

# Healthy Country

managing the land for healthy waterways

## Predictive landscape and cultural environmental modelling of the Blackfellow Creek Focal Area, Lockyer Valley, for SEQ Catchments Healthy Waterways Project

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### NOTE:

This report has been compiled to the best of available knowledge.

It should not be seen as a final understanding of the cultural landscape, but rather as a work in progress that can be reassessed and re-interpreted as new information comes to light.

It represents the author's opinions and knowledge and other Traditional Owner groups and persons may hold differing opinions and knowledge.

The report was tabled at a meeting of various Traditional Owners from the Jagera, Yuggera and Ugarapul Peoples and their comments have been incorporated where possible into this report.

### COPIES DISTRIBUTED TO:

Electronic Draft to Graeme Channells (SEQTOA) . . . . .	15 August 2008
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# 1 Introduction

## 1.1 Introduction to the *Healthy Country* project

SEQ Catchments – *Healthy Country* is an initiative of the Queensland Government to reduce the volume of sedimentation and nutrients entering Moreton Bay (SEQ Healthy Waterways 2007).

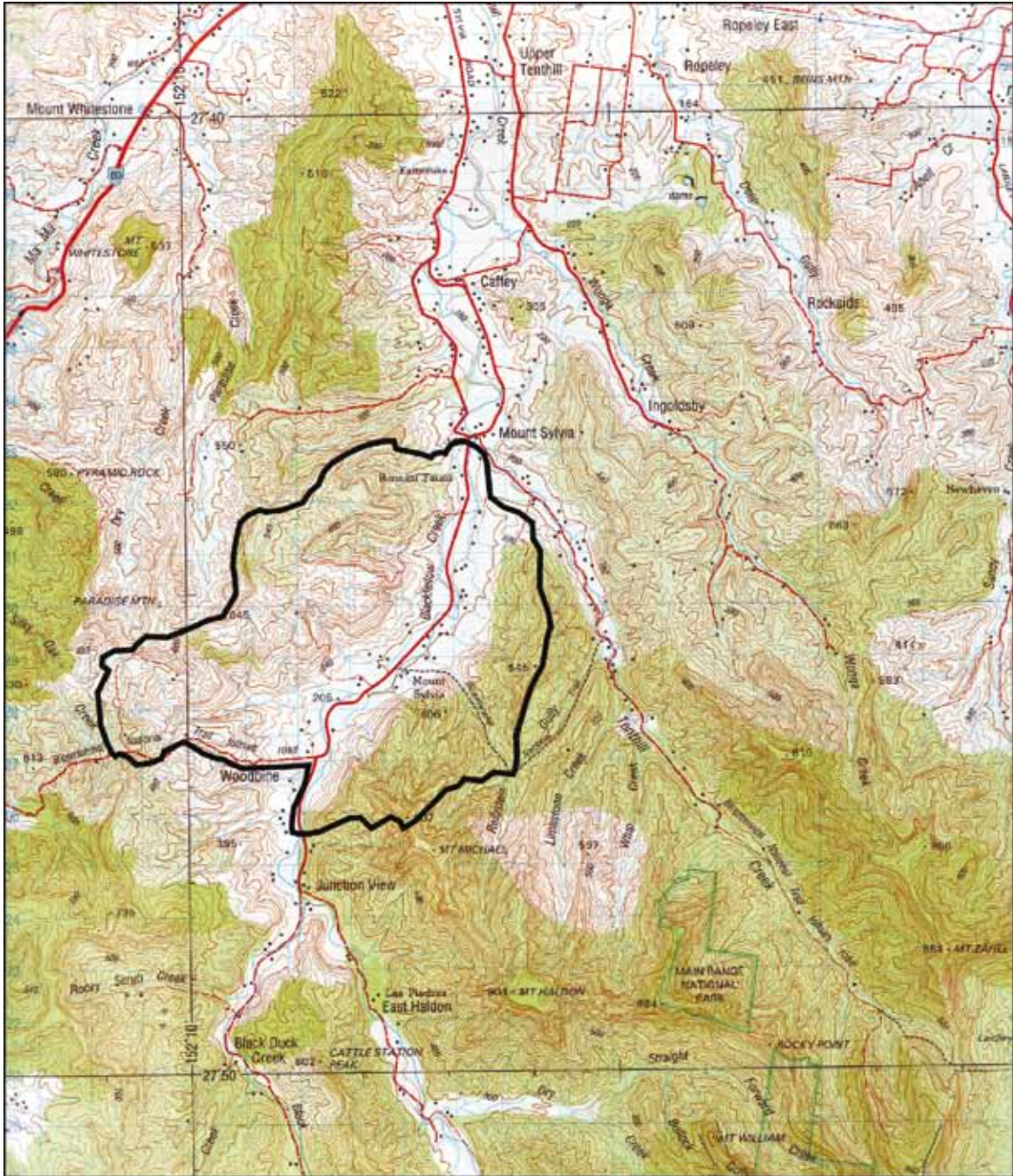
Parts of three catchments (the three ‘focal areas’) have been chosen for a four year demonstration project in natural resource management. The three focal areas in the Lockyer, Bremer and Logan catchments are seen as representing major systems that have contributed to the poor state of Moreton Bay and its catchment waterways as a result of land use management and agrarian processes over many years.

*Healthy Country* is being delivered by a partnership comprising SEQ Catchments, the South East Queensland Healthy Waterways Partnership, Department of Primary Industries & Fisheries and South East Queensland Traditional Owners Alliance Limited (SEQTOA). SEQTOA’S involvement aims to demonstrate the holistic engagement of Traditional Owners in natural resource management and to produce a pilot Aboriginal cultural heritage predictive model that could be used to develop conservation and education strategies and management planning for government departments and landowners. This report has been commissioned as part of that engagement.

This report deals only with the Lockyer Focal Area (See Figure 1), based on Blackfellow Creek. We acknowledge the involvement of the Jagera, Yuggera and Ugarapul peoples who form the Jagera People native title claim, in whose country this report is located.

In addition to its environmental values, the project has the capacity to assist in building bridges of reconciliation and appreciation for Aboriginal cultural landscapes that endured for untold generations. SEQTOA and the other Partners see this demonstration project as a model for a larger, long-term effort. SEQTOA sees the value of its project to the non-Indigenous Partners primarily in an expansion and deepening of community perceptions of the human dimensions of the landscape and an associated strengthening of community motivation (SEQ Healthy Waterways 2007).

Figure 1: Location of the Blackfellow Creek Focal Area, Lockyer Catchment



## 1.2 Healthy Country Engagement Strategy – Traditional Owners

The issue of engagement in relation to the Healthy Country initiative is not simply an issue of engaging the landholders, although that is critical to the success of the initiative. Another vital issue is the generation and use of the best available science in the planning and execution of works under the project. The engagement of the Traditional Owners will add depth and significance to the project.

The Strategy is aiming for a continuing engagement of landholders in the focal areas with environmental managers and planners. It is expected that gains in engagement, science based land management and the control of sedimentation will be enduring. SEQTOA similarly has expectations of continuing traditional owner engagement within the focal areas.

It is not known at this stage whether any traditional owners reside within any of the focal areas. It is quite possible that none do. However, the identified traditional owners do have continuing interests within the focal areas. Those interests are best described as maintaining their connection to country:

- By community understanding of traditional owner's traditional place in the area;
- By community understanding of the traditional condition of the lands and waters;
- By acknowledgement of their continuing interests in the land;
- By actually being seen in the landscape;
- By being practically engaged/employed in the remediation process;
- By having access to identified cultural heritage sites;
- For these purposes, by having personal connection to some landholders (SEQTOA 2008).

## 1.3 Finding a way forward

In south eastern Queensland, the accepted time scale for human occupation is possibly 30,000 years or more, spanning the later Pleistocene (to about 10,000 years ago), through the Holocene (since about 10,000 years ago) to modern times. The oldest recorded Pleistocene site found to date (2008) in southeast Queensland is a site at Wallen Wallen Creek on Stradbroke Island (Neal & Stock 1986; Satterthwait, Hall and Gillen 1996), dated between 22,000 and 10,000 years ago.

The landscape of south eastern Queensland changed dramatically about 5500 years ago. Over time, different groups may have employed a number of land use strategies for food procurement and social interaction that could result in a range of archaeological and cultural sites (Hiscock 2008; Lourandos 1985; Satterthwait, Hall & Gillen 1996). From an archaeological perspective, this could be likened to a jigsaw containing different pieces from different sets, each of a different time scale.

Add to this the impact of non-indigenous settlement which first occurred in the study areas as early as 1828 with Fraser's exploration of the Bremer and Cunningham's subsequent exploration of the Lockyer Valley in 1829 (Steele 1972). By the 1880s, most of the fertile land west of the Little Liverpool and Marburg Ranges had been thrown open for closer settlement and the inevitable fragmentation of natural bushland and the decimation of the vast Rosewood Scrub had begun. This process of land use has resulted in a mosaic of farmlands, ploughland and uplands, a pattern of roads, settlements and industrial developments, each of which has impacted on a fragile and ephemeral cultural landscape.

From the 1840s onwards, the introduction of sheep and cattle had a profound long-term effect for the Australian environment. Initially, sheep and cattle were introduced in huge, unfenced runs, such as the Helidon Run. Apart from some ring-barking and timber cutting for the construction of yards, sheds and huts, the impact was possibly minimal. In most areas, pastoral tenure lasted only about 30 years, before the resumption of the squatter runs after the Queensland Government passed the *Crown Lands Alienation Act 1868*, and their resale into smaller blocks. Fences were built, crops planted and the intensification of stock concentrated along waterways and grasslands changed the landscape.

One major effect was on the watercourses that drained the land.

Many Australian drainage systems, particularly west of the Great Dividing Range, comprise what has been termed 'necklace creeks,' a series of deep pools, connected by either dry creek beds or rippling shallows over gravel bars. In times of drought the shallows dried up, while the waterholes remained. It has been suggested (Beal 1993) that European grazing animals disturbed this organic hydrology, resulting in the modern incised channels of creeks today. In addition, stock trampled the numerous springs, soaks and swamps that covered the landscape, destroying the delicate hydrology. These natural waterways were fundamental to bio-diversity; numerous species of plants grew in these riparian ecotones, and this diversity attracted animals and birds in great numbers and contributed to the cultural landscape.



In most areas of south east Queensland, a stringent requirement of selection during the late 1800s was the wholesale clearing of land. Teams of ring barkers — often Aboriginal people — cleared thousands of hectares of woodland. The prevailing attitude of the pioneering farmers was in accord with their European heritage; that land needed to be cleared in order to improve it. For them, it was a matter of survival.

Today, numerous landowners have a powerful and strong sense of connection to their own holdings, born from family connections, toil and hardship. Landowners also have a significant and important perception of land care and management. Concerns in the past over native title and land claims are slowly changing to meet environmental requirements, land pressures and a belated recognition of Aboriginal history. When all is said and done, the majority of landowners care passionately about their land and are deeply interested in its history and future.

In the process of settlement and appropriation of traditional Aboriginal lands, through indiscriminate dispersals, shootings, abuse and forced removal to reservations, the timeless connections to land through dreaming tracks, mythological story places, sacred sites, and ancestral places of occupation and resources, were frequently lost. The advent of Native Title further accentuated the concerns of landowners with potential land claims. A divide between landowner and traditional custodians has harmed the protection and maintenance of cultural places that are significant not only to Aboriginal people, but form part of our nation's enduring cultural legacy.

Understanding this delicate mosaic of environment, historical land use and cultural landscapes has been currently based on archaeological studies, either through developments or academic studies. This are frequently focussed on visible remains, such as artefact scatters or quarries and the more culturally significant places, such as dreaming tracks, massacre sites or creation places, are not recognised. What is currently absent is the ability to predict with any level of accuracy where Aboriginal cultural heritage may be present in the landscape. Such a tool can be especially valuable in planning projects, where natural resource management is being assessed on a range of criteria, but ground inspection is not always an option.

Through the development of a predictive model, cultural and environmental planners may be in a better position to predict the distribution of localities that are considered to have a high probability of containing cultural heritage. Forewarned, planners can then minimize impacts, or allocate sufficient resources to locate cultural sites and places and develop alternate management strategies prior to any land development.

## 1.4 Predictive modelling: identifying the cultural landscape

Because of limited access, decimation of populations and the forced removal of Aboriginal people from country that occurred after European settlement, a huge body of knowledge has been lost. This not only includes land use practices, but also knowledge of vegetation, patterns of human and animal movements, food resources, climate, and sustainability.

Turnstone Archaeology is evolving a tool called Predictive Landscape and Cultural Environment modelling (PLACE). Cultural landscape mapping and predictive modelling are tools that Aboriginal people, resource managers and landowners can use to understand and plan for the future. Such a tool can be especially valuable in planning projects being assessed on a range of criteria, but for which ground inspection is still not an option. Like a cultural detective searching for clues, PLACE uses every avenue to rebuilding and re-identifying lost landscapes. These include oral histories and stories; historical and pioneer accounts; archaeological studies and surveys; environmental data, especially geology, soils and Regional Ecosystems, and landscape mapping. In some cases, this has allowed the reconstruction of a cultural landscape, which, while incomplete and not perfect, still provides a greater detail and cultural value than any other current models (Strong 2006a, 2008a).

By using a predictive model, cultural and resource planners may be in a better position to predict the distribution of localities that are considered to have a high probability of containing cultural heritage (Gaffney & Stanic 1991; Strong 2005; Westcott & Brandon 2000). Forewarned, planners can then minimize impacts, or allocate sufficient resources to locate cultural sites and places and develop alternate management strategies prior to any land development.

Predictive modelling is not perfect. Indeed, it has many deficiencies and complexities (Bono 1994; Ebert 2000; Hamilton & Larcombe 1994; Strong 2005). However, it offers a useful footprint that can be modified, upgraded as new knowledge becomes available, and added to as Aboriginal people come forward with information about their country.

Any predictive modelling must address the issues of data acquisition and management, its use and practicability. Because our knowledge of the archaeological and cultural landscape is patchy, largely determined by development projects, it is important that data collection during ground-truthing and subsequent analysis, is suitable for data input in a cost effective process (Strong 2005). While Geographical Information Systems (GIS) offers effective ways of managing this data, its analysis and reporting, the collection of primary data still represents the most likely area of bias (Rowland & Connelly 2002).

One further point needs to be made regarding theoretical frameworks for predictive modelling. Users of predictive models using a numerical approach need to carefully evaluate the nature of the existing data base. For example, a well-known Queensland archaeologist in basing his valuable pioneering settlement and subsistence model for the Moreton region on the range of species within each of his nominated vegetation types, applied the same weighting for small rare nocturnal species as given to major food animals, such as kangaroo or dugong (Lilley 1982).

Likewise there is a tendency to create one model to explain all time periods. Bono (1994) suggests that:

*Controlling so many factors including changes in physical geography, climate, flora and fauna, cultural groups and technology proves too formidable a task for archaeologists working under tight budgets and /or strict mandates. Whatever the reasons, the majority have developed predictive models that encompass all prehistoric time periods and all site types.*

The latter is certainly true. It is almost impossible to provide data sets at all periods of human occupation in south east Queensland. While the late Holocene is reasonably well understood, the further back in time, the fuzzier it becomes.

The answer is to try and extrapolate from the various models currently in vogue and see if a model that is user friendly can be produced.

Bono (1994) has pointed out that a combination of techniques is useful. For example, the Intersection Model, perhaps the most commonly used methodology, using the basic assumption that all variables contribute equally to the determination of the predictive model, does not accurately reflect the complexity of human land use decision making (Bono 1994). In an Australian context, if predicting the location of shell middens, a variable such as 'proximity to water' would obviously be of greater significance than 'vegetation zone.'

In the study for the Healthy Waterways project we have chosen to include another method, which to some extent acts as a check and balance to other models. This is the Weighting Model. PLACE modelling has identified nine environmental factors that have a direct bearing on site location. In addition, there are another 15 cultural and 18 archaeological variables that need to be taken into consideration. There are probably considerably more. By introducing some form of weighting, even if this is based only on incidents recorded in the literature, the weighting model includes a bias in that its basic assumption is that each landscape variable contributed differently to prehistoric land use decision making. In order to balance this, a numerical weight is given to reflect its considered importance in the cultural landscape (see Strong 2005 for a detailed discussion of

predictive models and their application). In an another application, it allots a higher value to animal and plant food species that were known to have contributed in a major way (such as macropods, fruit bats, ducks or fish) than species that probably contributed only in a small way (such as songbirds or skinks).

## 1.5 The environment in cultural landscape modelling

The Queensland landscape is a macro-scale biodiversity of ecosystems, each important and contributing to different combinations of rocks, plants, animals and human land use (Sattler & Williams 1999). While sometimes perceived as having a mono-environment — primarily eucalypts in some form of another — this is a misperception. Within a short distance, composition shifts continuously, depending on aspect, soils and geology, from littoral and riparian communities, to open woodland and forest, to vine scrub or grasslands. The coastal southeast supports small areas of resource-rich wet sclerophyll forest and closed canopy rain forest, greatly reduced from its pre-contact extent. Further west, towards the Great Dividing Range, brigalow woodlands — particularly the great Rosewood Scrub — largely replaced open forest, and on the Darling Downs, grasslands form a different environmental landscape (Strong 2005).

Of major significance for predictive modelling is this micro-scale ecological diversity, structured by localised environments of hydrology, sedimentology, geomorphology, topography, climate, geology and fire regimes (Hamilton and Larcombe 1994). This micro-environment is critical to predictive modelling, but its fine scale is difficult and time consuming to replicate within GIS models.

