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Paragons of Sustainability: A Cornucopian Landscape, Governed by the Whadjuk Nyoongar People of Western Australia

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Figure 1. *Caladenia flava* – Cowslip Orchid[2]

Abstract

The Whadjuk Nyoongar people were the First Nation people of the Swan River Colony (SRC) of Western Australia (WA), established by British settlers in the mid-nineteenth century. Living in the South West (SW) region of WA, an area governed by a Mediterranean climate with cool wet winters and hot dry summers, it is fortunate that they were a moral community, grouped by their Dreamtime creation concept. The Dreamtime handed down to their elders by their Ancestral Beings ensured that they were anchored to a belief system believing that all human, physical and sacred parts of their world were an interconnected whole. Their systems thinking approach ensured that they used every part of their cultural landscape in a sustainable economic way. The Nyoongar people remained resilient, reinforced by a extensive climate knowledge and mental map of the SRC and its bounty learned from more than 40,000 years of occupation, which maintained their strong connections and obligations to their spiritual beliefs about animals and plants. The Southwest of WA was recognized in 2005 by Conservation International as a biodiversity hotspot with nearly 80 percent of its plant species found nowhere else in the world. This article views Nyoongar culture as a paragon of sustainability because, whilst the people were guardians of the Swan River Colony of present-day Western Australia, native orchids such as the Cowslip Orchid (pictured above) grew prolifically. Now there are only isolated pockets where these exquisite native orchids grow.

Keywords

Whadjuk Nyoongar, Dreamtime, Creation myths, paragons of sustainability, sweet water culture, cultural landscape, Ancestral Beings, biodiversity hotspot

Prior to European settlement, in 1829, Western Australia's Swan River Colony, or SRC, was a quasi-pristine native landscape. The SRC was located in the Perth Metropolitan Region (PMR) where its First Nation inhabitants, the Whadjuk Nyoongar[3] people, established a 'cultural landscape'. Their cultural practices allowed the region to function in its own "state of naturalness" (Machado 95). Their use of water, land and food resources was not consumptive (Leybourne et al. 128–129) because they only used sustenance supplies. This cultural landscape supported biological diversity, whilst it met their human, physical and spiritual needs. It was a natural ecosystem that had been altered, to suit a minimalistic hunter gatherer society. A huge part of their beliefs was attributed to their Dreamtime[4] which their ancestral beings passed down to them.

Their Dreamtime concept encouraged them to adopt a lifestyle similar to a well functioning system; they believed that all their landscape was interconnected in a cycle of life that ensured rhythm and balance in their land. In the words of one of the foremost geography scholars of the 20th century the geographer, Carl Sauer, "culture is the agent; the natural area is the medium, the cultural landscape the result" (cited in McLaughlin).

According to the Nyoongar culture, there was: *A Human World*—That governed the rules of behavior to ensure all water and food sources were protected by rules of the *kaleep*[5] (descent group owners). The kaleep were the keepers of land and water sources handed down to them by their ancestors according to myths and legends, passed down by elders, in a direct line from ancestral beings; *A Physical World*—All animals, land, and sky were created by ancestral beings who handed down the rules and laws for their use; and *A Sacred World*—Their stories of the Dreamtime, their caring for country, as well as law and punishment rituals descended from the sacred world, reinforced by songs, and ceremonies, in the human world. The Nyoongar people lived in the region, governed by their cultural landscape, as depicted in Figure 2.

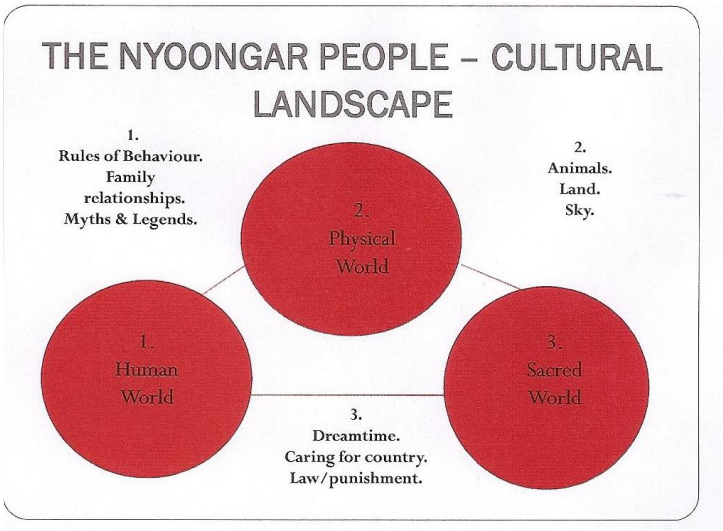

Figure 2. The Nyoongar People: A Cultural Landscape. Source: Developed by Author (2013).

Machado (95) describes the Australian ecosystem as being natural, before European settlement, whilst other studies, emphasize that the natural ecosystem "was as the Aborigines made it" (Hallam 10). One of their simple technologies, firestick farming, was used to modify and maintain the natural ecosystem. This simple technology was to set controlled bush fire in selected areas in a deliberate but cautious manner. Their careful use of fire promoted crop management and assisted fire-resistant plants to regenerate, utilizing that plant regrowth to entice animals to forage on the new regrowth and its sweet new shoots, making them easier to hunt. It also kept the understory growth down to reduce litter so that more fire-resistant plants and trees would grow (Head 45). However, retrospectively this firestick burning regime also had hydrological impacts, i.e. if deep-rooted trees were allowed to flourish in abundance then more water was stored in their root systems which meant less water was available to groundwater replenishment.

