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Kimberley Rock Art



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Introduction

This chapter summarizes the current state of rock art research in the Kimberley, Western Australia, which is a globally significant corpus of tens of thousands of rock art, archaeological, ethnographic, and contemporary sites. We present a history of rock art research in the region, discuss linguistic and cultural diversity, across the Kimberley, and outline the development of rock art stylistic sequences and spatial analysis. A new generation of scientific dating of the art and associated excavations is also harmonized. Aboriginal ontologies and recorded ethnography associated with the rock art are highlighted. We also present land tenure land management under native title and affiliated ranger groups as heritage management challenges and opportunities.

Definition

The Kimberley is a biogeographical and cultural landscape covering 423,517 km² of northwest Australia. The landscape is marked by massive

waterways and river systems, which once continued onto the now-submerged Sahul Shelf, meaning the Kimberley was almost twice its current size during the Last Glacial Maximum 26–19 thousand years ago. This large geographical area has been continuously occupied by people for over 50,000 years by multiple cultural and linguistic groups (Wood et al. 2016; Veth et al. 2019). The Kimberley is part of the non-Pama-Nyungan language bloc. These ancient and distinctive languages cover the Kimberley, Arnhem Land, a small area of the Gulf of Carpentaria and Cape York, and Tasmania (McConvell 1996). There are four major language groups across the Kimberley with between two and nine dialects (AIATSIS 2019):

1. Worrorran: Worara, Wunambal, Gamberre, Miwa, Kwini, Ngarinyin, and Worla
2. Jarragan: Yijji, Kija, Kadjerrong, and Miriwoong
3. Bunaban: Bunaba, and Gooniyandi
4. Nyul Nyulan: Bardi, Yawaru, Jabirr, Nimanburu, Warwa, Nyikina, Ungumi, Umida, and Unggarangi

All Kimberley rock art was made by people ancestral to these groups. Kimberley rock art and iconography are well-known, particularly Gwion Gwion (formerly “Bradshaw”) and Wanjina (also “Wandjina”) “styles” or “traditions” that were produced and maintained by Aboriginal people. It is thus both creation and subsequent



Kimberley Rock Art, Fig. 1 Namarali Wandjina: 1930 repainting (left: Love (1930), in Layton (1992)) and 2000 Olympic Games use (right: BBC Mundo, bbc.co.uk); with inset map showing the Kimberley's location

maintenance that are key to understanding this rock art. For example, Layton's (1992) synthesis opens with Love's image of the Wandjina Namarali (1930), which was repainted between January and March 1929 by Indamoia and Wallamurra and was later reproduced for use by Donny Woolagoodja in the 2000 Sydney Olympic Games Opening Ceremony (Fig. 1).

Throughout this entry, we use Wandjina and Gwion Gwion rock art traditions as leitmotifs that help us better understand the Kimberley's many other forms of rock art.

Historical Background

The Kimberley was never an isolated human landscape, with considerable trade, movement, and contact with the outside world for at least the last few hundred years. Prior to European invasion/colonization, Macassans from Island South East Asia visited the region to harvest *bêche-de mer* (trepanng or sea cucumber) along the Kimberley coast for "at least two hundred years" (1803

encounter recorded: Crawford 2001:70, 3) and likely much longer. Crawford (2001) recorded 16 Macassan sites along the Kimberley coast and excavated a selection of these in the 1960s with Aboriginal Traditional Owners. New Macassan sites have just been identified and excavated in 2019 on Sir Graham Moore Island, north of Kalumburu (Paterson, personal communication)

European incursions that document rock art include George Grey in 1837–1838, Alexander Forrest in 1879, and Joseph Bradshaw in 1891. These travelers' inability to reconcile "complex" rock art with people they thought of as "primitive" generated an enduring and mendacious myth of non-Aboriginal authorship of the rock art. For example, Grey writes: "It is certain that they may have been very ancient, ... but, whatever may have been the age of these paintings, it is scarcely probable that they could have been executed by a self-taught savage. Their origin therefore I think must still be open to conjecture" (1841: 263). Later, Bradshaw continues this trope by stating "Indeed, looking at some of the groups [of Gwion paintings], one might almost

think himself viewing the painted walls of an ancient Egyptian temple” (1892: 100). This pathology of British colonialism is entirely without factual basis and has been successfully challenged by both Aboriginal and non-Aboriginal scholars (e.g., Mangolomara et al. 2019; McNiven 2011).

This “dissociative archaeology” (McNiven 2011) occurred in tandem with dispossession of land for pastoralism from the 1880s as a result of Forrest’s expedition. Aboriginal resistance and remoteness combined to make pastoralism largely unviable until the mid-twentieth century (Crawford 2001). Christian missions across the Kimberley, at Kunmunya, Munja, and Wotjalum in the West, and Kalumburu and Pago in the East (Crawford 2001) brought further disruption. However, Europeans also recorded valuable ethnography, including the creation and repainting of rock art from at least 1929 until today (cf. Layton 1992; Love 1930).

