracy, although the Commonwealth responded quickly to the catastrophe by setting up emergency control measures, the first 12 months saw little rebuilding of Darwin. Again, like in the 1930s and 1940s, the Commonwealth saw the destruction of Darwin as an opportunity to redesign the city. A town planning exercise, bureaucratic rivalries, storm surge concerns and a failure to allow people to rebuild their houses stalled the rebuilding of Darwin in the first 12 months following Cyclone Tracy. The evidence points to the fact that more people chose to move into Litchfield at that time than previously.

From the interviews this outward migration has the hallmarks of counterurbanisation. The importance of the rural idyll was central to people’s move to Litchfield. Access to freehold land was another important consideration; this was symbolic in the sense that it gave them more freedom to do what they wanted with the land. In contrast, land in Darwin was subject to 99-year leases, and there were also constraints on what could be built and what the land could be used for. There were few constraints in the hinterland, with few regulations, no rates, and no local government.

As the population in the hinterland grew, so did the perception that there was a need for planning controls. These came in 1975 from the DRC, and slowly became more elaborate as conflicts between the different land uses became evident.

Counterurbanites moved out unchallenged; they were not displacing agricultural uses. Consecutive Governments’ reports legitimated this rural residential occupation, and never sought to curtail it.
In contrast, the Aboriginal people’s traditional ownership of lands was not recognised. In fact, successive Northern Territory Governments sought to thwart possible land claims under the ALRA. Today contests for Aboriginal lands under the Native Title Act in Litchfield remain unresolved.
Chapter 6
Demographic Analysis

BACKGROUND

This chapter will analyse the ABS Census data to describe the demographic changes which occurred in ‘Greater Darwin’, including its hinterland, with an emphasis on migration patterns. This analysis seeks to establish if the migration patterns are consistent with counterurbanisation.

This chapter analyses the Australian Data Archive (ADA) and ABS Census data from 1871 until 2011. Appendix 2 provides the Census data. It also documents and provides maps of the changing boundaries of the statistical division\(^{52}\) of Darwin over time as the population grew.

One of the challenges faced in terms of analysing the population growth and settlement patterns in Greater Darwin was the lack of data, in part stemming from the remoteness of the area, the low densities of the population, and the large statistical collection divisions. For instance the Darwin Statistical Division in 1976 extended to the Adelaide River, 115 kilometres south of Darwin. In 1986, the area which is now the Municipality of Litchfield was incorporated into the Vernon Statistical Local Area (SLA) which included the Vernon Islands to the north of Darwin.

In 1991 the Census provided demographic data on the Municipality of Litchfield for the first time. Litchfield was divided into two Statistical Local Areas (SLAs) Litchfield (S)-PtA and Litchfield (S)-PtB.

Litchfield(S) - PtA is a small area located between the municipalities of Darwin and Palmerston. A large part is a low density area by virtue of being prone to

\(^{52}\) A Statistical Division (SD) is an Australian Standard Geographical Classification (ASGC) defined area which represents a large, general purpose, regional type geographic area. SDs represent relatively homogeneous regions characterised by identifiable social and economic links between the inhabitants and between the economic units within the region, under the unifying influence of one or more major towns or cities (Australian Bureau of Statistics 2006a, p. 226).
It is also in the flight path of the Darwin International Airport, and planning controls have restricted residential development by placing the area in rural living and rural zones. A small Aboriginal Community (Knuckey Lagoon Indigenous Village), which was established in December 1979, is located in the SLA. Robertson Barracks is also located within this SLA. Even though Robertson Barracks was officially established in 1992, prior to that time it was still an army facility (Waler Barracks). In this chapter Litchfield (S) - PtA will be excluded from the discussion because the characteristics of the small population are skewed by the presence of the Defence facility. The impact of the Defence force in Darwin no doubt contributes to the population churn or turnover (see later discussion), but these impacts reflect decisions made about national security, and as such are not directly pertinent to this thesis with regard to the phenomenon of counterurbanisation.

**POPULATION GROWTH OF GREATER DARWIN FROM 1911 TO 2011**

![Population Growth Chart]

**Figure 6.1 Population of 'Darwin' by Census year**

Figure 6.1 shows population growth of Darwin\(^{53}\) from 1871 when South Australia controlled the Northern Territory, from 1911 to 1978 when the Commonwealth had control.

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\(^{53}\) The early Census statistics related to the Town of Darwin, and then gradually other urbanised parts outside the municipality were added to create the boundary
control, and from 1978 when the Northern Territory achieved self-governance, through to 2011. The population of Palmerston (later to become Darwin) remained very small until after WWII\textsuperscript{54}. Darwin still has the lowest population of any Australian capital city.

![Male to female ratio of the population of ‘Darwin’ by Census year](image)

Figure 6.2 Male to female ratio of the population of ‘Darwin’ by Census year

Figure 6.2 shows the male to female ratio from 1871 to 2011. During the South Australian era there was a marked variation in the gender ratio, although the number of men considerably outnumbered the women, but the population was very small, and so small variations had marked impacts on the ratio. By 1979 the ratio had stabilised to 1:1 which it remains at today.

When the Commonwealth took control of the Northern Territory the newly renamed Town of Darwin was the largest settlement with a population of barely 1082 people, excluding Indigenous people. It was a ‘male’ town with there being 2.6 men for every woman (Commonwealth Statistician 1911, Vol 1, part XVI Territories).

of Greater Darwin. Finally from 1991 the Darwin statistical division which includes the municipalities of Darwin, Palmerston and Litchfield was used.

\textsuperscript{54} Population: 201 in 1871; 285 in 1876, 572 in 1881, 1176 in 1891 and 1106 in 1901
According to Donovan, archival records reported that there was a total of 1,380 people within an 8 kilometre radius of Darwin in April 1911; of which 72 per cent were males, 32 per cent were Chinese, 27 per cent were European and 18 per cent were Aboriginal with the rest of the population being a mixture of people from Asia, the Pacific and even ‘Zanzibar Negroes’ (Donovan 1984, p. 4).

It has been suggested that the early population estimates of Darwin were decidedly ‘fuzzy’ (Sager 1993, pp. 4.5). There were many reasons for this. Firstly, there was the transient nature of the population. Secondly, many people were homeless or lived in make-shift structures which would make it more difficult to undertake a systematic head count. Thirdly, Indigenous people were not enumerated.

These were fairly unstable times. When WWI was declared in 1914 many of the men joined the Defence Forces and left town. By 1920 unemployment was high in the Darwin area with the closure of Vestey’s meatworks, the only major employer apart from the public service. This marked the onset of a local depression in Darwin which preceded the global depression in the 1930s. The 1921 Census records the population (non-Indigenous only) as remaining small (1399), and still predominantly male (66 per cent) reflecting the distressed times. The 1933 Census again showed little growth in population (1566), of which 58 per cent were males. Darwin’s civilian population remained small, predominantly male and highly transient. Even the public service sector was transient because some public servants used a ‘self-imposed exile’ in Darwin as a career step (Bridgman 2003, p 3). The gender ratio revealed the relative absence of white families.

During the 1930s Darwin became a garrison town. By 1939 the population had grown to 3653, boosted by the construction activities associated with the Defence force (Powell 2009, p. 130). Just as the civilian population was growing, including an increasing proportion of women, WWII commenced. Following the bombing of Pearl Harbour and the fall of Singapore most of the women and children (over 2000) were evacuated by early February 1942. The last group of women and children left on 18 February and most of the remaining civilian population left on the next day after the first bombing of Darwin.
Therefore few civilians remained in Darwin during WWII. A memorandum from the Australian Workers Movement reported that there were 51 civilians\textsuperscript{55} in Darwin on 18 July 1944. Three months earlier, on 20 April 1944, the number of defence personnel, including ‘civilians’ and ‘natives’ was recorded to be 49,216 (Donovan 1984, p. 149).

Figure 6.1 shows the dramatic increase in civilian population after the end of WWII. There was nearly a threefold increase between 1947 and 1954 (290.4 per cent). Although growth slowed between 1961 and 1971 (39.6 per cent), Darwin’s growth accelerated between 1966 and 1971 during which there was 72.0 per cent increase, an annual increase of 14.4 per cent. No doubt part of this increase can be attributed to the fact that Indigenous people were included in the Census count for the first time in 1966. Darwin was finally growing into a modern city.

Even when Cyclone Tracy destroyed most of the city in December 1974, the population recovered quickly so that by the 1976 Census the population was 43,344, and had nearly reverted back to the pre-Tracy figures\textsuperscript{56}, although this was a combination of people returning to Darwin as well as newcomers helping to rebuild Darwin. Again, between 1981 and 1986 there was a 29.1 per cent increase, an annual increase of 5.8 per cent. During this time the gender gap gradually closed so that the male to female ratio was 1.1 by 1986; this was significant in that it indicated that Darwin had become a city of families with natural population growth occurring as a result of family formation and children being born.

What these figures do not reveal is the internal migration statistics. The 1986 Census began to record the place of usual residence one year and five years ago. A specially commissioned compilation of ABS statistics from the 1986 to 2006 Census, relating to place of usual residence one year and five years ago, was commissioned

\textsuperscript{55} This excluded employees of the Allied Works Council and government department officers.

\textsuperscript{56} In June 1974 the population of Darwin was estimated to be 46656 (Darwin Reconstruction Commission 1975, p. 1)
in part for this thesis. The following analysis will concentrate on the period from 1991 when data were available for the municipalities of Darwin, Palmerston and Litchfield as SLAs. The comparison of the three SLAs provides insights into their different demographics.

**POPULATION AND GROWTH – DARWIN, PALMERSTON AND LITCHFIELD (S) - PTB**

In 2011 the populations of Darwin, Palmerston and Litchfield (S) -PtB were 72,930, 27,706 and 17,464 as recorded by the Census.

Figure 6.3 shows the percentage change in population of Statistical Local Areas (SLAs) of Darwin, Palmerston and Litchfield (S) – PtB from the 1991 through to the 2011 Census.

![Figure 6.3 Percentage change in population of SLAs over Census periods from 1991 to 2011](image)

Although Darwin had a significantly higher population than the other two SLAs, the growth rate was substantially lower than for Palmerston and Litchfield between 1991 and 2006 (3.6, -0.7, 4.7 and -3.5 per cent). In fact in the period between 1996 and 2001, and again between 2006 and 2011, the population actually fell. Palmerston on the other hand recorded very high growth rates, especially between 1991 and 2001 (53.1 and 63.0 per cent), although growth rates slowed after that.
(14.7 and 16.2 per cent). Litchfield also showed high growth rates between 1991 and 2011 (35.6, 10.6, 9.9 and 13.7 per cent).

This chapter will analyse the population growth in Darwin, Palmerston and Litchfield in terms of migration: both overseas and internal, from available data sources.

**OVERSEAS MIGRATION**

Figure 6.4 shows the numbers of Australian and overseas born residents living in the Darwin region reported by the Census from 1947 to 1991. It is evident that overseas migration made a considerable contribution to population growth in the Greater Darwin area, and generally constituted about a quarter of the population growth. The Northern Territory, over the period 1947 and 1991, attracted a higher than average proportion of overseas born people (Skinner et al. 1994, p. 10) as compared with the rest of Australia.

![Figure 6.4 Numbers of Australian and overseas born in Darwin from 1947 to 1991 Census figures](image)

From 1991 to 2006, using the place of usual residence five years ago statistics, it was possible to assess the overseas arrivals into Darwin, Palmerston and Litchfield (S) – PtB. Figure 6.5 shows the overseas arrivals to the Darwin, Palmerston and Litchfield (S) - PtB SLAs in the five year period prior to the Census from 1991 to 2006. It is evident that Darwin received the most overseas arrivals; in excess of 2500 people. Palmerston received an increasing number of overseas arrivals from 156 in...
1991 to 430 people in 2006. Litchfield (S) - PtB received a small but consistent flow of overseas arrivals.

The Census since 1996 has reported about 15 per cent of residents in Litchfield as overseas born. The highest proportion of these residents came from the United Kingdom, followed by New Zealand and then Asia. Thus overseas immigration contributes to a small but consistent increase of the population in Litchfield.

![Graph](image_url)

**Figure 6.5** Overseas arrivals by Census year by SLA from 1991 to 2006

It is not possible from the Census data to gauge what drives this in-migration of overseas born into Litchfield.

**INTERNAL MIGRATION**

The other two contributors to population growth are natural increase (where births exceed the number of deaths) and a second is internal migration (migration between different locations within Australia). For the purposes of this thesis, which seeks to establish whether counterurbanisation occurred, the migration from urban to rural areas, the main focus of the analysis is on internal migration.

**In-migration**

Table 6.1 shows the migration into the three SLAs of Darwin, Palmerston and Litchfield (S) - PtB, based on data relating to locations of where people resided five
years previously at the time of the Census from 1991 to 2006. The in-migration patterns for the SLAs are quite different. Table 6.1 also shows the total population at the time of the Census which indicates the number of residents who had remained in the same SLA over the five-year period preceding the Census.

The Darwin intake came predominantly from interstate with more coming from capital cities than rural areas. There was also a marked contribution from other parts of the Northern Territory and from overseas. There was a small trend for the in-migration from Palmerston and Litchfield (S) - PtB to increase. Over the four Census periods the extent of in-migration declined which is interesting because the period following 2001 was a more buoyant time in Darwin.

Palmerston also had a large intake, although lower than Darwin’s intake from interstate, with a small tendency for more people to come from non-capital cities. Many of the new residents to Palmerston came from Darwin. This possibly reflected housing preferences and the fact that Palmerston was one of the few locations where new single detached family dwellings were available. The overseas intake was much lower than for Darwin. Over the first three Census periods the in-migration increased as new housing came on the market. This slightly slowed for the period between 2001 and 2006 as the subdivisions were completed.

The Litchfield (S) - PtB patterns are more complex. In 1991 and 1996 a high proportion of newcomers to Litchfield came from Darwin, but this tended to decline over the next two Census periods, while the number of newcomers from Palmerston increased. This is evidence of people moving from an urban setting to a rural setting; of counterurbanisation. There were also people arriving from other parts of the Northern Territory, possibly reflecting a preference for a less urban setting than Darwin itself.

\[57\text{ By subtraction of in-migration from the total population}\]
Table 6.1 In-migration by SLA by Census years

<table>
<thead>
<tr>
<th>Place of usual residence five years ago</th>
<th>Darwin (% of in-migration)</th>
<th>Palmerston (% of in-migration)</th>
<th>Litchfield (S) –PtB (% of in-migration)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (N)</td>
<td>70072</td>
<td>72622</td>
<td>72142</td>
</tr>
<tr>
<td>In-migration(N)</td>
<td>20988</td>
<td>21185</td>
<td>19099</td>
</tr>
<tr>
<td>Darwin</td>
<td>26.8</td>
<td>34.5</td>
<td>28.1</td>
</tr>
<tr>
<td>Litchfield (S) -PtA</td>
<td>1.3</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Litchfield (S) -PtB</td>
<td>5.4</td>
<td>6.3</td>
<td>7.8</td>
</tr>
<tr>
<td>Other Northern Territory</td>
<td>11.2</td>
<td>13.8</td>
<td>14.8</td>
</tr>
<tr>
<td>Capital City</td>
<td>38.2</td>
<td>38.6</td>
<td>33.5</td>
</tr>
<tr>
<td>Non-capital City</td>
<td>28.3</td>
<td>29.4</td>
<td>30.7</td>
</tr>
<tr>
<td>Overseas</td>
<td>16.3</td>
<td>12.6</td>
<td>13.3</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

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Litchfield (S) - PtB had the lowest proportion of people coming from interstate (over 30 per cent) with a trend for more people to come from non-capital cities areas. These data suggest that the residents of Litchfield were more likely to be longer term residents of the Darwin area. However, there was a trend for the interstate migration to increase (from 33.8 to 40.7 per cent) over the four Census periods.

The in-migration from other parts of the Northern Territory also made a contribution to all the SLAs, especially in 2001. It is known that there was an economic downturn at that time, so possibly people gravitated to Darwin from other parts of the Northern Territory in search of employment.

