



THIRD CIRCULAR



**PERTH,
WESTERN AUSTRALIA**

1 June, 2023



PALAEO
DOWN UNDER | **3**
10-14 JULY 2023

THIRD CIRCULAR

Organised by Australasian Palaeontologists (AAP).

Organising Committee

Kenny Travouillon (Western Australian Museum); AAP Chair

John Gorter; AAP Vice Chair

Daniel Mantle (MG Palaeo); AAP Treasurer

Helen Ryan (Western Australian Museum); AAP Secretary

Sarah Martin (Geological Survey of Western Australia); AAP Publications Officer

Elizabeth Dowding (Friedrich-Alexander-Universität Erlangen-Nürnberg); AAP Webmaster

Kailah Thorn (Western Australian Museum)

with past contribution from Heidi Allen (Geological Survey of Western Australia)

Scientific committee

Sarah Martin (Geological Survey of Western Australia)

Kate Trinajstić (Curtin University)

Elizabeth Dowding (Friedrich-Alexander-Universität Erlangen-Nürnberg)

David Flannery (Queensland University of Technology)

Alison Blyth (Curtin University)

Scott Hocknull (Queensland Museum)

Sponsors

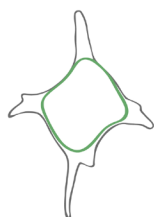
Platinum

**BUSINESS
EVENTS
PERTH**

Gold



Bronze



MGPALAEO
geological and
stratigraphical consultants



Sponsorship opportunities still available: contact the organising committee for more information.

General conference information

The Organising Committee has the pleasure of inviting you to Perth, Western Australia, for *Palaeo Down Under 3 (PDU3)* in July 2023.

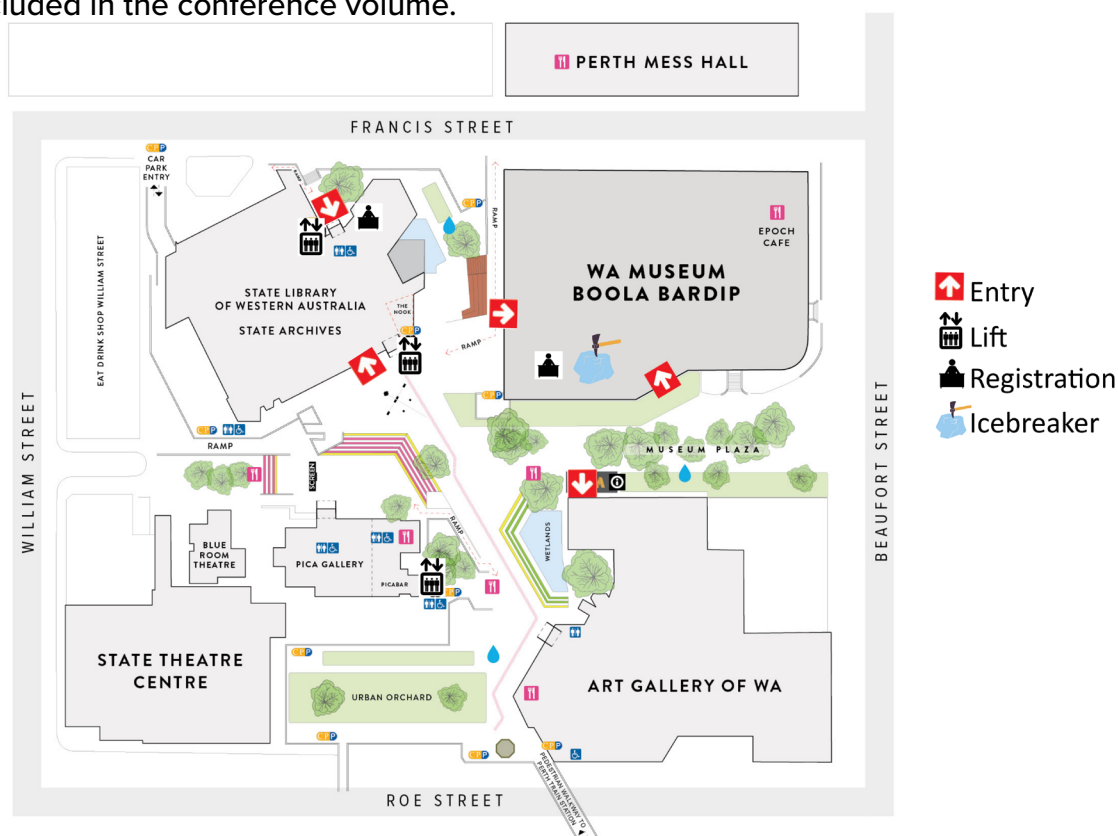
Palaeo Down Under is the Australasian Palaeontologists' main conference, and aims to highlight palaeontological research, education and outreach throughout Australasia. This is the third conference, following the inaugural conference in Orange, New South Wales, in 2000, and PDU2 held in Adelaide in 2016. Each conference spotlights the palaeontology of the host state, with PDU1's central theme of Paleozoic correlations of the New England region, and PDU2 focused on Ediacaran/Cambrian palaeontology. Early life and microbialites are a key theme for the Perth conference, although the full program will cover palaeontological research across Australia, New Zealand and neighbouring countries.

Venue

Located within the heart of Perth city, the Cultural Centre is a vibrant, inclusive and attractive draw card for Perth residents and visitors alike. The precinct is made up of the Art Gallery of Western Australia, Western Australian Museum Boola Bardip, State Library of Western Australia, The Blue Room, PICA (Perth Institute of Contemporary Arts), the State Theatre Centre of Western Australia, and North Metropolitan TAFE. Situated between the Perth city train station and Northbridge's retail, food and beverage and entertainment precinct, the Cultural Centre is a dynamic and lively public space with easy access and free WiFi.

The conference will be based within three main venues within the Perth Cultural Centre (see map below): **The State Library of WA, WA Museum Boola Bardip** and the **Art Gallery of WA**

Note that delegates will be responsible for their own lunches on conference days, and ample time will be provided for this. Information on accessible and affordable eating options close to the venues will be included in the conference volume.