As there are no accurate records of the region prior to European settlement we cannot estimate how many species were displaced, by firestick farming. An Australian Broadcasting Commission (ABC) news article titled "Aboriginal DNA Dates Australian Arrival" indicates that "the ancestors of the Aboriginal man separated from the ancestors of other human populations 64,000 to 75,000 years ago" (Cooper 1). A joint University of Western Australia and Griffith University report on the ABC's Science Online program stated that the Aboriginal people inhabited the region more than 50,000 years ago indicating their "high level of sophistication" in the use of basic survival technologies.

In situ, the Nyoongar people utilized their ancestrally handed down Dreamtime rules and myths, which clearly set out the patterns of their water trails and their use of flora and fauna, water and land. In their cultural landscape, every water body, flora and fauna specimen had a sustenance role whether it was dietary, medicinal, or for totemic use, and/or was part of the Dreamtime protected by a Nyoongar guardian. Their Dreaming trails followed waterways and drainage patterns in the landscape, which were later used by European settlers to find water and grazing areas. In contemporary times their Dreaming still features largely in their own written work and paintings. Figure 3 illustrates this love for land and country:

The wattle spear flashed in the evening light,
The kangaroo fell at his feet.
How I danced and I yelled with all my might,
As I thought of the warm red meat.
We camped that night on a bed of reeds,
With a million stars a gleaming.
He told me tales of Noong-ah deeds,*
When the world first woke from dreaming.
**Noong-ah – Aboriginal tribe of the south-west of Western Australia.*

Figure 3. "'Warru' by Jack Davis." Source: ©Davis in Heseltine, 1973, 1–2.

The Nyoongar people also relied on an innovative and somewhat ingenious survival tool, i.e. their seasonal calendar (Figure 4). This calendar determined the patterns of their seasonal movement and dictated their hunter-gatherer regimes to encourage wise food and water use. Their Dreamtime taught them that they had to leave enough food and water resources, in-situ, to encourage further re-generation, breeding, population growth and expansion and plant growth into adjacent areas.

Their seasonal calendar included six seasons: Birak; Bunuru; Djeran; Makuru; Djilba; and Kambarang that dictated the time of the year during which they could collect each area's special floral or faunal food resource. The Nyoongar people had a distinct impact on their landscape, but it was minimal in comparison to the plunder economy of the European settlers who arrived in 1829.

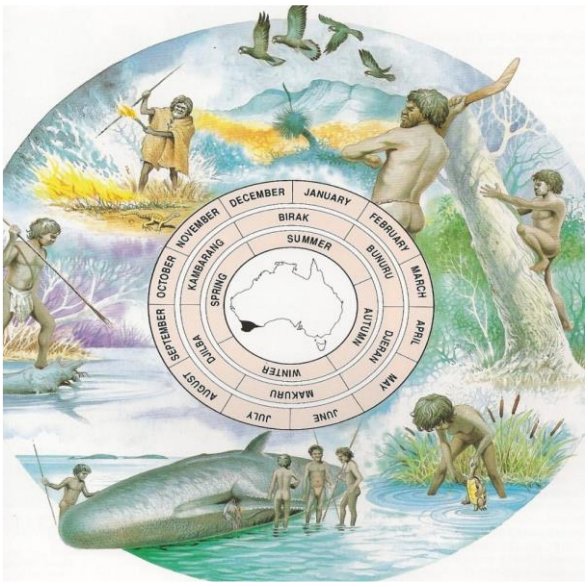

Figure 4. The Nyoongar Seasonal Calendar. Source: Bindon and Walley in *Landscope*, Spring 1992, 31.

Their basic technologies and "early development of patterns of plant exploitation" (Hallam 10) sustained the small populations of Indigenous people Bates (30) referred to as the "last remnant of Palaeolithic[6] man." In recent years, the Nyoongar's sustainable economy has been lauded as an economical use of water and land (Berndt 66; Flannery 69; Hill 1).

This article understands their use of water and land as a sustainable economy as they respected and considered all the parts of their landscape and its water resources as highly integrated parts of the landscape; it was their land or their *boodja*[7] (Green 1; Hill 2–3; Leybourne et al. 129). Using only sustenance resources allowed resident ecosystems to maintain a natural balance and also increased the likelihood of their survival and prosperity. Their traditional life patterns and handed-down knowledge from their ancestral Dreamtime stories (Bates 32–33; Berndt 9; Flannery 284–285; Stanner 57–63) conserved the region's fragile web of lakes and wetlands. The reverence that these First Nation people had for their spiritual world is highlighted in their respect for their Dreamtime.

The Nyoongar People's Dreamtime Heritage: Water Trails and Beyond

The Nyoongar people's traditional and spiritual culture, and their *Dreaming*, cultivated their rules, morals and laws that mythically and spiritually connected them with water and land:

> The Dreaming linked the Nyungar to the Aboriginal creation and gave them not only an affinity with the land but a personal relationship to it. It was an existence in which the Aboriginal had both place and purpose; a place determined by kinship and a purpose that everyone recognised and acknowledged. (Green 21)

Wandering purposefully across Australia's landscape for more than 50,000 years Australia's First Nation people lived sustainably off the landscape (Head) without exploiting its natural water and food resources. Australian Aborigines "regard themselves as inseparable from the eternal process of nature" (Berndt 9; Green 5). It was this worldview of their oneness with nature, which ensured their sustainable economy. Nomadism enabled their seasonal survival whilst they evolved and learnt from nature over centuries of time to develop a unique "staying power," which ensured that they lived in harmony with the natural environment (Green 7). Their low population numbers guaranteed that they lived according to the carrying capacity of Australia's water and land resources (Archer et al. 41–45; Flood 229). Hunter-gatherer societies similar to Australia's First Nation people bred only when conditions were favorable.