**Out-migration**

Table 6.2 shows the out-migration from each of the SLAs based on the locations where people resided at the time of the Census who had resided in Darwin, Palmerston or Litchfield five years previously. The table shows the location to which people migrated for each SLA in each Census period. Again the out-migration patterns for each SLA are quite different.

Darwin residents were more likely to move interstate and more likely to move to a capital city. Only a small percentage moved to Palmerston or Litchfield (S) – PtB or other parts of the Northern Territory. The out-migration rates decreased over the four Census periods.

Palmerston residents were marginally less likely to move interstate than Darwin residents. Slightly more of those who moved interstate, moved to a non-capital city location. There was a declining trend to move to Darwin and to a lesser extent to Litchfield (S) – PtB. It is also evident that out-migration increased over the four Census periods.

Litchfield (S) - PtB residents were least likely to move interstate although approximately 50 per cent did. When they did, they were more likely to move to a non-capital city. Possibly these people were returning to where they originally came, which would suggest that they had come from less urban areas, and they selected Litchfield as a place to live because it was also rural.
Table 6.2 Outmigration by SLA by Census year

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<td>55960</td>
<td>54245</td>
<td>52403</td>
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<td>Out-migration(N)</td>
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<td>20967</td>
<td>20329</td>
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<td>0.3</td>
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<td>Litchfield (S) - PtB</td>
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<table>
<thead>
<tr>
<th>Place of usual residence at the time of the Census</th>
<th>Palmerston (% of out-migration)</th>
<th>1991</th>
<th>1996</th>
<th>2001</th>
<th>2006</th>
</tr>
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<tbody>
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<td>10399</td>
<td>16995</td>
<td>18122</td>
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<tr>
<td>Out-migration(N)</td>
<td></td>
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<td>3033</td>
<td>5026</td>
<td>8050</td>
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<tr>
<td>Darwin</td>
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<th>Place of usual residence at the time of the Census</th>
<th>Litchfield (S) –PtB (% of out-migration)</th>
<th>1991</th>
<th>1996</th>
<th>2001</th>
<th>2006</th>
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</table>
Population turnover and Migration Effectiveness Ratio

To understand the implications of these migration patterns it useful to look at population turnover and the Migration Effectiveness Ratio (MER). Population turnover measures the combined flows of in-migration and out-migration in relation to overall population and provides an indication of the population ‘churn’. Another measure of internal migration is the MER which compares the total net gain or loss to the total number of moves. Table 6.3 shows the population turnover and the MERs for the three SLAs over four intercensal periods. These data sets were compiled from unpublished data extracted from commissioned ABS DataPacks.

Darwin had high rates of population turnover but the MERs indicated that in-migration tended to be matched with out-migration so that there was actually little overall variation in the population numbers. Interestingly, although small numbers, Darwin lost population in 1986-1991, 1996-2001, and 2001-2006. This reflects the high mobility rates of short term stayers in Darwin, many of whom are employed in the Commonwealth Government Public Service or are Defence personnel. The departures on the other hand tend to be of people who are older and unemployed or not in the workforce, as would be the case in retirees.

‘The Territory tends to attract labour through government transfer and the other employment opportunities it offers, but once out of the workforce, many people leave for other parts of Australia’ (Bell and Hugo 2000, pp. 87-88).

The increase in population in Darwin between 1991 and 1996 can be attributed to the relocation of Defence personnel to Darwin in the early 1990s.

Palmerston also had a high population turnover but the MERs showed that there were significant population gains across the first three intercensal periods until 2001-2006 when there was a small decline: 15.5%, 35.9% and 32.2%, -2.6%. The large increases would have been due to people moving into the new subdivisions in Palmerston. This slowed by 2006, as subdivisions and housing were largely completed.
The population turnover of Litchfield (S) - PtB was over 50 per cent for all intercensal periods, but the MERs showed significant population gains until 2001 after which there was little effective in-migration.

Table 6.3 Comparison of population turnover and migration effectiveness ratios 1986 -2006

<table>
<thead>
<tr>
<th></th>
<th>Arrivals</th>
<th>Departures</th>
<th>Net moves</th>
<th>Gross moves</th>
<th>Population</th>
<th>Population turnover</th>
<th>Effective Migration Ratios</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1986-1991</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Darwin</td>
<td>20988</td>
<td>21735</td>
<td>-747</td>
<td>42723</td>
<td>70072</td>
<td>61.0</td>
<td>-1.7</td>
</tr>
<tr>
<td>Palmerston</td>
<td>3545</td>
<td>2593</td>
<td>952</td>
<td>6138</td>
<td>8328</td>
<td>73.7</td>
<td>15.5</td>
</tr>
<tr>
<td>Litchfield (S) - PtB</td>
<td>3,046</td>
<td>1748</td>
<td>1298</td>
<td>4794</td>
<td>9310</td>
<td>51.5</td>
<td>27.1</td>
</tr>
<tr>
<td><strong>1991-1996</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Darwin</td>
<td>21185</td>
<td>20967</td>
<td>218</td>
<td>42152</td>
<td>72622</td>
<td>58.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Palmerston</td>
<td>6,434</td>
<td>3033</td>
<td>3401</td>
<td>9467</td>
<td>12750</td>
<td>74.3</td>
<td>35.9</td>
</tr>
<tr>
<td>Litchfield (S) - PtB</td>
<td>4,347</td>
<td>2,503</td>
<td>1844</td>
<td>6850</td>
<td>12629</td>
<td>54.2</td>
<td>26.9</td>
</tr>
<tr>
<td><strong>1996-2001</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Darwin</td>
<td>19096</td>
<td>20329</td>
<td>-1226</td>
<td>39428</td>
<td>72142</td>
<td>54.7</td>
<td>-3.1</td>
</tr>
<tr>
<td>Palmerston</td>
<td>9795</td>
<td>5026</td>
<td>4769</td>
<td>14821</td>
<td>20788</td>
<td>71.3</td>
<td>32.2</td>
</tr>
<tr>
<td>Litchfield (S) - PtB</td>
<td>3817</td>
<td>3622</td>
<td>195</td>
<td>7439</td>
<td>13969</td>
<td>53.3</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>2001-2006</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Darwin</td>
<td>16949</td>
<td>18721</td>
<td>1772</td>
<td>35670</td>
<td>75546</td>
<td>47.2</td>
<td>-5.0</td>
</tr>
<tr>
<td>Palmerston</td>
<td>8455</td>
<td>8050</td>
<td>-437</td>
<td>17075</td>
<td>23848</td>
<td>71.6</td>
<td>-2.6</td>
</tr>
<tr>
<td>Litchfield (S) - PtB</td>
<td>3799</td>
<td>3556</td>
<td>243</td>
<td>7171</td>
<td>14322</td>
<td>51.5</td>
<td>1.4</td>
</tr>
</tbody>
</table>

In 2006, the ABS found that the rates of population turnover for Darwin\textsuperscript{58}, Palmerston\textsuperscript{59} and Litchfield (S) - PtA were among the eight Australian highest

\textsuperscript{58} Inner City and City remainder

\textsuperscript{59} Palmerston (City)
population turnover SLAs\(^60\) (Australian Bureau of Statistics 2008). In fact the Northern Territory had 11 SLAs in the top twenty population turnover SLAs.

In terms of the SLAs, the turnover rates for Darwin, Palmerston, Litchfield (S) -PtA and Litchfield (S) -PtB were 99.6, 117.7, 129.3 and 63.6\(^61\) per cent respectively. Litchfield (S) -PtB ranked 612 out of 1309 in terms of turnover Australia-wide. The mean turnover rate for all SLAs was 64.3 and the median rate was 62.1. This put Litchfield (S) -PtB very close to the mean and median rates for Australia.

Characteristics of high turnover SLAs were: a high labour force participation rate; a high percentage employed in the Public administration and safety sector; high percentage of rented dwellings; a relatively young population; and having more males than females. The contribution of the military and mining sectors were prominent factors in turnover (Australian Bureau of Statistics 2008).

The Litchfield (S) -PtB turnover rate was significantly different from that of Darwin, Palmerston and Litchfield (S) -PtA.

Table 6.4 Percentage of renters by SLA

<table>
<thead>
<tr>
<th>Census year</th>
<th>Darwin</th>
<th>Palmerston</th>
<th>Litchfield (S) -PtB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>50.1</td>
<td>52.3</td>
<td>16.3</td>
</tr>
<tr>
<td>2001</td>
<td>46.1</td>
<td>48.0</td>
<td>17.5</td>
</tr>
<tr>
<td>2006</td>
<td>44.8</td>
<td>45.1</td>
<td>15.2</td>
</tr>
</tbody>
</table>

Table 6.4 shows the proportion of renters in the SLAs of Darwin, Palmerston and Litchfield (S) – PtB. The proportion of residents renting in Litchfield (S) – PtB is significantly lower than in Darwin and Palmerston. This is because of the relative lack of rental accommodation. Medium density accommodation is virtually limited

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\(^60\) The statistics excluded people aged 0-4 years and those who did not state where they lived 5 years ago.

\(^61\) The turnover rate for the publication was different from the turnover rate in Table 6.3 because the data were’ estimated on a different basis from the 2006 Census count’ (Australian Bureau of Statistics 2008, p. 2).
to former public housing in Humpty Doo; the majority of dwellings in Litchfield are detached houses.

Table 6.5 Percentage of males in the Public administration and safety industry sector

<table>
<thead>
<tr>
<th>Census year</th>
<th>Darwin</th>
<th>Palmerston</th>
<th>Litchfield (S) - PtA</th>
<th>Litchfield (S) - PtB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>18.5</td>
<td>14.3</td>
<td>31.3</td>
<td>11.5</td>
</tr>
<tr>
<td>2001</td>
<td>19.6</td>
<td>24.6</td>
<td>79.4</td>
<td>11.5</td>
</tr>
<tr>
<td>2006</td>
<td>20.9</td>
<td>28.2</td>
<td>72.3</td>
<td>11.8</td>
</tr>
</tbody>
</table>

Table 6.5 shows the proportion of males employed in the Public administration and safety industry sector, which includes Defence. Unsurprisingly Litchfield (S) - PtA shows a significantly higher numbers of residents in this industry, being the location of Robinson Barracks. But Litchfield (S) - PtB shows the lowest number of males in the industry.

This suggests that the residents of Litchfield (S) - PtB are less transient because they are less likely to be in the Defence Forces and more likely to be home owners or purchasers than the residents of the other SLAs.

**Role of housing and availability of residential land**

In the background to these migration statistics is the fact that the availability of housing and residential land plays an important role in people’s movements. Most of the growth in Palmerston was determined by the Northern Territory Government’s land release program. Palmerston was a satellite city established in 1983 and has accommodated virtually all the new large greenfield development for detached housing for Greater Darwin since then.\(^62\)

The private sector has played a stronger role in in-fill development in Darwin. The availability of housing and land in Litchfield was predominantly led by private developers, although on a smaller scale. Chapter 6 documents the number of subdivisions and the number of lots created between 1959 and 2010.

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\(^{62}\) Two Defence Housing Australia (DHA) subdivisions in the northern suburbs of Darwin are the exceptions.
Housing affordability may have played a role in these migration patterns, but this was beyond the scope of this study.

**Other possible explanations for internal migration patterns**

The results show lower in-migration rates for Litchfield (S) -PtB, but more of these people were coming from Darwin and Palmerston which suggests they were longer term residents of the region moving out to Litchfield. The reasons for this in-migration to Litchfield cannot be deduced from these data, although from Chapter 4 it is evident that many people have moved to Litchfield seeking a rural lifestyle, freedom and privacy.

In contrast there are other possible explanations for out-migration. Figures 6.5 through to 6.9 show the age pyramids for Litchfield (S) - PtB from the 1991, 1996, 2001, 2006, and the 2011 Census. The relative lack of 20 to 34 year olds is conspicuous.

The loss of younger people from Litchfield conforms to the more common patterns of younger people migrating to cities for more life experience, employment, education or access to a city lifestyle. From the above analysis of migration patterns for Litchfield (S) - PtB residents it is evident that they are less likely to move interstate than residents in Palmerston and Darwin.

There are only three secondary education colleges in Litchfield, all in the northern part of the municipality. The two university campuses in Greater Darwin are at Palmerston and in the northern suburbs of Darwin. Public transport to and from Litchfield is extremely limited; students are ‘bussed’ in or parents drive their children to school. Some parents also send their children to boarding schools in Darwin to minimise the time and effort of travel. It is reasonable that part of this out-migration is due to children and/or their families migrating out to obtain better access to secondary school and university educational opportunities.
Figure 6.6 Age pyramid for Litchfield (S) - PtB in 1991

Figure 6.7 Age pyramid for Litchfield (S) - PtB in 1996
Housing affordability and access to rental housing stock is another possible explanation. From Table 6.5 above there are significantly fewer renters in Litchfield (S) – PtB than in Darwin or Palmerston. There is very little medium density housing in Litchfield, and most of the rental stock is virtually limited to detached housing. This might preclude younger people from gaining access to housing. Possibly they will move into back into Litchfield when they are older with sufficient assets to afford more expensive housing. Another explanation for out-migration would be
people returning to interstate locations. This cannot be corroborated from these Census data.

It would appear that only a small amount of out-migration from Litchfield would be aged or older people. The age pyramids suggests that the population is getting older which indicates aging in place. Anecdotally it is known that some older residents have moved to Darwin or Palmerston, to have better access to services, or because they have decided a two or eight hectare block is too large to manage. Because public transport is almost limited to Coolalinga and Humpty Doo bus interchanges; having a car is an essential part of living in Litchfield. In terms of major services, people still need to commute to Darwin and Palmerston, although there are small service centres at Howard Springs, Berry Springs and Coolalinga. For more serious medical needs people have to visit Darwin. Little of the out-migration would be related to moving to an age care facility because there are limited housing opportunities for older people, as in retirement villages, hostels and nursing homes.

63 There are only five aged facilities from independent living to high care facilities in Darwin and Palmerston. There are no aged facilities in Litchfield.

Figure 6.10 Age pyramid for Litchfield (S) - PtB in 2011

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63
Because the aged sector of the population in regional Darwin has been relatively small there has not been a high demand for aged housing. This has changed in more recent times and the Northern Territory Planning Department and the Council on the Ageing are aware of the need to make greater provision for aged housing. Therefore, it is not envisaged the movement of elderly people to aged care facilities would be a large component of the out-migration.

It is also evident from the age pyramids that not only are there more men than women, but there are more older men than older women. This supports the proposition that this is aging in place because mobility tends to decline with age. As to whom they are, Robyn Lesley, the Chief Executive Officer (CEO) on the Northern Territory Council on the Ageing said:

‘Firstly there was a lot of migration of single men and couples out of Darwin or from bush communities (usually where people were contractors for a time) back in the 1970s and 1980s. Additionally there were a number of males who fell into the ‘old style rugged individual’ category (some due to over use of alcohol etc.) who chose to live outside of an urban framework. Many of these men have aged in place, whether as singles or with partners. While there are a lot of trades/contractors there is also a wide cross section of individuals from other backgrounds, many who enjoy the acreage’ (Lesley 2012).

COMMUTING

Journey to work data are another significant indicator of who the Litchfield residents are. Table 6.7 shows the workplace destinations of Litchfield residents according to the 1996, 2001 and 2006 Censuses. What is clearly evident is that more than 60 per cent of Litchfield workers are commuting to work to another destination outside the Municipality of Litchfield. These commuters may conform to Mitchell’s concept of ‘exurbanisation’ where people continue their relationship with the city while being able to enjoy life in a rural setting (Mitchell 2004).
It is thought that most of those working in Litchfield (S) - PtA would be Defence personnel, although since 2006 there has been a further expansion of industrial uses in this locality. The ‘other Northern Territory’ and ‘other Australia’ categories possibly can be accounted for by ‘fly-in fly-out’ people in occupations such as mining, but who live in Litchfield.

The number of people working in Litchfield (S) - PtB is a significant finding in that there are few large employers in the municipality. This suggests that these people may be self-employed, and most likely would be trades people. This is corroborated by the fact that the Employment type in the 2006 Census indicated that 25.7 per cent of men and 13.8 per cent of women were self-employed.

