
DINOSAUR DREAMING 2023 FIELD REPORT





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Dinosaur Dreaming acknowledges the Bunurong and Eastern Maar peoples,
the Traditional Owners of our Victorian Cretaceous dig sites, and pays respect
to their Elders past and present.

FRONT COVER: Flat Rocks aquatic fauna by Zev Landes.

INSIDE FRONT COVER: Cretaceous animal images by Peter Trusler.

BACK COVER: "Inverloch Gothic" featuring Alan Tait and Corrie Williams. Photographer: Wendy White

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Image: W White

2022 – 2023: A MIXED BAG

BY LESLEY KOOL

Although an eight-day field season was held in February 2023, it was not our highlight of the year. Discoveries elsewhere along the Bass Coast of Victoria caused great excitement and reinforced the belief that the Dinosaur Dreaming project was very much alive and well after more than three decades of excavations and research.

Beginning in September 2022, local fossil prospector Melissa Lowery found more bone clusters near the Honey Locality, just south of The Caves. The original "Honey Locality" was discovered in 1988 by Lesley Kool and Jenny Monaghan and was so named because the fossil bones, originally a chocolate-brown colour, had slowly faded to a pale honey colour over long periods of exposure. In the 1990s Mike Cleeland found more bones in the vicinity of the Honey Locality, including a handsome ankylosaur vertebra and three partial turtle shells. Melissa joined Mike's prospecting team in 2019 and quickly developed a talent for finding the tiniest exposed bones, including the first mammal jaw to be found outside of the Flat Rocks Dig Site on the Bass Coast. As the number of bones discovered by Melissa and Mike grew, it became obvious that using the Honey Locality as their origin was not specific enough. Sedimentologist Mike Hall suggested naming the whole cove "Honey Bay" to encompass all the sites within it and so it came to be.



Image: L Kool

Map of Honey Bay



Image: L Kool

Big ornithopod toe

To date, Honey Bay has yielded Australasia's oldest baby turtle (nicknamed Tiny), an almost complete, uncrushed turtle carapace (nicknamed Oma), a 6 cm long theropod caudal vertebra and a large ornithopod phalanx (toe bone). This area has huge potential for future exploration and will be sampled more in the coming months.

In November 2022, Melissa and her husband Aidan were exploring Twin Reefs, a site approximately one km west of Eagles Nest, that had yielded no registered bones in the past. When prospecting, most of us target the conglomerate layers on the shore platform as that is where 99% of the fossil bones are found. Melissa looks at everything! That is how she discovered a large limb, approximately 20 cm long, exposed in a sandstone erratic. Looking closer, she then discovered what looked like an articulated string of vertebrae in a nearby sandstone erratic.



Image: M Lowery

Large limb in sandstone erratic at Twin Reefs.



Image: M Lowery

Aidan Lowery and tracks.

Meanwhile, Aidan had walked on and was checking the shore platform when he came across a series of small dinosaur tracks. Melissa contacted Mike Cleeland who, realizing the logistical difficulty of retrieving the bones, arranged for the rest of his prospecting team to help cut out the bones. Once extracted, the bones were transported to Tim Ziegler (Vertebrate Palaeontology Collections Manager) at Museums Victoria, where he asked preparators Alan Tait to work on the large limb and Paul Chedghey to work on the vertebrae. The results were spectacular. According to palaeontologist Stephen Poropat and PhD candidate Jake Kotevski, the limb is a large theropod tibia and the vertebrae are also theropod. It is possible that the limb and vertebrae are from the same individual and there are plans to return to the site and examine more of the sandstone erratics in the near future.

Meanwhile, Pat Vickers-Rich and Tom Rich are arranging for the dinosaur tracks, found by Aidan, to be moulded and cast, before they erode away.

In December 2022, Tom Rich received an email from Neville Quick, who oversees Museum Victoria's storage facility in Merri-Bek. Neville had come across a number of polystyrene boxes containing unprepared fossils from the Flat Rocks Dig site and wondered what Tom would like done with them. Tom contacted me for suggestions.

The thought of losing these hard-won fossils that had been collected during previous field seasons was inconceivable, so I offered to store them at my home until we worked out what to do with them. It was when I contacted Neville to arrange delivery that I found out that there were 34 boxes in total! Fortunately, we have a large garage and, with the assistance of the two wonderful delivery men, Gerry and I were able to stack them neatly in a corner.

Then came the decision about what to do with the boxes. They ranged from the 2007 to the 2013 field season and clearly each box had to be opened and its contents assessed. A daunting job. However, the trusty team of Wendy, Mary, Doris, Marion, Corrie and Jack came to the rescue and for most of this year they drove down to Wonthaggi each month (with the occasional assistance of Peggy, Alan and Nicole and the Johns) and we diligently opened each box and assessed each specimen on its merit. Once we got through all those boxes, we started on the boxes that were already stored in the shed — but that's another story.

Also in December, Melissa found her second mammal jaw! This one was found closer to Inverloch and was heavily ferruginous (affected by iron). As most of the jaw was exposed on one side there was very little preparation to be done. Tom Rich took the jaw to Monash University where Alistair Evans scanned it using a Micro CT scanner. Tom was confident that the jaw was an *Ausktribosphenid*, but more importantly was the fact that Melissa had found it at a new site, the second mammal locality outside of the Flat Rocks Dig Site. Considering the size of these tiny jaws (less than 20 mm long in most cases) the fact that so many had been found along the Bass Coast was an indication of how common these tiny mouse-sized critters must have been during the Victorian Early Cretaceous. Consider that 55 mammal jaws have been found along the Otway



Image: L Kool

Gerry Kool with the 34 boxes from Merri-Bek.



Image: M Lowery

Melissa Lowery's 2nd mammal jaw in situ.



Image: J O'Connor

Lovely theropod tooth found by John Swinkels.

and Bass Coasts in the past 26 years and yet not one theropod jaw has been found (yet).

In between Melissa's discoveries and the polystyrene boxes, we fit in a one-day field trip to Lesley's Lair, a sub-site at Eagles Nest, in mid-January 2023 looking for bones that could possibly be associated with a strange bone that Melissa found in 2020. Only a few bones were found in the vicinity of the original bone, one of which was an unusual vertebra that I prepared and sent into the Museum for closer examination.

An eight-day field season to our old stomping ground at the Flat Rocks Dig Site also took place from the 11th to 19th of February. The team of 24 volunteers exposed part of the fossil layer where it was thought the second jaw of the elusive mammal *Corriebaatar marywaltersae* had been found in 2017. The sand covering the fossil layer was quite high and it took more than two hours each day just to uncover the area to be excavated. The excavation team then removed as much of the fossil layer as they could before the incoming tide engulfed the area once again. Consequently only 61 bones were catalogued by the end of the field season.



Image: L Kool

The Dinosaur Dreaming team digging at Flat Rocks.



Image: L Kool

The tide filling in the hole at Flat Rocks.

Unfortunately, no mammal bones or teeth were recovered, although we did find two ornithopod teeth, one theropod tooth and several assorted small dinosaur limbs and vertebrae, but nothing as exciting as what Melissa was to find next.

On the last day of the 2023 field season I asked the team if they could help me organize the two sheds on my property that were specifically built to house the dig equipment and the boxes of unprepared fossils. It was a hot day but they split into two groups and emptied both sheds before discarding any broken or obsolete equipment and neatly putting it back into place. The back shed, containing almost 100 boxes of unprepared fossils from digs reaching back to Dinosaur Cove in the 1980s, was a real challenge but at the end of the day it looked amazing! These are the boxes that my trusty box-checking team began working on after we had checked the 34 boxes from the Museum. I am eternally grateful to everyone who assisted in the gargantuan task.



Image: W White

TREASURES FOUND AND ORGANISED

BY CORRIE WILLIAMS

Do you know that feeling when you have a Spring clean and find a treasure deep down in the back of the couch? If so, you will know the feeling of satisfaction that resulted after a clean-up of the Dig sheds at Gerry and Lesley Kool's in February 2023.



Image: W White

Alan Tait secures another trailer-load for the tip

The scene was set for a day of cleanup rock breaking in front of the shed and a bit of a tidy up in the sheds. In my mind it was going to be a little bit of a reorder, but it ended up being one of those much needed Spring cleans where you pick up the furniture and sweep out all the unseen corners.

The front shed was like your couch before the spring clean. It was hard to know what was still stored there and what had been lost to time. Fotini and I pulled



Image: C Williams

The front shed afterwards



Image: C Williams

The back shed afterwards (with ant bomb)

things out, cleaned and repacked the tools, seats and general gear. Fotini even brought order to the trove of hammers and chisels that were found. Tubs of rock were passed through to Wendy and John S to evaluate, sort and wrap. They were kept very busy looking at found treasures.

Marion swept her body weight in dust out of the back shed and with others ordered the 101 polystyrene boxes. Doris went through and sorted the hundreds of vials that were consolidated in one area. We had a trailer available for tip runs and Gerry, Alan, John W and Nick were just the people to fill it. They did multiple runs as broken, rusted and unusable items were uncovered.

While all of this was happening, Lesley was quizzed constantly as we asked what was to be tossed or was worth keeping, and Mary and Astrid soldiered on with rock breaking.

If it is sounding like an all-hands-on-deck full sort, toss and repack exercise then I have conveyed the feeling of the day. It was both tiring and satisfying. We can now easily access the dig gear ready for our next fossil adventure.



Image: W White

Doris Seeget-Villiers sorts a mound of vials



Image: Museums Victoria

RESEARCH UPDATE

BYTOM RICH

During 2021 and 2022, thanks to Covid-19, I had an opportunity to do a lot of writing and the background research into the literature to support it.

In 2022, the same five authors, Flannery, Rich, Vickers-Rich, Veatch and Helgen, published two quite different papers, each with a broad perspective.

The first to appear was a review of the monotreme fossil record. What was novel in that paper was an explanation by Kris Helgen as to why echidnas do not appear in the Australian fossil record until quite late Pliocene, whereas the platypus has at latest an Oligocene-Early Miocene first appearance in Australia. Kris's idea is based on geological evidence that part of northern New Guinea was an island area. He suggested that echidnas originated in isolation there and subsequently dispersed to Australia in the Pliocene.

The second pair of these papers posited a much more radical idea, that abandons one that had persisted for centuries. The old idea was that the ancestors of the marsupials and placentals, which are grouped together as the therians, originated in the Northern Hemisphere and subsequently dispersed to the southern one. The earliest undoubted therian records in the Northern Hemisphere are Early Cretaceous.

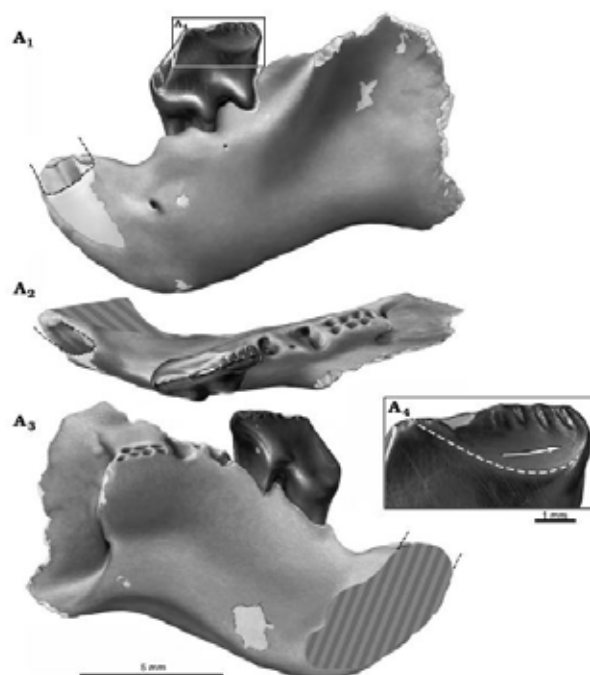
This conventional view was challenged with evidence beginning with the first discovery in the Early Cretaceous at Flat Rocks in 1997 and followed within a decade by discoveries in Argentina and Madagascar of Jurassic therians. These Southern Hemisphere discoveries have been interpreted as therians on the basis of their dentitions. Most critical to this hypothesis has been the profoundly earlier records in Argentina and Madagascar. They are concordant with the idea that the dispersal was in the other direction (from south to north) because they are 50 million years older than the earliest Northern Hemisphere unquestioned therian records. Although the Flat Rocks material is about the same age as the earliest Northern Hemisphere therians, the Early Cretaceous

Australian specimens are important for confirming that therians had dispersed across Gondwana by that time. In particular, *Bishops whitmorei* from Flat Rocks is important because it is a relatively advanced therian for its age.