If we see the cultural landscape as a multi-layered landscape wherein geology, geomorphology, hydrology, flora and fauna, form a base on which is implanted indigenous, historical, social and spiritual /cognitive levels, then it provides a clearer understanding of the complexities of the predictive modelling process. Human beings, whether Aboriginal or European, are essentially social beings, and as a result, predictive modelling needs to take into account logistical, spiritual, socio-political and personal considerations how people from prehistoric times until now, have viewed or used the landscape. Understanding this complexity may assist in the location and protection of a greater percentage of cultural sites and places (Strong 2005).

## 1.6 Finding country: identifying the cultural landscape

Aboriginal people believe that 'country' was created by creative, heroic and totemic ancestral beings that traversed the whole land in a time before the Dreaming.

These ancestor beings, either animal, human or monster, travelled over the land, engaging in human-like activities. They released the life-force that enabled the population of the land; established cyclical seasonal patterns, times and places for ceremonies. The tracks left by these ancestor beings, (referred to as dreaming tracks, mythical tracks, ceremonial tracks or songlines) link in a magical and invisible but tangible network between places that are highly significant (Bernt & Bernt 1977; Cowan 1991; Sutton 1995, 1998; Tacon 1994, 1999). These places can be still identified in some instances (Winterbotham 1957) in south east Queensland. By performing ceremonies at these places, Aboriginal people believed that they were 'singing the country', maintaining its health and their links to the ancestors and totemic beings.

Aboriginal perceptions of landscape thus have a multi-spatial quality that is foreign to Western perceptions (Cowan 1989; Paton 1994; Rose 1992, 1996). The whole landscape is sacred and to disturb it is tantamount to breaking the link between country and personal identity. W. Stanner (1979) has remarked, 'Aboriginal people moved not in a landscape, but in a humanised realm saturated with significations'. Each group or clan has its own country, stories, and sense of connection, often handed down for millennia. Traditional owners hold the land in trust for the mythical ancestors, as well as past, present and future generations (Berndt 1982; Berndt & Berndt 1977).

Almost all Aboriginal groups, even those highly urbanised, retain knowledge of some creation stories. Creation stories relate to aspects of the landscape. In this cultural landscape, everything — mountains, hills, rock outcrops, waterholes, swamps, creeks and rivers — was known and named (Godwin & Creamer 1984; Hunn 1993; Strong 2000), along with ancestral camps, Dreaming tracks, food resources and special places. Aboriginal people refer to this cultural landscape as 'country'. As Rose sensitively puts it:

*'Country is multi-dimensional. It consists of people, animals, plants, Dreamings, underground, earth, soils, minerals and waters, surface water and air. There is sea country and land country; in some areas people talk about sky country. Country has origins and a future; it exists both in and through time... The law of the land is also the law of the sea, and sea, like land, is country that is known, named, sung, danced, painted, loved, harvested and cared for' (Rose 1996).*

## 1.7 The multi-layered cultural landscape

Seeing the landscape as an integrated, multi-layered network transforms our understanding of land use and cultural implications (Pickering 2003; Strong 2000).

PLACE modelling identifies the underlying geology that influences soil types and determines the surface vegetation. Geology contributes to landforms that are relevant to site location through aspect and environmental contributors. Perhaps more relevant to Traditional Owners, rocks are crucial for the manufacture of stone artefacts, the basis for survival in Aboriginal subsistence. Geology and geomorphology (the study of land forms and the processes that transform them) also contribute to landscape forms that were identified in creation and mythological stories used by Aboriginal people to explain the natural world.

Vegetation is critically linked to its underlying geology, but also to aspect, altitude and soils. Within southeast Queensland, ten bioregions have been identified. These broad divisions are further classified into around 145 Regional Ecosystems (or REs). REs describe the relationships between major flora species and the environment at a bio-regional scale and conform to geology, rainfall and landform (Sattler and Williams 1999). Regional ecosystems are further categorised by 12 Land Zones that represent a distinctive difference in geology, and by consequence, in the associated landforms, soils and physical processes that formed them and continue to shape them (Sattler and Williams 1999). This allows, for example, broad vegetative species to be further refined, resulting in a very detailed landscape model.

The important thing to note is that each of these REs contain distinctive floristic and structural characteristics, with different understorey species common or absent in other associated regional ecosystems. Aboriginal society was a foraging culture highly integrated with its environment, and these micro-environments that relate to resources and optimum living areas are crucial. Some REs are similar enough to possibly 'lump' together as it is unlikely Aboriginal people differentiated between the more obscure differences that delight scientists. However, in broader terms, there are great advantages in linking REs to archaeological predictive modelling. In the past it has been the lack of such detailed information that has militated against environmental factors in predictive modelling (Strong 2000, 2005).

Perhaps most importantly, archaeology allows the retrieval of past ecosystems that have been cleared or otherwise modified through the identification of key indicator species, pollen analysis and residue analysis. This can assist us with understanding environmental changes over time, such as climate change and land use.

While not every one of the REs will prove useful from human use extrapolation, familiarity with them will rapidly enhance our understanding of their significance in determining Aboriginal land use and determine whether there is any relationship between different plant communities and site location. Research has shown that there is a relationship between the ecotone between different REs and site location, with a preponderance of archaeological sites being located in a 50 metre buffer between two different ecotones, each offering different resources (ARCHAEO 2000; Strong 2000; 2005). It was really about having access to both Bunnings and Woolworths!

Predictive modelling requires an extensive knowledge of human land use. Information regarding the way in which land and resources were used by Aboriginal people in a pre-contact landscape is available to us through two primary sources: ethno-historical information and archaeological data.

One pre-contact land management strategy used by Aboriginal people was fire. Fire was extensively utilised by Aboriginal people to control the landscape. Rose (1992) argues that burning off to keep country 'punyu' (clean, happy, good) is one of the fundamental responsibilities that Aboriginal owners have to their country. Early explorer accounts are full of references to land being burnt. Indeed, the Darling Downs mob was called 'Gooneburra' — the 'fire people' — because of this custom. Cunningham, during his exploration of the Lockyer Valley in June 1829, was threatened by Aboriginal fires lit to repel him (Steele 1972). In a more general sense, however, Aboriginal people sought to maximise fire regimes to perpetuate animal and plant resources, in keeping with a careful stewardship of the land. Certain areas were set aside as breeding grounds for certain key species, plant and animal, where regeneration could take place (Winterbotham 1957). Such areas are termed *mimburi* in the Jinibara language and represent an environmental consciousness akin to the setting aside of nature reserves or national parks.

Exploration accounts and early pioneer histories also provide invaluable information about the location of people, camps and material culture that assists in cultural heritage mapping. Europeans began to document and study Aboriginal culture from the time of the first explorers. There are a number of eye witness accounts of exploration that traverse the study area (Steele 1972). However, while valuable sources for extrapolation and interpretation, in many cases they constitute a limited understanding of the complexities of Aboriginal culture. The accuracy of some of these accounts, as Hall (Satterthwait, Hall & Gillen 1996) points out, reflects what Europeans considered of interest, rather than what Aboriginal people saw as significant, enduring or most valued. Their comments are commonly Eurocentric, reflecting personal bias towards eccentric or bizarre customs, misunderstanding of the spiritual role and relationship to the land, minimal environmental context, and little knowledge of

women's business. By the time that a more enlightened approach had been formulated, traditional lifestyles had been disrupted and the pattern of movement and land use that had evolved over millennia had gone forever (Strong 2000).

In some cases, it is only a local landowner's knowledge about cultural find spots and historical land use that allows us to piece together the former environmental factors such as wetlands, food resources and archaeological sites otherwise lost (Strong 2008a).

Table 1: The multi-layered cultural landscape: building blocks of predictive modelling (Strong 2005)

LAYERS	SOURCES
<b>Cognitive/spiritual: Non visible land use</b>	Derived from ethnographical and historical accounts, oral histories
<b>Historical land use</b>	Derived from historical literature, changes in land use, mapping, local government, historical societies
<b>Aboriginal land use: Social and technological</b>	Derived from ethnographical and historical accounts, oral histories and archaeological reports
<b>Vegetation</b>	Derived from EPA mapping using simplified RE tables
<b>Hydrology</b>	Derived from aerial maps
<b>Geomorphology</b>	Derived from aerial maps, GIS, ground-truthing
<b>Geology</b>	Derived from geological maps, archaeological reports

## 2 The cultural landscape

### 2.1 Developing political boundaries

The convergence of anthropology and archaeology (Godwin & Weiner 2006; Williams 1981) is a powerful tool in PLACE modelling. Currently there is debate between contemporary Aboriginal communities about their traditional links and country, resulting from the disintegration of traditional society and identity. This makes the fundamental construct of tribal areas or clan estates controversial. Ideally, archaeology and anthropology work in tandem; one provides material evidence of prehistoric peoples and technology; anthropology can provide valuable information about political, social, cognitive and spiritual aspects of a society. In providing a broad-scale archaeological and anthropological theoretical context for cultural heritage modelling that is reasonably useful, there is a danger of becoming simplistic or failing to identify the full scale of socio-cultural complexity and development. However, even early observers were confused about the range and name of various Aboriginal groups they encountered.

Problems remain in attempting to describe or analyse boundaries of various social groups over long time periods, especially given the complex marriage lines, song line and socio-spiritual gatherings of Aboriginal groups in south eastern Queensland. McNiven (1999) proposed a model of social fissioning for the Cooloola area, which highlights the fluid state of Aboriginal groups.

Some archaeologists currently postulate that traditional social groupings with identification with 'country' occurred in southeast Queensland possibly between 4000 to 1000 BC. This was initially stimulated by environmental factors, such as changing sea levels and drier climate, but then running counter to climatic and environmental events. These factors stimulated possible increases in population size and density, trends towards regionalisation and territoriality, changes in mobility and sedentism, more specialised and intensive use of land and resources; and increased intergroup social activities (Lourandos 1997).

Lourandos (1997) has shown that the occupation of hinterland rockshelters from about 4000 to 1000 BC coincided with a drier climatic phase that could have facilitated the opening up of forested areas through fire regimes. He interprets the increasing use of rockshelters during the last 2000 years is in opposition to an increasingly humid and wetter climate. He suggests that the Challawong rockshelter near Gatton, for example, indicates changing hunting patterns possibly associated with a shift from closed (wet) to open (dry) forest species. According to Lourandos, once forests were opened up by fire, the process was maintained and accelerated into recent times (Lourandos 1997).

Early European observers had a limited understanding of Aboriginal social and territorial organisation. There was confusion between language groups, whereby the name of the language was assigned to a political entity, such as a tribe, clan, or even an extended family group. Taylor (1967) in discussing Aboriginal social organisation and the use of the term "tribe" in south east Queensland has found that as many as six different names could be applied to the same group by different writers.

Effectively, each group had a range of ways that it could be described, including:

1. Local unit: The local small group/individual/family had one name, usually to do with a natural feature of the locality for which that group had direct management and responsibility.
2. Bora Council: The combination of the small/groups/individuals/families had representatives at the bora council, an important group of respected men who made decisions about ceremonies, marriages, etc. Each council had its own name.
3. Larger Group: The name the large group called itself.
4. The names other groups called that group which may change from group to group.
5. A wider name that indicated whether the group was coastal or inland.
6. The name of the dialect the large group used.
7. The name of the larger language group to which the dialect belonged (even though there were relatively few differences between these so-called "language groups") (Strong 2005).

Whalley (1985) says Mathew's definition of Aboriginal territorial organization within the study area is the clearest:

*A few families claiming the same territory usually camped and travelled together, sometimes in smaller, sometimes in larger groups. I characterize such family groups as communities...designated by some feature distinguishing themselves or their country, the term for which was prefixed to the termination, bora (Mathew 1910).*

The social organisation in south east Queensland was loosely hierarchical in nature. The following table has consulted a range of anthropological and historical sources in its construction (Fisher 1992; Ford & Blake 1998; Gresty 1946; Hall 1990; Helon 1998; Horton 1994; Howitt 1904; Lilley 1978; Matthew 1889, 1910; McNiven 1992, 1999; Meston 1896, 1923a, 1923b, 1923c, 1923d, 1923e, 1923f; Nelson 1993; O'Donnell 1990; Petrie 1904; Pickering 2003; Ridley 1866; Satterthwait, Hall & Gillen 1996; Steele 1984; Strong 2005; Tindale 1974; Watson 1943; Whalley 1987; Williams 1987; Winterbotham 1957).

Table 2: Social composition of Aboriginal groups in south eastern Queensland

GROUP DYNAMIC	GROUP COMPOSITION	TERRITORY
<p><b>Extended nuclear family group</b></p> <p>No identified historical group.</p>	<p>Two or three related families, perhaps 10-20 people, inheriting stories, songs, ceremonial places and common language. Owning specific portions of country, either inherited or given.</p>	<p>Small, nuclear territory, based on water and resources access, possibly 25-50 square kilometres in size. Dreaming tracks, songlines, marriage lines, coalescing for socio-spiritual gatherings. Not necessarily having access to stone sources.</p>
<p><b>Clan group</b></p> <p>Groups such as Tent Hill clan, Rosewood clan, etc.</p>	<p>Families linked by kinship and dialect, numbering perhaps 30-100+ people, with shared and identified rights to particular estates of country, inheriting stories, songs, ceremonial places and common language.</p>	<p>The group usually identified by early pioneers as a 'tribe.' Recognition they are part of a larger group. Access to water and stone resources, complex kinship systems and proper marriages; rich landscape of dreaming tracks, creation stories, an elected 'headman' with local bora council with localised bora ceremonies.</p>
<p><b>Tribal group</b></p> <p>Groups such as the four 'tribes' of the Jinibara, (ie Dungidau, Nalbo, Dal:a and Garumngar).</p>	<p>Clans linked by shared identity, numbering perhaps 100-1000+ people, with shared and identified rights to particular portions of country, inheriting stories, songs, ceremonial places and common language.</p>	<p>The group also often identified by early pioneers as a 'tribe.' Access to water and stone resources, complex kinship systems and proper marriages; rich landscape of dreaming tracks, creation stories, a bora council with complex bora councils and initiation ceremonies.</p>
<p><b>Language group</b></p> <p>Examples might be YUGGERA, KABI, WAKKA</p>	<p>Groupings that may not have shared kinships, and places, but identify themselves in some political grouping as a people. The Garumngar, for example, fought with Dungidau, but still identified as Jinibara.</p>	<p>Over-arching language and corporate affiliations. Corporate meetings at bora councils.</p>

The establishment of socio-political boundaries at clan level is of value in the development and interpretation of a predictive cultural landscape model. The spatial distribution of occupation and art sites, mythological places, access to resources such as food, water and stone, time and movement studies, and interaction with other groups can be mapped.

However, it is complex. To establish even a hypothetical model for territory size and resource area required varies from coastal to sub-coastal groups (McNiven 1992; Strong 2000; 2005; Whalley 1997). Political groups today define territory in vague terms — by a river, or mountain, or range (Phillipson & Archaeo 2005). These may well indicate roughly where boundaries existed, but it is likely that boundaries, in fact, were fluid, changing over time as rous became powerful or diminished.

However (and SEQ Catchments Healthy Country should take heart from this), it does appear that in most cases, clans occupied catchments.

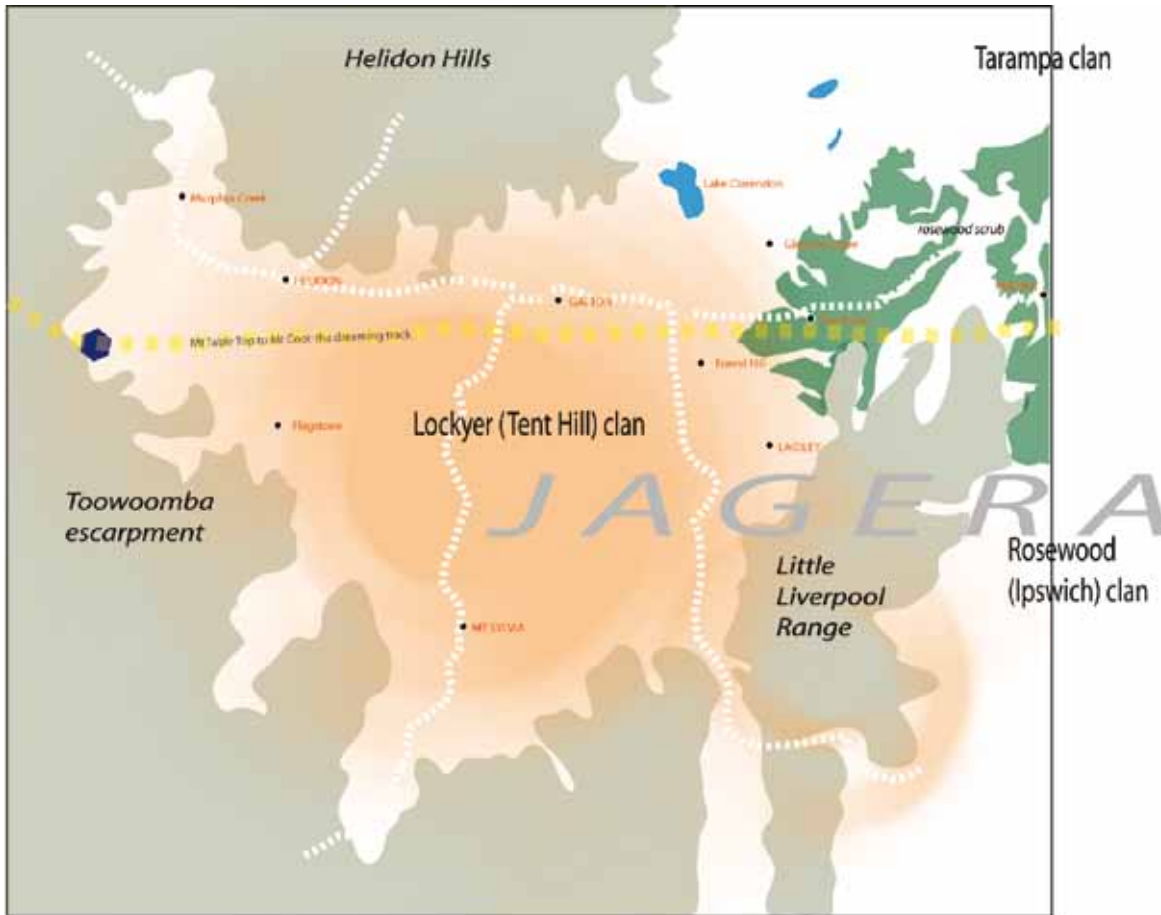


Figure 2: Proposed territorial area for the Tent Hill (Blackfellow) Creek clan

Mountains were seen as markers, delineating territory (Steele 1984; Strong 2000, 2005; Winterbotham 1957 and numerous other examples). Thus the Little Liverpool Range and the Rosewood Scrub probably separated the Rosewood (Ipswich) mob from the Tent Hill/Lockyer Valley mob and a pathway connected the two groups and allowed access for ceremony and exchange. The escarpment of the Toowoomba Range marked the boundary of the Jagera, Yuggera and Ugarapul peoples with the Gooneburra people of the Darling Downs (Meston 1920). It is likely that the Tent Hill clan that occupied the Lockyer Valley between Helidon and the Little Liverpool and Marburg Ranges (possibly to about Plainlands) were among the most numerous of the Jagera/Yuggera/Ugarapul speaking peoples.