Table 6.6 Journey to work (destination) for Litchfield residents from 1996, 2001 and 2006 Censuses

<table>
<thead>
<tr>
<th>Destinations (%)</th>
<th>Census year</th>
<th>1996</th>
<th>2001</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Census year</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>5559</td>
<td>7400</td>
<td>7545</td>
</tr>
<tr>
<td>City</td>
<td></td>
<td>22.5</td>
<td>15.9</td>
<td>16.3</td>
</tr>
<tr>
<td>Industrial</td>
<td></td>
<td>12.6</td>
<td>9.0</td>
<td>9.8</td>
</tr>
<tr>
<td>Inner Suburbs</td>
<td></td>
<td>6.3</td>
<td>6.5</td>
<td>3.8</td>
</tr>
<tr>
<td>Northern S</td>
<td></td>
<td>12.8</td>
<td>8.4</td>
<td>9.3</td>
</tr>
<tr>
<td>Darwin (undefined)</td>
<td></td>
<td>0.0</td>
<td>1.1</td>
<td>2.2</td>
</tr>
<tr>
<td>Palmerston</td>
<td></td>
<td>7.3</td>
<td>9.7</td>
<td>11.1</td>
</tr>
<tr>
<td>Litchfield (S) - Part A</td>
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<td>4.0</td>
<td>13.9</td>
<td>10.9</td>
</tr>
<tr>
<td>Litchfield (S) - Part B</td>
<td></td>
<td>23.6</td>
<td>24.5</td>
<td>24.1</td>
</tr>
<tr>
<td>Other Northern Territory</td>
<td></td>
<td>9.8</td>
<td>9.7</td>
<td>10.7</td>
</tr>
<tr>
<td>Other Australia</td>
<td></td>
<td>1.0</td>
<td>1.4</td>
<td>1.8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**SUMMARY**

The analysis of the Census data has attempted to plot the migration of people in and out of Litchfield, and to make comparisons with the adjoining SLAs. The amount of data available was somewhat limited until the 1991 Census.

To summarise the demographic profile, the average age of Litchfield residents is increasing and displays aging in place. There are slightly more men than women, but the gender imbalance is declining. Although there is a range of occupations...
from professionals to labourers there are a large percentage of men who work as labourers or in a trade, many of whom are self-employed, and many working in Litchfield. The attraction of Litchfield to a trades person or a contractor is that the larger lot sizes allow for the storage of plant and equipment. The larger lots also allow for some industrial activity providing it does not cause off-site impacts.

Women seem to belong to two groups; those in professions and those in white collar work. Most of these jobs are not in Litchfield. From this it follows that there is much commuting to jobs in Darwin and Palmerston.

Although there is an ongoing turnover of Litchfield (S) - PtB residents on the whole they are less mobile than Darwin and Palmerston residents. In fact in contrast to other Australian SLAs they seem to display about the average rate of population turnover in relation to mobility. Overall the data suggest that the residents of Litchfield (S) - PtB are less likely to move out of the locality and, if they do move out, they are more likely to stay in the Darwin region and less likely to move interstate than the residents of Darwin or Palmerston. Although it is difficult to state definitively who these people are, it is strongly suspected that many of them are young people, leaving for common reasons of education, employment, or other worldly experiences. Some of the out-migration would be older people who have decided that their two or eight hectare block is too large to be managed or because they need to be closer to services, especially medical services. The statistics clearly show that the majority of workers commute, although a sizeable percentage of people who work locally are likely to be trades people.

It is evident, because the population of Litchfield is less transient than the Darwin and Palmerston counterparts that Litchfield is likely to contribute to the long term growth of the Greater Darwin region.
Chapter 7
Spatial Analysis

INTRODUCTION

This chapter looks for data to answer the question of how Litchfield, Darwin’s hinterland, was settled. Three sources of empirical data were used to describe how the hinterland developed between 1869 until 2010. The three sources were:

- the cadastral database of the Northern Territory Department of Lands, Planning and the Environment
- the sales prices of land and improvements from Australian Valuation Office (AVO) from 1986 to 2011
- the joint Australian Government Bureau of Rural Sciences and the Northern Territory Government Revised Land Use Mapping of the Northern Territory 2008 project across Litchfield.

SUBDIVISION PATTERNS

The Northern Territory cadastral database was used to map and measure the development of private land in the Litchfield municipality. A variable was generated to reflect the last date of the issuing of the title for each land parcel. In most cases of private land, this reflects the date when the lot was subdivided. In a small number of cases this date may reflect the creation of an easement or consolidation. In the case of Crown land or government land⁶⁴, it could reflect a variety of circumstances, including subdivision⁶⁵, but also a change in the conditions of a

⁶⁴ Crown land is land that has not been alienated from the Crown, while government land is freehold land, which has been alienated from the Crown and is owned by the Government.

⁶⁵ There were only a small number of subdivisions by the Government land for residential purposes in Litchfield. This was a public housing estate in Humpty Doo, and will be discussed later in this Chapter. All other Government residential subdivisions occurred in Darwin and Palmerston.
pastoral lease, conversion to a reserve, or the conversion of lands to Aboriginal Land Trusts under the *Northern Territory Aboriginal Rights Act 1976*.

To refine the analysis so as to focus on land subdivision of private land, Crown land, Government land, pastoral lease land, and Aboriginal lands were excluded from the analysis (see Appendix 3).

![Figure 7.1 Number of lots subdivided from 1959 to 2010](image1)

![Figure 7.2 Area subdivided (hectares) from 1959 to 2010](image2)

Very few subdivisions occurred in Litchfield before 1959. There were 356 land parcels at June 2010 which still retained the original Goyder layout. There was a
small number of changes (8) to title of the Goyder lots before 1959, mainly for the creation of road reserves, but essentially the boundaries of the lots did not change.

Figure 7.3 Median area of lots subdivided from 1959 to 2010

Figure 7.1 shows the number of lot subdivided (changed in land tenure) per annum from 1959 to mid-2010 and Figure 7.2 shows the total area of private land (hectares) subdivided from 1959 to 2010. Both figures mainly reflect the number of lots created and the area of land subdivided in each year. The graphs show a pattern of peaks and troughs, which probably reflect supply and demand with the market adjusting, so that as lots were purchased additional lots were brought onto the market.

Figure 7.3 shows the median area of land subdivided. What is clearly evident is that the median changed between the 1973 and 1977, in 1996 and in 2001.

It was decided, through analysis of policy and planning documents, to attempt to determine what the local events were influencing these subdivision patterns.

Subdivision slowly commenced with individuals tracking down the owners of the Goyder lots, or inheriting them. The first subdivisions of the Goyder blocks occurred between 1959 and 1963. This was a new phenomenon in Darwin with the Commonwealth only allowing private subdivision of leasehold land in town for the first time in 1961 (NTRS2500/P1, April 1961). After 1964, the number of
subdivisions in Litchfield grew, possibly because people realised that it was a relatively easy process. There were few subdivision controls in the early years. There was a stipulation that each lot had to have its own road access. Apart from that, as long as the boundaries of the parent parcel did not change, the new lots did not have to be surveyed. Changes came after the Nimmo Inquiry in 1974 which recommended that more stringent controls be established to prevent sales of lots before subdivisions were registered by the Registrar-General. This was to ensure that purchasers were buying land serviced with roads and drainage. Purchasers were not legally able to take up their title if the works had not been undertaken. So, between 1959 and 1974, subdivision would have been relatively easy. From Figure 7.1 it is evident that the rate of subdivision was increasing with a peak in 1973 of over 200 lots being created. What is significant is that the median size of lots was increasing and this reflected the number of larger lots created for horticulture.

It is also evident that there was a peak in both the number of lots created and the number of hectares subdivided in 1977. There was a trough in 1975 following Cyclone Tracy.

‘Destruction of Darwin by Cyclone Tracy in 1974 provided a catalyst for significant settlement of many existing 2 and 8 hectares lots. People, escaping the vulnerability of Darwin, were attracted by the availability of freehold land as opposed to the leasehold system prevailing in Darwin, the absence of rates and land use controls and the perceived immunity from interference with lifestyle caused by closer settlement’ (Northern Territory Department of Lands and Housing 1990b, p. 6).

Thus there had been a take-up of existing lots, but the above data suggest that there was also a surge in subdivisions after the cyclone. No doubt the chaos following the cyclone would have slowed the processing of subdivision in rural areas, but 1976 and 1977 showed a new peak. It is suggested that part of these subdivision patterns reflected a desire to move further away from the coastline and from cyclone-prone land. This will be discussed later in this section.

The plummeting number of subdivisions from 1978 to 1979 can possibly be explained by self-governance. The Northern Territory achieved self-governance in
July 1978. One of the first steps taken by the new Government was to change the leasehold land within the Town of Darwin to freehold. The newly formed Cabinet set about to reform the housing market and may have made changes regarding subdivisions in the rural area. Certainly after 1979 and until 1987 there was a boom in subdivisions in Litchfield. It is also notable that the Municipality of Litchfield was formed during this period.

Both figures show that in 1988-89 there was a drop in the number of subdivisions. Interestingly it was reported that 1989 aerial photography of Litchfield had showed that 1,500 lots of subdivided land were currently vacant. This constituted approximately 38 per cent of subdivided land in Litchfield (Northern Territory Department of Lands and Housing 1990b, p. 25).

The fall in numbers of subdivisions in 1988-89 can possibly be explained by the lead up to the introduction of the Litchfield Land Use Structure Plan 1990 (Northern Territory Department of Lands and Housing 1990b) which set out the policy context for the development of the municipality. Possibly in the lead time before the introduction of the Structure Plan, the Government delayed processing subdivisions. Changes had been foreshadowed in draft planning documents, and the report noted that there had been a growing demand for one hectare lots. Ultimately the Government chose not to support this option because of opposition from local residents, the high costs of providing infrastructure across the fragmented landscape of different densities and the potential for ground water pollution. The peak in 1992 and 1993 may be explained by the processing of deferred subdivision applications, as well as new subdivisions coming on line with clearer policies which encouraged two hectare subdivisions in Howard Springs, Bees Creek and Humpty Doo, and promoted eight hectare subdivisions in the southern part of the municipality.

From 1995 to 1996 there was a trough, possibly where oversupply occurred, followed by another boom. Notably there was a creation of a number of larger lots in 1996 which explained the large increase in the median lot size shown in Figure 7.3.
From 1997 to 2000, production of lots remained relatively high followed by a slump in the years 2000 to 2003 which were times of an economic downturn in Darwin. Again in 2001 the median lot size increased as larger lot subdivisions occurred.

This was quickly followed by more buoyant times led by the resource sector during the construction of the ConocoPhillips liquid natural gas plant, and the construction of the Waterfront Precinct at Darwin Harbour. Since 2005 the rate of subdivision has slowed.

**MAPPING OF PRIVATE LAND SUBDIVISION PATTERNS**

ArcGIS was used to map the subdivision patterns in Litchfield over the decades using the Northern Territory Government’s cadastral database with the computed variable of the date of the last change in land tenure (which usually meant subdivision). See research methods in Chapter 2.

**1959 – 1969 Subdivisions**

Figure 7.4 Location of subdivisions of private land, 1959 - 1969
Figure 7.4 maps the locations of subdivisions which occurred between 1959 and 1969. There were two types of subdivisions. First there were the smaller ‘rural residential’ lot subdivisions with lots being approximately two hectares in area, and which were generally created closer to the city. Rural residential lots can be considered amenity blocks created for people who want space and a rural ambiance. The second is where ‘rural living’ lots have been created with lots being eight hectares or larger. These subdivisions are more dispersed and are in locations such as Lambells Lagoon, Berry Springs and Livingstone. Some of these lots were to become the base of the new horticultural industry, especially at Lambells Lagoon and Berry Springs. These lots provide smaller rural lot holdings with a potential for some horticulture. Note that excepting Koolpinyah there was no potential for other agricultural pursuits apart from horticulture, such as cropping, because the lots were too small and the rainfall throughout the year was too low.

**1970 – 1979 Subdivisions**

Figure 7.5 shows the subdivisions occurring between 1970 and 1979. This period included Cyclone Tracy; the emergence of the embryonic horticultural industry, growing mangoes and melons; and self-governance in the NT. In this period there was a peak in the creation of eight hectare rural living lots. Figure 7.2 shows that subdivisions were occurring much further south in the municipality. Part of the pattern can be explained by people moving further from the coastline to avoid cyclones, which are fuelled by the ocean.  

66 In fact, the distances that people moved inland to would not necessarily protect them from cyclone damage. Cyclone Monica, a severe tropical and Category 5 cyclone, was predicted to pass over Darwin on 24 April 2006, and people were encouraged to evacuate Darwin. Although the cyclone weakened, its path diverted south and the lands in the hinterland sustained substantial damage.
Figure 7.5 Location of subdivisions of private land, 1970 – 1979
Figure 7.6 Location of subdivisions of private land, 1980 - 1989

Figure 7.6 shows the subdivision patterns between 1980 and 1989. This shows increasing in-fill of sites across the municipality. The smaller lots (two hectares) are being developed in the northern part while larger lots (eight hectares and more) are being developed in the southern area. Interestingly there was little expansion in Lambells Lagoon, which was the centre for horticultural activity during the 1980s, but there was new horticultural activity to the south at Acacia Hills emerging at this time.
1990 – 1999 Subdivisions

Figure 7.7 Location of subdivisions of private land 1990 - 1999

Figure 7.7 maps the further subdivision across the municipality between 1990 and 1999. There were considerable numbers of two hectare subdivisions in the north in Girraween, McMinns Lagoon and Humpty Doo.

This figure also shows the considerable creation of larger blocks in the Lambells Lagoon and Berry Springs areas for increased horticultural activity. There is also considerable expansion in the Livingstone area in the south of the municipality for horticulture.
Figure 7.8 Location of subdivisions of private land, 2000 - 2009

Figure 7.8 shows the most recent changes in lots which were issued a new title from 2000 until 2009. It is evident that some of these parcels do not display subdivision, but reflect a change in title because of other factors such as a boundary realignment or small excisions.

Smaller lot subdivisions (two hectares) still occurred in Humpty Doo and Herbert in the north, and larger lot subdivisions occurred in the south in Livingstone and Acacia Hill, but the pace of development has slowed because possibly the amount of private developable land is decreasing, and also the available land is possibly subject to constraints such as water logging.
Cumulative development 1959-2009

Figure 7.9 shows the cumulative development of private land in Litchfield as at 2009. The two hectares subdivisions in Howard Springs, Girraween, Virginia, Bees Creek, Humpty Doo, Herbert and McMinns Lagoon are essentially now on the fringe of urban development. These locations are nearly fully developed in terms of subdivision with limited opportunities for further subdivisions at higher densities because of a lack of reticulated services (sewer and water).

![Cumulative subdivisions, 1959-2009](image)

In 2010, the Northern Territory Labor Government mooted that Noonamah was one location poised for development in association with the proposed new satellite
town of Weddell (Northern Territory Government 2010).^{67} Some of this land is constrained by its proximity to the Elizabeth River and is prone to water logging.

More distant locations (20 to 40 kilometres to the south) at Acacia Hills, Berry Springs, Darwin River, Lambells Lagoon and Livingstone, many of which are centres of commercial horticultural activity, contain larger lots in excess of eight hectares. These may accommodate the demand for rural residential blocks in the future.

**LAND SALES**

Digitised land sales statistics for the Municipality of Litchfield were provided by the Commonwealth Government’s Australian Valuation Office from January 1986 through to end of 2010. Appendix 3 describes how the data were prepared for analysis.

As noted above, the database does not identify the level of development on the land, so some parcels may be vacant and some may have a house and other improvements. For the purposes of this analysis of sales figures it is assumed that the value of improvements would average out over the particular location. For instance, in the more developed areas of Humpty Doo it is more likely that the parcel would have a dwelling on it. In more remote areas such as Fly Creek the parcel would be more likely to be vacant land.

Figure 7.10 shows the number of sales by locality from 1986 to 2010 in five year cohorts. Humpty Doo, Howard Springs, Herbert, Virginia and Girraween show the highest number of sales, even after 2006. All of these localities are within easy commuting distance of Darwin^{68}. The number of sales reflects in part the extent to which subdivisions have occurred in the locality and the number of lots available for purchase. Figure 7.10 shows that more remote areas had fewer sales: Acacia Hills, Fly Creek, Tumbling Waters and Lloyd Creek. Acacia Hills has recorded more sales recently because it has become a new horticultural district.

