

thylacinus





AUSTRALASIAN SOCIETY of ZOO KEEPING

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thylacinus

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FROM THE PRESIDENT Chris Dryburgh

It's the start of what we are remaining very hopeful to be able to shape into the beginning of 'normal' operation with plans for all of our typical ASZK calendar all under way. And what a great way to be able to re-emerge on our 45th anniversary year! We are excited to be able to celebrate with our Membership with online webinars, our annual Conference, AGM, Bowling for Sun Bears fundraiser campaign, our annual Wildlife Photography Competition with a new twist, and loads of other opportunity to reconnect and celebrate the professional care of wild animals.

The ASZK Committee has recently met to develop our upcoming Annual General Meeting in an online virtual platform on the back of last year's AGM success. This year however, coincides with the biennial Committee Election, with all Executive and General Committee positions up for nomination for the next two-year term. More info on this can be found later in this edition, and nomination forms and proxy voting forms will be circulated shortly. We have been working with a web design company who are in the final stages of completing our new online Membership Portal – a much needed tool for our Members to access and renew Memberships. We are also progressing the development of electronic distribution of our quarterly journal The Thylacinus, a far more sustainable and environmentally responsible way to bring our networking and keeper development up to speed with the 21st century. Keep an eye out for more details soon.

With this edition, we would like to thank Lisa Tuthill, of Moonlit Sanctuary east of Melbourne, for her time on the Committee. Lisa has unfortunately had to step down from her Committee role to dedicate more focus on some exciting work taking place at Moonlit. Lisa, and Moonlit Sanctuary, have both been long-standing supporters of the ASZK, with Moonlit hosting a very successful ASZK Conference and AGM in 2018. We know this won't be the last we see or hear of Lisa, please join me in wishing her all the very best, and thanking her for her time and contributions towards the Committee and the broader ASZK.

While the Committee is working towards a 2021 Conference, likely with a couple of small changes in delivery and attendance, we are going to have to move it from the typical April/May timeslot, and prepare a program to be convened in September this year. So, with two years since our last opportunity to share skills, triumphs and challenges, we are all looking forward to this long-awaited Conference. Start piecing together your papers, posters and presentations and let's make this one of the biggest Conferences to date!

I'm really looking forward to working closely with the Committee and all of our Membership again into 2021 while we pave the way for the next 45 years!



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VOLUNTARY SCALE TRAINING IN THE SHORT-BEAKED ECHIDNA (*TACHYGLOSSUS ACULEATUS*)

Bronny Cable, Healesville Sanctuary

INTRODUCTION

The Short-beaked Echidna (*Tachyglossus aculeatus*) belong to the rather unique and fascinating mammalian order Monotremata, or more commonly referred to as the monotremes (Wilson & Mittermeier, eds. 2015, p. 34). From an echidna's robust, stout build with short yet backward orientated hind feet; their egg-laying, pouch forming, milk producing reproductive strategy; and their incredible ability to locate, harvest and find prey through their acute auditory system, remarkable heightened sense of smell and ability to detect weak electric fields – there are so many aspects of their physiology, anatomy and overall cryptic nature that truly have scientists, zoo keepers and naturalists alike amazed when it comes to figuring out these incredible creatures (Wilson & Mittermeier, eds. 2015, p. 35, 42; Augée, Gooden & Musser 2006).

Healesville Sanctuary, located in Victoria's Yarra Valley approximately 65 kilometres from Melbourne's CBD, is home to eight short-beaked echidnas. The group consists of five males and three females split between three enclosures. Their age ranges from the oldest at 35 years of age (Snoopy) to the youngest at approximately six years of age (Blondie). All of the echidnas at Healesville Sanctuary are rescued from the wild.

The Life Sciences team at Healesville Sanctuary are constantly striving to achieve positive welfare states in all our animals. A crucial tool that is enabling keepers to provide optimal welfare to our animals is through our animal training programme. Animal training is focused on training behaviours that contribute to the animals' voluntary participation in their own proactive health care as well as building strong and positive relationships with keepers. We have a dedicated Animal Training Coordinator that approves and assists keepers in developing animal training plans following the most positive, least intrusive approach. This in turn is to equip our animals to excel in their environment, allowing for the animal to have choice and control and ultimately to provide them with the tools they need to not only cope but thrive in their environment (Hobbs, Papadopoulos, & Jaensch 2018).

Echidnas have incredible cognitive abilities with a remarkably large brain, said to be similar to that of a carnivore of comparable size (Wilson & Mittermeier, eds. 2015, p. 43). With that in mind, the Echidna Team at Healesville Sanctuary came up with the goal in 2018 to achieve voluntary weights of our echidna group and in doing so move away from regular manual restraint that doesn't allow for choice and control. The echidnas have a range of personalities, from 'typical wild-type shy and cautious' to 'incredibly bold and full of confidence'. These individual differences played a huge role in our training plans including adjusting our expectations and modifying our set up to enable even the 'most shy' of all our echidnas (Sean) to achieve this voluntary weighing behaviour.

THE SETUP

Echidna's are generally known for their more 'slower approach to life'; they have a unique, slow waddling rolling gait; compared to all other mammals they have the lowest metabolic rate with a body temperature that barely rises above 33 degrees Celsius (and can dip down to one degree Celsius of the substrate temperature); and they have the ability to avoid extremes of temperatures by going into torpor (Wilson & Mittermeier, eds. 2015, p. 41, 43, 45; p. 93; Augée, Gooden & Musser 2006). This life-history strategy contributes to their long life expectancy (30-50 years) and is a huge factor when figuring out a training plan for this species (Wilson & Mittermeier, eds. 2015, p. 41). Unlike some species where the trainer needs short and salient bridging stimuli and to be continuously thinking in a fast-paced mindset, this species requires a trainer with a high level of patience, commitment and trust in the process with a solid understanding of their natural behaviour tendencies to ensure success, particularly if they live in a cooler climate.

Equipment

The equipment required to set up the training session (Fig. 1) included: a large, low lying scale that is reachable to the echidnas to step up on from the ground; logs placed either side of the scales; some small PVC flat-bottomed caps to use as our means of delivering the reinforcer; a 50ml long-nosed syringe; and some scale covers (and further modifications known as the "hood" and carpet flooring to



Figure 1. The voluntary scale set up for attaining weights. Echidna ‘Christmas’ is on the scale with the modified hood and carpet to assist our more ‘shy-type’ individuals feel more comfortable by replicating a hollow log/darker environment that echidnas would naturally choose to reside in.

give confidence to our more ‘shy-type’ echidna individuals to participate). The reinforcer is simply their daily diet – “Wombaroo Echidna Diet”, a complete nutritional substitute diet for echidnas.

SHAPING THE BEHAVIOUR

Initially, training involved systematic desensitisation to the PVC bowls, the keeper’s presence and the stimulus the keepers created during a training session. Stimulus included the moving of training equipment and adding more bowls for the echidnas to come forward to; making noises with the syringes when drawing up the reinforcer and refilling the reinforcer bowls; and the keepers themselves repositioning as needed in relation to the individual.