Key Issues and Current Debates

We identify four key issues in Kimberley rock art:

1. Time – Relative sequencing and association, as well as direct dating of rock art traditions
2. Space – Spatial distribution of rock art traditions and their relationship to current linguistic and cultural territories
3. Meaning – using both Aboriginal ontologies and archaeological/anthropological research
4. Heritage – management of rock art and related heritage now and into the future

Time: Relative Sequencing and Association

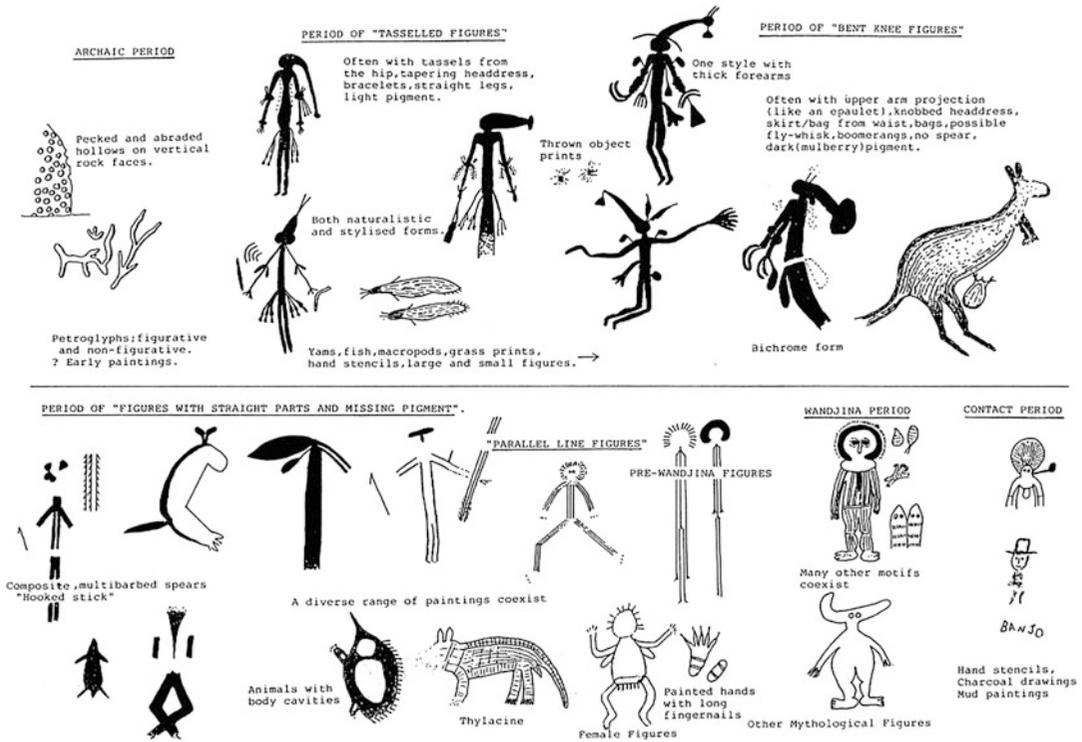
While Aboriginal people know rock art to be produced at both many and all times, “western” science prefers discrete dates and ranges. It has been proposed that Kimberley rock art dates to the Pleistocene, even as far back as initial colonization ~50,000 years ago (Veth et al. 2019). But in the absence of direct dating of rock art for most of the twentieth century, researchers relied on superimpositioning, the construction of “stylistic sequences” and associating painted motifs with

those found in excavations or known ethnographically. We explore these before presenting current and new direct dating evidence.

Two key stylistic chronologies were published almost simultaneously by David Welch (1993) and Grahame Walsh (1994). Welch classified and sequenced by technique, namely, cupules, engravings (petroglyphs), and paintings (pictographs), and by iconographic detail, such as, anthropomorphic body position (i.e., bent knee or straight parts) and attributes (e.g., tassels, material culture), without applying consistent variables between his five “periods” (Archaic, Tasseled, Bent Knee, Straight Parts, Wandjina, Contact: Fig. 2). Walsh’s (1994) chronology included three Epochs (Archaic, Erudite, and Aborigine), each with two Periods, namely, “Pecked Cupule”; “Irregular Infill Animal Period”; “Bradshaw (Agnes Schulz of the 1938–1939 Frobenius Expedition first labeled Gwion Gwion as ‘Bradshaws’ in reference to Joseph Bradshaw publication on the same (1956: 45))”; “Clothes Peg”; “Clawed Hand”; and “Wanjina,” some of which has further group subdivisions, each with subdivisions (Fig. 3).

Walsh’s (1994) tripartite temporal led him to hypothesize discontinuity between Epochs, which at that point matched apparent site abandonments recorded archaeologically (e.g., O’Connor et al. 1999) – but which recent micromorphological research has challenged, suggesting continuous human occupation of the Kimberley (Travers and Ross 2016) albeit with fluctuating intensity. He linked the two most recent Periods – Clawed Hand and Wanjina – with living Aboriginal culture, but separate from the earlier “Erudite” styles.

In 1999, Walsh and Mike Morwood co-published the known occupation sequences from stratified rock-shelter excavations across the Kimberley – covering the last 42,000 years. This data was combined with observed changes in the art sequence, particularly the superimposition of spears, spear-throwers, and other armatures. For example, early “Tassel Bradshaw” (Gwion Gwion) has short spears depicted with an acute barb at one end, and multiple barbs at the other, with no spear-throwers depicted. In the later “Clothes Peg” (Static Polychrome) tradition, new types of spears are depicted, and spear-



Kimberley Rock Art, Fig. 2 Welch (1993) stylistic sequence

throwers are present. This builds on Lewis's (1988) key research across Arnhem Land and the Kimberley on style and material culture, confirming that there are patterned changes in technology across identified styles. At about the same time, excavation-centric research in the southern Kimberley produced the oldest known age for pigment applied to rock in the form of a hematite-covered limestone slab excavated at Carpenters Gap. This slab was found in layers dating to 42,700 BP (O'Connor and Fankhauser 2001).