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^{67} A conservative Government came into power in the Northern Territory in August 2012.

^{68} Within half an hour now that the new freeway extension has been completed.
Figure 7.10 Number of sales by locality within Litchfield, 1986-2010
Figure 7.11 Price adjusted for CPI by locality within Litchfield from 1986 to 2010
Figure 7.1 shows the sales prices for the different localities over the different time periods adjusted for the 2011 Consumer of Price Index (CPI)\(^{69}\). This shows the large increases in sales prices from 1986-1990 to 2006-2010. Hughes recorded the lowest price increase which was a threefold increase, while Southport recorded the highest, a 15-fold increase. Howard Springs, Berry Springs and Humpty Doo recorded between a six to seven-fold increase. For places further away such as Acacia Hill and Livingstone there were increases of five and seven times the prices of 1986-90.

These price increases reflect the strong demand for these lots as well as the limited supply.

**Median price per square metre**

Appendix 3 contains the data which show the number of sales and the median price per square metre. Figure 7.12 shows the median sale price per square metre adjusted for CPI across the localities.

Unsurprisingly, the most expensive lands are those closer to the urban centres: Berry Springs, Girraween, Herbert, Howard Springs, Humpty Doo and McMinns Lagoon. On the other hand, Southport, the small coastal village on the Blackmore River that was once the staging place for both the early surveyors and then those seeking gold, by the end of 2001, and again in 2010, has emerged as having the most expensive land per square metre in the municipality, although the number of sales is relatively small. Most of these sales would have been for vacant land. In 2010 and 2011, the Litchfield Municipality had a forced sale by auction to retrieve rates unpaid by absentee owners. The buyers’ interest in this historic settlement appears to have driven up the price per square metre to $58.70, nearly twice the unit price in Howard Springs. But, by contrast, the overall sale price for Southport land is considerably lower reflecting that the lots were likely to be vacant, were smaller and certainly not serviced.

\(^{69}\) See Appendix 3 for the method used to compute the CPI adjustments
Figure 7.12 Median sale price per square metre adjusted for CPI by locality within Litchfield
The increases in prices over the five time periods are significant, especially so with the 2006-10 period. It is evident that prices have approximately doubled since the 2001-05 period. Bees Creek and Howard Springs consistently exceeded the median price per square metre for all sales which suggest that these areas were the most keenly sought. Also these areas, being the longest settled, are more likely to have a building or improvements on the lots to increase the median price per square metre. The prices for the 2007-2010 period are probably consistent with the substantial price increases for residential properties in the urban areas of Darwin during the same period. This reflects the combination of the high demand for both urban and rural properties and the low supply.

**CURRENT LAND USES**

The joint Australian Government Bureau of Rural Sciences and the Northern Territory Government *Revised Land Use Mapping of the Northern Territory 2008* project was used to describe the land uses across Litchfield using the Australian Land Use Management (ALUM) Classification (Version 6). This was a very rich source of information, not only because there has been a high level of attention to ‘ground truthing’ to achieve a greater than 80 per cent accuracy benchmark, but also because of the fine-grained land use descriptions.

Table 7.1 shows the range of land uses across the municipality in 2008 by lot and area. The hinterland truly displays multifunctionality.

Figure 7.13 maps the land uses across Litchfield. The most telling feature of the data is that 66.5 per cent of the land is taken up for conservation purposes; this comprises land (58.5 per cent) and water (7.9 per cent) resources. This also includes land which is actively managed to protect surface and ground water sources and traditional Indigenous uses. In fact the amount of conservation land is an over-estimate because it includes land in Weddell which, although possessing residual native vegetation cover, is ear-marked for residential development in 2014. This is discussed in more detail below.

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70 Both for water supply and catchment protection
Grazing of natural vegetation is the next highest use (18.9 per cent) and occupies more than 67,000 hectares of Litchfield. Much of this would be associated with Koolpinyah pastoral station on the eastern boundary of the municipality.

Residential use is the third highest use of land, occupying 13,569 hectares, although it only amounts to 3.8 per cent of the area.

Table 7.1 Land uses across Litchfield using the ALUM classification in 2008

<table>
<thead>
<tr>
<th>Land use</th>
<th>Number of lots</th>
<th>Hectares</th>
<th>N (%)</th>
<th>Hectares (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conservation</td>
<td>4153</td>
<td>208674.6</td>
<td>31.7</td>
<td>58.5</td>
</tr>
<tr>
<td>Defence</td>
<td>65</td>
<td>11934.3</td>
<td>0.5</td>
<td>3.4</td>
</tr>
<tr>
<td>Grazing - natural vegetation</td>
<td>64</td>
<td>67314.8</td>
<td>0.5</td>
<td>18.9</td>
</tr>
<tr>
<td>Forestry</td>
<td>8</td>
<td>395.5</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Grazing - modified pastures</td>
<td>368</td>
<td>4794.4</td>
<td>2.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Cropping</td>
<td>99</td>
<td>1284.7</td>
<td>0.8</td>
<td>0.4</td>
</tr>
<tr>
<td>Horticulture</td>
<td>23</td>
<td>70.1</td>
<td>0.12</td>
<td>0.0</td>
</tr>
<tr>
<td>Land in transition</td>
<td>938</td>
<td>5509.6</td>
<td>7.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Irrigated pastures</td>
<td>3</td>
<td>68.7</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Irrigated cropping</td>
<td>2</td>
<td>1.5</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Irrigated horticulture</td>
<td>1225</td>
<td>5856.2</td>
<td>9.3</td>
<td>1.6</td>
</tr>
<tr>
<td>Intensive horticulture</td>
<td>19</td>
<td>33.0</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Intensive animal production</td>
<td>29</td>
<td>475.6</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>102</td>
<td>82.3</td>
<td>0.8</td>
<td>0.0</td>
</tr>
<tr>
<td>Residential - urban</td>
<td>95</td>
<td>131.8</td>
<td>0.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Residential - rural</td>
<td>5100</td>
<td>13437.7</td>
<td>38.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Services</td>
<td>143</td>
<td>1089.1</td>
<td>1.1</td>
<td>0.3</td>
</tr>
<tr>
<td>Utilities</td>
<td>131</td>
<td>1069.3</td>
<td>1.0</td>
<td>0.3</td>
</tr>
<tr>
<td>Mining</td>
<td>55</td>
<td>1998.5</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td>Waste treatment</td>
<td>7</td>
<td>44.9</td>
<td>0.1</td>
<td>0.0</td>
</tr>
<tr>
<td>Water - conservation</td>
<td>369</td>
<td>28274.6</td>
<td>2.8</td>
<td>7.9</td>
</tr>
<tr>
<td>Water - production</td>
<td>118</td>
<td>4045.0</td>
<td>0.9</td>
<td>1.1</td>
</tr>
<tr>
<td>Total</td>
<td>13116</td>
<td>3565858</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Defence uses occupy nearly 12,000 hectares and 3.4 per cent of Litchfield. Most of the Defence land is confined to Shoal Bay which is a Defence training area, but there are also Robertson Barracks and telecommunication stations.

Horticulture (irrigated land and non-irrigated land and intensive use areas) is the next major land use, occupying 1.6 per cent of the land or 5,959 hectares. Water
production (dams) occupies 1.1 per cent of the land or 4,045 hectares. Other residual uses include a small manufacturing sector, community services, utilities and infrastructure, and mining and extraction.

This database also includes land ‘in transition’ (1.6 per cent) which is essentially degraded land, some of which is being rehabilitated.

**Land ownership patterns**

To complement the data relating to land use, the major land owners or managers – Commonwealth Government, Northern Territory Government, Local Government and Aboriginal Land Trusts - have been plotted in Figure 7.14 using ArcGIS and the cadastral database. Most of the uncoloured sections of the map display the privately owned land in Litchfield. Overall this picture of ownership shows that most of the land has already been committed, and the Northern Territory Government owns most of this land and manages the land to protect natural habitats and aquifers.

Although Koolpinyah Station occupies a large section of land in the study area, much of this land is unsuitable for residential development because of waterlogging. Also Koolpinyah has a perpetual pastoral lease over it and is subject to native title claims, which would militate against changing land tenure arrangements for closer settlement. Similarly, the Commonwealth held land parcels are also constrained by waterlogging, although the Commonwealth would be unlikely to relinquish its Defence training grounds.

Possibly, the rural residential land uses impose the greatest constraint on the development potential of Litchfield. The land holdings are mainly in private ownership and are fragmented. The land is not serviced with reticulated sewer or water and the servicing of this land is economically unviable. It is unlikely that there will be large scale reconfiguration of these lots to enable higher densification to occur.
Figure 7.13 ALUM classification for Litchfield
Figure 7.14 Major land owners and managers
The former Northern Territory Labor Government released a Rural Village Development Discussion Paper in 2011 which stated that:

‘A fundamental consideration in determining a framework for future development in the rural areas is the recognition of the validity of the choice of those who consider lots less than 2 hectares are a threat to the rural lifestyle, identifying specific sites for more intense development creates choice, while also respecting and protecting attractive characteristics of various lifestyles’ (Northern Territory Government 2011, p. 5).

Also because of the limited development options in the existing rural residential areas, the former Northern Territory Government was proposing that the next major land release area would be at Weddell, commencing in 2014.

**Weddell**

The ‘Weddell Urban Growth Area’ is approximately 6,000 hectares in area, although because of the significant constraints only two-thirds of this has the potential for residential development. These constraints include high conservation values, biting midge and mosquito habitats, waterlogging, heritage and archaeological sites, storm surge, existing major infrastructure corridors and a private airfield.

Weddell was originally identified as a location for urban development in 1984 but was proposed to commence lot ‘turn off’ in 2014 and ultimately house 50,000 people. However, in August 2012 the Country Liberal Party came into power in the Northern Territory. To date no policy statements about urban growth and development of Greater Darwin have been issued by the new Government.

**SUMMARY**

Subdivision patterns provide clear evidence that Litchfield has predominantly been developed for low density residential land uses. It was driven by an amenity occupancy of land first and foremost.

From the mapping of subdivisions over time it is evident that there is limited land available for ‘rural residential’ or two hectare subdivision in the northern part of the municipality. Many of the remaining undeveloped parcels are subject to waterlogging, although some of the waterlogging prone lot which have been
inappropriately subdivided (Fulton, Fuguitt & Gibson 1997; Wild-River 2002). Planning controls are in place that require at least one hectare, within a land parcel being subdivided, to be ‘unconstrained’, i.e. free of waterlogging. Because of these limitations more distant locations (20 to 40 kilometres to the south) are now being subdivided for residential purposes.

The limited supply has also driven up the prices of land. It is expected that these high prices are causing people to look further south in search of cheaper rural residential land. But this may necessitate trade-offs between buying cheaper land (per square metre) and having to purchase a larger block (minimum eight hectares), and requiring a large financial input for a dwelling and infrastructure. There is also the trade-off of distance to services, although because these localities are connected to service centres by the Stuart Highway with a speed limit of 130 kilometres per hour 71 travelling times can be relatively short (30 minutes).

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71 South of the Arnhem Highway
Chapter 8
Productivist Occupance

INTRODUCTION

Holmes described the productivist occupance of the Darwin region as ‘flimsy’ which allowed amenity occupance to take hold (Holmes 2010a, p. 77). This chapter will seek to provide a detailed analysis of the occupance of the hinterland after white settlement began, to critically analyse Holmes’ interpretation and to explain whether there was a ‘flimsy’ hold of primary production on marginal land. This chapter will also analyse some of the Commonwealth’s attempts to establish an agricultural industry, as opposed to pastoral activities. For convenience the term ‘agriculture’ will be used here to describe non-pastoral activities of an agricultural nature (cropping and horticulture). This chapter will seek to answer the following questions:

What was the nature of agricultural pursuits in the hinterland? What spurred the establishment of agriculture and horticulture in the hinterland?

‘THE NORTHERN MYTH’

Paraphrased, the Northern Myth is the paradox that northern Australia is seen as a tropical paradise, a ‘cornucopia’ or the ‘northern food bowl’, yet in actual fact this promise has consistently failed to be realised. The expression was coined by Bruce Davidson, an agricultural economist, who argued that there were major limitations in agricultural and pastoral development in northern tropical Australia (Davidson 1972, pp. 1.2).

Davidson concluded that, despite the desire to establish agricultural production to help settle the north, this was based on a myth because northern Australia could not commercially compete with the southern states due to factors such as climate, remoteness and lack of labour.
INQUIRIES AND RESEARCH INTO AGRICULTURAL PROSPECTS

The Commonwealth recognised that agriculture in the Northern Territory was problematic, and established many inquiries into primary production and land tenure in a desire to make the Northern Territory self-sufficient and prosperous.

Payne and Fletcher Inquiry, 1937

The Payne and Fletcher Inquiry had the task of reporting on existing land tenures throughout the Territory, and methods whereby the lands could be made more productive (Board of Inquiry 1937). The report addressed closer settlement and agriculture.

Payne and Fletcher argued that there were four factors which militated against closer settlement and development of an agricultural industry: unsatisfactory rainfall distribution; limited good soils; absence of markets near to production; and the difficulty of attracting good agriculturalists to the Territory (Board of Inquiry 1937, p. 77). The inquiry found that it was unlikely that the Northern Territory would carry an appreciable agricultural population. But the report did acknowledge that land near Darwin had the potential for market gardens, although the land had been alienated and left unused by absentee landholders. The inquiry saw potential in these lands for agriculture, and recommended that they be assessed and those suitable for agriculture be resumed by the Commonwealth. This provides clear evidence that there was an absence of farming in Litchfield in 1937.

But the recommendations of Payne and Fletcher report languished because of the advent of WWII and the subsequent build-up of the garrison town of Darwin took precedence.

Northern Australia Development Committee, 1945–1949

Following the end of WWII, the Northern Australia Development Committee (NADC) was established and first met in January 1946. The Committee was chaired by Dr H. C. Coombs, the Director General of Post-War Reconstruction. The Committee’s terms of reference included consideration of how to: increase the population, improve Indigenous health and welfare, increase the value of production and
establish the best utilisation of the lands and other resources. One of the driving motives for establishing the Committee was national security (Northern Australia Development Committee 1947).

In the first report to the Prime Minister, Coombs summarised the causes of the lack of development of northern Australia as remoteness, the seasonal rainfall, and importantly a lack of continuity in policies and a failure to commit sufficient resources (Northern Australia Development Committee 1947).

An early view of the committee was that there needed to be long term strategic planning managed by a single agency. Ironically the Committee was superseded in May 1949, after only three years, by the Meat Production Development Committee, which was established to oversee an agreement with the United Kingdom for the long term supply of beef.

Coombs, in an address 30 years later, revealed that the Committee’s efforts may have been doomed because it lacked a:

‘(G)enuine understanding of, an intuitive sympathy with, the climatic and territorial environment of the North. We were southerners, and Europeans, and never got over the sense of being in a somewhat alien and hostile environment when we were in the north. ... We assumed that enterprises which were to provide the basis for development would be owned and controlled by absentees, managed and conducted largely by temporary residents and directed to markets abroad. ... There was nothing organic in the growth we planned for: it was fundamentally to be based on extractive and exploitative techniques’ (Coombs, H.C. cited in Bauer 1977, pp. 8.9).73

72 All the land north of the Tropic of Capricorn

73 The quotation is taken from proceedings of a two day symposium compiled by Bauer.
Forster Committee, 1959-1960

In 1959, the Forster Committee was appointed by Paul Hasluck, the then Minister for Territories. The terms of reference required the Committee to survey the state of agriculture in the Northern Territory, and to report on the ‘prospects of promoting agricultural settlement on an economic basis in the Territory’ (Forster Committee 1960, p. i).

The report referred to agricultural leases as being the predominant tenure for ‘small agricultural’ holdings around Darwin, Katherine and Alice Springs and other towns, many of which had failed. The report described many of the small agricultural leases around Darwin as ‘resident farmlets’, rather than full-time commercial farms (Forster Committee 1960, p. 153).

