1 INTRODUCTION

This review about Aboriginal culture draws mainly on references relating to Western Australia (WA). Most refer to Noongar Country which is in the south-west of the State. Noongar Country is approximately triangular with boundaries from Geraldton down the west coast to Augusta, east along the south coast to Esperance, and the third side of the triangle goes from Esperance to Geraldton. Noongar Country has fourteen language groups which are distinguished in the review when language groups are available for references, for example as Whadjuk Noongar, Menang Noongar. Other major groupings referred to, each with multiple language groups, are peoples of the Eastern Goldfields, the mid-west (Murchison and Gascoyne regions), north-west (the Pilbara), north (the Kimberley), and the Central Deserts. To locate the territories of all language groups in WA, the reader can view, online, the map by Tindale (1940) and a simpler version by the Australian Institute of Aboriginal and Torres Straight Islander Studies (1996). The spelling of Noongar and other names in the review varies – each version matches that in the papers from which the names were retrieved.

Facts about, and uses of, granite outcrops are included as well as cultural narratives. My intention was that cultural references would relate to traditional, pre-European settlement culture. However, whether or not current accounts by Aboriginal people reveal knowledge which is free of European influence is a moot point: narratives evolve over time, in the oral tradition and by different speakers, and sometimes take in contemporary conditions (Maranda, 1972). In particular, narratives reclaimed by Noongar Elders, after the cultural impact of several generations of stolen children, may differ from those told pre-European settlement. Another contingency is that recorders and researchers may overlay their own world views when collecting and interpreting data.

The review is presented under seven headings: ‘Granite outcrops defined’, ‘Gnammas and soaks’, ‘Granite outcrop utilisation by Aboriginal people’, ‘Flora and fauna’, ‘Songlines, ceremony and Dreamings’, and ‘Art and artefacts’. The process of collecting references has made me realise that Aboriginal culture in relation to granite outcrops is a huge field on inquiry that I have barely touched.

2 GRANITE OUTCROPS DEFINED

From a scientific viewpoint, “granite domes – also known as inselbergs or monadnocks – are a conspicuous geomorphological feature of many Australian landscapes and can comprise large monoliths rising hundreds of metres above the surrounding landscape, to low platforms barely higher than their surroundings” (Harvey, 2010, p. 26).

From a Noongar Dreaming perspective, a spirit woman once walked on earth and she collected little spirit children from the landscape and put them into her hair before she became the Milky Way (Nannup in Morgan et al., 2008). As she travelled around, some of the children fell from her hair to the ground and turned into stones. ... however, some of the children had also turned themselves into birds, and were swooping and pecking around her as birds sometimes do. Because of that she stepped away from them and on to one great big stone. It toppled over; and when it hit the ground it crashed across the southern part of the land and formed the great outcrops of stone that you see all through the south. Nyungar people know these stones as bib, which means breast. So Bibbelman is the land of many breasts. That is what it [Bibbelman] means (ibid, p. 100-101).

GNAMMAS AND SOAKS

3.1 Gnammas

Gnammas are natural cavities commonly found in hard rock, particularly granite outcrops, and as such act as natural water tanks (Western Australian Museum, n.d.). More simply they are rock holes. The word gnamma is widely used in Australia and the first published version of it is said be in Moore’s (1842) Noongar vocabulary (Bindon, 1997, citing Wilkes, 1978). Two entries in Moore’s vocabulary are relevant: “Water, standing in a rock—
Gnamar” (p. 167); and “Amar—A hole or pool of water in a rock. In many parts of the country, where there are no rivers nor springs, the water from the winter rains is retained in deep crevices or holes worn into the surface of the rock. These reservoirs are carefully noted, and are relied upon as the principal resources of the natives, in dry and rocky situations, during the summer months” (p. 2).

Another early account of gnamma is that of Austin, an explorer, although he did not use the word gnamma. He had held an Aboriginal man captive for the purpose of finding water in the Murchison. The man led the party to a water hole where rainwater had accumulated (Bayly 1999, citing Austin, 1856).

The holes or cavities form naturally, initially. A depression in the rock starts through “moisture attack” ( Bourne and Twidale, 2002, p. 87) and “sun exposure causing flaking, breakdown of crystalline irregularities, lichen attachment, attack of acid groundwater on bedrock” ( Wheatbelt Natural Resource Management, n.d., p. 15). Next, the rock breaks up, with the most accepted explanations being alternate wetting and drying; other possibilities include continued sun exposure, xenolith (bits of foreign rock) attack, and the direct action of wind and running water (ibid). Then, the debris is evacuated- the broken rocks “get taken away by wind, get dissolved in solution, or are removed by people” (ibid).

Some gnammas have been enlarged through human or animal intervention. The Derdibin gnamma, at the base of Derdibin Rock, Balladong Noongar Country, “has a rough hemispherical shape … that formed along three joints in the rock which acted as weaknesses. The rock rotted in those particular areas, perhaps helped by some Aboriginals digging and burning” ( Wheatbelt Natural Resource Management, n.d., p. 16). “The people used to heat the rock up and keep pounding it until it got deep enough so that they could have a water hole” (Noongar Elder Kevan Davis in Wheatbelt Natural Resource Management, n.d., p. 8). Bayly (1999) writes that:

It is thought (e.g. Jutson) that both animals and Aborigines played a significant role in the enlargement of some gnammas by scratching debris and weakened rock from the bottom and sides while tapping the last vestiges of water. Further, Tindale & Lindsay (1963) pointed out that Aborigines sometimes diverted water into a gnamma by chipping grooves in the surrounding rocky slopes (p. 20).

“Some Noongar stories say gnammas were created in the dreamtime by the Wargal, the spirit snake that also made the rivers, lakes and wetlands. Another dreamtime story says that the row of five pit gnammas in Trayning were dug by a nyingarn (echidna) digging pits as he migrated south” (Noongar Elder Kevan Davis in Wheatbelt Natural Resource Management, n.d., p. 8).

3.2 Gnamma size and shape

Gnammas are classified into two basic forms: pans and pits. Pan gnammas are diverse in shape, shallow, flat-floored and seasonally fill with water (Timms, 2013). They “develop in laminated granite which allows more lateral rather then vertical moisture attack”, while pit gnammas “form in massive isotropic rock” (Bourne and Twidale, 2002, p. 88), that is rock with uniformity in all directions. Pits are subcircular, have a depth to diameter ratio exceeding 0.2, and contain water for longer periods (Timms, 2013, p. 7, paraphrased).

Timms (2013) investigated gnammas in the Wheatbelt (Noongar Country) and Eastern Goldfields districts of WA, in particular, 80 pit gnammas. He found that : “most granite rock outcrops … have numerous shallow pan gnammas generally on the flattish upper parts of the dome, but some rocks have single or a few deep pit gnammas often on the lower flanks” (p. 7). “The pit gnamma varied in mean diameter from 0.19 to 12 m and in depth from 24 to 300 cm” (p. 9). The majority of pit gnammas “were 1.0–2.5 m in mean diameter and 50–100 cm deep” (p. 9). Extreme cases included the 12 m diameter gnamma on Beringbooding Rock, and the 3.8 m-deep gnamma at Cadigan.

Most pit gnammas investigated by Timms (2013) had hemispherical to parabolic pit shapes. Some were cylindrical. Quite a few were on major vertical joints, and were “elongated along the joint, often narrowing at each end to give an overall ‘canoe’ shape” (p. 9). Some were formed on a major joint between two rock blocks so were like a trough. Two had an underground shelf and one was flask shaped. Many rims had minor joints and laminations.
Pan gnamma within a pan gnamma, the secondary gnamma (darker patch, left side of large gnamma) has eroded in the floor of the larger basin, McDermid Rock, Holland Track, south-west WA, photo by Pat Forster 19/10/2007

Hemispherical pit gnamma, Kalbarri National Park, mid-west WA. Photo by Pat Forster 09/06/2018

An underground shelf can develop where “pits have penetrated through the base of a slab or sheet structure - runoff entering the pit flows through the base, a swirling action develops and a cylindrical hollow forms” (Bourne and Twidale, 2002, pp. 87-88). There is a large example at Beswick Rock, near Corrigin, in Njaki Njaki Noongar Country, “some 6 m long and 3 m wide and at least 2 m deep” (ibid, p. 88). Two other pit types not found by Timms (2013) are armchair hollows which are found on steep slopes, have “open downslope sides” (Bourne and Twidale, p.87), a steep upslope side, and so are shaped to suit the name, and pipe gammas which are narrow, deep pits.

