DARWIN ARCHAEOLOGY:

ABORIGINAL, ASIAN AND EUROPEAN HERITAGE

OF

AUSTRALIA'S TOP END

Edited by

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and Clayton Fredericksen

Charles Darwin University Press

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VOLUME CONTENTS

FOREWORD

It gives me great pleasure as the Minister for the Environment and Heritage to introduce this volume of selected papers.

Modern Darwin is a culturally rich and diverse place. In so many ways this multiculturalism is a direct reflection of the diverse and sometimes traumatic history of the "Top End". It is a history that has created a unique place with a unique way of life and one which all Territorians have come to appreciate and should be proud.

The articles in this volume span Aboriginal occupation from the mid-Holocene, the early days of European and Chinese settlement in the late 1800s through to the Second World War. These articles also reflect the dynamism of the cultures who came to live in tropical Australia and forge an existence, and in turn the integral role each played in contributing to the history of the "Top End".

Ms Marion Scrymgour MLA
Minister for the Environment and Heritage
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Introduction:
Physical and cultural transformations in the Darwin Region

Clayton Fredericksen[1], Sally Brockwell[2] and Patricia Bourke[3]

The early decades of the twentieth century saw archaeological research initiated in northern Australia's Top End (Figure. 1). Pioneering studies in the late 1920s - by the anthropologist Lloyd Warner on shell middens at Milingimbi and ethnologist Norman Tindale on rock art in the Oenpelli region - marked the first serious attempts to examine aspects of the pre-European settlement of the Top End (Tindale 1928; Warner 1937:455, 463). In 1930 another anthropologist - Daniel Sutherland Davidson - carried out test excavation of rock shelters in Arnhem Land (Davidson 1935). Frederick McCarthy and Frank Setzler, members of the American-Australian Expedition to Arnhem Land, undertook the first concerted archaeological program in 1948 (McCarthy and Setzler 1960), excavating Aboriginal and Macassan occupation sites on Groote Eylandt and at Yirrakalla, Milingimbi and Oenpelli. In the same year the anthropologist Neil William George Macintosh also engaged in Arnhem Land research, recording rock art and excavating at Tandandjal Cave (Macintosh 1951, 1952). William 'Bill' Stanner continued this focus on Arnhem Land with excavations in 1957 and 1958 at the site of Yarar Shelter (Flood 1966).

In the mid-1960s Jim Allen introduced colonial archaeology to northern Australia with his work on the British settlement site of Port Essington (Allen 1969, 1973). The 1960s also witnessed Campbell Macknight's archaeological survey and excavation of Macassan trepang processing sites in the Cobourg region and eastward (Macknight 1976), and an investigation of prehistoric resource use and mobility in Arnhem Land by

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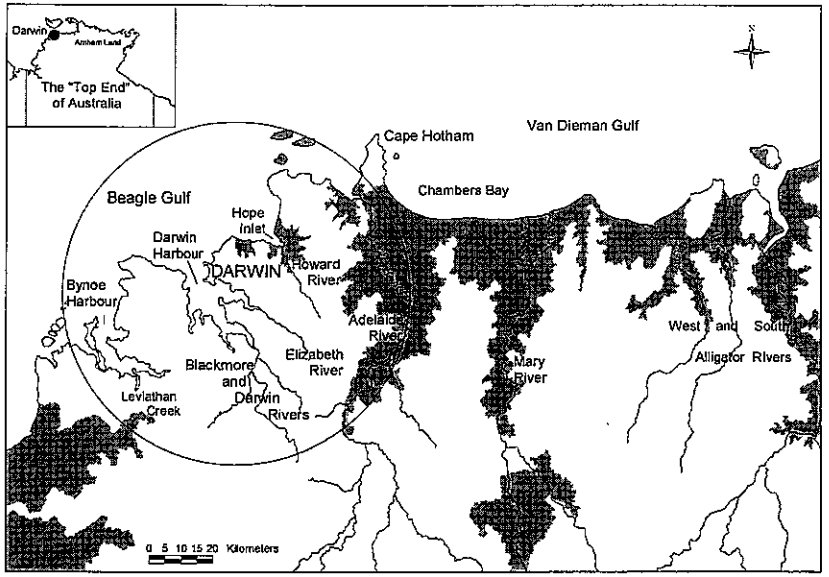

Figure 1. Map showing "The Darwin Region" locality (circled) covered by the papers in this volume and some places mentioned in the text. (Map data courtesy of Northern Territory Department of Infrastructure, Planning and Environment. Copyright Northern Territory of Australia).