The Forster report also commented on the absentee landowners in Darwin’s hinterland. While it was not seen as a ‘problem of great urgency’, the report implied that these lands might have a potential use for agricultural purposes (Forster Committee 1960, p. 152).

This provides fairly compelling evidence that there was still an absence of agriculture in Litchfield, in Darwin’s hinterland, in 1960.

North Australian Research Unit, 1977

A seminar organised by the North Australian Research Unit (NARU) of the Australian National University (ANU) to analyse why cropping had failed in the Northern Territory was held in 1977 (Bauer 1977). Dr J.H. B. Christian, one of the presenters, attributed the failure of post-war cropping projects to:

- poor selection of site, crops and technology
- poor project management
- unfavourable economic factors such as inputs, supplies, transport, storage, processing and marketing
- lack of social amenities

74 These were located close to the city in what are now Darwin suburbs.
• unfavourable aspects of regional and industry planning such as lack of infrastructure

• the fact that those seeking to establish agriculture in the Northern Territory had never gone through a pioneering phase with any crop, and had sought to replace this phase by importing technology (Christian 1977).

**Council for Rural Research and Extension, 1981**

In 1981, another report was prepared by the Commonwealth Council for Rural Research and Extension (CCRRE) to investigate the opportunities for agriculture in northern Australia\(^{75}\). This research reported on a number of unsuccessful attempts at large scale cropping, and cited the Tipperary Land Corporation River Basin, Willaroo Station and Territory Rice in the Northern Territory. The report listed the same factors, without acknowledgement, that Christian had listed five years previously.

While accepting that all these factors played a role, it was felt the factor of the ‘greater significance’ was that they ‘were attempts to initiate agriculture *de novo*, well outside the limits of agriculture at that time’ (Commonwealth Council for Rural Research and Extension 1981, p. 108).

**Northern Australia Land and Water Taskforce, 2009**

More recently, a Taskforce was established to investigate the longer term, strategic potential for development in northern Australia, and the capacity of the north to play a role in future agricultural production (Northern Australia Land and Water Taskforce 2009). The Taskforce undertook a survey of lands across Northern Australia, and found that only small percentage (40,000-60,000 hectares of 120 million hectares) of the Top End of the Northern Territory had ground water available and suitable soils for agricultural production (Northern Australia Land and Water Taskforce 2009, p. 21). Similarly, in 1946-47, a CSIRO report had found that

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\(^{75}\) Land above Tropic of Capricorn in Western Australia, the Northern Territory and Queensland, adjusted for Administrative and statistical division boundaries.
only a fraction of the soils in the Katherine-Darwin region had any agricultural potential (Christian & Stewart 1953).

THE EXPERIENCE OF AGRICULTURAL PURSUITS

Army farms

The Army established its own farms to produce vegetables to feed the troops (Hillock 2005, p. 373). Donovan (1945) reported that there were 14 farms; none of the Army farms was located in Litchfield. The closest to Darwin was the successful farm on the Coomalie Creek operated by Verburg and his family, which the Army compulsorily acquired. He reclaimed it after WWII and was successfully producing vegetables again by 1948. A farm at Katherine was converted to the CSIR farm. All the other Army farms were disbanded by 1945 (Donovan 1984, p. 141).

The Army farms operating during WWII were seen as an outstanding success and managed to feed an estimated 58,200 defence personnel in 1944. They were a success because they had labour, a market and transportation. In 1944, the Army farms at Adelaide River, Hayes Creek, Coomalie Creek and Katherine, from 300 acres for vegetables and 70 acres for tropical fruits, produced a total of 1,660 tons of fruit and vegetables (Northern Territory Scientific Liaison Conference p. 48).

Many people saw the success of the Army farms as evidence that the Top End could be productive. However, they were successful because of the right combination of factors such as labour, suitable land and, most importantly, a reliable source of water. Powell points out that the labour workforce was mainly Aboriginal, and that there was ‘no need to consider the cost of production’ (Powell 2009, p. 149).

It is salient that although some Army farms were kept going after WWII, they eventually failed due to deficient distribution and transport arrangements.

77 Imperial measure
Production in Aboriginal communities

Another example of successful agricultural production occurred on the Aboriginal missions and settlements (‘communities’). In the late 1960s there were 32 communities in the Northern Territory (Stanley 1985, p. 176). Communities began to operate in the mid-eighteenth century and continued through to the late 1960s, where Europeans established centres for Aboriginal people, who were employed for minimum wages to grow food, muster, produce fodder crops, and make clothes and other products. This production was to support self-sufficiency of the community, but in some cases excess production was exported. In terms of the economic contribution to the Northern Territory, one study found that between 1963 and 1968 these communities were producing considerable quantities of the Northern Territory’s produce (Stanley 1985). In 1967-68 alone the communities produced 38 per cent of fruit and vegetables, 8 per cent of milk, 14.4 per cent of eggs, 29.4 per cent of seafood, and 12.0 per cent of fodder. Also, while in terms of the overall produce, the percentage of meat production was small, it still amounted to 620,153 net weight pounds (Stanley 1985, p. 178).

The significance of this is that small independent settlements did form and were self-sufficient, albeit in a feudal system where Aboriginal lives were under the total control of Europeans. Despite these communities’ considerable productivity, some for commercial distribution, this was not discussed in any of the previously cited studies and inquiries (Bauer 1977; Commonwealth Council for Rural Research and Extension 1981; Forster Committee 1960; Payne and Fletcher Report 1937).

Again, like Army farms, the success of these communities appeared to stem from the fact that there was a very cheap labour force. This is supported by the fact that once the Conciliation and Arbitration Commission determined in 1966 that award wages should be paid to Aboriginal people working on pastoral properties, production in these communities rapidly declined. Also the pastoralists reduced the employment by nearly a half (citing Phillpott, Stanley 1985). This decline in productivity was accelerated by the introduction of direct social welfare payments to Aboriginals in 1968.
The success of these agricultural ventures attests to the importance of a cheap and captive labour force. It also attests to the need to have a critical population mass which can produce enough to ensure community survival.

**Agricultural leases**

The ‘success’ of the Army farms spurred greater research into agriculture by the Northern Territory Administration and what became the CSIRO. An agricultural officer was appointed by the Northern Territory Administration in 1949. By then there was a small number of farms in today’s suburbs of Darwin supplying Darwin residents with fruit and vegetables. In 1954, the Berrimah Farm near Darwin was established as an agricultural research facility, and in 1955 the Northern Territory Administration established an Agriculture Branch.

The reports from the Director of Lands provide a fairly detailed description into land releases and the forays into agriculture and horticulture from 1948 until 1970. From monthly agricultural reports it is apparent there was commercial agriculture in the Darwin area at this time. In 1948, agricultural leases in Berrimah were providing Darwin residents with poultry, eggs, fruit and vegetables (Northern Territory Administrator’s Report 1948, p. 10). By June 1951, there was the first evidence that commercial agricultural development for export to southern states was taking place (Northern Territory Archive Services, June 1951).

In an attempt to measure agricultural endeavours the Agricultural Leases database held by the Northern Territory Lands Information Branch database was analysed. The analysis is contained in Appendix 4. To summarise, the analysis found that between 1885 and 1975:

- 25.5 per cent of agricultural leases had been issued in, what are now, Darwin suburbs
- Of the leases in Darwin and its suburbs 74.7 per cent of these were issued in the 1950s, but by the 1960s they had been gradually subsumed by urban growth of the northern suburbs

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78 A total of 697 leases
• 38.8 per cent had been issued in southern parts of the Northern Territory where there were better soils, an availability of water from rivers and more conducive climatic conditions than in the Darwin area.

With regard to Litchfield only 2.7 per cent of leases had been issued in the area surrounding Darwin, of which only ten leases were issued after WWII in Noonamah. This appears to be the first evidence of the Government seeking to establish agriculture in Litchfield on what may have been Goyder lots. Notably the Elizabeth River passes through Noonamah, which would have probably provided a water supply to the lots.

In 1951, the correspondence reported that three sites for experimental farms had been selected. The CSIRO was operating agricultural research stations at Katherine, and at Beatrice Hill, and the third one at Humpty Doo was for rice experiments. The CSIRO continued to operate its research station at Katherine until 1990 when it was transferred to the Northern Territory Government.

The evidence points to a relative absence of agriculture in Litchfield, and the most likely explanation for this is the fact that the majority of land was freehold and held by absentee owners. Even when Government was pursuing agriculture in Litchfield in the 1950s with the research stations, critically the sites selected for the experiment farms were excisions from Koolpinyah, and were not on freehold land. Another explanation for absence of agriculture may have been that the Goyder lots were too small.

**Tipperary Rice Limited**

The production of rice in Litchfield has achieved fame as one of the spectacular agricultural failures in the history of the Northern Territory.

The Agriculture Officer completed his investigation into the history and possibility of rice growing in the Northern Territory in October 1950 (NTRS 2500/P1). In 1953, the

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79 Beatrice Hill was initially established by the NT Administration and then transferred to the CSIRO in 1960.
Northern Territory Administration began constructing levees at Humpty Doo to retain water and rice was sown (NTRS 2500/P1). At this stage there had been discussions between the Commonwealth Government and an Australian/American company regarding growing rice on the sub-coastal plains to the east of Darwin on the Adelaide River.

It would appear that the project was fundamentally flawed from the outset. The site had never been properly surveyed, despite being a condition of the contract and repeated requests by the Government to provide a survey (NTRS 3341 1956-1957). Ground levels and topography would have been critical to the success of rice growing to design levee banks and control water and salt levels and this was proven to be so. The project was seen to be plagued with problems of water management.

Conditions of the lease relating to areas of rice sown were not met. As early as October 1957, Archer, the Administrator, expressed concerns that Territory Rice Limited ‘may be running into default’ (correspondence dated 14.10.1957, NTRS 3341 1956-1957).

In fact clear warning bells were sounded about the suitability of the sub-coastal plains for rice production in 1953. A report on the survey of the Katherine-Darwin Region by the CSIRO expressed concerns about the heavy clays and the capacity to cultivate the area when wet (Christian & Stewart 1953, p. 125). Later, in 1977, Christian, one of the original authors of the above report, commented that the Rice Project had been advised to keep the acreage small until sufficient experience had been gained but this advice was ignored because that was not ‘the business approach’ (J. H. B. Christian cited in Bauer 1977, p. 28).

In actual fact the lease signed by the Commonwealth and Territory Rice specified the annual acreage at the outset (Mollah 1982). Moreover, the Commonwealth had agreed to provide not only seed, but to undertake research into different rice varieties and rice growing techniques, hydrological and other research to underpin the project. As such the Commonwealth was complicit in the targets set.

There were indications that the project was over-capitalised. Over-sized harvesting machinery was chosen by the project which collapsed the levies. A large, very
expensive water pump was purchased but never used. Today it sits at Coolalinga, some 30 kilometres south of Darwin along the Stuart Highway, as a historic relic\textsuperscript{80}.

Although the failure of this rice project is commonly attributed to the native Magpie geese eating the rice crop, probably the more plausible explanations were that it was too large a project with too little expertise and, crucially, many of the key decisions were made elsewhere driven by shareholders’ needs. The project produced only 2,020 tonnes of rice during its five years of operation (Bauer 1977).

**AGRICULTURE POST SELF-GOVERNANCE**

**The Lapidge Reports**

In June 1978 the Northern Territory achieved self-governance and five months after self-governance, the newly formed Cabinet commissioned the Queensland Department of Primary Industry to carry out a study of the agricultural (or cropping\textsuperscript{81}) and horticultural industries in the Northern Territory.

Two reports were produced\textsuperscript{82} (Queensland Department of Primary Industries 1979, 1980) and provided a useful snapshot of the horticulture industry in the Northern Territory, and in particular in the hinterland of Darwin in the late 1970s.

The report described how the horticultural production area was located east of Darwin at Humpty Doo, Middle Point and Howard Springs, and south of Darwin at Berry Springs/Darwin River and Adelaide River. The eastern district in 1977-78 had nine full-time growers who were producing 34 hectares of vegetables and 6.5 hectares of fruit on an average of 4.5 hectares of cropping areas. The southern district had 9 full-time growers producing 54 hectares of vegetables and 2.5 hectares of fruit on an average of 6.3 hectares (Queensland Department of Primary Industries 1979, p. 16). The report also commented that there were numerous part-time growers particularly in the Howard Springs area (1979, p. 8). The actual size of

\textsuperscript{80} A plaque on the water pump describes the history of the pump.

\textsuperscript{81} For instance growing grains, sorghum or other pasture grasses

\textsuperscript{82} Referred to collectively as the Lapidge Reports
farms was small and presumably the land had been subdivided for rural residential purposes rather than for horticultural purposes exclusively.

This farming produce was grown for the local market, although some small quantities of bananas went to Katherine. These producers marketed their own produce (Queensland Department of Primary Industries 1979, p. 8).

At this time the Northern Territory Division of Primary Production had only one horticultural officer, the resources of which were stretched because of the enquiries not only from full-time producers but the ‘home garden’ enquiries from the increasing number of part-time producers (Queensland Department of Primary Industries 1979). This is evidence of hobby farming.

The report identified:

‘Almost all the 150 000 hectares of Freehold (sic) land in the Territory is situated in the Darwin region ..., particularly in the vicinity of Howard Springs and Berry Springs, have been the subject of a rapid subdivision into 4 to 10 hectares blocks to satisfy the demand for rural homesites for Darwin residents.

The availability of freehold blocks of land in the Darwin region should allow the prospective commercial grower ample opportunity to select the most appropriate site for an enterprise. However, past subdivision development has meant that some areas favoured with soil and water resources have been subdivided into blocks too small and too expensive for the commercial producer.

... Areas where the combination of suitable soils and irrigation water are available should be protected from subdivision into non-commercial sized blocks and reserved for the establishment of cohesive horticulture production areas’ (Queensland Department of Primary Industries 1979, p. 36).

This is possibly the first recorded instance in this context of a recognition of the need to protect potential agricultural lands from residential subdivision. At the time of this report the Litchfield Municipality had not come into existence, and there were no planning controls over freehold land which protected lands for agricultural purposes.
Following the release of the first interim report, the Northern Territory Government formed a working party to consider the findings in the reports. The working party recommended a comprehensive industry development scheme for the agriculture (cropping) industry with the two preferred projects in the Adelaide River and the Douglas/Daly areas projected to cost $9.4 million and $50 million respectively over a ten year period (Queensland Department of Primary Industries 1980, p.29-30).

In contrast to the large financial commitment given to agriculture (cropping) industry, the horticulture industry was essentially allocated three additional staff. Even though it was recognised that the horticulture industry had relatively little access to government services, such as research and extension from the Department of Primary Production and CSIRO it was felt in 1981 that:

‘... only in a few instances could they [Government] adequately, or justifiably, service the present horticulture industry’ (Agricultural Development and Marketing Authority 1981, p. 54).

The Douglas Daly projects proceeded in 1981-82 and failed, apparently within two years (Mollah 1985). Today the Douglas Daly scheme is cited as another one of the Territory’s ‘spectacular failures’.

In contrast, horticulture in Litchfield, while initially given little support from the Northern Territory Government, displayed a higher success rate. One of the first steps of the new government was to recruit three horticultural officers. According to one of these officers interviewed for this thesis:

‘In 1980 there were two main areas of activity; melons and mangoes. There were others. There were things like exotic fruits like rambutans, jack fruit and that sort of stuff. There was a stream on pineapples. There was a stream on bananas. There was a big stream on cashews. That failed. And on the annual cropping side there were lots of different cropping options but the main two were melons and mangoes’ (HA).

HA explained that the industry sought to exploit the out of season market niches where the Northern Territory could produce fruit ahead of other locations in Australia. When asked who drove the development of the horticulture industry, HA remembered:
'And a lot of it was driven by locals. Local business people so it wasn’t driven by farmers from down south. It was primarily driven by local farmers who said “I’ve got a bit of land and I come from a farming background.” But also at that time there was quite a bit of rural living. People liked to live out at Howards Springs. And there was already rural subdivision. So they said “We’ve got all this land. We might grow mangoes on it or something. We might grow flowers”’ (HA).