In oneness with their Indigenous neighbors, the local Nyoongar people survived the harsh Australian conditions armed only with their handed-down knowledge. Other tribes across Australia, e.g. the Gagudju in Kakadu, the Punuba in the Kimberley region of northern Western Australia and the Darug Nation of NSW, also believed in handed-down spiritual and religious myths, which also tied them symbiotically to water and land (Australian Museum 1–11; Fairfield City Council 1–4). Australian Indigenous people could read the landscape although they were completely isolated from one another and separated by deserts and territorial barriers (Hasluck 17). The Nyoongar people read everything on the landscape, through the location of trees and plants, as landmarks, and the habits of animals; they were true environmentalists (Chaucer 1878 cited in Hallam 266).

The elders of each tribe were revered and respected because they passed down their knowledge and experiences although this knowledge disappeared along with their elders after settlement (Berndt cited in Octagon Lectures 16). Within the first "80 years it was the Nyungar who were disorientated and dispossessed—a people without a future" (Green 55). Their dispossession led to the loss of their Dreamtime stories, and rules and laws of their boodja. Green confirms that their territory "extended from the Geraldton district south along the coast to Cape Leeuwin, continuing south-east almost to Esperance and then in line north-west to rejoin the coast at Geraldton" (cited in Carter 27, 'land' spelled *budjor*). Hammond (cited in

Carter 27) claimed that *boujera* was another description of their "common ground" which "was applied both to their birth-place, their territory, and to the actual dirt and soil."

Estimates of Australia's Aboriginal population pre-European settlement numbered approximately 750,000, across Australia. By 1851 after settlement there were approximately 80,000 Indigenous people across Australia (Archer et al. 41–48). Post-settlement European illnesses such as smallpox, influenza and whooping-cough as well as genocide, execution and massacres took their toll on the Indigenous population of Australia (Aveling 208; Bates 161; Green 7). The Nyoongar people's occupation of the Southwest region of Western Australia has been dated at 38,000 years B.P in the Swan Valley and at 29,000 B.P. at Devils Lair, near Augusta in WA (Carter 13; Gentilli 107; Green 3; O'Conner et al. 10) although recent sources date their occupation at 50,000 years.

In the entire SW of WA, estimates of pre-settlement figures indicate there were less than 10,000 Nyoongar people (Green 8). Armstrong (797) estimated 700 Aboriginal people visited the Swan River colony up to 1836; Hallam (26–27) gives an estimate of "420 Aboriginal people occupying the area between Moore River and Safety Bay, taking in the hills in this area"; and; after 70 years of European civilization according to Bates (64–65; also Carter 155–166) "it had reduced the native inhabitants of the city of Perth and its environs to one old man Joobaitch, and an older-looking niece, Balbuk." In the 1901 official census only the "partially civilised" were counted, which recorded a population of 6,212 including 2,328 full-blooded and 459 part-Aboriginal females (WA Yearbook).

In 1966, the Aboriginal population including half-bloods was 18,439; the total population was 833,635 persons (Hallam cited in Seddon 188). In 1995, Green (189) states, "they are again one of the largest identifiable Aboriginal populations in Australia with an estimated 12,000 men, women and children claiming descent from the original Nyoongars." Despite the fact that there are currently 12,000 Nyoongar descendants, we do not know how much of the Dreamtime culture survived—or if the handed-down knowledge died with the elders or if it is still in use today. However, from the work of Nyoongar elders such as Noel Nannup, who is a prominent cultural custodian within the Perth community, it is evident that Nyoongar culture is thriving in the present.

A wealth of Dreamtime and handed-down myths assisted the Nyoongar people to maintain their 'cultural landscape'. In a cultural landscape, there is a "close link between the richness of a culture and the richness of its biodiversity" (Djoghlaf cited in Beeley 70; see also Hill 1–8). "One depended on the other and ensured there was minimal 'disruption' of natural

systems" (McMichael 52). Retrospectively, it is evident that the European settlers misunderstood the Nyoongar people, for instance, who were dressed in animal skins; "Their tools were Palaeolithic"; they did not appear to own land or homes; and appeared to be primitive, even if they were not savage (Bates 57). The settlers knew nothing about the Dreamtime that kept the Nyoongar people grounded; however, in some cases they tried to assist by giving the Nyoongar people food and educating them in 'white man ways', which was not always encouraged by the colony's government:

> The Lieutenant Governor having made arrangements through the Superintendant of Native Tribes, for bringing about a friendly understanding with the natives, and supplying them with presents, (bread and rice) at Monger's Lake; the inhabitants of Perth are hereby cautioned from encouraging their coming in the Town, giving them food, &c; as such kindness will in a great measure retard, if not wholly frustrate, the objects contemplated.
> -Peter Brown, Colonial Secretary. Source: *The Perth Gazette* and *Western Australian Journa*l, 23rd February 1833, Government Notice.

The Nyoongar people's creation myths and legends morally and spiritually connected them to the Region.