It is too soon to know whether this radical reinterpretation will be widely or readily accepted by the palaeontological community. Only the passage of time will tell.

Both of these papers were of sufficient general interest to elicit summaries in popular journals. A summary of the monotreme review appeared in *Cosmos* as "Our Ancient Mammal Mystery" by Ken Eastwood. The southern origin of therian mammals was summarised as "Jawbone Discovery Suggests Modern Mammals Originated in The Southern Hemisphere" in *Nature* on Christmas Eve by Clare Watson. Subsequently, *The New York Times* published a summary of the same article entitled "Fossils Where They Don't Belong? Maybe We Just Didn't Look Hard Enough."

The first mammal jaw that Melissa Lowrey found (which earned her an entire American nickel) merited an article on its own because it was from Honey Bay, only the second locality on the Bass Coast that produced a mammalian fossil. Of particular importance was that the depositional environment was significantly different from the nearby Flat Rocks locality. The former was a coarse grit to very fine conglomeratic



The second specimen of *Corriebataar marywaltersae*

Image: P. Trusler

layer incorporating abundant coal and silicified wood. The latter was a thinly interbedded mudstone and ripple cross-bedded, medium to fine-grained sandstone with some thin coal beds. If a serious attempt is made to collect at Honey Bay, this difference could well reveal a vertebrate fossil assemblage different from Flat Rocks.

Wendy White's discovery of a second specimen of the multituberculate *Corriebaatar marywaltersae* in 2017 advanced knowledge of that species significantly because it was more complete than the holotype.

When the paper was half written, another author was added. David Krause had previously written several seminal papers on multituberculates during the past four decades. He brought to the project a wide perspective that added much to what finally was published.

Multituberculates are divided into two groups. The more advanced Cimolodonta appear in the Northern Hemisphere at the latest in the Early Cretaceous and diversify widely after that, finally going extinct in the late Eocene. As *Corriebaatar* is older than latest Early Cretaceous, one can only wonder if, like the therians, there was dispersal from south to north.

Adele Pentland described the two oldest pterosaur fossils yet found in Australia. These were found at Dinosaur Cove the decade before she was born. One specimen was a tiny wing bone and the other a partial pelvis.

Ruairidh Duncan reviewed the ornithopods from the Eric the Red West site. Based on maxillary fossils, he concluded that three genera were represented at that locality. Two of these were previously known in the Otways, *Leaellynasaura* and *Atlascopcosaurus*. The third, *Galleonosaurus* is otherwise only recorded

on the Bass Coast from rocks 18 million years older, an unusually large time range for a dinosaur.

Dinosaurs on our doorstep is a small booklet focused on the dinosaurs and other vertebrate fossils found along the Bass Coast.

As the title of the book implies, 43 T-Shirts. Not the Answer to Everything. But with a few good guesses. A palaeontological journey through 700 million years, it is based on a collection of T-shirts. Over the decades these T-shirts had accumulated in the drawers at Pat and Tom's home. Behind each was a story recounted in the book.

Museums Victoria acquired one of the most complete skeletons of *Triceratops horridus* from Montana, U.S.A. A book was produced centred on that fossil: how it was acquired, how it was prepared and mounted, and how it has been interpreted as a once living animal. Squeezed into this book was a single page devoted to *Serendipaceratops arthurclarkei*, the only ceratopsian from Victoria and one of only two from the Southern Hemisphere. (The other one from Argentina was last seen in 1929.) *S. arthurclarkei* is only known from a single bone from the forearm, an ulna. Extensive comparison of that bone to many different tetrapods has shown that the ulna of ceratopsians generally is quite unique, nothing like it being found in other vertebrate groups.

A Single Fossil Bone Can Tell So Much is a popular account of the discovery by Mike Cleeland of the holotype of *Serendipaceratops arthurclarkei* and its recognition as one of the very few ceratopsians from the Southern Hemisphere.

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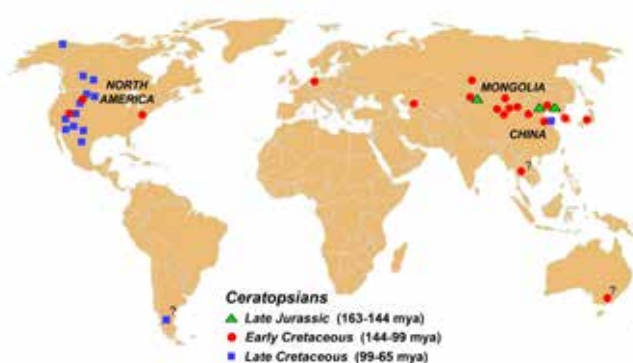


Image: T Rich — adapted from Athena Review Vol. 5, no. 1

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Image: W White

PhD candidates Jack O'Connor, Ruairidh Duncan and Jake Kotevski.



Image: L Nink



Image: W White

John Wilkins sports a new beard

FASHIONS IN THE FIELD

BY WENDY WHITE FASHIONISTA



Image: W White

Amber Craig models hoses

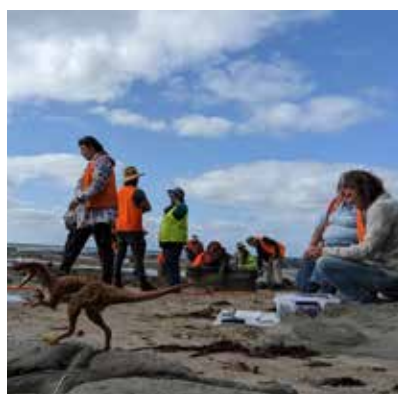


Image: A Della

Dinosaurs walk amongst us



Image: W White

Fotini Karakitsos models buckets



Image: D Seegets-Villiers

John Wilkins's boot



Image: W White

John Wilkins, Doris Seegets-Villiers, Corrie Williams and Alan Tait — Day-glo is not boring!



Image: Museums Victoria

NODDY: THE STORY SO FAR

BY TOM RICH

On 20 February 2010, only about 500 metres north of the Flat Rocks site, Michael Cleeland found a most intriguing fossil. It was a nodule with a few bones projecting out of it.

The following September, Shelley O'Hara used the St. Vincents Hospital CT scanner to provide a first look at the inside of the nodule. This showed that a partial skeleton was present there.

Realising the possible significance of this fossil, the National Geographic Society was approached for funding the preparation and study of the specimen. They graciously did so.

Passed over to David Pickering, one side of what was now seen as a partial skeleton of a small ornithomimid dinosaur was exposed.

It was then decided that to properly study this fossil, the side still embedded in the nodule needed to be exposed as well. To remove that side without the bones falling apart, the side already exposed needed to be supported. This was done by Kym Haines of the Melbourne Museum preparation staff. He first placed a layer of silicon rubber over the exposed fossil so that the rigid supporting substance would not be stuck to the fossil. The rigid supporting substance was a layer of plaster-of-Paris into which was embedded a steel mesh to provide additional strength.

That having been done, David Pickering then carefully removed as much of the rock surrounding the fossil as could be done on the second side. As he did so, he periodically photographed the specimen under the guidance of Joe Burgess. This resulted in a time lapse image of the fossil emerging from the rock.

After the exposure of the second side was completed by removing as much rock as possible, the specimen was scanned at the Australian Synchrotron by Karen Siu and Anton Maksimenko.

In order to get any images at all, owing to the steel mesh embedded in the plaster of Paris, it was necessary to use high energy X-rays.

Once that was done, Laura Porro and Steve Poropat began rendering the synchrotron data. This consists of examining hundreds or thousands of two dimensional images of the specimen taken at different angles. Combining those images gives a three dimensional picture of the fossil that can then be analysed. Focusing on the skull, Laura was able to produce a result to her satisfaction. However, Steve was less fortunate. Owing to the steel mesh, even with the high energy frequencies used in the synchrotron, Steve could not see the details of the post-cranial skeleton that he was to study.

An alternative to synchrotron scanning was proposed by Joseph Bevitt of The Australian Nuclear Science and Technology Organisation. This was to use the neutron scanner at Lucas Heights in NSW. While the neutrons could easily pass through the steel mesh, they were stopped by the thin layer of silicon rubber.

It was now obvious that if a satisfactory image of Noddy was to be made available to Steve, either the steel mesh or the silicon rubber had to go. Somehow, this had to be done in such a way that the specimen was continuously supported. Kym Haines carefully and gradually removed the plaster-of-Paris and steel mesh. Each side when exposed was first covered in thin plastic wrap followed by a thin layer of soft Klean clay. Silicone rubber was then placed over the clay which was then covered with fibreglass on both sides of Noddy. However, because so much of the matrix particularly around the skull had been removed, the only way to now observe both sides of the specimen was to scan it when enclosed in fibreglass.

Once that was done, thirteen years after Noddy was found, a synchrotron scan of it produced data of the quality that Steve required to obtain useful images of the postcranial skeleton. Now he and Ruairidh Duncan are in the process of rendering that data.



Noddy in fibreglass

Image: T Rich



A RETURN TO WHERE IT ALL BEGAN

BY LESLEY KOOL

A month after the 2023 field season ended, Melissa Lowery was prospecting at Eagles Nest, home of Australia's first dinosaur bone, when she found a series of small bones in the shore platform (Figure 1 in Jack O'Connor's report). She contacted Mike and he once again arranged for his team of prospectors, along with additional Dinosaur Dreaming volunteers to excavate around the area that Melissa had discovered. Mike was quite generous with his assessment of the extent of the bones, but still managed to cut through a row of vertebrae. One of the cut surfaces revealed a cross-section through a limb (Figure 2 in Jack O'Connor's report), which after some preparation at Museums Victoria, revealed itself to be a large ornithomimid femur.

While Mike and his team were busy cutting out the first group of bones, Melissa spotted more bones a few metres away. The first was a single bone with just the proximal end exposed on the surface. The end was no more than two cm across, so once again Mike was generous with his cuts. However, no-one expected the bone to be as long and slender as it turned out to be. After preparation it was revealed to be a gracile theropod tibia, similar but much smaller than the tibiae of *Australovenator wintonensis* from Queensland, which is 25 – 30 million years younger than the dinosaurs on the Bass Coast of Victoria.



Exposed bones at Eagles Nest.

The second set of bones that Melissa spotted was also quite deceptive. What looked like a thin fragment of bone approximately 5 cm long and less than 1 cm wide, turned out to be the edge of a complete turtle shell, carapace and plastron, with associated post-cranial bones inside the shell and a long tail. Some of the cross-sections revealed what looked like two plastra (belly-plates) and the team thought they had two turtles, one on top of the other, which they nicknamed Romeo and Juliet. It wasn't until closer inspection revealed that it looked like the plastron had broken prior to burial and it was in fact only one turtle. Melissa decided that it should be named Julio, a combination of the two names.

Unfortunately, because the extent of the bones inside the rock was unexpected, the turtle came out in 15 pieces, five of which were collected a week later when it was realized that the tail had been left behind. Later Jack O'Connor, Monash University PhD candidate and Dinosaur Dreamer, made an amazing digital re-articulation of all the turtle blocks, nicknamed Julio (Figure 5 in his report).

The associated blocks were collected and transported to my garage where we spent some time fitting the various blocks back together again. A few weeks later, Alan Tait transported the blocks containing the articulated bones and the theropod tibia to Museums Victoria to be registered. I held on to the blocks of turtle and plan to prepare the individual pieces over the next few months. I have already exposed the anterior edge of the carapace and have been able to confirm that this specimen is the same genus and species as the rest of the turtle shells that have been collected along the Bass Coast. However, it is larger than any of the other turtle shells we have found so far. A paper announcing the name of the new genus and species is imminent.



One of the turtle blocks showing cross-sections of bones inside the shell.



Image: L Kool

Jack O'Connor, John Wilkins and Doris Seegets-Villiers with the second collection of bones from Eagles Nest.