Another local (ID) remembered how the industry grew:

‘A few people had done it and sent fruit to the southern markets and got these amazing prices. … Everyone was going to plant mangoes for their superannuation’ (ID).

In discussing this local investment HA compared it to the Humpty Doo Rice Project.

‘Whereas the rice thing was dependent on finance from the bank, and they started big, so the locals started small and built up using cash flow from their businesses. And made mistakes, but the mistakes didn’t cost them a lot because they weren’t so big. If they made a mistake they wore it. But they were able to survive. Whereas the big corporate people they had to have cash flow within two years.’

The locals were also able to survive because they had other sources of income. One of the early larger mango growers ran a barge service, another was an accountant and another was into real estate; there were also public servants.

Over time the horticulture industry faced a number of challenges and changes. The melon industry was ground breaking at first, and then producers in Queensland and Western Australia entered the market with a competitive advantage of cheaper production costs, having better soils and access to water. The problems of increasing competition from other states were compounded when the melon industry was infested with Thrip palmi, which imposed quarantine restrictions around 1989. By the late 1980s most of the growers in the melon industry had gone out of business. After the demise of melons the industry moved onto seedless water melons which are more resistant to insects.

The Asian Green sector took off mainly spearheaded by the Vietnamese who arrived in the 1970s. As discussed in Chapter 5, the Vietnamese did not come from farming
backgrounds, but gravitated to farming because it did not require a proficiency in the English language or necessarily any other training. Ultimately, through business associations with wholesalers in the southern states, the Vietnamese established supply chains:

‘But that whole sector such as long beans, snake beans, bitter melon, long melons, loofah, kangkon, Thai basil. There are a whole suite of those crops that were grown in our winter when they couldn’t grow them down south. And it was all driven by the Vietnamese themselves. They got their own seeds. They found their own varieties. They developed their own system’ (HA).

At some stage the locals had to decide whether they were hobby farmers or commercial farmers. According to HA in the 1980s there would be a crowd of 300 farmers at mango meetings, whereas today it would be lucky if 20 attended.

The Government became proactive in the development of the horticulture industry. In 1983 the Territory Government prepared the 1983 Darwin Rural Area Plan. While agriculture was a defined use, there was no specific agricultural or rural zone.

By 1990, the Government had undertaken an investigation of lands suitable for horticulture with access to groundwater at Lambells Lagoon and Berry Springs. Lambells Lagoon and lots in Acacia Hills were exchanged as land swaps for the Malacca Swamp and Black Jungle, which became conservation reserves, excised from the Koolpinyah pastoral station. These land swaps occurred prior to the Native Title Act 1993 which came into operation in January 1994. This investigation also led to the creation of a Horticultural zone, ‘in order to protect these areas from development which jeopardises the horticulture potential of the land’ (Northern Territory Department of Lands and Housing 1990b, p. 30). Similar works were undertaken in Berry Springs where a Horticulture zone was created.

According to HA ‘there were a lot of conflicts in a planning sense between the farmers and people who wanted a rural lifestyle’. When the Government developed a land release program in the Lambells Lagoon area, it included buffers, as well as planning scheme controls which substantially reduced the conflicts.
In 2004 a survey of mango growers was conducted by the Northern Territory Department of Business and Industry Development (DBID) (Northern Territory Department of Business and Industry Development 2005). There were three groups: small, medium and large growers. The small and medium sized growers tended to be hobby farmers and had other income; they regarded making money from mangoes more as a bonus, than a livelihood. Eighty per cent of the growers were aged 50 years and over. Some were retired and were using mango growing to fund their retirement. The semi-retired or retirees realised that farming mangoes was becoming physically beyond their capacity, or alternatively was not large enough to generate sufficient income. Many wished to sell their properties, but were finding it difficult to obtain a sale price to cover their investment. The 2005 report concluded that increasingly the industry would see the departure of the medium sized enterprises.

Today the large commercial mango growers are located in southern parts of Litchfield where they have larger properties and infrastructure, such as packing sheds and transport operations, and employ companies who specifically deal with providing casual labour to meet industry demand. The other critical difference today is that these mango enterprises are controlled by people from outside Darwin, from other states and including overseas investors.

‘All new. There is only half a dozen of them. All very large. Very very large. Like turning over 8 to 10 million dollars a year. So very big business’ (HA).

Ultimately the restructuring of the mango industry may reshape the landscape in the inner rural parts of Darwin with the aging of the hobby farmers and their departure from the industry. Today old small mango farms are scattered through the northern part of Litchfield waiting to be converted to other uses.

In 2011 the value of the mango production was estimated to range from $45 million to $50 million annually, placing the Northern Territory as a major production area in Australia (Department of Resources 2011, p. 47).
A critical factor in the success of horticulture would seem to have been that it was locally driven. Importantly the horticulturalists were able to overcome some of the ‘traditional’ constraints that cropping faced, such as the distance to markets, and a lack of capital and labour. They could overcome these constraints because they were, at first, hobby farmers with other sources of income. Also they were small operators who provided their own labour and they had a market niche. The locals experimented through trial and error without large inputs from the Government and without scientific inputs from agencies, such as the CSIRO. Ultimately these hobby farmers controlled the decision making.

**SUMMARY**

From this chapter it is evident that the development of Litchfield did not follow the normal trajectory of primary production or the productivist mode of occupance being transformed by amenity or protectionist modes of occupance. It can be partially explained by the fact that the pastoral industry had failed to take up parcels of land. The occurrence of counterurbanisation can partially be explained by the low productivity of the land and relative absence of agriculture and cropping in Darwin’s hinterland until 1970s. But there is a third explanation, and one which possibly had the most important implication, and that is the matter of land tenure and the fact that the land in the hinterland was freehold.

Prior to WWII the Commonwealth focussed on riverside locations in southern parts of the Northern Territory with more temperate climates for agricultural pursuits. The Commonwealth’s agricultural projects were devised and managed remotely, and many never progressed beyond the first pioneering stage before failure. Many projects commenced *de novo*, and did not build on existing knowledge and experience or understanding of the site, the crops and the technologies. There was also a lack of local ownership, and little accountability for the outcomes of decisions.

By the 1980s it was evident that there was a horticultural industry in the hinterland which had emerged largely from people moving from Darwin to live in the hinterland. Following self-governance, the embryonic horticultural industry was
initially given little additional support by the Northern Territory Government in contrast to the cropping industry. Where the cropping industry continued to fail, horticulture began to thrive. It overcame some of the major impediments of cropping: access to water, labour force and capital inputs and commitment.

This scenario in terms of multifunctionality is possibly unique. The land was first developed by consumption values, from which evolved productivist values. That the development of Darwin’s hinterland first displayed amenity occupancy can be explained in terms of a unique combination of factors. Firstly the environment was harsh. Secondly the land was freehold, but seemingly abandoned by the original purchasers. Darwin remained a small remote town with limited road access until after WWII, stymied by World Wars and a depression, but sustained as a colonial outpost with Commonwealth funds.

After WWII, as evident from Chapter 6, the population rapidly grew, although faced with severe housing shortages and a regulated housing market. New roads made the hinterland accessible. People had cars and employment - they were able to buy freehold land and build houses on the hinterland lots; whereas access to land and housing in Darwin was constrained. They also were able to commute to the city for employment and supplies. This combination of factors led to the migration into the hinterland. This is why the development of Darwin’s hinterland, and the nature of its present-day occupancy, is different from that of other tropical savannas.
Chapter 9
Conclusions

This thesis has looked at the drivers of change in Litchfield in Darwin’s hinterland. The aim was to document the development of the hinterland, and explain what drove the settlement patterns. Two main theoretical concepts were used: multifunctionality and counterurbanisation. Multifunctionality has been used to describe the transformation of rural spaces through the mixture of production, consumption and protection modes of occupance. Counterurbanisation describes the out-migration of people from the city into the countryside seeking a rural lifestyle.

There were three research tasks, to:

- determine the migration patterns into the hinterland and whether they conform to Mitchell’s (2004) concepts of exurbanisation, displaced-urbanisation and anti-urbanisation and to amenity migration
- analyse the nature of settlement patterns and whether they can be described as urbanisation, counterurbanisation, population retention, or centripetal migration
- determine if there is a nexus between counterurbanisation and multifunctionality in the patterns of how the lands were occupied.

**COMPARISON WITH THE ‘MITCHELL MODEL’**

From the analysis of Census data, subdivision patterns, historic document analysis and interviews it has been established that European settlement occurred in Litchfield commencing in the 1950s. Many of the first out-migrants (people leaving Darwin for the hinterland) would have fallen within Mitchell’s classification of *exurbanites*; possibly more ‘affluent’ people moving out into rural areas, but retaining links with the city (Mitchell 2004). From the interviews it was a conscious move to achieve a lifestyle, and in some cases retain a lifestyle that was being challenged as Darwin became more ‘sophisticated’. The out-migration was aided by the subdivision of land into more manageable sized lots because these migrants
were not farmers. They were mainly commuters because there was little employment in the hinterland in the 1960s. Farming was yet to commence. People would have had to go to Darwin for supplies.

But there would appear to be an element of displaced urbanism where people moved to gain access to land and housing. Although Mitchell’s classification explicitly suggests that displaced urbanites are more likely to be of a lower socio-economic status than exurbanites, this does not allow for the element of choice. With the constrained housing options in the city, unregulated land in the hinterland would have been an attractive option. The ‘push’ and the ‘pull’ factors to some extent overlapped. This raises the point that possibly these two categories (exurbanites and displaced urbanites) cannot be sharply differentiated in this context. The movements in question would appear to be dependent on the availability of options for land and housing.

There was also some evidence for Mitchell’s ‘anti-urbanism’ from the account of the Chief Executive Officer on the Council on the Ageing that ‘old style rugged individuals’ went out to live in the bush without the social constraints of an urban setting.

The 2008 survey of Litchfield residents discussed in Chapter 5 provided further evidence of counterurbanisation (Michels Warren Mundy 2008). The responses revealed that people had moved to Litchfield for the rural lifestyle. They extolled the virtues of the peace and quiet, freedom, privacy and the amenity of the rural setting. Their comments also conveyed a sense of an opposition to urbanisation. Litchfield Council was established on a philosophy of maintaining roads, collecting rubbish and protecting reserves, and this is still exemplified in the Council’s logo.

Chapter 6, using Census data from 1991, provided evidence not only of migration into Litchfield, but also of migration out of Litchfield. The analysis found that the Darwin and Palmerston Statistical Local Areas (SLAs) exhibited the highest rates of population turnover in Australia. On the other hand, the turnover in Litchfield (S) - PtB was very close to the Australian average rate. Often the literature on counterurbanisation fails to discuss population turnover, especially where people
leave exurban or peri-urban areas. The most likely source of out-migration would have been younger people, which is consistent with common patterns of younger people migrating to the city or more urban areas for education, employment or life experiences. In addition, there was some out-migration to interstate destinations, although there is no way of discerning from the available data whether this is return migration or out-migration or the combination of both.

There is also evidence of the temporal nature of migration. As reported in Chapter 7, aerial photography in 1989 showed that approximately 38 per cent of subdivided land was currently vacant (Northern Territory Department of Lands and Housing 1990b, p. 25). Also the interviews provided information that people had weekenders or holiday homes. Following Cyclone Tracy some people moved their lots in the hinterland as a permanent residence. So the movement into the hinterland can be a staged process.

From this research there is evidence of, if not ‘chaotic’, at least a complex picture of migration patterns into and out of Litchfield.

**AMENITY MIGRATION**

To an extent the motivations of migrants can also be deduced from attributes of the locality. It is evident that there are some fundamental differences between Litchfield with regard to attributes which characterise locations that attract amenity migration (Argent, Smailes & Griffin 2007; McGranahan 2008).

Firstly Darwin residents have relatively little opportunity to access the seaside views because the coastline around and south of Darwin is lined with mangroves which are protected species. They are also the habitat of midges and mosquitoes, and as such the mangroves are a hostile environment for humans. Thus the hinterland is the only accessible option for amenity migration.

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83 This statement excludes Mandorah on the opposite side of Darwin Harbour which is about a 90 minute drive from Darwin, and at further southern settlements (Dundee Beach) which are about a three hour drive. These locations have classically beautiful tropical beaches and attract premium house and land prices.
Unlike amenity migration in southern parts of Australia where established settlements held attraction, the first migrants into Litchfield moved into bushland that had not been developed before. If McGranahan (2008) is correct the savannas possibly have an inherent attractiveness but there were no vistas as the terrain is fairly flat\textsuperscript{84}. There would have been few creature comforts at the outset. Climatically, living in the bush with the heat and humidity would have been difficult. Conditions would have been fairly primitive; the land was not serviced with essential services of power, water or sewer. Moreover, the area had virtually no human services or shops; this is unlike higher amenity areas.

The people who migrated out had to be self-sufficient, almost pioneering. Yet these, on the whole, were not ‘back to nature’ people. From Chapter 5 it was evident that the standard of living conditions in Darwin, even in the 1960s, were far from salubrious, so possibly Darwin residents were used to primitive living conditions. Even today the majority of Litchfield residents do not want some urban services, such as kerbside garbage collection or reticulated water and sewer supplies.

Yet the residents of Litchfield were still very much connected, or dependent on the services provided in Darwin. Most needed to commute for employment and supplies. Even today that dependency is evident, although less so. There are ‘villages’ with shops and banks scattered through the northern parts of Litchfield, but not the southern parts.

So the hinterland did not conform to many of the attributes normally associated with McGranahan’s amenity migration, apart from having a savanna landscape. From the interviews and the Litchfield resident survey (Michels Warren Mundy 2008), high in importance was the lifestyle, privacy, and the freedom away from the interference of other people and regulations.

\textsuperscript{84} These migrants were not moving into areas with the spectacular vistas of Kakadu (World Heritage Listed) and Litchfield National Parks which are outside of the commuting distance.
Thus in a number of ways the out-migration into Litchfield does not comply with the general literature on amenity migration.

**COMPARISONS WITH FISHER SETTLEMENT PATTERNS**

The subdivision patterns presented in Chapter 7 shows that residential uses became a dominant mode of occupancy of the hinterland from the 1950s. Fisher (2003) described the development and settlement process in the Adelaide region in terms of four patterns: suburbanisation, counterurbanisation, population retention and centripetal development.

From Chapter 7 and the mapping of subdivisions it is evident that suburbanisation did not occur in Litchfield. In the mid-1970s, post-Cyclone Tracy, new settlement was directed to Palmerston (then called Darwin East). Palmerston was the focus for suburbanisation; urban expansion with serviced lots on the fringe of the suburbs. In fact, until recently, there was only one small subdivision at Humpty Doo which had lots at an urban scale\(^85\).

The settlement patterns in Litchfield were consistent with counterurbanisation. Development in Litchfield was not contiguous with the urban settlement of Darwin. The subdivision patterns show that lots were predominantly divided into two to eight hectare parcels which were unserviced. It was evident from the 1970s that there was substantial Government support for the protection of the life-style of the residents in the hinterland (Comar 1975; Pak-Poy & Associates 1974). This support continued and was reflected in the 1984 and 1990 Regional structural plans (Northern Territory Department of Lands 1984; Northern Territory Department of Lands and Housing 1990a).

There was continual outward migration into Litchfield (S)- PtB, including a gain of people from overseas. Chapter 5 established through document analysis and interviews with long term residents of Darwin and Litchfield that people had

\(^{85}\) 1: 300 square metres The subdivision on the edge of the Humpty Doo shopping village was developed for a medium density public housing between 1982 and 1998. There are two residual lots undeveloped but zoned for medium density housing.
migrated into the hinterland, certainly by the 1950s. Chapter 6 showed that there
was clearly population retention, and aging in place; this contributed to the growth
of the Litchfield population.

Historically there would have been little centripetal movement of people from more
remote areas moving into Litchfield because the hinterland was so sparsely settled.
But today, with an ageing population, there is growing evidence of centripetal
movement from Litchfield into Darwin and Palmerston. There is a growing need for
aged care facilities in Litchfield (Lesley 2012). There is also anecdotal evidence of
older people moving from Litchfield to Darwin and Palmerston. As noted in
Chapters 5 and 6, the number of aged care places in regional Darwin is very small,
so that the opportunity for centripetal movements from Litchfield to obtain
residential aged care services is limited, although centripetal movements can
increase access to general health and community services.