Nyoongar Creation Myths and Legends

Green (21; along with Carter 13; Leybourne et al. 121) confirms that the Nyoongar people believed in a creator myth, which was linked to sacred places and spirits in an area where the location was handed-down knowledge. Their 'sense of place' was inexorably linked to these sacred sites, a link, which lasted for more than 50,000 years. In situ, the Nyoongar people's view of themselves, within their landscape, their own cosmology led them to believe that they were always there guided by the influence of their ancestral spirits. Their creation time or Dreamtime beliefs included rules for culture ties, religion and morals; and they lived their life in symmetry, continuity, constancy and regularity as everything was related and interconnected (Berndt 15; Stanner 69–70). Table 1 below illustrates the spiritual and cultural differences between the settlers and the Nyoongar people:

Hunter Gatherers – Nyoongar People	**European Settlers**
Head and heart working in unison	Economism driving force – quest for success and wealth driving force
"It is in the creation of the spirit, rather than in material goods, that Aboriginal society excelled in, early settlers judge a society by its material possessions" (Flood 250).	Expansionism brings wealth and prosperity.
Earth as spiritual renewal.	Earth as a resource to be exploited and consumed.
Moral and ecological togetherness.	Short term needs met and possible future rewards.
Interconnectedness of all life.	Look at subjects and objects for their use.
Small integral part of a complex whole.	Separateness from nature, materialism is the core of everything.
Religion linked to the environment and themselves.	Religion linked to what happens to us in the hereafter.
Hunters and gatherers in their spiritual environment – constant reminders of where their food comes from.	Growing crops, tending pastures and herds of animals outside the town – losing affiliation with the natural world.
"Carers of Everything."	Only care for what is yours, everything else is not your responsibility.
"Belonged to the land."	"the land belonged to them".
"We wait for the rain to fill our rivers and water the thirsty earth" (Hendriks 35).	Settlers sank wells, drained wetlands not understanding the landscape.

Table 1. Comparison Between Settlers and the Nyoongar People's Spirituality. Sources: Beeley; Flood; Hendriks; Turpin.

One of those differences is their belief in the Waugal or Rainbow Serpent; a belief held by other Indigenous people across Australia (see Figure 5).

Figure 5. Indigenous Australian Water Snakes and Serpents. Source: R. Storm (Ed.) "Binyinuwuy," in *Dreamtime: Endless Path* 2007, p. 229.

According to the Nyoongar people the creation period was when ancestral beings established human life and culture, as well as bringing species into being. It encouraged the Nyoongar people to be the 'Carers' or 'Guardians of everything' (Nannup 3), and pass their Creation myths/rules down the generations through tribal elders. These creation myths were reinforced constantly by symbols or totems. Totemism, according to Giddens (764) is "a system of religious belief which attributes divine properties to a particular type of animal or plant." Totems can be rocks, animals, plants and even a part of the body. Many of the Nyoongar people's mythic beings were "totemic" in a sense, and were an embodied part of them; they considered that their babies were totems of their Ancestral Spirits who returned to the earth, and the Dreamtime when their life was over (Bates 33; Maddock 35).

Other totems originating in human or near-human form existed in the form of hills or rocks or stones or other physiological features. The Waugal, for example, was their life-giving freshwater totem and it was also a symbol of awe and fear. It rested in freshwater sources such

as springs, pools, gnammas (rock pools) and rivers that were used and enjoyed by the Nyoongar people for drinking, fishing and bathing. But these locations were also eerie places that the Nyoongar children were warned about from an early age. They were warned that the Waugal might punish them if they ventured into deep or dark watery places. Australia-wide Indigenous examples of sacred totemic myths existed. The Waugal's (Rainbow Serpent) constancy lay in the fact that it represented the creation, maintenance and respect for water bodies (Leybourne & Gaynor 52). Whatever shape or version the story took the Waugal/Water Serpent totem protected the water resources it was linked to; the Nyoongar people believed it was both female and male.

Dreamtime stories and songs were recounted constantly by Nyoongar elders and religiously practiced by them in their daily lives for it was unthinkable to forget their messages. Universally, hunter and gatherer societies attributed the creation of the earth to their Ancestral Spirits to which, they were forever indebted. Indigenous nations, such as the Canadian Inuit people and the First Nation People of the United States lived their traditional lifestyles, seeing themselves "as an integral of a finely tuned ecosystem" one where their livelihood and their religion were one and the same (Pettit cited in Beeley 69).

Interdependency of Religion and Economics

Two things were important to Nyoongar society. In the first place, adult males in each local descent or family group were responsible for the upkeep of traditional sacred sites as well as maintaining rituals for keeping water and land resources sustainable (Carter 20). *Kaleep* is the Nyoongar name for the camping localities of each descent group on which they intimately knew every tree, water and food source. These descent groups joined sub-groups and other family 'descent groups' from nearby during celebrations and large hunting or fishing parties. Access to their kaleeps, however, had to be extended to other groups upon request; otherwise hostilities occurred. All kaleep site rituals were unwritten knowledge, handed down by tribal elders from long ago creation spirits (Carter 9; Garis 30; Green 5); these sites included waterholes, swamps and lakes, which were plentiful around Perth before settlement.

In the second place, members from descent groups were responsible for finding food and resources for the group to live on. They occupied and travelled through several groups' territories to gather their food and water and depended on the landscape, in a much different manner from that of the European settlers. The difference between the Nyoongar people's use of the water and land was that they possessed cultural and spiritual connections to it. In

comparison the European settlers brought with them a "sense of place" and an environmental consciousness of an entirely different climate and mindset (Head 61–64; Powell 12; Seddon 187–197). The European settlers interpreted bad weather, misfortune and accidents as something that happened to everyone whilst the Nyoongar people interpreted these misfortunes as evil spirits rising from the landscape to punish them for their indiscretions. Table 2 below illustrates the differences between the hunter gatherer's settlement patterns compared to those of the early European settler. It demonstrates that the Nyoongar people's sustainable economy was linked to their belief that economics and religion were interdependent.