In May, Melissa decided to return to Eagles Nest to continue her prospecting and found more bones in the same layer, approximately 10 or 15 metres from the first group of bones. As Mike was unavailable to cut out the new group of bones, John Wilkins offered to wield the rock saw. The call went out to the Dinosaur Dreaming team and around half a dozen volunteers answered the call. Like Mike, John was generous with his estimation of the location of the bones within the rock, but without a portable CT scanner it is impossible to gauge where the bones are buried in the rock. Consequently, the large block showed cross-sections of bones on two sides, which meant the extraction of more associated blocks. Eventually, ten blocks were collected, and it wasn't until they were reassembled in my garage that it was realized that the final block only had an impression of a vertebra on it, which meant the rest of the vertebra was still in the shore platform. Fortunately, two of Mike's prospecting team, Emma Booth and Brad Gilmore, came to the rescue and with Melissa to show them where the blocks came from, they were able to find and safely remove the recalcitrant vertebra. However, in the process they discovered two more vertebrae behind the first one!

Apart from the three vertebrae that were recovered by Emma and Brad, a further five vertebrae were identified in the remaining blocks, not including the exposed centrum seen originally by Melissa. It is very likely that the eight vertebrae are from the same individual, although they are not articulated as in the first group that Melissa found. From their size and shape it is thought that they come from a small ornithopod dinosaur.

A month or so later, these blocks were also transported to Museums Victoria where Vertebrate Palaeontology Collections Manager Tim Ziegler planned to have all the Eagles Nest blocks scanned. Once scanned, the results will perhaps reveal the true association between the bones and hopefully identify the dinosaurs whose bones came to be buried in these sediments millions of years ago.

Sedimentologist Alan Tait, using aerial photographs taken by a drone, has begun mapping the area where the bones from Eagles Nest have been recovered. He has already indicated that most of the bones, except for the turtle, are part of the same fossil layer, and it is quite extensive. We plan to gain permission from Parks Victoria to conduct a two-week field season at Eagles Nest next February and if granted, will sample as much of the remaining fossil layer as possible.

VIEW OF THE DIG HOLE

BY ZEV LANDES



Bass Coast Dinosaurs Trail artist Zev Landes's view of our endeavours at Flat Rocks.



Image: W White

RETRIEVING HIPS AND JULIO FROM EAGLES NEST

BY JACK O'CONNOR

In a delightful irony, it took an eagle eye to spot some truly exceptional finds at Eagle's Nest in March of this year. Melissa Lowery's position as a paragon of prospecting cemented further when she noticed a series of fossil exposures in an area of Eagle's Nest that had been traversed by DD members and friends many times over the past few decades.

Be they recently exposed by sun, surf, sand, or time; a few specks of bone were seen on the surface. Some seemed small or enigmatic, but what really grabbed Melissa's attention was a section roughly 35 cm in length that seemed to indicate possibly associated bones (Figure 1).

"When I stepped back and looked at the site, I knew it was an incredibly special layer. Bones were in sediments where we don't normally find them." – M. Lowery

Upon seeing Melissa's photographs of her new discovery, Mike and Lesley didn't waste any time. Through their powers combined (and the donation of a Friday to such a good cause by some superb volunteers), a crew was assembled on the third day of the third month.



Image: J O'Connor

Figure 1. The associated bone exposure (about 35 cm long) which sparked Melissa's excitement.

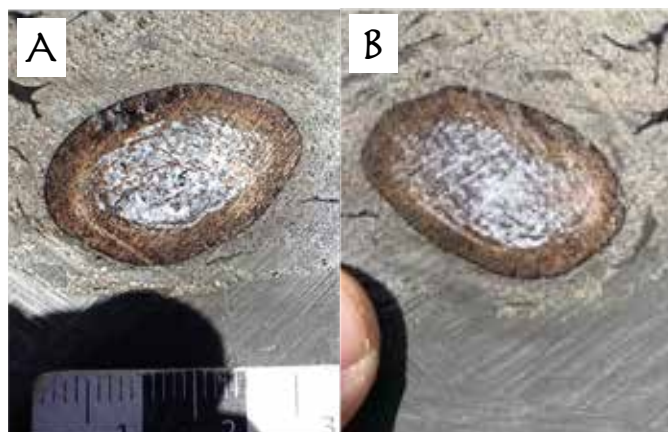


Image: J O'Connor

Figure 2. Isolated ornithomimid(?) femur (A and B depict each side of a saw cut).

Author's Note: I thank all the fossil gods for my sudden decision to jump on a 3-hour V-Line coach to join the team!

Upon reaching the site, the exposed fossils were photographed, geotagged, and recorded as anticipation built. Deciding to start by cutting out a block around a smaller surface find slightly nearer to the cliff, Mike hit an unexpected jackpot. The distinctive carapace and plastron of an upside-down turtle could clearly be seen in cross-section on three sides of the block!

Whilst I focused on keeping track of the many blocks comprising the turtle's articulation, the rest of the team continued to retrieve excellent specimens. An isolated femur was discovered from cutting out a small surface exposure (Figure 2), and the exposure detailed in Figure 1 proved even more intriguing...



Figure 3. HIPS (A) initial surface exposure, the (B) large central block removed, and some of the (C) articulated vertebrae curling further into the rock bed.

HIPS (Hidden In Plain Sight)

The area of surface bones found by Melissa which drew such sudden interest and mobilised the team together was relatively large (Figure 3a). Given that, Mike cut out the entire section in a single, relatively shallow block (Figure 3b). Its removal elevated our wildest expectations as many bone cross sections were found along one of the long axes and a line of vertebrae could clearly be seen curling further down into the rock (Figure 3c).

With one particular corner cross-section looking remarkably like caudal vertebrae of a small dinosaur, the exposed fossils were followed and recovered. As we saw that the articulated vertebrae decreased in size the further we looked from the giant block, our hopes were raised that the block might contain more of the body of the same associated individual.

“[Lesley] showed us a string of vertebrae that were oh so pretty... the verts were a good size for our dinosaurs but didn’t obviously scream theropod or ornithopod. It was more and more exciting the longer I looked.” – W. White

“There is obviously a string of vertebrae, but there are also some flat platy cross-sections that definitely don’t look like vertebrae.” – L. Kool

Named HIPS by Melissa as the specimen was hidden in plain sight, this find might prove to join the extremely short and prestigious list of articulated dinosaurs found by the DD team. Further study will teach us more about whether or not it is an articulated or associated dinosaur, what type of dinosaur it might potentially be, and just how complete it is... and we have Melissa to thank for it!

I for one, cannot wait to see the potential hidden within that giant block of secrets.

Julio – A Beautifully Complete Turtle

Now, let us praise the first, most unexpected, and (in my mind at least) most fascinating of the two articulated specimens that were recovered on March 3rd: Julio the upside-down turtle.

As more and more parts of the turtle puzzle emerged, it was initially thought that we might have two turtles (dubbed Romeo and Juliet), but subsequent inspection has revealed that it is just the one exceptionally complete Julio. This confusion is completely understandable given its complex 3D block assembly.

Author’s Note: As a puzzle nerd, I can confidently say that the irregular, 3D puzzle of this turtle held its own magic.



Figure 4. Julio’s (A) initial surface exposure, the (B) first block cut out of it – detailing an upside-down articulated individual, and (C) the entire set of blocks collected as being associated together.

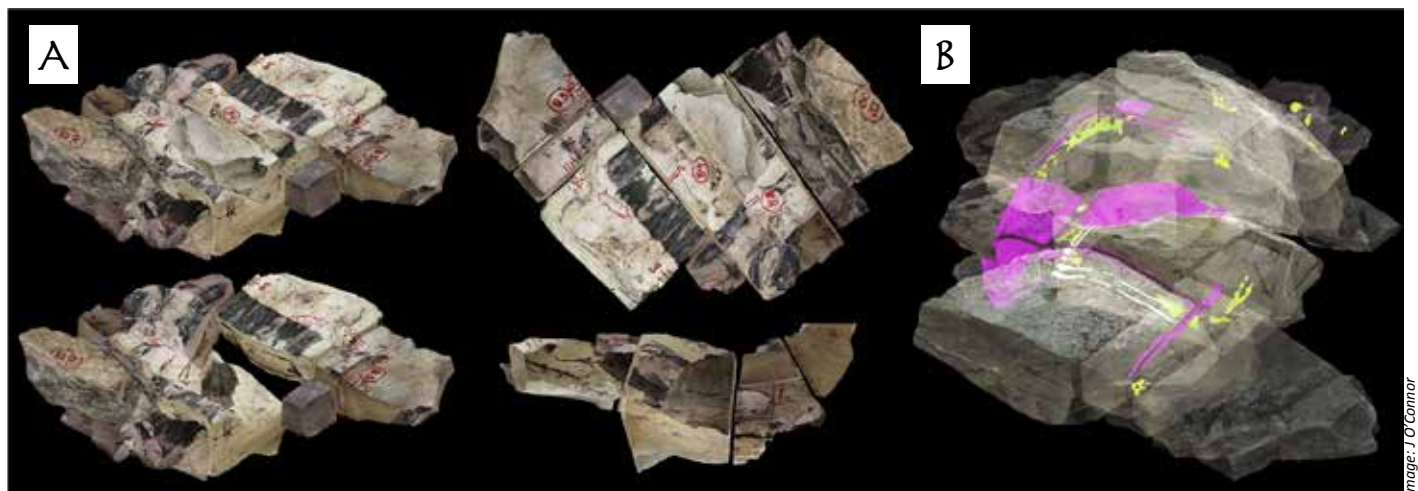


Figure 5. My (A) digital re-articulation of the many blocks comprising Julio in Blender after creating photogrammetry models of each element and (B) subsequent SketchFab modelling after segmenting out all of the (currently) prepared bones and bone cross-sections.

The surface exposure (Figure 4a) was small and unassuming, but the first block's removal (Figure 4b) saw the most immediately diagnostic fossil specimen I have ever personally seen recovered. It took many saw cuts to collect the entire specimen (Figure 4c) as its orientation was initially very confusing. Our confusion proved true when Lesley later identified that we had missed the continuation of a string of vertebrae. Thus, Mike went back to the site and retrieved the rest of what seems to be a long, articulated tail!

Since then, as Lesley has been expertly preparing the specimen, I created 3D model scans of each block using a lightbox and photogrammetry so that I could reassemble the elements together as they were in the ground in digital 3D (Figure 5a). From there,

I digitally cut out the prepared and exposed sections of bone to create a 3D model (Figure 5b) from which we could estimate the orientation of and elements preserved within Julio.

Retrieving a single articulated specimen is a glorious experience. Retrieving two on the same day? That was a dream.

Click on this QR code to access the SketchFab model that Jack created of the Julio blocks.



Jack's lightbox and photogrammetry set-up in Lesley's garage

BACKLOG BOXES

BY WENDY WHITE

KIM DOUGLAS

27.01.1965 – 22.01.2022

Kim Douglas dug with us from 2006 to 2019 (and then at one-day digs when she was well enough to do so) at Flat Rocks and Eric the Red West.

Kim will be remembered for her warm love of family which extended to being a surrogate mum to some of the younger crew, and for her strong friendships that spanned many years.



Image: L Nink

This year we decided to tackle the more than 100 boxes of fossils from previous years that were living in Lesley's shed. Over many separate days, a small crew opened boxes and evaluated their contents. Here are our instructions:



Image: W White

1. Unwrap, folding the paper label side up and placing the fossil atop it. Identify orphans for the orphan box (where a fossil is labelled something like "2 of 2" and we can't find the other halves).



Image: W White

2. Inspect the fossil (usually Lesley but sometimes others will relegate particularly ugly ones to the reprocessing bucket or hijack particularly pretty easy to prep ones).



Image: W White

3. Record in a spreadsheet or on paper the Date Found, Field Reference and whether we kept it. If the date or number are illegible or missing, record all the details that we have.



Image: W White

4. Rewrap keepers and empty the reprocessing bucket into the tub for later reprocessing.



Image: W White

Kim wrapping fossils in 2015



Image: W White

Kim with a fossil find in 2013



Image: L Kool

Three amigos in 2008
— Vicki, Kim and John



Image: W White

CURRENT THOUGHTS ON THE OMA SANDBODY

BY ALAN TAIT

The Oma sandbody is exposed in the bay southwest of the Caves headland on the Inverloch coast. This bay contains the Honey locality and has thus become known as Honey Bay. At the southern end of the bay is Halfway Headland, and the next headland southwest is Eagles Nest which is the usual parking spot for access to Honey Bay. The Oma sandbody is named after a turtle fossil found in it by Melissa Lowery in 2020, which was prepared by Lesley Kool and nicknamed after her mother-in-law. Oma is a very important turtle in this story as will hopefully become clear.

