

# thylacinus



**Cover photo:** Rainbow Bee Eater .

**Credit:** Courtney Jones

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## FROM THE PRESIDENT Mike Drinkwater

Dear members,

Wishing you all a very happy new year! We hope you all enjoyed a fantastic Christmas and the holiday period has seen your workplaces full of happy visitors rejoicing in the work you do.

As with every new year, we reset, and we get ready to smash out another year full of incredible achievements. And the same applies for us here at the ASZK... a big year ahead! First off the rank is the 2019 Wildlife Photography Competition which has seen some incredible images submitted over the past few years. This year, we have introduced a new category of 'habitat' in the hope that we will receive some amazing submissions of some of your favourite wild ecosystems both here and abroad. As always, the winners will be announced during the gala dinner at the annual conference.

We are also very proud to announce that during April we will come together once again to raise funds for an important conservation initiative. Congratulations to the Tree Roo Rescue Centre who will be the deserved recipient from this year's "Bowling for Tree Roo Rescue". We are really looking forward to making a great contribution to this fantastic organisation.

The pinnacle event for the year will be our annual conference from 3-5 May 2019. After about a decade, we are returning to Sydney. The ASZK team are busy planning everything and we are very excited about delivering another stellar conference and bringing keepers together from all over the region. We will be sharing all the vital information very soon, so keep your eyes open for registrations as we are certain places will fill fast!

Finally, and very importantly, we have been working with a new web developer wplanning a new, refreshed website. It has been about five years since the last website was put together. Despite being a vast improvement on its former self, we acknowledge there have been some issues with the current version. We are certain the new website will provide a far greater user experience. Our current projection will see the new site delivered in the first quarter of 2019.

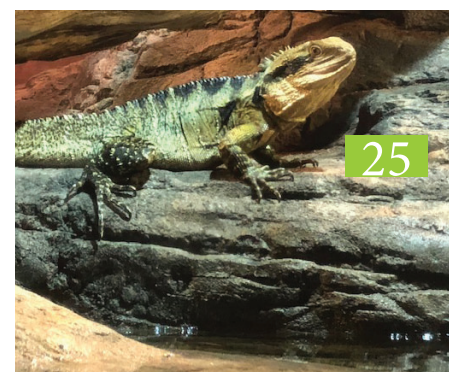
May 2019 bring you all every success, we hope to see you at one of our ASZK events this year.

Mike

# contents

NO. 4 • 2018

Possum Playground: Creating a unique and challenging enrichment choice.....	4
Designing a Dingo Domain .....	7
The little-known reason Australasian zookeepers should be proud.....	11
Anti-venom Program at the Australian Reptile Park (Winner - Best Paper Presentation 2018) .....	12
A walk on the wild side .....	15
ASZK Annual Awards for 2018 .....	17
ASZK Annual Conference 2019.....	18
ATC Report .....	19
Backing the Underbird: Operant Training with an Emu .....	20
Meet an ASZK member .....	21
Zoo News .....	23
Des Spittall Scholarship for Keeper Development .....	28
Cryptococcus in a captive koala population- a call to arms for industry-wide collaboration.....	30
ASZK Photo Comp 2019.....	31



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## Possum Playground: Creating a unique and challenging enrichment choice

PAULA WATSON & NICOLE BOYS, HEALESVILLE SANCTUARY, ZOOS VICTORIA

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Zoos Victoria considers animal enrichment to be an important part of maintaining captive animals in a positive welfare state. Each year a 'Willy Wonka' enrichment program is run to inspire creative thinking and maintain positive animal welfare while showcasing incredible animal care. Projects are chosen according to their level of innovation, fun and support of animal welfare. This is an ideal platform to encourage the fertile minds of zoo keepers to continue to think creatively when it comes to enrichment. Initially, no idea is considered too wild or far-fetched, although eventually some have to be tamed down a little! Some examples of completed Willy Wonka projects are:

- A motion-activated shower for the Giant Tortoises at Melbourne Zoo means that they can now choose to take a shower to cool down and have a shell massage anytime!

- A motion-activated shower for the Emus at Healesville Sanctuary, which was also connected to a fine mister that enriched the visitors
- A mealworm-tossing windmill for the Meerkats at Werribee
- A produce cannon for the Gorillas at Werribee
- An Otter waterslide at Melbourne Zoo

In 2012, Healesville Sanctuary commenced a captive breeding program for the critically endangered Leadbeater's Possum (*Gymnobelideus leadbeateri*). Wild founders were collected from Yellingbo Nature Conservation Reserve over a 5 year period and are currently housed in pairs within a large facility, separated into individual enclosures measuring 10m (L) x 5m (W) x 3m (H). Leadbeater's possums are territorial, so there is a solid wall between adjacent enclosures, and where

possible, an empty enclosure between colonies to act as a buffer.

Leadbeater's possums are an extremely active, nimble and curious species. The delivery of creative enrichment that provides a physical and mental challenge for this species has been an ongoing task for the keepers, requiring innovative thinking. Taking advantage of the 'Willy Wonka' program opportunity, the keepers began to throw around all sorts of weird and wonderful enrichment ideas, initially inspired by some imaginative (and fun!) obstacle courses used in North America to prevent wild squirrels from getting to bird feeders. Like the TV show *Grand Designs*, these small seeds of Wonka craziness slowly developed into grander plans to design a complete LBP playground: a well-designed enclosure housing various pieces of LBP 'gym' equipment where individual colonies could take it in turns flexing their muscles, and their brains, while working out in neutral territory.

A central enclosure was chosen within the possum facility to be the Leadbeater's Possum gymnasium, allowing a different pair of possums access to the gym on any given night via a connecting tunnel. The connecting tunnel was built down one side of the exterior of the building, with an access point from each enclosure into the tunnel. (See below)



Slides were also installed to allow the keepers to block off any part of the tunnel that was not required to be in use by a pair, to minimise disturbance to other colonies.



On any given night, a different pair of possums can be given access to the gym via the tunnel. An obvious red tag on the possums' enclosure door highlights for the keeper servicing the animals that day who currently has access, and a blackboard on the door of the gym is also updated. The possums choose whether they leave their territory to visit the gym, or stay at home on the couch. For a pair housed in an enclosure at the far end of the facility, a trip to the gym means running in the tunnel for a little over half the length of the facility, a lengthy 25 metres! The keepers wondered if they would be curious and brave enough to take on this harrowing, but muscle-warming, sprint challenge prior to reaching the gym. Yes, they were up for it!

Possum keepers worked closely with a member of the Healesville Sanctuary maintenance team to build the LBP gym equipment. The unique equipment designed for the gym needed to stimulate investigative behaviour, challenge balance and climbing, and encourage quick thinking and problem solving. Each gym piece had to first be approved as a safe enrichment item for the possums to use, made from non-toxic materials, with no pinch points present, and providing no entanglement or entrapment risk. The equipment also needed to include novel items, unlike any other enrichment that is delivered directly into their enclosures. Some items were tested on a pair of display Leadbeater's possums, so keepers could observe how the possums interacted with them. After much discussion, several playful pieces were designed, built and installed in the Willy Wonka enclosure. Most of the items can be rearranged easily into a new design once the possums get familiar with a particular layout.

Permanent cameras installed in the possum gym have allowed staff to assess the frequency of visits and observe how individuals use the space. The possums usually enter the gym within an hour of emerging from their nest box at dusk, and are seen investigating the area throughout the night. There is always fresh water available, and a small portion of food was also provided for the first few nights that the possums had access to the gym. This was discontinued once the keepers were comfortable that the possums were familiar with the route to the gym and back to their enclosure.

On the first night the enclosure was used, a female possum did not find her way back to her enclosure and was located sleeping in a tree the next morning. A nest box from her home enclosure was placed into the gym and the next morning the possum (and her partner!) were using it. This box was then relocated back into the possums' enclosure in the morning. The following night both animals chose to visit the gym again and both successfully found their way home! After this incident, all possums



were given access to the tunnel in increasingly larger sections to allow them to learn the route back to their enclosure. They now come and go readily throughout the night, and all return to their home enclosures to feed and sleep.

The possums have all visited the gym on numerous occasions now and have improved their skill and speed on the equipment over time. Possums are often seen cloacal licking while in the gym, reinforcing the bond between pairs. Overall, this enrichment project has demonstrated how creative thinking can contribute to a positive welfare state for captive animals.



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# Designing a Dingo Domain

*Rebecca Bain, Lone Pine Koala Sanctuary*

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Lone Pine Koala Sanctuary has been established since 1927, and is the world's first and largest koala sanctuary, located in Brisbane, Queensland. We are home to 130 koalas and 100 species of other native Australian animals. At Lone Pine, we hope for our guests to not only see animals, but meet them; to connect emotionally with nature, experience habitats, and understand that protecting habitats is also protecting wildlife.

Lone Pine is home to two beautiful desert dingo siblings, Tanami and Simpson, who I had the pleasure of hand raising since they were just five weeks old.

They'll be celebrating their eight birthday this year, and have turned into two well-socialised dingoes that act as great ambassadors for their species. During daily walks, behind the scenes programs and school holiday programs our dingoes regularly share special encounters with visitors, both in their exhibit and within the grounds of the sanctuary.



*Tanami posing with some visitors during her daily walk*

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Lone Pine Koala Sanctuary prides itself on creating world class exhibits with extensive design research which includes visiting zoos, aquariums, museums and galleries all around the world. Our General Manager was particularly taken with some tunnels he'd seen within an exhibit at Gaia Zoo in the Netherlands and was very pleased when this feature was included in the design of our new exhibit.