The Nyoongar people	**The European settlers**
Housing: • Did not own land. • Wandered across the landscape. • Had no permanent housing.	**Housing:** • Bought plots of land. • Built homes close to towns & each other. • Stayed in one fixed place.
Food Resources: • Consumed a wide range of seasonal bush foods and aquatic and land animals including fruit, nuts, fish and frogs. • Their foods required no special treatment other than leaving enough of them to regenerate.	**Food Resources:** • Cleared vegetation and trees and replaced them with European crops & flowering plants which required lots of water and good soils. • Brought sheep, cattle & horses which required excess water use and fodder crops.
Distance from Water Source: • Lived in close proximity to but allowed for a reasonable buffer between water resources and their camps.	**Distance from Water Source:** • Built their homes and towns too close to water, which lead to sanitation problems.
Ancient Culture: • Lived according to an age old set of rules and myths which believed that man and the physical environment were interconnected.	**Organized Culture:** • Believed that they had the potential to fashion their own destiny, and the environment.
Use of Water Resources: • Used lakes and wetlands as seasonal food and water sources.	**Use of Water Resources:** • Drained lakes and wetlands. • Took water away to where it was needed.

• Only removed what they needed to drink.	• Changed water courses permanently. • Used large amounts of water for crops, domestic uses and herding.
Use of Trees and Vegetation: • Manipulated the growth of vegetation by firestick farming, which allowed the regeneration of native shrubs and trees. • Made tools and spears from trees and saplings. • Used roots and tubers for food. **Consumerism:** • Non-materialistic and they only took what they could carry: weapons, water vessels, firesticks, and digging tools.	**Use of Trees and Vegetation:** • Removed native vegetation and trees to build their homes and towns. • Planted European style gardens which required large amounts of water in the PMR's hot summers. **Consumerism:** • Materialistic and required furniture, fixed abodes, clothing and chattels as well as the need to raise funds to buy more products.
Spiritualism: • Believed water courses were created and governed by the water serpent the Waugal. • Given guardianship of water and land by the Creation beings so they must look after it.	**Spiritualism:** • Believed in religion but did not relate their beliefs to water and land. • Believed that water was a commodity that could be bought and sold. • Had no spiritual beliefs relating to water other than its domestic and economic uses.
Mode of farming: • Firestick farming – burned dry grasses in summer which aided plant and tree regeneration. • Burnt vegetation for hunting to bring larger animals out into the open for easy capture. • Collected burnt snakes and lizards after their fires died down.	**Mode of farming:** • Settlers farmed by growing food crops which depleted water and soil sources. They also grew pastures to feed sheep, pigs and cattle which were used for meat and export of same.

Table 2.0. Opposing Patterns of Settlement. Source: Author Using Data Collected for a Wetlands Study.

A Sustainable Economy: A Perfect Beginning

The Nyoongar people's lifestyle strategies were sustainable: their nomadism; hunting and gathering; minimal food and water use; and; the fact that they left behind remnant plants for regeneration are discussed in this section. These strategies maintained the Southwest region as

a ‘natural ecosystem’ with a minimal water footprint. The Nyoongar people did not build dams, drain or store water or use it for crops or animals. It was only used for drinking. Unfortunately, once settlement took place the region’s water resources started their inexorable decline, which is as much of a tragedy, as the loss of its water guardians. The Nyoongar people ‘managed’ waterholes and gnammas (rock pools) keeping them unpolluted, even using stone coverings to reduce evaporation. This type of guardianship did not endear them to the settlers who thought they were primitive.

According to the *Swan River News* (No. 3, London, March 1, 1844):

> ...with a native population so thinly scattered over its surface as to find their wants sufficiently supplied by the game of their forests and fish of their rivers, without the necessity of call on the soil of their almost boundless country to contribute to their support further than a few Indigenous roots.

This description of the Nyoongar people’s sustainable economy did not do justice to their hunter-gather lifestyles.

Paragons of Sustainability

The natural simplicity of the Nyoongar people and their ecologically sustainable lifestyle ensured that the region’s water cycle functioned as an open system. As water came into the landscape naturally by precipitation its interaction with the Nyoongar people was minimal. Water replenished lakes and wetlands as well as recharging underground aquifers, and the outputs of this system were just as natural, with minimal extraction. Aboriginal people knew that if you took away something from the landscape “you must leave something behind”. Nannup’s statement from 2004 describes their affinity their physical landscape, “do not take all of us” or none of us will remain; this is how they treated water, sparingly. They knew that trees were connected with water bodies and acted like sponges, sucking up the water, to ensure that salty water stays below. The Nyoongar people traditionally adopted a “sweet water culture” that appreciated the sweetness of fresh clean water (Hill 1–19; Nannup 1–6); they believed that bad luck would come to those who abused their entitlements, especially their freshwater sources. According to their culture, surface water and underground water resources are interconnected and the Waugal would know if water resources were misused and he would punish them.

Post-settlement, the Nyoongar people witnessed their landscape over-run by horses, sheep and crops; their water resources over-extracted; their trees and plants cleared to the extent that they became incapable of being able to read their time old mind-maps of the region. This post-settlement confusion was not exclusive to the Nyoongar people it was a worldview experienced by their hunter-gatherer and Indigenous counterparts from across the globe.