The Victorian Lower Cretaceous was deposited by a very large river system and the coastal exposures show only small parts of the river channel sandbodies. In addition, the sandbodies are either exposed in inaccessible cliffs where large-scale features can be seen but not examined in detail, or on shore platforms where the large-scale features are difficult to recognise while walking over them. However, the shore platform in Honey Bay has been photographed by drone and the photos reveal the architecture of the Oma sandbody (Fig. 1). Large-scale features can be mapped from the photos and then investigated in detail in the field. The Oma sandbody dips north at around 15 degrees so that the thickness of the sandbody

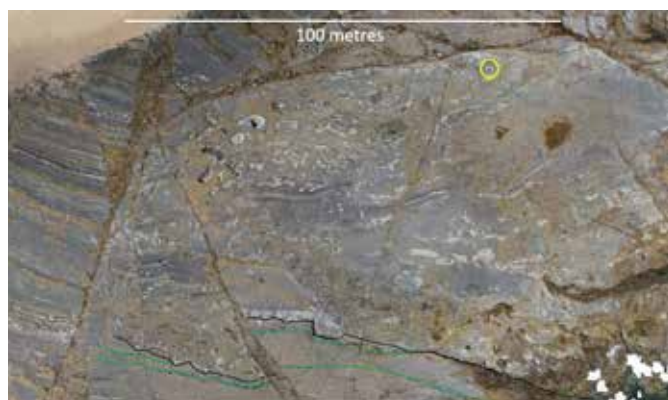


Image: A Tait

Figure 1: Drone photo of Oma sandbody. Oma is black dot in yellow circle. Base of sandbody shown by black line. Soils beneath sandbody shown by green lines.

on the shore platform is exaggerated by around four times and the sedimentary dips of the bedding are similarly exaggerated. However, the photo can be squashed vertically to give a better idea of the original architecture of the sandbody (Figs 2 and 3).

Unfortunately, the upper part of the Oma sandbody has been removed by faulting but the remaining part is around 21.5 metres true thickness. Judging from other sandbodies, the Oma sandbody would have been at least a few metres thicker originally. Stratigraphically below the sandbody are overbank deposits including soils with thin coals on top which indicate ancient floodplain surfaces and are taken as approximately horizontal. In comparison, the base of the sandbody is erosional and more irregular, though often the base of a river channel cuts down to and follows a peat (now coal) or soil surface. Compared to the horizontal floodplain surface, the bedding within the sandbody is almost anything but horizontal, with



Image: A Tait

Figure 2. Oma sandbody drone photo squashed to remove dip-induced vertical exaggeration.



Image: A Tait

Figure 3. Oma sandbody major bedding surfaces in black, showing lateral accretion towards left of diagram (westward). Soils beneath sandbody in green are approximately horizontal.

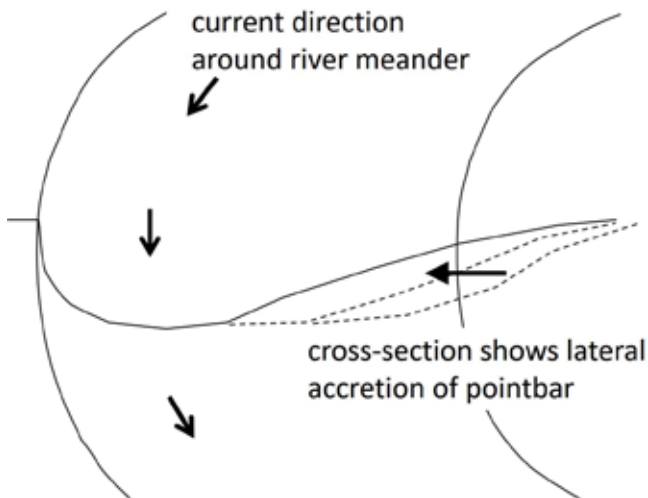


Image: A Tait

Figure 4. Map and cross-section of river meander showing river current direction and lateral accretion of pointbar.

large and small-scale inclined and curved surfaces (Figs 1, 2 and 3). The large-scale inclined surfaces are lateral accretion crossbeds, produced by the lateral movement of a pointbar in a meandering river (Figs 3 and 4). At this exposure of the Oma sandbody, the river was migrating to the west, with sediment being eroded from the cutbank, the outer surface of the meander bend, and sediment being deposited on the pointbar surface by the current spiralling around the meander bend, causing accretion and migration of the pointbar. However, it is difficult to determine whether the river was flowing north or south at this location because of the difficulty of measuring cross-bedding dips on the shore platform. This is where Oma the turtle becomes very important.

Oma was found near the top of the Oma sandbody, amongst sand waves and ripples (Figs 1 and 5). She had been carried along by the current near the inner bank of the meander bend but was sinking to the sediment surface where she grounded on the upstream face



Image: A Tait

Figure 5. Drone photo showing Oma (brown oval), sawcut block (white rectangle), scour hollow (white U-shape) cutting bed of ripples and current direction (white arrow).



Image: M Lowery

Figure 6. Oma, upside down and head down, in her scour hollow, before extraction. Current direction towards base of photo. A concretion has grown within Oma's carapace.

of a small sand wave in a stable position, her shell tilted upstream, dipping against the current (imbricate position) (Figs 5, 6 and 7). The current continued to flow past her, smoothly over the top but more turbulently to the sides, eroding the sand and forming a scour hollow or trough downstream of her shell. Her imbricate position and the scour trough downstream both indicate the current direction which is further supported by the ripples beneath the sand wave (Figs 5, 6 and 7). This directional information indicates that, at the location of the Oma sandbody, the river was flowing from north to south around the meander bend. Thus Oma is not only a fine specimen but also a current direction indicator and very useful in that role.

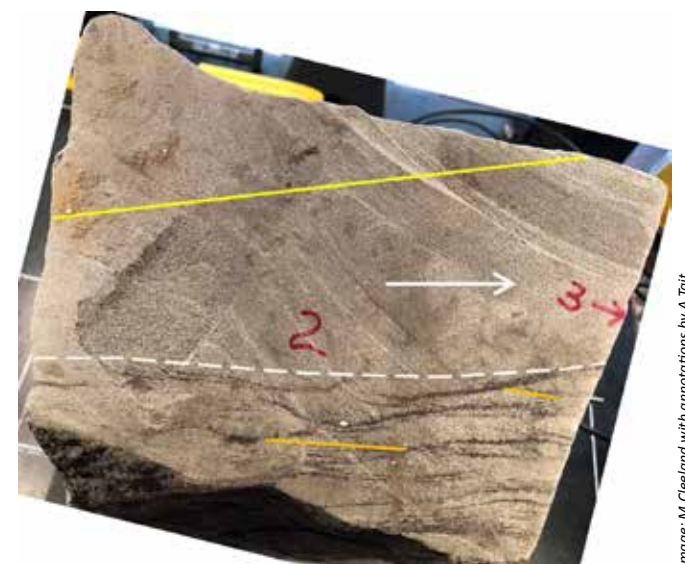


Image: M Clelland with annotations by A Tait

Figure 7. Side view of cut block with Oma exposed on top. Yellow line shows imbricate orientation of Oma. White dashed line is base of scour. Photo tilted to remove structural dip. Orange lines show example ripple cross-bed dips. White arrow shows current direction.



PROPOSED BASS COAST DINOSAURS TRAIL

BY INGRID HUITEMA

Bass Coast Shire Council has unveiled visual plans for the iconic \$18 million Bass Coast Dinosaurs Trail, an interactive experience that celebrates the area's fascinating prehistoric past and promises to catapult the region to a global stage.

Detailed design plans for the first stage of the unique experience spans six creative sites at San Remo, Kilcunda, Wonthaggi, The Caves, Eagles Nest and Inverloch. These sites pay homage to the special environment inhabited by Victoria's polar dinosaurs 125 million years ago.

Using sophisticated technology, the site specific experiences incorporate sensors, LED lighting and full-body tracking, as well as immersive 3D animations, audio-visual interaction and a digital field guide to deliver a world-class narrative of discovery and exploration.



San Remo interactive Time Machine sculpture

In addition, the trail will be enhanced with layers of digital experiences that complement the site experience to expand its reach around the world.

Bass Coast Shire Council Mayor Michael Whelan said the Bass Coast Dinosaurs Trail would allow visitors to experience first-hand the incredible history that existed in the region.

"The Bass Coast Dinosaurs Trail is a game changer for tourism across our region," Cr Whelan said. "Never before has there been such an exciting and unique tourism experience in regional Victoria that captures our prehistoric dinosaurs, which date back more than 125 million years.

"The Dinosaurs Trail will reinforce Bass Coast as a year-round tourism destination and provide an unparalleled attraction that draws upon the region's heritage while connecting the next generation with science and education."

The six sites include an interactive Time Machine sculpture that replicates DNA at 25 billion-times larger than life. A spiral staircase provides a vantage of the ever-widening valley that separates Australia and Antarctica where polar dinosaurs once roamed.

There is a Village Green gathering place at Kilcunda with a life-sized dinosaur inspired fence, and upgraded amenities including shelters, beach showers and barbecues.

A new 7 hectare Gondwana Garden in Graham Street, Wonthaggi will take visitors on a journey from the beginning of Gondwanaland to its separation into continents and islands. The centrepiece of Gondwana Garden will be a community meeting and events space – The Crater – which will be home to special projection shows at night.

An auditory adventure awaits at Eagles Nest, the site of Australia's first dinosaur fossil discovery. The trail will combine immersive musical composition and compelling poetry to transport visitors back to the Cretaceous period, while The Caves will host Pocket



Wonthaggi Gondwana Garden



Image courtesy of Bass Coast Shire Council

Augmented Reality Viewers

Palaeontologists, teaching visitors about real-life dinosaur hunters through animated characters voiced by the very scientists who have studied the area for years.

The trail will culminate in the Dino Hunters Playground at Inverloch, a combined adventure playground, art installation, outdoor learning space and hands-on exhibition.

Dinosaur Dreaming dig coordinator Lesley Kool, who together with a dedicated group of prospectors has painstakingly searched for precious polar dinosaur fossils for almost 40 years, said the Bass Coast Dinosaurs Trail would be a tourism boon for the region and a welcome learning tool for generations to come.

“The Bass Coast Dinosaurs Trail is an incredible opportunity to put this impressive history on a global stage and acknowledge the dedicated research that has happened here for the past four decades, largely by volunteers who do it purely for the love and thrill of it,” Mrs Kool said.

“The Bass Coast is the only place where the Early Cretaceous rocks are exposed of that age. All the rocks from San Remo to Inverloch have been dated at about 126 million years – and at that time Australia was very firmly attached to Antarctic and was the very last remnant of Gondwana.”



Image courtesy of Bass Coast Shire Council

Inverloch Dino Hunters Playground



Image courtesy of Bass Coast Shire Council

Ankylosaur Gully in the Dino Hunters Playground

“The Bass Coast is a unique environment and this is the only place in Australia where you can come and find evidence of Early Cretaceous dinosaurs.

“Many people aren’t even aware that dinosaurs existed here so the Bass Coast Dinosaurs Trail will highlight just how special the South Coast of Victoria really is.”

Cr Whelan said the concept still required high level funding support and Council was now investigating partnership opportunities to help bring the Bass Coast Dinosaurs Trail to life.

“Not only will this project be a unique addition to our tourism offerings, but it will support more than 400 jobs and significantly contribute to local tourism and expenditure in the region,” he said.

“Estimates show that opening visitor sites in 2026 would increase annual tourist numbers by up to 20%, with forecasts of new visitation of almost 100,000 people a year by 2035, which will make a significant impact on our local economy.”

Planning is also underway for a future second phase of the project, which includes the Inverloch Cultural Discovery Centre.

To learn more about the Bass Coast Dinosaurs Trail visit: <https://basscoastdinosaurs.com/>



Image courtesy of Bass Coast Shire Council

Flat Rocks Water Play in the Dino Hunters Playground

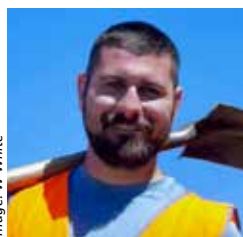


Image: W White

VICTORIAN THEROPODS

BY JAKE KOTEVSKI

For as long as I can remember, I've been captivated by theropod dinosaurs. Admittedly, I'll blame Jurassic Park - ever since I watched *Tyrannosaurus rex* burst through the unpowered fence and wreak absolute havoc, I'd always dreamed about understanding and envisioning the apex predators of a long-extinct world. And wouldn't you count my luck when an enthusiastic dinosaur-nut by the name of Dr. Steve Poropat shared a beer and a thought with me – why not review the record of theropods from Victoria?