An early sketch of gnamma appeared in the first annual report of the Western Australian Department of Mines in 1894:

The sketch is in two parts. The top half shows a natural landscape with trees in the background and three Indigenous people approaching a large rock, in the centre of which is a depression containing water. The bottom half shows a cross-section of the depression, revealing it to be a deep hole capable of holding water. ... The drawing was included in a government report for the benefit of gold prospectors flocking to WA’s eastern gold fields... A gnamma was often a more important and welcome find to prospectors desperate for water than the sight of gold itself. .... With the coming of thousands of non-Indigenous people to the eastern gold fields, water in gnammas changed from being nurtured and used carefully to being traded for a profit. Indigenous people, who were not part of the market economy, suffered greatly (Learning Federation, n.d., webpage).
The Narkeening Gnamma Hole, north east of Nungarin in the south west (Njaki Njaki Noongar Country), is:

historically important as an example of Aboriginal adaptive use of environment... Early in 1999, a search was conducted to discover a gnamma hole of sufficient size to warrant inclusion on early maps. Barry Cornish discovered the main hole ... It was completely filled with dirt, numerous rocks, and remains of bush timber, and was barely able to be discerned from the surrounding area. Once excavated, the hole proved to be more than 6 feet deep, and of considerable capacity. The smoothly irregular shape of the hole bears testimony to the method of construction, with hollows that suggest that fires had been lit to crack the rock. Some of the cavities were part the way up the walls of the gnamma hole, and water from the lower cavities would have been available to splash on to the hot rock to assist the process of cracking and flaking. In Barbara Sewell's "Goomalling - A Backward Glance", the author describes the aboriginal method of lighting a fire to heat the rock, and successively chipping away to form a hole (Shire of Nungarin, 1999, webpage).

In an analysis of gnamma in multiple locations including across WA, Fiedler and Hopper (2016) classify groups of gnamma as riverine, where water flows between them when they flood, or as a gnamma complex, where several are close to each other on a relatively flat surface; and describe gnamma hydrologic-functions as surface and shallow subsurface water-storage and exchange, and as landscape hydrologic-connections, that is water movement connections such as from a granite outcrop to a soak. Other functions identified by Fielder and Hopper include the support of humans, flora and fauna and the cycling of elements and compounds.
3.3 Gnamma maintenance

As a general principle “it is the right and responsibility of Nyungar to care for boodjar [country]” (Stocker et al., 2016, p. 849). This would have included gnamma. Further, “Water kept our people alive, so gnmmas were sacred. They were guarded and regularly cleaned. Slabs of rocks were placed over some smaller pit gnmmas to reduce evaporation and prevent wildlife from falling in and drowning” (Noongar Elder Kevan Davis, in Wheatbelt Natural Resource Management, n.d., p. 5).

“There are several reports of Aborigines (and later European pioneers) covering gnammas with branches or flat slabs of rock to cut down on evaporation, and to keep out wild animals which not uncommonly fell in and drowned, and thus polluted a precious supply of water” (Bayly, 1999, p. 20). “To prevent animals getting at the water, most of the rock-holes are partly or entirely filled with loose lying sticks, which practice, necessary as it may be to save the water, deteriorates its quality considerably by making it often look quite black and giving it a fetid smell and taste” (Helms 1892:253). ... Aboriginal people have indicated to me [Bindon] that the sticks allow animals to reach the water, drink and climb out of the hole without being stranded and dying by drowning. The sticks thus prevent contamination by animal carcasses” (Bindon, 1997, p. 174).

3.4 Soaks and soakage wells

Bayly (1999) offers the definition “Soaks (native wells); water that seeps into hollows in freely permeable sediments” (p. 20), and that “So called “native wells” or “native soakage-wells” were commonly holes dug into sand or soil lying next to the point where a sloping surface of hard, impermeable rock disappeared beneath a flat plain. The upraised rock surface serves as a rainwater catchment and the run-off soaks into the soft sediments surrounding it” (p. 20).

Moore’s (1842) vocabulary indicates Noongar people had language which distinguished between water standing in a well (gnura) and water standing in a rock (gnamar). They also had a narrative explaining the existence of a soak in the Kojonup district.

The country was gripped in drought and the only known water was salty. The health of the parched Aborigines, birds and animals deteriorated. An eagle-hawk, soaring about the sky and swooping to earth, observed that a fat and shiny crow had a wet beak, wet with fresh water. The eagle-hawk, seething with unparalleled fury, attacked the cunning crow. In so doing his claws split the rocks and the blood of the attacked crow was splattered over the surrounding rocks and earth. So, a freshwater soak is to be found in the Wakhinup area, hidden amid rocks and surrounded by rich, red loam (Goode et al., 2008, p. 14, citing Bignell, 1971).

Roe (1852), on his 1848 – 1849 exploration south-east of Perth, was relieved to find a soak after a period of having existed with little water:

our poor horses could do no more, and were gladly conducted ... to their promised rest and feed. Here, however, not a blade of grass rewarded our minutest search, and only a few pints of water were lodged in holes in the rock. Some flags and coarse rushes occupied the place of better feed, and among these the horses were tethered to do their best, water being fortunately found by digging near the N.E. foot of the granite rock (Nov 17, 1848, diary entry).
Roe’s diary, of his exploration east of Perth in 1836 (Hercock (ed.), 2014), offers several descriptions of what might have been soakage wells at the base of granite outcrops. For example:

… halted to SE corner of granite ridge of C, where excellent grass in great abundance & a grassy well of pure water 6 feet in diameter and 18 inches deep ensured a good time for our horses. The neighbourhood seems to be of the same good description for a considerable distance around. … and near the well (which is in the bed of a small winter drain dripping to the SE) we disturbed a pair of white cockatoos (pp. 263-264).

On the same journey, Roe recorded: “When the wells fell into disrepair, people would bail the well, using the coolamon to throw slush against the wall. This would set like a cement wash and help to hold loose sand, preventing it from falling into the water” (Hercock (ed.), 2014, p. 265).

Between 1864 and 1866 explorer Charles Cooke Hunt “cleared a track to the East [from York, east of Perth, towards the Eastern Goldfields] sinking wells at convenient intervals. The wells were generally located at the base of granite outcrops, sites well known to the aboriginal people as sites of water” (National Trust of Australia (WA), 2002, p. 40). Maybe the sites that were known to Aboriginal people were soaks, perhaps with wells they had dug.

Bayly (2002) identifies other examples of appropriation of water sources relied on by Aboriginal people. Often it was to water thirsty horses, which drank a lot, and/or camels which drank even more. The water was needed by Aboriginal people for their survival, and the quantities consumed were immense in relation to the amount of water available (ibid). Webb (2007) describes watering places used by Afghan people and others at Afghan Rock, Camel Soak, and Djungari (Bald Rock), all near Cue (mid west WA), and suggests they were potentially developed from native soakage wells. David Carnegie’s party, on their inland trip from Coolgardie (Eastern Goldfields, WA) to Halls Creek (Kimberley) and return 1896-1897, engaged in soak sucking – a “process of repeatedly digging out soakage wells and bailing out every skerrick of water that seeped inwards” (Bayly, 2002, p. 44). Another problem was explorers camped beside the water sources, rather than away from them - which allows animals to come in, so Aboriginal people were also deprived of a food source (Bayly). In some cases the Aboriginal people retaliated and then were punished for that.

