



Listening to the seasons

by Allan Wills

The concept of seasons and how they are defined in western culture includes indicators such as air temperature, rainfall or soil dryness. For Noongar Aboriginal peoples, it is a more nuanced and a more lived experience, noticing instead the movement and behaviours of animals or the reproduction of plants. These sensed phenomena play a key part in the seasonality of cultural burning practices.



Several concepts of season have been used or proposed in south-western Australia, and these connect differently to fire seasonality, cultural history, biological features and climate patterns.

European colonisers of Australia brought with them the concept of four seasons linked to the Gregorian calendar. These seasons continue to be a broad descriptive framework used by the Australian Bureau of Meteorology, with spring falling in September to November; summer in December to February; autumn in March to May; winter in June to August.

In south-western Australia the Noongar Aboriginal peoples retain a complex concept of seasons with a six-season calendar recognising climate, resources, and biological phenomena as seasonal cues.

THE CONCEPT OF BOODJAR

Central to the Noongar six season calendar is a representation of boodjar; a concept that does not translate easily to English as it is an encompassing concept of location as a lived experience including landscape and place as astronomical, climatic, biological, and geographical phenomenon and custodianship through cultural beliefs, lore and knowledge.

It can be interpreted that, above all, boodjar is the phenomena of place as a lived experience relayed in stories, songs and dance that connect across time.

Conceptually, the seasons are experienced cyclically as part of boodjar in a multitude of sensations.

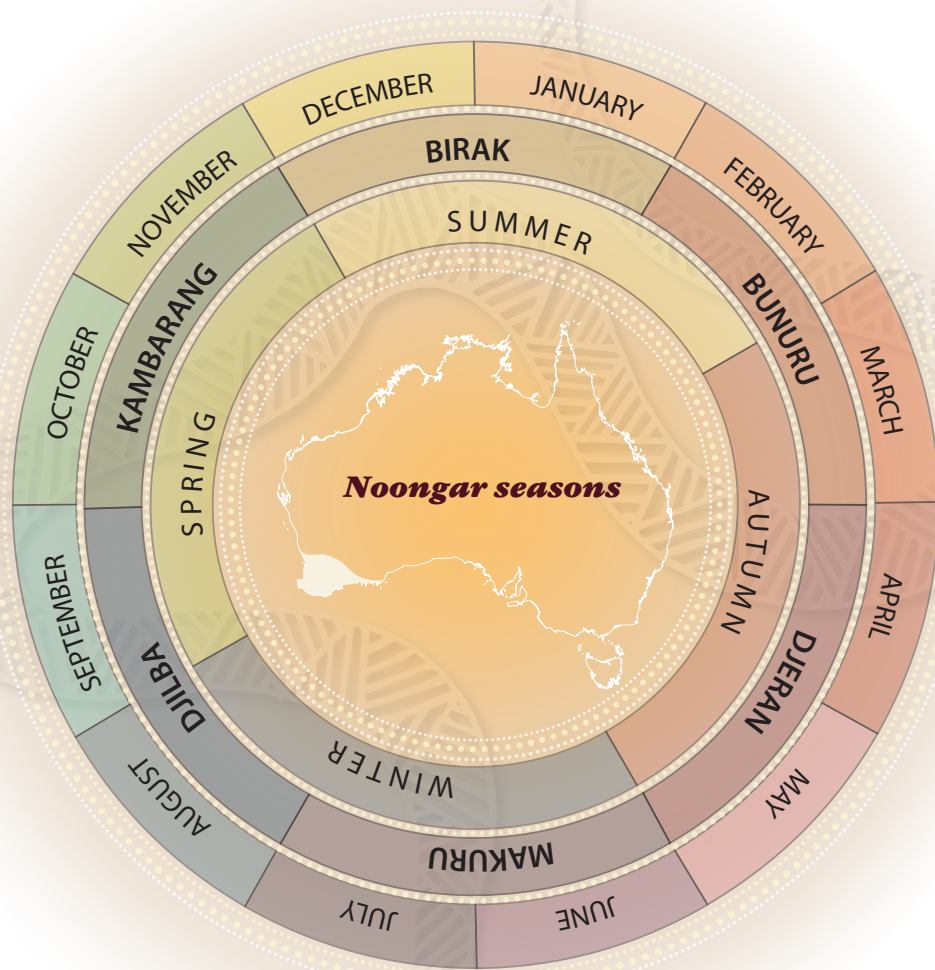
“The six seasons are made palpable through the presencing of different natural things... registered by sight, touch, taste, smell, and sound,” John Charles Ryan wrote in his paper *Toward a*



phen(omen)ology of the seasons: The emergence of the Indigenous Weather Knowledge Project in 2013.