Once the echidnas were desensitised to the training set up and associated stimulus created (determined by the echidnas showing reduced erecting of spines/retreat behaviours in response to stimuli in their environment

and an increase of echidnas reliably approaching keepers for food), we then incorporated stepping up onto the scales. This would include surrounding the scales with familiar logs from their enclosure to reduce the distance the echidnas needed to step up (and make the scales look less like scales). Our approximations included positioning the bowls near the scales, just on the scales and in the centre of the scales, doing repetitions of each approximation as necessary for the given individual. Essentially we were pairing the scales with their food to build a positive association with the scales and using portions of their diet to encourage the echidnas to stand on the scales through luring.

Often, a mock set up of the scale platform (see Fig. 2.1 & 2.2) is left in their enclosure so they are familiar with the equipment and it is only the scales itself that requires being brought into the enclosure on training days. Overtime, we have found using one of their normal food bowls and placing this on the scales, was easier for us





Figure 2.1 (left) & 2.2 (right): Mock scale set up kept in the echidna enclosures. The wooden frame at the base is the same height as the flatbed scales so the height is unchanged when swapped for scales. The topper, carpet and hood are kept in the enclosure and transferred onto the actual scales on training days (Photo credit: Craig McQueen).

and all that is needed to encourage the ‘more confident’ echidnas on the scales without needing to use multiple mini PVC bowls to lure them onto the scales.

KEY LEARNINGS FROM OUR ECHIDNA TRAINING

Outsmarting the Keeper – personality differences

Our echidnas have a range of personalities including differences in confidence and time it took to achieve the desired behaviour. Some individuals took to the scales pretty quickly once training commenced. Others, such as our lovely 24 year old ‘Sean’, required a lot more thinking and adjusting of the environmental arrangement in our training sessions to set him up to succeed. Sean was the reason for the hood and carpet modification being made and with much perseverance and continued belief in Sean, he made the big ‘step up’ onto the scales seven months after training started. In those seven months we observed many moves by Sean including stretching and outsmarting the keepers (Fig. 3) in ways that continually kept us in anticipation and amusement by his problem solving abilities to still attain the reinforcer without being completely on the scales. The day he chose to voluntarily weigh himself with all parts of his body on the scale was incredibly exciting (Fig. 4)

Torpor

Echidnas found in Victoria and other cooler climates are known for entering into torpor particularly with the onset of the cooler months. They can continue to exhibit this behaviour in regular bouts until generally the end of the breeding season in around September. With torpor comes reduced activity and appetite levels due to the slowing of their metabolism to cope with the extreme environment (Wilson & Mittermeier, eds. 2015, p. 45). This natural behaviour, from a training point of view, can make



Figure 3. Echidna ‘Sean’ not quite on the scales, but still attaining the reinforcer.



Figure 4. June 2018, seven months after training commenced, the last of the eight echidnas, Sean, to voluntarily participate in being weighed.

achieving regular training sessions quite a challenge. Not only are we working with animals that instinctively take on reduced interest in food – which is our reinforcer – we may go days or even weeks without seeing one of our echidnas active whilst we are on site, making it near impossible to maintain regular training sessions.

Reinforcer

The reinforcer we use is simply their diet (Wombaroo Echidna Diet). Although this does work to achieve the training, at times we do have variation in motivation for the food amongst our echidnas (whether it be due to seasonal change and echidnas being satiated more quickly or other reasons) and there are distinct individuals who appear to always have a great appetite and others whose appetite and desire for food fluctuates more readily. Other items we are investigating to trial as a reinforcer includes termites/termite crumb, maggots, mealworms, fly pupae, crickets or another appealing ‘novel’ echidna food item that could be made into a paste and used as a reinforcer. This would hopefully strengthen the participation and interest levels of our echidnas year round.

SETTING UP FOR SUCCESS FROM OUR LEARNINGS

Opportunistic training

We have adopted ‘opportunistic’ training with our echidnas in the cooler months of the year given the echidnas natural behavioural tendencies are to torpor and have reduced activity and appetite levels. We don’t expect to see a strong retention in behaviour in the cooler periods however when the echidnas are out and active, we will set up the scales to opportunistically achieve a voluntary weight if they choose. Otherwise, once our echidnas are back to a more regular interest in food consumption and increased activity levels in the warmer parts of the year, we then recommence our regular training sessions with the echidnas with the aim to attain monthly voluntary weights.

Thinking outside of food-based reinforcers

Echidnas have an incredible sense of smell and we sometimes find having had the scale in another enclosure can be particularly interesting for the echidnas to smell and investigate especially when exhibiting low interest in their diet. We have found for our male echidnas in particular when they are not showing a strong interest in food, that using scale equipment that have been in another echidna’s exhibit beforehand has helped us to attain voluntary weights. As the decreased appetite generally coincides in the breeding season, it appears that having access to the smell of other echidnas appears to also work as a reinforcer when the drive for food isn’t high.

WHERE TO FROM HERE?

A further addition to our training set up that we have incorporated which can be seen in Figure 2.1 & 2.2 is we now use a sturdy board to sit the scales on to make it easier to level the scales compared to when setting up directly on enclosure substrate.

We also now use luring to crate our echidnas when needing to shift them in between enclosures or take them up to vets for a health check.

Further extensions of this training that the team has discussed is looking at whether we could transition this behaviour into a station behaviour to attain voluntary conscious x-rays to get a better idea of body condition scores. As echidnas are covered in spines, it can be more difficult to get a body condition score than other mammals so we are wanting to think of other approaches that remove the need to manually restrain and don’t require unnecessary anaesthetic to attain the x-ray.

Another idea we have in discussion is looking at a podoscope (Fig. 5) arrangement for echidnas where a camera or mirror is in the podoscope and the echidnas lean up over top of it to allow us to get a good view of their ventral side without needing to manually restrain the echidnas for examination.



Figure 5. Example of a podoscope being used with the eclectus parrot ‘Bonnie’ at Healesville Sanctuary. Photo credit: Kat Thompson.



OVERALL BENEFITS OF THIS TRAINING

The plan to set out and train our echidnas in voluntary weighing has truly enabled us to provide our echidnas with an environment that allows them to proactively participate in their own health care by providing them choice and control in being weighed. This has reduced the frequency that manual restraint is required which has had positive flow on effects with observable behaviour change in our echidna group. The 'bold and confident' echidnas continue to exhibit these confident personalities but with an even stronger rapport with their keepers. The most significant welfare benefit of this training is demonstrated with our 'shy-type' individuals such as 'Sean'. He has been housed at Healesville Sanctuary for nearly 25 years now and the training has given him greater choice and control than he has ever experienced in human care. In less than a year from when training commenced, we had observable change in his demeanour. His confidence increased around keepers and there was a reduction in undesirable behavioural responses to keepers such as retreating, flinching and burrowing.

'Sean' (Fig. 6) still continues to be worked with closely in further developing his confidence but the change we have already seen in just a short amount of time relative to his age is something that has made the commitment to his training completely worth it to give him choice

and control in his environment. Working with 'Sean' highlighted to me how important it is to continually evolve and rethink how we approach caring for our animals. More often than not there is always something we can change or modify – even if it is only minor or takes a bit more time than the 'old way' to start with – to make every interaction we have with the animals we care for an even more positive one, no matter the age or the personality of the individual involved.