Timetable and activities

Saturday 1 July to Sunday 9 July 2023

Pre-conference field trip

Precambrian palaeontology highlights package. Organisers: David Flannery (QUT), Heidi Allen (GSWA) and David Martin (GSWA).

Sunday 9 July 2023

Icebreaker reception: 5–8 pm, Hackett Hall, Western Australian Museum Boola Bardip

This is an ideal opportunity to pick up your registration packs and meet fellow participants, all while enjoying canapes and wines within this stunning historic building and under the blue whale skeleton. Arrive at 4.50 pm for a 5 pm start.

This event is included as part of the conference registration fee.

Monday 10 July 2023

	State Library theatre	WA Museum Learning Studios
09:00	Registration (State Library theatre foyer)	
09:10	Welcome to country and Opening address	
	Symposium: Arthropod Palaeobiology and Evolution	
09:30	John Paterson: The early Cambrian Emu Bay Shale radiodonts revisited	
09:50	James Holmes: Morphological disparity dynamics of the initial Cambrian trilobite radiation	
10:10	Patrick Smith: Early Ordovician trilobites from Barnicarndy 1 stratigraphic well of the southern Canning Basin, Western Australia	
10:30	Morning tea (State Library theatre foyer)	
	Symposium: Arthropod Palaeobiology and Evolution (cont.)	
11:00	Maria Paulsen: Advances in Australian amber palaeontology: middle Eocene bioinclusions from Anglesea, Victoria — reconstructing a subpolar terrestrial greenhouse ecosystem	
11:20	Michel Schmidt: <i>Pygmaclypeatus daziensis</i> reconsidered and the ancestral appendicular organisation of Cambrian artiopods	

THIRD CIRCULAR



PALAEO
DOWN UNDER
10-14 JULY 2023 | **3**

	State Library theatre		WA Museum Learning Studios	
11:40	Eleanor Beidatsch: Walking ‘worms’ in ancient armour: geometric morphometrics of the enigmatic Cambrian lobopodian <i>Microdictyon sinicum</i>			
12:00	Plenary: David Flannery, The search for ancient microbial life on Mars			
13:00	Lunch			
14:30	General sessions Yogmaya Shukla: Microbial mats and microbialites of the Indian Archean successions: characteristics and contrasts in global perspective		Workshop: R for Palaeontology	
14:50	Ashleigh Hood: The evolution of Precambrian reefs and marine conditions			
15:10	Nile Stephenson: Community development in the Avalonian Ediacaran			
15:30	Phillip Boan: That’s random: the metre-scale distributions of <i>Dickinsonia</i> from Nilpena Ediacara National Park			
15:50	Afternoon tea (State Library theatre foyer)			
16:20	General sessions Rachel Surprenant: Mind the gap: leveraging biostratinomic variability to refine the records of Ediacaran tubular organisms and morphologically convergent structures		Workshop: R for Palaeontology (cont.)	
16:40	Zongjun Yin: Germ-soma differentiation and reproduction of early Cambrian acritarch <i>Concavaesphaera ornata</i> n. gen. n. sp.			
17:00	Zhiliang Zhang: Did Bryozoa miss the Cambrian explosion?			
17:20	End Monday			

Tuesday 11 July 2023

State Library theatre		WA Museum Learning Studios
General sessions		
09:10	John Long: New discoveries of exceptionally well-preserved fishes from the Upper Devonian Gogo Formation of Western Australia	
09:30	Ryan Nel: Placoderm diversity in the high palaeolatitude Waterloo Farm Lagerstätte	



	State Library theatre	WA Museum Learning Studios
09:50	Lachlan Hart: New discoveries in Australian temnospondyl palaeontology	
10:10	Benjamin Kear: Global radiation history of the first oceanic tetrapods: dissecting evidence from Australia and the Scandinavian Arctic	
10:30	Morning Tea (State Library theatre foyer)	
11:00	Symposium: The digital revolution in Palaeontology Jacob Pears: Utilising tomography of extant basal chondrichthyans to determine the evolution and homology of fins	
11:20	Corinne Mensforth: Newly described anatomy of a Devonian stem-tetrapod fish illuminated by neutron tomography	
11:40	Elizabeth Dowding: The Integrated Record of Ancient Life: palaeo-databasing for a Big Data future	
12:00	Plenary: Kate Trinajstić, Exceptional preservation of organs and musculature in early vertebrates from the Gogo Formation Konservat-Lagerstätte	
13:00	Lunch	13:30 Collection managers meetup
14:30	Symposium: The digital revolution in Palaeontology (cont.) Katie Delahooke: Quantification of MISS textures to untangle the relationship between matground and macrofossils of the Avalonian Ediacaran	
14:50	Tory Botha: Shaping up: morphology of <i>Tribrachidium</i> from Nilpena, South Australia	
15:10	Heidi Allen: Western Australian fossils in another dimension!	
15:30	Stephen Poropat: Up the guts: an Australian sauropod preserving skin and probable gut contents	
15:50	Afternoon tea (State Library theatre foyer)	
16:20	Symposium: The digital revolution in Palaeontology (cont.) Roy Farman: Early Eocene tree frog from the Tingamarra Local Fauna, Murgon, with new approaches to identify Australian anurans	Workshop: GPlates tutorial

THIRD CIRCULAR



PALAEO
DOWN UNDER
10-14 JULY 2023 | **3**

	State Library theatre	WA Museum Learning Studios
16:40	Ammresh: Using geometric morphometrics to identify interspecific differences in snake and varanid fossils	Workshop: GPlates tutorial
17:00	Kailah Thorn: Squamate wars episode one: the phantom specimens in the fossil mammal collection of the Field Museum	
17:20	End Tuesday	