For those who don't know me: I'm Jake, I'm in the second year of my PhD at Monash University, and I love dinosaurs – and I'm sure, that's why you're here too. Theropods – animals that are typically bipedal, have a long, balancing tail and incorporate all known predatory dinosaurs, are an important part of the Cretaceous ecosystems of Australia, and some of the best evidence comes from Victoria. The first ever dinosaur fossil from Australia – the Cape Paterson claw – comes from Victoria (Woodward, 1906). We have one valid theropod species from Victoria, *Timimus hermani* (Rich and Vickers-Rich 1994), named for Tim Rich, Tim Flannery and John Herman. From my count, there are at least 200 individual theropod bones sitting in the collection at Melbourne Museum, and more continue to come in every year, thanks to the superb efforts of the Dinosaur Dreaming volunteers – all of you! Unfortunately, fewer than 50 (if we exclude teeth) have ever been formally described (see Rich and Vickers-Rich



NMV P239464 – The “Otway Claw” as seen in Poropat et al., (2019) – Figure 6.

1994; Currie et al., 1996; Benson et al., 2012; Poropat et al., 2018, 2019, 2020). My job is to go through the current (and expanding) record, to establish what groups of theropods used to stalk the river banks of Cretaceous Victoria, over 120 million years ago.

Anyone who has dabbled in Australian theropods surely knows the name “Megaraptor”. Megaraptorids are a group of theropods known only from Australia and South America (and, it seems, Antarctica), and are exemplified by large, curved forelimb claws. I'm sure most of you would be familiar with NMV P239464, John Wilkins's “Otway Claw”, that belongs to a megaraptorid. These animals are about the size of a horse (but can be smaller or larger), and seem to dominate Australian Cretaceous ecosystems as the top predators – and we keep finding more evidence of them in Victoria. We have a poor understanding of this group – all fossil remains are fragmentary, and skull material is rare. I'm happy to say, we're able to begin improving that record using the Victorian fossil collection. By the time you're reading this, I'll have submitted a manuscript describing NMV P229038 – a skull bone from Shack Bay, about 5 km West of Inverloch. You may recognise this specimen from the 2008 field report – found by Mike Cleeland, and prepared by the late David Pickering. This fossil is the



NMV P229038 – Australia's first upper skull bone from a theropod.

Image: J. Kotevski

first upper skull bone ever described from an Australian theropod, and the oldest megaraptorid skull bone worldwide - and this is just the start. As I continue to sift through the collection, I'm certain more important discoveries will be found, and I can't wait to share them with you.

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Victorian Megaraptorid reconstruction by Ruairidh Duncan

CATE COUSLAND

D. APRIL 2023

Cate Cousland dug with us from 2009 to 2017, mainly at Eric the Red West, close to her home at Skene's Creek.

Cate and her friend Sharyn Madder coauthored a book "Travelling the Great Ocean Road : a journey through time and place", discovered us at Bimbi Park one year, and became instant crew regulars

Cate will be remembered for her fierce intelligence, practical advice, and her connections to community.

After Cate's back problems made it difficult to work at site, she continued to support the dig as a volunteer cook and teller of tales.



Image: W White

Cate at Eric the Red West



Image: W White

Cate and Sharyn celebrate a find



Image: Museums Victoria

VICTORIAN CRETACEOUS MAMMALS: THE OPEN QUESTIONS

BY TOM RICH

It has been a few years since all the Victorian Cretaceous mammals were named and described. This does not mean that every aspect of these fossils has been explored and documented. Some rather provocative questions remain.

Are the three ausktribosphenid species, *Ausktribosphenos nyktos*, *Bishops whitmorei* and *Kryoparvus gerriti*, placental mammals or do they belong to a uniquely Southern Hemisphere group that arose independently? Alternatively, was this Southern Hemisphere group that first appears in the Jurassic of Argentina and Madagascar ultimately the source of the marsupials and placentals that have their first appearance somewhat later in the Northern Hemisphere in the Early Cretaceous?

Based on the structure of the teeth and jaws alone, when first described *A. nyktos* was tentatively placed within the placentals. On the same basis, the other two ausktribosphenids were placed there, too.

Subsequently, using an entirely different methodology to assess these taxa, one that considered all potentially measurable characters of the entire mammalian skeleton, 97% of which are not available on any of the three ausktribosphenids, the family was

hypothesized to represent a Southern Hemisphere independent group, the Australosphenida or “Southern Wedges” in reference to the morphology of their teeth. Also included in that group were the monotremes.

After more than two decades, a consensus between these two hypotheses has not been reached.

If ausktribosphenids are placentals, a unique event in mammalian history may have occurred in Australia. Did a non-volant placental family go extinct on this continent owing to interaction with marsupials after their later arrival? If so, nowhere else did placentals give way to marsupials.

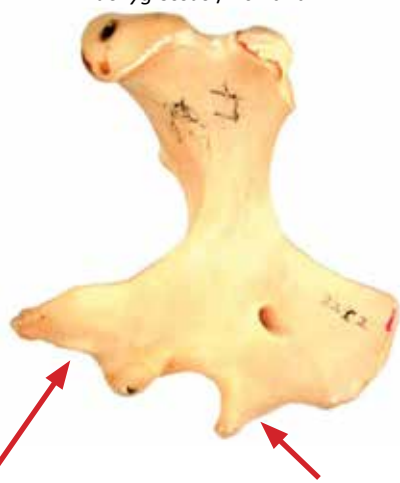
Or did the ausktribosphenids go extinct for other reasons during the 96 million year time gap in the fossil record between their known presence at 126 million years and the earliest record of Australian marsupials at 30 million years?

Kollikodon ritchei from Lightning Ridge is regarded as a monotreme. If *Sundrius zieglerei* is correctly regarded as close to *K. ritchei*, does this mean that there are three monotremes in the Victorian Cretaceous mammalian assemblage, the others being *Teinolophos trusleri*, the oldest and most primitive monotreme known in the fossil record, and also likely *Kryoryctes cadburyi*?

What is *Kryoryctes cadburyi*? Described as a tachyglossid-like or echidna-like monotreme, the single bone on which the name is based is much more like that of an echidna or platypus than the humerus of any other fossorial or digging mammal.

This being so, the distal end of the humerus indicates that its articulation with the ulna was fundamentally different. While the living monotremes have a

Tachyglossus / Echidna



Kryoryctes



Ornithorhynchus / Platypus



Figure 1: Location of the ulnar and ulnar facets in the distal ends of monotreme humeri.

Image: T Rich

sprawling posture, the facet for the ulnar articulation of *K. cadburyi* resembles that of a mammal with a more upright posture. Red arrows in Figure 1 indicate the locations of the ulnar and ulnar facets on the distal ends of the humeri.

Is *Corriebaatar marywaltersae* the oldest cimolodontan multituberculate? The rodent-like multituberculates are divided into two groups based primarily on the structure of their premolars. The older group, the plagiaulacida, arising in the Jurassic typically had several premolars in the lower jaw. The later, more advanced group, the cimolodontans, had reduced the lower premolars to either one or two. The most posterior, lower premolar was a blade-like tooth, such as is present in *C. marywaltersae*.

In the Northern Hemisphere, the oldest records of cimolodontans are in the late Early Cretaceous, about 113 million years before present. During the Late Cretaceous there, they thrived and are the most diverse mammals of that time. They persisted into the Late Eocene there.

At about 126 million years old, *C. marywaltersae* is 7 to 13 million years older than any Northern Hemisphere record of the cimolodontans. This raises again the question of whether cimolodontans spread from the Southern Hemisphere to the Northern, instead of originating there? Is it possible that both placentals and cimolodontans originated in the south and spread to the north?

So at present, the few known Victorian Cretaceous mammals are still a provocative group, rather than one well understood.

Blade-like lower Premolar of *Corriebaatar marywaltersae*

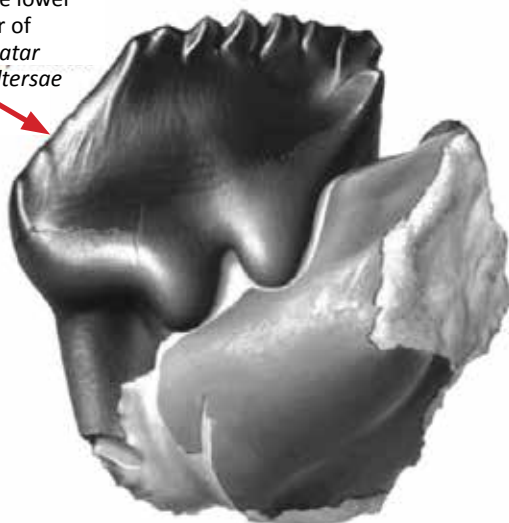


Figure 2: *Corriebaatar marywaltersae* tooth



Image: L Nink

DREAMING HONOURS

BY WENDY WHITE

On Australia Day, Thursday, January 26 2023, our stalwart leader Lesley Kool was awarded a Medal of the Order of Australia (OAM) for services to paleontology. Those of us who were so warmly welcomed into the Dinosaur Dreaming family are absolutely delighted that our humble Lesley has been recognised in such a way.

As explained in the South Gippsland Sentinel Times, *Together with colleagues, including Mike Cleeland of Phillip Island, she has made and researched discoveries over 40 years that have, among other things, completely turned worldwide theories on their head about the origins of mammals and how cold-blooded dinosaurs could have existed and thrived within the Antarctic Circle for millions of years.*

They asked her what being awarded an OAM meant to her. Lesley responded:

Look, it is such an honour. It's something that I never imagined would happen. I was very proud and honoured last year when they announced that Koolasuchus Cleelandi had become the Victorian State fossil emblem and then to have the honour of an OAM on top of that. It's just beyond my imagination.

More recently, Pat Vickers-Rich, permit holder and researcher, was made a foreign member of the Russian Academy of Science in a ceremony that took place in the official residence of the Russian ambassador to Australia.

Pat was awarded this honour in part because, between 1993 and 1997, she arranged for a travelling exhibit called The Great Russian Dinosaur Exhibition to tour a number of venues not only in Australia but also in the USA and Argentina. Income from this was critical in the Russian Palaeontological Institute navigating the difficult financial situation that prevailed when the USSR was changing into the Russian Federation.

Pat sees being admitted to the Russian Academy of Science as a symbol of international scientists working together for the benefit of all humanity.

Image: P Trusler

NICOLE EVERED OAM

18.3.1939 – 16.10.2023

Dinosaur Dreaming Anthem

*Under the Southern Cross we stand
Hammer and chisel in our hand.*

*"Dinosaurs! Arise! Awake!
Your bones we are about to take (...or break)*

*We few, we very special few,
Addicted diggers through and through.*

*Great rocks we break and try to find
Anything that they had left behind.*

*The bones and teeth are thus revealed,
Though long millennia concealed.*

*Dinosaur Dreaming is the place
We will find more, just watch this space.*

— Nicole Evered



Nicole finds a cockroach at Fish Creek, April 2021

Nicole Evered was staying at her holiday cottage in 1992, chatting to other Inverloch locals, when she heard that there was a crew looking for dinosaurs on a nearby beach. As Nicole tells it, she grabbed her hat and bucket and turned up on the beach demanding to be part of it. Thus started a lifelong commitment to Dinosaur Dreaming. As the news of her passing spread throughout the crew, many of them felt compelled to share memories:

Nicole was not only an integral part of the dig, she was also a founding member of the Blood blister sisters, a first aider and instructor and, while wo-manning the sign-in desk at Friends' Days, a trusted provider of lolly snakes. Who could forget her "I have a little thing" catchphrase and variations thereof. I have no doubt that Nicole holds the unofficial record of finding these often unidentifiable little specks. Even when most of these were rejected, she enthusiastically kept on going, finding ever more little things.

Over the years, she and Alan housed a number of us at their Inverloch holiday home. Staying one year at their cottage, Mary and I were rescued by Nicole not from one, but two sizable huntsmen. Nicole caught them in a jar, transported them across the road to a neighbour's front yard and, upon return, announced that they must have been two males, as they had started fighting halfway across the road.

When Nicole could no longer climb the stairs down to site, she held the fort at the dig house, faithfully breaking every rock that came her way.