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I would like to greatly thank Sue Jaensch, Animal Behaviour Specialist for Zoos Victoria, for her generous time in helping shape and provide feedback to my paper, and for her incredible support and expertise she has provided the echidna team in helping us to reach our training goal.



Figure 6: September 2020, 'Sean' voluntarily stepping on the scales twice within the one training session.

THE HIGHS AND LOWS OF TRAINING MOONLIT'S FIRST KOALA JOEY

Caitlin Ondracek, Koala Keeper, Moonlit Sanctuary

On May 18th 2018, two minutes into my daily koala presentation, something amazing happened. After four months of patiently waiting, we were graced with our first sighting of Moonlit Sanctuary's brand new koala joey – the first successful koala breeding event in the sanctuary's history. I was on the radio immediately, and our visitors were met with a stampede of keepers all dying to get a sneak peek of the joey. It didn't look like much; a strange, finely furred leg and foot hanging out of Leuca's pouch, that resembled a tiny elephant trunk. Still, we were elated.

With our hands-on koala encounters acting as an important and inspiring draw for visitors, international and domestic alike, we had grand plans for our new arrival, Banjo. We wanted the best of both worlds for him, allowing his mum, Leuca, to handle most of the rearing while we socialised him with people as early as possible. We started slow with his training, offering our hands to sniff and grab while he was still thoroughly attached to mum, and as he grew more independent, we offered our shoulders and vests for him to climb onto, always with tasty eucalyptus 'tips' on offer as incentive. Leuca seemed completely unphased by all the attention, and being a lover of all things food-related, she was easy to please with a sprig of fresh leaf whilst her son received his training.

On advice from some close contacts with koala training know-how, we allocated a primary trainer for his handling to create consistency in the early stages of training. However, we were keen to get as many people involved as possible, asking other koala keepers to step in to provide tactile training. And who doesn't want to pat a baby koala! Even our Life Sciences Manager, Lisa Tuthill, got involved when she inadvertently became his chair. In the interest of reinforcing any event where Banjo demonstrated comfort in interactions with us, we learnt that when a baby koala decides you are his chair, you do. not. move. Lisa was walking past the enclosure when she heard a thud and saw Banjo on the ground (having miscalculated an adventurous leap, no doubt), and rushed in to help him back up the perch. After making it halfway up, Banjo decided to rest his weary bottom on Lisa's hand. For 20 minutes. Once he was recuperated from his big adventure, he continued on his way and Lisa could escape the contorted position she'd been holding for the comfort of the joey.



Fig 1. Banjo exploring away from mum



Banjo's handling progressed from brief stints climbing onto my chest, to taking a few steps holding him, walking slow laps of his enclosure, and placing him on a temporary 'encounter perch' within his enclosure to practice interacting with new people (other keepers to start).

On New Year's Eve, the independent young man moved into his very own enclosure, our 'koala creche', allowing for one-on-one training without the distractions of his parents, and a shorter walk to our encounter pods. He surprised us with how quickly we could progress, walking him out of his enclosure and into the pods with only brief distraction from the new sights and smells. In no time, he was coming out to do practice encounters with the children in our 'Keeper Club' holiday program, sitting on a perch eating leaf whilst they gently pet him on his back.

More keepers were introduced into handling him and by February, we were bringing him out during our fully booked encounter sessions, alongside Victor and Gumnut, to allow him to take part in as many encounters as he was comfortable with. Some days it was over 20, other days it was three or four. But if he showed the slightest hint of discomfort or lack of interest in participating, we called it and took him home.



Fig 2. Eight month old Banjo climbs on to Caitlin for the first time



Fig 3. Banjo's first time in his encounter area.

We dreamed of Banjo growing into a cuddly young man, eager to greet the crowds and take part in our koala encounters just like our veterans Bluegum and Tyipa had done for so many years, however things didn't quite go as planned. Incidents started occurring where in response to noises or events, Banjo would react by nibbling. The nibbles became more frequent and would become stronger as he grew. As koala keepers, we were understanding, and made sure not to react when the nibbles occurred as we didn't want to either encourage the behaviour or exacerbate whatever was causing it. But more drastic steps had to be taken when the recipient of the nibble was no longer a keeper, but a visitor. No keeper wants to see an encounter animal, an ambassador for their species, bite a paying customer! And while it was fairly gentle and the visitor thought it was 'cute', we could see the hazard clear as day, and decided to immediately retire him from encounters and take some steps back in his training.

With positive reinforcement and choice in mind, we created some predictability around his training. We only picked him up from a 'station' perch, and only if he approached us first. He was telling us he was ready to interact. We managed his diet, offering his favourite eucalypt species only during training as a motivator,

whilst carefully gauging his interest in his food reward. If the interest wasn't there, we would leave the session and return when the tips were more reinforcing and would provide a more enjoyable training experience for him. We returned to one primary trainer, and the other koala keepers began sound-desensitisation based on observations in his handling sessions. The counter-conditioning focussed on sounds he might respond to during encounters, including crowds, children and babies crying, camera shutters, car engines and more. During my pod sessions with him, I'd scuff my feet on the ground, tap on the walls and scratch the bark on his perch, all things that visitors might do. If he became alert, we'd pause the noises, continue to offer his favourite tippy leaf, and wait for him to settle before continuing.

After several months of 're-training', and numerous attempts to reintroduce him to encounters with limited success, we needed a fresh perspective. With the help of Ryan Cartlidge and the Animal Training Academy, we completed Susan Friedman's Functional Assessment and Intervention Design (FAID), but we were stuck on the function of his biting. Banjo still showed interest in handling sessions, waiting at his station perch to be picked up, but the bites were still occurring. To reduce negative experiences for both Banjo and his keepers, we made the decision to halt all handling and begin crate training him. We built a crate station in his enclosure, a platform away from his main perches, that held the crate firmly in place. By keeping it away from his main living space, he could have comfort in knowing that we would not approach him for crating, and that he had the choice to interact with us by moving to the crate station if he desired. The crate was previously used in emergency situations, where due to his behaviour, picking him up was not safe and crating was the only option. Because of this, the crate did not start off with positive associations for him. So before introducing the crate, we simply offered him reinforcement at his crate station. It began with luring, helping him find his way along unfamiliar perches to the station, but the luring was soon phased out and the keeper simply stood at the station and called his name, and he knew that good things were there waiting for him.

Banjo embraced his crate training sessions with enthusiasm and a willingness to adapt to our changing expectations of him. Within weeks, we had progressed from simply sitting at the station and being fed, to introducing the crate in a positive context. Initially we kept both ends open, giving him control to enter and exit as he pleased, but the reinforcement was only provided inside the crate. We would then close one end, then the other, then lift the crate slightly, place it on the ground, and back onto the station. New steps were only taken if he

could perform the current task with comfort and ease. If he stopped eating, we would pause what we were doing, allow him to settle, then continue. If he ever wanted to exit the crate, we'd open it immediately. However, he quickly went from wanting to burst out of the crate as soon as the gates opened, to not wanting to leave it at all!