Wednesday 12 July 2023

	State Library theatre
	Symposium: Mid-Proterozoic macroscopic life
09:10	Heidi Allen: Exploring the origins of complex life: documenting the first occurrence of the 'string of beads' from the North Australian Craton
09:30	David Martin: Make <i>Horodyskia williamsii</i> great again!
09:50	Peter McGoldrick: Mid-Proterozoic macrofossils: a bit PISS or MISS — why give a TOS?
10:10	John Gorter: Were jellyfish stranded on a shoreline sand ca 850 million years ago in the Amadeus Basin of central Australia?
10:30	Donna Satterthwait: From small things: eukaryotic diversity in the mid-Proterozoic
10:50	Comfort break
11:00	Plenary: Pam Reid, All microbialites are not created equal: lessons from the Bahamas and Shark Bay, Western Australia
13:00	Lunch
	Mid-conference museum visit: WA Museum Boola Bardip
13:30	Tour Introduction
13:50	Travel to gallery 1
14:00	Visit gallery 1
14:50	Travel to gallery 2
15:00	Visit gallery 2
15:50	Travel to gallery 3
16:00	Visit gallery 3
16:50	Exit gallery and gift shop
17:00	End Wednesday
TBA	ECR social event; venue TBA

Thursday 13 July 2023

	State Library theatre	Art Gallery Theatrette
	General sessions	Symposium: Telling Ediacaran and Paleozoic time
09:10	Adele Pentland: A new ornithocheirid pterosaur from the Toolebuc Formation (middle–upper uppermost Albian) of northeast Australia	Glenn Brock (Birksmith <i>et al.</i>): Chronostratigraphy of the Cambrian Series 2 – Miaolingian boundary, western Stansbury Basin, South Australia
09:30	Nicolas Campione (Frauenfelder <i>et al.</i>): Tooth breadth evolution within Sauropodomorpha and implications for taxonomic identification of isolated teeth	Stephanie Richter Stretton: Carbonate microfacies, depositional environments and biostratigraphy of the lower Cambrian Second Plain Creek Member, Wilkawillina Limestone, central Flinders Ranges, South Australia
09:50	Stephen Poropat: A nearly complete skull of the sauropod dinosaur <i>Diamantinasaurus matildae</i> from the Upper Cretaceous Winton Formation of Australia: implications for the early evolution of titanosaurs	Peter Haines: Ediacaran biota of the Mopunga Group, western Georgina Basin, central Australia
10:10	Jake Kotevski: A megaraptoran (Dinosauria: Theropoda) frontal from the upper Strzelecki Group (Early Cretaceous) of Victoria, Australia	Jack Castle-Jones: Integrating biostratigraphy and chemostratigraphy with new U–Pb ID-TIMS dates from subsurface lower Cambrian rocks in the western Stansbury Basin, South Australia
10:30	Morning Tea (State Library theatre foyer)	
	General sessions	Symposium: Telling Ediacaran and Paleozoic time (cont.)
11:00	Joshua White: Tooth shape in Mesozoic marine reptiles	John Laurie: The quest for an Australian Cambrian stage scale
11:20	Lucy Leahey: New insights into the postcranial anatomy of Gondwana's most complete ankylosaurian: <i>Kunbarrasaurus ieveresi</i> , from the Lower Cretaceous (Albian – (?)lower Cenomanian) of Queensland, Australia	Marissa Betts: The shellies will tell all: multi-proxy stratigraphy and correlation of the Thornton Limestone (Cambrian Stage 4 – Wuliuan) southeastern Georgina Basin
11:40	Christina Nielsen-Smith: Evidence of a new megaraptorid theropod from the Upper Cretaceous (Cenomanian–Turonian) portion of the Winton Formation of Opalton, central west Queensland, Australia	Patrick Smith: Trilobites and agnostids from the Ordian–Templetonian (Cambrian Series 2, Stage 4 – Miaolingian, Wuliuan) Coonigan Formation, far western New South Wales
12:00	Plenary: Steve Salisbury, The changing face of Australia's dinosaurian fauna: reflections on the past and glimpses into the future	
13:00	Lunch	

THIRD CIRCULAR



PALAEO
DOWN UNDER | **3**
10-14 JULY 2023

	State Library theatre	Art Gallery Theatrette
	General sessions	General sessions
14:30	Gemma Wise: Novel sauropod tracks from the Lower Cretaceous (Valanginian–Barremian) Broome Sandstone of the greater Broome area, Dampier Peninsula, Western Australia	Alyssa Fjeld: Micro-ornamentation, ultrastructure, and homology among early Cambrian tommotiids
14:50	Brooke Holland: Preservation, erosion, and the utility of ichnotaxa: geometric morphometrics of theropod dinosaur tracks (<i>Megalosauropus broomensis</i>) from the Lower Cretaceous Broome Sandstone, Western Australia	Yeongju Oh: Periostracum in Cambrian helcionelloid and rostroconch molluscs: comparison to modern examples
15:10	George Young: A redescription of <i>Prognathodon waiparaensis</i> and reassessment of its phylogenetic position	Lars Holmer: Silicified pedunculate kutorginates from the early mid-Cambrian (Wuliuan) of Jordan, and their evolutionary significance
15:30	Sophie Kelly: A fossil seabird avifauna from the Pliocene of Taranaki, New Zealand	Feiyang Chen: Brachiopod-supported benthic communities from the Guanshan Biota (Cambrian Stage 4), eastern Yunnan
15:50	Afternoon tea (State Library theatre foyer)	
	General sessions	General sessions
16:20	Miriam Slodownik: <i>Komlopteris</i> : a persistent lineage of corystosperms ('seed ferns') spanning the Early Jurassic to the Eocene of Gondwana	Nigel Gray: Enigmatic fossil observations in the southern Sydney Basin
16:40	Daniel Mantle: New insights into Permian–Triassic palynology of the Bonaparte Basin, northern Australia, with comparisons to Timor-Leste	Alexey Ippolitov: The relation between Cretaceous belemnite families Belemnitellidae and Dimitobelidae: new insights from specimens kept in the Australian Museum
17:00	Chris Mays: A south polar refuge for land ecosystems during the end-Permian hyperthermal event (Tasmania Basin, Australia)	Alexey Ippolitov: The nature and phylogenetic affinity of the enigmatic Indian belemnoid <i>Belospirula</i> : the riddle resolved
17:20	Travel from Cultural Centre to Kings Park	
18:00	PDU3 Conference dinner, Frasers Restaurant	
22:00	Travel from Kings Park to Cultural Centre	
22:30	End Thursday (?)	