Carmel Schrire (1982). Arnhem Land became the focus of much subsequent research of Pleistocene and Holocene occupation, notably by Johan Kamminga and Harry Allen (1973) and Rhys Jones and colleagues in the 1980s (Jones 1985a). Over the last two decades research has continued in the Arnhem Land/Cobourg Peninsula regions, especially on Aboriginal and Macassan landscapes.

These eight decades of study represent a sustained, if uncoordinated, research effort on the archaeology of the Top End. But, despite its position as the Northern Territory's main population centre, a focus on Darwin and its environs has been until recently notably absent from this research picture. This volume seeks to redress this imbalance by presenting a collection of papers representing contemporary research within the urban area of Darwin and the city's extended hinterland, an area we term the "Darwin Region". This region, as defined here, covers the area between latitudes 12° to 13° S and longitudes 130°30' to 132°00' E (Figure 1). The geographical localities within this region covered by the papers in this volume include to the north Darwin Harbour and coast, southward to the lower Adelaide River 60 km southeast of Darwin, west to Bynoe Harbour 25 km southwest of Darwin, and 25 km southeast of Darwin to Hope Inlet in Shoal Bay.

As the papers in this volume show, archaeology in the Darwin Region over the last decade has been thematically diverse and chronologically broad. The studies presented here encompass both "prehistoric" (before Asian or European contact with Aboriginal peoples) and "historical" (after contact) themes. This combination of what some may consider disparate archaeologies is deliberate. We concur with commentators who have argued that drawing a distinction between prehistory and history for the Australian situation is both artificial and redundant. In our opinion this distinction is particularly inappropriate for northern Australia's Top End where the times and places of early contact between Aboriginal populations and outsiders and the effects of those contacts, while yet to be fully articulated, challenge Eurocentric constructs of cultural adaptability in changed circumstances. We prefer to view the past of the north as a continuum, a continuum in which the archaeology of the most recent end of the trajectory - the very near past - provides another line of material evidence for addressing issues of cultural articulation and negotiation. This volume reflects our stance. The papers illustrate current research on a broad temporal stage, extending from mid-Holocene times to the World War Two era. Some papers expand upon former research agenda on subsistence and settlement, while others are groundbreaking in their treatment of the material remains of the very recent past. Significantly, all the papers that comprise this volume are authored by former and current staff and postgraduate students of Charles Darwin (formerly Northern Territory) University, reflecting a maturation of the discipline of archaeology as carried out by practitioners residing in the Territory.

CLIMATE AND PHYSIOGRAPHY

The Darwin Region is located in the wet/dry tropics. The climate is markedly seasonal, with a stark contrast between the "annual drought" of the long dry season from April to November, and the wet season between December and March, when most of the average annual rainfall of 1600 mm falls (McDonald and Alpine 1991:20). Although this seasonal pattern is relatively predictable, variability occurs in rainfall patterns both spatially (Whitehead *et al.* 1990) and temporally (Taylor and Tulloch 1985). Temperatures generally are high, ranging from 34°C to 24°C in the wet, and from 32°C to 17°C in the dry. In terms of human comfort, the most stressful time of the year is the late dry season, when the heat is exacerbated by the build-up of humidity without the relief of rain.

The hydrology of the coastal plains of northern Australia is regulated by the strongly monsoonal climate. Ground water builds up in the wet and maximum run-off occurs late in the season (Chappell and Woodroffe 1985:90). Floodplain areas are inundated during the wet season making many places accessible only by watercraft. These areas dehydrate progressively through the dry season. By the late dry most of the floodplains have dried out, except for low-lying areas that remain submerged for most or all of the year.