THE NEXUS BETWEEN COUNTERURBANISATION AND
MULTIFUNCTIONALITY

This thesis documents the transformation of Darwin’s hinterland into a
multifunctional countryside, but in fact it was not through the displacement of
primary production. It was through a different trajectory from that proposed by
Holmes (Holmes 2010a). It was as if the hinterland passed from an Indigenous mode
of occupance, by-passed a production mode of occupance and moved through to an
amenity mode of occupance.

What is evident from the analysis is that prior to WWII, Darwin was a small remote
settlement. It was largely a ‘public service’ town, whose raison d’être, from the
viewpoint of the Commonwealth Government, was to defend the Top End of
Australia from invasions. It was like a colonial outpost.

Litchfield, apart from the Koolpinyah pastoral station, had little primary production
prior to WWII. The Commonwealth Government had not fostered agriculture in
Litchfield. Although the hinterland was freehold land the Commonwealth had
powers to resume the land, as evidenced by the compulsory acquisitions of lands
The Commonwealth Government went to locations further south to foster agriculture, to Katherine, Adelaide River and Daly River; these locations had more temperate climates, better access to fresh water (river-side locations) and better soils. The most compelling explanation for why the Commonwealth Government did not pursue agriculture in the hinterland was that the lands were perceived to be too hostile and unsuitable for agriculture. There was lack of a reliable supply of fresh water year-round. The soils were poor, and much of it was waterlogged.

**ABORIGINAL OCCUPANCE**

The traditional Aboriginal ownership of lands in the Darwin region had not been recognised by the Europeans at the time of first contact, and the land had been appropriated from the traditional owners without their consent. But this was of little consequence before WWII because the hinterland continued to remain the domain of Aboriginal people. Settlers had not displaced them from large areas in the hinterland. After European settlement in the township of Darwin, Indigenous people were displaced from their traditional lands and were pushed to the perimeter. However, they were able to continue their occupancy and maintain their cultural practices and ceremonial ties to the lands further out in the hinterland.

Indigenous people were also accompanied by non-Aboriginal people hunting pigs, buffalo and crocodiles. The non-Aboriginal people were a source of money, tea, flour, sugar, alcohol and even children for the Aboriginal occupants. On the other hand the non-Aboriginal people needed to adapt to an Aboriginal way of living. It was an extremely harsh life; a fossicking existence. It is contended here that this Aboriginal occupancy was largely unchallenged until after WWII. Post WWII, non-Indigenous people migrated into the hinterland from Darwin, and displaced Aboriginal people from most areas. The fact that Indigenous people were able to generally retain their hold over traditional lands in the hinterland under after WWII is significantly different to what happened in other Australian Capital Cities.
Even after the introduction of the ALRA, the Larrakia and other Indigenous people\textsuperscript{86} only gained legal ownership of small parcels of land that had been placed in Aboriginal reserves or were recognised as community living areas. The fact that a significant amount of land was freehold precluded any native title claims. Possibly the three outstanding native title land claims in Litchfield will be an opportunity for the Larrakia people to revisit their case for formal recognition of their ties to Country.

**PRODUCTIVIST OCCUPANCE**

Chapter 8 provided evidence that primary production or horticulture emerged from the rural residential uses in the 1970s. Initially this marked a change in the population dynamics and the inter-relationships between residents. Conflicts did ensue in the early days of the development of the horticulture industry with noise and use of chemicals impacting on residential uses, but these were slowly resolved through the use of zones and buffers. The 1984 planning scheme did not include a rural zone or a horticultural zone. It was only after 1990 that land was specifically zoned for horticultural uses in the Lambells Lagoon and Berry Springs areas, and buffers were put in place to protect agricultural lands from the encroachment of other uses, particularly residential uses. The protection of agricultural lands was not a strong feature of the Pak Poy or Comar reports, or of the 1984 plan. Although the 1990 strategy acknowledged the need to protect land suitable for horticulture, it concluded that horticulture would play a ‘limited role’ in the future of Greater Darwin.

Today there is a significant productivist mode of occupancy in the hinterland. The horticulture industry has restructured with the smaller commercial farmers having left the industry, while the larger companies producing mangoes have moved to large land holdings in the southern part of the municipality. The older smaller lots in the Horticulture zone created in the 1980s, still produce mangoes, but also display

\textsuperscript{86} The people allocated the Durguga Tree Point land originally came from the Tiwi Islands, but had been moved to Koolpinyah during WWII.
some intensification of use with the production of Asian green vegetables for southern state markets.

**CONSERVATION OCCUPANCE**

There are large parcels of conservation lands for the protection of biodiversity which includes Black Jungle, Malacca Swamp, and the mangroves which line the waterways of Litchfield. There are also large parcels of land set aside to protect the water catchments. Increasingly the issue of access to water rights will be contested, not only by the domestic water provider, the rural residents with bores, and the horticulture industry, but also urban residents who are partly dependent on the aquifers for the town supply. It is significant that protectionist modes of occupance, on the whole did not emerge from a desire to protect the landscape. Instead it was from the need to protect the aquifers.

**SUMMARY**

What this thesis has established is that the trajectory of Darwin’s hinterland did not follow the more common transformation of rural and productivist occupied lands documented in the literature. Critically, it was the transformation of lands from an Aboriginal occupance pattern to an amenity occupance pattern that generated multifunctionality. The *Aboriginal Land Rights Act 1976* was the stimulus for the creation of Aboriginal Land Trusts where the traditional owners gained formal ownership of their land, but this had limited impacts because large amounts of the land was freehold and exempt from native title claims. The role of land tenure was a critical driver, where the hinterland contained the relatively unregulated freehold land, in contrast to the leasehold regulated land in the town of Darwin.

Over time productivist modes of occupance, which are now in the form of a multi-million dollar horticultural industry, were established. Increasing influence of conservation values led to annexation of areas with high biodiversity values, but the significant proportion of land for conservation purposes was mainly generated by the need to protect aquifers. Litchfield became a multifunctional countryside in a relatively short period of time. In 40 years, it went from bushland sparsely occupied
by Aboriginal people, to a mixture of low density residential uses, conservation lands, scattered villages, and horticultural and pastoral activities.


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Appendix 1
Darwin and Environs 1958
Figure A1.1 Darwin and environs 1958 (Department of Lands and Planning 1958)
Appendix 2
Demographic data (1871-2011)

BOUNDARIES OF DARWIN’S USED FOR CENSUS COUNTS

This section shows how the statistical subdivision and division boundaries changed from 1954 to 1991. It is included to illustrate the expanding settlement of Darwin and the hinterland, but also shows that population growth does not relate to comparable areas until from 1991.

1954 Census

Figure A2.1 Municipality and wards of Darwin (Heatley 1986, p. 112)

1961- 66 Census

Figure A2.2 shows the boundaries of the Town of Darwin in 1965 (in blue), the Nightcliff town boundary (in yellow), the Sanderson town boundary (in dark blue) and the 1945 Acquisition Act boundary (in green). The red line relates to the 1983
municipal boundary of Darwin. The Town of Nightcliff was not gazetted until 1967 and the Town of Sanderson was not gazetted until 1972.

Figure A2.2 Greater Darwin area (Department of Lands and Planning, 1965-83)

**1971 Census**

By the 1971 Census the proposed ‘Proposed Greater Darwin’ boundary was used. This is shown in Figure A2.3. The black line shows the boundary of the City of Darwin. The pink coloured areas show urban parts of Greater Darwin. The dashed line shows the boundary of Greater Darwin extended out to include land for Darwin East, the proposed new residential, retail and commercial area that was ‘to become the centre for the general Darwin region as well as the surrounding area’ (Pak-Poy &
The Commonwealth did not compulsorily acquire the land for Darwin East until 1973. Darwin East was ultimately named Palmerston.

1981 Census

In 1981 the Darwin Statistical Division included the City of Darwin, the 1945 Acquisition Area, the 1973 Acquisition area and the balance which extended down to the Adelaide River and across to the coast. Figure A2.4 shows the boundary of the Darwin Statistical Division. The pink areas have been classified as urban areas.
Figure A2.4 Darwin Statistical Division 1981 (Australian Bureau of Statistics, 1981)

1986 Census

Although the Litchfield Shire was established in September 1985, the 1986 Census did not record responses in terms of that local government area. Palmerston, the newly developing satellite town, was included as a statistical subdivision (SSD) and at that stage had four new suburbs; Driver, Gray, Moulden and Woodroffe. The Litchfield area was categorised into two Statistical Subdivisions (SSDs) - ‘Outer Darwin’ and ‘Vernon’. The Outer Darwin SSD included of the ‘fringe’ Darwin development: Lee Point, East Arm and what is now known as Litchfield (S) - PtA, near Knuckey Lagoon. Litchfield (S) -PtB was included in the Vernon subdivision which also included Cox-Finniss, the Vernon Islands, Cape Hotham and north-east of the Adelaide River. Drawing on other knowledge it can be assumed that the population on the Islands would be relatively small and that most of the population would reside in the hinterland of Darwin (Australian Bureau of Statistics, 1991).
The Darwin Statistical Division from 1991 to today now comprises the Municipalities of Darwin, Palmerston, Litchfield and the unincorporated area of East Arm. The unincorporated area of East Arm is included in the Local Statistical Division of Palmerston.
POPULATION

Table A2.1 shows the population of Darwin derived from the Census from 1911 to 2011, according to the statistical boundary and the gender ratio. These data was used in the Demographic chapter to plot the population growth of ‘Greater Darwin’.

TENURE

Table A2.2, A2.3, and A2.4 show the tenure type by Statistical Local Area from the 1996, 2001 and 2006 Census. These data show that Litchfield (S) -PtB had the lowest percentage of residents living in rental accommodation which may explain part of the out-migration from Litchfield being caused by a relative lack of rental accommodation.

Table A2.1 Tenure type by SLA in 1996

<table>
<thead>
<tr>
<th>1996 Census</th>
<th>Percentage of tenure type by SLA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Darwin (22,182)</td>
</tr>
<tr>
<td>Fully owned</td>
<td>20.2</td>
</tr>
<tr>
<td>Being purchased(a)</td>
<td>29.1</td>
</tr>
<tr>
<td>Rented</td>
<td>50.1</td>
</tr>
<tr>
<td>Other</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

(Source: 2006 Census Community Profile Series – Time series profile)

88 Tenure is the classification used by the ABS
Table A2.2 Population of ‘Greater Darwin’

<table>
<thead>
<tr>
<th>Census year</th>
<th>Statistical boundary</th>
<th>Population</th>
<th>Gender ratio</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1871</td>
<td>Palmerston</td>
<td>201</td>
<td>5.9:1</td>
<td>(Australian Data Archive, 1871)</td>
</tr>
<tr>
<td>1876</td>
<td>Palmerston</td>
<td>285</td>
<td>3.0:1</td>
<td>(Australian Data Archive, 1876)</td>
</tr>
<tr>
<td>1881</td>
<td>Palmerston</td>
<td>572</td>
<td>7.1:1</td>
<td>(Australian Data Archive, 1881)</td>
</tr>
<tr>
<td>1891</td>
<td>Palmerston</td>
<td>1,176</td>
<td>6.6:1</td>
<td>(Australian Data Archive, 1891)</td>
</tr>
<tr>
<td>1901</td>
<td>Palmerston</td>
<td>1,106</td>
<td>3.4:1</td>
<td>(Australian Data Archive, 1901)</td>
</tr>
<tr>
<td>1911</td>
<td>Northern Territory</td>
<td>3,310</td>
<td>4.75:1</td>
<td>(Commonwealth Statistician 1911).</td>
</tr>
<tr>
<td>1921</td>
<td>Town of Darwin</td>
<td>1,399</td>
<td>1.9:1</td>
<td>(Commonwealth Statistician 1921, Part XVI, Territories Populations of Local Government Areas).</td>
</tr>
<tr>
<td>1933</td>
<td>Town of Darwin</td>
<td>1,566</td>
<td>1.3:1</td>
<td>(Commonwealth Statistician 1933)</td>
</tr>
<tr>
<td>1947</td>
<td>Town of Darwin (District of Parap)</td>
<td>2,538</td>
<td>1.9:1</td>
<td>(Commonwealth Statistician 1947)</td>
</tr>
<tr>
<td>1979</td>
<td>Greater Darwin</td>
<td>50,580</td>
<td>1.1:1</td>
<td>(Statistics 1979)</td>
</tr>
</tbody>
</table>

*Male to female

$^8$ Including municipality of Darwin, the 1945 and 1973 Acquisition Areas

$^9$ Excluding the Vernon SD
Table A2.3 Tenure type by SLA

<table>
<thead>
<tr>
<th>2001 Census</th>
<th>Percentage of tenure type by SLA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Darwin (23,217)</td>
</tr>
<tr>
<td>Fully owned</td>
<td>22.7</td>
</tr>
<tr>
<td>Being purchased(a)</td>
<td>29.3</td>
</tr>
<tr>
<td>Rented</td>
<td>46.1</td>
</tr>
<tr>
<td>Other</td>
<td>2.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

(Source: 2006 Census Community Profile Series – Time series profile)

Table A2.4 Tenure type by SLA

<table>
<thead>
<tr>
<th>2006 Census</th>
<th>Percentage of tenure type by SLA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Darwin (23,331)</td>
</tr>
<tr>
<td>Fully owned</td>
<td>21.0</td>
</tr>
<tr>
<td>Being purchased</td>
<td>33.8</td>
</tr>
<tr>
<td>Rented</td>
<td>44.8</td>
</tr>
<tr>
<td>Other</td>
<td>0.4</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

(Source: 2006 Census Community Profile Series – Time series profile)

**EMPLOYMENT TYPE**

Table A2.5 Employment type by sex in Litchfield (S) - PtB in 2006

<table>
<thead>
<tr>
<th>Employment type</th>
<th>Males (3,864)</th>
<th>Females (3,132)</th>
<th>Persons (6,996)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employee not owning business</td>
<td>72.0</td>
<td>83.4</td>
<td>77.1</td>
</tr>
<tr>
<td>Owner managers of incorporated enterprises</td>
<td>9.4</td>
<td>5.3</td>
<td>7.6</td>
</tr>
<tr>
<td>Owner managers of unincorporated enterprises</td>
<td>16.3</td>
<td>8.5</td>
<td>12.8</td>
</tr>
<tr>
<td>Contributing family workers</td>
<td>2.3</td>
<td>2.8</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

(Australian Bureau of Statistics 2006)

Table A2.5 provides a statistics on the number of self-employed living in Litchfield (S) - PtB. This was used to understand the relatively high number of residents from Litchfield who worked in Litchfield where there are few major local industries or employers.
Appendix 3
Land Subdivision and Land Sales

LAND TENURE

Chapter 2 indicated that the Northern Territory Government provided a digital copy of the cadastre for the Municipality of Litchfield in mid-2010 for the purposes of this research. Using the LAISKEY as an identifier a variable was created to record the data of the last transfer of title which generally indicated the date of the last time that the parcel was subdivided.

Before analysing the data it was found that there were outliers, which resulted in higher frequencies in terms of the amount of land where private land tenure had changed.

The following outliers, numbering 23, were identified through ArcGIS and ILIS and were excluded from the sample.

- Parcels which related to the Koolpinyah pastoral station. Although the land was legally categorised as private land it is land with a perpetual pastoral lease and subject to native title. Because of this it is not readily open to the free market. Lots relating to land in Black Jungle and the Malacca Swamp, which were acquired by the Northern Territory Government as nature reserves, were also excluded.
- In 1983 a number of the Goyder Lots changed title to create a road easement through Weddell, an area south of Darwin. The lots had been privately owned before being acquired by the Northern Territory Government, but were still categorised as privately owned. Technically this is Government land and the lots were removed from the sample.
- A further two large lots near Daly were issued with new titles when road reserves were created.

Land tenure in this context relates to the ownership or the control of land.
- A lot for the Darwin River Dam was excluded as this was Government owned land but not Crown land\(^{92}\).
- The land acquired by the Commonwealth for Robertson Barracks in 1984 was excluded.

The removal of these outliers had virtually no impact on the number of lots changing tenure but significantly reduced the extreme peaks.