Hunting and Gathering: An Indigenous Worldview

The Nyoongar people's creation myths were not unique they were part of an ancient traditional worldview. Across the globe other Indigenous groups shared similar world views/cosmologies and practiced the same ecological harmony with their lands. Indigenous peoples from Canada, Australia and North America practiced the same restraints when collecting food and water. In Canada, the Stadaconians, a hunter-gatherer group (ancestors of the Canadian Iroquoian people of the eastern Great Lakes-St Lawrence) used a variety of fishing, hunting and gathering and horticulture regimes. They stringently followed these regimes to store food and survive in a harsh land that was freezing, and unrelenting in the autumn-winter months (Ray 5). Similar to the Nyoongar people, the Stadaconians moved from their gathering and horticultural fields to far away fishing and hunting sites returning only to collect and gather the fruits and crops that they had left behind to flourish and grow (Ray 7). Although the Nyoongar people did not grow crops, they left remnants of each food source behind to enable regeneration for the following season. Common elements across hunter-gatherer societies include:

- Remaining in small groups to gather food over small scattered areas and moving from one camp to another.
- Co-operation with other groups, as necessary.
- Ensuring they stayed within their own camps unless invited to other areas.
- Using religion, as a requirement for survival because it gave groups the rules to live by.
- Understanding that all they needed to survive was water, food and shelter.
- That practising sustainable economies over a long period of time maintained their economic lifestyles.
- Knowing that it was not necessary to collect extra water and food for 'tomorrow' or for bartering or sale.

Indigenous Australians knew that:

> When there is no water, as on a dry stretch between camps, there are many substitutes. There is wild honey, stored by native bees or in the body of honey ants, or the sugar which crystallises on certain leaves. (Berndt 95)

Armed with this knowledge they lived in reasonable affluence, as described in the following section.

The Nyoongar People's Landscape: A Cornucopia

Pre-contact, the swamps and lakes from Perth-Mandurah supplied the Nyoongar with turtles, gilgies (native prawns) and fish; they were part of the Dreamtime trail laid down by the Waugal. These waterways were also edged with edible roots, reeds and vegetables. For many thousands of years the Nyoongar people expertly used these plants for both food and water, and did not just rely on waterholes. If there was a plant nearby that gave them moisture as well as food which saved them looking for regular water resources. They made use of fibrous plants for ropes, fishing nets and traps. Local native trees were fashioned into digging sticks, bowls, clubs, spears and boomerangs. Their local knowledge extended to using plants and trees for medicines, poisons, shelters and fire.

Post-contact, the European settlers became aware that the Nyoongar people lived in a well-watered fertile land abounding with food, once they discovered their indigenous diet in "A Sketch of the Colony of Western Australia" (*The Swan River News*, & *Western Australian Chronicle*, London June 1, 1844). In this article, botanists reported that the settlers appreciated some of the plants and vegetables utilized by 'the Aborigines' of the Swan River Colony, which include:

- "The native yam, of the class *Dioecea*, is stated by Mr. Drummond to be the finest esculent vegetable the colony produces.
- The fungi or mushrooms are also palatable to the Aborigines.
- A climbing species of the *Thysanotus* near the Moore River is much used, by the natives, as food.
- The oak-leaved *Chenopodium* is supposed to contain essential oil; it was formerly used by the settlers as a vegetable and is proved to contain carbonate of soda.

- There is also excellent native celery, which forms a good substitute for that of Europe."

Post-contact, the Nyoongar people's delight in gathering their seasonal foods was replaced with dismay after they were moved the Swan River Colony's fringes to make way for the settlers and their stock (Berndt 4; Green 188; Hill). A contested landscape is presented in the next section.

From a Sustainable Economy to a Plunder Economy

The interface between the settlers and the Nyoongar people was not a successful one. Evidentiary sources (Cathcart 191–197; Flannery 323–325; Powell 12) indicate that once the balance between the settlers' socio-economic needs and the capacity of the environment to endure and water use became less than sustainable. The settlers immediately commenced their spatial reorganization of water and land resources to suit their socio-economic needs. Their population grew and quickly replaced the Nyoongar people's sustainable economy, with their own plunder economy. All this movement and development caused the Nyoongar people to become 'fringe dwellers'.

Maelstroms of Change: Post European Settlement

European settlement impacted the Swan River Colony by displacing its former guardians to the fringes. Spatial patterns depicting the settlers' interaction with the region and its resources indicated steady erosion of its original ecology (Bates 62; Berndt 14). Reluctantly banished from their camping and gathering sites, the Nyoongar people resigned to their fate of becoming fringe-dwellers. Figure 6 depicts an Indigenous artist's view of the differences between their culture and that of the Eurocentric settlers.

Figure 6. An Artist's Depiction of Cultural Differences. Source: "New Water Dreaming" by Christopher Pease, 2005. National Gallery of Australia.

The above painting depicts an early method of transporting water to a ship using a bucket. The artist superimposed the more scientific European technological method, a water collection apparatus, onto an 1826 painting by Louis Auguste de Sainson (originally titled "Taking on Water, the Astrolabe, St. George's Sound"). This picture reminds us that interactions between the Aboriginal people and European settlers were not always favorable. During the first few years of settlement some Nyoongar people remained in the region but the miscommunication between these two cultures continued and that discouraged the remainder of the Nyoongar people from remaining.

Statements made by leading politicians did little to bridge this communication gap. The Hon. John Forrest's Presidential Address to the Australasian Association for the Advancement of Science in January, 1890 stated:

> To find a people without any idea of cultivating the soil, without any permanent dwellings, in many places without any clothing, without any means of cooking, other than by roasting in the ashes—and without any villages—was certainly an extraordinary discovery, and must have astonished and puzzled the early explorers of Australia. Dampier, who visited the north-west coast of Australia in 1688 expresses

> his surprise and disgust in these words:--"The inhabitants of this country are the miserablest people in the world—the Hottentots of the Cape of Good Hope, though a nasty people, yet for wealth are gentlemen to these, who have no houses and skin garments, sheep, poultry and fruits of the earth, ostrich eggs, &c., as the Hottentots have; and, setting aside their human shape, they differ but little from the brutes—they have no houses, but lie in the open air without any covering, the earth being their bed and the heaven their canopy. (cited in Aveling 50)

Word of mouth would have spread this message far and wide, as it clearly stated that the Nyoongar people were an inferior race without land, possessions and held nothing sacred. Even though the settlers used their trails and water resources, and were initially trusted and welcomed by the Nyoongar people, they were still relegated to the fringes, far away from their spiritual and cultural sites (Carter 5). Despite the misunderstandings between the cultures European settlement also provided benefits.