SEASONAL INDICATORS

Seasonal phenomena are recognised by many Australian Aboriginal cultures; for example, there are plant species that reliably flower in line with discrete Noongar seasons. Not altogether



Previous page

Main Fire has shaped Australian landscapes over thousands of years.

Photo – DBCA

Right Throughout Australia, Aboriginal peoples used fire for many reasons.

Artwork – Joseph Lycett 1817/National Library of Australia

Inset left to right Reptiles shed their old skin during birak. *Photo – Tourism WA*; Huge cones emerge from the female zamia (*Macrozamia riedlei*) during bunuru. *Photo – Jean and Fred Hort*; djeran is a time of red flowers, especially the red flowering gum (*Corymbia ficifolia*).

Photo – Mark Brundrett; Makuru brings water flowing to rivers and waterways. *Photo – Andy Milner/DBCA*; Koolbardi or magpie (*Gymnorhina tibicen*) swoop to protect their nests during djilba. *Photo – Simon Cherriman*; Flowers of the moojar, or Australian Christmas tree (*Nuytsia floribunda*), signal heat is on its way during kambarang. *Photo – Tourism WA*

Above Bunuru is a time of lots of white flowering gums (*Eucalyptus* sp.) in full bloom. *Photo – Mark Brundrett*

Left Noongar seasons with map indicating traditional lands of Noongar peoples.



surprising given the richness and diverse origins of the flora of south-western Australia.

Using phenomena as a basis for assigning time to the Noongar seasons means that the timing of each season is flexible, and that allocation of Gregorian months to the seasonal calendar can only be approximate as the timing of phenomena is variable from year to year.

A way to describe this from a wadjela (white person) perspective is that measurable events, such as flowering plants and temperature, trigger sensed occurrences, and these sensed occurrences collectively mark the transition of the Noongar seasons.

As an illustration, a limited set of phenomena, expressed in terms of western standards, might encompass monthly rainfall, monthly maximum and minimum temperature with preceding maximum temperature, day length and soil dryness index (SDI).

Variations in temperature, rainfall and SDI affect and reflect where the water is in the landscape, impacting the movement and migration of animals and the reproductive processes of plants.

The movement and behaviours of animals and the reproduction of plants contribute to the presence of a Noongar season. Of course, humans have a presence in the landscape too—cultural practices, the use of fire, hunting of animals, and the harvesting of plants feed back to the reproduction of plants and animals.

Traditional burning

The sketch below by Charles-Alexandre Lesueur of Wardandi Noongar people in the coastal lagoon country of Geographe Bay dating from 1824 allows a glimpse into the traditional Aboriginal way of life.

We can see Wardandi men on the right driving swans towards an ambush hunter concealed in the sedges on the left. A Wardandi woman (bending figure) is perhaps tending a fish trap, though this is not clear. On the left bank of the lagoon is a woodland with an open understorey.

On the distant dune on the right bank is a much lower and more open woodland. The right middle ground has discrete patches of sedges interspersed with open ground. The centre of the image is dominated by the mia mia (shelters) with sparse small trees and sparse shrubs. The fire history is evident from the limited skirts on the balga and their flower spikes indicating that there was a fire in this landscape about one year prior.

The openness of the vegetation, the very open woodland on the right, implies a reasonably frequent burning of the landscape at low risk to the inhabitants. In overview, where the water was in the landscape determined when and where food (in this case aggregations of maali (swans)), natural resources, people and cultural activities were in the landscape, and hence when and where fire was, and to some extent the flammability and predictability of fire behaviour in the landscape.



“Central to the Noongar six season calendar is a representation of boodjar.... boodjar is the phenomenon of place as a lived experience relayed in stories, songs and dance that connect across time.”

Modern-day human influences on climate globally also affect climate and weather as it is experienced on boodjar.

SEASONALITY AND FIRE

Burning regimes across millennia have been determined by the cultural practices of the first human inhabitants of south-western Australia, and the frequency of lightning ignitions.

The use of fire by Noongar peoples was highly seasonal according to records from pre- and early colonial times. However, there are limitations to pre-colonial and early colonial accounts such as very little detail on

the cultural subtleties of Aboriginal burning.