In October last year, as part of Lone Pine's 90th Birthday celebrations, the new dingo exhibit was officially opened.



*Mammal keeper Rebecca with five week old dingo pups Tanami and Simpson*

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Before I share with you our exciting new exhibit, let me briefly describe what the former exhibit looked like. (below).



The old exhibit was rectangular, with black wire mesh topped with inward returns. A safety cage located in the middle divided the exhibit into two sections which could be kept open so the dingoes could utilise both sections. There were two dens, some big tree roots and medium sized rocks to create a multi-dimensional space. The exhibit was large enough that the dingoes could get up to a sprint during play with me or with each other, they had access to different substrates and we provided regular enrichment activities within the exhibit for extra stimulation.

After months of discussion and planning, a decision was made to build a new exhibit for the dingoes. A location on the other side of the Sanctuary was chosen as the new site due to the size and height available.

Once the location was chosen and construction began, it was extremely important for us to expose Tanami and Simpson to the exhibit at various stages of development to try to desensitise them to the new area and the different building materials being used. For those not familiar with dingoes, they are known to be quite cautious and wary of different objects, noises and situations that they are not used to. We knew that they would need regular exposure to the new exhibit site throughout construction in order to get comfortable and confident with all the new features.

In further adhering to the minimum standards, multiple holding yards have been incorporated into the design, inhangs are present on the tops of the fences and the structural complexity components – climbing opportunities, undulation in soil topography and vegetation, as you’ll soon see, are very well represented.

A wire tunnel was installed for the dingoes to access that runs alongside the pedestrian bridge utilising the height, creating unique vantage points for both guests and dingoes. Visitors immensely enjoy watching the dingoes walk or run past them along the bridge at their level, and it can be quite common to catch Tanami having a snooze somewhere within the tunnel.



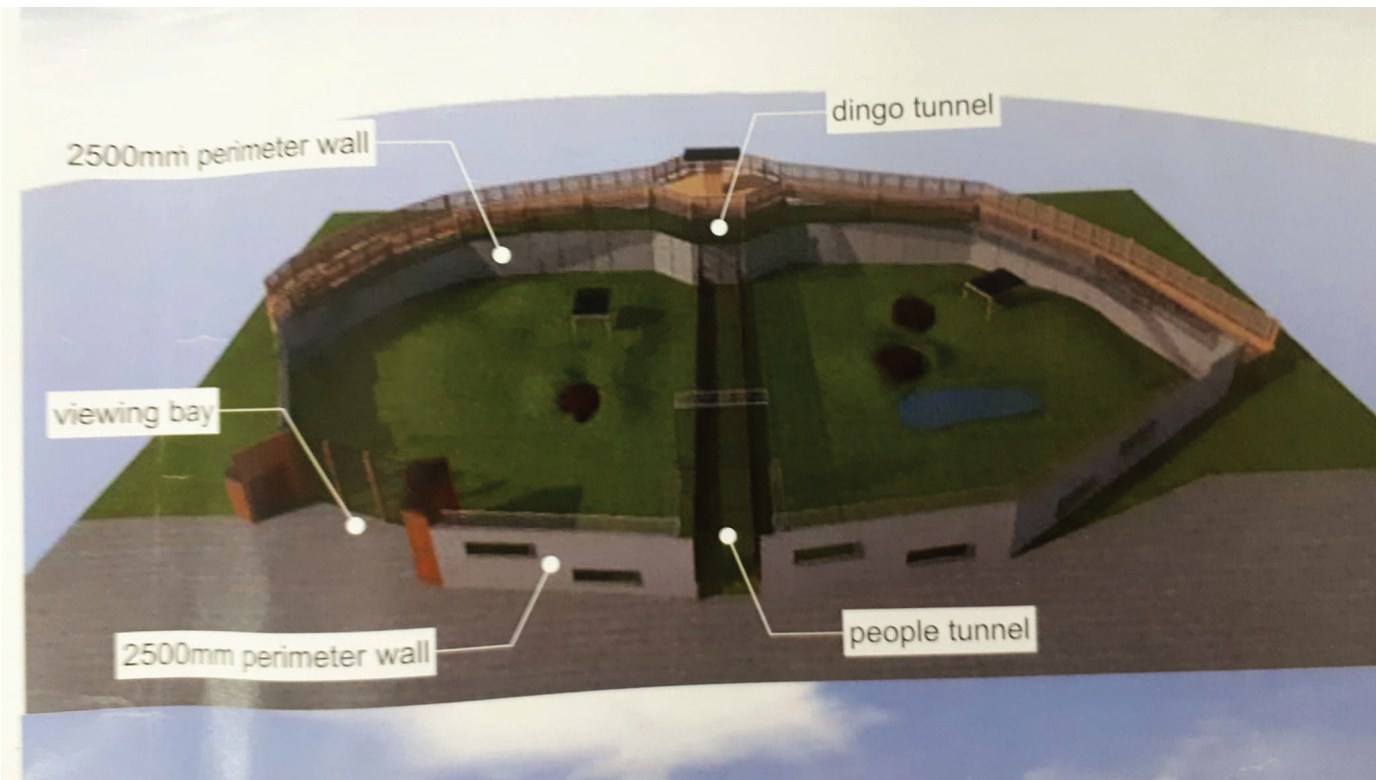
*Tanami jogging through wire tunnel to the delight of visitors*



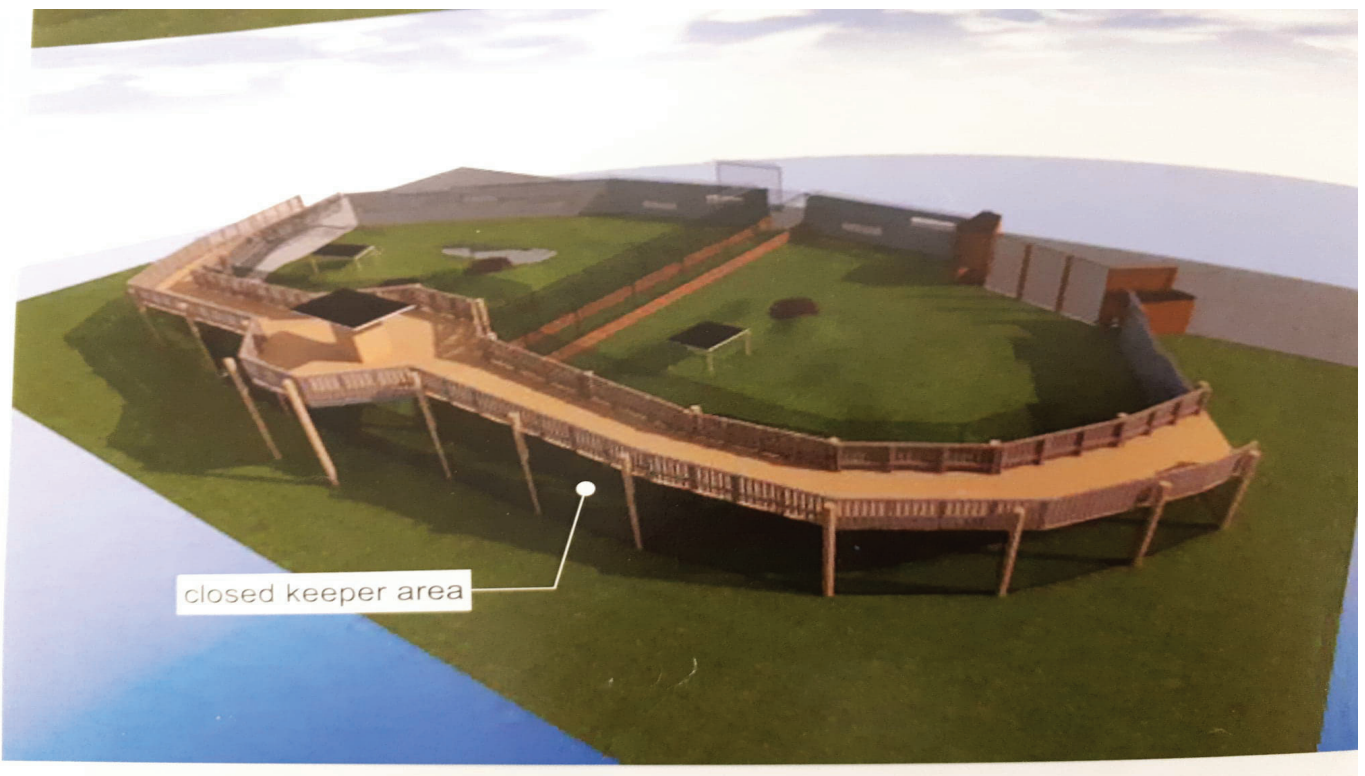
*Desensitisation of the dingoes as the construction takes place*

The new exhibit exceeds the minimum standards greatly, with the exhibit being large enough to exhibit eight dingoes, whereas our lucky dingo pair have the entire place to themselves.





*Front view of new exhibit*



*Back view of new exhibit*



The dingoes can use this tunnel to get from one side of the exhibit to the other or to jump down through an opening onto the roof of the covered visitor walkway located in the middle of the exhibit.