His quick progress excited us, and after finally overcoming obstacles in his training journey, we were feeling confident that we were inching closer to bringing him out to his encounter pod again. However, as a global pandemic reached our shores and began affecting our state, further tragedy struck. In the weeks before the park entered its first closure due to Covid-19, Banjo's health deteriorated suddenly. He had our undivided attention and received intensive treatment, both at the sanctuary and at the vets, however his condition worsened and on 28th March 2020, at the age of two, Banjo passed away. The cause of his decline could not be found, and we were left mourning a heavy loss while the world was reeling from the pandemic.

In Zookeeping, there are times when you have to acknowledge that you can't always control everything, however you can control what you take away from a bad situation. After months of reflection, I look back at the time we had with Banjo with profound appreciation. I couldn't be more grateful for the learning opportunity Banjo offered us, and as trainers, we can grow from the setbacks, and be inspired by his accomplishments. Though we feel his absence, Banjo has set us up for a future of success in koala training, providing ambassadors for this iconic species without sacrificing the individual's welfare and choice in the process.



Fig 4. Banjo walking through his crate with keeper Caitlin.



MAINTAINING EXHIBIT WATER QUALITY SAVING TIME AND SPACE USING INEXPENSIVE SUSTAINABLE CONSTRUCTED WETLANDS

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Fig 1. Billy Bear Chilling In His Pool

Splashing, diving, swimming and bathing are activities that water features provide our animals, and the public loves them too. Unfortunately, they can require a lot of time for cleaning, scrubbing, and filtering to keep the water healthy for our animals, and attractive for zoo patrons. At Ochsner Park Zoo, in Baraboo WI, we have a small staff of two full time keepers and two part-time keepers. Our collection includes 27 different species of animals totaling 60 individual animals housed in 15 different exhibits on our 3.5 acre zoo. In addition, our zoo staff is responsible for the maintenance of the adjacent 15 acre park/picnic area which includes three shelters and two restrooms. Maintenance responsibilities of the park/picnic area include mowing of grass, snow removal, trash removal and picking up sticks that continue to fall from our canopy of mature red oaks.

Our two Black Bears (*Ursus americanus*) have a nice big pool that holds about 3,700 gallons of water. Unfortunately, our original design didn't have any type of filtration system. This meant we were required to dump and fill the pool two to three times a week to keep the water clean (Figure 2). Each week our staff had to dedicate four to six hours toward the cleaning of the pool. This is time which could have been spent on the care of other animals in our collection. Labor alone cost the zoo \$6,000 to \$9,000 every year. In addition, the zoo spent hundreds of dollars each year for over 60,000 gallons of potable water and associated sewer charges.

In the spring of 2017, we relocated our bobcat to the Marshfield Wildwood Zoo (Marshfield, Wisconsin). While there, we were treated to a tour of their recently expanded exhibit for their two Kodiak Bears (*Ursus arctos middendorffi*). Water from the new bear pool was kept clean by recirculating the water through a roughly 18.6 square meter wetland treatment



Fig 2. A Bear's Bathtub Ring

system located on the backside of the bear exhibit. Our experience in Marshfield inspired us to pursue our own natural sustainable system to maintain the water quality of our bear pool. I called my father, John Ferris a civil engineer, to inquire about natural filtration systems. Being a nerdy engineer, he jumped at the chance to take on the challenge.

Wetlands have sometimes been referred to as nature's kidneys for their ability to purify waters by absorbing wastes such as nitrogen and phosphorus, and storing carbon. Therefore, constructed wetlands, like the one in Marshfield, have been used to take advantage of the treatment processes commonly found in wetlands, physical, chemical and biological. Constructed wetland treatment systems have been made to treat dirty water from sources that range from animal and domestic wastewater, industrial wastewater, and stormwater runoff.

The system at Marshfield is the type of treatment wetland referred to as a Free Water Surface Constructed Treatment Wetland. The Baraboo staff identified six objectives that were incorporated into the design for the new treatment system which included:

- simple to maintain
- accessible to keepers at all times
- not harmful to the animals
- cannot be damaged by animals
- cannot interfere with operation or maintenance of exhibits

- should not reduce the amount of space used by the public

Consideration was also given to three design issues that some Free Water Surface Treatment Systems, like the one we saw in Marshfield, have been known to struggle with including:

- growth of unsightly algae
- odors from decomposition of pollutants
- the creation of potential breeding habitat for mosquitoes

Working closely with our Parks Department staff, Mr. Ferris suggested that a 7.0 square meter Mesic Prairie Constructed Wetland Treatment System would be a better fit given the unique constraints that we have at the bear exhibit (Figure 3 below). This system is a type of constructed treatment wetland where water flows horizontally through a bed of gravel. Mesic prairie plants grow in a thin layer of soil covering the gravel bed. Root rhizomes of their deep root systems extend into the gravel where microorganisms colonize a biofilm on the roots and stones. This micro-habitat creates conditions that are capable of removing pollutants by a wide variety of physical, chemical and (micro) biological processes. Pollutants transformed by the biofilm may be taken up by the prairie plants.

The advantage of the Prairie Treatment System over a Free Water Surface system is that the cleaning of the water is underground, allowing the treatment system to fit almost anywhere. This allows the surface to continue to be used for exhibits, landscaping, walks, parking or other



Fig 3. Prairie Treatment System Location



public spaces.

Thanks to John's ingenuity, the Prairie Treatment System for our bear pool was designed to fit within the narrow unused landscaped area between the exhibit enclosure and the viewing rail. The design enabled the Baraboo staff to maintain access to the outside of the bear enclosure which is required for routine maintenance and training of the bears. Tapping into the existing drain pipe from the bear pool created an alternate route for the water to flow by gravity through the Prairie Treatment System. Treated water is returned to the pool by a submersible sump pump. Based on John's calculations, the sump pump timer was set to ensure the whole pool has been filtered one to two times per day.

On 14 July 2017 we tested the Bear's pool water for the 5-Day Biochemical Oxygen Demand (BOD5), Total Ammonia Nitrogen, Total Nitrate Nitrogen, Total Nitrate Nitrogen, Total Phosphorus and Total Orthophosphate. Ammonia, BOD5 Nitrite and Orthophosphorus concentrations were all below detectable levels of 0.040, 4.0, 0.040 and 0.090 mg/L respectively. The numbers for Nitrate concentrations were in the range of 0.20 to 0.32 mg/L, significantly below the federal and state drinking water quality standard for nitrates, which can be up to 10 mg/L. Total phosphorus concentration came back at around 0.020 to 0.029 mg/L which meets the surface water quality standard for stratified and not stratified lakes and reservoirs which can be up to 0.030 to 0.040 mg/L total phosphorus described in Wisconsin Administrative Code NR 102.06. This data demonstrates why the water in the pool appears clear .

2018 has been the second summer using this system. The prairie plants have grown beautifully this summer. Due to the clarity of the water in the bear pool, we have not drained the pool for cleaning at all this summer. An unexpected benefit has been that the pool now serves as nursery to tadpoles for our toads and tree frogs. There is some slight algae growth on the walls of the pool, but we easily can clean that up when time allows. Being able to be flexible with the cleaning, is a huge help.