Friday 14 July 2023

	State Library theatre	Art Gallery Theatrette
	General sessions	Symposium: Molecular palaeontology and taphonomy
09:10	Natalie Schroeder: Treasures from the crypt – Geoscience Australia's untapped fossil resources	Christina Woltz: Environmental controls on the preservation of Precambrian organic-walled microfossils



	State Library theatre	Art Gallery Theatrette
09:30	Leigh Love: A journey into the Paleocene Waipara Greensand, Canterbury region, New Zealand	Alex Holman: Molecular palaeontology of the Lower Devonian Rhynie Chert
09:50	Ben Robertson: The geochronology, palaeoenvironments and palaeontology of Robertson Cave Inner Chamber, Naracoorte	Madison Tripp: Significance of biomarkers and biomolecules in exceptionally preserved coprolites and ferns in Carboniferous siderite concretions
10:10	Ruairidh Duncan: Tiny leviathans of the Pacific Rim: insights into the morphology of immature archaic toothed baleen whales	Amy Elson: A molecular dissection of an exceptionally preserved fish: soft-tissue preservation in the world's most productive lacustrine lagerstätte
10:30	Morning Tea (State Library theatre foyer)	
	General sessions	General sessions
11:00	Larisa DeSantis: The Plio–Pleistocene is a clear departure from the present: ecological shifts evidenced from fauna at the Darling Downs, Queensland, Australia	Mahala Fergusen: Raiders of the lost art: revealing the lost patterns of molluscan fossil shells with UV light
11:20	Vikram Vakil: Late Quaternary cave fossils of small-bodied vertebrates from the Broken River region, northeastern Queensland	Helen Ryan: A new fossil species of <i>Bothriembryon</i> (Gastropoda: Bothriembryontidae) from the Nullarbor of Western Australia
11:40	Jake Newman-Martin: Taxonomic review of the genus <i>Dasyercus</i> (Dasyuromorphia: Dasyuridae) using modern and subfossil material, and the description of three new species	Sherri Donaldson: Billabong beauties — using freshwater mollusc fauna to reconstruct the palaeoecology of the Griman Creek Formation (Cenomanian), Lightning Ridge, Australia
12:00	Plenary: Matt McCurry, Palaeoecology and taphonomy of the McGraths Flat Lagerstätte	
13:00	Lunch	
	General sessions	General sessions
14:20	Christine Janis: Locomotion of the 'giant wallaby' <i>Protemnodon</i> : insights from humeral morphology and limb proportions	Elizabeth Weldon (He et al.): An end-Permian extinction pattern in the deep-water Dongpan Section related to expansion of an Oxygen Minimum Zone, South China
14:40	Kenny Travouillon: Mass-death assemblage of Pleistocene megafauna (<i>Diprotodon optatum</i> : Marsupialia) at Du Boulay Creek, Western Australia	Robert Willink: The <i>Jimbacrinus bostocki</i> obrution lagerstätten in the lower Permian Cundlego Formation near Gascoyne Junction, Western Australia
15:00	Jonathan Cramb: Fossil rodents from Queensland: the story so far	Catherine Reid: Permian Bryozoa of southern Gondwana — thriving in a cold climate
15:20	Afternoon tea (State Library theatre foyer)	
15:40	PDU3 AWARD CEREMONY & AAP AGM	
17:00		Public talk (Boola Bardip, L3, East Terrace): Mike Archer, Thegosis aka tooth sharpening
18:00	End Friday	

THIRD CIRCULAR



Monday 17 July to 20 July 2023

Post-conference field trip

Kalbarri and Geraldton. Organisers: Helen Ryan (WAM) and Arthur Mory (GSWA)

Plenary speakers

The five plenary lectures will be held at lunchtime on each conference day; i.e. Monday 10 July to Friday 14 July inclusive. Attendance at plenary lectures will be offered to the general public for a nominal fee of **\$15** per session. Registration is **now open** via the links provided below.

Monday 10 July

Dr David Flannery, Queensland University of Technology

The search for ancient microbial life on Mars

David is a planetary scientist with an interest in ancient habitable environments of the inner solar system and the technology needed to explore them. Formerly based at Caltech and NASA JPL where he developed science instrumentation for space missions, he now lives in Brisbane, Australia, where he is a long-term planner for NASA's Perseverance Rover mission.

<https://events.humanitix.com/plenary-david-flannery-the-search-for-ancient-microbial-life-on-mars>

Tuesday 11 July

Prof. Kate Trinajstic, Curtin University

Exceptional preservation of organs and musculature in early vertebrates from the Gogo Formation Konservat-Lagerstätte

John Curtin Distinguished Professor Kate Trinajstic has been working as a palaeontologist in Western Australia for the last 23 years having graduated with a PhD from UWA, where she continued as a post-doctoral fellow until moving to Curtin University in 2009 as a Curtin Research Fellow. She was awarded the Malcolm McIntosh Prize for Physical Scientist (2010) one of the prestigious Prime Minister's Prizes for Science for her work using synchrotron and micro CT to investigate and interpret soft tissues preserved in fossil fish. In 2011 she was awarded a QEII Fellowships from the ARC to continue work on soft tissue preservation within the Gogo fishes. With colleagues she discovered fossil embryos and presented the earliest evidence of live birth within jawed vertebrates and has led research on soft tissue anatomy of the Gogo fishes.

<https://events.humanitix.com/plenary-kate-trinajstic-exceptional-preservation-of-organs-and-musculature-is-early-vertebrates-from-the-gogo-formation-konservat-lagerstaette>

Wednesday 12 July

Prof. Pam Reid, University of Miami

All microbialites are not created equal: lessons from the Bahamas and Shark Bay, Western Australia

Pam is Professor of Marine Geosciences at the Rosenstiel School of Marine and Atmospheric Science, University of Miami. Specializing in sedimentological studies of modern carbonate environments, she has more than a hundred peer reviewed scientific publications. A focus of Pam's research for the past three decades has been modern microbial buildups in the Bahamas and Shark Bay, Western Australia. Working closely with microbial ecologists, molecular biologists, and geochemists, Pam has spearheaded extensive field campaigns and laboratory studies that have resulted in fundamental new insight into processes forming living analogs of Earth's oldest macrofossils.