Seasonality of climate has a marked influence on the ecology of plants and animals in these monsoonal wetlands, with little plant growth between the months of May and October (Haynes *et al.* 1991:76; and see Jones and Bowler 1980:17) and periodic cyclones during the wet may cause considerable coastal landform changes and destruction of vegetation. This type of dynamic coastal environment affects the resource base on which coastal hunter-gatherers would have relied on in the past, as well as the survival and visibility of archaeological sites that are the remains of past subsistence and settlement. Archaeological sites may be removed by coastal erosion, and resources such as mangroves and mollusc shell beds may be destroyed by storms or cyclones (see Bird 1992; Meehan 1982; Przywolnik 2002). The Darwin coast is like the rest of the north Australia in being a low-energy shoreline, mostly of Holocene age, that is still prograding, through deposition of both seaward and terrestrial sediment (Davies 1972; Semeniuk 1985; Sullivan 1996:3). Archaeological remains older than the coastal plains that formed over the last few thousand years may be buried beneath sediment. Unlike the Arnhem Land and Kimberley coasts, which are backed by upland plateaus and ranges, the Darwin landscape is one of low relief. There are no rockshelters in which deposits of considerable antiquity may be preserved so discovering evidence of occupation in the period before the mid Holocene, if it has survived, will be problematic. Thus this volume covers the time period from the mid to late Holocene, beginning around 4,000 years ago to the Second World War some 60 years ago.

Geology

The Darwin Region lies principally in the northwestern portion of what is known geologically as the Pine Creek Geosyncline. This forms the dominant regional structure of the undulating to rugged low rolling hills and strike ridges of the Dissected Foothills and Dissected Uplands geomorphic units that dominate the southern parts of the region. In the north sandy plains and extensive estuarine plains of the Northern Plains and Coastal and Estuarine Plains geomorphic units dominate. Lithic raw materials such as quartz and Gerowrie Tuff quarried by Aboriginal people before European contact are located within the ridges and foothills but are absent from the plains area (Needham and Stuart-Smith 1984; Pietsch and Stuart-Smith 1987). In the nineteenth and early twentieth centuries Chinese and Europeans mined these foothills to extract tin and gold.

PEOPLE AND LAND IN THE MID-LATE HOLOCENE

Dramatic environmental changes during the Holocene have figured predominantly in interpretations of archaeological landscapes in northern Australia. This research has been greatly aided by studies in the Alligator Rivers region (Figure 1) from which a comprehensive record of Holocene post-transgressive landscape changes has been formed (Woodroffe *et al.* 1985, 1987, 1988). During the post-Pleistocene sea level rise, down-cut river valleys on the coastal plains of northern Australia were drowned. The various river systems responded differently to this event. Some, like Darwin Harbour, became deep-water indented embayments fed with numerous riverine channels, including the major Elizabeth, Darwin and Blackmore rivers. Today this ria system is fringed by extensive tidal mudflats and low closed mangrove forests that have built up since the transgression (Michie 1988; Semeniuk 1985). Other estuarine systems, like the rivers of the Kakadu region, through processes of sedimentation following sea level stabilisation formed vast mangrove swamps from about 7000 to 5300 years BP, known as the 'Big Swamp Phase' (Woodroffe *et al.* 1985, 1987). Models of past economic systems of Indigenous north Australian coastal groups in the mid to late Holocene (Hiscock 1999; Hiscock and Kershaw 1992) have focused on the implications of environmental changes and the establishment of freshwater conditions for settlement and subsistence patterns and demography.

Following the 'Big Swamp Phase' a 'Transition Phase' occurred across the Top End that saw the formation of saline mudflats, retreat of mangrove swamps and appearance of freshwater wetlands on blacksoil floodplains (Chappell 1988:52; Clark and Guppy 1988; Woodroffe and Mulrennan 1993; Woodroffe *et al.* 1993). In the Darwin Region, the Big Swamp Phase persisted until c. 4000 years BP Earth mounds on the Adelaide River coastal plains provide the earliest record of the activities of the Indigenous inhabitants of the region, at the tail end of this phase. Marked landscape changes have occurred on these coastal plains since then. Three sedimentation processes dominated these changes; coastal progradation resulting in extensive coastal plains, vertical accretion of floodplains and the development of freshwater wetlands, and channel migration resulting in the formation of lateral-accretion, channel margin deposits and palaeochannels (Woodroffe and Mulrennan 1991:90).