The west Moreton region was impacted on very early in Queensland's colonial history, from 1829 when Allan Cunningham made an expedition roughly along the route of the Warrego Highway

between Rosewood and Helidon (Steele 1972). By the 1840s, the Lockyer Valley Aboriginals were engaged in a fight for survival. Massacres at Table Top and Tent Hill, and attrition based on land dispossession, killings and poisonings, disruption of traditional life and alcohol, decimated the once populous Jagera/Yuggera/Ugarapul peoples. The ramifications of European settlement had already impacted on tribal society through diseases such as smallpox and measles that had a devastating effect on Aboriginal populations. Various estimates indicate that up to a third of the total population may have perished from such disease even before the arrival of non-indigenous invaders (Roberts 2003).

James Baker, a convict who lived with Aboriginal people for 14 years from about 1826, said that the tribe of a leader called 'Moppy' occupied the country on the Lockyer between Limestone (Ipswich) and the [Toowoomba] Range (North Australian 1860). It is pertinent

that when Moppy's sons escorted Lieutenant Gorman and his party in 1840 from near Lockyer Creek, near Grantham, they only went as far as the Dividing Range (Jarrot 1976 cited in Kwok 2000). A reasonable assumption is that this was the western boundary of their country. Gaiarbau<sup>1</sup> (Winterbotham 1957) specifically includes Gatton, Helidon, Grandchester and Franklin Vale within the territory of a group he calls 'Kitabel', which coincides largely with the Little Liverpool and Marburg Range between Ipswich and the Toowoomba Range. Tindale (1974) argues that this is an erroneous ascription of Yuggera country to the more southerly Giabal. However, Steele (1984) clarifies the use of the word as 'Cateebil' or Kitabel. We have opted to use the term 'Lockyer Valley' clan for the Tent Hill/Blackfellow Creeks clan group until further information is available and suggest that its core country was west of the Little Liverpool Range, although perhaps extending through towards Franklin Vale at times. Whatever the correct nomenclature, it seems from various sources (Donovan 1895; Meston 1923; Nelson 1993; Sharpe 2000) that the people of the Lockyer Valley traditionally termed themselves Yagera (Kwok 2000) or Jagera People.

Steele (1984) suggests that the Lockyer Valley was possibly more densely populated than other Durubulic-speaking areas. John Kent (Meston 1923), a squatter in the 1840s, claimed that a noted Aboriginal war-chief, Multuggerah, son of Moppy (called 'Young Moppy' by the whites) could lead 1200 men from the Gatton and Tent Hill clans (Campbell 1875). However, as this would constitute a total, with women and dependants, of more than 3000 people it is likely that this represents a gathering of other clans to attack the invaders. Multuggerah fought a brave guerrilla campaign against overwhelming weaponry of the British 99th Regiment and armed settlers until he was wounded in 1846 during a raid on Coult's head station on Lockyer Creek (Langevad 1979).

Other early historical figures whose names have been recorded include King Billy Turner who was born around the 1840s, probably from the same group as Moppy and Multuggerah. King Billy claimed connection to both Blackfellow Creek area and the Lockyer Creek catchment (Fairley n.d; Olm 1984). A photograph of him and his wife, said to have been taken at Ropeley in 1885/6 (Kwok 2000), shows him in company with another well-known figure, Johnny Tarampa. King Billy Turner was recorded as being an important figure in the Gatton area (Queensland Times 1927). Steele (1984) appears to have confused 'Johnny' and 'Billy' Tarampa. He notes that a stone axe (now in the Museum of Mankind, London) was given in 1872 to Professor Liversidge. Yet Olm (1984) reports that it was 'Johnny' of Tarampa who was given a king plate in a patronising ceremony by W. A. Cross, at Lower Tent Hill at the same time as King Billy (Strong 2003).

<sup>1</sup> Gaiarbau (Willy Mackenzie) was an Aboriginal man of the Jinibara tribe probably born around 1880 who provided Dr L Winterbotham with valuable transcripts of eye-witness traditional Aboriginal life in southeast Queensland (Winterbotham 1957).

Another important figure whose name and connection to the Gatton area has survived is King Johnny Harvey. Both he and his wife Emily were born in the Lockyer Valley. The Thompson family (one of the Jagera/Yuggera/Ugarapul groups) claim connection through this person.

Based on the best extrapolation of clan sizes, it is likely that the Tent Hill clan numbered around about 200-300 people. Eumundi's clan at Noosa, considered a large one by the escaped convict John Graham by comparison to other clans on the Sunshine Coast, numbered 120. Considering Eumundi's area had significant food resources such as fish, shellfish, prawns, crabs, dugong, turtle and other marine resources, unavailable to sub-coastal groups, it seems more realistic that the Lockyer clan was smaller than generally claimed.

## 2.2 Mapping the cycle of life

Aboriginal people developed considerable sophistication in their understanding of the relationships between resource areas, seasonal shifts in resource productivity and potential. When food resources were diminished in one area, they would move to another (Gaiarbau, quoted in Winterbotham 1957). The knowledge of these resources allowed Aboriginal people to move between areas of high resource potential, exploit these resources, and then move to another locality. However, they also sought to improve their subsistence through maintenance of a broad social network that would allow access to neighbouring resources, careful stewardship of the land, and the maintenance of a proper relationship with the supernatural (Rose 1996; Winterbotham 1957).

Aboriginal people required the same things that hunter-foragers worldwide require: water, plant and animals foods, shelter, stone sources and identification of spiritual places. By understanding the essential seasonal correlations between eco-niches and useable resources, and how they relate to the spatial and environmental parameters of the landscape, we can begin to develop a cultural landscape predictive model (Strong 2000, 2005).

For a predictive model to be successful, it needs to identify the more important aspects of subsistence and the daily cycle that dictated where people lived, foraged, moved or held ceremony.

Aboriginal people in south eastern Queensland can be described as hunter-foragers. The use of the term 'gatherers' is in some ways misleading, as it implies a passive collection of resources, whereas 'forager' describes someone actively engaged in food collection.

It appears there was considerable fluidity in settlement patterns that do not appear related to seasonal conditions of summer and winter, although these may have influenced the decision to move from one camp to another. At some times throughout the year,



nuclear family units might come together for hunting or other social and group activities, and then return to their allocated territories. Rather, it was based on riverine or major stream occupation all year round, supplemented by expeditions into the hinterland for hunting, ceremony and resources.

Lilley (1984) postulated a model of subsistence and settlement patterns for late Holocene sub-coastal south eastern Queensland. Based on water resources, plant and faunal resources and ethnographical observations, he proposed that Aboriginal groups within the sub-coastal region undertook a seasonal 'pulsation' movement, during a winter-summer cycle. In winter, large extra-familial base camps were clustered near major rivers and lakes to allow access to littoral resources of riparian/aquatic zone and adjacent lowland open forests. In particular, according to Lilley, water-birds, fish and aquatic plants would have formed the basis of subsistence.

In summer, Lilley suggests, groups dispersed into smaller, mobile family groups, moving between patches of food resources, with ephemeral base camps located along major tributary streams in the foothills (Lilley 1984). Lilley notes there were two kinds of camps. Base camps are defined those occupied by families or groups overnight during mobile periods, or for intermediate periods up to several weeks. Food preparation and maintenance of the tool kit would take place in base camps. Attractive conditions for the establishment of base camps included sandy or relatively stone-free surfaces; reasonably flat but well-drained places, the presence of fuel, water, and raw materials for shelters, and the absence of undesirable plant and animal species (Lilley 1982; Petrie 1904; Winterbotham 1954, 1957).

Lilley further argues that sub-coastal groups organized their activities on gender based allocation of resources. He infers that women collected water, low-risk, steady return plant foods and small prey. Men pursued high-risk, uncertain return prey and undertook most of the fishing (Lilley 1984; Petrie 1904).

Lilley bases his 'pulsation movement' on historical exploration accounts. But all the accounts that Lilley uses are winter expeditions, as would be expected to take account of the cooler travelling. Without some exploration during the hotter months, the evidence is inconclusive.

PLACE modelling suggests that while there was a degree of seasonal movement in southeast Queensland occurring, it was an irregular movement that was tied closer to food resources and seasonal constraints than a winter-summer movement (Strong 2005). Instead of Lilley's model of winter camps along the rivers, and summer sojourns in the uplands, it is proposed that, as that

invaluable Aboriginal source, Gaiarbau, says: 'people moved their camps from one base camp to another, independent of whether it was summer or winter' (Winterbotham 1957). Fairholme (Love 1984) makes the comment that 'in summer when the honey bees work, they [Aboriginal people] wander far from water in search of honey.'

Indeed, Cunningham's journal of his expedition through the Gatten and Lockyer region in the winter of 1829 shows that the Tent Hill clan were engaged in seasonal burning off country (Steele 1972) along Lockyer Creek at the time.

It is considered that summer was a time when occupation beside the rivers and major streams was more likely than winter. Drought occurs in south east Queensland when the summer rains do not follow the winter, which is traditionally and climatically a dry time. In normal years, there would have been ample water available to support camps for periods of time dotted over the uplands. To re-interpret Eipper (1841) 'The Aborigines change their place of abode very often, sometimes from necessity [when food becomes scarcer], and sometimes from superstition or caprice.' The latter comment should be interpreted as meeting the requirements of totemic parameters that form a belief system (such as *mimburi*) and has an important economic control on human subsistence and land use through a spiritual rationale for a conservation ethic (Strong 2000, 2005).

Such an ethic would see people moving before animal and plant resources were diminished. As Hamilton and Larcombe (1994) point out 'At one level, an awareness of the spiritual nature of hunting adds to the anthropological knowledge of Native economy, settlement and land use.' The difficulty for south eastern Queensland is that we have only an imperfect knowledge of the spiritual landscape, and this diminishes rapidly as we progress back in time.

The predictive model would propose that for much of the year, small groups consisting of four or five basic nuclear families would move from camp to camp (Lockyer 1825, Cunningham 1827, Uniacke 1823 and others, cited in Steele 1972), forming larger gatherings to perform specific economical, social or spiritual activities.

The importance of wetlands and the need to identify and map former swamps, lagoons and wetlands cannot be under-estimated. Wetlands were the resource centres where supplies of food — fish, yabbies, turtles, ducks and swans, edible spike rush, lily roots and fern root — could be obtained. The preponderance of sites located near to former swamps and their relationship to bora rings and other ceremonial sites has been extensively documented (Strong 2000).

Lilley produced a set of criteria for identifying site location based on resource location. These resources included soil, landform, altitude, aspect, vegetation, distance to water and flood susceptibility, and the ecological and statistical relationships between these variables. Lilley identifies 'seven factors, which in statistical terms, best defined late Holocene sub-coastal surface site locations' (Lilley 1982).

- 1 The presence of other sites with a 1500 metre radius.
- 2 The domination of exploitable territories by lowland open forest in areas containing extensive upland open forest.
- 3 Sandy, permeable on-site soils.
- 4 Local stream terracing.
- 5 Altitude below 200m at sea level.
- 6 On site lowland open forest in those areas containing extensive upland open forests and/or closed forests.
- 7 Permanent water within 500 metres for sites within 5 kilometres of a drainage mouth.

One aspect of predictive modelling is to attempt to trace the movements of Aboriginal people across the landscape in order to determine the likely location of camping places and /or gathering places. Well-maintained pathways were features of the pre-contact Aboriginal landscape. Pathways led across the Little Liverpool Range, roughly along the route of the present Warrego Highway, up past Helidon towards Ravensbourne and up Postman's Ridge to Murphys Creek. A path led from Black Duck Creek over the Toowoomba Range to the Darling Downs. Blackfellow Creek was also a pathway from Tent Hill to the escarpment and hills.

Another feature of traditional Aboriginal society in south eastern Queensland is the reciprocal socio-economic and ceremonial gatherings at bora ceremonies and the famed bunya festivals (Strong 2005; Sullivan 1977). The 'bony-yi' or bunya pine *Araucaria bidwillii* produces a huge cone, full of edible nuts. People travelled from northern New South Wales and the Gold Coast to the Bunya Mountains, while the Brisbane and Sunshine Coast tribes went to Baroon Pocket (Petrie 1904). These festivals may have had a spiritual and ceremonial aspect, but they were also significant for exchange of items such as stone axes, rosewood spears and shell ornaments, and, no doubt, for extending the gene pool of a group as well through the acquisition of new marriage partners.

### 2.3 Cultural (non visible) places within the Lockyer Valley

Archaeologists and planners have too often misconstrued the spiritual unseen world as a set of beliefs that has no place in a modern world (Knutson & Suzuki 1992). From an Aboriginal perspective, it is 'place' rather than 'time' that 'provides the framework around which events coalesce (Myers 1986). The mythological stories that are associated with these dreaming places are fundamental and significant. Traditional Owners retain ritual knowledge, songs and stories about these places and traditionally were responsible for their maintenance, and guarding the cultural knowledge associated with the site (David & Wilson 2002; Rose 1996; Tacon 1994, 1999).

It should be acknowledged that while in the past, archaeologists have been the prime factor in the protection and recognition of Aboriginal heritage, this process is changing and Aboriginal people are rightly seen as the advocates for their own cultural heritage.

Aboriginal cultural heritage may be divided into two categories:

- 1 archaeological or historical sites that are visibly identifiable or recorded in oral or written history
- 2 sites and places that are not visibly identifiable

Both are culturally significant under the *Aboriginal Cultural Heritage Act 2003*. Both have potential to impact on development or change of land use. The Act defines Aboriginal cultural heritage as anything that is:

- (a) a significant Aboriginal area in Queensland, or
- (b) a significant Aboriginal object, or
- (c) evidence, of archaeological or historic significance, of Aboriginal occupation of an area of Queensland.

A significant Aboriginal area or object must be particularly significant to Aboriginal people because of either or both the following:

- (a) Aboriginal tradition;
- (b) the history, including contemporary history, of any Aboriginal Party for the area (Sections 8-9)

In addition places that do not have archaeological evidence present are described in the Cultural Heritage Duty of Care Guidelines to the Act.

*(1.5) In the same way as non-Aboriginal heritage values are capable of protection, it is not necessary for an area to contain markings or other physical evidence indicating Aboriginal occupation or otherwise denoting the area's significance for the area to be protected as a significant Aboriginal area under the Aboriginal Cultural Heritage Act 2003.*

The *Aboriginal Cultural Heritage Act 2003* recognises that archaeologically unsupported places may, in fact, have considerably more significance to Aboriginal people than more visible sites.

Godwin and Creamer (1984) in northern NSW found a correlation between places considered 'Good Food Places' and archaeological midden sites, suggesting that present day Aboriginal people retain strong memories or links about country that have defied dispossession and loss of cultural knowledge. They note (p 109) 'in areas which were of no particular significance to the Aborigines no archaeological sites were encountered (Strong 2005).

Turnstone Archaeology has identified and defined in PLACE mapping a range of sites and places that cultural landscape predictive modelling should attempt to identify within the cultural landscape.