One of the most shocking details about this new system was the low cost and the ease of installation. Total cost of the project was \$7,500. We saved the full installation cost in avoided maintenance by the keepers our first two years. This is vital for a free, city owned zoo.

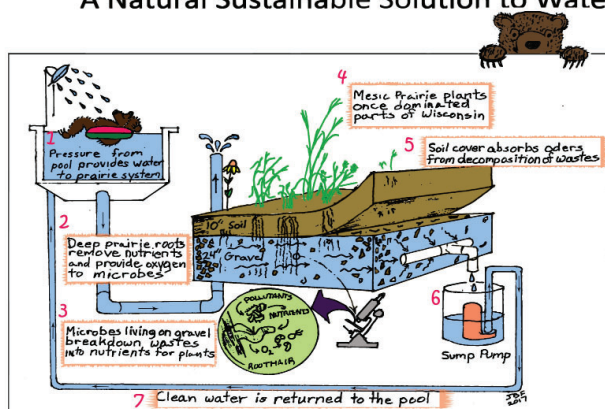
In fact the cost to the zoo was much less. Alliant Energy Foundation provided a \$1,750 Community Grant which paid for educational signage and the materials to construct the project (Figure 4). We used the Park's Department resources to dig the trench for the prairie system, lay the pool liner as well as the installation of the sump pump, and planting of the native plants. Engineering and construction oversight of the Prairie Treatment System was donated by John Ferris, PE. With this new way of filtering pools, conserving water, and allowing for an educational moment, we realized this is beneficial information we could share with other zoos.

The authors would like to express our thanks to Tori Spinoso, curator for the Ochsner Park Zoo for her leadership and roll in constructing the project.

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MESIC PRAIRIE TREATMENT SYSTEM

A Natural Sustainable Solution to Water Quality Problems



Keepers previously drained the bear pool weekly to keep it clean. This sustainable treatment system uses the natural cleaning capabilities of prairie plants to remove wastes from the water in the pool. This saves 100s of hours that keepers can now spend taking care of our animals and saves more than 500,000 gallons of city water per year.

This project was made possible by the generous funding from Alliant Energy. The design and installation assistance was donated by John Ferris, PE.

Fig 4. Informational Signage



• MEET AN ASZK MEMBER •

Karah Wright

ANIMALS OF OZ

MANAGER AND HEAD KEEPER

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

I've been working in the zoological industry for four years. I work for Animals of Oz which is a mobile wildlife education company. We take a variety of Australian animals to various groups including schools, pre-schools and community events. Before this I completed a Bachelor in Environmental Science, Diploma of conservation and land management and volunteered for various conservation organisations.

What is your favourite animal, and why?

Grey-headed Flying Foxes are my favourite species because they are intelligent, curious, cute and play such a vital role in the ecosystem. However, they are much maligned. I feel of all the animals I work with Grey-headed Flying Foxes are one of the species that can have the greatest positive perception change by showing the live animal "up close" with thoughtful narrative.

I also love our squirrel glider, Luna. She loves a tickle under the chin and has a love for mealworms like no other!

What is your favourite thing about Animals of Oz?

That we are mobile. I love that I can show an animal and paint a picture through story telling about its habitat/home and not have imagination undermined by barriers. I love that I am able to take animals out to people that may not be able to visit a zoo due to being frail, living too far away or are disabled, amongst other reasons. I really enjoy visiting aged care facilities and listening to their stories of animal experiences they had from their youth.

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

I feel zoo's, zoo outreach organisations and their keepers and aquarists could be more politically active and promoting conservation activism. So many zookeepers and aquarists are a wealth of knowledge on so many issues relating to not just animal management but also biodiversity conservation. This fact is not utilised enough in all forms of media to help the wider community to understand the natural world from a big picture rather than from an individual animal focus.

There should also be more open communication between all types of zoological institutions. SO, they should all join ASZK!

What is your greatest animal achievement thus far?

Target training our Grey-Headed Flying Foxes, especially one individual, Gonzo. I have been working with him to change some behavioural issues and am really happy to see some progress.

What is your most memorable experience with wildlife?

While I was at university I had the amazing opportunity to go to Borneo on a study tour. I saw wild Orang-utans, various species of Bats, Frogs and a Tarsier! We visited a rescue and rehab centre and saw a Slow Loris being released back into the wild.

What is your most embarrassing zoo/Aquarium moment?

While I was presenting at a childcare, our salt water crocodile emptied its very full bladder all over my crotch! I still had two more presentations to do and was so embarrassed each time I went into a new room, making sure I told them it was the croc!



THE IMPORTANCE OF TRAINING ‘HOOF ROLLS’ ON GIRAFFE TO CORRECTLY UNDERSTAND THE INDIVIDUAL.

Jimmy Sanders and Renae Moss, Taronga zoo- Taronga Conservation Society Australia.

Until recently, due to the difficulty accessing the underside the giraffe hoof, growth and general health have been assessed and maintained from the top view only. The hooves have previously been assessed species specific, and really should be assessed as individuals.

As with our individual fingerprints and the giraffe’s unique pattern, their hooves, confirmation and tissue growth are also as individual and different from each other as well.

“Their hooves look fine, but what is fine? If they are lame it may be too late.....”

-Steve Foxworth (Zoo hoofstock trim program USA)

For the best possible way to explore and assess each individual giraffe hoof, the growth/ confirmation and general health, it is proven that training the hoof roll behaviour using operant conditioning is the greatest benefit. This behaviour allows the best possible inspection and maintenance of underside the hoof when required.

Since having this behaviour now trained on Taronga zoo’s male giraffe ‘Jimiyu’- keepers can routinely check the underside status of the hoof growth and provide the correct care needed to maintain a healthy hoof.

This behaviour has many benefits, also allowing the vets and external farrier to come in and do routine hoof trims and rasping when needed. These procedures were something that previously was only done from the top view only or under general anaesthetic.

Training giraffe for routine hoof trims and inspections allows potential causes for lameness and infections to be detected early and managed. The hoof roll is and will continue to assist greatly in managing and preventing lameness for any giraffe under human care.

This technique of operant conditioning is used when training the roll behaviour on the male giraffe at Taronga zoo, with both the front and back hooves.

It is important to demonstrate a healthy individual giraffe hoof verses an overgrown hoof and the maintenance needed to correctly manage the hoof and tissue growth.





Moving an 11 year old Asian Elephant Bull from Taronga Western Plains Zoo to Melbourne Zoo

SHERYL CUMMINS & BRADD JOHNSTON

In early 2020 the decision was made that Luk Chai - one of the male elephants from Taronga Western Plains Zoo (TWPZ) was going to be moved to Melbourne Zoo to assist in the expansion of their breeding program.

Luk Chai was born at Taronga Zoo in Sydney in July 2009, making him the first elephant born in Australia. In 2015 he moved with his mother and two other herd mates to TWPZ in Dubbo. Luk Chai was a very well socialized animal and was able to be housed with most of the elephants in the herd, including younger siblings and his father, who also came to Dubbo from Sydney in 2018.