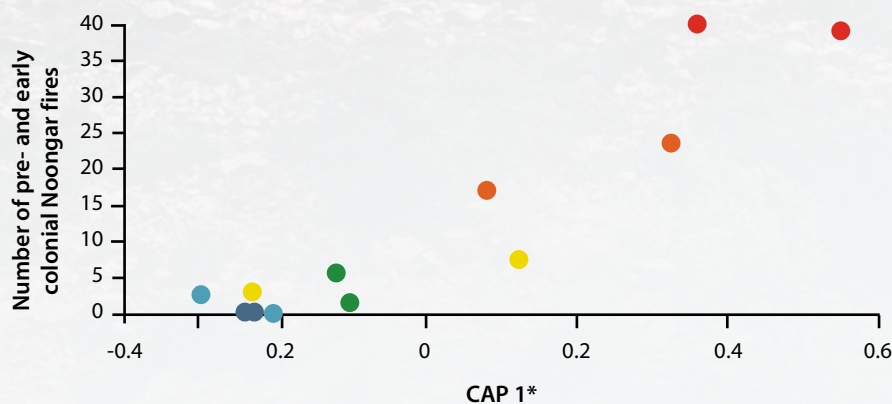
Early colonists recorded that Noongar peoples carried firebrands in all seasons and so are likely to have set fires in all seasons. Another possible limitation of

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Above left Snow on the peaks of the Stirling Range can be seen during makuru.
Photo – Ann Storrie

Above Nouvelle-Hollande: Terre de Leuwin.
Artwork – Charles-Alexandre Lesueur 1824/ State Art Collection, Art Gallery of Western Australia



Pre- and early colonial Noongar fires



Key to graph

- Birak
- Bunuru
- Djeran
- Makuru
- Djilba
- Kamarang

*CAP correlating climatic variables via the CAP1 axis with number of pre and early colonial Noongar fires (Data of Abbott 2003).

pre- and early colonial observations is that fires of different purposes had different visibility, as well as the differences in visibility of fires across the seasons.

Use of fire was likely to be partitioned according to gender, leading to differences in locations burned and types of fire techniques. Fires observed in pre-colonial and early colonial records are known from the Noongar season djilba (equivalent to August and September, or early to mid-spring in the southern hemisphere) and greatest during the season birak (equivalent to December and January, or mid to late summer in the southern hemisphere).

However, consideration of only the timing of fire misses cultural considerations of both the purpose and location of fires in the landscape, and the motivations for the timing of fire.

THE FLAMMABILITY PARADOX

If the Noongar peoples burned the land at times when conditions were hot and dry, and the landscape was most flammable, why was the result not large, uncontrollable fires?

We can hypothesise that the answer lies in fuel availability and discontinuity—burning of relatively young and light fuels to larger mosaic of fuel ages, and the locations that were burned at particular times.

It is understood that Noongar peoples moved about the landscape according to the availability of food and water, and for cultural considerations. Particular parts of the landscape would have been burned for purposes such as flushing vertebrate game by men, or promoting productivity of vegetation, food and materials by both men and women.

Above far left Lightning over the Swan River. Photo – Peter Nicholas

Above left Baby frogs complete their transformation into adulthood during birak. Photo – Jari Cornelis

Left A prescribed burn helped to clear vegetation in order to identify and protect cultural assets. Photo – Murujuga Aboriginal Corporation



The mosaic could have been created by a combination of fires from burning practises of Noongar peoples and by inevitable lightning ignitions. Indeed, that such a mosaic is possible has been demonstrated in modern times by Department of Biodiversity, Conservation and Attractions fire managers using aerial ignition to introduce fire into London forest block near Walpole at intervals of one to three years between 2002 and 2011. The outcome was a fine grain mosaic of discontinuous patches of different fuel ages with different abilities to carry fire.

WATER, FOOD AND CERTAINTY

It is believed that Noongar seasons are cued by adaptive responses and, in turn, cue human adaptive responses. Knowledge of what the animals, plants and spirits are doing within the Noongar seasons, and their place within boodjar, allows an understanding of conditions for, and outcomes of, cultural burning. The scale of cultural burning is much finer compared with the variability of modern burning.

Different phenomena are timed according to ecological relationships with several factors, including but not limited to the availability of water.

The cycle of water availability through the landscape has consequences for landscape flammability, the timing of recurring biological events like flowering plants and animal reproduction, and human behaviour, and the Noongar calendar is dynamic and responsive to that cycle.

The areas of landscape available to Noongar peoples varied seasonally with the presence of drinking water, as well as water available to culturally important plant species, and Noongar peoples moved through the landscape accordingly.

Thus, Noongar burning of the landscape hinged on the moisture cycle in (at least) three ways—its effect on where people were in the landscape, why they were there, and which parts of the landscape were deliberately burnt; its effect on fuel flammability and fire characteristics; and its effect on plants and animals as they affected food and resources.

Noongar peoples understood the complex relationships between fire, water, and biological productivity—as is implicit in the six season Noongar calendar.

Top left Swans become flightless during djiilba, using their flight feathers to build nests.
Photo – Rick Dawson/DBCA

Above far left Freshwater food and seafood made up major parts of the Noongar peoples diet during bunuru.
Photo – Matt Kleczkowski

Above left Foods during djeran included zamia seeds which were treated before eating.
Photo – Jean and Fred Hort

Above Aboriginal personnel involved in contemporary burning practices.
Photo – DBCA

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