The Benefits of European Settlement?

Most of the Nyoongar people were driven away into the bush or remained in small groups, which were subject to the colonizing influence of the European people. They readily helped themselves to food and animals brought to Western Australia by the settlers, a practice they thought was akin to helping themselves to what nature had provided. Some groups stayed around the fringes of settlements almost as if they were waiting for the settlers to leave so that they could get back their territories. Nyoongar leaders such as Yagan and Midigigiroo reacted with bouts of intermittent warfare and stock killing followed by passive resistance but sooner or later they made the effort to adapt. In any case, the ultimate result for the Nyoongar people was pauperization (Berndt 86–87; Green 55). On the 28th of October 1834 the Nyoongar people and Governor Stirling and his party clashed violently in an event that was later called "The Battle of Pinjarra." Up to twenty-five Nyoongar people were shot during this battle and "the loss of so many people within such a brief space of time caused an immediate imbalance in the population of the tribal groups" (Green 106).

The Swan River News (June 1, 1844) reported many more cases of clashes and aggression between the settlers and the Nyoongar people. A prison was built to house the Nyoongar people which was also meant to be a means of civilizing them to the extent that they were worthy of existing alongside the settlers. In fact, a paper reported that in comparison with

the First Nation People of North America, the Nyoongar people were "primitive owners" and "committed several outrages" against the settlers due to the fact that they did not understand what colonization could mean to them. This type of reporting ensured that the lack of communication and mistrust continued on both sides. Although "Protectors of Aborigines" were appointed in 1840 they were more duty bound to civilize the Nyoongar people than protect them and provide for their welfare. They achieved this by sending them to missions, labor camps and the outer regions as farm hands. This was to change their very bad habits of being "migratory and unsettled" and lacking in "religious rites or social laws" (*Swan River News*, June 1, 1844). Slowly but surely the ancestral water guardians left the region.

Conquest by an 'Organized' Society

Being subjugated by an 'organized' society meant that the missionaries and government welfare agents began to have some effect. By the time the Nyoongar people began to assimilate with the settlers' 'organized' society their traditional life ceased to exist and miscegenation took place. Water and food trails disappeared, which lead to more and more encroachment on the Nyoongar people's territories. By 1833 several disheartening events occurred that caused the Nyoongar people to completely withdraw from settled areas. Midigigeroo, Yagan and Munday, their tribal leaders, were outlawed and later executed. By 1834, the Nyoongar people still did not understand the European work concept so when they helped themselves to the settlers' food and water sources they were punished for the crimes of theft, and a prison was set up in 1839 at Rottnest to house them. Some settlers dedicated their lives to bringing religion to the Aboriginal people, namely Father Dom Salvado who finally settled in New Norcia. By 1850, the arrival of convicts meant that the settlers now had free labor. Within a year of settlement the Nyoongar people's fire-stick farming regime ceased as it threatened the settlers, their homes and their crops. Settlers were frightened of the Nyoongar people because they had no permanent abodes, no clothing and certainly no system of government or control of the groups, but how little did the settlers actually know about such things (Green 75).

By the end of the nineteenth century the Nyoongar people were still expected to assimilate but these policies seemed unlikely to succeed. The Nyoongar people became fringe dwellers and some groups moved as far away as the Kimberleys or Port Hedland. Wherever they moved, they could no longer live in a completely free traditional style, and they began to drink liquor to excess and changed to a Western diet, which was detrimental to their health. The next section considers the place of Nyoongar people in future water/environmental reform.

The Western Australian Government has recently made an offer, entitled "The South West Native Title Settlement" (Figure 7 below) to six native title groups including the Whadjuk Nyoongar group of the Southwest region.

Water Reform: Indigenous Participation

In his book *The Sacred Balance*, David Suzuki states "Indigenous people's knowledge may need to be used to manage today's environmental problems." Additionally Colbung (cited in Berndt 105; and Maddock 180–181) concurs that Aboriginal elders have a place in handing down their knowledge to the 'new generation' regarding the balancing of Australia's economic needs with the needs of the bio-physical environment. Turpin (1) describes our need for a "cultural paradigm," which favors "a revitalized sense of community, an enlarged ecological perspective" encouraging a return to humankind's symbiotic relationship with nature. Lovelock (cited in Beeley 231) and Flannery (405–406) call for a return to human involvement with nature because it may make a difference.

