9. APPENDICES

APPENDIX A – NOONGAR INDIGENOUS CULTURE AND TRADITIONAL LIFE IN THE TUART WOODLANDS AND FORESTS

A.1 Living in the landscape of the Swan Coastal Plain

There is a very long history of human occupation of the Swan Coastal Plain, with some archaeological evidence of tools and scrapers estimated to be 38 000 years old. The Swan Coastal Plain has a high density of artefacts (an estimated 50 000 per square kilometre for part of the plain compared with fewer than 200 per square kilometre on the scarp). The association of archaeological sites with drainage areas reflects the high importance of permanent water bodies, where many people gathered seasonally (O'Connor et al 1989).

A.2 Noongar people, ecological knowledge and language

The Noongar (Nyoongar, Nyungar) people are the traditional owners of southwest Western Australia. Over many generations people have responded to changes to climate, landscape, flora and fauna to live within the ecological communities of the Swan Coastal Plain. These people moved throughout their traditional lands to gather resources and secure their livelihoods throughout the year. They have developed a highly organised use of resources to meet their needs through changing seasons. In this way they have accumulated a wealth of traditional knowledge about the land, weather, plants and animals and interactions between these. This knowledge is strongly associated with culture and spirituality. There are differences in dialect across the region, although language groups are not necessary related to land ownership (O'Connor et al 1989). Trade, as well as movement in response to seasonal conditions was important, and brought groups in contact. Many of the traditional pathways connected wetlands, such as the linear lakes now found in Yellagonga Regional Park (City of Joondalup 2011).

The groups most strongly associated with the main area where Tuart woodlands and forests occur are Yuat (Yued), Whadjuk, and Bindjarep (Binjareb) (Rooney 2011), as well as Wardandi but the ecological community may also occur on the margins of other areas. For this reason there are often alternative names or transcriptions of names for the plants and animals of the ecological community. Additionally, Noongar names may relate more to the appearance or use of a plant or animal, for example, the shape of a tree rather than its taxonomic definition (Bindon and Walley, 1998). Some plants and animals have many uses and so may have a range of associated names. Some Noongar names for plants and animals that are part of the ecological community, as well as some examples of their traditional uses are noted in APPENDIX E – SPECIES LISTS. The information presented here is a small sample of the many names and uses for these parts of the ecological community. The medicinal uses noted in the table are primarly summarised from Hansen and Horsfall (2017). Any medicinal use or consumption of these plants should only be made with expert guidance.

A.2.1 The importance of seasons

Traditional Noongar life on the Swan Coastal Plain is strongly seasonal and structured in response to availability of water and food. In general, warmer months were spent on the Plain while the cooler months were spent further inland at a higher elevation.

Six main seasons have been defined as part of the Noongar calendar (Table 4)

Table 4. Noongar seasonal calendar

Sources: Bindon and Walley (1998), Wallace and Huston (eds) (1998), Hansen and Horsfall (2017).

Season name	Months of year	Weather	Activities
Bunuru	February,March	hot easterly and north winds, low rainfall	Fishing and hunting near coast and permanent fresh water. Plant foods gathered included fruits of Zamia palms, roots of bulrushes and bohn plants.
Djeran	April,May	Cooler, southwesterly winds	Fishing and collecting bulbs and seeds. Move from coast to higher ground
Makuru	June, July	cold and wet, westerly gales. Highest rainfall.	Hunting kangaroos and emus and gathering foods such as yams, mainly on higher ground. Living in smaller family groups
Djilba	August September	Clear cold days with some warmer rainy periods	Hunting emus, possums and kangaroos, and gathering mainly on higher ground. Living in smaller family groups
Kambarang	October, November	rain decreasing	Return to coast and gather in larger groups near coastal water sources
Birak	December, January	hot and dry. Easterly daytime winds, evening sea breeze	Controlled local fires to assist hunting and promote plant growth.

The warmer seasons of *Kambarang, Birak* and *Bunuru* were spent on the plain, making use of coastal resources and more abundant water in wetlands, lakes and rivers. Foods found in the wetlands included freshwater crayfish, frogs, tortoises, waterfowl and fish. Eggs and birds including parrots, pigeons, cockatoos and raptors were collected from the surrounding forests (Bindon and Walley 1998). Some of the fish and waterfowl that are hunted in these coastal waterways migrate to other locations in winter. The gatherings of people at this time of year were relatively large, in comparison with the smaller family groups of the colder seasons. These large gatherings of people met to talk, trade and also enjoy delicacies such as drinks from the nectar in Banksia flowers (O'Connor et al 1989).

This was also the season when controlled burning on the plains was used to assist in hunting and preparing the country to re-grow over winter (Bindon and Walley 1998).