Table 3: Cultural and archaeological sites and places

NON-VISIBLE PLACES	VISIBLE SITES OR PLACES
• Dreaming tracks	• Burials
• Creation places	• Rockshelters
• Dangerous (or evil) places	• Rock art sites, including painted rockshelters, petroglyphs
• Story places	• Pathways
• Taboo places (places having <i>mimburri</i> )	• Axe grinding grooves
• Rain-making places	• Stone arrangements
• Testing places	• Bora grounds
• Healing places	• Fighting grounds
• Women's birthing places	• Artefact concentrations/ lithic stone artefacts
• Death places	• Quarry or lithic source
• Ancestral camping places	• Ochre sites
• Recent camping places or gathering places	• Culturally modified trees
• Good food places	• Hearths or ovens
• Smoke signal places	• Wells
• Historical incident place, including massacres sites	• Shell middens
	• Fish traps

Table 4: Proposed significance of invisible or/and cultural sites

SITE	CATEGORY	PRESENT IN FOCAL AREA	COMMENT
<b>Creation place</b>	High significance but usually not archaeologically supported.	YES	Creation places, because of their physical presence, can be major issues. For example, Paradise Mt is a creation place
<b>Dreaming track</b>	High significance but only natural features visible; rarely archaeologically supported.	CLOSE	Dreaming tracks are powerful symbols but may only be a constraint at certain places, or if impacted on by certain constructions. For example, a cutting or bridge footings may be considered to negate their power, whereas surface disturbance may not be an issue. Table Top Dreaming Track passes close to study area
<b>Dangerous or evil places</b>	High significance but usually non visible or not archaeologically supported.	NOT KNOWN	Rarely identified, relying on oral or historical information.
<b>Story places</b>	High significance but only natural features visible; rarely archaeologically supported.	CLOSE	Story places, because of their physical presence, can be major sites. For example, a story about Budjal's footprint gives it major significance..
<b>Increase sites</b>	High but usually non visible or not archaeologically supported.	NOT KNOWN	Rarely identified, relying on oral or historical information. Not always a constraint. Places that was off-limits as special places (mimburi) where food resources could replenish. Possibly moveable places rather than fixed to a certain place.
<b>Rain-making places</b>	High significance but only natural features visible; rarely archaeologically supported.	NOT KNOWN	Rarely identified in southeast Queensland.
<b>Testing places (initiation)</b>	High significance but only natural features visible; rarely archaeologically supported.	POSSIBLE	Rarely identified, relying on oral or historical information.
<b>Healing places</b>	High significance but only natural features visible; rarely archaeologically supported.	NOT KNOWN	Rarely identified, relying on oral or historical information. Not always a constraint. Gaiarbau lists several places that are considered to have significance (Winterbotham 1957)
<b>Women's birthing places</b>	High significance but only natural features visible; rarely archaeologically supported.	NOT KNOWN	Rarely identified, relying on oral or historical information.

SITE	CATEGORY	PRESENT IN FOCAL AREA	COMMENT
<b>Death Places</b>	High significance but only natural features visible; rarely archaeologically supported.	NOT KNOWN	Rarely identified, relying on oral or historical information.
<b>Ancestral camping places</b>	Medium to High significance but only natural features visible; rarely archaeologically supported.	CLOSE	If this refers to an ancestor's camping place, it can have major constraints. When it is an old camping site known in the group's stories, then it perhaps has less impact. Rarely identified, relying on oral or historical information.
<b>Recent camping places and fringe camps</b>	Medium to high. Often archaeologically supported	YES	Many camps have visible archaeological evidence, such as pottery, glass, metal or clay pipes. Some have emotive significance.
<b>Gathering places</b>	Medium to high. Usually not archaeologically supported	HISTORICALLY RECORDED FOR CREEK	Known sites, such as Tent Hill, would have major significance; however, most gatherings are only known by broad locality.
<b>Good food places</b>	Low to medium. Usually not archaeologically supported	HISTORICALLY RECORDED FOR CREEK	Association by oral or historical information.
<b>Smoke signal station</b>	Low. Usually not archaeologically supported	NOT KNOWN	Identified through oral or historical information.
<b>Historical incident place</b>	Medium to high. Often archaeologically supported	YES	Massacre sites are very emotive, as are killing places. Memorials are usually recorded in historical or oral literature.  One is reported at Tent Hill.

### 2.3.1 Creation places

Creation stories relate to landscape features such as mountains, hills, waterholes, creeks and rivers, swamps and rock outcrops. The recorded places where these invisible sites are located include rock outcrops, waterholes, caves and mountains; however almost any landscape feature — a large isolated rock, ochre deposits, coloured sands, water channels, bodies of water, islands, can have significance and connection to this invisible world.

A creation place relating to Budjal (or Biame), a sky ancestor, is located within the Tent Hill clan estate, but outside the focal area. Paradise Mt may have a creation story. Pyramid Rock is reported to be a creation place.

### 2.3.2 Dreaming tracks

May best be defined as linear mythological non-visible sites relating to episodes of Ancestral dreamtime spirits during the creation. The journey of the Spirit Ancestors across the land are recorded in Dreaming Tracks. The most famous spirit ancestor is the Rainbow Serpent, whose Dreaming track stories are shared by many Aboriginal communities across Australia. A Dreaming track joins a number of sites which trace the path of an Ancestral Being as it moved through the landscape, forming its features, creating its flora and fauna, humans and laying down the Laws. Many of the dreaming tracks, perhaps also associated with songlines, had certain sites of significance located along them where ceremonies were performed and the land sung to keep its vitality (Phillipson 2005).

A major dreaming track is located north of the study area stretching from Gowrie Mountain to Table Top and then (possibly via another landmark, perhaps Challawong) to a hill near Plainlands, to Mt Marrow and then to Mt Cooth-tha (Strong 2003).

### 2.3.3 Dangerous or evil places

Godwin and Creamer (1984) define 'dangerous places' as being identified with the manifestation of a malevolent spirit or where a spirit might appear. Usually it involves a person being physically harassed by a spirit, often by stoning them (Steele 1984). These invisible sites have a much wider scope for location than Story or Creation places, and can be virtually anywhere, such as a open clearing in the forest; a paddock (AWA 1998a), a waterhole or bend in the river (Winterbotham 1957), caves and mountains (Steele 1984) and other landscape features. Aboriginal informants have said that they are places where they felt suddenly 'cold' or 'sick' or 'fearful without cause.'

No 'dangerous places' have been noted in Turnstone Archaeology's data bases for the Lockyer area, although they would have certainly existed.

### 2.3.4 Story Places

Story places are defined as places or sites that have significance because of stories relating to them. Some of these relate to mythological happenings that are part of the creation stories. Like Creation Places the recorded places where these invisible sites are located include rock outcrops, waterholes, caves and mountains and other landscape features. However, there are also numerous places and sites that have stories associated with them that do not relate necessarily to a creation story and may have moral or historical implications. Story places can also be used to explain things. This makes the site a very powerful place.

*Gilga Gilga* (translated as 'Blackfellow God leap') is a powerful story place relating the sky ancestor, Budjal, who came to give the law to the elders. He left his footprint in stone in Deep Gully near Ropely (Olm 1984).

### 2.3.5 Increase sites

These invisible places were considered very significant, and although in south eastern Queensland, many have been lost through dispossession and urbanisation, they should be considered of major importance if known. Increase sites are defined as special places where ceremonies were conducted for the increase and continued fertility of target food species. For example if honey was scarce, a person with a honey totem would go to the increase place for honey and conduct a ceremony or go to a place where eagles nested for an eagle increase site.

Certain places were considered off-limits or *mimburi* to use a Jinibara language word (Winterbotham 1957), a sort of national park long before European settlement. These were places that were significant because of important animal or plant foods, yet placed off-limits in order for the food species to replenish.

No increase places have been noted in Turnstone Archaeology's data bases for the Lockyer area, although they would have certainly existed.

### 2.3.6 Rain making places

Rain making Places are also invisible sites where important ceremonies relating to rain making takes place. Like other cultural sites, they have major significance. They are found almost anywhere in the cultural landscape; more commonly near waterholes or lagoons and bends in the river. Knowledge of their location survived largely in southeast Queensland through historical and anecdotal evidence. Rain making places are usually associated with waterholes and rivers or creeks.

No rain making places have been noted in Turnstone Archaeology's data bases for the Lockyer area, although they would have certainly existed.

### 2.3.7 Testing places

Testing Places are sites where the important ceremony relating to the making of a *gu:ndir* or turrawan man was undertaken. Like other cultural sites, they are very significant. They are found almost invariably by water in the cultural landscape. The recorded places include waterholes or lagoons, bends in the river and swamps.

Gaiarbau (Winterbotham 1957) notes that before a youth could become a *gu:ndir* or medicine man (clever man), they needed to undergo a special initiation or testing ceremony. These places were very important and are considered highly significant when identified. It is likely that *Gilga Gilga* was related to testing future clever men.

### 2.3.8 Healing places

Healing Places are sites where important ceremonies relating to healing was undertaken. They are found almost anywhere in the cultural landscape. The recorded places include waterholes or lagoons, river mouths and cliffs, but these are only a fraction of orally mentioned sites.

No healing places have been noted in Turnstone Archaeology's data bases for the Lockyer area, although they would have certainly existed.

### 2.3.9 Women's birthing places

There is little information in the literature about birthing places, as might be expected considering that most ethno-historians and early observers were men, and birth is one of the most of secret women's business. Yet Aboriginal people consider that these important sites relating to women as highly significant. However, there is considerable ambiguity about whether they are places where women went for conception or for birth. They are found almost anywhere in the landscape, but caves and cliffs appear to be the most frequent places utilised.

### 2.3.10 Death places

Death Places are also invisible sites where supernatural activities relating to the dead (not burials) take place. In southeast Queensland, some Aboriginal people had a concept that the spirits of the dead required a 'jumping off' place in which the spirit was able to reach the dreaming afterlife. They are usually related to rocky headlands (Strong 1995) or sometimes predetermined places near a river (Olga Miller pers. com. 2001). It may be that Gilga Gilga, where the sky ancestor, Budjal, left his footprint as he leaped across from mountain to mountain, had associations with the dead.

### 2.3.11 Ancestral Camping places

Ancestral Camping Place are invisible sites where people in the past have camped, usually in some mythical time-space. Like other cultural sites, they have major significance. They are usually related to waterholes, or creeks and rivers, but also other features in the landscape. Godwin and Creamer (1984) suggest that this type of spiritual place can be sometimes identified through spirit harassment. Ancestral camps may also predicatively be identified from mythological literature, if these are reliable enough in their identification of the actual landscape. For example, a story that relates the movements of an ancestral being through the landscape may provide exact details of where they camped. These places may correlate with camping places dimly recorded through oral history (Strong 2005).

### 2.3.12 Recent camping places

Godwin and Creamer (1984) include recent camping places in their categories of cultural places. They place recent Aboriginal missions and reserves in this category. This study does not and places Reserves and Missions in a separate section.

Godwin and Creamer's second category is more ambiguous and is a camp associated with getting away from town and often related to food getting places. It is unclear whether they refer to fringe camps, which are historically recorded places where dispossessed

Aboriginal families would gather for safety and to access European food and employment. Fringe camps or *yaambas* were commonly located outside most Queensland towns once the framework of traditional life had come to an end. Fringe camps possibly were located on pre-existing traditional camps. Some fringe camps offered 'safe havens' reasonably free from forced deportment to the missions and reserves, or from the deprecations of the Native Police.

These refuge camps are rarely located; they are usually in extremely rugged and rocky terrain and were places used to hide from the Native Police, white settlers and perhaps traditionally from other tribal raiding parties.

One is recorded within the Lockyer focal area near Paradise Road.

### 2.3.13 Good Food Places

Good Food Places are also important cultural places. In a foraging society, places where good food supplies could be obtained became enshrined in memory. Godwin and Creamer (1994: 104), in their northern NSW study, refer to Good Food Places as areas where good supplies of fish, yams, bird's eggs, etc can be obtained. They further limit the category to foods that are considered traditional, before the introduction of tea, sugar and flour after white settlement.

Food places can refer to special sections of creeks and waterholes; good fishing places, stands of plums or bunya pines, flying fox camps, or places where parrots, ducks or pigeons could be trapped. Like other cultural sites, they form a significant feature of the cultural landscape.

No good food places have been noted in Turnstone Archaeology's data bases for the Lockyer area, although they would have certainly existed.

### 2.3.14 Smoke signal places

Early explorers and observers talk of the numerous smoke signals that announced their presence. Hall (1907) reported that smoke signals were a common form of sending messages over long distances. Hall reported that the Yuggera people and the Killarney clan of the Gidabal people used a smoke station on Mount Roberts, while other clans used Spicer's Peak and Wilson's Peak. Mt Davidson within the Lockyer area is reputed to have been used as a smoke signal station (Strong 2005).

### 2.3.15 Historical incident places

Historical Incident Places are sites where historical incidents have occurred. They can sometimes be invisible, recalling a fight, or meeting, or killing, but also can relate to memorials, or places where known and recorded happenings occurred. This category includes historical massacre sites, killing sites, meeting places, memorials and places where historical incidents occurred. These are generally lumped into a category called Contact sites or ignored completely (Burke and Smith 2004). Massacre sites are also controversial (Barker 2007; Elder 1999; Reynolds 1999; Windshuttle 2002) and there is considerable current academic questioning the accuracy of historical reporting.

Massacre sites have major cultural and emotive significance and yet are frequently overlooked in the archaeological record. Aboriginal people frequently retain memories of a killing place, but this does not always emerge in the historical literature or in police reports. Many killings went unrecorded. The Native Police conducted systematic operations in the mid 1800s (Skinner 1975) that brutalised and decimated whole populations.

Another element in the Historical Incident Place are memorials that commemorate historical incidents. There should be a memorial to Multgugarah as a brave defender of his country, but as yet it has not occurred.

## 2.4 Archaeological and historical (visible) places in the Lockyer Valley

### 2.4.1 Missions and reserves

No reserves were established in the Lockyer area, although people from the Lockyer Valley clan almost certainly were taken to Deebing Creek or Purga (Kwok 2000). The establishment of reserves, missions and settlements for Aboriginal people initially was for the protection of Aboriginal people, but led to the *Aboriginal Protection and Restriction of the Sale of Opium Act 1897*. Subsequent authoritarian and paternalistic legislation Acts controlled every aspect of mission life, including forced removal, movement, employment, wages, marriage, childrearing, social life and finances. The Act gave police almost total control over their lives. Once an Aboriginal person was removed to a settlement, they could rarely gain exemptions, or could be seen only by those authorised under the Act. In most cases, disparate groups were mixed, without consideration for sex, tribal affiliations, marriage or kinship restrictions or status (Evans, Saunders & Cronin 1993; Kidd 1997; Rowley 1972). The nearest mission was at Deebing Creek near Ipswich; its occupants were later transferred to Purga.

### 2.4.2 Burials

Burials are one of the most emotive issues for Aboriginal people. This significance places them high on the most important sites to predict, yet conversely, they are among the most difficult. Burials are commonly located through two ways:

- 1 Either historical or oral information about their location, for example on missions, reserves or older properties;
- 2 Within an archaeological context, exposed through development, erosion or excavation.

Burials in southeast Queensland occur traditionally in several forms (Haglund 1976). Whether a body was buried or exposed depended on the nature of the ground, rather than it being an esoteric reason. Burials also occurred as primary burials (where the body was buried intact after death) or secondary burials (when the body was left exposed and then certain portions of the body retrieved and either buried or carried by relatives).

Secondary burials were wrapped in bark and tied up as parcels, or placed in dilly bags. While numerous claims were made for cannibalism by Aboriginal people (Petrie 1904) there is no evidence for this apart from ritualised consumption of parts as an element of the death ceremonies. Most Aboriginal graves appear to be marked only by a heap of stones or scarred trees.

Numerous burials have been reported in the Lockyer Valley although none specifically from the focal area.



Table 5: Forms of Aboriginal burial in southeast Queensland (after Strong 2005)

1	<b>Single event burials</b>	These are burials, usually one or two individuals in the ground. They commonly occur in soft sandy soils, often along the banks or beds of creek and rivers especially at a bend in the stream. They may survive for long periods of time depending on the alkaline/acidity ph of the soil.
2	<b>Multiple burials</b>	Multiple inhumations of numerous individuals over time. These are rarely located. Over 140 were recovered at Broadbeach, on the Gold Coast (Haglund 1976). Other multiple burials have reputedly been destroyed at Toowoomba and Table Top.
3	<b>Rockshelter/cave burials</b>	Secondary burials, usually wrapped in bark and placed in caves and rockshelters have been located in southeast Queensland. Many were removed to the Queensland Museum or private collections in the early part of the 20th century. Mountain caves seem to have been favoured in southern inland Queensland, but this might simply be a result of suitable geological features. Cave burials have been recorded in the Lockyer area.
4	<b>Platform burials</b>	Primary burials, afterwards removed for secondary burial. The body was exposed in a tree platform or fork of a tree until desiccation had occurred, then the bones carefully collected and either interred in the ground, a hollow log or cave, or carried in a dilly bag by relatives.
5	<b>Tree burials</b>	Several accounts of the body (or parts thereof) being placed inside logs or tree hollows, either of a dead tree or a living tree.
6	<b>Cremation</b>	Cremation was recorded on the Gold Coast and in the Maryborough area.
7	<b>Modern</b>	Numerous historical burials are known.

### 2.4.3 Rockshelters and caves

Rockshelters tend to be more frequent in sandstone or limestone country, especially escarpments, where the geology allows the formation of either windblown (aeolian) overhangs or water derived caves and fissures. Aboriginal people utilized rockshelters for a range of cultural activities, including campsites, burials and art sites. They are particularly important in archaeological research, affording the opportunity for dating and stratigraphy uncommon in open sites.

There are numerous rock shelters, some with art sites, or formerly used as burial caves, in the Lockyer Valley catchment near Rockside, Heifer Creek and Mt Sylvia. Rock shelters have been reported from the focal area. Landowners might be able to assist with documenting these important places and add new ones over time.

### 2.4.4 Rock art

These sites are considered highly significant as ritual and ceremonial areas. Art sites can include painted designs on rock faces, pecked art on rock and carved trees.

#### Pecked art (engravings, petroglyphs, carvings)

Made using a variety of techniques, including scratching, abrading, pecking, pounding or drilling, to create animal representations such as emu, kangaroo and dingo; or human, Dreaming and ancestral figures. Challawong Rockshelter (also known as Gatton, Rocky Creek and Junction View Rockshelter), near Gatton, is a major art and occupation site comprising dozens of engravings of animal and human tracks, genitalia, and abstract motifs (Morwood 1986, 1992; Quinnell 1972).