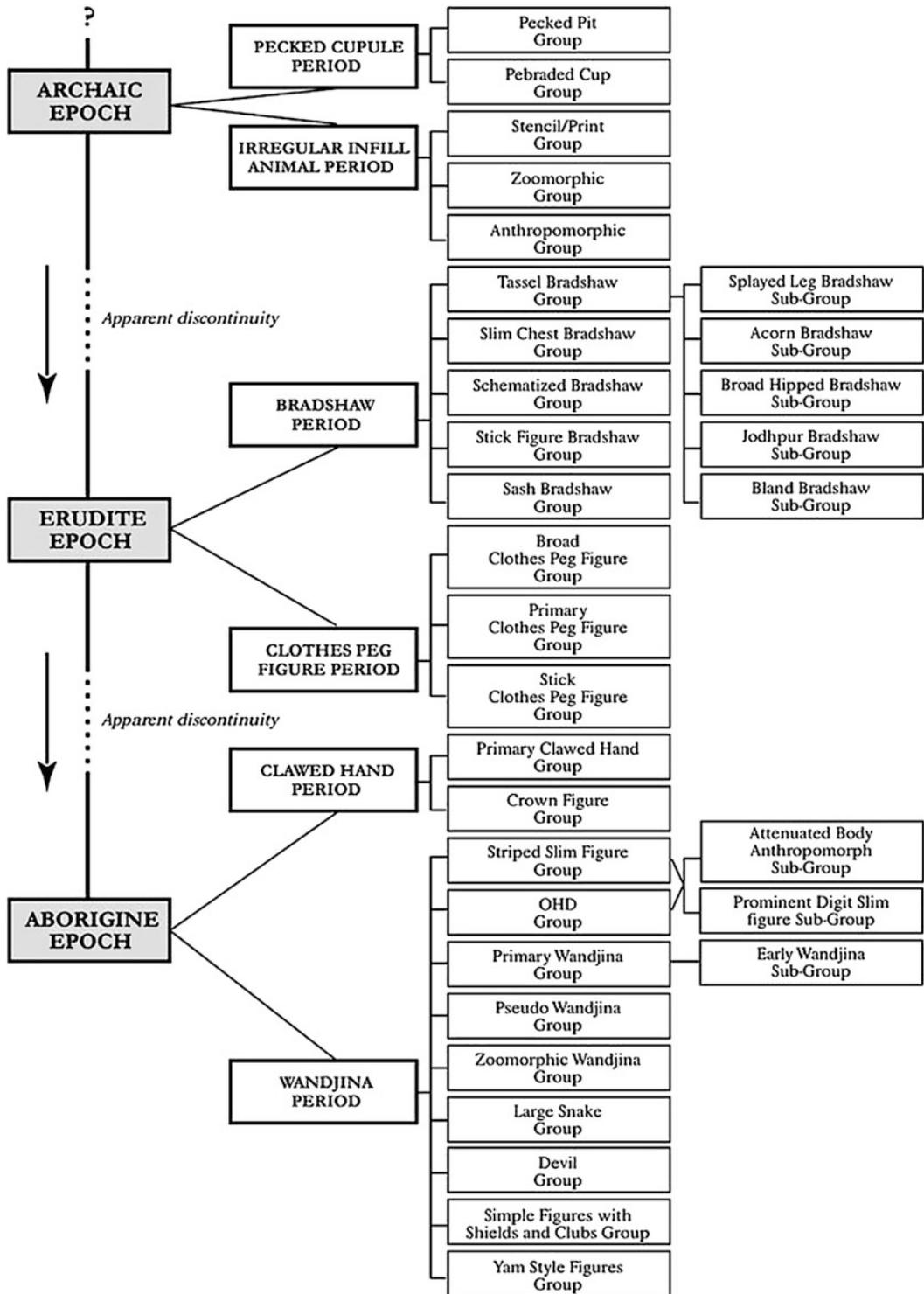
Time: Scientific Dating

Fortunately, while direct dates are technically challenging due to paucity of dateable material within most pigments, (with the exception of charcoal used in, e.g., Wanjina eyes, as well as rare beeswax art (Morwood et al. 2010)), technology has advanced. Over two dozen published, direct dates are now available with dozens more soon to be published (Table 1). At least seven different techniques have been used to date material above

or below painted motifs to determine maximum and minimum ages. These include conventional and AMS radiocarbon as well as OSL dating of mud-dauber wasp nests and AMS radiocarbon dating of beeswax. Uranium-thorium dating of mineral crusts and geomicrobiology are also being trialed, while cosmogenic dating of rock slabs is looking more broadly at when rock-shelters formed.