Other than a few references to soaks in the desert, without descriptions, I have found few other references to soaks or native wells in literature for Western Australia. One reason, perhaps, as voiced by a Noongar consultation group about regional water: “Natural water sources/soak water/wells no longer accessible or damaged, e.g. well between Williams & Narrogin – Geeraling (also sacred site, birth and burials)” (Goode et al., 2008, p. 46). Without maintenance, soak-wells could disappear quickly. Replacement with European wells, and retention of their European history without acknowledging their origins is another issue.
4 GRANITE OUTCROP UTILISATION BY ABORIGINAL PEOPLE

4.1 Grinding patches

Grinding patches can be defined as “rock pavements or slabs worn smooth by Aborigines grinding on their surface. They are most commonly found in arid regions, where Aboriginal people, especially women, carried out seed grinding” (Webb, 2007, p. 115, quoting Flood, 1990). “Residue analysis has shown that some grinding hollows were used for pulverising ochre and some for grinding up food substances such as hard fruits” (Webb, p. 115).

Goode et al (2005) recorded multiple grinding patches/holes in the Albany local government region, close to or on the south coast of WA: one at each of at North Point, Cheyne Beach, Sweep Rock, Mutton Bird Island (close to shore), another near Mutton Bird Road on the mainland, four at Two Peoples Bay, and one slightly inland on a granite cap on the banks of the Kalgan River. Goode concluded:

Grinding patches represent base camps and suggest the presence of women and family groups. Grinding is associated with food processing, grinding ochre and resin or sharpening wooden implements. On the other hand grinding patches on the coast may have been utilised for burly to assist spear fishing which is a male hunting task (p. 29).

Archival research indicated that grinding patches on the coast supported fishing. Goode also warned that the grinding patches “are highly vulnerable and are subject to erosion and inundation, particularly with climate change and a rise in sea level” (p. 193), and recommended further recording and monitoring of the sites.

Webb (2007) investigated 43 grinding patches at six sites within a 50 km radius of Cue (mid-west WA). They were very shallow (< 1mm deep) and ranged in size “from 150 mm x 100 mm to 750 mm x 600 mm” (p. 119). They were all near gnammas or soaks. At Camel Soak, grinding patches were near petroglyphs on open granite pavement. The presence of the petroglyphs, and observations by Tyndale about seed grinding, allowed inference of cultural associations. “In the Pilbara, grinding is associated almost exclusively with petroglyphs. A few sites with both pictograms and petroglyphs are known, but none with only pictograms” (p. 122-123).

Tindale (1974) showed the area where grass seed flour was an important element in Aboriginal diets, his Panara culture, spreading across the inland Pilbara as far south as the area around Cue. He said the people of the Murchison region, who now call themselves Yamaji, were the southwestern-most people to extensively exploit grass seeds and wet-grind them for the making of forms of bread. The grinding patches on bedrock recently found around Cue support Tindale’s contention that the Yamaji ground grass seeds; suggesting they were more closely linked socio-economically to people in the Pilbara than they were to the Noongar to the south. Noongar people did not grind grass seeds; they seem to have relied on tubers as their carbohydrate staple. The Yamaji also ate tubers, of course (Webb, 2007, p. 121).

Hopper et al. (2016) identify 21 ‘wilgi gnamma’ (red ochre pools) in Noongar country, south-west WA. Webb describes another at Mount Ridley, 65 km north of Esperance, in the south-west. The Mount Ridley gnamma seems to have been used exclusively for grinding ochre (Webb, citing Smith, 1997). The wilgi gnamma are typically at the top of granite outcrops with extensive views, but no oral history has been recorded about them (Hopper et al.). Hopper et al. pose the question as to whether or not they were used in preparation for ceremony.
4.2 Rock shelters

Schwede (1990), as part of an archaeological dig in the Helena Valley area near Perth (south-west WA), identified a "Stone arrangement and chalk pit. Quicke’s Property. Paulla Valley ... This includes the granite stone arrangement on a hillside at the northern end of Quicke’s property listed by the Aboriginal Sites Department ... and is considered by the sites Department to be a 'hunting hide' " (Schwede, 1990, p. 103).

Goode et al (2005) describe the ‘Lake Pleasant rockshelter’ near Albany on the south coast WA: “The site is a rock shelter located halfway up a granite outcrop on the edge of a small amphitheatre with a northwest aspect overlooking Lake Pleasant View East (p. 138). Archaeologist, Sally McGann “found a fire hearth within this rock shelter where she obtained a date from a burnt turtle shell” (p. 138). Other archaeological finds near the site include artefact scatters, gnammas and loose slabs of granite that may have been lizard traps.

Goode et al. (2005) also describe a natural rock shelter or cave, known as a ‘Waugal trap’, or snake trap, on Mount Melville in Albany, south coast, WA. “The site is an area of large granite boulders that forms a cave that is located on a north west facing peak on the northern end of Mount Melville. ... Ms Lynette Knapp the primary informant for this site said that this is the location of the Snake Trap that the mythical Menang built in order to catch two Waugal who were fighting each other” (p. 95). See the last paragraph of Section 6.1 below for the Menang Noongar narrative.

Archaeologists working on the Dampier Archipelago, in the north west, have found evidence of stone houses, dated to the end of the last ice age (around 9,000 years ago) (Crofts, 2016). While exploring one of the Archipelago’s 42 islands, the team discovered knee-height rock walls. "Excavations on Rosemary Island, one of the outer islands, have uncovered evidence of one of the earliest known domestic structures in Australia, dated between 8,000 and 9,000 years ago," said lead researcher Jo McDonald, from the University of Western Australia” (ibid, webpage). While granite outcrops exist in the area, the reports about the houses do not identify the type of stone used. The stones comprise small sharp edged boulders, not slabs of granite as are used for shelters the south west.
A search (18/03/2020) on the Aboriginal Heritage Inquiry Service WA brought up 77 registered sites with rockshelter in the title, but no descriptions. Bindoon (1997) warns:

Although structures interpreted as hunting hides or perhaps the walls of semi-permanent shelters can be found on the surfaces or in the surrounding scree slopes of granite domes in the north of Western Australia, these constructions cannot be considered as typical of Aboriginal activities on granite domes. Using loose tabular pieces from weathering processes, windbreaks can be made fairly quickly, particularly if some brushwood is incorporated into the structure. Lack of archaeological remains other than the walls in these structures hinders their exact interpretation (p. 176).

4.3 Lizard traps

On a number of granite outcrops in the south-west, features called ‘lizard traps’ can be found. These take the form of a rock plate or slab up to about a metre in diameter that is propped up along one edge by a number of other rocks so that it lies at a slant. As there is no possibility of the top rock falling and holding the lizard, we can assume that these were not true traps. However, they may be purposefully built especially to encourage sustained lizard populations on selected rock exposures by providing protective habitats. One presumes that establishing environments like this ensured the visiting hunter of a supply of animals on recurrent visits. It has been observed that when disturbed away from cover on these rock exposures, and given an opportunity, lizards or any small game run directly to the dark shelter of these slanted rocks. Regrettably, there is no evidence from ethnography confirming the function of these rock structures (Bindon, 1997, p. 175).

Hopper et al. (2016) explain the presence of lizards on granite outcrops and the construction of lizard traps: “relatively infertile Ocbil soils on granite select for animals with specialized and conservative metabolisms (ectotherms e.g. reptiles). Specialized husbandry [such as providing shade by constructing ‘traps’] of scarce palatable reptiles on granite Ocbils is predicted as a cultural adaptation” (p. 8). Menang Noongar Elder Lynette Knapp, south coast, “described the deliberate cultivation of a particular plant species, *Hakea drupacea* (Proteaceae) at the edge of granite outcrops in the Albany area as a means of enhancing granite exfoliation to gain flat slabs for use in lizard trap construction” (Lynette Knapp pers. comm. 2014 in Lullfitz et al., 2017, p. 212). Hopper et al. note the widespread presence of lizard traps in Noongar Country, south-west WA, and a little beyond.

Goode et al (2005) describe several sites within Albany local government area on the south coast that have lizard traps. One site ‘Eastern Granite Outcrop’ near Quaranup Road, Torndirrup Peninsula has three lizard traps, a gnamma hole and a stone arrangement. Another site ‘Northern Granite Outcrop’ near Quaranup Road had five lizard traps but only one remains – slabs from the other four had been taken for garden ornaments or some such; some other traps are within Mount Melville. The traps provide evidence that the places were used to gather resources (ibid). Webb (2007) describes a lizard trap on granite at Taincrow Rockhole near Cue in the Murchison, mid-west WA, where there are also gnamma and grinding patches.