<https://events.humanitix.com/plenary-pam-reid-all-microbialites-are-not-created-equal-lessons-from-the-bahamas-and-shark-bay-western-australia>

Thursday 13 July

Dr Steven Salisbury, The University of Queensland

The changing face of Australia's dinosaurian fauna: reflections on the past and glimpses into the future

Steve Salisbury is an Associate Professor in the School of Biological Sciences at The University of Queensland, where he is head of the UQ Dinosaur Lab and Chair of First Nations Engagement. He is also an Associate Editor for the Journal of Vertebrate Paleontology, and a Scientific Board member of the Jurassic Foundation, an international funding body dedicated to helping advance the careers of young scientists and researchers in underprivileged nations.

<https://events.humanitix.com/plenary-steve-salisbury-the-changing-face-of-australia-s-dinosaurian-fauna-reflections-on-the-past-and-glimpses-into-the-future>

Friday 14 July

Dr Matt McCurry, Australian Museum

Palaeoecology and taphonomy of the McGraths Flat Lagerstätte

Dr Matthew McCurry is a vertebrate palaeontologist employed at The Australian Museum and The University of New South Wales. His work has focused on understanding the ecology of extinct species using direct evidence from fossils as well as biomechanical analyses. In 2022 he led a paper documenting a new Miocene Lagerstätte named McGraths Flat. The site has yielded many interesting discoveries that will form the basis of his talk.

<https://events.humanitix.com/plenary-matthew-mccurry-palaeoecology-and-taphonomy-of-the-mcgraths-flat-lagerstaette>

Public talk

Friday 14 July, 5–6 pm, WA Museum Boola Bardip, Level 3, East Terrace (between the Wildlife and Connection galleries)

Prof. Mike Archer, University of New South Wales

Thegosis aka tooth sharpening

Join Prof. Mike Archer as he explains how and why most animals from sea urchins to guinea pigs, including we humans, use and importantly maintain through the process called thegosis, their teeth so that they can serve as lethal weapons as well as sharp food-processors. Also explained, the relationships between teeth, human aggression, beards, smiles, dog growls and many other complex but fascinating animal behaviours that are too often seriously misunderstood. It has also been suggested that understanding these things and how many other animals use their teeth to avoid unwanted conflicts might even help to reduce the likelihood of a World War III.

Note: entry to this talk is **not included** in the conference registration fee and must be booked separately at: <https://visit.museum.wa.gov.au/boolabardip/meet-museum>

Symposia

The PDU3 timetable will include five symposia, spread across the five days of the conference.

Arthropod palaeobiology and evolution

Chairs: Prof. John Paterson and Dr James Holmes (University of New England)

This session will cater to researchers investigating any aspect of arthropods and their fossil record. Presentations will cover a broad range of topics such as anatomy, functional morphology, development, systematics, taphonomy, palaeoecology, biogeography, and biostratigraphy.

THIRD CIRCULAR



The digital revolution in palaeontology

Chairs: Prof. Kate Trinajstić (Curtin University) and Dr Alice Clement (Flinders University)

Advances in computing, tomography and 3D printing have enabled a digital revolution in palaeontology. Databases are allowing palaeontology data to be applied to questions in evolutionary biology, biostratigraphic correlation and climate change. Virtual preparation creating three-dimensional digital models is becoming the norm in palaeontological research allowing various downstream analyses in the field of biomechanics, 3D geometric morphometrics, palaeohistology and more. These techniques have the advantage of being non-destructive and allow visualisation of internal structures, previously not possible. However, there are also challenges in curating, storing and sharing these data. This symposium will present research on all aspects of digital palaeontology including important insights into fossil anatomy, development, palaeobiology and the curation and access of digital data.

Mid-Proterozoic macroscopic life

Chairs: Peter McGoldrick (University of Tasmania) and Indrani Mukherjee (University of New South Wales)

The nature and significance of the earliest large eukaryotes are poorly understood. Undisputed crown group fossils date from *ca* 1 Ga, but several potential eukaryotic macrofossils are known from much older rocks (perhaps to *ca* 2.1 Ga). Australian examples include the Stirling biota in Western Australia and 'string of beads' (*Horodyskia* sp.) from Western Australia and Tasmania. Multidisciplinary approaches have the potential to shed new light on these contentious fossils. Simple descriptions can be complemented by modern microanalytical techniques that speak to biogenicity, and geochemical proxies can reveal the redox structure of the sedimentary environments in which the organisms lived and died. This session presents research concerning the origin, nature and (palaeo-)environmental setting of Proterozoic fossils, ichnofossils and (non-stromatolite) microbialites from the time between the end of the GOE and the first of the Neoproterozoic 'Snowball Earths'.

Molecular palaeontology and taphonomy

Chairs: Prof. Kliti Grice (Curtin University) and Dr Eva Sirantoine (Chemostrat Pty Ltd)

Exceptionally preserved fossils in deep time can uncover information on ancient environments and extinct species and evolution, and an understanding about the mechanisms/ processes involved in their preservation. Molecular palaeontology applies state of the art analytical techniques, not limited to but including biomarker analysis, stable isotopes, and imaging techniques, to reveal organic molecules archived in the fossil record.

Telling Ediacaran and Paleozoic time: chronostratigraphic correlation in Australasia and beyond

Chairs: Dr Marissa J Betts (University of New England) and Prof. Glenn Brock (Macquarie University)

There is a plethora of exciting and important research being done globally in the multidisciplinary area of chronostratigraphy and correlation of Ediacaran and Paleozoic successions in Australasia and beyond. The session will present studies employing classic approaches — e.g. biostratigraphy, stable isotope chemostratigraphy, zircon-based geochronology — and those integrating emerging techniques or developing novel methods, e.g. database-driven modelling or targeting unconventional mineral phases and/or isotopic systems for dating.