Table 1 provides a summary of dated Kimberley rock art from published sources. Wanjina and Gwion Gwion traditions have, once again, enjoyed particular attention with the former dated to between 5100 ± 240 BP and the present and the latter controversially dated to older than $17,500 \pm 1800$ (Roberts et al. 1997; Table 1; see Aubert 2012). Ross et al.'s (2016) multi-year research in the Northwest Kimberley used multiple dating techniques, with successful OSL and AMS radiocarbon on fossilized mud wasp nests, returning dates from the terminal Pleistocene into the Holocene. This program questioned the sequential, as opposed to overlapping, nature of

KIMBERLEY ROCK SEQUENCE



Kimberley Rock Art, Fig. 3 Walsh (1994) stylistic sequence

Kimberley Rock Art, Table 1 Published Kimberley rock art dates

Style	Date (CalBP)	Method	Sample	Material	Description	Reference
Gwion Gwion	17,500 ± 1800	OSL	KERC5	Quartz grain	Adjacent to Gwion motif (KERC4)	Roberts et al. (1997)
Gwion Gwion	16,400 ± 1800	OSL	KERC4	Quartz grain	Directly over Gwion motif	Roberts et al. (1997)
Wanjina	5100 ± 240	OSL	LM-13	Quartz grain	Macropod	Ross et al. (2016)
Gwion Gwion	3880 ± 110	AMS	CB3	Mineral crust	“Cane Bradshaw”	Watchman et al. (1997)
Wanjina	3780 ± 60	AMS	OZC434	Beeswax	12 × 10 cm Wanjina head	Watchman et al. (1997)
Gwion Gwion (Mambi)	3280 ± 190	OSL	UP1A	Quartz grain	Cage shape over Gwion Gwion	Ross et al. (2016)
IIAP	3140 ± 350	AMS	CB3	Mineral crust	Zoomorph	Watchman et al. (1997)
Wanjina	1630 ± 110	OSL	CA-7	Quartz grain	Argula	Ross et al. (2016)
Unknown	1600 ± 100	OSL	CA-8	Quartz grain	Yam-like shape	Ross et al. (2016)
Gwion	1490 ± 50; 1490 ± 290; 1430 ± 180	Radiocarbon	KF1	Mineral crust	Tassel; minimum; minimum; maximum dates	Watchman et al. (1997)
Wanjina	1440 ± 120	Radiocarbon	OZC107	Beeswax	Stick figure below repainted Wanjina head	Watchman et al. (1997)
Wanjina	1420 ± 240	OSL	BRY-6	Quartz grain	Fish	Ross et al. (2016)
Warrarrajai (Static Polychrome) Gwion	1290 ± 30	AMS	LROIC-3	Charcoal	Anthropomorph	Ross et al. (2016)
Warrarrajai (Static Polychrome) Gwion	1285 ± 30	AMS	LROIC-2	Charcoal	Anthropomorph	Ross et al. (2016)
Wanjina	1240 ± 80	Radiocarbon	OZC118	Shell	Ochre stained baler shell from Wanjina site	Watchman et al. (1997)
Wanjina Period Argula	1230 ± 35	AMS	LR03S-01	Charcoal	Anthropomorph	Ross et al. (2016)
Wanjina	1210 ± 140	Radiocarbon	OZD081	Charcoal	Eye of large Wanjina	Watchman et al. (1997)
Wanjina	1200 ± 90	Radiocarbon	OZC115	Charcoal	Tail of Wanjina-style flying fox under Wanjina head	Watchman et al. (1997)

(continued)

Kimberley Rock Art, Table 1 (continued)

Style	Date (CalBP)	Method	Sample	Material	Description	Reference
Wanjina	1170 ± 60	Radiocarbon	OZC111	Beeswax	Argula under a “sea” Wanjina and rock cod	Watchman et al. (1997)
Wanjina	1160 ± 40	Radiocarbon	OZD076	Beeswax	Anthropomorph under Wanjina and macropod	Watchman et al. (1997)
Warrarrajai (Static Polychrome) Gwion	930 ± 50	OSL	JS-10	Quartz grain	Anthropomorph	Ross et al. (2016)
Wanjina	700 ± 40	OSL	BRY-3	Quartz grain	Anthropomorph	Ross et al. (2016)
Unknown	650 ± 120	OSL	JS-11	Quartz grain	Star-yam	Ross et al. (2016)
Wanjina	630 ± 125	Radiocarbon	OZC113	Beeswax	Anthropomorph under small Wanjina	Watchman et al. (1997)
Wanjina	610 ± 40	Radiocarbon	OZD075	Beeswax	90 x 138 line under Wanjina	Watchman et al. (1997)
Transitional	530 ± 80	OSL	CA-9	Quartz grain	Between Mambi (Gwion Gwion) and Warrarrajai (Static Polychrome)	Ross et al. (2016)
Wanjina	338 ± 15	AMS	Wk- 47,814	Charcoal	Top layer of charcoal Wanjina eye	David et al. 2019
Wanjina	300 ± 85	Radiocarbon	OZC549	Charcoal	Lowermost of 38 paint layers on Wungurr (Wanjina snake)	Watchman et al. (1997)
Wanjina	155 ± 30	AMS	BRY-3	Charcoal	Anthropomorph	Ross et al. (2016)
Wanjina	150 ± 10	OSL	DR2	Quartz grain	Red pigmented Wanjina (same figure for DR1 and DR6)	Roberts et al. (1997)
Wanjina	100 ± 10	OSL	DR1	Quartz grain	Red pigmented Wanjina (same figure for DR2 and DR6)	Roberts et al. (1997)
Wanjina	Modern	Radiocarbon	OZB020	Charcoal	Wanjina eye	Watchman et al. (1997)

styles in Kimberley rock art and highlighted the need for a larger dating program.

Current research is working to refine dates across all traditions, with upcoming publications for Gwion art, to understand the relationship of Gwion Gwion to the inferred older Irregular Infill Animal tradition. Recent presentations of primary data on AMS dates from bracketing mud wasp nests (Finch et al. 2019) suggest that at least some of the complex Gwion Gwion style art is of

terminal Pleistocene age (c. 14–12 ka). Understanding temporal contexts helps us to make spatial sense of Kimberley rock art traditions.