A search (17/03/2020) on the Aboriginal Heritage Inquiry Service WA supports the view that most lizard traps are found in the south west (Noongar Country): all five ‘registered heritage’ lizard traps and 14 ‘other heritage’ lizard traps are in the south west, in southern or wheatbelt regions. Two are in Fraser Range in the Eastern Goldfields Region.

First steps in granite slab formation, Merredin Rock, south-west WA. Photo by Pat Forster 26/07/19
4.3 Stone arrangements/signs

“Stone arrangements often mark ... ritual places. The constructions, formed from slabs and other weathering products from the inselbergs, take the form of a 'W', are erected as a sinuous line or may be piled into a series of scattered mounds. Although the particular ceremonies carried out at these places cannot be detailed, it can be assumed that these features represent aspects of landscape and are connected with initiation procedures” (Bindon, 1997, p. 175). Schwede (1990) provides an example consistent with Bindon’s observation - a standing stone site at Nyaania Creek in the Helena Valley near Perth: “Stone arrangement ... The site overlooks the Swan coastal Plain to the west. The granite arrangement contains stone cairns and lines of stone. The latter border the cairns on the sites western and northern edges, extending down the hill on the northern flank of the granite outcrop to Nyaania Creek” (p. 100-101). “The stone arrangement at Nyaania Creek was shown to an Aboriginal spokesperson and though he did not have knowledge of this particular site, he stated it could have been used for initiation ceremonies in the past” (p. 107).

Other stone arrangements in WA have practical uses, for example, at “Shackleton there is a circle of rocks on the ground with an added triangle of rocks on the end that points to where permanent water could be found” (Noongar Elder Kevin Davis in Wheatbelt Natural Resource Management, n.d., p. 7). There is a similar one at Mukinbudin (ibid). Hill (2013) identifies standing stones (single and in groups) in the Helena Valley and surrounds and proposes they are traditional boundary markers, or associates them with Dreaming narratives.

Randolph (2011) describes twelve stone arrangements in the south and mid-west of WA, and acknowledges there are many others. His focus is description, not interpretation. They comprise granite standing stones in short and long lines, lines joined with loops, meandering lines extending towards cardinal directions, circles, an ellipse, Vs and Ws, and a spiral. Goode et al (2005) describe two others on the south coast, one near Quaranup Road on the Torndirrup Peninsula near Albany and the other near Mutton Bird Road, east of Albany. Both arrangements are circular.

5 FLORA AND FAUNA

5.1 Flora

The run-off that provided surface water in gnammas, also permitted other forms of life to flourish on, but mainly around the base of, the inselbergs [island-like granite]. This is not to deny the significance of the various plants and animals colonising the rock surface itself, but few of these were important for Aboriginal people except through the contribution they made to the life of the higher plants and larger animals usually hunted as game. Various plant species favoured the rim of rocky outcrops, exploiting the zone where run-off from the all too rare rainfall was concentrated. Two very important trees to arid land dwellers, Kurrajongs (Brachychiton gregorii F Muell) and Quandongs (Santalum acuminatum (R Br) D C) are commonly found around granite outcrops. They provide fruit, wood and sometimes medicinal products for Aboriginal people... medicinally important Rock Isotine, (Isotoma petraea F Muell) and the Adjikoh or Warrain (Dioscorea hastifolia Endl in Lehm), a staple yam species, also favour granite outcrops. If for no other reason, Aboriginal people visited granite domes to exploit these resources (Bindon, 1997, pp. 174-175).

There are several explanations for species associated with granite outcrops. For example, “the isolation of ancient granite outcrops and gnammas within the landscape has contributed to the evolution of endemic species. ... WA granite outcrop endemic plants include Caesia Gum (Eucalyptus caesia), Silver Mallee (E. crucis) and Granite Kunzea (Kunzea pulchella). Special habitats like gnammas and ancient granite outcrops are just one of the reasons Australia has such a rich variety of unique plants and animals” (Wheatbelt Natural Resource Management, n.d., p. 18).

The range of species is huge, especially in Noongar Country in the south-west:

At least 1320, and possibly 2000, plant taxa occur on Western Australian granite outcrops. Outcrop plant life is most diverse in the South West Botanical Province, with individual outcrops having up to 200 species, including many endemics not found in surrounding habitats. Species richness and local endemism declines with increasing aridity, to the point where Kimberley and Pilbara outcrops show little discontinuity in species from the surrounding landscape matrix. Outcrops are dominated by woody and herbaceous perennials, especially of the Myrtaceae, Orchidaceae, and Mimosaceae, and have an unusually rich diversity of annuals (Asteraceae, Stylidiaceae, Poaceae, Amaranthaceae etc.) compared with the flora as a whole. An unusual life form is found in resurrection plants capable of extreme desiccation and rehydration (e.g. Borya, Cheilanthes) (Hopper et al. 1997, p. 141).
Lullfitz et al. (2017) argue that Noongar occupation of the south west over a long period of time had sustained ecological influence on flora of the region, including on and around granite outcrops, for example, the practice of firing the land. Some advantages of firing in relation to granite outcrops are voiced in the following quotes:

There are mangart (jam trees) near the Derdibin gnamma. Aboriginal people would have dug carefully around the mangart roots to gather bardi (witchetty grubs). The mangart had 73 uses, including being burnt in smoking ...

... When our ancestors moved on from a gnamma, they sometimes burned the surrounding area so that it would be green and regenerated when they came back. The green vegetation would attract animals for hunting (Noongar Elder Kevan Davis in Wheatbelt Natural Resource Management, n.d., p. 6-7).

During a trip by car between Perth and Albany, a now deceased Aboriginal man from the Great Southern region observed that the areas around some of the granite exposures we passed needed burning to ‘clean them up’. He said that traditionally it was permissible to burn around granites quite regularly because the exposed rocks provided a refuge for animals living nearby that fled to the vegetation free area during the burn. He also observed that there was always a piece of adjoining bushland that did not burn because of the topography of the granites, so homeless animals could easily re-establish themselves (Bindon, 1997, p. 175).

Refuge from fire, for birds in particular, is identified by Hopper et al. (1997): “Among woody perennials [of granite outcrops], bird pollination is frequent, and some outcrops harbour a high proportion of obligate seeder species due to the refuge from fire provided by bare rock barriers” (p. 141).

The practice of firing gnamma to enlarge them and the subsequent increase in water availability “undoubtedly had positive outcomes for edible aquatic plants such as Cycnogeton lineare (Juncaginaceae) and Myriophyllum petraeum (Haloragaceae), eaten by Esperance Nyungars ... Regular cleaning of gnammas according to protocol that ensures retention of seed store and microbes would also likely have assisted aquatic plant survival on granite outcrops” (Lullfitz et al., 2017, p. 212, citing Jenkin et al. 2011). Restrictions on when to harvest or disturb species, on not harming totem species, and gender, age and territorial restrictions could have also impacted on granite outcrop species (Lullfitz et al., 2017).

Lullfitz (2019) with others investigated Macrozamia dyeri populations along south east coastal regions of WA near Esperance. Zamia ‘nuts’ are known to have been used as food by Nyungar people. The locations of Macrozamia dyeri populations were recorded, and indicated “Nyungar influence on the contemporary distribution of the plant ... [they] occur close to waterways in the west and to granite outcrops in the east of Esperance Nyungar country, which corresponds closely to differential pre-colonial pattern of Nyungar occupation and movement across country” (p. 71). Further, the “Abundance of M. dyeri populations was negatively correlated with distance to registered Nyungar sites” (p. 71). Lullfitz et al. suggest the results indicate that a mutualistic relationship with Nyungar people has influenced M. dyeri distribution. One significance of the results is that traditional landpractices associated with the plant could inform landpractices today.