Another feature very popular with both visitors and the dingoes is the visitor walkway. This area provides great viewing opportunities through wire mesh walls on both sides as well as the novelty of seeing the dingoes up above them. With the help of wooden ramps and platforms, the dingoes can use this as another way to access both sides of the exhibit. It has also turned into one of Tanami's favourite resting places. The photo below of Tanami sleeping on the visitor walkway is actually a still from video footage captured by one of several video cameras installed during the building process, providing keepers with the opportunity to review footage, and providing Lone Pine an avenue to allow visitors to watch the dingoes without physically being on site.

A very exciting addition in this exhibit was... grass! The dingoes have been observed happily lounging on and rolling in the grass. The fact that this turf is covering quite high mounds just adds to the fun (and gives us a big tick for the 'undulation in soil topography' component in the minimum standards). The large grass clumps planted on the mounds make games of chasey WAY more fun to the dingoes, both when playing with each other or with keepers. While we're on the topic of vegetation, several species of native shrubs have also been planted around the exhibit, and a conscious decision was made to avoid including plants that would attract native wildlife in the hope of reducing the number of prey species, such as birds and possums, that may enter the exhibit.

And I'm sure some of you were wondering - yes, that grass is a LOT of fun to mow...

Two more features that were very exciting were shallow ponds and sand digging pits. While neither of our dingoes are big fans of water, Tanami surprised us all by happily running straight through the ponds during games of chasey, and has also been observed on many occasions fully walking into the pond to have a drink.



*Pond fun*

At Lone Pine we value the importance of our yearly pass members and wanted to share with them our new dingo exhibit. We ran a competition which invited yearly pass members to a 'sneak peek' event one month before the official grand opening.

The competition winners had a great afternoon, especially when they were able to enter and walk around the new exhibit. My favourite memory from that event was walking Tanami onto the grass area as the first few people walked in after the speeches and, just as I hoped she



*A common sight – Tanami sleeping on the visitor walkway*

would, she had a massive roll around on the grass.

As part of Lone Pine's 90th Birthday celebrations, the new exhibit was officially opened by our General Manager, Curator and Guests of Honour including Stacey Thomson or 'Ranger Stacey' and Bob Irwin. The grand opening was extremely well attended, with many of our yearly pass members not wanting to miss out on witnessing Tanami and Simpson moving into their amazing brand new home.

And Tanami and Simpson did not disappoint – they were just as excited as all the visitors present and put on a brilliant display for everyone – chasing each other over the grass mounds, racing through the wire tunnel and genuinely having a great time.

I'm very happy to say the new exhibit has been considered a roaring success by Lone Pine staff, Lone Pine visitors and Lone Pine's dingoes.

(weblink for live cameras at dingo exhibit: [www.ipcamlive.com/dingoes](http://www.ipcamlive.com/dingoes) [www.ipcamlive.com/dingos](http://www.ipcamlive.com/dingos))



*Happy dingoes on grand opening day*

## The little-known reason Australasian zookeepers should be proud

Across Australia, New Zealand and Papua New Guinea we have a reason to say that our zoos focus on positive animal welfare. That we raise the bar when it comes to actively supporting animals to have good, fulfilling lives.

That reason is that many zoos, wildlife parks and aquariums in Australasia are accredited for positive animal welfare with the Zoo and Aquarium Association (ZAA).

The ZAA Accreditation Program for animal welfare in zoos and aquariums is world-leading and arguably the most progressive in the world. That's because rather than focusing on what we give the animals (exhibits, enrichment items etc.) it looks at how the animals respond. It allows for assessment of not only the species, but individuals with their own likes and dislikes.

How does the Program assess this? Where do you even start?

This is where the Five Domains Model comes in. Developed by professors at Massey University, it's a science-based, comprehensive framework that keepers and curators can use to assess welfare.



Evidence from the first four domains (1) Nutrition, (2) Environment, (3) Health and (4) Behaviour all help inform us about the animal's various experiences, which make up (5) the Mental Domain. From this collective look at the experiences which make up the animal's life, we can make a well-informed assessment of its welfare.

There are great examples of this in practice across the ZAA membership, like one zoo which provided evidence and monitoring of food intake results and preferences for a



new echidna diet they introduced to enhance positive experiences.

Through the Program, Australasian zookeepers are looking at the world from the perspective of the animals under their care and it's putting us ahead of the curve in animal welfare.

Credibility comes with working for a ZAA-accredited organisation. So, if you're a keeper at one of these zoos or aquariums, you should be proud of your ZAA-cred and your progressive focus on animal welfare.

Not every zoo in the world practices positive animal welfare and not all people understand the differences between good and bad zoos. It's important that we all talk about being accredited to distinguish ourselves as good, modern zoos and aquariums. It's important so that we continue to get support from the community to do our good work for wildlife, but also so that other organisations will strive to achieve better outcomes in welfare and achieve accreditation themselves.

As zookeepers, you can continue the great work in supporting positive welfare and educate the public about why they should choose to visit accredited zoos and aquariums. Tell whoever will listen about your ZAA-cred!

Contact [communications@zooaquarium.org.au](mailto:communications@zooaquarium.org.au) to learn more about ZAA accreditation.



## ANTI-VENOM PROGRAM AT THE AUSTRALIAN REPTILE PARK

### Zac Bower

The Australian Reptile Park opened in 1949 and has been involved with the Australian Antivenom Program since 1951. Originally founded by the late Eric Worrel, the reptile park started collecting snakes in response to the arising need to develop an antivenin. Over the past 65 years ARP staff have collected venom from indigenous, terrestrial snakes for use in the production of antivenom and in doing so, saved a reported 300 lives per year. Through my association with ARP I have had the great fortune to be selected to be apart of this program and have had the opportunity to be mentored by some incredible venom keepers including John Weigel, Craig Adams and Bill Collet and recently took on the role of Venom Supervisor at the park, which has been a life long dream.

Over the past few years we have investigated venom extraction techniques utilised in other venom facilities around the world in order to refine our own processes with the view to maximise the amount of venom recovered as well as minimising the risk to keepers and snakes. We had noticed a significant amount of venom was being lost using the traditional vial method which involved a snake biting onto a vial with a membrane stretched across the top, this was especially noticeable whilst milking our Eastern Brown snakes as the venom yield was so small.

We looked into multiple techniques including multiple snakes per vial used by world renown venom labs including Kentucky Reptile Zoo, Reptile Discovery Centre and medtoxins venom laboratories and decided not to use that due to the high chance of disease transfer from snake to snake. We also looked into using capillary tubes used by university of northern Colorado. But they seemed to suit vipers with large hinged fangs rather than our elapids with fixed fangs and a more solid jaw structure which would hinder the ability to use the long tubes they also presented the same problem as the multiple snakes on a vial with the transfer of disease. We eventually found a technique that appeared to suit our needs and fitted almost all of the criteria we were looking for.



*Eric Worrel milking a snake in 1951*

Traditionally Venom Extractions used a glass beaker with a cutup dishwashing glove stretched over the beaker to roughly the tension of skin, that they would get anywhere up to 50 snakes to bite onto, which we now understand was a fairly unhygienic process. It'd be like sharing your toothbrush with everyone else in the room. Any snakes that may have had infections or viruses would spread this through a whole collection extremely fast with devastating consequences as some international venom facilities have experienced.

We then moved onto one vial per snake in order to raise the hygiene standards and nullify any chance of transfer during the milking process. This technique has been successful for 60 years, as we know by the approximately 15,000 lives saved in that time period. But this single vial technique had its drawbacks. To effectively clean up to 150 vials used weekly is very time consuming as well as re-covering each vial individually. This means one staff member is tied up prepping vials for a full day every week. As well as the time factor, each time a snake's venom is extracted a small amount of venom is left on the membrane and vial as well as in the transfer syringe when it's moved from the vial to vacuum sealable bottles. The amount from individual snakes is tiny but when you extract venom from over 250 snakes every fortnight it

starts to add up. If we look further, multiply that over the last 65 years, it becomes an extremely large amount of venom we have been unable to retrieve until recently.

This isn't really an issue when working with the larger yielding species like coastal taipans as the % of venom lost is so miniscule that it doesn't warrant any change to the well tried and tested technique. On average with the coastal taipans the % lost would be under 1% of the total amount of venom extracted. Being so low it seemed unwise to trial any other techniques that cause a slightly higher risk to the keeper. The loss becomes more significant when eastern browns are milked with this technique and the loss can be anywhere between 10-20% as residue on the equipment depending on the individual snake.

As you can see in the photo there is venom on the film, side of the glass and not a single drop in the bottom of the vial. We would have had an incredibly hard time to retrieve the majority of it. On average Eastern browns give 0.1 grams of venom compared to a coastal taipan that I was recently able to extract 3.1 grams from. The percentage lost from eastern browns being that large gave us the perfect reason to attempt to trial different techniques in order to be at maximum efficiency. We decided to trial the pipetting method used by the Australian company Venom Supplies that specialises in supplying venom for pharmaceutical companies and has fine tuned this technique over many years.