Space: Distribution of Rock Art Traditions and People

When these different rock art traditions are mapped onto the extant Kimberley landscape today, interesting trends emerge. Figure 4 shows the spatial distributions of three key traditions:

Gwion Gwion, Static Polychrome (Clothes Peg figure), and Wanjina. While there is significant overlap of all three traditions, Gwion Gwion motifs have the most restricted distribution – albeit with an eastern outlier in the Keep River region of the Northern Territory, where Static Polychrome figures are more dominant. Wanjinas have the most southern distribution and may connect to desert areas.

Veth et al. (2018) revised the temporal and spatial sequence, matching the six macro-styles (Pecked Cupule; Irregular Infill Animal, Gwion Gwion, Static Polychrome [Clothes Peg], Painted Hand, and Wanjina) with archaeological and environmental evidence across a 50,000 year chronology (Fig. 5). This work used 3750 rock art sites across the Kimberley – with the greatest concentration in the central and southwestern Kimberley as recorded by Walsh, and built upon by current research projects and housed in the Takarakka and *Kimberley Visions* project databases. This work also tracked the prevalence of plant motifs, often identifiable to species, across traditions (Veth et al. 2018). Plant motifs include grasses, trees, tubers, human-plant confections, and plant-based material culture such as digging sticks, dilly bags, hafted axes, spears, spear-throwers, and boomerangs. Plants are also represented directly via direct grass “prints.” This work establishes the likelihood that the Kimberley houses some of the oldest depictions of plants in the world, with examples from both IIAP and Gwion traditions, which are thought to be Pleistocene in age, and continuing also into the most recent art traditions. This work moves us away from static understanding of past Aboriginal people as “hunter-gatherers” or “foragers” and explores human manipulation of plant resources over millennia in a complex people-plant relationship described as “eco-scaping” (Ouzman et al. 2017).

Interestingly, at both the center and on the edges of the Kimberley, a number of traditions have been identified that do not fit within existing style sequences. In addition, the southeastern Forrest River art styles (Kaberry 1936) share similarities to Keep River region and other desert fringe art styles. Indeed, the linkages of rock art traditions with other areas may occasion us to rethink

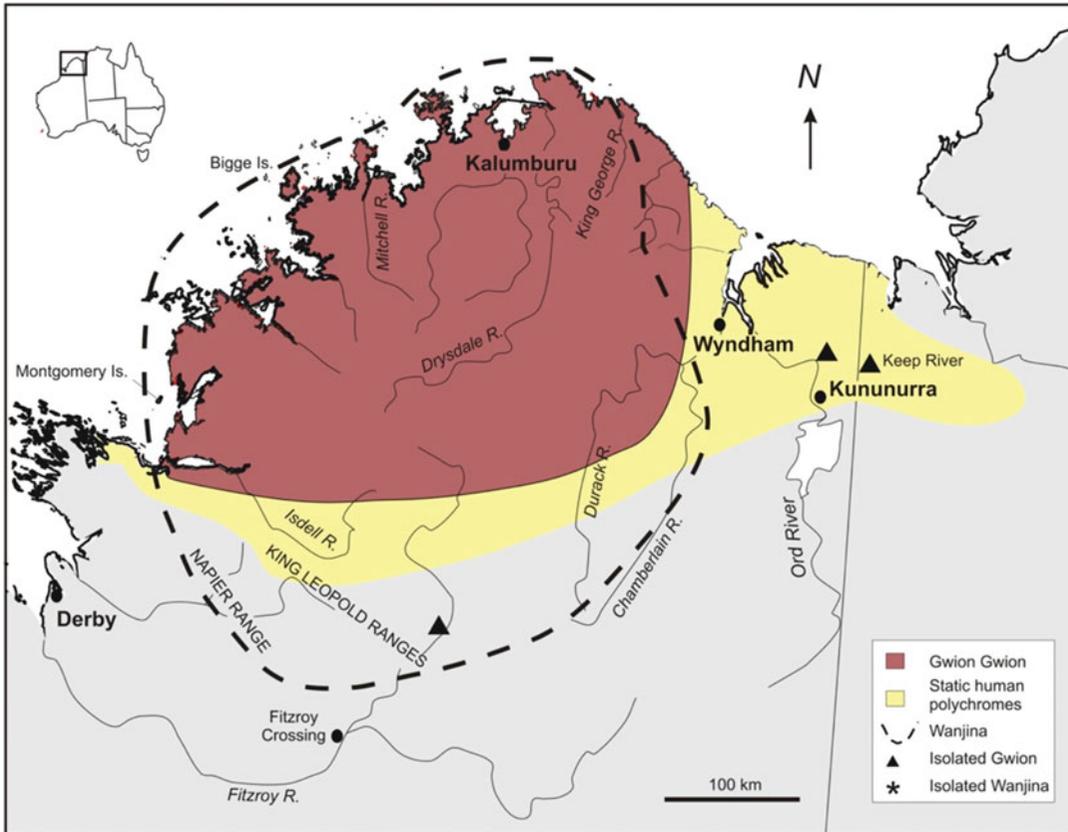
and redefine what we mean by the “Kimberley” – especially when realizing a great deal of what would have been human-occupied land is now underwater.