Between 3500-2300 BP sedimentation processes were such that the old channel of the Adelaide River into Chambers Bay was infilled and the river had adopted its present course through a narrow rock channel, called 'the Narrows' into Adam Bay (Woodroffe *et al.* 1993:266-67). Between 2900 and 1600 years BP coastal progradation slowed on the Adelaide River and the coastline stabilised close to its present position. Ponding of freshwater behind seaward chenier ridges resulted in the formation of the freshwater floodplains (Chappell 1988; Woodroffe *et al.* 1993). This 'Freshwater Phase' was fully established on the Mary and Adelaide River areas by c. 2000 years BP (Brockwell 2001; Woodroffe and Mulrennan 1993:61). In Darwin Harbour, sandy mudflats in Shoal Bay developed around 2300 years ago (Woodroffe and Grime 1999), a process that coincided with an infilling phase of the Adelaide and Mary Rivers (Woodroffe *et al.* 1993; Woodroffe and Mulrennan 1993:63-4).

This build-out of mudflats corresponded with the appearance of cultural shell mounds dominated by *Anadara granosa* (Bourke 2000, 2003). The establishment of late Holocene cultural shell and earth mounds during the Transition and Freshwater Phases coincides with an apparent expansion in the number of open sites on the coastal plains of the Alligator Rivers region and the Adelaide and Mary Rivers between 1500-1000 years BP (Allen 1989:113-4;; Brockwell 1996, 2001; Guse 1992; Mowat 1995). Some 500 years ago Aboriginal people across northern Australia ceased building mounds of shell and earth, reflecting a decline in *Anadara granosa* shellfish beds. As Hiscock (1997) has argued, the evidence seems to show that the cessation of mound building reflects environmental change around 700-500 years ago from the optimal habitat for *Anadara* of open mudflats (Broom 1985) to the mangrove-rich mudflats characteristic of much of the coastline today.

The papers by Bourke, Hiscock and Brockwell in this volume continue the research focus on the latter Holocene. Bourke and Hiscock separately examine shell midden evidence in studies that contribute further to our understanding of Aboriginal coastal foraging patterns.

Bourke's paper sheds light on a broad-based coastal subsistence system that involved the formation of shell mounds at localities that became part of a "totemic" landscape replete with social value. The study by Hiscock provides a timely critical examination of how archaeologists use and have used shell midden information to construct pictures of Holocene subsistence, highlighting the importance of excavation sample location, size and recovery method in forming interpretations of past human activity. Brockwell's paper, looking at the Adelaide River Plains, an inland setting, forms a useful contrast to the two coastal studies. This continues the study of earth mounds initiated further east by Betty Meehan and co-workers and further illuminates the timing and establishment of sites along the floodplains of the major rivers.

PEOPLE AND LAND OVER THE LAST 150 YEARS

The most recent changes to the natural environment of the Darwin Region have been brought about by European and Chinese settlement and the exotic species these newcomers introduced, purposefully and accidentally, to the region. European and Chinese cleared bush, diverted waterways and reclaimed land in the course of mining, agricultural and pastoral activity, particularly from the 1880s. In Darwin itself urban growth saw the removal of coral and beach rock and sand for use as building material and witnessed the extensive infilling of coastal and wetland locations for housing and industrial usage. Coastal shell deposits, many of which were probably Aboriginal middens, were used as construction material and to manufacture lime for building or agriculture (Douglas 1871; Knight 1876; NTRS 828). Burning shells to make lime for building or agriculture was common – a legacy of British practice, as Allen (1973) describes for the early 1800s in Port Essington.

Introduced animals, including buffalo, cattle, pigs, horses, cats and dogs, and plants such as the thorny shrub *Mimosa pigra* (Graham *et al.* 1982; Letts *et al.* 1979; Stocker 1971) wrought large-scale changes to the environment. The feeding and wallowing activities of pigs and buffaloes resulted in the break down of natural levees, which allowed saltwater intrusion to freshwater areas and hastened the desiccation of swamps (Ford and Tulloch 1977, Letts *et al.* 1979). *Mimosa pigra* quickly invaded large areas of the Top End, such as the lower Adelaide River floodplains where it today covers about 8000 hectares (CCNT 1993:12; Finlayson *et al.* 1988:117-19), impeding travel and destroying the habitats of local species.