## Painted art

Painted art sites have major significance. Aboriginal people used ochre to stencil and paint hands, boomerangs, axes, bird tracks on the walls and roofs of rockshelters and cave sites. Painted sites require an overhang as protection from the weather and a relatively smooth surface. Most are painted on sandstone. It is unlikely to locate painted art sites in conglomerate or granitic rock outcrops, as these surfaces are not usually compatible for the retention of paint, although both these rocks have been used elsewhere. No sites recorded but art sites have been orally reported.

### 2.4.5 Axe grinding grooves

Axe grinding grooves are commonly associated with fine-grained sandstone and are usually located near rivers and creeks. They are formed during the polishing and grinding of stone axe blanks into finished items. Most grooves are about 30 cm long and 6-7 cm wide. Grinding grooves provide evidence of axe manufacture and also can be used for the development of time and motion studies.

Axe grinding grooves have been identified in the Lockyer Valley in two areas, although none recorded to date in the focal area.

### 2.4.6 Pathways

Aboriginal pathways crisscrossed the landscape, providing tracks for people to move around the country. They were apparently maintained by the use of fire and by people keeping the track clear as they walked along. Pathways can sometimes be identified by their deliberate proximity to ridges and swamps, but river banks also are known to have been highways for larger groups moving about. A painting done in 1857 by Conrad Martens is perhaps the only known illustration of an Aboriginal path at Cunningham's Gap long before any European settlement or development in the area.

A path led from Black Duck Creek up over the range to the Darling Downs (Nelson 1993; Steele 1984). Another path roughly followed the route of the modern Warrego Highway. A path led up a ridge of the Helidon Hills near Sandy Creek (AWA 1998b).

Blackfellow Creek is known to have been a pathway from the mountains to the Tent Hill area (Nelson 1993).



Figure 3: **The path through Cunningham's Gap** by Conrad Martens 1857

### 2.4.7 Bora grounds

The bora is a highly complex and confusing social function in traditional Aboriginal society. The bora council was composed of 10 or 12 men, and acted as a council of elders (Winterbotham 1957), that met every six months or so and were considered to have high status. Women had their own bora council and their own bora grounds. Meetings were held at the so-called bora grounds (also termed bora rings or earth circles) (Satterthwait and Heather 1987; Strong 2002 for a major study).

Bora rings or earth circles are one of the most important features of Aboriginal cultural heritage sites. They were used for a variety of functions, and these functions are often confused. Uses included:

- 1 Dispute settlement
- 2 Councils of war and social organisation
- 3 Initiation
- 4 Corroboree/dances
- 5 Association with sacred/mythical places or increase rites
- 6 Meeting place or boundary delineator when located in proximity to boundary and pathways.

Function might further be usefully divided into two broader categories: **Administrative** (the things that the Bora Council actually talked about) which would include dispute resolution, councils or war, arrangement of marriages, the opportunities presented for trade at group gatherings. **Social:** (the things that assisted the group to function) cultural/ sacred initiations, corroborees, increase rites, and the wider relationship with the sacred landscape — the things that were required for the well being and spiritual safety of the group (Strong 2002).

Perhaps the most significant and well-known use of bora rings involved the rites of passage called initiation or *kippa* making. To enter adulthood boys and girls undertook initiation. Initiation involved severe tests or ordeals, considerable pain and loneliness. It was the time that the laws and customs of the clan were passed on by the Elders. During the ceremonies, boys and girls received 'scarring', the cicatrisation marks that denoted their affiliations to place, totem or status.

Not all 'bora rings' should be classed as initiation rings. Strong (2002) has identified a number of criteria for what constituted an initiation ring. This is not to say that other rings were not used for this purpose or initiation rings also served multiple purposes. While not exclusive, these can include:

- 1 Reliable oral history that the site was used for initiation
- 2 At least two or more rings, one large and one small.
- 3 Connecting path, or evidence there was a connecting path
- 4 Evidence of a *kakka*<sup>2</sup> tree being present
- 5 Association with a major dreaming site
- 6 Camp nearby
- 7 Evidence of ritualised fights and corroborees

A well-known bora ring is located at Glenore Grove on the probable boundary of the Tent Hill clan estate. A large bora ground was reported at Tent Hill just outside the focal area.

#### 2.4.8 Fighting grounds

Fighting grounds were used in association with the bora ceremonies as part of a larger complex of ritualised ceremony that formed an integral component of pre-contact Aboriginal social and spiritual life.

Fighting grounds (sometimes referred to as 'tournaments') were reported by Petrie (1904) in Brisbane at Roma Street, and Steele (1984) but these were either associated with the dispute resolution

(Burnett's Swamp), where there was a bora complex, or with an initiation (Roma Street, prior to a *kippa* ceremony). This is not to infer that no fights took place unless associated with the bora, but rather that the majority of reported fights were part of a highly orchestrated process for dispute resolution.

No fighting grounds are known from the focal area.

#### 2.4.9 Stone arrangements

Stone arrangements can be found almost anywhere, but seem to be predominantly on peaks, ridges and creek banks. Stone arrangements relate to several ritual aspects, including increase rites and bora ceremonies. Elsewhere, some smoke signalling stations appear to have been mistaken for stone arrangements on mountain tops. A stone arrangement on Mount Lindesay (Norledge 1968) was associated with a pine grub increase ritual. Another stone arrangement reported by Steele (1984) in the saddle between the peaks of Mount French consisted of 15 stone mounds averaging 0.3 metres in height and an indistinct stone circle a few metres in diameter. Mount Marrow also has a well-documented stone arrangement (Steele 1984) that formed part of the Table Top Dreaming track. It consisted of about 30 piles of stones, each containing about 20-40 stones, distributed over an area of 30 metres.

#### 2.4.10 Carved trees (dendroglyphs)

Etheridge (1918) proposed the term 'dendroglyphs' for carved trees. Carved trees for ceremonial markers were formerly very common and considered significant ceremonial sites. Today, as a result of land clearing, fire, termite attack and natural causes, they are increasingly rare and very important. They normally have curvilinear or geometric patterns incised into the heartwood using either stone or steel axes. Love (1982), Bell (1982) and Morwood and Fillery (1976) provide a useful discussion on the classification, categories, styles, markings and location of known carved trees from NSW and south eastern Queensland.

They have been reported from Blackfellow Creek (Nelson 1993) although none have been documented.

2 An uprooted wattle tree turned upside down, the trunk planted in the ground, and the roots woven to form a platform for the Turrawan to speak from (Petrie 1904).

Table 6: Forms of carved or cultural trees (based on Love 1982: courtesy of Strong 2005)

NO	TYPE	REMARKS
1	<b>Burial tree (taphoglyph)</b>	Reported from Gladstone region south to NSW. Associated with burials. Usually in numbers from 1 – 7. Lang (1861) rather imaginatively reported that ‘at Moreton Bay they usually carved the emblem or coat of arms of the tribe to which he belonged on the bark of a tree near the spot where he died.’ The practice extended as far north as Wide Bay; Palmer (1884: 298) noted that ‘The trees are marked sometimes where the body is buried and the earth raised up over the spot.’
2	<b>Commemorative tree</b>	Curr refers to a commemorative tree (1886). Trees also commemorated events such as deaths or that initiations had been conducted in the area.
3	<b>Initiation tree (teleteglyph)</b>	Possibly the most common category, although very rare on the coast. Reported from south eastern Queensland at Toorbul Point (Petrie 1904: 48) where images (presumably of the animals used as effigies) were cut into the trees along the pathway. Trees at Stradbroke bora ground are marked (Morwood & Fillery 1976: 100).
4	<b>Corroboree tree</b>	Gaiarbau (Winterbotham 1957) also refers to corroboree trees being marked, but distinguishes them from bora ground markers.
5	<b>Avenging tree</b>	Not recorded from south eastern Queensland, although known from Victoria to NT. A soft barked tree was marked at a height of 4-5 metres above ground by an avenging party after a killing. The ritual was repeated at intervals along the route (Mathews 1904)
6	<b>Ownership tree</b>	Known from south eastern Queensland. Fraser (1883) notes that marks were made on trees to signify ownership of some plant or animal food source, such as a honey tree or wild plum.
7	<b>Boundary marker tree</b>	Not recorded specifically in the literature from south eastern Queensland, although widespread elsewhere.
8	<b>Imprecatory tree</b>	Reported from north Queensland by Roth (1903) and probably occurred in the south as well. Representation of a person was carved on the tree and then cursed.
9	<b>Wish fulfilment tree</b>	Tree where wishes were made (Love 1982)

#### 2.4.11 Scarred trees

Scarred trees are differentiated from carved trees by secular use. Scars are formed by the removal of bark for items including water containers, roofing, canoes and wood for manufacture of spears, boomerangs, nullas and other tools (Bell 1982; Burke and Smith 2004). Scarring also occurs for several other reasons, such as lightning strikes, termite damage, and flood, fire and branch loss. All these can produce scars that superficially resemble cultural scars. The extraction of animals, such as possums and native bee honey, using stone or steel axes may also leave distinctive scarring. Trees were also scarred through bark removal and carving to create objects of ceremonial importance, and to act as markers. They are often found on boundaries and pathways. In places where clearing and logging have occurred, the chances of defining scarred trees are reduced (Strong 2005).

#### 2.4.12 Quarries

Aboriginal people utilised both outcrops of suitable rock and also fluvial deposits of gravel or water-borne rocks in streams and rivers. The latter occur throughout sub coastal south eastern Queensland, although less commonly along the coastal strip where sandy Quaternary alluvial deposits predominate.

Quarries may also have non-visible or spiritual parameters that can determine whether Aboriginal people are able to access environmental resources. From a technological viewpoint, it would appear almost negligent not to utilise every resource in the landscape. Yet, as Paton (1994) points out, an Aboriginal perception may be quite different:

*'The nature of restriction of access to resources is thus closely bound up with the idea of responsibility for the Dreamings, or creation myths....the right to use particular trees is sometimes restricted depending on their association with mythical events or beings. For all the stone quarries, as well as most of the non-quarried outcrops, there exist a variety of myths related to the rock. Through a system of Dreaming tracks these myths in turn relate to other myths and features in the landscape. Such tracks extend over several hundred kilometres. A person who owns an outcrop therefore not only has a direct obligation to ensure that it is used properly, but is also responsible to those other people, at a vast distance, who have an interest in related myths along the dreaming tracks. Given this situation, access to any rock outcrop may be restricted by factors such as the importance of the myths.'*

A stone source has been reported to Turnstone Archaeology from within the focal area on Paradise Road. Any amount of suitable river cobbles exist in Blackfellow Creek for the manufacture of axes and the immense number reported from that area (Nelson 1993) indicate Blackfellow Creek may have been an important source of material.

#### 2.4.13 Artefact concentrations and occupation sites

These are the most common archaeological sites found, ranging in size from isolates to huge deposits numbering sometimes thousands of artefacts. The process of making stone tools produces quantities of waste flakes and debitage, which also enter the archaeological record in large numbers.

Aboriginal people made flaked stone tools from fine-grained siliceous stone, particularly silcrete, quartzite, chert, chalcedony and quartz. Volcanic rocks, such as basalt, andesite, rhyolite and greenstone, were flaked into rough blanks, and then ground on sandstone slabs to form axes, useful for chopping and fighting. Stone artefacts are among the most useful archaeological indicators, and a great deal of information can be gained from their identification, including location of sites, movement, resources, exchange systems, and social activities.

In the sub-coastal region, the predominant artefact types include cores of several forms, modified (retouched) flakes (including eloueras and adzes), blades, backed flakes or blades, choppers, axes (hatchets), hammerstones and grindstones.

Contact sites also may include flaked glass and ceramics as part of the archaeological record (Knight 2000; Niemoellar and Guse 1999).

#### 2.4.14 Ochre sources

Deposits of red, yellow and white ochre formed an important source of pigments for body decoration for ceremonies, and the decoration of trees and art objects. Ochre was a valued element of trade, often carried for long distances from its place of origin. Within south eastern Queensland, little work has been undertaken to identify ochre sources, largely because of its availability in the landscape (Strong 2005).

#### 2.4.15 Fish traps

In the sub-coastal region, rivers and creeks provide excellent locales for the construction of fish traps, built of stone or wood and used to funnel fish into an enclosed area where they can be easily caught. These are mentioned in the literature, but rarely identified (Winterbotham 1957)

#### 2.4.16 Shell middens

A variety of shellfish species were utilised by Aboriginal people, primarily for food, but also as tools to cut and scrape, and for ornament. In sub-coastal areas they are commonly composed of freshwater mussel *Velesunio wilsonii*, *Velesunio ambiguous* and *Alathyria pertexta*. Shell middens occur where Aboriginal people have camped and consumed either marine or freshwater shellfish. They are significant elements of the cultural landscape. Middens

can be extensive, reaching a height of a metre or more, and include stone artefacts, bone and organic materials, or be represented in the archaeological record as a sparse shell scatter on the surface, or in stratified deposits in rockshelters (Strong 2005).

Shell middens have been reported from Blackfellow Creek.

#### 2.4.17 Aboriginal Wells

Wells consist of small cavities in rock slabs that collect water after rain. Frequently a slab of rock is placed over them to prevent animals from drinking and to slow evaporation.

A rock well has been recorded from Rockside, just outside the focal area (Nelson 1993).

#### 2.4.18 Fireplaces, hearths and earth ovens

Fireplaces are often detected as stains in the earth where campfires have been lit to cook animals and plants for food. Hearths are a ring of stones where fires were lit. Earth ovens are hollows covered with hot coals and clay to cook animals. They produce a brick like clay fragments that can provide evidence of former camping sites and may provide useful archaeological material for dating if organic material has been carbonized (Strong 2006a, 2008b).

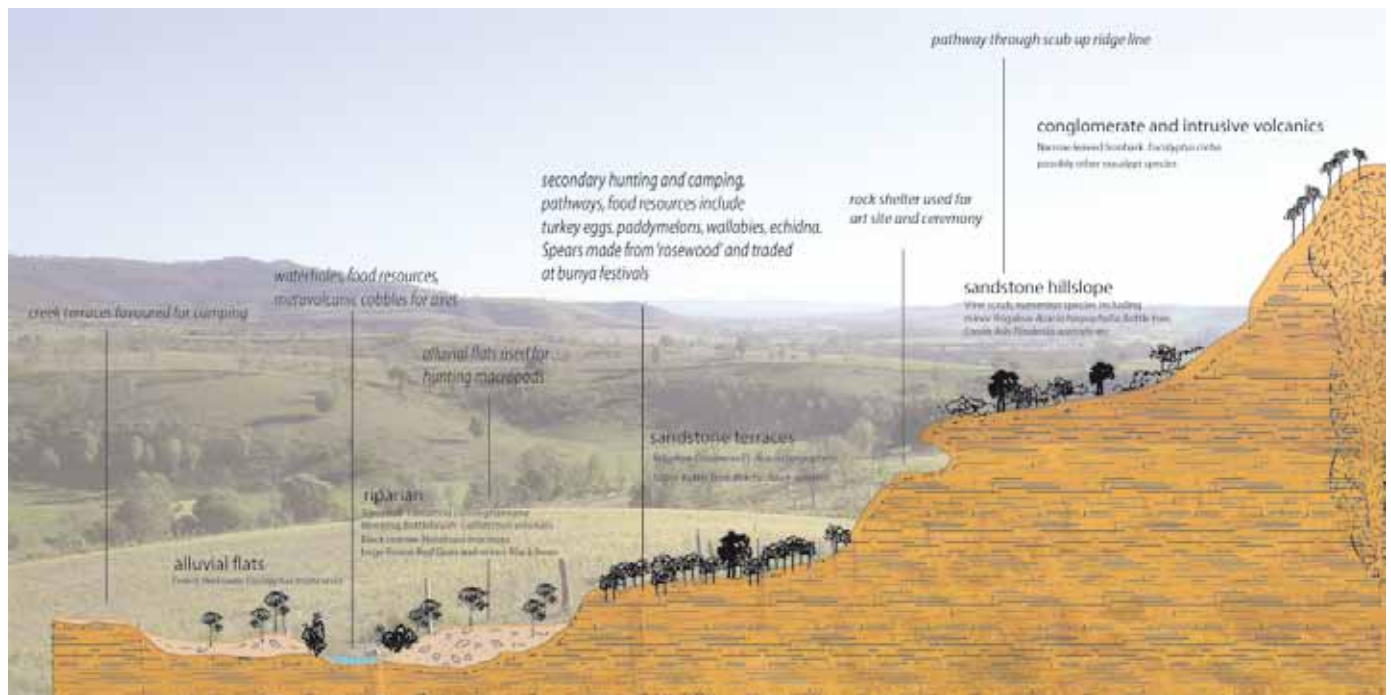


Figure 4: Proposed reconstruction of the Blackfellow Creek environmental landscape



*Photo 1: Panoramic view from West Haldon Road looking south towards the Blackfellow Creek valley*



*Photo 2: Site of the Native Police refuge on Paradise Road*



*Photo 3: View from Blackfellow Creek south towards foothills*





Photo 4: Challawong rockshelter; 4000 years of occupation



Photo 5: Petroglyphs on wall of Challawong Rockshelter

# 3 The environmental context within the focal area

## 3.1 Introduction

PLACE modelling is based on overlays of environmental data that establish a format for interrogating the cultural landscape. While the matrix process of how this can be applied is too detailed for this report, it should be emphasising that its findings are not set in cement — it should be seen as a fluid document providing the most up-to-date assessment of what is known about the focal area.