*The vial used for venom extraction showing venom on the film and side of the glass but none in the bottom*

### ***Pipetting an Eastern Brown***

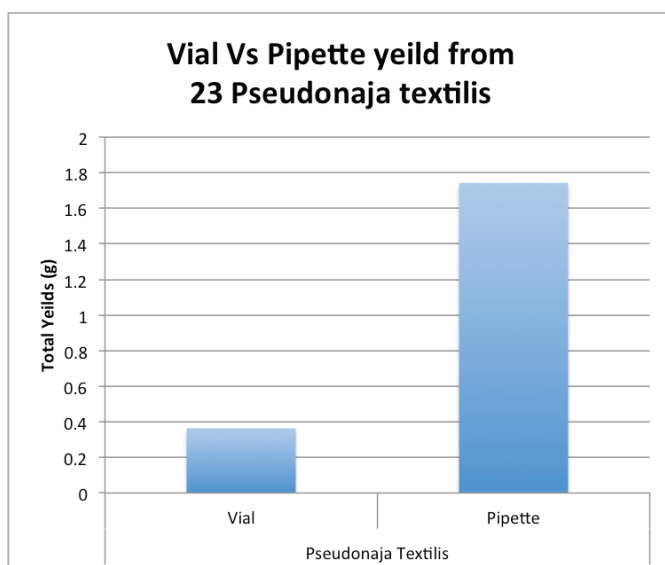
The pipetting technique was something very different to the tradition method. It involved placing a small pipette over the fang of the snake and applying light pressure to push the fang sheath up and stimulating a bite response on that side. It would allow us to extract venom from one side of the snake at a time and ensure we were collecting as much as possible. It could then be placed immediately into the sealable vial cutting out almost all chances for venom loss. We also were about to improve this yet again by using polycarbonate pipettes, which actually repel



the venom proteins allowing it all to be collected. Initial trials saw good results and an improvement of 57% more venom collected. We were happy but saw that our technique could be improved if we were able to see it done effectively. We contacted Nathan Dunstan at Venom Supplies who gave me the opportunity to go down for a week and study him and his team whilst they worked. He explained and demonstrated the finer details with the technique and I was able to bring those back to ARP and pass the information onto my staff. Initial trials showed immediate positive results of roughly double the amount collected. With these rapid improvements management gave me permission to continue trialling this technique and over the coming months as my proficiency grew and I fine tuned the technique our results got even better to a point where the Venom Extracted from the same 23 eastern browns that had previously been milked using the vial showed an improvement of roughly 250% (vial – pipette graph). As you can see in the graph, the improvement was incredible and far exceeded anything we expected.



*Pipetting an Eastern Brown Snake*



The graph shows six months of data showing three months of milking compared to three months of pipetting averaged out.

As with all venom extraction techniques pipetting snakes isn't without its risks but our main concern with this method was how close your hand is to the fangs. With the pipette being around 40mm the fingers holding it would be even closer. In order to counter this we had to modify the three fingered viper grip in order to prevent any movement of the head whilst extracting venom. At first this was a very scary thought and there were a few close calls when the snakes attempted to free itself from my grip as I started placing the pipette onto the fang. We were able to minimise this happening by placing the first third of the snake under my arm and having the second person support the rest of the snake. Therefore not giving it the opportunity to use its body as leverage and yanks its head away from my grip.

### **Death Adder being pipetted**

As my confidence and expertise grew we decided to attempt the pipetting technique on another species, the Death adder. We were seeing the same problem with extraction as had been identified with Browns i.e.; venom lost on the plastic skin and the jar throughout the procedure. The Death Adder presented another problem, with their large fang length, flexible jaw structure and the affectionately called "you bastard bite" that they give adding to concerns for handler safety. Death adders are incredibly quick and very determined to bite once restrained. They also are able to flick their bodies and reef their head out of your grip. This all added to the problems that had to be looked into to ensure this technique would be safe enough to use with this species. After some experimentation, the pipetting technique was modified to ensure the apparatus was always between the jaw and my hand, essentially acting as a physical barrier. Another adaption in the process was to use one of the restraining fingers to move the bottom jaw slightly to reveal the fang.



*Death Adder being pipetted*

This may look fairly rough but Death adders have a very flexible jaw structure and very little pressure is actually applied. We once again saw a large increase in venom yielded of up to 24%. While noting that the increase isn't as impressive as that noted for the Eastern Brown it must be acknowledged that every drop of venom counts, As it can take up to 40 snakes to make one vial of antivenom.

The Massive increases in both Eastern browns (250%) and Death adders (24%) have led to these two species being milked exclusively using the pipetting method. This technique has revolutionised the way the Australian Reptile Park extracts venom from our smaller yielding snakes. It has allowed us to collect the precious venom that was, in the past, lost to the vial and plastic skin during extraction and transfer to sealable vial. As the years go on each keeper is sure to bring their own unique style and flare to the section but as the results of the pipetting technique have shown it to be largely more effective we are sure this technique will endure the times.

*Editors note: Zac was the winner of best paper at the 2018 ASZK conference*

## A WALK ON THE WILD SIDE

*Jasmine Rabaud, Auckland Zoo*

'Possessing a musty smell, something like the inside of an old violin case'. This is among the most well-known and quirky descriptions of New Zealand's precious Kākāpō, and having had the privileged opportunity to come face to face with these exquisite birds, I can say it is a description not far from the truth. But there is so much more to them than their oddly pleasant aroma.

The Kākāpō (pronounced kaahkapaw, approximately) *Strigops habroptilus*, is an extraordinary endemic parrot with an owl-like face, which cannot fly (the only one in the world of its kind); is largely nocturnal and can be easily overlooked as a glossy mound of moss on the forest floor. They exhibit no sign of monogamy like most other parrot species, instead showing a lek-breeding system with males luring females to a specially constructed mound using their boom-sac to deliver 'booming' and 'chinging' vocalizations. Their breeding attempts ebb and flow with the infrequent 'masting' (fruiting) of rimu and other important food trees, sometimes years apart, and in a suitable year with enough fruit on the trees, females rear their chicks independently in an underground cavity.

A species originally so abundant that early settlers described being able to "shake the tree or bush till they tumbled on the ground, something like shaking down apples" (Olliver, 2014), the Kākāpō's sorry tale is a familiar one in New Zealand. Like so much of our native fauna, their numbers have been decimated by the introduction of mammalian predators and a bird that once roamed throughout mainland New Zealand in its thousands is today reduced to fewer than 150 individuals scattered across a handful of offshore islands and under the constant care and attention of the Department of Conservation.

Over the last couple decades, extensive efforts have been made to bring this species back from the brink of extinction, pioneered by the early work of bird conservationist Richard Henry. When I began my zoo keeping career I never



dreamed I'd have the opportunity to contribute to such an important and world-renowned conservation initiative. So, when the opportunity to be part of the Auckland Zoo and Department of Conservation's (DOC) Kākāpō recovery team out in the wilderness I quite literally threw myself at it! Three of us from the zoo are involved in the fieldwork: myself, Catherine another bird keeper, and vet nurse Mikaylie. Every winter we each head out to one of the three remote and stunning islands, Pukenui, Whenua Hou and Hauturu, for a two week stint surrounded by nothing but bush, ocean and the sounds of native fauna. A brief glimpse of what untouched New Zealand may have been like. During those two weeks we work with DOC's Kākāpō rangers to traverse the island on a quest for Kākāpō, backpacks hitched up firmly and telemetry gear swivelling in hand in search of a signal from the transmitters that each Kākāpō wears as their own backpack. The terrain we cover is rugged - often wet, muddy, slippery, and with many a steep hill to climb. The hours we hike are long – sometimes getting back to the hut long after the sun has gone down. But the sense of peace brought on by the serene surroundings and the thrill of successfully tracking down each and every Kākāpō, far outweighs the stiff and achy muscles and mental fatigue that creeps in as the days advance.

Each Kākāpō that we locate is weighed, undergoes a full physical health check – including assessment for the present of cloacitis, a cloacal infection that Kākāpō are particularly susceptible to - and has their transmitter swapped out for a new one with a fresh battery. The transmitters are fitted in a backpack-style fashion – two cords threaded through the transmitter and looping over and under the wings, the transmitter sitting squarely on the bird's back. A simple design but one that requires meticulous attention to detail and supervised training when putting them together and fitting them to the bird. These transmitters are pivotal in the recovery team's ability to closely survey and manage the species, producing signals that can be picked up either by rangers on the island or an overflying plane, indicating the rough location of the bird, whether they are alive and well, if they have potentially dropped their transmitter (as does happen) or died, as well as the transmitter's battery life. With strong phenological (study of the plant cycles) signs of an imminent breeding season, females are fitted with an 'Egg Timer' transmitter, which relays information about breeding activity (mating, incubation, etc.) and males with 'Check Mate' transmitters, providing information regarding which females they've mated with. Non-reproductive individuals receive a standard transmitter which performs only the basic transmitter functions.

With each trip to these islands and each Kākāpō that is tracked and processed, we make further small but important steps forward in the preservation of this iconic species and towards the certainty of their future. This work of course is only a small part of a much larger conservation strategy which also includes 24hr monitoring and on and off nest-support of every breeding Kākāpō and her chicks. Auckland Zoo staff are also integral members of the team in this work, but that's a story for another day!

With the ever growing severity of threats and desperate plight of our wildlife and environment, this project is a wonderful example of a collaborative effort between like-minded institutions for successful conservation outcomes. While the increase in Kākāpō numbers is slow, it is increasing and that is very significant. Progress is hard won, and I feel an enormous sense of pride and excitement in being able to watch this progress grow and evolve in coming years as my colleagues and I continue to fight for a fair and rightful future for New Zealand's giant green parrot, even if it smells odd.

**References:**

Olliver, N. (2014). Kakapo. Retrieved 1 December, 2018, from <http://www.nzbirds.com/birds/kakapo.html>

*Anchor Island*

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## ASZK ANNUAL AWARDS CLOSING 30 MARCH 2019

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The ASZK is excited to announce their annual awards covering the 12-month period of 1 January – 31 December 2018.