Today there is little to remind people who travel comfortably in air-conditioned vehicles along the highways to Darwin that this coast is monsoonal wetlands country, where in former times boats were necessary to avoid many miles of tortuous travel through swamps, monsoon vine thicket, thick scrub and tall speargrass (Kerr 1971). Early European settlers found it much more difficult to move around the landscape than Indigenous people (Kerr 1971:106,141), who, in what was familiar country to them, used fire to clear speargrass and canoes on watercourses to ease their movement after the wet, housing their canoes in clearings in the mangrove fringe (Basedow 1925:162-3; Stocker 1966:225). In the absence of roads, watercraft also facilitated the main link between European settlements and the outside world. The fledgling town of Darwin relied on coastal and ocean going vessels for a regular supply of materials and labour from southern and Asian ports.

Asian labour was vital for the development of the European economy of the Darwin region, particularly after the founding of Darwin itself in 1869. Chinese labourers were imported to remedy a shortfall of European workers, a force required for the construction of infrastructure such as the northern railroad. Many Chinese subsequently found employment on the gold and other mineral fields inland of Darwin (Jones 1990). By the latter nineteenth century the Chinese residents of Darwin and its hinterland greatly outnumbered Europeans, a ratio which was reversed by the early years of the twentieth century.

As the Darwin settlement grew in the late 1800s, coastal land fringing the European settlement, on which bark, wood, tin and iron constructions of huts of the local Larrakia and related Wulna were constructed - areas that are now central city streets and city beaches - was claimed for the use of newcomers, and Aboriginal residents were interned in government reserves further away from the central city (Parkhouse 1895; Wells 2002; Wilson and James 1997:36).

Although disenfranchisement of this kind was formalised and bigotry prevailed, the Darwin Region nevertheless became a place for the inter-mixing of cultures and genes between Chinese, European and Aboriginal populations, particularly in more remote localities. Historians have examined aspects of socio-cultural interaction in the context of the growth of Darwin and the Northern Territory generally (De La Rue 2004; James 1989; Jones 1990; Powell 2000), but relationships were often formed beyond the gaze of official census takers and remain in remembered rather than recorded history. The period from the late nineteenth century to World War Two was arguably the formative period of cultural negotiation in the Darwin Region, a time when diverse populations remained, by choice or official design, largely separate but no longer completely strangers.

The onset of World War Two marked a time of major cultural reconfiguration in the Northern Territory (Powell 2000). Darwin was subjected to air raids, most the non-Aboriginal population evacuated, and thousands of Australian and American troops and aircrew "invaded" the town and its hinterland to occupy both government and private buildings. Chinese residents were forcibly relocated to southern Australia amid great suspicion over their loyalty. The Aboriginal population felt the direct or indirect impact of a huge flow of material commodities into the Darwin Region. Some Aboriginal men provided support for airbases and army facilities, while others were inducted into the war effort as specialist troops, due in part to the efforts of the anthropologist Donald Thomson (Mulvaney1992). The combined affects of Japanese bombing and Australian and American looting caused considerable damage to Darwin, especially the "Chinatown" quarter, which was completely obliterated by allied soldiers. Chinese mining settlements outside Darwin were also in the main demolished, with building materials recycled for the war effort. Aboriginal shell mounds around Darwin were quarried for use as construction material for military facilities (Burns 1996; Hiscock and Hughes 2001), thus continuing a process of destructive recycling begun in the 1870s.

Contributions to this volume by De La Rue, Fredericksen, Jung, Mitchell and Steinberg provide vignettes of the archaeology of the last 150 years of the history of the Darwin Region. The activities of Chinese settlers is examined by Mitchell's paper on mining activity at Bynoe Harbour, a complement to more general histories of Chinese mining in the northern Northern Territory as well as an important contrast to the emphasis on gold-mining activity. Steinberg provides a case study of the management of one of the Top End's numerous shipwrecks in his coverage of the archaeology and management of the wreck of the *SS Brisbane*, one of the largest and most luxurious ships to frequent the port of Darwin in the 1880s. The ability of archaeology to recognise gender differentiation is covered by Fredericksen in his study of Fannie Bay Gaol, Darwin's first purpose built place of incarceration. The archaeological manifestation of World War Two activity is the topic of contributions by De La Rue and Jung. De La Rue focuses on the remains of airstrips and associated facilities on the outskirts of present-day Darwin, and the problematic issue of their effective management as a significant and endangered component of Northern Territory heritage. Jung's paper also deals with management issues in a pioneering study of the Catalina flying boat wrecks that litter the floor of Darwin Harbour as a consequence of wartime combat.