Here “contact” rock art provides instructive examples. While not as prolific as in Arnhem Land (May et al. 2010) or the Pilbara (Paterson and Wilson 2009), it includes “new” imagery such as boats (European and Macassan), cars, camels, horses, and European clothes (O’Connor and Arrow 2008; O’Connor et al. 2013; Ross and Travers 2013). There are also new production techniques for “old” imagery, such as scratching and use of charcoal to produce anthropomorphs with elaborate headdresses (O’Connor et al. 2013). Interpretation of contact art has focused on identification and antiquity of boats (Akerman 2015; Ross and Travers 2013) and the creation of art as an act of resistance during the contact period, mostly since the 1820s (O’Connor et al. 2013). However, not all boat imagery was created during the contact period (Akerman 2015; Ross and Travers 2013; Walsh 1994), as there are a series of canoes painted in Gwion Gwion scenes, suggesting great antiquity. This broad temporal and spatial sweep allows us to better understand possible meanings for these rock art traditions.

Meaning: Aboriginal Ontologies and Archaeological Research

This expanded understanding of the Kimberley, and utilization of multiple data sets – rock art, archaeology, ethnography, and paleoenvironment – productively disproves and displaces early interpretations of Kimberley rock art by outsiders as simplistic or even non-Aboriginal in origin. Indeed, a key development in Kimberley rock art research in the later twentieth century is the increasing coexistence of Aboriginal ontologies alongside archaeological research (Porr and Bell 2012).

For example, the Kimberley is in an instructive position with regard to the Wanjina – a broad cultural practice embodied in a rock art that is at least 5000 years old and which continues today (Akerman 2016). The late David Mowaljarlai characterized Wanjina thus:



Kimberley Rock Art, Fig. 4 Key Kimberley rock art traditions' distributions. (Modified from Walsh 1994)

To us they are IMAGES. IMAGES with ENERGIES that keep us ALIVE. Those IMAGES were put down for us by our Creator, Wandin. So that would make us learn the story, to put new life into those IMAGES (1988: 690; see also Elkin 1930; Shulz 1956).

Wanjina cosmology is exceptionally rich: it weaves art, ochre, rain, and regeneration into a complex and integrated worldview. Wanjina country is traditionally within the Worora, Wunambal, and Ngarinyin language group, divided into patrilineal clan estates which were each responsible for Wanjina sites and their maintenance (Akerman 2016). Wanjinas are known as individuals named and associated with specific sites, events, and heroic actions. Wanjina is closely linked with Ungud, the serpent, but their relationship varies from the west to the east Kimberley. Recent excavation of Borologa rock-shelter on the Drysdale River in the northeastern

Kimberley has revealed three Wanjina painting episodes over the last 2000 years, as evidenced through recovered ochre fragments and paint drops recorded in situ during meticulous excavation (David et al. 2019). This research highlights that stylistic and spatial variation through time is yet fully to be understood.

Such successive painting episodes intensify into the practice of retouching Wanjina images, which was recorded by Love, Elkin, and Crawford. Godden noted that on seeing a faded Wanjina at the site Wumbadengari, the senior Aboriginal men Mowaljarlai and Jagamurro would return to paint the site, once “*they had received proper permission from the old men and women*” (1982: 24). More controversially, David Mowaljarlai was involved in a government-funded repainting program in 1986 (Layton 1992; Mowaljarlai et al. 1988; Mowaljarlai and Peck 1987; Utemorrhah and

ROCK ART STYLE DISTRIBUTION	MAJOR IDENTIFYING ROCK ART ELEMENTS
<p>1. PECKED CUPULE</p>	<p>Sites have pebraded cupules, abraded grooves and in 25% of instances grinding hollows in association. Surface modification may indicate vegetable/animal and ochre processing. Positive print pigment grass seed stems and heads may be in association.</p>
<p>2. IRREGULAR INFILL ANIMAL</p>	<p>25% of sites depict yams and a variety of other flora with leaf, flower and root details. Grass imprints are depicted in 38% of sites containing plant motifs. Less common are prints of string and feathers. Aquatic species dominate, mostly fish and long-necked tortoise. This style also includes birds, echidnas, snakes flying possums, flying foxes, possums, and macropods. Extinct species present. Anthropomorphs are rare and include Mythological beings.</p>
<p>3. GWION</p>	<p>2% of sites have plant motifs. Highly decorated human figures are dominant. Early 'tassel' figures hold sticks, dillybags, palms and fern leaves. Figure style changes to 'sash', long plumes, pompom, feathers. Later figures hold multi-barbed spears, macropod hunting scenes and therianthropes are depicted. Stylised figures lose leg detail with some decorated with plant-like motifs.</p>
<p>4. STATIC POLYCHROME</p>	<p>4% of sites have plant motifs, painted with very fine lines and most are botanicals. Human figures also dominate. Figures are polychrome with missing pigment. Headdress styles are very diverse with added features such as tussocks and tassels. Multi-barbed spears, spear throwers and conflict scenes are evident. Macropods most common fauna. Large watercraft are depicted.</p>
<p>5. PAINTED HAND</p>	<p>18% of sites have plant motifs, mainly yams, scenes of yams and people and anthropomorphised plants. Diverse range of paintings encompassed in this period. Early figures are painted with broad strokes and develop into decorative compartment body detail. Anthropomorphs depict gender, ritual practices and social aggregation. Macropods, crocodiles, lizards, birds, turtles, and echidnas are common. Motifs include concentric circles and decorated hands with distinct nails.</p>
<p>6. WANJINA</p>	<p>19% of sites have plant motifs. Early plant motifs are naturalistic while later art is more stylised and symbolic. Fruit is depicted as groupings of circles. Figures are (named) ancestral beings, controllers of the elements. When Wanjina art is repainted and cared for it brings rain and the regeneration of food and a range of other life processes. Dingo paintings enter the art, and the Thylacine is no longer depicted. Yam and animal themes replace older figurative art with the later re-appearance of argula 'devil' figures and ritual practice.</p>

Kimberley Rock Art, Fig. 5 Revised stylistic chronology and plant motif distribution (Veth et al. 2018)

Vinnicombe 1992). Debate arose around this particular repainting program, an official complaint submitted by a non-Aboriginal pastoralist and labeled “defacement” by the Australian media (Bowdler 1988). These criticisms perpetuated a static view of Aboriginal culture, promoted rock art as a pristine relic, and removed agency of Aboriginal people and ownership of their living culture.