— Doris Seegets-Villiers

*I will always remember two things about Nicole:
Her offering of Dino shaped lollies with the phrase
"Would you care to Dine-o-saur?"*

In my first year at the dig (2004) her professional assistant (PA) style management of bookings for internet access at the Inverloch Library, an important part of the dig back when that was the only way to remote access the web!! Especially important for the overseas diggers and the professional visitors needing e-mail access.

— Darren Bellingham

The reflections and memories of everyone Nicole touched show the warm love and appreciation felt for her. She is a part of Dinosaur Dreaming for every digger, and will remain so.

— Tim Ziegler

She was a very kind and friendly person. I want to express my deep gratitude for her hospitality when I participated in the Dinosaur Dreaming

— Keiichi Aotsuka

Nicole will be dearly missed, we all have fond memories - I can hear her voice, clear as day, in my mind as I type this. Vale Nicole.

– Rohan Long

Nicole was one of the original characters of the dig. I can still hear her gleeful cry "Hello little bone" when she found one. She made so many contributions to the dig, be it food name stickers, accommodation and probably many other things I am not aware of. She will be missed. Vale Nicole.

– Astrid Werner

She was an essential element of the digs, one of the people who cemented the dinosaur dreaming community with ready assistance, warmth and humour.

– Peggy Cole

Hugs and "fish whiskers" to all.

– Marion Anderson

In 2003. I positioned myself near Nicole to learn by listening to her talk to kids. I loved the story of the grey-haired grandmother who found Qantassaurus and the way she said "Buckets!" instead of swearing.

Nicole was the first person to recognise the mammal jaw I found that year. She was SO excited for me. "Put your hand over it", she said, "and take it straight to Lesley!"

In later years as Nicole had mobility issues of the sort that would drive less determined people to cease their involvement, Nicole continued to break rock at the house (and reorganise my kitchen if I had a lapse in attention), and position herself and her ever-supportive husband Alan at the top of the stairs greeting Friends or Rookies and making child visitors feel special as she made them custodians of actual real dinosaur bones.

– Wendy White



Alan and Nicole ready for visitors on Friends' Day 2013

Image: W White

Nicole Evered played a major role in every aspect of Dinosaur Dreaming; from teaching new volunteers how to recognize fossil bone in the rock on Rookies Day, to making sure everyone had a name tag with their favourite dinosaur on it for Friends Day. In the early years she was the "go to" person on site where visitors would be enthusiastically treated to the history of the site and what had been found there.

In 1995 Nicole proposed the name "Dinosaur Dreaming" to differentiate the Bass Coast digs from the Otway digs. That name has become synonymous with the research that still continues today. Nicole contributed to that research with her discovery of the Qantassaurus intrepidus holotype lower jaw in 1996 and along with Nicola Sanderson and Nick van Klaveren was honoured with the specific name of the first mammal to be found at the dig site – Ausktribosphenos nyktos in 1997.

Even when her health failed her in later years, she always had a smile and a determination to find the next bone. She was a master of finding the tiniest of bones and her utterance of "I have a little thing" will be fondly remembered by many of the crew. She will be so sadly missed by all who knew her but has left behind so many wonderful memories. Thank you, Nicole.

– Lesley Kool

Nicole was all kindness

– Sanja van Huet



Nicole finds a fossil in the back yard, 2012

Image: W White

Image: Australian Age of Dinosaurs



PTEROSAURS IN VICTORIA

BY ADELE PENTLAND

Over 700 volunteers over the course of 45 years have worked tirelessly, excavating fossil material from various sites scattered across the Cretaceous coasts of Victoria. Perhaps the most famous of these, Dinosaur Cove, has produced hundreds of specimens, but until recently, the Victorian pterosaur assemblage was a mystery. These enigmatic winged reptiles are elusive because pterosaur bones are hollow, and the cortical bone is typically about a millimetre thick.

The chances of finding two pterosaur bones belonging

to two separate individuals from the same site are low — but not impossible. In May 2023, my colleagues and I published on the geologically oldest pterosaurs from Australia: a partial pterosaur pelvis collected in 1986, and a small wing bone collected in 1989 from the Slippery Rock site at Dinosaur Cove.

Based on comparisons with other Cretaceous pterosaurs, the partial pelvis belongs to an individual with a wingspan of at least 2 metres, and was near adulthood. Although we can't determine what species it belongs to, we can rule out the azhdarchid pterosaurs (the group which includes *Quetzalcoatlus*, the largest animal to take to the skies), based on the presence of a supraneural plate, a bony ridge along the dorsal surface.

The other bone we described is a metacarpal IV, which forms part of the wing. What makes this unusual is that it is substantially smaller than all other metacarpal IV's reported from Cretaceous pterosaurs; it represents a juvenile, the first identified from Australia. Although



Image: A. Pentland

Metacarpal IV from three Australian Cretaceous pterosaurs. NMV P197962 (right metacarpal IV) from the Toolebuc Formation was discovered at Slashers Creek Station, east of Boulia, Queensland; in the middle, the left metacarpal IV from *Ferrodraco lentoni* from the Winton Formation, discovered northeast of Winton, Queensland; and on the bottom, NMV P186084, a left metacarpal IV from a juvenile pterosaur from Dinosaur Cove.



pterosaurs were year-round residents or migratory. If someone does discover a neonate pterosaur or embryo in ovo, I can't promise a cubic metre of chocolate. But I'll definitely shout you a drink and embrace you in an uncomfortably long hug.

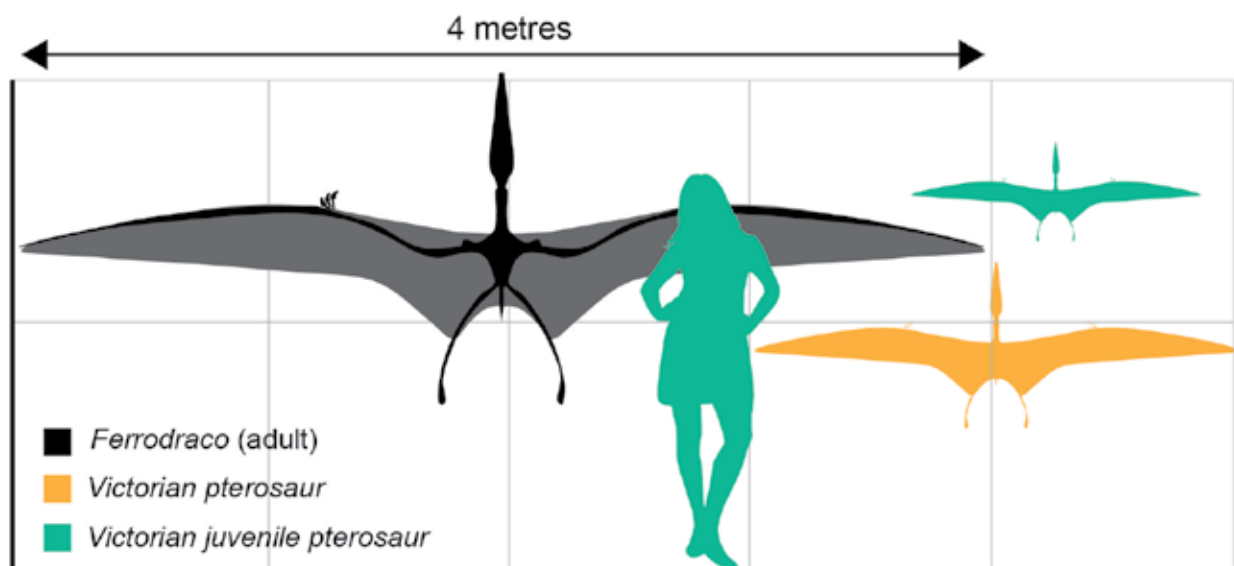
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Co-authors on the recent paper describing the Victorian pterosaurs, Dr Tom Rich and Professor Pat Vickers-Rich holding the pterosaur specimens we described in the paper.

there has been some speculation that the specimen, NMV P186084, might represent a bone from the foot, the presence of a ginglymoid distal end (which resembles a pulley) would suggest otherwise. Metacarpal IVs are not diagnostic in pterosaurs, so the identity of this pterosaur is up in the air.

What can the Victorian pterosaurs teach us about ecology and behaviour? Does this mean pterosaurs were breeding at high latitude sites? We're not sure, since pterosaurs were precocial and could fly soon after hatching. Until we find eggs with embryonic pterosaurs inside, we won't know for certain whether Victorian



Wingspan estimates of Australian pterosaurs, including *Ferrodraco lentoni*, an adult from the Upper Cretaceous of Queensland, compared with the newly described Victorian pterosaurs from the Lower Cretaceous. Estimated size of NMV P185973 (partial synsacrum) in orange, whereas the juvenile pterosaur NMV P186084 (left metacarpal IV) is in green.



Image: L Nink

HOUSE REPORT

BY WENDY WHITE

In February 2023, Dinosaur Dreaming had our first post-Covid dig. We approached it cautiously, since our dig was before first semester started and Monash University had not really settled on new safety protocols.

We cut the dig down to eight days and really limited the number of new volunteers. We billeted fewer volunteers at the “dig house”, and spread our crew into many houses, campground and tents. That had a couple of positive side-effects — diggers got a room to themselves or could pitch much bigger tents than in a normal year.

We handed out masks and rapid antigen tests, and encouraged crew to use them.

We made contingency plans for what to do if we had a Covid case — we decided to split the people who could play key roles into separate houses, in case we needed to isolate one of them. We made sure we had more than one house containing people who could run the excavation, who could act as official first aider, and who could triage and wrap our fossil finds.

We planned almost all activities to be outdoors. We made plans to give people dinner in takeaway containers if the weather was too wet to eat in the back yard. Fortunately, fine weather prevailed and we did not need to do that.



Image: W White

Zev discusses dinosaur reconstruction with Jack and Jake.

Continuing our tradition of talking relevant experts into giving evening talks, we set up a projector in the back yard and used the side of Jake’s tent as a screen. We rugged up against the cool evening air as Lesley talked turtles, Jake talked theropods, Marion talked Mars and Jack talked about reconstructing megafauna.

Since the dig was only a week, and one especially chosen for favourable tides, we set up rock-breaking in Lesley’s driveway instead of the dig house. That worked well with a crew a bit smaller than previous years.

Zev Lande, one of the Bass Coast Dinosaur Trail creatives, whose cartoon graces the Field Report cover, embedded himself into crew activities as part of his art practice. It was a delight to watch him find a balance between the scientific accuracy and cute cuddly approachability of his dinosaur images. On more than one occasion he consulted the back of my safety vest which sported a theropod sketched by Steve Poropat on an earlier dig.

The measures we put in place this year were a good way to venture back to fieldwork post pandemic. They did make the dig somewhat less social, with people returning to their respective homes after dinner and the talk. I look forward to 2024 when we hope to relax these new measures and have a slightly longer dig.

MEANWHILE AT THE BASS COAST DIG...



Image: Z Lande

Zev Lande dreams of the Mars rover as a dig volunteer...