Because of lack of access to properties, the main thrust of environmental modelling for the Lockyer study has used geology, land forms, water and vegetation.

## 3.2 Geology — the foundation stone

For PLACE modelling to work, an understanding of the study area's geology in broad terms is needed. This section examines the basic building block of the environment.

Within the focal area of the Lockyer Valley, the geology is relatively simple. The river and creek flats and valleys are predominantly Quaternary alluvium derived from erosional processes from the surrounding hills, particularly in the side gullies. The hills surrounding the valleys and forming low escarpments and cliffs are sandstone, and belong to either Gatton Sandstone (the lowest terraces and outcrops) or Ma Ma Creek or Heifer Creek Sandstone. Winwill Conglomerate and Main Range Volcanics form a majestic backdrop of high mountains and hills. From the Main Range Volcanics come the andesites and basalts used for the manufacture of stone axes. A source for the extensive silcrete artefacts recorded from the focal area is not currently known. All the sandstones in the focal area are suitable for the evolution of rockshelters, although fine-grained sandstone is preferred for both shelters and for the grinding of stone axes.

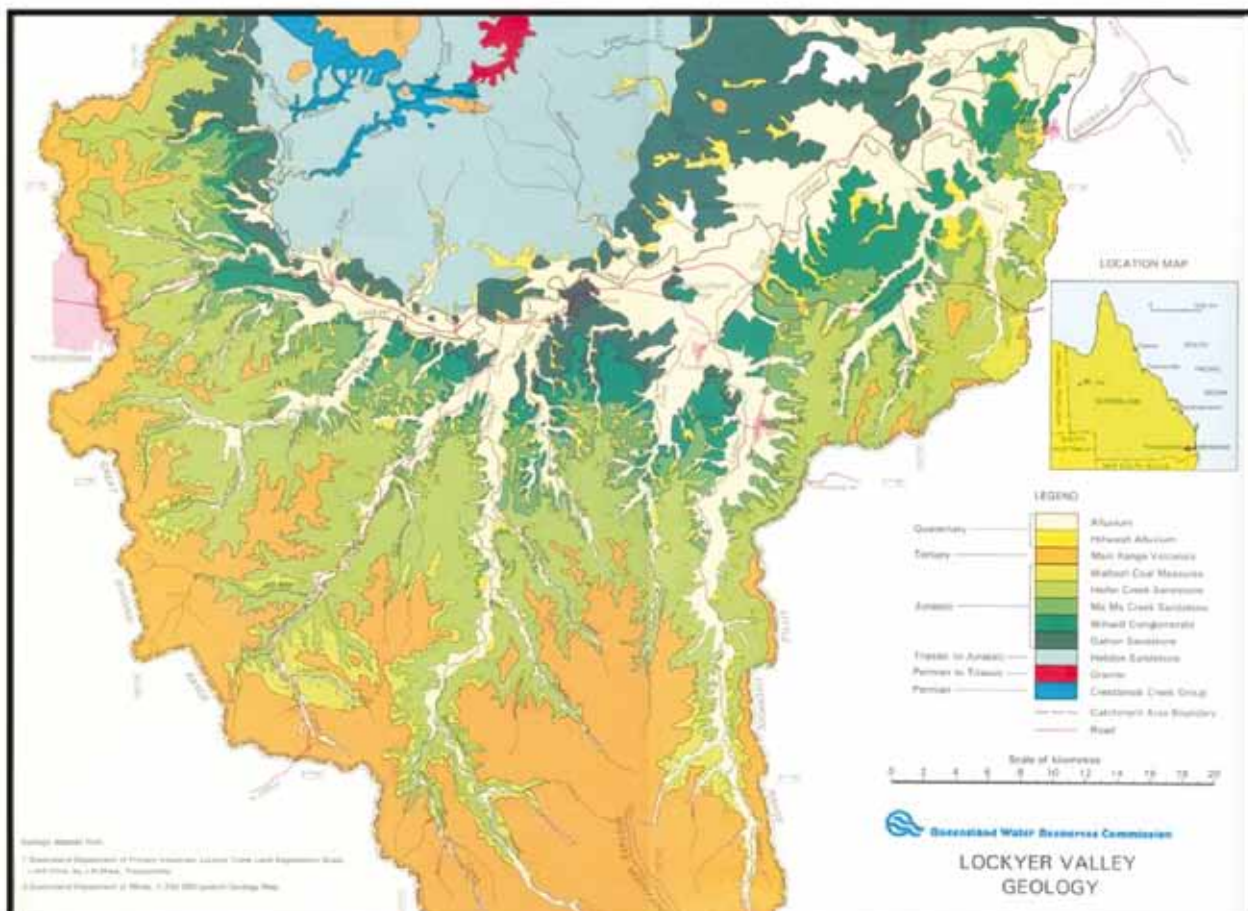


Figure 5: Map showing geology of Lockyer catchment (Courtesy of Qld Water Resources Commission)

### 3.3 Land forms – where people choose to live

Land forms dictate where people choose to live, where vegetation ecosystems are located and where erosional patterns can hide or reveal archaeological sites.

The following table provides a context for the PLACE modelling.

Table 7: Land forms variable: requirements for predictive modelling (after Strong 2005)

LANDFORM	SOURCING	COMMENTS	VALUE
<b>Cliffs/ escarpments</b>	Topographical & aerial maps	Potential for rock shelters, rock art, lithic sources, story places	Low to Medium unless in sandstone, when becomes High
<b>Flood plain</b>	Topographical & aerial maps / flood prediction mapping	Potential for some food resources	Nil to Low
<b>Stream banks</b>	Topographical & aerial maps	Potential camp site areas; major resource areas; potential for stone arrangements	Medium value for settlements; High food and resource area
<b>Stream terraces</b>	Topographical & aerial maps / ground truthing	Favoured camp site areas; major resource areas	High value for settlements; high food and resource area; high value for ceremonial sites
<b>Hill slope</b>	Topographical & aerial maps	Potential for ceremonial sites	Low to Medium value for settlements; Low to Medium value for food and resource area; Low to medium value for ceremonial sites
<b>Spur/ ridge</b>	Topographical & aerial maps	Potential for ceremonial sites, especially bora rings, and pathways	Low value for settlements; high value for pathways; medium value for ceremonial areas
<b>Hill top</b>	Topographical & aerial maps	Potential for ceremonial sites, especially stone arrangements, smoke stations	Medium value for ceremonial sites, especially stone arrangements, pathways, dreaming stories

### 3.4 Water – the crucial ingredient

Predictive models have identified that access and proximity to water is the most fundamental and crucial ingredient in the cultural landscape (Lilley 1982; Pickering 2003; Satterthwait & Heather 1987; Strong 2000, 2005). Lilley (1982) found that ‘the majority of sites were found within 100 metres of impermanent water, including those close to a permanent water source.’

Turnstone Archaeology has found that sites on major rivers and creeks were located primarily on major waterholes along the river, where the high bank or terrace provided suitable camp location; this could vary from 25 metres to 500 metres dependant on the land form available. We would argue that this is the critical component for habitation site location, together with a water source, either

permanent or semi-permanent, within 500 metres. A third factor found to be significant was that secondary major creeks were preferred even over rivers (Strong 2003-04), but visibility and erosion factors affecting site identification may also have a bearing on this.

Swamps and wetlands are also crucially important and the relationship of them to settlement sites, artefact scatters, ceremonial grounds and pathways, has not been fully explored (Strong 2002).

The other important factor in this variable is that the small number of sites that are **not located near water**, such as some quarries, rockshelters, stone arrangements, for example, may be the among the most significant and culturally important sites. This is especially true of the Lockyer valley.

### 3.5 Vegetation – mapping the regional ecosystems

PLACE modelling recommends that in view of identified levels of productivity and site counts within certain vegetation communities, it is essential that archaeologists begin to use a standardised format for vegetation community identification. Over time, this will determine whether there is a relationship between site location and different vegetation communities. As a starting point, the Regional Ecosystem mapping (Sattler and Williams 1999) provides an ideal basis. While some vegetation communities are similar enough in composition (varying only in underlying geology) for them to be placed together, the R.E. system provides a useful and user-friendly framework for planners and cultural heritage managers. It is required under most environmental impact studies and detailed mapping often takes place before cultural heritage is undertaken.

The table below contains the predicted vegetation communities or regional ecosystems (R.E's) for the Lockyer Healthy Waterways Project. REs with similar floristic components, that are unlikely to have been separately distinguished by Aboriginal communities, have been assigned a 'common name' to link them together. The resources indicated are based on the first draft of the vegetation communities and can be refined as further detail emerges.

Table 8: Tabulated regional ecosystems in the Blackfellow Creek area

<b>12.3.7</b>	Eucalyptus tereticornis, Melaleuca viminalis, Casuarina cunninghamiana fringing forest
<b>12.3.3</b>	Eucalyptus tereticornis woodland to open forest on alluvial plains
<b>12.9-10.2</b>	Corymbia citriodora, Eucalyptus crebra open forest on sedimentary rocks
<b>12.9-10.5</b>	Open forest complex often with Corymbia trachyphloia, C. citriodora, Eucalyptus crebra, E. fibrosa subsp. fibrosa on quartzose sandstone
<b>12.9-10.6</b>	Acacia harpophylla open forest on sedimentary rocks
<b>2.9-10.15</b>	Semi-evergreen vine thicket with Brachychiton rupestris on sedimentary rocks
<b>12.9-10.17</b>	Open forest complex often with Eucalyptus acmenoides, E. major, E. siderophloia ± Corymbia citriodora on sedimentary rocks
<b>12.9-10.19</b>	Eucalyptus fibrosa subsp. fibrosa open forest on sedimentary rocks

Table 9: Regional Ecosystems (REs) Mapping Units of the Study Area and weightings

REGIONAL ECOSYSTEM	LAND FORMS	VEGETATION COMMUNITY	DESCRIPTION	PLANT FOOD RESOURCES	ANIMAL RESOURCES	NATURAL RESOURCES	LIVEABILITY	WEIGHTING
12.3.3	E. tereticornis on alluvials	<b>FOREST RED GUM ON ALLUVIALS</b>	<i>Eucalyptus tereticornis</i> open-forest to woodland. <i>Eucalyptus crebra</i> and <i>E. moluccana</i> are sometimes present and may be relatively abundant in places, especially on edges of plains and higher level alluvium. Other species that may be present as scattered individuals or clumps include <i>Angophora subvelutina</i> or <i>A. floribunda</i> , <i>Corymbia clarksoniana</i> , <i>C. intermedia</i> , <i>C. tessellaris</i> and <i>E. melanophloia</i> . Occurs on broad Quaternary alluvial plains where rainfall is usually less than 1000mm/y. Major vegetation communities include: 12.3.3a: Floodplain (other than floodplain wetlands), <i>Eucalyptus crebra</i> , <i>Corymbia clarksoniana</i> , <i>C. tessellaris</i> woodland to open-forest. Other species that may be present as scattered individuals or clumps include <i>Eucalyptus melanophloia</i> & <i>E. tereticornis</i> . Occurs on high level alluvial plains and fans where rainfall is usually less than 1000mm/y. 12.3.3b: Floodplain (other than floodplain wetlands). <i>Eucalyptus moluccana</i> open-forest to woodland. Other frequently occurring species include <i>Eucalyptus tereticornis</i> , <i>E. crebra</i> , <i>E. siderophloia</i> and <i>Corymbia intermedia</i> . Occurs on margins of Quaternary alluvial plains. 12.3.3c: Floodplain (other than floodplain wetlands). <i>Melaleuca irbyana</i> low open-forest or thicket. Emergent trees may be present e.g. <i>Eucalyptus moluccana</i> , <i>E. crebra</i> , <i>E. tereticornis</i> and <i>Corymbia citriodora</i> . <i>Casuarina glauca</i> or <i>Acacia harpophylla</i> occasionally present. Occurs on Quaternary alluvial plains.	Numerous plant foods, including yams, swamp lily	Macropods, possums, koalas, emu, pigeons, parrots, snakes, goannas, lizards	Hunting	Very High On sandy soils	High
12.3.7	Fringing forest on alluvium	<b>RIPARIAN</b>	Narrow fringing community of <i>Eucalyptus tereticornis</i> , <i>Callistemon viminalis</i> , <i>Casuarina cunninghamiana</i> ± <i>Waterhousea floribunda</i> ± <i>Castanospermum australe</i> (Historical). Other species associated with this RE include <i>Melaleuca bracteata</i> , <i>M. trichostachya</i> and <i>M. fluviatilis</i> in north of bioregion. <i>Lomandra hystrix</i> often present in stream beds. Occurs on Quaternary alluvial plains along watercourses.	Lillypillies, water lilies, water trigger plant seeds, roots, bottlebrush nectar, black bean, figs,	Eels, turtles, platypus, macropods, koala, ducks, emu,	Reeds/rushes for baskets, especially <i>Lomandra</i>	Very high	High

<b>12.9-10.2</b>	spotted gum open forest on sedimentary rocks	<b>SPOTTED GUM/ IRONBARK OPEN FOREST</b>	<i>Corymbia citriodora</i> , <i>Eucalyptus crebra</i> open forest on fine-grained sedimentary rocks		Honey, minor macropods, possums, gliders		1-2
<b>12.9-10.5</b>	Eucalypt open forest complex quartzose sandstone	<b>OPEN FOREST COMPLEX</b>	Open forest complex often with <i>Corymbia trachyphloia</i> , <i>C. citriodora</i> , <i>Eucalyptus crebra</i> , <i>E. fibrosa</i> subsp. <i>fibrosa</i> on quartzose sandstone	Yams, figs, orchid bulbs	Honey, possums, gliders, goannas, parrots, macropods, echidnas, snakes, pythons, lizards, goannas	Bark for shelters, boomerang	?
<b>12.9-10.15</b>	Semi-evergreen vine thicket with <i>Brachychiton</i> on sedimentary rocks	<b>SEMI- EVERGREEN VINE THICKET</b>	Semi-evergreen vine thicket with <i>Brachychiton rupestris</i> on sedimentary rocks undulating country on fine-grained sedimentary rocks	Minor seeds	Brush turkey eggs, pigeons, snakes, echidnas, wallabies, paddymelons	Climbing vines, bark, coolamons; potential for lithics; rockshelters	1
<b>12.9-10.17</b>	mixed eucalypt open forest on undulating country	<b>MIXED EUCALYPT OPEN FOREST</b>	Open forest complex often with <i>Eucalyptus acmenoides</i> , <i>E. major</i> , <i>E. siderophloia</i> ± <i>Corymbia citriodora</i> on sedimentary rocks undulating country on fine-grained sedimentary rocks	Yams, wombat berry, potentially cycad, rock figs, <i>Cymbidium</i> orchid, wattle seeds	Honey, macropods, possums, koala, echidna, emu, parrots, goanna, lizard, snakes, pythons,	wood	2
<b>12.9-10.19</b>	Eucalyptus fibrosa open forest on sedimentary rocks	<b>IRONBARK OPEN FOREST</b>	Open-forest of <i>Eucalyptus fibrosa</i> subsp. <i>fibrosa</i> ± <i>Corymbia citriodora</i> , <i>E. acmenoides</i> or <i>E. portuensis</i> , <i>Angophora leiocarpa</i> , <i>E. major</i> open-forest. Understorey often sparse. Localised occurrences of <i>Eucalyptus sideroxyloa</i> . Occurs on Cainozoic and Mesozoic sediments. Major vegetation communities include: 12.9-10.19a: Open-forest of <i>Corymbia henryi</i> ± <i>Eucalyptus fibrosa</i> subsp. <i>fibrosa</i> , <i>Corymbia citriodora</i> , <i>E. siderophloia</i> , <i>E. crebra</i> . Occurs in coastal areas on Cainozoic and Mesozoic sediments.	Yams, grass seeds, acacia seeds,	Some macropods, possums, koalas, echidnas, snakes, lizards, goannas	Spears	3