In the east Kimberley around Forrest River, a different kind of repainting was recorded by Kaberry (1938), with repainting on crocodile motifs recorded as an increase ritual for that animal. Additionally, Kaberry records women artists on this side of the Kimberley but highlights potential rich work in researching gendered aspects of rock art.

It is important also to understand “rock art” as not being restricted to a rock-shelter but transferring across media. For example, Wanjina is also associated with standing stones, which are understood to be transmogrified Wanjina called *djilgaiya* by the late Sam Woolagoodja (Layton 1992). Such transmogrification relates closely to Wanjina as living entities with close parallels to human life and form. Here, Adolphus Elkin’s early but oft-overlooked research in the 1930s identified features in Wanjina art such as the headbands, hair, hair belts, and associated features such as lightning or cockatoo feathers (Fig. 6).

Material Culture and Dance

This focus on the human body and close relationship between rock art, the people and agents who made it, and performativity is continued further back in time with Gwion Gwion paintings. David Welch’s intriguing observation that Gwion Gwion material culture and accouterments – despite their likely Pleistocene age – are strikingly similar visually to ethnographically recorded Kimberley material culture (2015: 219) merits further examination, for example, ethnographic photographs of Kimberley men dancing with *ngadari* head-dresses and carrying spear-throwers and bunches of leaves and feathers remarkably similar to those shown in the rock art (Fig. 7). But rather than relying on direct ethnographic analogy as an analytical approach to explain the connection

between these headdresses, accouterments, and the rock art, this deep time rock art repetition of motifs sees longer-term persistent behaviors of social reproduction. These persistent themes through varying traditions likely reflect long-term connections to country, cohesive group identities, and the cultural transmission of clan and linguistic affiliations. These social relations were dynamic as sea levels rose, climate fluctuated, and environmental landscapes shifted (Veth et al. [in press](#)).

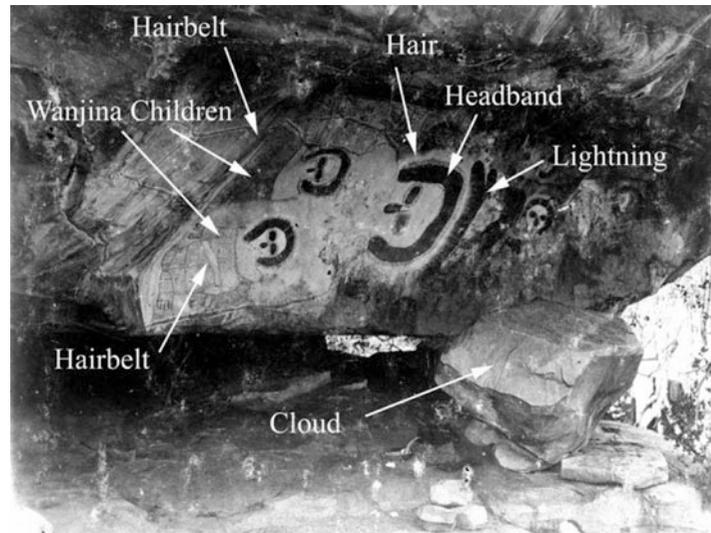
Heritage: Managing Heritage and Change

We have used both ancient and modern Kimberley rock art to illustrate the rock art’s enormous temporal, spatial, and ontological scope. But simply understanding this art is not enough – it has to be actively managed and made known to the world. Following successful native title determinations since 1992, the Kimberley is today dominantly Aboriginal owned with over 84% of it and managed through large Indigenous Protected Areas (IPAs), Aboriginal Corporations, and affiliated Aboriginal ranger programs (Fig. 8). There are 70 full-time rangers in 13 ranger groups (Balanggarra, Bardi Jawi and Bardi Jawi Oorany, Dambimangari, Gooniyandi, Kara Jarri, Kija, Ngurrara, Yimardoo Warra [Nyikina Mangala], Nyul, Paruku, Unguu, and Wunggurr rangers. There are also non-Aboriginal pastoral and tourism leases and government land. While the history of dispossession, relocation of people, the missions, and the current variety of tenures have all had an impact on Aboriginal access to traditional lands and cultural sites, there is an active program of reconnection to country in which rock art plays a key but as yet not fully realized role.