These awards are open to all members of ASZK.

Submissions are welcome as either a written submission or as a video or combination of both.

The Awards will be announced at the Annual Conference Dinner in May.

### *Zookeeper of the Year*

This award is open for an individual ASZK member whom is currently employed as a zoo keeper. This individual will have displayed outstanding aptitude and dedication to a level that goes well above and beyond expectation in every aspect of their role as a modern day zookeeper.

- Must be nominated by section supervisor or above
- Must be signed off by a senior manager of the organization for which the keeper works
- Must be a written nomination with a minimum of 250 words outlining why the individual stands out from all others.
- For outstanding achievement in the profession of zoo keeping encompassing the many varied duties expected from modern day keepers. Areas could include, but are not limited to – animal husbandry, training and enrichment, exhibit maintenance, design and construction, animal records, animal presentations, customer service, media, innovation, teamwork and leadership.
- References or testimonials are welcome as part of the supporting information for this award.



### *Service to Industry – Heidi Hellingman Award*

This award is open to individual members of ASZK or institutions for outstanding achievement in the Zoo industry. This can either be within the past year or for individuals who have contributed to the industry over a long period of time.

Examples of achievements include developing husbandry techniques, training, breeding programs, educational programs and facility development.

- List name of nominee, position, institution's name, address, phone, and the recommendation of a supervisor, peer or colleague.
- List and document the details of the contribution this person or team has made.
- References or testimonials are welcome as part of the supporting information for this award.

### **Selection Procedure**

The independent Awards Committee, will review each nominee and score against the criteria for each award.

### **How to apply**

To submit a nomination please supply all requested information as well as any other documents or video that may support the nomination to [eo@aszk.org.au](mailto:eo@aszk.org.au) by 30 March 2019

If you are nominating another person please supply your contact details including phone and email as well as the nominee's.





Presents



**Sydney**  
May 3-5, 2019

### Call for Papers – Now Open

Please send a short abstract of your proposed paper or poster to Liz Romer at [slromer@bigpond.com](mailto:slromer@bigpond.com)

The abstract should include:

- The paper or poster's title
- Presenter's name, title and a short biography
- Presenter's institution
- Presenter's email address
- No more than 400 words summarizing the intent of the paper.

Presentation of papers must not exceed 15 minutes. An opportunity for questions and answers will be conducted at the end of each paper session.

A complete copy of the presentation paper suitable for publication (in Word format) must be submitted at the time of the paper presentations (this is not your talk). Please ensure graphics are submitted as separate graphics files (i.e jpeg, tiff) and are of the highest possible quality. Full presentation papers will be published in upcoming issues of "Thylacinus".

Please note that due to time and space limitations not all papers may be chosen for the program. Opportunity to still present as a poster will be given if your paper cannot be accepted for a presentation.

**Submissions close 30 March 2019**

Registration will open shortly via the ASZK website  
[www.aszk.org.au](http://www.aszk.org.au) or for more information contact Liz Romer at [slromer@bigpond.com](mailto:slromer@bigpond.com)



• ASZK • MEMBERSHIP STATISTICS	
<b>351</b>	FULL MEMBERS
<b>10</b>	FULL PARTNERS MEMBERS
<b>88</b>	ASSOCIATE MEMBERS
<b>1</b>	ASSOCIATE PARTNERS
<b>19</b>	RECIPROCAL
<b>12</b>	CORPORATE
<b>13</b>	LIFE MEMBERS
<b>4</b>	OVERSEAS
<b>3</b>	OVERSEAS CORPORATE
<b>TOTAL 501</b>	

# AUSTRALASIAN ANIMAL TRAINING CONFERENCE

## “LEARNING TOGETHER, SHAPING THE FUTURE”

### 11TH-15TH NOVEMBER 2018

REPORT

The ATC (ASZK Animal Training Community) held the Australasian Animal Training Conference from November 11-15th. Hosted by zoos Victoria, and based at Melbourne Zoo- 180 attendees from around Australia and New Zealand joined together for a week full of learning and discussions all centred around how to improve animal training in our region.

With four International keynote speakers presenting specialised talks and workshops on various topics as well as 17 local paper presentations the week was jam packed.

Melbourne Zoo, Healesville Sanctuary and Werribee Open Range Zoo were all visited by attendees and showcased the great training that takes place to improve animal husbandry and welfare.

The conference was capped off by a successful conference dinner and silent auction, with the auction raising nearly \$6000 to go towards improving keeper animal training skills in our region.

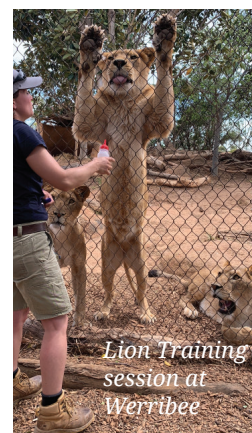
The ATC also announced the establishment of a keeper scholarship to attend an animal training course to help develop their skills. Stay tuned to the Animal Training Community Facebook page for more information on upcoming events and how you can get involved



ATC Committee



Attendees training Lemurs during a workshop



Lion Training session at Werribee



Watching an Orangutan training session at Melbourne Zoo



## BACKING THE UNDERBIRD: OPERANT TRAINING WITH AN EMU

JESSICA RATCLIFF

Great animal trainers all know the welfare benefits of good training. Animals can experience choice and control, improved healthcare, enrichment, reduced stress, are easier to shift and contain and have beneficial relationships with their trainers. But training is not evenly distributed amongst the species we keep. Certain species receive a higher focus and have more invested in their training, and therefore those welfare benefits are available primarily to those species. Those left out often include prey animals, herd animals and animals previously labelled as less “intelligent”. I also add Australian animals, particularly in city zoos, or zoos that also keep exotic animals. These are the animals considered least likely to succeed with training. They are the underdogs. Or in this instance, the “Underbirds”. What Underbirds do you work with?

Emus are commonly managed with a combination of herding (which applies an aversive and gives no information about what the animal is meant to do), and with luring or baiting. We can do so much better by using the most positive and least intrusive approach to training.

At Healesville Sanctuary, one of the three properties of Zoos Victoria, are two emus which had previously never received any formal training in their eighteen year lives. They are housed in protected contact, due to a history of aggression, and were particularly wary about stepping onto the scales. When health concerns required the emus to be regularly weighed, the need for training arose. Our goal was to use operant training to teach the emus to step voluntarily onto the scales, and to achieve this we decided to begin by teaching them to target. The training would also help with shifting behaviour for moving them in and out of their lock-off. Challenges included the body size and reach of the birds, moving the scales off the fence-line to obtain accurate weight readings and the pace of learning which improved my own patience and training skills.

Using their preferred food, apple, as a primary reinforcer and a clicker as a bridge, we trained the emus to peck the target stick. We introduced the scales at a distance, gradually reduced this distance, and then targeted the emus onto them. We could have stopped there, but wanted to take the training further to develop our skills and test the cognitive ability of the emus. As prompts, we used our body proximity as well as the target, and then gradually faded out both prompts while introducing the verbal cue. After establishing clear cues and criteria, the emus were able to step onto the scales on cue. We were able to

generalise this behaviour and add duration. Finally we handed the training over to four other trainers, including leave-cover keepers.

An added benefit of building the training relationship came in useful when it was time for the emu enclosure to be renovated. This was to take place one section at a time, with the emus remaining in the enclosure. With the involvement of the Sanctuary’s Horticulture and Works Team in the training sessions, we were gradually able to introduce the sights and sounds of the machinery and equipment they may encounter during the renovation, all while carrying out training sessions with a high rate of reinforcement. The result was that our emus were calm and stress-free throughout the renovation.

In conclusion, while the training itself was not rocket science, the approach of using it with a species that has not traditionally received much training – backing the Underbirds - demonstrated the capabilities of these animals. We extended and honed our own training techniques, and the emus experienced greater choice and control. Using a more positive, less intrusive approach to training vastly improving the welfare of this often overlooked species.

Who are your Underbirds?



*This paper was the winning “People’s Choice Award” from the Animal Training conference*



### **For how long, and whereabouts, have you worked in the Zoological/Aquarium Industry?**

I have worked at Perth Zoo for 14.5 years now. I love our Australian animals so I've worked on the Australian Fauna section since I started. I have worked in most of the sections covering birds, reptiles and education, our bushwalk area and some of our nocturnal animals. I have always had a passion for birds and in particular penguins so I am fortunate enough to now be working with them on a daily basis as the Senior Keeper of the penguin and wetland area.

## **• MEET AN ASZK MEMBER •**

# **Nicole Longhi**

**SENIOR KEEPER, AUSTRALIAN FAUNA  
PERTH ZOO**

my heart, my absolute favourite penguin species is the Chinstrap Penguin as they just look so regal. Penguins always make people smile and they have so much personality, observing a penguin colony is like watching your favourite soap opera or reality TV show, there's always so much drama happening.. Their adaptations continue to fascinate me and you can't help but love an animal that is so graceful and fast through the water and then can be so clumsy on land. They are also an important indicator species for gauging the health of our oceans.

### **What is your favourite thing about Perth Zoo?**

Everyone is so passionate about what they do at Perth Zoo and we have lots of amazing staff doing amazing things not only in and around the zoo but also for conservation in the region and globally.