**Change in private land tenure**

Table A3.1 Summary table of change of private land tenure over time

<table>
<thead>
<tr>
<th>Years</th>
<th>No.</th>
<th>Mean lot size (ha)</th>
<th>Median lot size (ha)</th>
<th>Std. Deviation</th>
<th>Total hectares</th>
<th>Minimum (ha)</th>
<th>Maximum (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1869-1958</td>
<td>356</td>
<td>51.0</td>
<td>1.3</td>
<td>59.5</td>
<td>18146.2</td>
<td>0.1</td>
<td>249.0</td>
</tr>
<tr>
<td>1959</td>
<td>15</td>
<td>3.2</td>
<td>2.0</td>
<td>3.1</td>
<td>47.8</td>
<td>2.0</td>
<td>10.8</td>
</tr>
<tr>
<td>1960-64</td>
<td>125</td>
<td>1.6</td>
<td>2.0</td>
<td>0.8</td>
<td>200.6</td>
<td>0.2</td>
<td>3.2</td>
</tr>
<tr>
<td>1965-69</td>
<td>314</td>
<td>2.7</td>
<td>2.1</td>
<td>2.1</td>
<td>846.3</td>
<td>0.0</td>
<td>21.2</td>
</tr>
<tr>
<td>1970-74</td>
<td>681</td>
<td>7.2</td>
<td>8.1</td>
<td>12.5</td>
<td>4917.1</td>
<td>0.1</td>
<td>129.7</td>
</tr>
<tr>
<td>1975-79</td>
<td>790</td>
<td>10.0</td>
<td>8.2</td>
<td>13.7</td>
<td>7871.1</td>
<td>0.0</td>
<td>143.8</td>
</tr>
<tr>
<td>1980-84</td>
<td>979</td>
<td>8.0</td>
<td>2.0</td>
<td>58.1</td>
<td>7845.1</td>
<td>0.1</td>
<td>1569.0</td>
</tr>
<tr>
<td>1985-89</td>
<td>838</td>
<td>14.0</td>
<td>2.0</td>
<td>133.6</td>
<td>11678.9</td>
<td>0.0</td>
<td>3284.0</td>
</tr>
<tr>
<td>1990-94</td>
<td>1132</td>
<td>11.1</td>
<td>2.0</td>
<td>122.6</td>
<td>12600.8</td>
<td>0.1</td>
<td>3680.0</td>
</tr>
<tr>
<td>1995-99</td>
<td>838</td>
<td>16.3</td>
<td>2.0</td>
<td>88.2</td>
<td>13691.6</td>
<td>0.0</td>
<td>1564.0</td>
</tr>
<tr>
<td>2000-04</td>
<td>562</td>
<td>11.9</td>
<td>2.3</td>
<td>51.5</td>
<td>6685.5</td>
<td>0.1</td>
<td>805.3</td>
</tr>
<tr>
<td>2005-09</td>
<td>746</td>
<td>8.7</td>
<td>2.0</td>
<td>41.7</td>
<td>6453.8</td>
<td>0.0</td>
<td>893.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>7376</td>
<td>12.3</td>
<td>2.1</td>
<td>79.6</td>
<td>90984.8</td>
<td>0.0</td>
<td>3680.0</td>
</tr>
</tbody>
</table>

Table A3.1 provides a summary of the land tenure changes prior to 1959 and then in five year cohorts. Essentially prior to 1959 the land remained as the Goyder lots. Subdivision commenced in 1959 and it continued to grow until 1995 when there is a tapering off.

---

\(^{92}\) Crown land is land that has not been alienated from the Crown, whereas Government owned land is land that has been alienated from the Crown and acquired by the Government.
LAND SALES

Digitised land sales statistics for the Litchfield Municipality were provided by the Australian Valuation Office (AVO) from January 1986 through to the end of 2011.

Specific non-residential zones were excluded:

- Commonwealth
- Organised Recreation
- Community Purposes
- Light Industry
- Development
- Service Commercial
- Tourist Commercial
- Commercial
- Water Management
- Specific Uses (a zone designed to meet specific needs of a location)
- Medium density sales in Humpty Doo because this zoning was the only instance of medium density development in Litchfield.

‘Future Development’ zoned land for the proposed satellite city of Weddell was excluded, being Government land.

The following specific locations within Litchfield Statistical Local Area A were excluded, because although they were part of Litchfield their circumstances did not contribute to the study:

- Knuckey Lagoon is a small site between Darwin and Palmerston. It is located under the flight path of Darwin Airport and also close proximity to a conservation reserve. It is nearly fully developed.
- Shoal Bay is Commonwealth owned and contains Robertson Barracks and a training facility.
- Cape Wickham is Northern Territory Government land.
• Holtze is another small parcel of land in close proximity to Palmerston and is nearly fully developed.

• Localities which had small numbers of sales (less than 15 between 1986 and 2010): locations were Blackmore Daly, Hughes, Manton, Middle Point and Wak Wak.

The data were ‘cleaned’ by removing the following:

• Duplicates

• Outliers for which land could not be found on ILIS.

• Outliers where it appeared to be small parcels being consolidated into another parcel or a road reserve.

• Where the only identifier was major Highway and the parcel ID no longer existed.

In instances where multiple purchases for the same lot were registered within days or weeks of each other the final date was selected. It was assumed that the price had been renegotiated and the last price was the sale price.
## Table A3.2: Sales and the median price for selected localities in Litchfield from 1986 to 2010.

<table>
<thead>
<tr>
<th>Locality</th>
<th>N</th>
<th>Median 86-90</th>
<th>N</th>
<th>Median 91-05</th>
<th>N</th>
<th>Median 96-00</th>
<th>N</th>
<th>Median 01-05</th>
<th>N</th>
<th>Median 06-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acacia Hills</td>
<td>77</td>
<td>28,500</td>
<td>69</td>
<td>50,000</td>
<td>38</td>
<td>77,500</td>
<td>156</td>
<td>85,000</td>
<td>173</td>
<td>250000</td>
</tr>
<tr>
<td>Bees Creek</td>
<td>135</td>
<td>55,000</td>
<td>138</td>
<td>107,500</td>
<td>102</td>
<td>173,750</td>
<td>115</td>
<td>265,000</td>
<td>116</td>
<td>445000</td>
</tr>
<tr>
<td>Berry Springs</td>
<td>96</td>
<td>26,000</td>
<td>110</td>
<td>55,000</td>
<td>90</td>
<td>82,000</td>
<td>129</td>
<td>185,000</td>
<td>100</td>
<td>300000</td>
</tr>
<tr>
<td>Darwin River</td>
<td>153</td>
<td>23,000</td>
<td>174</td>
<td>37,250</td>
<td>125</td>
<td>90,000</td>
<td>186</td>
<td>118,000</td>
<td>138</td>
<td>259000</td>
</tr>
<tr>
<td>Fly Creek</td>
<td>19</td>
<td>37,500</td>
<td>49</td>
<td>42,500</td>
<td>16</td>
<td>60,000</td>
<td>21</td>
<td>95,000</td>
<td>16</td>
<td>312500</td>
</tr>
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(Source Australia Valuation Office)

The sale price was adjusted by the Consumer Price Index (CPI) to make the prices in line with 2011 amounts. CPI rates were taken from the site hhh://www.rateinflation.com/consumer-price-index. The prices were adjusted for the 2011 Annual CPI divided by the Mean Annual CPI for each of the five year cohorts to a sales price adjusted to reflect 2010 values.
Table A3.3 Median sale prices adjusted for CPI from 1986 to 2010

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(Source Australia Valuation Office)
Table A3.5 Median price per m² adjusted for CPI from 1986 to 2010

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<td>4.14</td>
<td>1.24</td>
<td>1.81</td>
</tr>
<tr>
<td>Lambells Lagoon</td>
<td>0.59</td>
<td>1.17</td>
<td>0.7</td>
<td>1.13</td>
<td>0.59</td>
<td>0.86</td>
</tr>
<tr>
<td>Livingstone</td>
<td>0.33</td>
<td>0.66</td>
<td>0.54</td>
<td>0.87</td>
<td>0.33</td>
<td>0.48</td>
</tr>
<tr>
<td>Lloyd Creek</td>
<td>0</td>
<td>0.00</td>
<td>0.12</td>
<td>0.19</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>McMinnns Lagoon</td>
<td>1.43</td>
<td>2.84</td>
<td>6.25</td>
<td>10.11</td>
<td>1.43</td>
<td>2.08</td>
</tr>
<tr>
<td>Noonamah</td>
<td>0.25</td>
<td>0.50</td>
<td>0.53</td>
<td>0.86</td>
<td>0.25</td>
<td>0.36</td>
</tr>
<tr>
<td>Southport</td>
<td>1.98</td>
<td>3.94</td>
<td>3.96</td>
<td>6.40</td>
<td>1.98</td>
<td>2.89</td>
</tr>
<tr>
<td>Tumbling Waters</td>
<td>0.33</td>
<td>0.66</td>
<td>0.71</td>
<td>1.15</td>
<td>0.33</td>
<td>0.48</td>
</tr>
<tr>
<td>Virginia</td>
<td>1.75</td>
<td>3.48</td>
<td>2.6</td>
<td>4.20</td>
<td>1.75</td>
<td>2.55</td>
</tr>
</tbody>
</table>

(Source Australia Valuation Office)
Appendix 4
Agricultural Leases

To ascertain where agricultural, rather than pastoral activities, occurred the Northern Territory Agricultural leases databases were analysed. As noted in Chapter 2 it was difficult to identify the parcels of land from the database because the historical cadastral information and title particulars had changed. Every effort was taken to eliminate duplicates. Overall 697 records were analysed to consider location and date of commencement of the agricultural lease.

Table A4.1 shows the location of agricultural leases according to the Land Information database. The table shows that Katherine, Darwin, Alice Springs, and Daly River were the locations where most of the agricultural leases were issued.

<table>
<thead>
<tr>
<th>Location</th>
<th>No. of leases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adelaide River</td>
<td>22</td>
<td>3.2</td>
</tr>
<tr>
<td>Alice Springs</td>
<td>64</td>
<td>9.2</td>
</tr>
<tr>
<td>Batchelor</td>
<td>6</td>
<td>0.9</td>
</tr>
<tr>
<td>Coomalie Creek</td>
<td>14</td>
<td>2.0</td>
</tr>
<tr>
<td>Cox Peninsula</td>
<td>13</td>
<td>1.9</td>
</tr>
<tr>
<td>Daly River</td>
<td>45</td>
<td>6.5</td>
</tr>
<tr>
<td>Katherine</td>
<td>189</td>
<td>27.1</td>
</tr>
<tr>
<td>Mataranka</td>
<td>17</td>
<td>2.4</td>
</tr>
<tr>
<td>Litchfield area</td>
<td>19</td>
<td>2.7</td>
</tr>
<tr>
<td>Darwin Suburbs</td>
<td>178</td>
<td>25.5</td>
</tr>
<tr>
<td>Waterhouse</td>
<td>27</td>
<td>3.9</td>
</tr>
<tr>
<td>Other</td>
<td>103</td>
<td>14.8</td>
</tr>
<tr>
<td>Total</td>
<td>697</td>
<td>100</td>
</tr>
</tbody>
</table>

River locations were favoured, but were not essential. Of the agricultural leases in the Katherine region, 75 per cent were issued between 1924 and 1938. Many of these leases were short-lived and were either forfeited for non-compliance with lease conditions or surrendered. In particular the unemployed settlement schemes in the early 1930s exhibited a high failure rate. Following WWII another spate of licences again in Katherine was issued, but these also showed a high failure rate.
Figure A4.1 shows the number of leases issued over time. A small batch of agricultural leases was issued in 1913-1915 when the Commonwealth took control. These were experimental farms being trialled at Batchelor and Daly River and according to Bauer 7,071 acres were taken up in the Daly River between 1913 and 1914 (Bauer 1964, p. 229). These schemes failed.

![Figure A4.1 Number of Agricultural Leases issued over time](image)

There were three noticeable peaks in the issuing of licences. The first peak occurred in the mid-1920s and corresponded to a time when the Northern Territory was experiencing a depression following the closure of the Vestey’s meat works. At this time there was little employment, apart from the public sector. The licences were issued across a wide range of locations, but the most prevalent location was Katherine River. Another peak occurred in the early 1930s. Again most were issued in the Katherine region and were targeted to provide employment during the world wide depression.

Another peak followed at the end of WWII. Most of these leases were issued in locations which were to become suburban Darwin.

**Agricultural leases in Darwin**

Table A4.2 shows the location of leases in areas in which became Darwin suburbs. A number of the early agricultural leases near Darwin were issued when the South
Australian Government was still in control. The leases were mainly located in today’s suburbs of Berrimah, Coconut Grove and Nightcliff. These leases were issued to the early settlers such as Florenz Bleezer, who later became the curator of the Botanical Gardens and who acquired three leases near East Arm. Only six leases in Berrimah were issued prior to 1930 with the remainder being issued in the 1950s. A similar pattern was observed for Coconut Grove with four leases being issued in the 1890s and then all the other leases were issued in between 1949 and 1959. Four of the Nightcliff leases were issued prior to 1910 with 16 being issued in the 1950s.

Most of the agricultural leases in Darwin released during the 1950s, were resumed between the 1960s and early 1970s and were subdivided for residential and industrial purposes.

Table A4.2 Location of agricultural leases in ‘today’s’ Darwin suburbs

<table>
<thead>
<tr>
<th>Location</th>
<th>No. of leases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anula</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Berrimah</td>
<td>75</td>
<td>42.1</td>
</tr>
<tr>
<td>Coconut Grove</td>
<td>46</td>
<td>25.8</td>
</tr>
<tr>
<td>East Arm</td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>Jingli</td>
<td>6</td>
<td>3.4</td>
</tr>
<tr>
<td>Knuckey Lagoon</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Lee Point</td>
<td>3</td>
<td>1.7</td>
</tr>
<tr>
<td>Ludmilla</td>
<td>5</td>
<td>2.8</td>
</tr>
<tr>
<td>Millner</td>
<td>8</td>
<td>4.5</td>
</tr>
<tr>
<td>Moil</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Nightcliff</td>
<td>21</td>
<td>11.8</td>
</tr>
<tr>
<td>Palmerston</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Stuart Park</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Wagaman</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Winnellie</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Woolner</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>178</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Agricultural leases in the hinterland

Table A4.3 shows Agricultural leases issued in areas surrounding Darwin. The pattern for the hinterland was very clear. All but one of the Cox Peninsula leases
was issued before 1930s. Most of the agricultural leases in Noonamah were issued after the 1950s. The agricultural leases in the other areas were old leases dating back to before WWII, and some even as far back as South Australia Government control times. The three leases in the Hundred of Guy were ‘sugar’ leases issued by the new Commonwealth Government between 1913 and 1915. The Hundred of Hutchison leases were in the vicinity of Koolpinyah. The Strangways lease was later converted to a miscellaneous lease and issued to Santavan, a live beef exporter which operates in the Northern Territory today.

Table A4.3 Location of agricultural leases in Darwin’s hinterland

<table>
<thead>
<tr>
<th>Location</th>
<th>No. of leases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cox Peninsula</td>
<td>13</td>
<td>40.6</td>
</tr>
<tr>
<td>Noonamah (about 40 kilometres south of Darwin)</td>
<td>10</td>
<td>31.3</td>
</tr>
<tr>
<td>Shoal Bay</td>
<td>2</td>
<td>6.3</td>
</tr>
<tr>
<td>Hundred of Strangways (Howard Springs, Humpty Doo)</td>
<td>1</td>
<td>3.1</td>
</tr>
<tr>
<td>Hundred of Guy (near Adelaide River)</td>
<td>3</td>
<td>9.4</td>
</tr>
<tr>
<td>Hundred of Hutchison (Koolpinyah)</td>
<td>3</td>
<td>9.4</td>
</tr>
<tr>
<td></td>
<td>32</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**SUMMARY**

From this analysis of Agricultural Leases it is evident that there was little involvement by the Commonwealth in fostering agriculture in Litchfield. More remote riverside locations such as Katherine and Daly River were preferred as well as lots close to Darwin.