People also traditionally made use of fish traps and weirs in shallow areas and pools to trap fish at the coast (Bindon and Walley, 1998). *Mungur* (fish traps) were also built at the beginning of winter in some locations on rivers that pass through Tuart woodlands and forests including the Murray River and the Serpentine River near Barragup (Dix and Meagher 1976; O'Connor et al, 1989). These fish traps were successful at this time as with increased rain, fish would return to the lowlands after spawning upstream. The traps had fences made from branches across the stream, with a narrow opening funnelling to a race. Along the race the

depth of the stream was reduced by stakes and brush placed on the stream bed. Alongside the race, fishers stood on shallow platforms to scoop fish from the water (Dix and Meagher, 1976). This activity would have involved hundreds of people (O'Connor et al 1989) and people would camp there for several months to trade fish and tools (Harry Nannup pers.comm).

In the colder seasons of *Djeran* and *Makuru* some of the lowland areas flooded, making travel and camping difficult (O'Connor et al 1989). However, at this time water became more reliable in the higher parts of the country, where people moved in smaller groups and concentrated their efforts on hunting. Amongst the lowland animals that were hunted were *marli (*Black swans; *Cygnus atratus*), which became easier prey as they moulted (Wallace and Huston, 1998). Other targets for hunters included *yonger* (kangaroos), Emus, Quenda and possums (Bindon and Walley 1998). *Mia* shelters were built and repaired at this time and kangaroo skins prepared to make cloaks (Wallace and Huston 1998).

At the end of *Djilba*, the warmer weather in the region was heralded by the golden flowering of the *modya* (*Nuytsia floribunda*; Western Australian Christmas Tree) and people returned to their coastal lands to enjoy the abundance of resources there.

A.3 Traditional livelihoods in the Tuart woodlands and forests

A wide range of foods and other resources were gathered from the Tuart woodlands and forests. At the end of *Djeran*, seeds from the *baio* (Zamia Palm) were harvested then soaked and buried to remove toxins. They could then be roasted and eaten. Another staple included *yanjet* (Bulrush) rhizomes, which were pounded to remove the fibre then made into a flattened damper and roasted. Another food found underground is the bulb of the *bohn* or *mardje* (Blood Root), which was roasted then mixed together with other foods to add a spicy flavour (Bindon and Walley 1998). Like a range of other plants, this also had additional uses including as medicine for diarrhoea and also as a dye (Hansen and Horsfall, 2017). *Warrain* (Yams; *Dioscorea hastifolia*) were also collected by women using their *wanna* digging sticks. To ensure continued harvest the shoots and tips of yams were put back into the holes so that they could re-sprout for the next season (Bindon and Walley 1998). Planning for the ongoing availability of resources, through careful harvest and land management practices such as restrictive burning are characteristic of traditional Noongar life (Hansen and Horsfall, 2017; Harry Nannup pers.comm).

Snacks that can still be found in the woodlands and forests include a range of berries, particularly *cadgeegurrup* (Native Cranberry; *Astroloma* spp. and wild pear; *Persoonia spp.*) (Bindon and Walley, 1998). Noongar Elder Harry Nannup tells of how when hunting for lizards as a young person he always had a pocket full of berries to eat, but these are now harder to find (Harry Nannup pers.comm). Another popular food included the *bardi* (Witchety Grub; *Bardistus cibarius*), found in large numbers in the stems of *balga* and easily collected when they climbed up the stems following the first rains. These were highly prized and eaten either raw or cooked (Wallace and Huston 1998).

Permanent and seasonal water sources were a focus for life and resource gathering. People would often move through their lands following rivers and other freshwater resources. The association of Tuart trees with water courses and wetland margins suggests that some of these commonly used pathways may have followed the Tuart woodlands and forests ecological community. Retaining or regaining access to these pathways is important for Noongar people to continue with cultural practices and nurture connections to their country (Harry Nannup pers.comm). At Perry Lakes, near where the ecological community is still

present, women would collect turtles by wading in the wetlands and feeling with their feet. The extent of these lakes has been reduced by drainage but this area continued to be a popular place of Aboriginal people to camp until the 1940s. Lake Joondalup is another location where the ecological community occurs that was a favoured camping area where waterfowl and *yargun buyi* (long-necked tortoise) were hunted (O'Connor et al 1989). Mr Harry Nannup also recalled as a child camping under the large Tuart trees on the Serpentine River (Harry Nannup pers.comm).