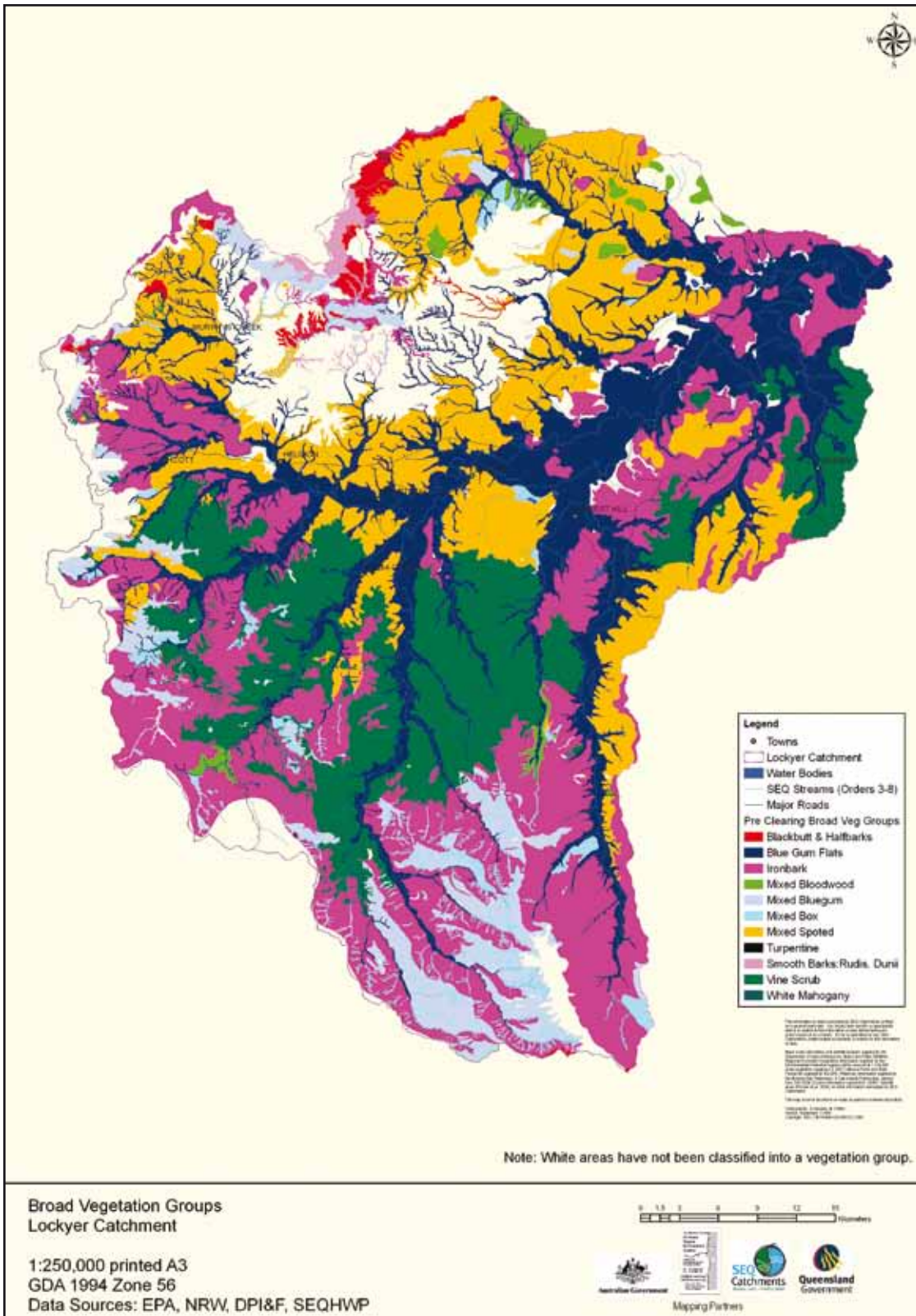


Figure 6: Map showing REs for focal area within Lockyer Valley

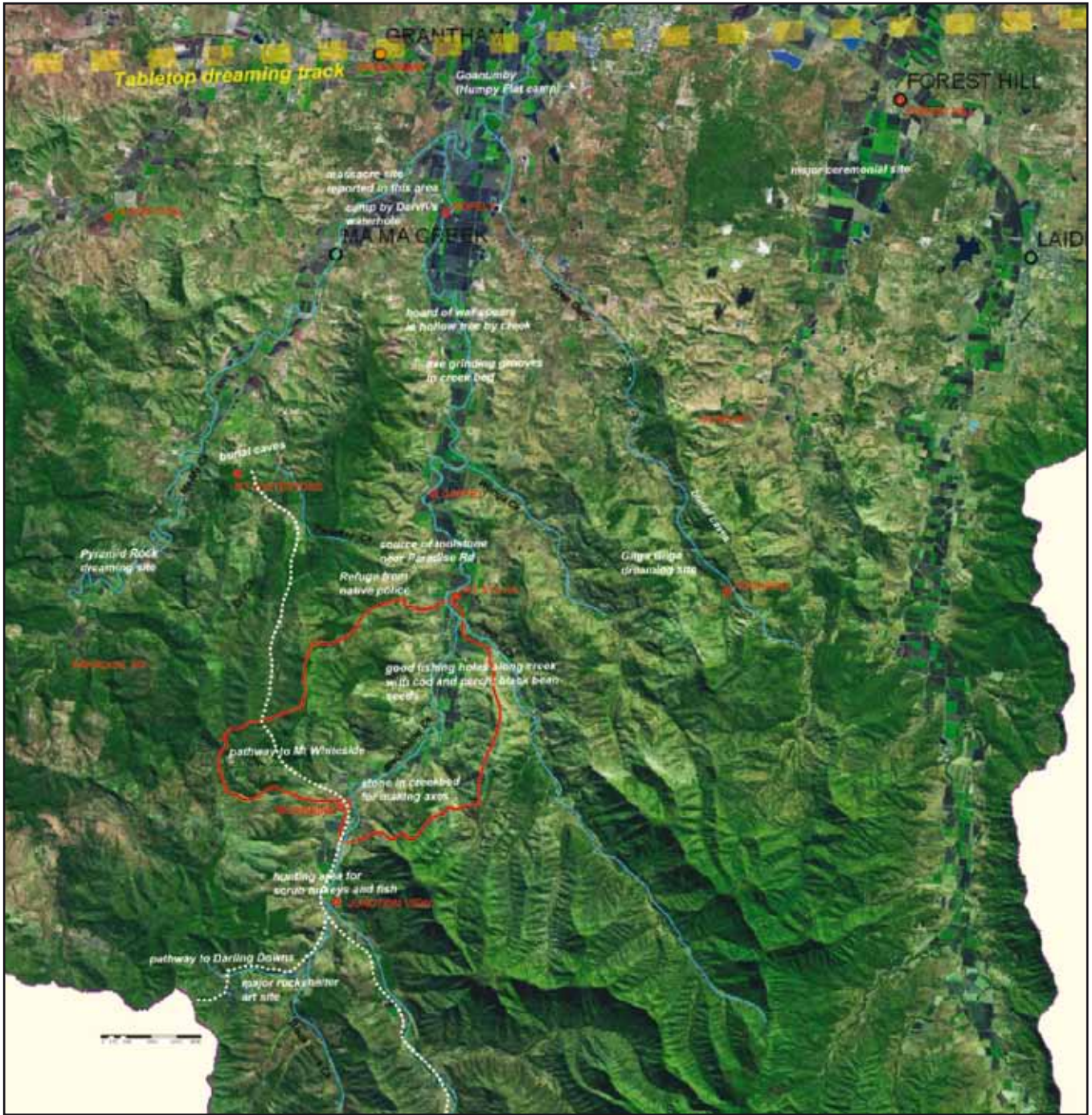


Figure 7: Map of cultural sites



## 4 Reconstructing cultural landscapes within the focal area

### 4.1 The focal area: combining science and story

As noted previously, reconstructing a lost landscape involves a great deal of cultural detective work. The results should be seen as a project in development, rather than an assumption of accuracy. The richness of knowledge — environmental, social, spatial and sacred — that was the traditional Aboriginal landscape is possibly lost to us. We have only fragments of a jigsaw that is composed of exploration and historical accounts, archaeological studies and oral information from present day Traditional Owners. Knowledge of pathways, waterholes, dreaming tracks, food resources and hunting and foraging techniques was largely destroyed with European settlement and appropriation of land. To provide certainty about the focal area would involve ground truthing and property inspections. It is not the role of a predictive model to do this.

Despite the extensive farming and land use that has occurred within the focal area and the loss of a vast store of traditional knowledge it is possible to reconstruct likely cultural use of the focal area, partly based on extrapolating relevant information from a variety of sources and marrying this into an environmental framework.

This section should be read with the understanding that it a predictive model only and because of time (both past and present) and budget constraints does not permit a full story to be told.

However, it is obvious from the cultural modelling that forms the basis of this report that the Lockyer Valley, and in particular, Blackfellow Creek (as the whole creek was historically known before being re-named Tent Hill for the northern section) was immensely rich in cultural sites and places.

The valley itself is drained by a number of northward flowing creeks — Flagstone Creek, Ma Ma (Heifer) Creek, Blackfellow (Tent Hill) and Black Duck Creeks, Deep Creek and Laidley Creek — into Lockyer Creek. The creeks acted as both pathways through the steep hills leading up to the Main Range.

It seems likely that while Tent Hill, Flagstone and the Ropely areas were centres of occupation and activity, Aboriginal people were moving constantly and regularly through the valleys and gullies and along the creeks and out onto the more open alluvial plains around Gatton, Grantham and Lockyer.

While the western, southern and northern boundaries of the Tent Hill clan are quite clearly defined, the eastern boundaries with the Tarampa and Rosewood clans are less documented. To the west the boundary was the eastern escarpment of the Toowoomba Range, from around Murphy's Creek (where the Downs tribes would meet for exchange and ceremony) and around Glen Rock and the

important sacred ceremonial site and fortress of Mt Table Top (One Tree Hill). To the north, the Helidon Hills represented the boundary although pathways too crossed this rugged area to the escarpment around Ravensbourne. To the south lay the steep cliffs of the Great Dividing Range.

Given our current and imperfect understanding of the political and social organisation current around the time of European impact, it is proposed on the basis of landscape modelling that the eastern boundary was probably around Plainlands and Glenore Grove, where the great Rosewood Scrub lay. While Gaiarbau (Winterbotham 1957) says that Franklin Vale and Grandchester were part of the Kitabel territory, it is more likely that this area had already been impacted on by settlement at Ipswich (Limestone) and the penal settlement at Brisbane, and by the dispersal of the Kitabel/Tent Hill clan under Multuggerah's leadership. However, it may be that the Rosewood Scrub formed the eastern boundary and work is needed to fully map its extent and see whether it constitutes a barrier sufficient to separate the Tent Hill mob from their neighbouring Rosewood and Tarampa clans.

Cunningham noted in 1829 around the eastern side of the Little Liverpool Range that: "These Indians, who were in the brushes at the foot of the range immediately north of us, appeared very actively employed with their hatchets, procuring food from the trees" (Steele 1972). Further on, towards Laidley, grass fires lit by Aboriginal people were burning "far and wide among the hills." Cunningham reported a camp of some twenty huts near Lake Clarendon and a small family camp. This contrasts with a camp at 'Humpy Flat' near Grantham in 1841 that contained an estimated 100 people (Campbell 1875; Steele 1984). However, it is likely that this camp represented a ceremonial gathering or perhaps a response — either fear or aggression — to the advent of white settlement and the opening of the route to the Darling Downs.

From this early report we can reconstruct something of the landscape and social life of the Lockyer clans. It is obvious that keeping country burnt was an important aspect of maintaining the food sources and allowing new grass and herbs to reproduce. Pathways were maintained roughly along the present day Warrego Highway, up into the Helidon Hills, from Murphys Creek up onto the Darling Downs, from Black Duck Creek towards Pilton, along Blackfellow Creek from its headwaters, along Dry Creek towards Mt Whiteside, and east across the Little Liverpool Range at Franklin Vale to the Rosewood mob. Camps ranged from one or two to upwards of twenty. This indicates that while people might come together at various times, for seasonal kangaroo drives or for ceremony or meetings, for at least a part of the year, they would disperse into smaller extended family groups, possibly 'owning' a stretch of creek, or a waterhole, or an area of bush with useful bush foods.

Cunningham notes that near Gatton, Lockyer Creek was shaded by large specimens of Black Bean *Castanospermum australe*, now completely omitted from most botanical ecosystem assessments in the Lockyer. Its poisonous beans were treated extensively and provided an important food source. The sound of their hatchets Cunningham reported may in fact have been the sound of pounding bean seed (Strong 2008a). Other foods eaten in the Tent Hill area included paddymelon, wallaby, kangaroo, possum, koala, cod, freshwater mullet, eels, carpet python, brush turkey, wonga pigeon, yams, tubers and honey (Donovan 1846).

Spears were made from the local brigalow or “rosewood” as it was then termed. However, Queensland Herbarium botanists advise that there is some confusion over whether this referred to Brigalow *Acacia harpophylla* or Scrub Rosewood *Acacia falciformis* which has a deep rose-coloured wood. Tim Ryan (Qld Herbarium) believes that the brigalow growing in the Rosewood Scrub is a variant or sub-species that may have had particularly useful attributes that made it different from brigalow or rosewood growing extensively elsewhere in central Queensland. One of the early pioneers at Boonah, described their manufacture (Hardcastle 1946).

*“I often watched the men cutting out spears from brigalow trees. It was a slow job getting a strip out of the standing tree. In my time, when they got it free from the tree, it was scraped with broken glass, but in the earlier days they used stone implements. When in proper shape, they used to work it backward and forward through hot ashes. When finished, a spear was like steel. Boomerangs were usually chopped out of the spurs of softwood trees. They were worked up and toughened in the same way as spears. Nullas were usually cut from the local rosewood. Shields were cut out of currajong and corkwood [Erythrina] trees. They were coated with beeswax to give the front a light burning.”*

The wallaby or kangaroo drives were a feature of Aboriginal hunting techniques to provide food for ceremonies when numbers of people would gather. A half circle of men, women and children would form in the brigalow scrub and drive the animals ahead. Hardcastle (1946) reported that heaps of wallabies, paddymelons, possums and koalas were caught and cooked. Nets were also extensively used. Murphy’s Creek was known as *Tamamareen*, meaning “where the fishing nets were burned in a grass fire” (Meston 1920). Fishing appears to have been a woman’s task, using a grass ‘moveable dam, through which only the water could pass, and thus all the fish were caught in the net’ (Davson 1955).

Ceremonial sites were known from just north of the focal area. An initiation bora ceremony was held in 1846 south of Tent Hill. At this ceremony, the elders imparted lore and information relevant to initiated men. Women stealing was a constant threat and led to most border disputes with neighbouring clans. The bora council would meet to discuss appropriate conflict resolution.

Overarching the entire physical world of the Tent Hill people was the dreaming track that ran from Gowrie Mountain to the sacred mountain and final refuge of Table Top and across Blackfellow Creek to a hill beside Plainlands and on to Mt Marrow and Mt Coot-tha. We do not know the spiritual significance of this connection, but it would have involved singing country and ceremonies designed to increase fertility and acknowledge the Dreamtime ancestral spirits. It may have been connected to the great sky-spirit, Budjal (perhaps sometimes identified with Biame, a creator spirit), whose resting place on Mt Castle (to the south of the study area) was disturbed. One of the places that Budjal stepped was Gilga Gilga, only 5 kilometres from the focal area, leaving behind a great footprint in the rock (Olm 1984). Rockshelters provided a place for bark burials, and several have been reported from the wider region, especially Heifer Creek and Rockside.

Within the focal area, Blackfellow Creek appears to have been a major centre of occupation and movement. The creek and its subsidiary creeks provided a renewing source of cobbles suitable for the manufacture of stone axes, made from basalt and andesite eroded over geological time down from the mountains. The creek provided a pathway from the upper gullies and ridges for people hunting brush turkey or collecting their eggs, wallabies and paddymelons in the vine scrubs. The quantity of stone artefacts reported to have been collected from Blackfellow Creek and lodged in local collections is testament to the centuries-long use of the creek system.

Hunting spears were located in a hollow tree cache overlooking the creek (Nelson 1993). These may not have been in use but perhaps spears made for trade. ‘Rosewood’ spears from the district, called *bonoorong*, a word derived from *bonooro*, the name of the brigalow, were famous and extensively traded as status symbols at bunya festivals (Hardcastle 1946).

Blackfellow Creek today may have suffered considerable environmental degradation through erosion, sedimentation and siltation of waterholes, trampling of banks and springs by stock, invasive exotic weeds, and the destruction of cultural and archaeological sites, often unknowingly, by ploughing, timber cutting and other taphonomical processes resulting from ignorance and a need to survive.

The creek would once have flowed clear and pure from springs and its source in the sandstone escarpment between banks shaded by river oaks, towering forest red gums and majestic black bean. In places it rippled over gravel bars composed of smooth river cobbles ideal for the manufacture of stone axes and some other types of stone artefacts, such as pounders and heavy scrapers.

Material for knives, blades, scrapers and points perhaps came from other sources exchanged for rosewood spears and clubs. Possible sources are from the Downs quarry at Jones Gully near Crows Nest or silcrete outcrops in the Helidon Hills. Where the creek formed deep waterholes (now silted and gone), camp sites were located on the higher creek terraces and people fished with nets for cod, freshwater mullet and perch or collected freshwater mussels. The Brisbane River freshwater cod *Maccullochella* spe. was once widespread and abundant in the Brisbane River and similar species in the Mary River and northern NSW river catchments but declined in the 1920s through overfishing, desnagging, siltation and eutrophication (Rowland 1993). Little is known about the cod's natural history and no specimens were preserved before its extinction but it is believed to prefer clear, slow flowing rivers or creeks, with rocky or gravel substrate and in-stream cover of rocks, timber or tussocks (G. Johnson, Qld Museum, pers.com. 2008).

Where suitable fine-grained sandstone outcropped in the creek bed or on its banks, men could grind edges onto stone axes leaving behind telltale longitudinal grooves in the rock. The alluvial creek terraces were almost certainly fairly open grassland, dotted with numerous huge Forest Red Gum *Eucalyptus tereticornis* mixed with ironbark and with numerous food plants as a ground cover. Cunningham talks of large kangaroos on the open grassland (1829), an oblique reference to eastern grey kangaroos *Macropus giganteus*. The higher banks provided safe camping areas from sudden floods and the junctions of creeks and tributaries appear to have been favoured places for these, judging from the location of archaeological sites and oral histories.

The area around Mt Whiteside and Paradise Road and almost certainly into the hills beside Blackfellow Creek was an area where hunting and foraging for food occurred, with small parties of men and women moving up into the higher gullies and ridges on the margins of vine scrubs (which Cunningham (Steele 1972) terms 'jungle') and into the brigalow to get wood for making spears and other weapons, to hunt brush turkey, wallaby and pademelon. Wonga pigeons were apparently still plentiful and a favoured food (Donovan 1895).