Explorers, led by Aboriginal guides, certainly benefitted from growth at the base of granite outcrops, for example Forrest (1875), travelling in the mid-west, wrote:

Left Mount Churchman in company with the nine natives, and travelled about North-North-West for ten miles to a small water-hole called Woodgine, thence in a northerly direction to a branch of Lake Moore, which we crossed without difficulty, and, following along its north shore for three miles, we bivouacked at a spring close to the lake called Cundierring, with splendid feed around the granite rocks (no page number, digitised diary).
5.2 Fauna

On traditional use of rocky outcrops: “Gnamma attracted animals and birds that we hunted and ate including yonga (kangaroo), djurrang (lizards), djert (birds) and yerderap (ducks)” (Noongar Elder Kevan Davis in Wheatbelt Natural Resource Management, n.d., p. 6). In December 1897 the Kalgoorlie Miner quoted Tickebutt (an Indigenous man known as Fred McGill), “Before the white men ... the blacks obtained water at the different rocks ... They got plenty of food, too, by watching at the rocks for kangaroo and emu, when they came to drink, and spearing them there” (Learning Federation, n.d., webpage). Austin (quoted in Bindon, 1997) observed:

“In many places about the country, and particularly near some of the rocks, brushwood fences are found that serve, or have served, the purpose of trapping game. These fences are about two feet high, and simply made of broken-down shrubs and branches of trees, mainly mulga, and converge to an angle after extending for a long distance over the ground” ... At the end of the fence or at the convergence of two of these, holes were dug into which fell any animals that followed the fences to a gap. In other cases nets were suspended to ensnare animals which traversed the fences to the narrowing funnel. Austin goes on to say, “Near the rocks I have seen them constructed in a zig-zag shape, with the self-acting trap at the apex of the angles furthest away from the rocks” (Bindon, 1997, p. 175).

“The isolation of ancient granite outcrops and gnammas within the landscape has contributed to the evolution of endemic species. There are at least 50 aquatic invertebrates endemic to gnammas” (Wheatbelt Natural Resource Management, n.d., p. 18). The Ornate crevice-dragon is a WA granite outcrop endemic. “These lizards are heavily dependent on sheets of rock for cover. They have disappeared from most granite hills near settlements because people invariably remove rock slabs for building water catchments (historically) and for garden landscaping” (p. 18). The role of the Aboriginal intervention, the construction of lizard traps which provide rock cover and so potentially encourage sustained lizard populations, not particularly of the Ornate crevice-dragon, has been described above. As for flora, Aboriginal cultural restrictions on not harming totem species, and gender, age and territorial restrictions could have also impacted on animal species that frequented or lived permanently on or around granite outcrops (Lullfitz et al., 2017).

Invertebrates living in gnamma have been given recent attention. Timms (2013) examined 50 pit gnammas in the Wheatbelt (Noongar Country) and adjacent Goldfields, over 2010–2012 and found “82 taxa of invertebrates rich in
insect variety but dominated numerically by a few crustaceans” (p. 55). Results also showed that “pans are more species rich than pits, and have many endemic species, mainly crustaceans, but also a few insects ... Fluctuating climates over millennia coupled with poor dispersal have promoted speciation among these crustaceans. By contrast, the more persistent pit gnammas support eurytopic species mostly easily dispersed” (p. 55). The creation/enlargement of pit gnamma by Aboriginal people over long periods of time could also have impacted on the invertebrate evolution, in the way that Lullfitz (2019) argues in regards to human intervention and flora evolution.

6 SONGLINES, CEREMONY, DREAMINGS

6.1 Songlines

Songlines or Dreaming Tracks are typically believed to have been created and followed by spirit ancestors, and have been followed through the generations, including for trading. “In a Songline, each location in a landscape has attached to it an instruction about the relevant song, dance, story, character or all of those. In those songs and stories is all the information about a particular thing that people needed to remember, as well as the rights and responsibilities attached to that information. It is the practical information needed for survival ... Depending on the nature of the information it is necessary to repeat it regularly in the form of ceremonies and rituals (meaning a repeated act) to ensure it is accurately remembered” (Sheperd, 2016, webpage).

Songlines necessarily link water sources, for survival, and “being well acquainted with the probabilities of the climate and knowing intimately all the water storages of their region, their [Aboriginal people’s] actions and movement to new water sources were always carefully thought out with all likely possibilities considered. When the group did decide to move, their course would often involve travelling between a series of granite domes, which then became not only resource bases, but also navigational markers” (Bindon, 1997, p. 174).

A Songline example from Noongar Elder Noel Nannup is that “If you start at the Stirling Ranges, then you go across from there to Wagin Narrogin, then back up towards Wave Rock, then back across through beyond near Merredin, then back across through to Lake Moore. That is your W ... Each star [which Noel pointed to] lines up with a prominent granite rock in the land which marks a turning point along the song line” (British Broadcasting Corporation, 2017, transcript of video). The Nyitting (Dreaming or Cold Time) trail between the Great Victoria Desert SA/WA to Augusta WA is a second example. In Noongar country it includes “Mulka’s Cave (north of Wave Rock), Wave Rock, Jilakin Rock, Jitarning Rock, Dumbleyung Lake and Puntapin Rock are all connected by an ancient Dreaming trail [Songline] that reaches the coast at Augusta” (Wallace and Huston (eds.), 1996, p. 119).

Mulka’s Cave [granite] is the home of Mulkin-Jal-lak, a giant evil spirit man (Wallace and Huston (eds.), 1996). Wave Rock “is known to Nyoongar people as Gnardie-Daran-E-Noo” (ibid, p. 119). It is where the spirit woman launched herself into the sky, with spirit children in her hair, to become the Milky Way (Nannup in Morgan et al., 2008). Jilakin Rock “is the place where the salt water and freshwater peoples met and separated. It was also an important place for trade between the two groups of people” (Wallace and Huston, p. 119). “There is a very fine grove of jarrah trees growing at Jilakin Rock ... Jilakin Rock was in the days gone by a great meeting place for migratory native tribes who penetrated inland each winter, returning to the coast each summer when water became scarce. Probably the seeds were carried there accidentally....The blacks however account for it differently... The legend runs that two spirits meeting at the rock, married, and camping their struck their spears into the ground, where they sprouted and grew into two jarrah trees. .. the jarrah seed very heavily, flowering practically every year...” (West Australian, 18/02/1933, p.5). The stand of jarrah trees is at the base of the rock. They are the most isolated natural jarrah trees known, and are around 150 km (93 mi) east of the main jarrah belt, and they survive on water that runs off the rock and quarry soils at the base of the rock (Central Wheatbelt Visitor Centre site, n.d.).

Jitarning Rock “is a place where, through special ceremonies, Nyoongar people ensured that all animals would be healthy and fat for the next hunting season” (Wallace and Huston (eds), 1996). Dumbleyung Lake was once a permanent freshwater lake and is now a saltlake. It was “a significant source of food and water for the Wilman people of the region, attracting birdlife, wildlife, fish and yabbyes” (Wuddi Aboriginal Cultural Tours, n.d., webpage). Puntapin Rock “is a natural water catcher that was used by the Noongar people ... The rock is the intersection of a number of dreaming tracks so it is an important ceremonial place for the Noongar people. You can see on Puntapin, abundant examples of the gnammas” (Premier Mill Hotel, n.d., webpage). Songlines that link granite outcrops or domes are not restricted to south-west WA (Noongar Country). Both the examples above go further—the W Songline goes to a granite dome near Lake Moore (“Mount Singleton”), in mid-west WA, and Mulka’s Rock etc form only a small part of the Songline between the Great Victorian Desert and Augusta.
Another Songline example comes from the Menang Noongar people in the granite-rich Albany region on the south coast:

According to Menang legends there were two Waugals who lived on the [granite] islands (Michaelmas and Breaksea Islands) in the sea at the entrance to the large Sound (King George’s Sound). These Waugals lived on eggs from birds. One Waugal was greedy and ate all of his eggs but was still hungry, so he went to the other island and ate all the other Waugal’s eggs. Enraged by this action the other Waugal fought the greedy one. The fighting Waugals rolled across the landscape creating many of its features and caused the Menang much distress. Sick of these Waugals fighting, the Menang decided to build a snake trap [rock shelter/cave] on top of Mt Melville [which is largely granite] to catch the Waugals. The snake trap did not work and the Waugals escaped and continued to fight. In order to stop the Waugals fighting, the Menang then threw a camp dog at the Waugals. One of the Waugals bit the dog in half. The head of the dog can today be seen as represented by Dog Rock [granite], with its tail being seen as a large rock ... on Emily Street near Middleton Road. After the fight finished and the Waugals separated, they both went in two different directions creating Oyster Harbour, the King River and Kalgan River. In the middle of Oyster Harbour, the greedy Waugal vomited the eggs he ate which created Green Island [granite]. From here the Waugal went up the Kalgan River to Morrilup Pool where he curled up and died. The red ochre on the shores of Morrilup Pool today represents the Waugals blood.”