THE MAMMALS OF VICTORIA'S CRETACEOUS

Reg #	Taxonomy	Collector	Field Number	Date Found	Preparator	Notes
P208090	<i>Ausktribosphenos nyktos</i>	N. Barton	#1111	1997	L. Kool	HOLOTYPE . Right. P6, M1-3
P208094	<i>Kryoryctes cadburyi</i>		Dinosaur Cove	1993	L. Kool	HOLOTYPE . Right humerus. Slippery Rock Pillar, Dinosaur Cove
P208228	<i>Bishops</i> sp.		#329	1995	L. Kool	600my Exhibition display . Right. P4-M2
P208230	<i>Ausktribosphenos</i> ?			1995	L. Kool	Edentulous jaw fragment
P208231	<i>Teinolophos trusleri</i>		Mentors trip	Nov. 1993	L. Kool	HOLOTYPE . M3 or M4
P208383	Monotremata		Dinosaur Cove	1993	L. Kool	Premolar. Slippery Rock Pillar, Dinosaur Cove
P208482	<i>Ausktribosphenos nyktos</i>	N. Gardiner	#150	1999	L. Kool	Right. M2-3, badly crushed. Found in rock from DD1998
P208483	<i>Ausktribosphenidae</i> ?	N. van Klaveren	#140	1999	L. Kool	Probably Left. x1 premolar & partial tooth
P208484	<i>Bishops whitmorei</i>	K. Bacheller	#450	1999	L. Kool	Right. M2
P208526	<i>Teinolophos trusleri</i>		#560	1994	L. Kool	Right. Edentulous
P208580	Mammalia	A. Maguire	#200	2000	L. Kool	Jaw fragment. (unprepared)
P208582	<i>Ausktribosphenidae</i>	L. Irvine	#500	2000	L. Kool	Right. M3
P209975	<i>Bishops whitmorei</i>	R. Close ?	#387	2000	L. Kool	Right. Roots M1, worn M2. OK M3
P210030	<i>Teinolophos trusleri</i>			2000	L. Kool	Right. Edentulous
P210070	<i>Bishops whitmorei</i>		Rookies day	03.12.2000	L. Kool	Right. Badly broken M1, M2 and x6 Premolars HOLOTYPE . 600my Exhibition display . Left. P2-6, M1-3. (P1 lost since initial preparation)
P210075	<i>Bishops whitmorei</i>		Rookies day	03.12.2000	L. Kool	Right. Root fragment
P210086	<i>Ausktribosphenidae</i> ?	J. Wilkins	#250	2001	L. Kool	Right. Root fragment
P210087	"Gerry's jaw"	G. Kool	#620	2001	L. Kool	Right. Rear half M1, M2-3
P212785	Mammalia	M. Anderson	Rookies day	03.12.2000	L. Kool	Fragment only
P212810	<i>Bishops whitmorei</i>		#300	2002	L. Kool	Left. M2-3
P212811	<i>Teinolophos trusleri</i>	D. Sanderson	#187	2002	L. Kool	Right. Edentulous
P212925	Mammalia ?		#222	1996	D. Pickering	Edentulous
P212933	<i>Teinolophos trusleri</i>		#179	2001	L. Kool	Left. Edentulous. (Plus associated molar)
P212940	"Gerry's jaw"	W. White	#171	2003	D. Pickering	Left. M1, M2-3
P212950	<i>Bishops whitmorei</i>	C. Ennis	#292	2003	L. Kool	Left. P6, M1-3
P216575	<i>Teinolophos trusleri</i>	N. Gardiner	#180	2004	D. Pickering	Left. x2 molars. Probably M2-3
P216576	Mammalia	A. Musser	#500	2004	L. Kool	Isolated tooth
P216578	<i>Bishops whitmorei</i>	A. Leorke	#600	2004	D. Pickering	Left. M1-3
P216579	<i>Teinolophos trusleri</i>	N. van Klaveren	#635	2004	L. Kool	Edentulous jaw
P216580	<i>Bishops whitmorei</i>	G. Kool	#800	2004	D. Pickering	Right. P6, M1-3
P216590	<i>Teinolophos trusleri</i>	J. Wilkins	#447	2004	D. Pickering	Posterior part of right edentulous jaw
P216610	<i>Teinolophos trusleri</i>		#557	2004	L. Kool	Left. Edentulous
P216655	<i>Corriebaatar marywaltersae</i>	M. Walters	#142	2004	L. Kool	HOLOTYPE . Multituberculata. Left. P4
P216670	<i>Ausktribosphenos nyktos</i>		#184	1999	L. Kool	Left. M2-3
P216680	<i>Teinolophos trusleri</i>	R. Long	#132	2004	L. Kool	Right. Fragment
P216720	<i>Teinolophos trusleri</i>		#648	2002	L. Kool	Right. Edentulous
P216750	<i>Teinolophos trusleri</i>	R. Long	#162	2005	D. Pickering	Right. Edentulous
P221043	<i>Bishops whitmorei</i>	A. Leorke	#100	2005	D. Pickering	Right. M1-2?
P221044	<i>Ausktribosphenidae</i>	C. Ennis	#300	2005	D. Pickering	Left. M2
P221045	<i>Teinolophos trusleri</i>	J. Wilkins	#395	2005	D. Pickering	Right. Edentulous
P221046	Mammalia	H. Wilson	#480	2005	L. Kool	Isolated tooth
P221150	<i>Teinolophos trusleri</i>	J. Swinkels	#340	2006	D. Pickering	600my Exhibition display . Right. x2 molars. Probably M2-3
P221156	<i>Ausktribosphenidae</i>	N. van Klaveren	#360	2006	D. Pickering	Right. M2 (requires preparation to confirm)
P221157	<i>Bishops whitmorei</i>	M. Walters	#585	2006	D. Pickering	Right. Edentulous with alveolae for P6, M1-3
P221158	<i>Bishops whitmorei</i>	R. Close	#200	2006	D. Pickering	Right. P5-6, half M plus M2-3
P228432	<i>Ausktribosphenidae</i>		scrap rock	2009	L. Kool	Right. Molar talonid
P228848	<i>Bishops</i> sp.	M. Walters	ETRW, Otways	10.12.2006	D. Pickering	Left. P6, M1, partial M2 Right. Edentulous with alveolae for x4 molars and ultimate premolar
P229037	<i>Teinolophos trusleri</i>	M. Cleeland	#91	2008	D. Pickering	Isolated upper Premolar
P229194	Mammalia	N. Barton	#770	07.03.2007	D. Pickering	Left. Ultimate premolar, M1-4
P229408	<i>Teinolophos trusleri</i>	M. Walters	#300	14.02.2008	D. Pickering	Possibly <i>Bishops whitmorei</i> . Left. P5-6, M1-3
P229409	<i>Ausktribosphenidae</i>	N. Evered	#180	07.02.2007	D. Pickering	Right. ?M1 plus M3
P229410	<i>Teinolophos trusleri</i>	C. Ennis	#90	2008	D. Pickering	Right. P2-3, 5-6, M1-3
P229649	<i>Bishops whitmorei</i>	J. Turney	#330	2009	D. Pickering	Maxilla fragment with x2 molars
P231328	<i>Bishops</i> ?	A. Maguire	ETRW, Otways	29.11.2009	D. Pickering	
P232567	<i>Ausktribosphenos</i> sp.	M. Walters & J. Wilkins	#270	26.02.2012	D. Pickering	Right. Broken premolars. M1-3
P232892	<i>Bishops</i> sp.	A. Werner		16.02.2013	D. Pickering	Left. ?M2
P252052	"Tim's tooth"	T. Ziegler	ETRW #626	20.02.2015	D. Pickering	Upper premolar
P252207	<i>Bishops</i> sp.	O. Campbell	ETRW #200	07.02.2015	D. Pickering	Posterior part of right mandible w x1 molar
P252730	<i>Corriebaatar marywaltersae</i>	W. White	Tragics day	11.11.2017	L. Kool	Left. P4
P256479	Mammalia	M. Walters	Tragics day	15.12.2019	L. Kool	Fragment with single tooth
P208090	<i>Ausktribosphenos</i> sp.	M. Lowrey	Honey Locality	21.05.2021	L. Kool	Left. M2

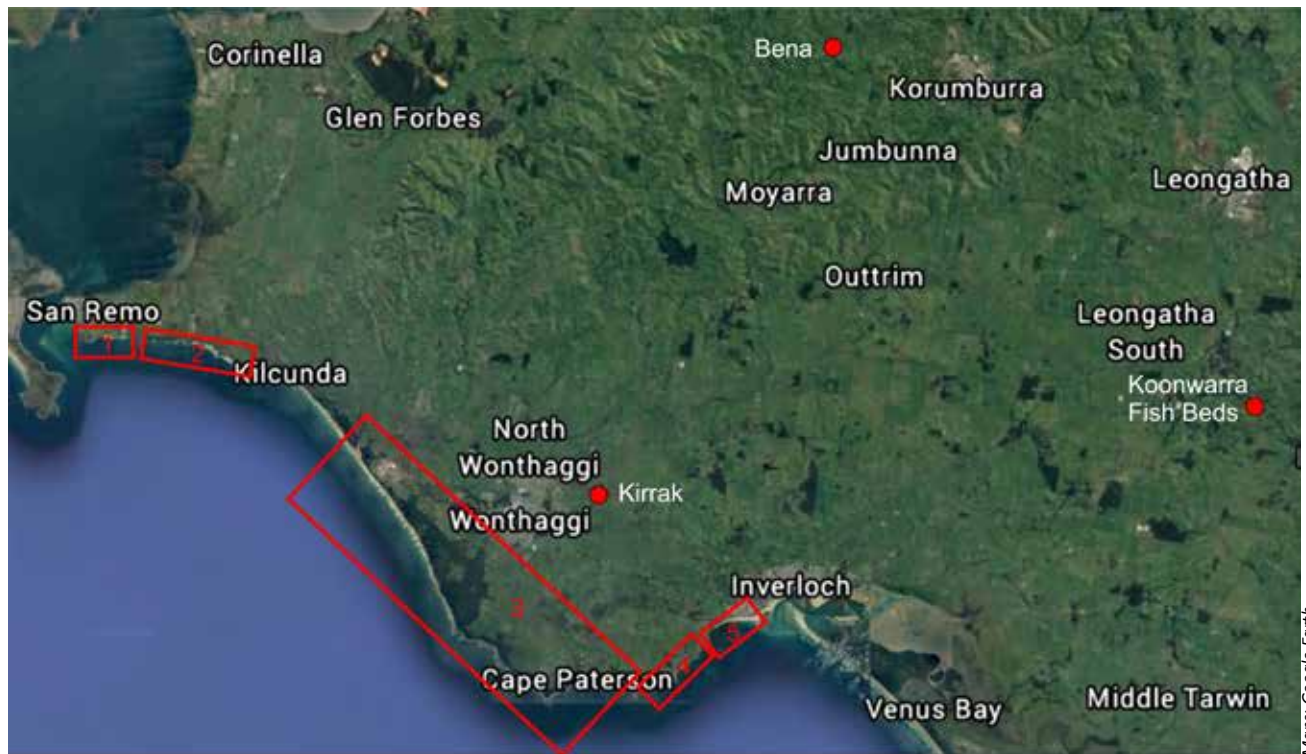
CRETACEOUS VERTEBRATE LOCALITIES IN GIPPSLAND

BY LESLEY KOOL AND MELISSA LOWERY



TAXA	San Remo Back Beach	Potters Hill	Rowell's Beach	Skull Cove	Punch Bowl	The Haybaler	Andrew's Beach	Orbital site	Tree Trunk Point	The Arch	Black Head	Kilcunda	Powell River	Harmer's Haven	Wreck Beach	F Break	Cape Paterson	The Oaks	Twin Reefs	Shack Bay	Lesley's Lair	Tom's Layer	Ferguson's Layer	Eagles Nest	Halfway Headland	The Honey Locality	The Caves	Flat rocks	Swim O'clock Rock	Ankylosaur Point	Noddyland	RACV Point	Mary Annings	Kirrak	Melissa's Mine	Bena	Koonwarra		
Mammalia:																																							
Australosphenidae (Unidentified)																																							
Ausktribosphenos nyktos																																							
Ausktribosphenos sp.																																							
Bishops whitmorei																																							
Monotremata (Unidentified)																																							
Teinolophos trusleri																																							
Multituberculata (Unidentified)																																							
Corriebaatar marywaltersae																																							
Dinosauria:																																							
Dinosauria (Unidentified)																																							
Ornithopoda (Unidentified)																																							
Fulgurotherium australe																																							
Galleonosaurus dorisae																																							
Qantassaurus intrepidus																																							
Ankylosauria																																							
Neoceratopsidae (Unidentified)																																							
Serendipaceratops arthurclarkei																																							
Theropoda (Unidentified)																																							
Megaraptora																																							
Ceratosaurs:Noasauridae																																							
Aves (birds)																																							
Other Vertebrates:																																							
Plesiosaurs (aquatic reptiles)																																							
Pterosaurs (flying reptiles)																																							
Testudines (turtles)																																							
Temnospondyli (amphibians)																																							
Koolasuchus cleelandi																																							
Dipnoi (lungfish)																																							
Neoceratodus nargun																																							
Archaeoceratodus avus																																							
Actinopterygii (ray finned fish)																																							
Coccolepis' woodwardi																																							
Koonwarria manifrons																																							
Psilichthys sp.																																							
Wadeichthys oxyops																																							
Waldmanichthys koonwarri																																							
Trace Fossils:																																							
Dinosaur footprints																																							

Key: ■ fossil from locality identified; □ fossil from locality tentatively identified



Maps: Google Earth
Data: SIO, NOAA, US Navy, GEA, GEBCO, Landsat / Copernicus, CNES / Airbus, TerraMetrics



WILLIAM (BILL) LOADS

1946 – 2023

The species name of *Atlascopcosaurus loadsi* honours a man who more than any other single person made the excavations at Dinosaur Cove possible. William Loads first did this for the initial dig there in 1984 when he realised that the Friends of the National Museum of Victoria, who were financing “their” dig, did not have that much money. He therefore charged only a nominal amount for that first dig for the Atlas Copco compressors, air bottles, hoses and air tools needed to cut a shallow adit in the cement-hard rock there. For the next decade, he made sure all this vital equipment was provided gratis. Had he not done so, the 1984 excavation at Dinosaur Cove could well have been the last one there.