Being an 11 year old bull with a confident & easy going nature who had grown up not only watching but practicing natural breeding behaviours made Luk Chai an ideal candidate for this move and the TWPZ elephant staff were very confident that he would integrate very well into the Melbourne herd with his exceptional social skills. While Luk Chai lived in Sydney he routinely went to visit his father Gung in a separate exhibit located in a

different area of the Zoo. Prior to 2013 Luk Chai and other elephants would be walked over to this exhibit for the day before returning later in the afternoon. Once the program shifted to protected contact in mid 2013 the elephants were transported there and back in a specially built crate. Luk Chai then made the move out to Dubbo in 2015 in the very same crate but had not seen it nor been in another crate since then.

The first step to moving him to Melbourne was to get a crate positioned so Luk Chai could start getting used to it again. The barn at TWPZ is designed to allow a crate to be chained down for extended periods without it interfering with or getting in the way of the daily routine and allowed Luk Chai to safely enter the crate under supervision without fear of him moving it.

Access to the crate was via a heavy duty sliding door which led into the barn. Once the sliding access door from the barn opened, Luk Chai was called in, allowing him time to explore the crate, while being offered some



food rewards from the opposite end of the crate. The doors were always open when he came in, with five steel poles secured in place horizontally to keep him in.

As Luk Chai's confidence in the crate grew restraint bracelets were put on his front feet in the barn prior to allowing him access to the crate. These bracelets were made with a measured length of chain encased with some fitted firehose around them for comfort. We would then get him to place his front feet up on a horizontal pole after entering the crate to take the bracelets off to further increase his confidence that coming into the crate and offering his feet to get the bracelets off was what we wanted from him. Eventually we worked up to attaching the bracelet to a longer restraint chain that was attached to the crate. This would keep Luk Chai from moving too freely in the crate and shifting his mass too much during the crane lifts and the long truck transport to come.

Luk Chai was all set and ready to go for a June 2020 move to Melbourne, and then Victoria went into lockdown.

The transport was cancelled the night before the move due to imposed Covid restrictions and then everything had to be put on hold.

Luk Chai was given a bit of a rest from entering the crate daily due to the fact that we didn't really know when restrictions would lift. He was still going into the crate a few times a week, just not daily as he was in the lead up for his move.

The communication between elephant staff from both Zoo's kept up throughout the waiting and with the benefit of modern technology, both teams were constantly kept in the loop. A WhatsApp group was created to let both teams simultaneously keep up to date with what was happening with the transport, the delays and his training. Towards the second transport date, which was in early December, further more detailed meetings between the two Keepers who were travelling with Luk Chai and the Melbourne Zoo elephant staff who were organizing all the logistics such as cranes & police escorts etc had weekly online meetings leading up to the move.

The loading of Luk Chai into his crate on the afternoon of December 2nd went smoothly. Luk Chai remained calm throughout the restraining process in the crate, and then the crate was loaded onto a truck using a heavy lift crane.



Photo of Luk Chai loaded and restrained in the transport crate prior to being hoisted by the crane onto the truck. Photo : Joel Kerr

Accompanying Luk Chai on the overnight road trip were two TWPZ elephant keepers, a TWPZ veterinarian and a TWPZ vet nurse. The travel overnight went well, with multiple stops along the way to check on Luk Chai and to offer him food and water. A police escort met the Luk Chai transport just north of Melbourne to assist with a smooth final run to the gates of Melbourne Zoo.

Upon arrival at Melbourne Zoo, Luk Chai's crate was unloaded and moved into place with the help of three cranes due to the complexity of getting him to the Melbourne Zoo bull barn via the access road. During the unload Luk Chai worked & responded really well for removing his leg restraints and walked into his new barn after only a few minutes of looking around his new training yard. Once he was secured in the barn, all of the unloading equipment including the crate and cranes could be removed from the site. For the rest of the day Luk Chai was then given access to



Photo of Luk Chai's transport crate being hoisted by the crane onto the truck ready for the journey to Melbourne. Photo : Bradd Johnston

Caption Page 16 - at start of article - Photo of Luk Chai being unloaded at Melbourne Zoo. Photo : Bradd Johnston

For the rest of the day Luk Chai was then given access to the adjoining habitat yard connected to the bull barn to explore & settle into his new home.

Melbourne Zoo (MZ) staff working in conjunction with TWPZ staff started stationing, calling and moving Luk Chai almost immediately after his unload and then started working on his bath and other routines the next day to ensure a smooth hand over after their departure back to Dubbo. This ensured his daily routine remained similar to what he was used to and helped in settling him in and making him feel comfortable whilst providing opportunities for MZ staff to start building a working relationship with him.

the adjoining habitat yard connected to the bull barn to explore & settle into his new home.

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Over the following days Luk Chai was rotated through the other habitat yards to further explore the elephant facility and to have fence contact with MZ's resident elephants who were all very interested in the arrival of their attractive new herd mate.

Luk Chai remained true to form throughout and confidently strode throughout the various habitats, meeting the MZ elephants through the divider fences and stationing & shifting whenever & wherever he was asked. This confidence & temperament have always been strong traits in Luk Chai with nothing ever fazing him too much.

Only three full days after his arrival things were progressing so well that after discussions between TWPZ & MZ staff the decision was made to introduce him directly to several of the female elephants the following morning to continue the momentum of integrating Luk Chai with the rest of herd.

So the next day after Luk Chai's morning bath he was released into the habitat yard containing three of Melbourne's female elephants whilst



they were eating their morning hay ration.

The introduction went incredibly well with Luk Chai attempting to say hello to each of the females, some of who were a bit more up front and confident than others but overall a very successful meeting. After about an hour or so Luk Chai was moved into the habitat yard adjoining his barn without any fuss and plans were put in place to continue further introductions with the remaining herd members on following days.

The most anticipated of these introductions was Luk Chai meeting Melbourne's resident young bull Man Jai who had just turned seven years of age a couple of days after Luk Chai's arrival. Due to Luk Chai's experience and relationship with other young elephants including most recently his bond with his younger brother Sabai (aged four) in Dubbo,

Keepers were very confident that this introduction would go well and result in an older brother style play mate for Man Jai.

The photos of that first introduction between Luk Chai & Man Jai say it all and an immediate friendship was formed as soon as they entered the pool together for a swim and this bond will benefit them both and Melbourne Zoo's elephant program for years to come.

Only several weeks after TWPZ Keepers said their farewell to Luk Chai down in Melbourne we were sent an update from the MZ elephant team to advise that Luk Chai had already begun putting all the education & practice he had gained over the years to good use and started mounting the MZ females, living up to all the hopes of both teams.



Photo of Luk Chai leaving his barn and exploring the adjoining habitat yard at Melbourne Zoo shortly after being unloaded. Photo : Bradd Johnston



Photos of Luk Chai (front left) socialising with female elephants at Melbourne Zoo and ready to put all of his education & practice to good use Photo : Courtesy Melbourne Zoo Elephant Staff



*Photos of Luk Chai & Man Jai during their first meeting only few days after Luk Chai's arrival. Pool sessions like this are greatly enjoyed by young bulls and are a fantastic bonding opportunities.
Photos : Bradd Johnston*

Luk Chai will always be remembered very fondly by all of Taronga's elephants & staff, especially the Keepers who were privileged enough to watch him grow up over the past decade.