The papers presented in this volume provide an introduction to the diverse archaeological landscapes that represent the last few thousand years of human history of the Darwin Region. While these are by no means representative of all that can be done in the region, we feel that they successfully illustrate the research potential of the region for archaeologists of all flavours. It is our hope that this volume will stimulate discussion and act as a starting point for future research endeavour in what Rhys Jones (1985b:73) once described as one of Australia's prime archaeological provinces.

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Settlement patterns on the lower Adelaide River in the Mid to Late Holocene

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INTRODUCTION

This paper describes several aspects of archaeological fieldwork on a series of earth mounds on the western margins of the Adelaide River floodplains. Earth mounds are a common archaeological feature of the northern Australian coastal plains. They tend to be oval or circular in shape. They range from an average of 39 m in length (R=11-80 m), 32 m in breadth (R=4-40 m) and 0.8 m in height (R=0.1-1.3 m) (Brockwell 2001). They are usually found at the junction of a number of resource zones, close to areas that are flooded seasonally. This location has given rise to the conclusion that they have been chosen to provide well-drained camping sites above wet ground (Baker 1981; Burns 1999; Brockwell 1989; Cribb 1986; Schrire 1968; Meehan 1988, 1991; Peterson 1973). There are ethnographic observations that they may have been constructed deliberately. For example, Meehan (1988:2) and Peterson (1973:177) recorded that, in central Arnhem Land, Aboriginal people built up mounds through using them repeatedly as earth ovens.

Research has demonstrated that the Adelaide River earth mounds were occupied over a period of 4000 years, during which time the floodplains evolved from estuarine conditions, through a transition phase to the freshwater environment that exists today. This paper addresses the consequences of these changes for the human population of the Adelaide River and investigates strategies that were adopted to deal with these changes.

THE STUDY AREA

The lower Adelaide River flows through the coastal plains of northern Australia, which lie in a sub-tropical savanna environment 12° south of the Equator. The study area is located 60 km south-east of Darwin and covers some 2000 km^2 (Figure 1).

The climate of northern Australia is characterised by high temperatures and two major seasons, the dry season from May to October and the wet season from November to April. This marked seasonality has a dramatic impact on hydrological regimes, and consequently on vegetation and animal communities. It had a strong influence on hunter-gatherer mobility and settlement patterns, and the activities of the Aboriginal people who live in the Adelaide River region today continue to be regulated by seasonal changes.

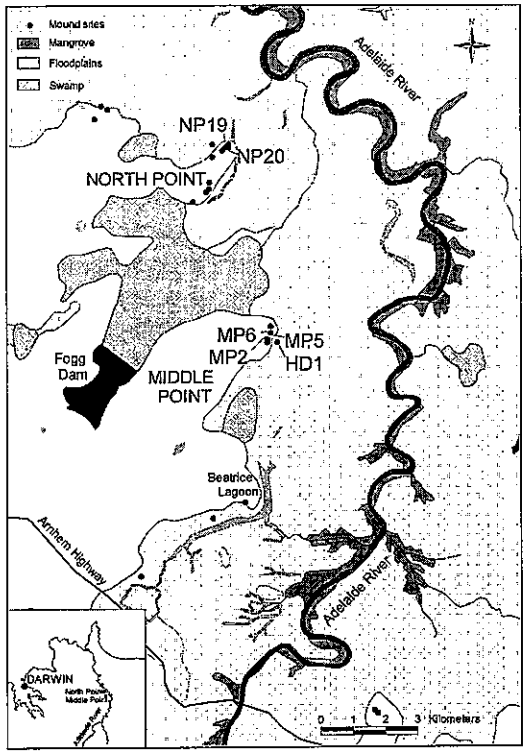

Figure 1. Location of Sites in the Study Area.

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