Conference dinner

The conference dinner will be held at Fraser's Restaurant (60 Fraser Ave, West Perth WA 6005) on **Thursday 13 July at 6 pm**. Located within iconic Kings Park and overlooking the Perth CBD and

Swan River, we encourage all delegates to join us for an evening to remember. Free transport will be provided for conference participants between Kings Park and the Perth Cultural Centre, both before and after the dinner.

Seats are still available via the conference registration page. A conference registration is not required to attend — partners and colleagues welcome!

Field excursions

Registrations for the field excursions are now closed. Detailed booking information and itineraries will be circulated to participants by the field trip organisers in due course. For any questions regarding these trips, please contact the relevant field trip leaders via the conference email address.

Mid-conference excursion

An optional free mid-conference excursion to Western Australia's Boola Bardip Museum, including free entry and guided talks in the galleries by subject specialists, is planned for the afternoon of **Wednesday 12 July**. More details will be provided in the conference volume.

Virtual field trips

Two virtual field trips will be available to participants during the conference.

Ediacaran biota. The best way to experience this tour is as a downloadable VR experience; however, for those without a headset, several pieces of content are [available online](#), including a 360 image gallery, [3D Ediacaran model viewer](#), and information on [3D prints](#) of the models now in use by tour guides throughout Brachina Gorge. We thank the Project LIVE team from the University of South Australia for making this experience available for PDU3.

Kalgoorlie Virtual Field Experience. This [virtual field trip](#) exploring the geology of the Kalgoorlie–Boulder region was developed by Curtin University as an accessible, online field experience. The tour is best explored using a smart phone or tablet, as navigation within the experience can be controlled by rotating the device in real space. We thank Curtin University's School of Earth and Planetary Science for providing access to this experience during PDU3.

Workshops

Workshop numbers are limited by room capacity (50 people) on a first come, first served basis.

R for Palaeontology: Monday 10 July, 2.30 pm onwards, WA Museum Learning Studios

Palaeontologists have increased access to large datasets and powerful statistical processes. R programming provides palaeontologists the opportunity to quickly sort, filter, organise, and analyse data. Within this workshop, attendees will be introduced to the foundations of R programming, be provided script to apply to their own research, and a pathway to develop their skills.

- **Instructor:** Elizabeth M. Dowding
- **Required:** own laptop, R and R Studio downloaded.
- **Level:** Introductory.

THIRD CIRCULAR



Picking your plate reconstruction: an introduction to GPlates: Tuesday 11 July, 4.20 – 5.20 pm, WA Museum Learning Studios

Plate-reconstructive models and palaeogeographies are powerful tools for palaeontologists to contextualise data. The mostly commonly used platform for plotting and manipulating fossil occurrences is GPlates. GPlates is open-source software that combines interactive plate-tectonic reconstructions, geographic information system functionality and raster data visualisation. In this workshop, the basics of plate model generation, best practice for palaeontologists, and how to select a reconstruction will be showcased.

- **Instructor:** Elizabeth M. Dowding
- **Required:** own laptop, GPlates downloaded.
- **Level:** Introductory.

Social events

Collection managers meet-up: Tuesday 11 July, 13.30 pm, WA Museum Learning Studios

Collection curators and technicians are invited to a casual round-table discussion about the challenges of managing physical collections. It is hoped that by establishing connections, curators can work collaboratively towards best-practice in storage, ethics and digitisation for collections large and small. Entry will be open to all. To register interest or suggest discussion topics, contact Sarah.Martin@dmirs.wa.gov.au.

Early Career casual meet-up: Wednesday 12 July, time and place TBA

Other conference information

Travel and accommodation

Perth is well connected by air with other Australian capital cities and locations around the world.

Delegates will need to make their own accommodation arrangements for the conference period. Accommodation to suit all budgets is readily available in the Perth central business district.

For international delegates, please ensure all required visas are obtained well in advance of travel. If a letter of registration / abstract acceptance is required to aid your travel arrangements, please contact the Organising Committee: palaeodownunder3@gmail.com

Registration

Palaeo Down Under 3 meets the criteria for the Memorandum of Understanding between the Geological Society of Australia (of which AAP is a specialist group) and the Geological Society of New Zealand (GSNZ), which came into effect on 1 December 2013. By this arrangement, both GSA and GSNZ members will be able to attend the conference at AAP member rates.

Registration is still open for both the conference and conference dinner: <https://events.humanitix.com/palaeodownunder-3-pdu3>

	Member	Non-member
Full	\$500	\$715
Student	\$400	\$444.95
Retired	\$450	\$610
Day rate	\$300	\$515
Conference dinner (full)	\$140	\$175
Conference dinner (student/retired)	\$115	\$150

Due to the low number of registrants, the conference no longer offers online-only access; those previously registered for online attendance will receive full refunds. The Organising Committee apologises for this inconvenience.

Presentation guidelines

Oral Presentations:

- Oral presentations should be no longer than 20 minutes, including questions
- Widescreen (16:9) slide dimensions
- Font size should be a minimum of 20 pt
- Avoid small, cluttered or overlapping graphics
- [Embed all fonts](#) in your presentation to prevent formatting issues

Poster Presentations:

- A0 size only
- Landscape or portrait orientation
- Font size should be at least 18 pt for paragraphs, 30 pt for headings and 72 pt for the title
- In-text citations should be presented as numbered superscripts, with references formatted in [Alcheringa style](#)

General guidelines:

Sans serif fonts are preferable for all text due to improved clarity, but please consider using a **dyslexic font** such as OpenDyslexic, a free and open source font designed to increase readability for individuals with dyslexia.

Ensure there is **sufficient contrast between text and background colors** in your slides and posters. Avoid using colour alone to convey important information. Consider individuals who may have colour blindness or difficulty perceiving certain color combinations.

Presenters are encouraged to use **inclusive language** and **consider diverse perspectives** in their presentations.

For additional guidelines on content accessibility, please see the dedicated page for presenters and authors on the [PDU3 website](#).