But his journey to Melbourne Zoo to take his place as a central figure in their elephant herd & the regional breeding program for Asian Elephants is an incredibly important one both for Luk Chai personally and the future of the species here in Australia.

As the first but smallest of the eleven calves born so far in our region - weighing only 96kg's it will be a fantastic story to watch as Luk Chai strives over the coming years to become the most successful breeding bull in Australia.

All of his close friends at Taronga Western Plains Zoo in Dubbo have all of our fingers & toes crossed and know that he will be giving it his best shot.



ASZK Committee Elections Notice 2021

The Australasian Society of Zookeeping is celebrating its 45th year anniversary this year. For nearly half a century, the ASZK has remained a foundation in supporting keeper development and upskilling animal care professionals across the Australasian Region and our expanding industry.

The Committee operates on a voluntary basis with a number of well experienced and established individuals committing resources into developing workshops, knowledge-sharing, conferences, fundraisers, awards, and scholarships, all in the name of celebrating the passionate workforce dedicated to the professional care of our wildlife and habitats.

This May, all full members are invited to nominate in the upcoming biennial Committee Election. The ASZK committee is made up of generally around 12 members. An Executive Committee (six positions; President, Vice President, Secretary, Treasurer, Memberships Officer, International Liaison (2)), and a General Committee (six to eight positions) hold terms of two years, with all positions open for nominations.

This is a wonderful opportunity to engage in a region-wide platform to advance the skills of keepers, and best practice welfare of animals in our care.

The Election will be held as part of our Annual General Meeting on May 8th, from 2:00pm AEST as a virtual AGM held online, however we invite all interested parties to consider self-nominating or nominating a suitable candidate in advance of the AGM. We will be circulating proxy forms and nomination forms shortly. Details on accessing the meeting, and the agenda to follow.

For more information contact eo@aszk.org.au.



• ASZK • MEMBERSHIP STATISTICS

203 FULL MEMBERS

0 FULL PARTNERS
MEMBERS

42 ASSOCIATE
MEMBERS

0 ASSOCIATE
PARTNERS

6 RECIPROCAL

14 CORPORATE

13 LIFE MEMBERS

0 OVERSEAS

2 OVERSEAS
CORPORATE

TOTAL 280



CURRUMBIN WILDLIFE SANCTUARY

It has been exciting to have some new animals arrive for the first time in many, many months. This included a trio of Tasmanian Devils, a new Greater Bilby to pair with our female and a Northern Brown Bandicoot, which is a species we have not had in our population for many years now. In addition we received a bachelor group of the stunning Nicobar Pigeon. Despite the aviary being very large (1600m²) with a dense upper canopy the Nicobar Pigeons are almost always hanging out on the ground and visible to our guests, which is a good sign they are very relaxed in this space.

We have had some breeding success too. We have a new echidna puggle, a trio of Black-winged stilts (pictured above), a new Brush-tailed Rock-wallaby joey, Wompoo Pigeon, Satin Bowerbird, Red Lory and Eastern Whipbirds.

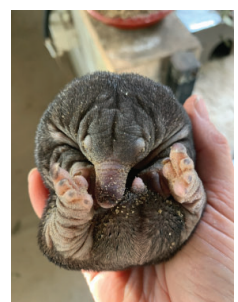
Sadly our Echidna mum stopped feeding the puggle at around two months of age so our mammal keeper Haley has taken on hand-raising the puggle, which is now looking less like a giant tick and has moved into a very cute phase of life. Our Black-winged Stilt trio were

hatched by first-time parents in our walk-thru Forest Fringe aviary. Due to the chicks naivete and Dad's protectiveness we needed to have the aviary manned by our awesome Park Volunteers during opening hours to prevent any negative encounters between the birds and our guests!

We are very thankful to have received grant funding from the Australian Government through the Wildlife Rescue and Rehabilitation initiative for our Kroombit Tinkerfrog and Eastern Bristlebird Recovery Programs. The funding for these programs will, amongst other things, allow us to expand our Tinkerfrog breeding facility and build new enclosures for our Eastern Bristlebirds, as well as provide more in-situ support for both programs.

Saskia Lafebre

Echidna puggle at two months



MELBOURNE ZOO

This new Australian factual series features exclusive behind-the-scenes access to one of the planet's largest and oldest zoos. Across Zoos Victoria's three unique zoos, 800 dedicated staff look after more than 5,000 extraordinary animals – from Melbourne Zoo in the heart of the city, to Werribee Open Range Zoo's magnificent savannah, and the stunning bushland setting of Healesville Sanctuary. The series follows a passionate group of keepers and veterinarians as they care for an amazing menagerie of creatures. Using innovative training methods, state-of-the-art facilities and the latest medical technology, they show what it takes to run a busy modern zoo at the forefront of fighting wildlife extinction.

Mega Zoo reveals the daily rollercoaster of drama, emotion and humour with heart-warming and inspirational stories.

Mega Zoo premiered 7.30pm Thursday March 4 on Channel 9

Primates

Primates have had a busy and productive start to 2021 with animal moves, ongoing projects and hand raising a baby spider monkey. Key news to share includes: The Siamangs have moved from the Japanese Garden to the enclosed exhibit at the Orang-utan Sanctuary. The project took months of planning, construction, animal training and team work to set-up and successfully move all three individuals at the same time, two crated and one hand injected.

The Siamangs are adjusting to their new environment and Orang-utan neighbours every day and visitors have been delighted watching them climb to great heights and hear them sing.



Siamang family, Photo by Primates Department

The Primates team also adapted quickly to the challenges presented by COVID-19, following procedures established in consultation with the Melbourne Zoo veterinary department, including preparing to conduct COVID-19 tests in the unlikely event one was required for a primate.

Hand raising of endangered Black Handed Spider Monkey, Izumi was rejected by mum Isobella at about six weeks old. There was no medical signs or obvious reasons for her not carrying him anymore and we attempted several reintroductions before fully hand raising Izumi. This has continued for approximately five months with around the clock care. He continues to hit his milestones each week and is now introduced to all members of the Spider Monkey group. He spends 24 hours per day in both the dens and exhibit where he is free to move where he chooses. Staff continue to feed him his milk feeds 6 times per day through the exhibit mesh, as well as solid food. Another positive hand raising outcome for Melbourne Zoo. All our Baboons have been contracepted after a baby boom to contribute to the breeding program for the region with 14 being born in total over the last few years.



Baby Izumi, Photo by Primates Department

As part of the Career Interchange Program, Primates will be saying goodbye to their Life Sciences Manager (LSM), Harna Burton who will be moving across to the Wild Seas Precinct for 12 months. Given Harna has been on Primates for 10 years, she felt inspired to broaden and share her experience and knowledge across another Precinct within the Melbourne Zoo team. Primates will be welcoming Fiona Melvin (previously Australian Bush LSM) to the team on March 1st, when

the interchange will occur, who will be the new LSM for this time.