Noongar people also developed an extensive knowledge of the medicinal uses of plants of Tuart woodlands and forests and used this to maintain health and treat a range of conditions. The means by which treatments were administered included steam pits and beds, lined with leaves and kangaroo skins; leaves and branches crushed and heated to release vapours; ointments made with emu and goanna fat; through smoke, or direct application of parts of plants such as the sap, or infusions made from plant parts. While many treatments were administered externally, some treatments were made to be ingested, for example as infusions. Eucalypts in the ecological community including Tuart, Marri and Jarrah were all used in various ways for their antiseptic properties and to assist with respiratory conditions. Flowers from a range of Banksia species were infused to create a drink soothing for sore throats (Hansen and Horsfall, 2017). Other examples of traditional uses of some of the plants in the ecological community are presented in Appendix E, Table 9).

Other resources were used for a range of purposes with common tools produced including spears, spear throwers, clubs, digging sticks (*wanna*), wooden carrying dishes (*mirlkoorn*), grindstones and skin cloaks (*booka*) (O'Connor et al 1989; Whitehurst 1997). Bark was used for making shelters and to wrap food for cooking (Hansen and Horsfall 2017). Shields were also made from bark slabs cut from trees. Where the cuts were made in the tree trunks sap was later collected and eaten. Sap from *balga* was used as a strong glue for fixing stone blades to handles (such as *kwetj*: axes), while leaves from the same trees were used for thatch and bedding (Bindon and Walley 1989). Stone was traded for a variety of purposes, including for making grinding stones, and spears. Ochre and clay was also traded for use in medicine and ceremony. In cold weather people warmed themselves in kangaroo skin cloaks, which were softened with animal grease and sewn using sinew thread (Hansen and Horsfall 2017).

A.3.1 Physical and cultural landscape features

The ecological community is strongly associated with limestone substrates. As a result, in several locations across the range of the ecological community there are also caves in the limestone. Water sources are often of particular cultural importance, in addition to being centres for resource availability and important for health. These are often of cultural significance, with some containing paintings. They may also contain important archaeological records and support unique biological assemblages. Disruption of drainage, for example through digging sewers may damage these caves (Harry Nannup pers.comm.). In some locations the removal of Tuart woodlands and forests for urban and rural residential development may have had a detrimental effect, along with declining rainfall, on the freshwater springs that flow in some areas from the limestone such as at Warrangup Springs. These springs which once always flowed are now dry for most of the year (Wilson pers.comm). Water sources are often of particular cultural importance, in addition to being centres for resource availability and important for health. Before moving on with the change of seasons, old people

camped at the top end of Lake Preston to take (soak in) the mineral water there and gain strength (Harry Nannup pers. comm.).

A.3.2 Fire

Fire was a very important part of life, used for cooking food, hunting, warmth, signalling and to assist in tool production. It was also important in creating a social focus as well as for land management. The fireside was the place where a lot of knowledge and culture was passed between generations. Fires were initially created using the long flowering stems from *balga* as drills. They were then carried around between camps using a smouldering branch from a *boolgalla* (Bull Banksia) tree, carried beneath a cloak made from kangaroo skin (Bindon and Walley 1998; Hansen and Horsfall 2017).

Fire was particularly important for hunting. It was used by men to drive out kangaroos into open areas, while women and children could use fire to herd animals such as bandicoots, race horse goannas and shingle back lizards. They would also find other animals such as snakes in the ashes. Smoke was also used to drive possums from trees to hunt (Wallace and Huston 1998).

From season to season, fire has also been a key land management tool. Burning was sometimes done when leaving a camp to prepare it for the coming season. This restricted burning promoted new plant growth in winter. This in turn provided food for animals in these areas (Bindon and Walley, 1998; Harry Nannup, pers.comm).

The specific regime of burning has been subject to substantial debate, but it is suggested that changes in fire regimes with the reduction of direct land management by Noongar people has led to substantial changes in the ecological community, including the reduced availability of bush foods (Harry Nannup pers.comm). It is likely that one of the changes has been the scale of burning undertaken at any one time as well as its frequency. It is thought that traditional burning lead to a complex mosaic of patches of different ages (Abbott 2003). From the mid 1800s it was known that stock needed to be grazed both on the coastal sands and the foot hills soils to avoid nutritional problems (Bradby 1997). It is understood that in some situations, the pastoralists imitated some characteristics of Noongar fire management (Abbott 2003). To provide future feed for stock, as they moved their stock from the coastal lands each year they burnt the bush behind them in preparation for the following season. These practices changed as fertilisers were introduced. With the establishment of some conservation parks (e.g Yalgorup National Park) there was a policy of fire exclusion introduced which significantly changed the historical fire regimes (Wilson pers.comm), while more broadly, legislation such as the Bushfires Acts of 1902 and 1937 limited the season of burning (Abbot 2003).