It is important to recognise that PLACE modelling exists within a single time scale, namely the last 500 years and more accurately within the last 200 years. It is difficult beyond that time frame to predict site location beyond the broadest terms. If one sees the cultural landscape as a jigsaw, of which we only have some pieces, then incorporating a wider time scale is like taking several jigsaws and mixing them up. The only certain way is through controlled scientific excavation in places where there is good stratigraphy that allows us to interrogate the past with a degree of certainty. Such places are usually rockshelters and caves.

The archaeological record provides environmental, technological and social information about the people of the focal area over the last 4000 years, primarily derived from Challawong Rockshelter (Morwood 1986). Bone from a controlled excavation provided a wide range of food species which in turn has implications for understanding environmental developments in patterns of habitat exploitation (Edgar 1985). 34 species of animals were collected, including three species, *Macropus agilis*, *Isoodon obesulus* and *Dasyurus geoffroyii* that disappear from the record about 600 years ago and are now extinct within the study area. Analysis of the excavation finds showed that initially, exploitation of two larger marsupials, Black-striped Wallaby *Macropus dorsalis* and pademelon *Thylogale* sp. were significant in the food diet. Both of these inhabit the ecotone between wet sclerophyll forest and rainforest and travel on regular well defined paths. Macropods from open forest areas were also taken but in much smaller numbers indicating opportunistic predation. Over time, the animal resource was replaced by arboreal hollow tree species from drier woodland and open forest habitats, such as possum, gliders and koala, goanna and python, and also possibly honey.

Table 10: Food animals recorded from Challawong Rockshelter (after Morwood 1986)

<b>1. Canis familiaris</b>	Dingo
<b>2. Macropus giganteus</b>	Eastern Grey Kangaroo
<b>3. M. robustus</b>	Wallaroo
<b>4. M. rufogriseus</b>	Red-necked Wallaby
<b>5. M. parryi</b>	Whiptail Wallaby
<b>6. M. agilis</b>	Agile Wallaby
<b>7. M. dorsalis</b>	Black-striped Wallaby
<b>8. Macropus sp.</b>	Macropod
<b>9. Wallabia bicolor</b>	Swamp Wallaby
<b>10. Thylogale sp.</b>	Pademelon
<b>11. Bettongia sp.</b>	Bettong
<b>12. Potorous tridactylus</b>	Long-nosed Potoroo
<b>13. Isoodon macrourus</b>	Northern Brown Bandicoot
<b>14. I. obesulus</b>	Southern Brown Bandicoot
<b>15. Perameles nasuta</b>	Long-nosed Bandicoot
<b>16. Petauroides volans</b>	Greater Glider

<b>17. <i>Petaurus</i> sp.</b>	Glider
<b>18. <i>Trichosurus vulpecula</i></b>	Brush-tailed Possum
<b>19. <i>Pseucecheirus peregrinus</i></b>	Common Ring-tailed Possum
<b>20. <i>Phascolarctus cinereus</i></b>	Koala
<b>21. <i>Sminthopsis murina</i></b>	Common Dunnart
<b>22. <i>Rattus</i> sp.</b>	Rat
<b>23. <i>Melomys cervinipes</i></b>	Fawn-footed Melomys
<b>24. <i>Pseudomys delicatulus</i></b>	Delicate Mouse
<b>25. <i>Dasyurus maculatus</i></b>	Tiger Cat
<b>26. Dasyurid (of <i>D. geoffreyi</i>)</b>	Western Native Cat
<b>27. <i>Varanus</i> sp.</b>	Goanna
<b>28. <i>Morelia spilotes</i></b>	Python
<b>29. Non-bold snake</b>	Snake
<b>30. <i>Amphibolurus barbatus</i></b>	Bearded Dragon
<b>31. Skinkinae</b>	Lizard
<b>32. Agamidae</b>	Dragon Lizard
<b>33. <i>Alectura lathami</i></b>	Brush turkey
<b>34. Aves (small)</b>	Bird
<b>35. Perciform fish</b>	Perch
<b>36. Freshwater mussel</b>	Freshwater mussel

Regretfully, no residue analysis has been undertaken on the stone artefacts from Challawong and other rockshelters in the area that would allow some idea of the plant cornucopia that provided bush tucker for Aboriginal foragers. The only plant food information available is from Donovan (1895) who states that yams formed a part of the diet. Because much of the river flats have been ploughed for generations, it is difficult to glimpse the wealth of food species that was available. These would have included swamp lily *Crinum*, ground and tree orchids, wombat berry, black bean, hovea, lillipillies and so on.

The archaeological record from Challawong Rockshelter also provides an indication of the stone tools that have largely vanished from the landscape into museum and local collections or been destroyed by ploughing and sedimentation. These show that a wide variety of tools were employed, including edge-ground stone hatchets, blades, geometric microliths, bondi points, barbs, backed artefacts, eloueras, tula adzes, burren adzes, grindstones, mullers and hammerstones (Morwood 1986). See Figures 8 & 9.

Morwood suggests that the evidence shows that around 4000 years ago, the Lockyer area was utilised by small groups on an ephemeral basis, perhaps seasonal visits, using specialised tools such as backed artefacts and barbs. Over the last 1000 years, these tool types drop out of the sequence and perhaps indicate a wider range of hunting and food gathering strategies. Increased deposits of charcoal, faunal and sediment deposition suggest that Challawong, and perhaps other rockshelters in the area, were being used more frequently but that hunting strategies had changed from individual stalking, ambush and tracking using spears to use of both individual pursuit and cooperative communal activities such as hunting with nets and organised drives (Morwood 1986).

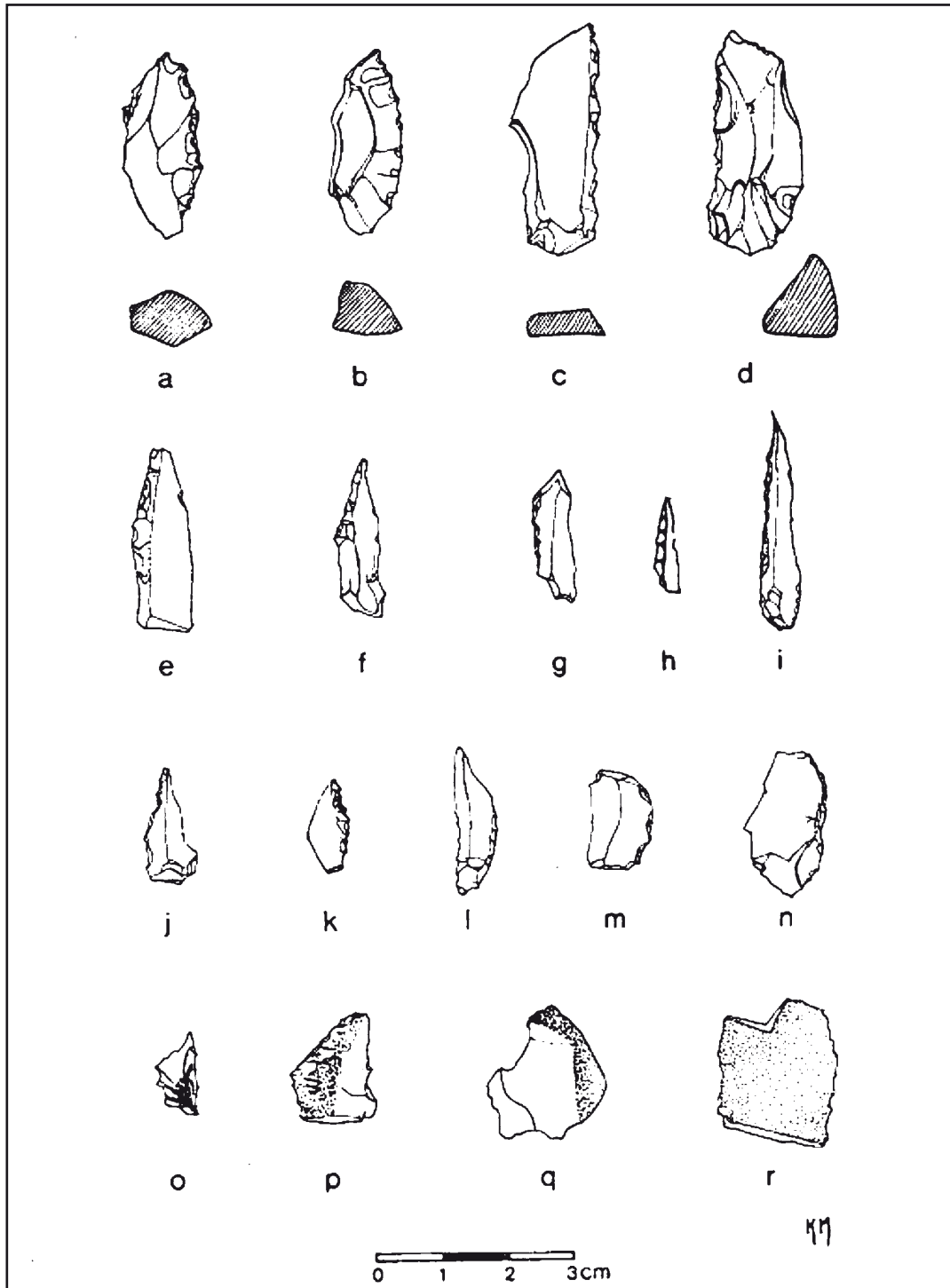


Figure 8: Tools from Challawong Rockshelter (Morwood 1986): (a-d) adze slugs; (e-k) bondi points; (l-m) geometric microliths; (n) backed artefact; (o) barb with resin; (p-q) edge ground axe fragments; (r) grindstone fragment.

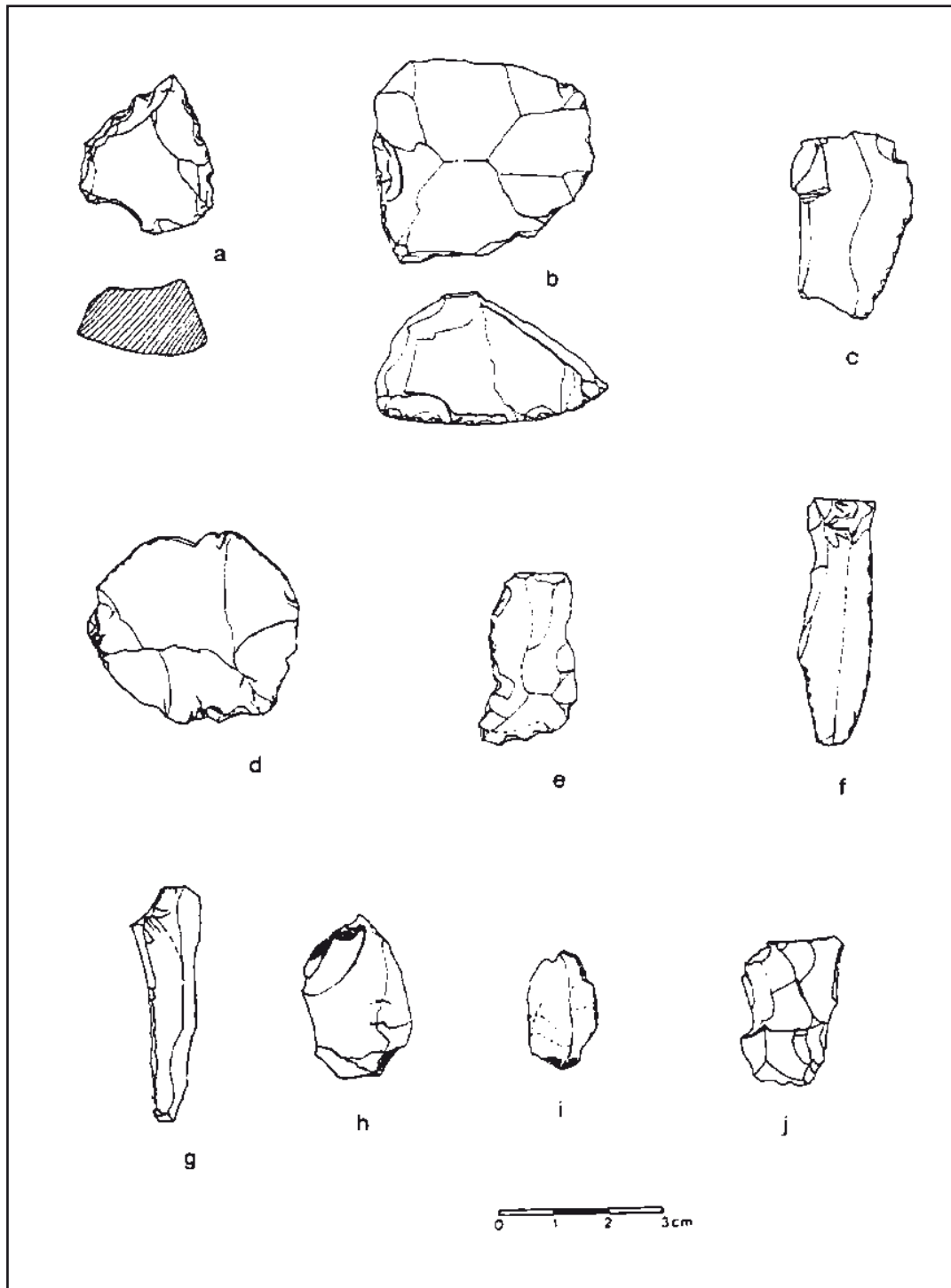


Figure 9: Tools from Challawong Rockshelter (Morwood 1986): (a-b) steep-edged scrapers; (c-d) retouched flakes; (e-f) blades; (g) blade core; (h) bipolar core; (i) bipolar flake; (j) blade core.

## 4.2 Matching the clues: predicting cultural heritage in the focal area

Given time and the limited budget, together with a lack of access to properties, it is impossible to do more than broadly predict the likelihood of existing cultural heritage within the focal area.

Cultural sites (ie. mythological sites, dreaming tracks, sacred places, healing places, magical places, story places and other invisible aspects of the cultural landscape) do not disappear or are lost. As the link to the unseen world or spirit and the dreaming, these places continue to have a living presence and power. Obviously, if a waterhole that was used for healing or initiation is destroyed, then a visual aspect of the landscape is lost, even if the template survives in memory or the invisible world.

It is likely that across most of the focal area, the likelihood of significant sites, such as burials, stone arrangements and bora grounds, being present is low. This does not mean that they were not present in the past, possibly as late as the advent of native title when many archaeological sites were deliberately vandalised. It maybe that some landowners, fearing land claims, retain knowledge of sites on their properties that survived Queensland's version of a cultural revolution. However, it is considered from a predictive model that the major bora ground was located outside the focal area at Tent Hill, and this would have been the major ring for the district. Ploughing and ripping are particularly destructive of earth circle mounds (bora rings) or stone arrangements (surface alignments of stone). The soil pH at Blackfellow Creek is conducive to the preservation of skeletal material, and burials have been recorded outside of caves and rockshelters in the Lockyer area, but modern farm practices make it unlikely that new burials will be found on the creek flats.

It is likely that artefact scatters and isolates will occur, particularly on the stream terraces within 100 metres of the creek bed. Artefacts likely to be encountered will be fragments of stone axes, and axe manufacturing debris (the majority of formed stone axes have been already identified and collected); flakes and debitage. The most likely material will be silcrete.

Scarred trees (called debarked trees by Steele) have been reported from both Blackfellow Creek (Nelson 1993 and Steele 1984) and Laidley Creek. While the likelihood of these being cultural is not disputed, it should also be noted that non-cultural scars also are prevalent in flood-prone streams, caused by floating logs striking living trees and leaving behind a scar over time. The location of scars on creek-side trees facing upstream is a more reasonable assumption of a cultural origin (Strong 2006b).

On the upper sandstone terraces, formerly brigalow, it is likely that artefact scatters relatively intact (apart from obvious tools like axes and grindstones) will be found.

This is also the terrace where rockshelters and caves occur in sandstone ridges. No suitable escarpments were identified within the focal area close to Blackfellow Creek, but elsewhere within the focal area, such as Paradise Road area, there is a higher potential for overhangs and shelters to be present.

Ridgelines, where pathways and seasonal camps were located, are now largely cleared for pasture or retain low vine scrub regrowth. These are likely to retain isolated artefacts and also have the possibility of scarred trees. Hill slopes were generally more open hunting areas in traditional times and as a result, there will be a low potential for isolates to be found.

One important aspect of predicting cultural heritage is the identification of suitable stone sources that could potentially provide information about spatial distribution, social and seasonal movements and technological use. Stone tools retain animal (and human) and plant residues, such blood, starches and feathers for long periods of time, sometimes thousands of years. These can be used through scientific examination to understand more fully the rich diversity of cultural and environmental land use. While only one source, outside of alluvial gravels, has been recorded in the Lockyer valley, it is likely that hill slopes and hilltops, where volcanic intrusions have altered groundwater through mineralisation, might provide stone sources such as silcrete, quartz and chalcedony.

## 4.3 Looking ahead – where to from here?

This report challenges some time honoured perceptions that Aboriginal cultural heritage is relegated to museum drawers and a few isolated sites. Hopefully, it has demonstrated that much of the richness of the cultural landscape can, with time and effort, be re-identified and re-instated in the public domain as a layer within the whole Lockyer landscape. It is through understanding our past that we look to the future and the delicate checks and balances that sustained Aboriginal environments for thousands of years have relevance for conservation and ecological sustainability today. This is not to infer that Aboriginal people living a traditional lifestyle did not impact on the environment. Neither was there a static world in which they existed. The recent period we call the Holocene saw a dramatic change in climate and sea levels, similar to what we face today with global warming.

Through the development of good scientifically based predictive modelling, we can also develop strategies that allow conservation and land use to work together to care for country.

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