### **What changes or improvements would you like to see in the future of zookeeping/aquarists?**

I think as an industry in general we often don't communicate enough with each other. It would be great to see more collaboration between institutions and sharing our highs and lows with each other and learning together. I don't think there's a limit to what we can do and what we could achieve if we all worked together even more.

### **What is your greatest animal achievement thus far?**

Improving the overall husbandry and health of our penguin colony would be my greatest achievement. This has been through a variety of methods including research into penguin burrow micro-climate and changing our burrow design, implementing protocols to improve our success in raising chicks to fledging for both parent reared and hand reared chicks (in the event of chick abandonment) and working together with Parks and Wildlife to have a viable captive insurance population of WA penguins in the event of a significant decline in the local wild population.

### **What is your most memorable experience with wildlife?**

I've been fortunate enough to have some amazing wildlife opportunities throughout my career through the zoo as well as through my own interest. The three months I spent volunteering with African Penguins at the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) would have to be the most memorable. SANCCOB is a rehabilitation center for oiled and injured sea birds in Cape Town, South Africa with its primary goal to help save the endangered African penguin from extinction. I learnt some valuable



husbandry skills whilst there as well as working with new bird species. It was great to learn more about the rehabilitation process, care for the birds and then be involved in releasing them. It's such a feel good moment when you see them swim away having made a full recovery. Whilst I was there we had over 1000 abandoned penguin chicks come in so it was pretty chaotic and I'm glad I could be an integral part of the team and lend a hand. I have a photo of me in one of the rehabilitation pens surrounded by a group of hungry penguins and to say I looked happy was an understatement.

**What is your most embarrassing zoo/ Aquarium moment?**

Needless to say there's been a few but what I'm willing to share with everyone else is another matter. One weekend I had to move some birds from the vet department down to exhibit. I had to use the vet van which is a bit of a beast and I'm always scared of reversing in it especially during opening hours. I planned my route so I didn't need to reverse all and dropped off the birds. I thought I'd pulled over in a pretty good spot on some lawn with easy getaway access but little did I know that area of lawn was quite boggy and so I managed to get the van bogged really well much to the amusement of some of the visitors nearby. Trying not to alert all the staff on 2-way of my predicament, I managed to track down one of our facilities staff who kindly managed to help me without too much laughing, eye rolling or comments about women drivers.



**• ASZK •  
NEW MEMBERS**

*The ASZK Committee  
would like to  
welcome the following  
new members*

**FULL MEMBERS**

CHRIS PAGE  
TZR Reptiles and Wildlife

PARNEE BONSON  
National Zoo and Aquarium

CAMERON TAYLOR  
Mogo Zoo

NICHOLAS SZEPE  
Ipswich Nature Centre

KERRY PICKLES  
Perth Zoo

LULU SIMPSON  
Zoos Victoria

DANICA DELAPORTE  
Peel Zoo

DEANE JONES  
Paradise Country

REBECCA SMITH  
Gambuya World

**ASSOCIATE MEMBERS**

RENEE LE ROY

***Moving??  
Changed your email address??***

Please keep us informed so you don't miss a journal or e-newsletter.

Contact Chris Dryburgh at [cdryburgh@zoo.nsw.gov.au](mailto:cdryburgh@zoo.nsw.gov.au) to change your details.



## CURRUMBIN WILDLIFE SANCTUARY

It has been a busy couple of months for Currumbin Wildlife Sanctuary with the breeding season of many of our animals in full swing. We have successfully bred many of our bird species over the past few months. We have decided to artificially incubate the eggs of some of these species for hand rearing. This is a great opportunity for our keepers to develop their incubation and hand rearing skills and also helps to increase numbers for some of our species.

Our Eastern Bristlebird program is forging ahead and we have recently had two new institutions come on board to assist with housing. We moved one pair of birds to Hiddenvale Wildlife Centre in September and will soon move birds to David Fleay Wildlife Park as well. The addition of these two institutions will allow us to free up enclosures at Currumbin to house new offspring as well as provide us with the space to hold birds collected from the wild. Our Kroombit Tinker frog program has reached a new milestone with a pair of these critically endangered frogs being introduced recently, let's hope it is a successful pairing. We are also very excited to have transferred one of our Greater bilbies to Charleville, where she will be one of a number of bilbies heading out to the release site at Currawinya NP!

Over the past few years Currumbin has been holding a family Halloween event on an evening leading up to Halloween (above). Many of our keepers volunteered their time for the evening in order to add halloween-themed enrichment to many of our nocturnal enclosures, as well as to evaluate the success of the different types of enrichment provided. We also conducted behavioural observations on animals housed in the vicinity of the event to measure the effect of noise and crowd density on animal behaviour so that we can make recommendations for future events to ensure that we maintain positive animal welfare. We also held a frog information night during frog week. We had 50 staff, volunteers and community members attend the evening which involved 4 guest speakers and finished up with an hour of toad hunting in the park. We also held a 'Cupcakes for Conservation' event recently which raised over \$1000 for the Save the Bilby fund, the vegan cupcakes baked by our amazing Lost Valley keeper Diane Dominique have become a huge hit and a great way to raise money for endangered species.

Finally our animal presentations team have been working hard on the new Free flight bird show 'Wild skies' which will be launched in the brand new stadium on New Year's Day. We are all very excited to see the birds flying in their new surrounds!

**Saskia Lafebre**

## ADELAIDE ZOO *Mammals*

Our breeding group of Meerkats have produced their second litter this season, with seven pups being born. Unfortunately two did not survive, despite the attention of their five older siblings helping out. The dam is looking rounder once more so the group will no doubt increase in size early in the New Year. A new male Maned Wolf arrived from Altina Wildlife Park in November with staff driving over to collect four year old 'Juanito'. He was introduced to female, 'Ninka' the following day and the pair has settled in well together.

Special mention goes to the recent death of Yellow-footed Rock-wallaby, 'Missy Fitton'. Missy played an important role in being a surrogate wallaby in the BTRW (Brush-tailed Rock-wallaby) breeding program at Adelaide. Not only did she successfully rear her own offspring and several 'fostered' BTRW's, she also fostered in what is believed a world first, a Goodfellow's Tree-kangaroo in 2014. The joey's dam died in an exhibit accident and the then six week old joey was successfully attached to her active teat, as she had a four week old joey in pouch at the time. 'Makaia' thrived for three months and was removed from Missy's pouch for hand rearing after finding him out of pouch at approximately five months of age. He did manage to get back in, however the decision was made to hand rear him for any safety concerns. He continued to do well and was relocated to Singapore in 2016

## *Reptiles*

The Western Swamp Tortoises have laid and are currently being incubated. Fingers crossed for another successful season.

In September we received 25 confiscated Radiated Tortoises via Darling Downs Zoo. No doubt many members will know of the plight of this Critically Endangered species.

## *Birds*

Our little penguins have had a hit and a miss season, with many eggs laid from non-recommended pairings, in addition to some chick losses. Two pairs of Regent Honeyeaters have bred well so far with five chicks fledged. Orange-bellied Parrots are nesting at present with a number of pairs on eggs or fledging young. We've had the odd hot day in November and December already, so it's been really important to keep the breeding aviaries cool and try and get chicks fledged before it really heats up.

New arrivals include a pair of Indian Peafowl, who will once cleared quarantine, add some elegance (well the male anyway!) to one of our Sea East Asian exhibits. Two



*Regent Honeyeater chicks Photo: Loren Foster*

young Barking Owls arrived in October for hand rearing.

The month old owlets will form part of our Presentations unit and may even be part of our new Variety Children's Zoo under construction during 2019 (details to follow...).

As previously mentioned last time, our flamingo exhibit has been transformed after many decades of exhibiting these majestic birds. The neighbouring cassowaries have taken over the modified exhibit, as all three exhibits for the cassowaries are linked, giving them more husbandry options and hopefully breeding opportunities in the future.

## *Pandas*

The team are currently now awaiting the patter of 'hopefully' little panda paws. Two Artificial Inseminations were performed in September with a panda reproductive specialist arriving from China several days prior to the introductions and AI procedure. A full introduction occurred with the pair, however no natural mating eventuated.

## *Staff*

Keeper, Martin Jefferies has retired after working at the Zoo for the past 41 years! Martin started in March 1977, working as a rover on the mammal department. He



worked mainly with ungulates before moving over to the Bird department in 1982, spending the rest of his zoo life there. During those early years, he had the opportunity of working with some very interesting species, which are sadly now non-existent within Australian collections. He was on the ASZK committee after it had started up here at Adelaide in 1976 and was the secretary/treasurer at one point. We wish Martin all the very best in his deserved retirement and look forward to hearing what new 'adventures' he takes on during the next chapter of his life.

**Murray Guy**

## HALLS GAP ZOO *Reptiles and Ungulates*

On the 24th of October we welcomed our newest arrival, 'Kifaru', a Southern White Rhino (below).



Bringing a Rhino to the Grampians has been an enormous accomplishment by all that have been involved, with the dedication of owners Greg and Yvonne, the staff, the community, whom contributed to the 'Rhino Rumble' fundraising campaign and the staff at National Zoo and Aquarium Canberra, all making the dream a reality.

Kifaru has now settled into his new home and is grabbing the attention from all keepers and visitors!

The team has further added to our reptile collection with the acquisition of a Green Tree Snake and Spiny Tailed Dragons.

### ***Primate and Exotic Carnivores:***

The exotic team welcomed two Emperor Tamarins and Agouti's in November.

The Emperor Tamarins have been a terrific addition to our callitrichid collection with visitors and keepers being captivated by their incredible moustaches!