Dinosaur Cove laid the groundwork for all that later followed, the discovery and subsequent excavations at Flat Rocks and Eric the Red West along with the systematic searching of the coastal outcrops for additional sites. If William Loads had not provided the essential wherewithal to keep the Dinosaur Cove excavations going for a decade, would any of what followed have come to pass?



William Loads and Mike Cleeland at Eric the Red West in 2007



Image: L Nink

I FOUND A FOSSIL!

BY WENDY WHITE



Fotini Karakitsos



Amber Craig



Wendy White



Adam Dellal



Amber Craig and Fotini Karakitsos with the “more accurate” warning sign.

MORNING TEA

BY ZEV LANDES



MORNING TEA AT THE DIG...

Image courtesy of P Vickers-Rich



CURRENT EXHIBITIONS

BY PAT VICKERS-RICH

Inverloch Information Centre – Bass Coast

This space overseen by Janette Little is being constantly added to and upgraded. Earlier this year two glass cabinets were transferred from Swinburne University (where they had been on show for several years) to the Information Centre. In these two cabinets are casts of *Psittacosaurus* and *Serendipaceratops* (related genera — the first not yet found in Australia and the other found along the Bass Coast). In the other cabinet are forms that lived before the polar dinosaurs, at a time (Permian-Triassic) when other animals, the mammal-like reptiles, ruled the world.

The Information Centre funded the cabinets which host casts and some original material of a variety of the Bass Coast fossils, both plant and animal, as well as some of the ichnites (footprints) left behind by dinosaurs, birds and invertebrates. A variety of living plants, ferns, ginkgos, and araucarians, that are directly related to the fossils found in the 130 million year old rocks of the Bass Coast grace the expo bringing the past to the present.

The RACV Inverloch Resort – Bass Coast

The RACV Inverloch Resort has for some years hosted the very best exhibition related to the Dinosaur Dreaming Project ever, and this expo continues to be updated. Recently the RACV staff, working in concert with P. Vickers-Rich and the Dino Dreaming Team and likely soon in concert with PrimeSCI! based at Swinburne University Wantirna, have developed an education kit that is provided free to school kids and anyone interested.



Inverloch Information Centre



Image: P Vickers-Rich



Image: P Vickers-Rich

Publications — *Dinosaurs on our Doorstep* and *My Little Dino*

The exhibition details the history and progress of the work carried out over the years by Monash University and Museums Victoria (led by T. Rich and his team) and will continue to be updated as this project continues.

It is hoped that this expo along with that in the information Centre in Inverloch will become stops in the Dinosaur Trail that is currently being developed by the Bass Coast Shire Council, local individuals and the Dinosaur Dreaming Research Team with connections to Museums Victoria, Monash University and PrimeSCI!.

The Dinosaur Shed: Otway Lighthouse – Otway Coast

This document sets out a loan agreement between Professor Patricia Vickers-Rich and the Great Ocean Road Coast and Parks Authority (the Authority) regarding fossils and associated information.

The fossils and associated information relate to the local area and are on display at the Cape Otway Lightstation Precinct in the Dinosaur Hut.

The Authority accepts this loan offer and takes on responsibility for the care and housing of these items. The Authority notes all items remain the property of Professor Vickers-Rich and ownership is not transferred to the Authority. The Authority also notes that the items are not to be removed from the Cape



The RACV Inverloch Resort



Image: P Vickers-Rich

Otway Lightstation Precinct unless prior permission and express consent has been obtained from Professor Vickers-Rich.

The Authority is the Lease Holder which manages and operates the Cape Otway Lightstation Precinct. Should the Authority's lease cease and the Authority no longer manage and operate the Cape Otway Light Station Precinct, the Authority will notify Professor Vickers-Rich of this change in circumstances as soon as practical.

Professor Vickers-Rich may withdraw her loan offer at any time. Should the offer be withdrawn, the Authority will be notified in writing by Professor Vickers-Rich with at least 28 days' notice prior to the removal of the items. The items will be removed at the expense of Professor Vickers-Rich.

This agreement was signed off by Jodie Sizer, CEO of the Great Ocean Road Coast and Parks Authority with the support of the Cape Otway Lighthouse staff on 13 August 2022.

Included in this exhibition were:

- Poster: A Dinosaur Taster Exhibition at the Otway Lighthouse;
- A Framed Picture: *Koolasuchus cleelandi*;
- A Framed Picture: Time Magazine cover of dinosaur hatching (1993);

- A Framed Picture: Dinosaur head (*Qantassaurus*) with trees/forest behind it;
- A Framed Picture of polar dinosaurs on the riverside;
- A Framed Picture of several dinosaurs — same artwork used for 1993 Australia Post stamps;
- A number of information panels concerning geological time, continent drift, biodiversity through time, interpreting fossils, radiometric dating, details concerning many of the polar dinosaurs, etc.

It is most encouraging that many of the local facilities have recognized and support the showing-off of the local treasures working in close relationships with the researchers who are carrying out this work on the south polar dinosaurs. These institutions are selling some of the publications and casts prepared by this research team, the majority of which are volunteers who have been on this project, some for decades. The funds raised from these sales are ploughed back into research funding, primarily managed by the School of Earth, Atmosphere and Environment at Monash University.

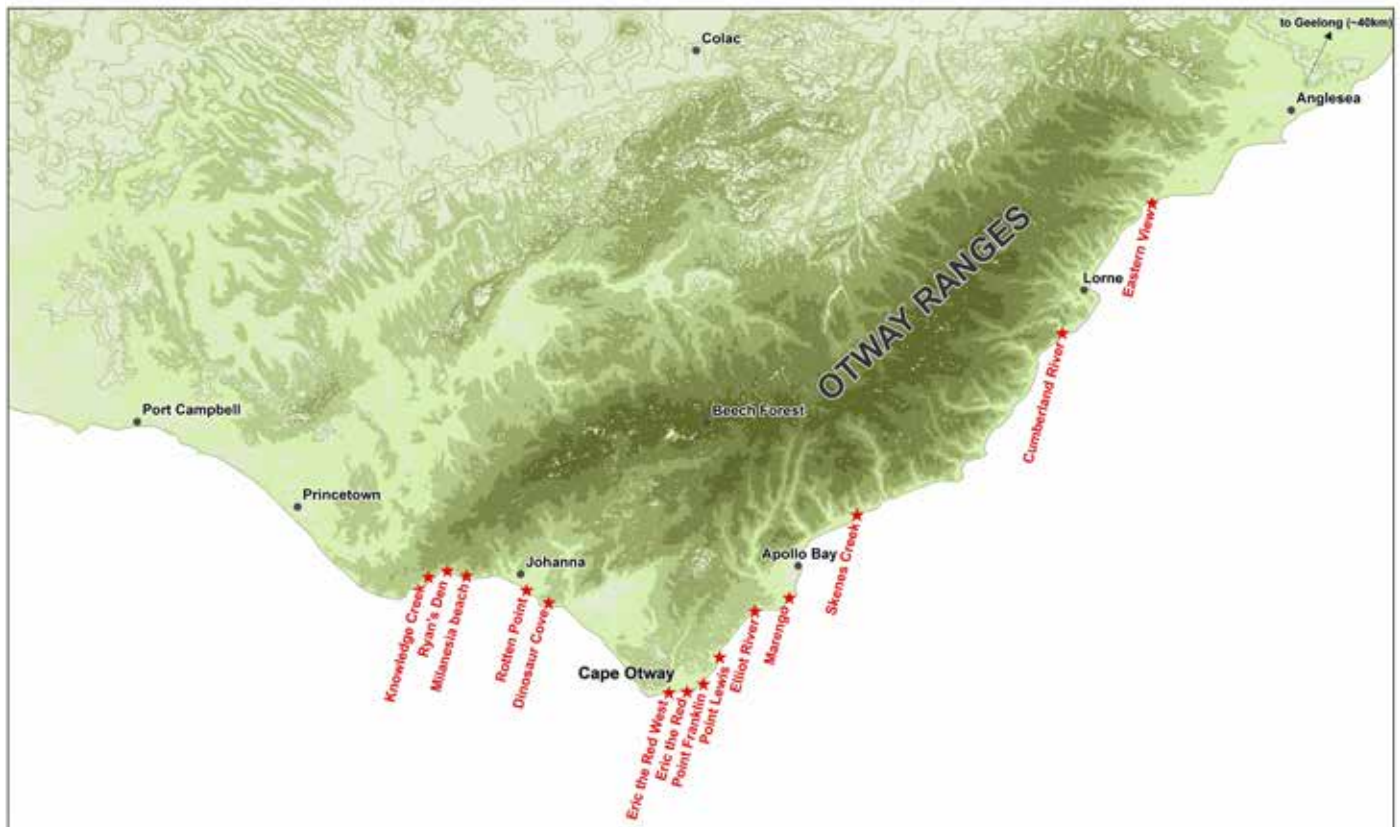


The Dinosaur Shed: Otway Lighthouse



Image: P Vickers-Rich

CRETACEOUS VERTEBRATE LOCALITIES IN THE OTWAYS



TAXA	Knowledge Creek	Ryan's Den	Milanesia Beach	Rotten Point	Dinosaur Cove	Eric the Red West	Eric the Red	Point Franklin	Point Lewis	Elliot River	Marengo	Skene's Creek	Cumberland River	Eastern View
Mammalia:														
Australosphenidae (Unidentified)						X								
<i>Bishops sp.</i>						X								
Monotremata (Unidentified)						X								
<i>Kryoryctes cadburyi</i>					X									
Dinosauria:														
Dinosauria (Unidentified)	X			X	X	X	X	X	X	X	X			X
Ornithopoda (Unidentified)	X			X	X	X		X	X	X	X			
<i>Atascopcosaurus loadsi</i>					X				X					
<i>Diluvicursor pickeringi</i>						X								
<i>Fulgurotherium australe</i>					X									
<i>Leaellynasaura amicographica</i>					X									
Ankylosauria (Unidentified)					X									
Neoceratopsia (Unidentified)					X									
Theropoda (Unidentified)					X	X		X						
Tyrannosauroidae					X									
<i>Timimus hermani</i>					X									
Megaprotora					X	X								
Ceratopsia:Elaphrosaurinae						X								
Other Vertebrates:														
Plesiosauria (aquatic reptiles)					X	X							X	
Crocodyliformes (crocodiles)					X									
Pterosauria (flying reptiles)					X	X								
Testudines (turtles)		X			X	X	X	X	X					
<i>Otwayemys conicularius</i>					X									
Dipnoi (lungfish)					X	X			X					
<i>Neoceratodus nargun</i>					X				X					
Actinopterygii (ray finned fish)					X	X								
Trace Fossils:														
Dinosaur footprints	X		X		X							X		
Bird footprints					X							X		
Dinosaur burrows	X													

2023 FIELD CREW

Marion Anderson
Sheahan Bestel
Mike Cleeland
Amber Craig
Adam Dellal
Eve Eidelson
Alan Evered

Nicole Evered
Fotini Karakitsos
Lesley Kool
Jake Kotevski
Zev Landes
(embedded artist)
Rohan Long

Melissa Lowery
Domenica Mammone
Jack O'Connor
Doris Seegets-Villiers
John Swinkels
Alan Tait
Nick van Klaveren

Mary Walters
Astrid Werner
Wendy White
John Wilkins
Ben Williams
Corrie Williams
Dean Wright



Image: Z Landes

Standing: Alan Tait, John Wilkins, Corrie Williams, Jake Kotevski, Astrid Werner, John Swinkels, Adam Dellal, Dean Wright, Sheahan Bestel, Marion Anderson, Lesley Kool, Mary Walters
Kneeling / fallen over: Jack O'Connor, Nick van Klaveren, Amber Craig, Eve Eidelson, Wendy White, Doris Seegets-Villiers