(Goode et al., 2005, p. 161, Aboriginal informant Lynette Knapp).

The Songline or Dreaming track that links the places in the narrative is known as Kinjarling (The place of rain) (ibid). It “broadly takes in a line from the islands, North West to Mt Melville, to Oyster Harbor then splits and follows the King and Kalgan Rivers to their completion” (ibid, p. 185).
6.2 Ceremony and ritual

Since all the members of any Aboriginal linguistic group claim to be a descendant of one or another of the ancestral beings, and since the people are living in the landscape created by these ancestors, it follows that every person is linked by their lineage to the landforms, to other living things in the same environment, and to the associated mythology. ... By re-enacting the activities of their ancestors during commemorative ceremonies, Aboriginal people re-affirm and reinforce their religious beliefs ... Numbers of granite domes were used as ceremonial areas by Aboriginal people (Bindon, 1997, p. 175).

Several granite outcrops are recorded as being sites of ceremony and ritual including Jitarning Rock (see above), Wave Rock (Palmer, 2016), Walga Rock and The Granites in the midwest (Webb, 2007). Some sites have stone arrangements associated with particular rituals, for example to do with initiation (Bindon, 1997). Some sites are secret knowledge so their meaning is not divulged to outsiders. Ceremonies open to all sometimes take the form of corroboree or dance (Palmer, 2016). One explanation for the granite domes being chosen as ceremonial sites, besides religious or sacred associations, is the availability of water at them, to support the gatherings of people.

Goode et al (2005) describe a ceremonial ground near Albany on the granite rich south coast:

According to the Menang legends, the area of Toolberup [Two Peoples Bay] is a sacred womens law ground, with the south point being the women’s birthing place. Men are not permitted here, nor are they permitted to watch the ceremonies that take place here. According to the legend two mythical men named Mulurark and Boychartakup went into this area to watch a womens ceremony. When they were caught by the women who were enraged by their actions, Mulurark was turned into the noisy scrub bird and Boychartakup was turned into stone. The Menang say that you can now see the head of Boychartakup at South Point who is the guardian spirit of Toolberup. They say you can still here Mulurark bellowing in the scrub in the area and who is trying to wake up Boychartakup (Goode et al., 2005, p. 140, Aboriginal informant Lynette Knapp).

Niches in granite allow the storage of sacred objects for ceremonial purposes. A case in point is Spear Hill in the Pilbara. The landscape is one of granite boulders and inselbergs (Hopper et al., 1997). The hill was the subject of recent litigation:

The hill is accessed through a valley of rock shelters full of artworks and secret niches where Aboriginal people traditionally hid sacred objects. ... FMG [Fortescue Metals Group] last year gained Aboriginal heritage approval to build a railway through the area ... and while the East Guruma people did not oppose the mine or the railway, they wanted the railway to go around their sacred sites. They asked the Department of Planning, Lands and Heritage for more time to prove their significance before FMG’s heritage application was determined. ... [then after court action, review and consultation]....The EPA [Environmental Protection Authority] has now recommended WA Environment Minister Stephen Dawson give environmental approval for the project, but with conditions including protection and monitoring of predicted impacts on places of recognised Aboriginal cultural heritage (Young, 2019, webpage).

Rituals associated with granite outcrops include the following which are in relation to Derdibin Rock, south-west WA: “When we arrive at a gnamma, we throw in some sand to let the water spirits know that we are peaceful. We believe that the spirits are everywhere: they’re in the trees; in everything that’s living” (Noongar Elder Kevan Davis in Wheatbelt Natural Resource Management, n.d., p. 5); “When a group of people first arrived at a gnamma only the eldest – the decision maker – would drink the water at first. This elder would ensure that the water was safe. The others would wait, and then take turns to drink one by one” (ibid); and “While women were washing at a gnamma they would lay their babies under nearby kwel [sheoaks]. The sound of the breeze through the kwel is the spirits of
the Ancestors speaking, which gently lulled the babies to sleep” (ibid). So, rituals acknowledged the supernatural and, as well, were directed at safe living.

6.3 Dreaming narratives

Amongst the activities which ancestors first performed, and which modern Aboriginal groups often maintain, is the creative formative journey first taken by the ancestor figure during the establishment of the present landscape. These ancestral journeys began so long ago that they now possess the qualities of dreams. ... Thus, the activities of ancestral beings around granite domes which occurred during the tjukurrpa (Dreaming) are mirrored by the actions of the most recent Aboriginal groups (Bindon, 1997, p. 175).

Besides actions such as ceremony and dance, the Dreaming can also be conveyed by narrative, which most suits this review, and can encompass creation of the night sky as well as the landscape on earth.

Examples given in sections above include the creation of the granite domes in Noongar country, when the Charnock spirit woman stepped onto a big stone which toppled over and broke up and became the domes (see Section 2); and the creation of gnamma by the Wargal (spirit snake) (Section 3.1); and creation of the Milky Way when the Charnock women leapt of Wave Rock with spirit children in her hair (Section 6.1). When the spirit children fall back to earth as shooting stars, and land on earth, they become stones (Noonga Elder Noel Nannup, in Morgan et al., 2008), and the first place they landed is Hippos Yawn, at the base of Wave Rock (Goldsmith, 2014, citing a plaque in Victoria Gardens, Perth).

There is a suite of narratives which relate to the predominantly granite Stirling Ranges, Barren Ranges and Fitzgerald Ranges near the south coast WA. One concerns the:

- the Kangaroo people of the Stirling Ranges and the Emu people of the Barren Ranges. The former had promised a girl as a husband to an Emu man. When the time came for her to leave, a party of Emu people assembled to accompany her. She was saddened by the thought of leaving her pet dog, which was in turn upset at her departure. As they left, in the middle of the day, the dog howled. The party turned around to see why the dog had howled and were all turned to rocks. The girl became the Stirling Ranges, now seen as the ‘Sleeping Lady’, the profile of the ranges viewed from the Chester Pass to Albany road, which resembles a supine woman (Palmer, 2016, p. 198).

Another features the Kangaroo people and Emu people. “They had a fight and the Emu people were badly injured. They escaped to the Fitzgerald Ranges, spilling their blood on the ground as they went. This blood is now manifest as a red rock outcropping across the area between the Stirling Ranges and the Fitzgerald Ranges” (Palmer, pp. 197-198).

A third narrative relates to two brothers who lived near Ongerup. They were Parrot Men. They had a competition to see who could fly the fastest. They ran so fast that they collided with Mt Trio in the Stirling Ranges, making a cave in the mountain, through which they passed to emerge on the other side. This caused many of their feathers to fly about, which formed the many wildflowers across the countryside (Palmer, 2016, p. 198).

A fourth is a narrative of:

- a narcissistic Kangaroo Man who spent his time preening himself in his reflection in a pool. His wife, tired of his vanity and consequential failure to supply her needs, cooked herself and her baby some meat. He returned to
the camp to discover this and beat her as a punishment. She crawled away, mortally injured, forming the Kalgan River. She died and her pet dog buried her. Her grave is now Green Island, while she is also the Sleeping Lady of the Stirling Ranges. Her family, much aggrieved at her treatment, killed the Kangaroo Man, who became Bluff Knoll. The Noongar name for the mountain is Meilya, which means ‘many eyes’ and is a reference to the fact that the face of the Bluff alters as the mist blows across it, but can be seen to represent the face of the warrior. Seen from afar, the mist covering the mountain is understood to be his hair blowing in the wind, showing that he is still alive. (Palmer, 2016, p. 198).