International Perspectives

The Kimberley presents one of the world’s largest multi-style rock art bodies that stretches back at least 40,000 years and which remains connected to modern Aboriginal people today. This rock art coexists with rich archaeological, ethnographic, and paleoenvironmental data that has only been scientifically explored over the last few decades,

Kimberley Rock Art,
Fig. 6 Wanjina at
 Beleguldo (Modum) (Elkin
 1930)



Kimberley Rock Art,
Fig. 7 Kimberley men
 dancing with *ngadari*
 headdresses (Welch 2016)



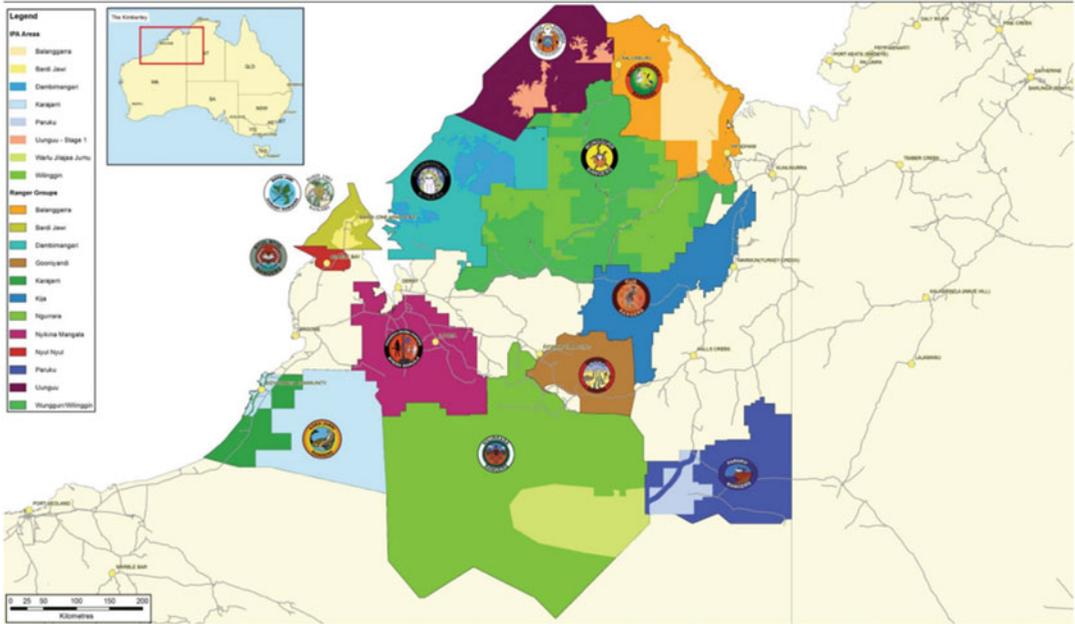
promising new and ongoing research findings that will inform us of rock art's role in managing social and environmental change.

Future Directions

Future directions for Kimberley rock art research include the continued direct dating of rock art across traditions and regions. More work needs

to be done contextualizing rock art and other symbolic markings and structures with subsurface archaeology. Especially exciting are nascent indications of how people and rock art connected across northern Australia and into Southeast Asia, which we now describe.

Rock art was most likely a key element in the colonizing repertoire of the First Australians, providing us with detail on the type and timing of their move into what was then the Sahul landmass.



Kimberley Rock Art, Fig. 8 Kimberley Ranger Network (KLC 2017)

The visual and contextual similarities between Kimberley rock art and that recorded and dated in Borneo, Sulawesi, Timor, and New Ireland, between 50 and 42 kya, provide evidence of people overcoming sea barriers with purposeful voyaging, having mixed terrestrial and marine economies and possibly sharing symbolic systems. Aubert et al. (2014) reported a 40,000 year old babirusa (deer-pig) rock painting from Sulawesi, which has stylistic similarities to the Irregular Infill Animal tradition of the Kimberley, including a thick outline, naturalistic representation of the faunal features, and irregular economic use of pigment infill. The same research team have presented the Datu Saman figures from Borneo (Aubert et al. 2018), dated to older than 13.6 years ago, and these anthropomorphs share some similarities to Kimberley Gwion Gwion as well as Arnhem Land’s dynamic figures in being dark red, fine-line, dynamic, with elaborate head-dresses and holding material culture. There is also a shift from naturalistic animal to human figures and material culture, as is also seen across northern Australia. These stylistic similarities suggest permeability across a potential trans-Wallacean culture bloc around 50,000 years ago,

probably reflecting the region as a “hot spot” for island and continental dispersal. These shared styles suggest long-distance transmissions, between maritime and tropic-adapted peoples, and that at least some of these transmissions continue well after continental colonization on either side of the Last Glacial Maximum (Veth et al. [in press](#)) More fine-grained research, currently being developed, across northern Australia and Wallacea will further develop this model for (inter)tropical adaptations and cultures with their own strong “imprints” on country.

Moving to northern Australia per se, Darrell Lewis (1988) first suggested that the now submerged Bonaparte catchment culturally connected the Kimberley and Arnhem Land. He recognized that at the height of the Last Glacial Maximum (~19,000 years ago), the Pleistocene coastline would have been hundreds of kilometers north of its current iteration. Additionally, Gwion Gwion and Elegant Action figure traditions of the Kimberley show marked stylistic and material culture correspondences with Arnhem Land’s dynamic tradition rock art, which is also thought to be Pleistocene (May et al. 2018). These similarities suggest an older, more unified cultural

bloc that used rock art to signal a common identity, which then evolved over time into more specific place-based adaptations and signalings.

Conclusion

Kimberley rock art is best understood using multiple analytical lenses to account for the enormous variation in time, space, and cultural range. Kimberley rock art research provides an ideal model for twenty-first century science in that it is empirically rigorous, enmeshed in paleoclimatic and paleoenvironmental frameworks, and socially responsive, working with Aboriginal custodians and two-way learning. Research directions are negotiated within this milieu, along with multiple ontologies, needs, ethics, and aspirations.

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