The Agouti's added yet another species to our mixed exhibit of Cotton Top Tamarins and Conures (Sun and Jenday), creating a spectacular space. All species took time adjusting to the change, with the Agouti's taking a few days to venture out of hiding.

Crate training our two Red Panda's has been successful, with primary trainers now moving forward to voluntary vaccination training. This will be a first for our team, so we are expecting to cross a few hurdles however hopeful that it will be successful!

**Brit Hides**

## HEALESVILLE SANCTUARY

The Healesville Sanctuary renovated their reptile house to facilitate husbandry and to comply with the display guidelines. Exhibits were enlarged by removing walls between exhibits and changing their accessibility so that servicing could be done from the front. Landscaping included dioramas reflecting the habitat of the species held within. New mock rockwork was also added for variety and enrichment. The exhibits now reflect habitats as well as their selected occupants.



*Major Skink Exhibit*

And just to prove that we have done right by them, two unsexed Northern Blue-tongue lizards gave birth to four (4) young (pictured below) which were found in the exhibit with them. These have now been moved off-display into a rearing tank for fear that the black-headed monitor housed with them may consider them a tasty snack.



The breeding seasons of our two major bird programs, the Helmeted honeyeaters and Orange-bellied parrots are well on their way with multiple hatchings in both species. The honeyeaters start their season slightly earlier than the parrots and we have five fledglings to date. For the Helmeted Honeyeaters, we have also purpose-built a predator awareness aviary off-display which will flock out youngsters and expose them to predators such as goshawks, to ensure they illicit the right responses. Early in the season, five of last years fledglings were released at their site in Yellingbo.



*Pictured: Meg Lane (keeper), Jenny Gray (CEO), Ross Williamson (Director), Russel Biggs (Works Manager) & Lori (Philanthropy) releasing juveniles into predator awareness aviary.*

**Carla Srb**

## TARONGA WESTERN PLAINS ZOO *Elephants*

Our youngest calf Kanlaya is turning six months old on the 14th December and is weighing about 280kg. Kanlaya has recently started showing interest in coming over and interacting with keepers and has also started taking apple and banana treats from keepers. Now that interest in food has been established we can slowly begin her training program, which starts with learning about the association of a clicker and treats!

Kanlaya is growing more confident in her play with our older calf Sabai, who turned two on the 2nd November.

Sabai is progressing well with his training and now completes the morning bath routine and other behaviours that the adults do. We recently had a successful blood draw from Sabai, and we will continue to develop this process with him.

Now that Kanlaya is a bit older and more comfortable with her surroundings, we have had a couple of reintroductions with our eldest male Gung back in with the cows and calves. Gung has shown limited interest in the calves, who are still wary of him, but has shown plenty of interest in the cows with attempted mating behaviours being displayed. The photo below shows (L to R) Gung, Porntip, Kanlaya, Thong Dee and Sabai. (Photo Dee Ellery)



Gung has also spent some time with his first born Luk Chai who is now nine years old. Luk Chai seems to really enjoy these social interactions and is constantly soliciting play and wanting attention from Gung the whole time that they are together.

Our oldest cow Burma recently sustained a very deep gash in her trunk overnight. We suspect it may have been caused from our young bull Pathi Harn's tusk. Burma and the young bulls have restricted fence contact overnight, but do enjoy teasing and playing with each other under the fence. We performed a standing sedation on Burma so that the wound could be checked and cleaned by the vet

team. It was found the cut goes all the way through the trunk into the nostril cavity.

We have recently started trialling a public elephant bath encounter. This will involve members of the public been given the opportunity to hose/bath an elephant and then feed and have a photograph taken. So far, the trials have only been conducted with zoo staff and volunteers, and have all been a success and well received. Trials will continue over the next week or so, and the encounter will possibly go live to the public at the end of December.

**Dee Ellery**

## MELBOURNE ZOO *Carnivores & Ungulates*

Melbourne Zoo bid a very sad farewell to Mukulu, the oldest Rothschild's Giraffe in the Australasian Region (23 years old) in November. He was born in 1995 at Perth Zoo and lived out the rest of his life at Melbourne Zoo, since December 23, 1996. Mukulu's health was closely monitored for some time, of late noticing his appetite reduced and loss weight due to age-related dental disease. As a result, the vet team and keepers had to assess Mukulu's quality of life and the sad decision was made to say goodbye. Vale the world famous calf in the 'Giraffe Kiss' photo.



The Melbourne Zoo's three Lion brothers; Kashka, Kubwa and Kito were transferred to Monarto Open Range Zoo in South Australia. The road trip went smoothly in the truck. These Lion boys are very important breeding males and the trio will be part of a pride of nine Lions, including seven lionesses in a 10 hectare space. This move is to help

the regional breeding program and the success of their species in the wild.

As a result the move left a void with keepers & staff alike, not to mention an empty exhibit. However, within the space of a couple of weeks staff from Werribee Open Range Zoo (WORZ) and Melbourne Zoo worked together to prepare for the arrival of Lion cub brothers, Zuberi and Ndidi from WORZ, to fill that void. They will be celebrating their 2nd birthday on December 13th.

Furthermore, the team had managed to train the Binturong, Red Pandas and Coatis for hand injections successfully.

**Steven Holden & Melvin Nathan**

## *Primates*

The last few months on primates has seen keepers hand raising our infant Spider Monkey, Elena. Keepers arrived one morning to find mother Isobella was not carrying her infant, but instead grandma Maya was. Keepers attempted to reintroduce Elena to Isobella, however two failed attempts raised concerns for Elena's health. Elena then came into keeper care, with keepers providing round the clock care, teaching Elena how to drink from a bottle. Fast forward 5 weeks, we attempted to reintroduce Elena to mother, Isobella, however she showed no interest in the infant and so the decision was made to reintroduce her to Maya. Maya picked up Elena after a few moments and the both of them have been inseparable ever since. Elena still receives bottle feeds from keepers and is now up to eating solid foods, which she loves.

Our family group of Cotton Top Tamarins recently welcomed twins into the group with mother Alaida giving birth overnight on the 10th of December. So far keepers have reported that the group is doing very well with the brand new additions and the other older siblings are showing interest in the newborns.

Our other group of Cotton Top Tamarins have recently been relocated to a bigger arboreal exhibit. They are enjoying and investigating the new space and catching as many spiders and insects as they can.

**Tahlia Koe**

## *Wild Sea*

The Wild Sea team welcomed two Fiordland penguins that currently share the exhibit with the Little Penguin colony. These birds were found in a compromised condition on the Victorian coast line and reported to the AGL Marine Response Unit. After a significant effort by the veterinary

team, each of these individuals was deemed unlikely to survive in the wild and a decision was made to keep them under human care. The Wild Sea team is extremely thankful to Liz Liddicoat for a fantastic job researching the needs of this species and preparing the exhibit for the arrival of these penguins. This space now has communal areas for both species, and two separate dedicated areas for each species. The introduction has been incredibly smooth and both Little Penguins and Fiordland Penguins seem to be pretty comfortable with each other.

**Jose Gomes**

### ***Reptiles, Invertebrates & Education***

The Reptile team were proud to celebrate the successful breeding of captive Baw Baw Frogs, after more than seven years of tireless and dedicated work by the Reptile Department and Zoos Victoria team, in conjunction with Baw Baw Frog Recovery Program partners. In the week leading up to National Baw Baw Frog Day, November 18th, the team released the first ever captive-bred Baw Baw Frog eggs into the wild! A second Baw Baw Bunker is being set up to help the conservation efforts of repopulating this frog back in the wild. Furthermore, a designated Insect Breeding portable has been established to breed specific bugs to feed the frogs.

**Melvin Nathan**



## **DES SPITTALL SCHOLARSHIP for KEEPER DEVELOPMENT**

The Australasian Society of Zookeeping operates and manages the annual 'Des Spittall Scholarship for Keeper Development', which is available to any ASZK member who has been a financial member for two years or more. The annual scholarship is named in honour of the late Des Spittall, a life member of ASZK. It is to the value of \$2,000 and has been established to support the professional development of zoo keepers in the Australasian region.

Scholarship applications can be sought for the following (but not exclusive) types of activities;

- Research projects
- Undertaking volunteer work on local conservation projects
- Working on community change or capacity building projects
- Undertaking study either in Australia or overseas (overseas study will only be supported if nothing comparable is in Australia or New Zealand)
- Attending a conference or workshop
- Study tour of zoos or institutions

Prospective applicants are invited to submit a written proposal for their intended proposition, outlining in as much detail as possible the aim, purpose and the anticipated outcomes of the activity. This includes how the activity may support development of colleagues.

All applications are then evaluated by the ASZK Management Committee within a fortnight of the closing date with applicants informed shortly after.

Successful applicants will be required to submit a report at the end of their project term detailing outcomes and expenditure records. An article for Thylacinus, or a presentation to the ASZK or ICZ annual conference on the project is also encouraged.