‘Stirling Ranges’ art quilt by Stella King, 40 cm x 80 cm, 2019. Photo by Meg Cowey.

Other Dreaming narratives comes from the south coast near Albany. One relates to three granite peaks and a chain of freshwater lakes. The central elements are:

Mt Manypeaks (Yoolberup), the North Sister (Mooilyup), the South Sister (Twerturtup) and all the freshwater lakes (which represent mythological tears) within the vicinity of these features in the landscape. Back in the creation period there were two tribal sisters of the Menang who lived with their husbands people in the Stirling ranges. Their names were Mooilyup and Twerturtup. Mooilyup was running away from her husband the Devil. The Devil was pursuing the sisters who were heading to Yoolberup which was their mother (Mt Manypeaks). Just before the sisters got to Yoolberup the Devil caught the sisters and being enraged by their actions for running away turned them to stone. Today you can see the two sisters in the landscape. The south sister is Mooilyup and the north sister is Twerturtup and her dog. The tears that the sisters had cast has formed the lake systems in the area around Mt Manypeaks and the two sisters (Goode et al., 2005, p. 142, Aboriginal informant Lynette Knapp).

A Dreaming told by Scott (2016), and Hassel (n.d.) with some variations, and referred to by Palmer (2016) explains a feature of a granite boulder in Noongar country on the south coast:

I told Clancy of how Kayang [auntie] Hazel made us stop the car at the edge of the bitumen road, beside an over-cleared paddock. ... she crossed the wire fence and led us across the shifting soil to a rocky outcrop. She pointed, there: a series of neat circles in the rock that grew small, then larger again. ‘Yongar and Miak’, she said, and told the old story of Kangaroo and Moon. Kangaroo complains of inevitable death, and how his bones will turn grey and crack in the sun as the hill grows around them. And Moon? Moon gets very sick and wastes away, but doesn’t die: the moon always returns, and grows strong again. It is both a responsibility and a privilege to stand beside where that story is imprinted in stone, and hear its ancient utterance (Scott, p. 15).

In ‘The Not-So Barren Ranges’, Scott (2016) tells of his adventures on the south coast of WA in reuniting a creation story with its landscape of origin. The story is:

of an ancestral figure hunting with his brother’s dogs, moving from east of where we were ... Time after time the dogs run down game, kangaroo, wallaby, emu, quokka, but, by the time the man reaches them, the animal has been eaten and nothing remains. The man is displeased; he is hungry. They move back this way (we said), from north-west of where we were talking by the campfire. On high land by the ocean, our ancestor rests, observing the dogs until, sated, they fall asleep. He lights a fire around them. The dogs awake and, leaping through the flames, tumble down a slope into the sea (p. 4).

Another version says: “‘You go down that way today and you’ll see the man still standing there. And at the other place you’ll see the seals rolling down the hill into the water” (Scott, 2016, p. 3). “We did not know it then but in the morning we would see the granite boulders; the dogs tumbling toward the water and the man looking after them and calling as they, now become seals, swim along the coast and into the distance” (ibid, p. 5).
Hill (2013) refers to a saga recorded by Bates (1921, 1925). In brief, children breached totemic law which resulted in major flooding of the Perth area:

The two surviving ancestral women who were pregnant and their nephew are washed out to sea on a tree trunk … and then blown back to the land to the south, from where they travelled north and north again, to Boyagin Rock, and eventually back to Kalamunda, leaving standing-stones which were considered as spirit baby-stones, and a spirit baby-cave (p. 346-347).

The location of the cave is uncertain. “The two women were recognized as two fat Balga [Xanthorrhoea preissii] near the raised hill at Minjelungin springs or Booroloyyn” (Hill, p. 247). Hill points out that “traditional culture recognized the importance of intergenerational recounting of flood including tsunami floods. The identification of .. Boyagin Rock … with sanctuary remains useful and important knowledge” (Hill, p. 251, citing Bennell and Thomas, 1981). He also proposes the saga is an example of the “supplanting of newer tradition over stable and strong ancient totemic tradition, possibly after major flooding in the southwest” (Hill, p. 347). Others have identified similar for other narratives, in particular when new custodians assume authority over a region - after disintegration of the culture of previous traditional owners due white settlement.

In an anthropological report on the ‘Boyay Gogomat’ or ‘owl stone’ near Susannah Brook, Red Hill, Mundaring near Perth, Macintyre and Dobson (2009), included a narrative told by a Noongar Elder about the mopoke and carpet snake (Wakaal):

The story, according to the informant, related to the custom of sharing meat, for the Wakaal and the owl were like brothers. They both hunted at night and would share their meat with one another. However, one night the mopoke was unsuccessful and did not catch anything, so he went to the carpet snake’s camp and saw him finishing off the last of the meat (dadjja) which he had caught. The mopoke became very angry at the Wakaal for not sharing his food and attacked him with his club. They fought all night until daybreak. The mopoke became blinded by the sunlight and at this time the Wakaal escaped into the river and sank to the bottom creating a large pool. The mopoke flew onto a large tree overlooking the pool, waiting for the Wakaal to come out. However, the Wakaal never came out but made tributaries up and down the river to enable it to move around in search of meat (webpage).

Noongar informants said the myth was a recurring theme in southwestern Australia. The Waugal and the mopoke are both “associated with sacred winnaitch areas which require the performance of certain ritual ceremonies … to avoid harmful consequences to those passing by” (ibid). One such ritual is the strewing of rushes around owl stones in accordance with tradition.

In summary, Dreaming narratives have many functions. They can explain creation (of granite domes) or phenomena (waxing and waning of the moon) or be grounded in religion or belief (safe passing of owl stones). Others are mnemonics for remembering places (granite formations like Hippos Yawn), some guide behaviour (not to surround dogs with fire), and others give useful information (granite domes can be a places of sanctuary in times of flood).
7 ART AND ARTEFACTS

7.1 Rock art

Rock art is classified into two types: petroglyphs which are pecked or otherwise engraved into the rock surface, and pictograms or pictographs which are painted on to the surface. Pictograms (chiefly handstencils) are widespread throughout the southern half of Western Australia (Webb, 2007). Examples on granite in the south-west are found at Beringbooding Rock (Central Wheatbelt Visitor Centre site, n.d.) and Mulka’s Cave near Hyden. The Mulka’s Cave site features 452 motifs, an extremely high number for the region where most sites have fewer than 30 motifs. The artwork is dominated by 275 handstencils, with 40 sprayed areas, 23 handprints, 23 paintings, 3 drawings and a single object stencil produced with a wide range of colours. The high diversity of art attributes is unusual in a region where the rock art is dominated by red handstencils (Gunn, 2006, p. 19).

In the Dreaming, Mulka is an evil spirit man who chased the Charnock woman and ate spirit children which she was gathering in hair prior to launching off Wave Rock and becoming the Milky Way (Nannup in Morgan et al., 2008). Gunn reports two other narratives about Mulka: “The outcast Mulka, driven from the tribe because it was feared that his crossed eyes would bring a curse to those he looked upon, took refuge in the cave at the Humps” (Gunn, p. 21, citing Meeking, 1979). In the second:

Mulka was the illegitimate son of a woman who fell in love with a man to whom marriage was forbidden. As a result, Mulka was born with crossed eyes. Even though he grew up to be an outstandingly strong man … his crossed eyes prevented him from aiming a spear accurately and becoming a successful hunter. Out of frustration, Mulka turned to catching and eating human children, and he became the terror of the district. He lived in Mulka’s Cave where the impressions of his hands can still be seen much higher than those of an ordinary man… (Gunn, p. 21, citing the Department of Aboriginal Sites, 1989)

Few petroglyphs on granite seem to be reported for the south of WA. There are a small number on a granite outcrop overlooking Old Mutton Bird Road, east of Albany (Goode et al., 2005). A rock face “contains worked grooves, shards, a serpent figure, arranged stones and a carved arrow head marker” (p. 26). Another site in a bay on the west side of Herald Point, Albany “consists of an anthropomorphic figure, a lizard and two dots on the vertical face of a granite outcrop” (Goode et al., 2005, p. 21)