Call for papers: *Alcheringa* special conference volume

A conference volume will be arranged alongside conference abstracts and proceedings, to be published as a special issue of *Alcheringa*. The deadline for paper submission is **30 November**

THIRD CIRCULAR



2023, with an anticipated publication date of late 2024. All papers will be available via the 'Latest articles' portion of the *Alcheringa* website as soon as they are accepted, prior to volume finalisation.

Please submit all papers via the *Alcheringa* [website](#); when submitting, please indicate the manuscript's submission for the Special Issue (Thematic Issue) by writing 'PDU3 Proceedings' in the associated text box.

Documentary filming

A documentary filmmaker will be present during PDU3 working on the documentary 'Think of a Palaeontologist'. Information on the film and its topic can be found on the conference website: <https://www.australasianpalaeontologists.org/documentary>

Note that the documentary will be focused on the experiences of a single participant, not the conference as a whole. As a result, few if any non-documentary participants should be imaged in a way that allows them to be identified. All care will be taken by the filmmakers to obtain the permissions of any person captured in frame, and to exclude any person who does not want to be filmed. However, a means to be easily identified by the filmmakers will be made available at registration for those who do not want to be filmed. All efforts will be made by the filmmakers to reduce the impact of filming on the conference and associated events.

Please contact Dr Marissa Betts (marissa.betts@une.edu.au) or the conference organising committee (palaeodownunder3@gmail.com) if you have any questions.

Collections visits and access

Perth is home to three major palaeontology collections, housed at the Western Australian Museum, Geological Survey of Western Australia, and University of Western Australia. To arrange a visit, please contact the relevant collection manager prior to your arrival in Perth. Note that as the WAM and GSWA collection managers are on the PDU3 organising committee, access will be limited in the lead up to the conference.

Western Australian Museum

The Western Australian Museum's palaeontology collections are housed at the WA Museum Collections and Research Centre in Welshpool. When enquiring, please state whether you are applying for time to work in the collections, or if you are only interested in a tour of the site and holdings. Contact helen.ryan@museum.wa.gov.au; access to the WAM collection will not be possible from 8–23 July inclusive.

Geological Survey Of Western Australia

The Geological Survey of Western Australia's palaeontology collection is located in Carlisle and consists of macrofossils and slides from across the State, extending from the Archean to Recent. The collection has a biostratigraphic focus, with highlights including onshore palynology and microfossils, Devonian and Permian invertebrates, and microbialites of all ages. Contact Sarah.Martin@dmirs.wa.gov.au.

University of Western Australia

The Edward de Courcy Clarke Earth Science Museum collections are currently closed to visiting researchers while the University of Western Australia hires a replacement Curator. If you would like to organise a visit to the collection once it reopens, please contact the School of Earth Sciences at schoolops-eps@uwa.edu.au

PDU3 conference awards

For more information on all of the awards offered by Australasian Palaeontologists, see <https://www.australasianpalaeontologists.org/awards>.

Student Travel Award

Congratulations to the following winners of the AAP Student Travel Award. As COVID-19 prevented the granting of this award in 2020, 2021 or 2022, four winners were chosen this year and all will present at PDU3 in July.

Roy Farman — University of New South Wales

Early Eocene tree frog from the Tingamarra Local Fauna, Murgon, with new approaches to identify Australian anurans.

Ben Robertson — University of Adelaide

The geochronology, palaeoenvironments and palaeontology of Robertson Cave Inner Chamber, Naracoorte.

Alexey Ippolitov — Victoria University of Wellington

The nature and phylogenetic affinity of the enigmatic Indian belemnoid Belospirula: the riddle resolved.

Stephanie Richter Stretton — University of New England

Carbonate microfacies, depositional environments and biostratigraphy of the lower Cambrian Second Plain Creek Member, Wilkawillina Limestone, central Flinders Ranges, South Australia.

The following prizes and grants will be awarded at PDU3 in July 2023:

Robert Etheridge Jr Medal

The Robert Etheridge Jr Medal recognises a researcher's lifetime contribution to Australasian palaeontology. Nominations for this award are currently open, and members are encouraged to submit worthy nominees for consideration.

Dorothy Hill Award

The Dorothy Hill Award recognises the best research paper within a calendar year by a middle career researcher as sole or first author. Only members are eligible for this award; members can self-nominate or be nominated by others.

Palaeo Down Under Student awards

Prizes will also be awarded for the best student oral and best student poster presentations during PDU3, to be judged by members of the scientific and organising committees.

Accessibility

The Organising Committee is committed to making Palaeo Down Under 3 as enriching and enjoyable as possible for all participants, and we ask that all attendees strive for the same ideal.

If you are organising an informal get-together (such as lunch or drinks) across the week, please be mindful to choose a venue accessible to all. Items to consider include ramps, seating height and style, the arrangement of the space and distance between tables, and noise and lighting levels.

THIRD CIRCULAR



Feedback and requests

We have made every effort to organize an accessible conference, striving to provide accommodations and resources that cater to the needs of all attendees. However, we acknowledge that accessibility is a continuous journey, and there may be areas where we can further improve. We value your feedback and invite you to share your experiences and suggestions on how we can enhance the accessibility of our conference. Your input is crucial in helping us create an inclusive and welcoming environment for all participants.

Please reach out to us with your feedback, comments, or recommendations so that we can learn, grow, and better serve the diverse needs of our attendees. A form is provided at the back of this circular to provide a guide, but is not intended to cover the complete range of accommodations.

Transport and venue access

Information on accessibility and transport within the City of Perth (including the Cultural Centre precinct) can be found here: <https://visitperth.com/getting-around/accessibility>. The following brief summary is included to aid participants in reaching the venues for registration — more complete information will be provided in the conference volume, but can also be provided early on request.

ACROD parking

There is one ACROD parking bay (9 m long x 2.3 m wide) on Francis Street, adjacent to the ramp between the State Library and the WA Museum. The bay gives ACROD permit holders two hours of free parking between 8am and 6pm, Monday to Saturday. Further information about the ACROD parking bay is available [here](#).