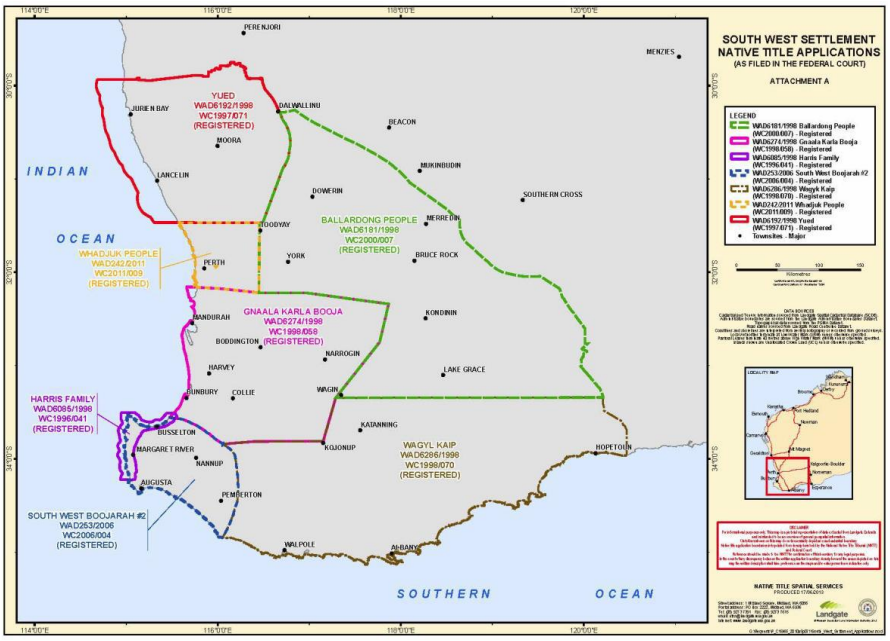

Figure 7. Map of the South West Settlement - Native Title Applications. Source: Department of the Premier and Cabinet, 2014, 1–2, http://www.dpc.wa.gov.au/lantu/Claims/Pages/SouthWestSettlement.aspx

Southwest Native Title Settlement: Noongar Recognition Through an Act of Parliament

"The Noongar people are now formally recognised, through an Act of the WA Parliament, as the Traditional Owners of the south west region of Western Australia. The *Noongar (Koorah,*

Nitja, Boordahwan) (Past, Present, Future) Recognition Act 2016, proclaimed on 6 June 2016 to coincide with WA Day 2016, recognises the *Noongar* peoples' important relationship with the *Noongar* lands, and their significant and unique contribution to the heritage, cultural identity, community and economy of WA. It is also the first statute in WA to incorporate an Aboriginal language [see Figure 8 below]. The Act is historically significant for the State and is among a number of outcomes negotiated between the Noongar People and the WA Government."

Noongar (Koorah, Nitja, Boordahwan) (Past, Present, Future) Recognition Act 2016 *Noonakoort moort nitja burranginge noongar boodja* *Noonakoort moort kwomba Djinunge nitja mungarrt — koorah* *Noonakoort moort yirra yarkinje kwomba noongar boodja* *Koorah — nitja — boordahwan* *Noonakoort moort yarkinje noongar boodja* *Nyidiung koorah barminje noonakoort moort* *Wierrnbirt domberrinje Noonakoort moort koort boodja* *Nitja gnulla moorditj karrl Boodja*	All our Noongar people stand here on Noongar land. Past, present and future. We stand strong on our land. The mungart tree symbolises our strength and survival. All of our people stand firm on our land. Our people are here to stay — we will always be.

Figure 8. The Noongar (Koorah, Nitja, Boordahwan) (Past, Present, Future) Recognition Act 2016. Source: https://www.wa.gov.au/government/publications/south-west-native-title-settlement-noongar-recognition-through-act-of-parliament. Accessed 14/01/2022.

The most important part of this Native Title settlement is that the Nyoongar people will finally get some recognition in Parliament. In their own words, "We belong to one of the oldest surviving living cultures on this earth...As a people we have a common ancestral language, and a similar history and spirituality" (SWALSC Newsletter 1–2). This statement describes their affinity and age-old connection with the Southwest region. The Western Australian Government already recognizes the Nyoongar people's contributions to the region, as numerous tribal leaders and elders are members on its advisory councils and committees; hopefully, in the future, Nyoongar knowledge will be utilized for environmental issues.

Conclusion

This article focused on the sustainable economy of the Southwest region's Nyoongar people. It demonstrated that the Nyoongar people lived in balance with the land according to their Dreamtime myths and legend. They moved across the landscape by means of a seasonal calendar that dictated what and when they could harvest or hunt, and how much they should leave behind for propagation and regeneration. Even though they altered the landscape with their firestick farming and their hunting regimes, their impact was minimal. Once settlement occurred, their water guardianship and hunter-gatherer lifestyle ceased, and they were relegated to the fringes. This article demonstrated that their clashes with the settlers were based on miscommunications between a settler society and a hunter-gatherer society. This article concluded with a brief discussion on the Western Australian Government's Native Title Settlement with the hope that it may bring tangible changes to the Nyoongar people in the future.

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End Notes

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[2] "*Caladenia flava* – Cowslip Orchid." *The Orchids of Western Australia*. 2022. http://orchidswa.com.au/caladenia/cowslip-and-fairy-orchids/caladenia-flava/ (accessed 22 Jan. 2022).

[3] In the Noongar language, the word *Noongar* means "a person of the south-west of Western Australia," or the name for the "original inhabitants of the south-west of Western Australia." The Nyoongar are one of the largest Aboriginal cultural groups in Australia. There is no evidence that there has been any other group than Nyoongar in the Southwest region of Western Australia. Archaeological evidence establishes that Nyoongar people have lived in the area and had possession of tracts of land on the country for at least 45,000 years. Nyoongar is also

spelled *Noongar*, *Noong-ah* and *Nyungar*, as illustrated by other references. For more information on Nyoongar culture, see https://www.noongar.org.au/.

[4] *Dreamtime* refers to the time of creation in the mythology of Australian Aboriginal people. See, for instance, https://www.merriam-webster.com/dictionary/dreamtime.

[5] *Kaleep* also means camping grounds. See, https://www.noongarculture.org.au/glossary/noongar-word-list/.

[6] *Palaeolithic* refers to the early part of the Stone Age, often associated with Neanderthal humans, an early form of humankind, living between 40,000 and 100,000 years ago. See, for example, "History World International," http://history-world.org/stone_age.htm.

[7] *Nyoongar boodja* describes the country covering the entire south-western portion of Western Australia.