The Granites in mid-west WA “is a major mythological and ceremonial site complex located a few kilometres northeast of Mount Magnet where grinding patches, petroglyphs and pictograms have been recorded” (Webb, 2007, p. 123). The presence of both art forms is significant because they link The Granites culturally to both the Pilbara, where there are mainly petroglyphs, and the Kimberley, where there are mainly pictograms. or perhaps to the Western Desert (ibid). Petroglyphs on the granite dome at Camel Soak, north of The Granites and near Cue, frame grinding patches. “The petroglyphs and patches are patinated to the same degree, suggesting that they were made contemporaneously. … It is generally accepted that grinding flour was women’s work. … Whereas, men are thought to have made most of the rock art in Australia … Not all art was sacred or not to be viewed by women, however. … At present, the juxtaposition of petroglyphs and grinding patches at Camel Soak is locally unique, making the site difficult to interpret” (p. 123).
Also in the mid west of WA:

the inselberg known as Walganna or Walga Rock, located about 60 km east of Cue .... Situated adjacent to a temporary water hole, a shallow west-facing shelter runs for more than a hundred metres on the south-west side. This shelter developed along sheet joints; the highest and deepest part evolving through haloclasticism as well as thermoclastically. The rear wall of the rock shelter is decorated with paintings in red, yellow and white pigments (Bindon, 1997, p. 176).

“Over thousands of years, paintings representing snakes, goannas, spears, handprints and even a sailing ship were painted by visitors before they moved on. A report by the University of Western Australia indicated there were more than 988 motifs on a 100-metre-long panel” (Lewis, 2016, webpage). New paintings have been made over older paintings, possibly because the older motifs were no longer significant to the people making the new ones (Webb, 2007, citing Gunn et al., 1997).

There is extensive rock art on the Burrup Peninsula and Dampier Archipelago in the Pilbara (north-west WA):

Most of the art is on Neoarchean (2.7 billion years old) intrusive igneous rocks including granophyre, gabbro, dolerite and granite. Petroglyphs were produced by removing the outermost few millimetres of dark red-brown iron oxide to expose a pale-coloured 1-cm-thick weathered clay-rich rim above the dark grey-green, very hard fresh rock” (Donaldson, 2011, p. 35).
In the Dampier Archipelago (offshore from the Burrup) “there are a number of distinctive motifs; Decorative Infill figures, climbing men and the archaic Face” (McDonald and Clayton, 2016, p. 35-36).

Withnell (1901), writing from Roebourne area, in the Pilbara, gives an account of how petroglyphs are formed. They have very many rock carvings; every hill that has suitably hard stone will have some kind of figure tattooed thereon. They do not choose the softer rocks, and mainly prefer the basalt and granite. The method adopted is to draw the outline with chalk or ochre and with a sharp hard stone hammer within the outline until the rock is fretted away about one-eighth of an inch deep. ... The carvings are mainly representative of men, kangaroos, rats, opossums, emus, turkeys, fishes, spears, shields, native weapons of all kinds, and many men and women in a variety of vulgar attitudes (p. 29).

“The Woodstock Abydos Protected Reserve along the Upper Yule River, inland Pilbara, represents a distinctive rock art style province, with petroglyphs engraved on granite domes. There are over 550 recorded sites in the Woodstock Abydos Reserve ... Several major occupation sites were recorded near freshwater sources, with multiple forms of cultural activity, including rock art production, stone tool manufacture, and seed grinding” (Brady et al. 2011, p.70). It contains a unique form of representation. “These figures have long flexible limbs ending in forked hands and feet, protruding muzzle, usually one or more antenna-like head decorations, and frequently exaggerated genitalia” (McDonald and Clayton, 2016, p. 37).

There are several other major rock art sites in the Pilbara including Port Hedland, Cooya Pooya, the eastern Hamersley Gorges and Ophthalmia Ranges and Depuch Island (McDonald and Clayton, 2016). “They are generally associated with water holes and rock pools; some are linked to increase ceremonies” (McDonald and Clayton citing Mulvaney 2010). Painted and stencilled art as well as petroglyphs are represented. The “petroglyphs are outlined or fully pecked [within the figure], abraded, scratched, incised or pounded, and also vary significantly in size” (McDonald and Clayton, p. 38). There are also many rock art sites in the Western Desert and the Kimberley (McDonald and Clayton).
7.2 Granite artefacts and artefacts at particular granite domes

Goode et al (2005) note a small site, 25 x 40 metres, located in a small bay on the northern end of Whalers Cove, Albany, south coast WA, that was reported as a source of grindstone material by Aboriginal informant Lynette Knapp. “Ms Lynette Knapp stated that her father Alfred Knapp and her grandfather Johnny Knapp would regularly collect water washed granite stones to use as grindstones from this location” (p. 116).

Portable stones in which grinding is done, have been collected near Cue, mid-west WA. Of 42 that were recorded, “15 are dished [grooved]; two deeply. The remainder have flat grinding surfaces” (Webb, 2007, citing Gunn and Webb, 2002, 2003). The difference might be explained by whether they were used to wet mill grass seeds or dry grind hard seeds (Webb, 2007). Available evidence did not support a conclusion. Other items noted in field work at granite domes around Cue included stone artefacts (not described), a well that potentially was constructed by Aboriginal people, dense and less dense scatter near the granite domes in the area (taken to indicate Aboriginal camping sites), and the rock art described above (Webb, 2007).

Bindon (1997) reports an excavation at Walga Rock’s shelter wall, of six square metres to a depth of about 3 m: Evidence of human use of the shelter was found throughout the whole of the excavation sequence, giving us indications of human activity in the vicinity for the last 10 000 years. Occupation was intermittent and more or less in the same temporal pattern as delineated by other authors ... Periods of sparse use begin the sequence, followed by a gradual increase in visitation that culminates in an intensive occupation over the last few thousand years. At around 4 000 years ago, small delicately flaked stone tools begin to appear here just as they do around this time in many other Australian archaeological sites (p. 176).

Bindon (1997) also reviews and reports excavations on islands (granite domes) off the south coast of WA (Cheetup and the Reserchre Archpelago). Patterns of occupation by Aboriginal people are inferred. On Cheetup, early on (before 13 245 ± 315 bp), “a pit was dug in the shelter floor. It was lined with Xanthorrhoea leaf bases and woody parts and filled with fruits of Macrozamia reidii ... This ... discovery confirms ethnohistoric descriptions of a food preparation technique ... Toxins in Macrozamia fruits must be removed by leaching or fermenting and cooking before the fruits are rendered edible” (p. 176, citing Smith, 1993).

8 NOTE


A Noongar tourism operator (Maitland Hill), at the Spring into Parks Astrotourism Workshop, September 2, 2019, held at the Department of Biodiversity, Conservation and Attractions, said the songline went to a hill named Ninghan which is near Lake Moore.

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10 REFERENCES


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Withnell, J. G., 1901. The Customs and Traditions of the Aboriginal Natives of North Western Australia [Roebourne]. A short amateur ethnography, which is mostly of historical interest. https://www.sacred-texts.com/aus/cat/cat.htm


11 REFERENCES CITED BY OTHERS


Department of Aboriginal Sites, 1989. Mulk'a's Cave (also known as Bates Cave), Hyden, Western Australia. Brochure, Dept. Aboriginal Sites, West Perth.


Gunn R. G. and Webb R. E., 2002 Art and archaeology of part of the Wutha native title claim, east of Cue, W.A. Report to the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra, Thoo Thoo Warninha Aboriginal Corporation, Cue, & the Wutha native title claimants.

Gunn R. G. and Webb R. E., 2003. Art and archaeology on Coodardy, Austin Downs and Noonie pastoral leases, west of Cue, W.A. Report to the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra, & Thoo Thoo Warninha Aboriginal Corporation, Cue.


Jutson J T 1934 The physiography (geomorphology) or Western Australia. Geological Survey of Western Australia. Bulletin 95.