[Paid undercover parking](#) is available everyday until midnight under the State Library of Western Australia at \$2.90 per hour. ACROD parking bays are available on both levels — 5 on the ground level and 2 on the basement level. There are lifts in the centre next to the ACROD Bays and at the William Street end of the car park, and ramp access from the car park onto James St.

Level/Ramp access

Ramp access to the Perth Cultural Centre is available from Francis Street, located between the State Library and WA Museum Boola Bardip buildings. This ramp also leads to the WA Museum Boola Bardip main entrance.

The State Library is largely accessible via wheelchair, including through public lifts. Information on the Library building, including entrance and lifts, is available via a [printable map](#).

WA Museum Boola Bardip has wheelchair access to the exhibition galleries, shop, grounds and café, both internally and externally. Lifts providing access to exhibition galleries are suitable for wheelchair access. The Museum welcomes guide and assistance dogs with full access rights.

Accessible drop-off bays

There are two 15-minute pick-up bays available on Francis Street outside Central TAFE and opposite the State Library. Further information about the pick-up parking bay is available [here](#).

Public transport

There is a tactile path leading from the Perth Train Station, through the Cultural Centre to the main entrance of the State Library.

The State Library is located a short distance from bus stops on Beaufort Street, and approximately 500 m from Perth Busport.

Hearing loops

The State Library theatre has hearing loops available; please let the organising committee know if you require use of this facility.

Disclaimers and policy

Conference cancellation policy

If, for reasons beyond the control of the Organising Committee, Palaeo Down Under3 (PDU3) is postponed, all registrations will be transferred to the new conference date. If any part of the event is canceled or postponed by the Organising Committee and you are unable to attend the rescheduled event, you are entitled to a refund.

If a delegate chooses to no longer travel to PDU3 for other reasons, and there are no applicable government-enforced restrictions, the applicable policy at the date of cancellation will apply (as outlined below).

If, for reasons beyond the control of the registered delegate (such as a government-imposed lock down), the registered delegate can no longer travel to the conference on the assigned event dates, please contact the Organising Committee to discuss further.

All cancellations must be notified in writing to the Organising Committee (palaeodownunder3@gmail.com).

Registration cancellation:

Cancellations before **Saturday 1 July 2023** will incur no fee.

Cancellations from **Saturday 1 July 2023 – Sunday 9 July** will incur a 50% cancellation fee.

Cancellations on or after **Sunday 9 July 2023** will receive no refund.

Conference dinner cancellation:

Payments are non-refundable as at **Sunday 9 July 2023**.

Field trip registration cancellation:

Payments are non-refundable as at **Thursday 1 June 2023**.

Program accuracy

The program is correct at the time of publishing. The organisers reserve the right to delete, modify or alter items in the program or to delete, modify or alter any aspect of the conference timetabling at their sole discretion and without notice. The Organising Committee, and by extension Australasian Palaeontologists and Geological Society of Australia, will not accept any liability for any loss or inconvenience caused to any party consequent to such changes.

Insurance

Registration fees **do not include insurance**. It is strongly recommended that you take out an insurance policy of your choice at the time you register for PDU3 and make your travel booking.

The policy should cover:

THIRD CIRCULAR



- Loss of fees/deposit through cancellation of your participation in PDU3 or through the cancellation of the conference
- Loss of international/domestic air fares through cancellation for any reason
- Loss of field trip monies through cancellation for any reason including airline or related services strikes within Australia
- Failure to utilise field trips or other pre-booked events due to airline delay
- Force Majure or any other reason
- Medical expenses (including COVID-19, sickness and accident cover)
- Loss or damage to personal property
- Additional expenses and repatriation should travel arrangements have to be altered
- Appropriate coverage for remote areas if registering for field trips

The PDU3 Organising Committee accept no responsibility for loss of monies incurred by delay or cancellation in the event of industrial disruption or other unforeseen circumstances.

Further, the Organising Committee, Australasian Palaeontologists and Geological Society of Australia accepts no responsibility for any participant failing to arrange their own insurance. This insurance is to be purchased in your country of origin.

Ethics and conduct

By registering for Palaeo Down Under 3, attendees are considered to have accepted the Geological Society of Australia's [Code of Conduct](#) and [Code of Ethics](#).

General contact

Updates will be posted to the conference website (<https://www.australasianpalaeontologists.org/pdu3>) as available. Further queries may be directed to the AAP committee by e-mail at palaeodownunder3@gmail.com.

Important dates

- Final deadline for refund (conference only): **9 July 2023**
- Submission deadline for conference Special Issue: **30 November 2023**

Conference accessibility form

Registration:

Please indicate any accessibility requirements or accommodations you may require during the registration process.

Mobility:

Do you require wheelchair accessibility?	YES	NO
Do you require any specific seating arrangements?		
• Wheelchair space with carers seat beside	YES	NO
• Front row seat (no stairs to climb)	YES	NO
• Second row seat (few stairs to climb)	YES	NO
• Other:		

There are limited wheelchair and mobility support offered through the Art Gallery of WA (AGWA), with 24 hour notice for booking if required for the Thursday and Friday concurrent sessions.

Do you require a booking for a wheelchair in AGWA?	YES	NO
----------------------------------------------------	-----	----

Please check accessible parking options and transportation services provided. Please let the organising committee know if you require any additional information

Visual needs:

Do you require accessible formats for printed materials, such as large print?	YES	NO
Do you require presentations be available in large format, including posters?	YES	NO
Do you require dyslexic text?	YES	NO

(note: we have requested delegates use accessible text but cannot guarantee all will comply)

Hearing needs:

Do you require assistive listening devices, such as induction loop systems?	YES	NO
-----------------------------------------------------------------------------	-----	----

(note: this facility is only available in the WA State Library theatre)

THIRD CIRCULAR



Conference dinner transport:

Standard buses will be used to transport attendees to the conference dinner, leaving from the Cultural Centre at 5.30 pm on Thursday 13 July.

Do you require an accessible taxi booking in lieu of bus transport?

YES

NO

Feedback and Suggestions:

Please provide constructive feedback to the organisers regarding any accessibility issues or suggestions for improvement. Remember, it's important to communicate your needs in advance to allow the conference organisers sufficient time to make necessary accommodations.