To obtain a full version of the brochure including application form visit [www.aszk.org.au](http://www.aszk.org.au) or contact Liz Romer at [slromer@bigpond.com](mailto:slromer@bigpond.com). **Applications close 1 March 2019**



# Cryptococcus in a captive koala population- a call to arms for industry-wide collaboration

CAROLINE MONRO, WILDLIFE SYDNEY ZOO

Cryptococcus is a disease that affects humans and animals worldwide and is caused by the encapsulated yeast species' *Cryptococcus neoformans* and *Cryptococcus gattii* (Krockenberger et al. 2002). *C. gattii* in Australia is known to affect koalas more than other species of domestic animals due to its strong association with Eucalyptus species in tropical and sub-tropical regions (Krockenberger et al. 2002). Koalas are well documented to habituate Eucalyptus tree species for food and shelter and this leaves them vulnerable to infection from their environment. This disease is well documented within koala populations, however little information is available to how prevalent it is amongst zoos and what techniques are being implemented to treat and remove this disease from captivity.

*C. gattii* is found to habituate predominantly Eucalyptus trees, particularly *E. camaldulensis* & *E. teriticornis* with their distribution localized to areas that support these Eucalyptus forests, mainly the East coast of Australia (Fig. 1). Koalas are at risk of exposure through spores found in the Eucalyptus trees they dwell in, in many cases the pathway of infection is through the nasal cavity where spores enter the lungs and transform into the encapsulated yeast form, from here multiplication occurs and the infection enters the blood stream (Fig. 2.) (Centers for Disease Control and Prevention, 2015).



Figure 1. Distribution of *Cryptococcus gattii* (Krockenberger 2017).

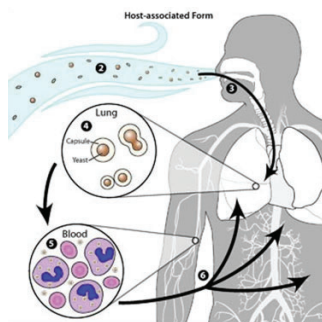


Figure 2. Pathway of infection *Cryptococcus gattii* (<https://www.cdc.gov/fungal/diseases/cryptococcosis-gattii/causes.html> 2015)

Infection in koalas can be determined through the use of two procedures, the first is to use swabs to test in inside of the nasal canal and test for the presence of *Cryptococcus* spores, this method is often used in conjunction with a blood test as the results are not always congruent (Krockenberger et al. 2002). The blood test that is used to

confirm the presence of *Cryptococcus* is called the Latex Cryptococcal Antigen Test (LCAT) and not only provides a positive or negative result but also the volume of pathogen load within the animal's blood stream, this can be seen in an exponential scale graph (Fig. 3) (Krockenberger et al. 2002). The LCAT measures the titre level of a cryptococcal load within an animal and results <64 are considered subclinical and asymptomatic whereas levels above this number can display symptoms such as nasal discharge, difficulty breathing, seizures and even death (Krockenberger, 2017).

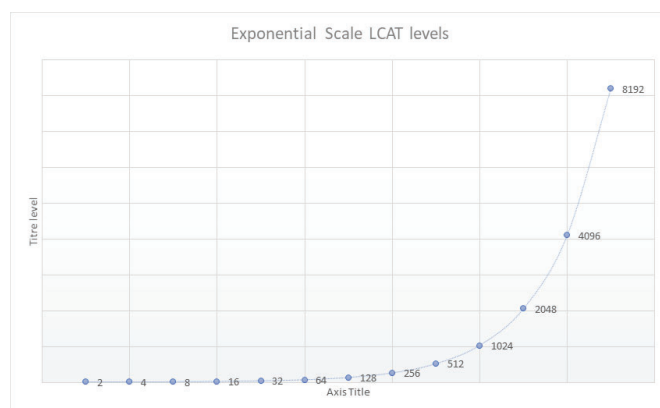


Figure 3. Graph of LCAT titre level in exponential graph

At WILDLIFE Sydney Zoo (WLSZ) there has been a long history of *Cryptococcus* within the koala population, the first koala to die of this disease was WLSZ born Sid. Sid experienced low, sub clinical levels of *Cryptococcus* throughout his life but when he was six years old sustained an injury to his toe which left him with an exposed wound. The vet team at the time were concerned this open wound could provide a pathway for environmental *Cryptococcus* to enter his blood stream. A swab of this area confirmed this was the case and treatment began immediately, Fluconazole orally and Amphotericin B through sub-cutaneous injection, Sid unfortunately died several days later.

The next case of severe *Cryptococcus* occurred two years later when a 10-month-old female koala, Ekala was observed with a reduced appetite and difficulty breathing. A veterinary consult reaffirmed suspicions of *Cryptococcus* and discovered a secondary throat infection. Treatment for *Cryptococcus* using Intraconazole started immediately but later the same day Ekala was observed with her lips turning blue, immediate action was taken to send her to the nearby University of Sydney 24hr animal

hospital where appropriate facilities would be available for her. Over the next 12 hours Ekala began to show improvement in the oxygen box at the hospital. However, when she was removed for blood tests she experienced a seizure. Unable to return back to the zoo, Ekala remained at the hospital until her death two days later.

The veterinary faculty at University of Sydney completed the autopsy and confirmed cause of death was ‘severe disseminated *Cryptococcus*’. The results showed *Cryptococcus* had significantly affected the lungs and to a lesser extent the brain, spleen, liver and kidneys. The initial blood test results returned an extremely high LCAT titre level of 8192. The significance of the lesions within the lungs can be observed in figure 6 where the area of dark shading demonstrates solid growths within the lung tissue (Krockenberger 2017).

The next step for the koala team at WILDLIFE Sydney Zoo was to ensure that another fatal case of *Cryptococcus* did not occur within the population. LCATs were performed on all koalas, unfortunately a further 6 cases of sub-clinical *Cryptococcus* were discovered and treatment for all animals began immediately. The team then started to research the disease in more detail and a much greater level of understanding was achieved. While there is great depth in the information available there was little documentation on its prevalence within captivity and what techniques institutions are using to fight this disease. This paper aims to shine a light on *Cryptococcus* in captive koala populations and invite all institutions to share their knowledge and understanding of the disease to work towards a long-term solution.

Working with Associate Professor Mark Krockenberger and the team at the veterinary faculty at University of Sydney swabs were taken of all eight koala enclosures to determine prevalence of *Cryptococcus* spores in the environment, of the eight enclosures three were found to have medium – high *Cryptococcal* loads. To reduce risk of further infection all perches and substrate were replaced, at this time the decision was also made to remove all substrate from off-display enclosures and house koalas on concrete. Research has demonstrated the most effective agent against *Cryptococcus* in the environment is F10 and husbandry procedures at WLSZ include scrubbing all perches and ground (on concrete) with F10 weekly.

Several months later further environmental swabs were taken and confirmed that *Cryptococcus* had been removed from the environment, then, as expected the LCAT titre levels of the koalas receiving treatment began to reduce.

Gradually the koalas began to come off treatment (after 3 consecutive negative LCATs) however, before the final koala could cease medication all koalas were scheduled for annual LCATs with a particular focus on koalas at weaning age (10-12 months). Learnings from Ekala demonstrated koalas become more susceptible to infection during times of stress, e.g. weaning. The eldest two koala joeys received LCATs of 0, indicating they had never been exposed to the pathogen. Of the following three joeys, two were confirmed with positive results and LCATs of 8 & 16, as well as one of their mothers returning an LCAT of 32. This disappointing result demonstrated there is still more work to be done to effectively eradicate this disease from the koala population at WLSZ.

To move forward with this disease there needs to be a greater understanding of the disease within captivity and what management techniques are being implemented. As zoos and aquariums come under increasing scrutiny from the public there is a demand for transparency, this transparency must not only be towards the public but also towards one another. An honest and open communication network between institutions where an environment to share in not only our successes but also failures will allow the industry to continue moving forward. WLSZ has a commitment to providing the highest level of husbandry care and continues to strive for a *Cryptococcus* free population.

## References

- Centers for Disease Control and Prevention. (2015, Dec 16). Sources of *C. gattii*. Retrieved from Fungal Diseases: <https://www.cdc.gov/fungal/diseases/cryptococcosis-gattii/causes.html>
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# AUSTRALASIAN SOCIETY OF ZOOKEEPING WILDLIFE PHOTOGRAPHY COMPETITION

Entries open: 15<sup>th</sup> Jan – 15<sup>th</sup> Mar 2019

## Categories:

- Animals in the Wild
- Zoo & Aquarium Animals
- Habitat



Send entries to:

Caroline.Monro@merlinentertainments.biz



For more information visit:

[www.aszk.org.au](http://www.aszk.org.au)



## “ASZK BOWLING FOR 2019”

### *Dust Off Your Bowling Shoes to Save Our Aussie Tree Roos!*

During the week of 1st – 7th April 2019, the Australasian Society of Zoo Keeping (ASZK) will be running its annual fundraiser. This year we have chosen Tree Roo Rescue and Conservation Centre Ltd to be the recipient of funds raised during this event. Over the past two decades the founders of the Tree Roo Rescue and Conservation Centre Ltd have dedicated their efforts to rescuing, rehabilitating and releasing Lumholtz’s Tree-kangaroos but over the past six years there has been an increase in individuals requiring care.

Lumholtz’s Tree-kangaroos are one of two species of tree kangaroos endemic to Australia and are classified as near threatened, faced with threats such as habitat fragmentation, domestic and wild dog attacks, car strikes and blindness.

Funds raised from this event will be used to assist in releasing successfully rescued and hand raised animals into areas that will improve connectivity of populations and also encourage genetic exchange, as well as implementing control of wild dogs in key areas and educating the public about control of domestic dogs.

To get involved in organising an event please contact ASZK’s Bowling Coordinator, Vikki Quinn via email at [vquinn@cws.org.au](mailto:vquinn@cws.org.au)