Our lead Silverback Western Lowland Gorilla, Otana has joined Zoo Atlanta's Gorilla Heart Project as a participant in providing data to help determine underlying causes of heart failure in captive male Gorillas around the world. Keepers have been working closely with Otana over the past year to allow a heart sonographer to measure aspects about his heart while awake in his den. The team are now comfortable with his readiness to advance him to the next step and have the sonographer attend, when COVID-19 regulations permit. His involvement is expected to be ongoing.

Clare Anderson & Harna Burton

Wild Sea

Our four Asian Small Clawed Otter juveniles that were born in February 2020 are now pretty much adult size and in great shape. Dad Odie is doing a great job in his voluntary hand injection training and mum Paula has been an absolute star doing many voluntary injections and ultrasounds in 2020.

Both our Pelicans can now voluntarily and enthusiastically go to a pet pack for transport, if needed.

Felix the Pygmy Hippo can now do a variety of new behaviours that he learned during lockdown. Perhaps the most interesting one is that he lies on his side so that the keepers have easy access to his feet for inspection.

The Penguin exhibit has had a bit of a facelift this and there is more useable space near the glass. The two Fiordland penguins absolutely love this space filled with climbing structures.

Vale Tarwin – At an estimated age of 24, Tarwin had a number of age-related illnesses which impacted her quality of life, and keepers and vets made the very difficult but kind decision to euthanase her. Tarwin was born in the wild and the estimated date of birth was December 1997. At approximately 6 months of age, Tarwin was found at Nicholls Dairy Farm located 6km from Anderson's Inlet in South Gippsland. She was collected by a local animal carer before being taken to Melbourne Zoo on 4th of June, 1998. Undernourished and still a pup, Tarwin was rehabilitated before being released back into the wild on 16th of July, 1998 at Seal Rocks. However, she was soon re-discovered at Ocean Grove undernourished and unsuitable for re-release. It was on 24th of July 1998 that Tarwin formally joined Melbourne Zoo's seal population.

Everyone I have spoken to about Tarwin has had a special story to tell me about her. I also want to take this opportunity to recognise all of the work both the Vet team and Wild Sea team have put in over the last number of days to make sure Tarwin has been as comfortable as possible. It is times like this that reminds me how special of a place we truly work. I know that she is an incredibly special animal for a lot of people and will be dearly missed."

Jose Gomez & Mark Ryan



Penguin exhibit renovations, Photo by Jose Gomez

Ectotherms

The team have been working on two of the exhibits at DigestEd Learning Node space. One in preparation for our newly acquired Giant Water Spiders (*Megadolomedes trux*)! Newly renovated and once the water proofing has cured, we will be able to move one of the big girls into her new home. This is an exciting development for the zoo as it has been over five years since we housed and displayed any spiders! The Giant Green Mantid exhibit is also having a little make over to match in with the rest of the beautiful exhibits.

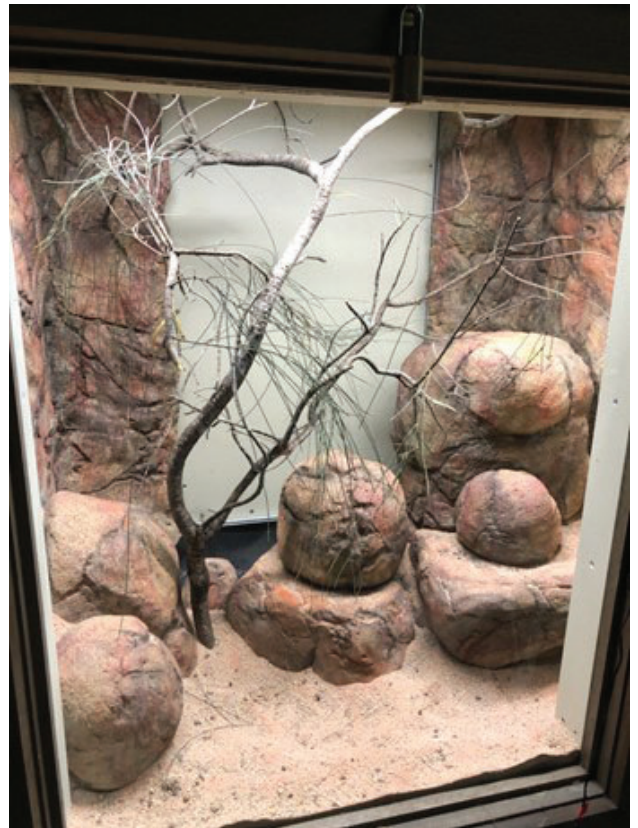


Giant Water Spider Exhibit, Photo by Kate Pearce

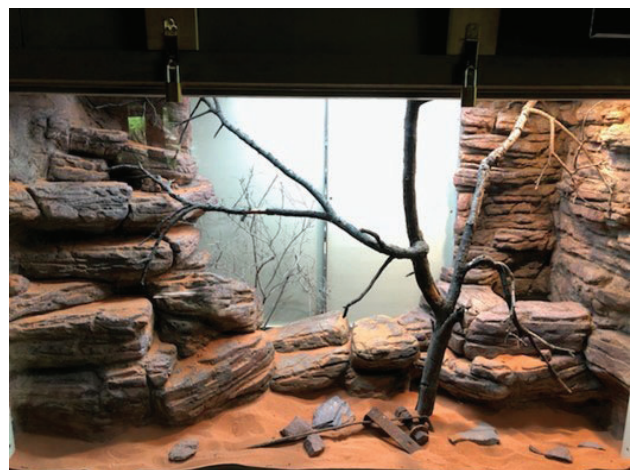
Mock-rock and design company, Themed are working on the large exhibit that used to house a Philippine Crocodile. The exhibit is being re-purposed to exhibit our larger pythons; two Reticulated Pythons and four Blood Pythons. The design is literally taking shape and whilst it may look a little like a modern art installation now, it will turn into a lush tropical jungle landscape in no time! Stay tuned for further updates!

The major refurbishments of the three exhibits in the Gorilla Ranger Station Learning Node are nearing completion. Tim Crole and Boyd Watson have done an outstanding job of completing these works. The final stage of this works will be the installation of photographic murals on the rear doors of the enclosures.

Kate Pearce & Melvin Nathan



Red Barred Dragon exhibit, Photo by Tim Crole



Southern Pilbara Rock Monitor exhibit, Photo by Tim Crole

MONARTO SAFARI PARK *Primates*

After a much anticipated wait and being delayed by Covid-19 (like much else in the world) Monarto Safari Park finally has Lemurs (pictured right)! We currently have 2.7 Ring Tailed Lemurs to start off our troop out in our new facility in Wild Africa. Our seven girls and a male named Hendrix came from Australia Zoo in September, with another male called Akondro following soon after from Perth Zoo. Introductions were made firstly between the boys, and after a brief stink war, Hendrix asserted himself as the dominant male. Intros were made a few weeks later between the boys and the girls, and while initially the intros were pretty uneventful, the boys were separated from the girls again mid-October due to injury. Re-introduction of the two groups is on the cards for the very near future, with the plan being to re-introduce once their ‘walk through’ exhibit is completed, so we may let them out into this larger space (to mitigate any tension between the males and females.

Even in the lockaways, the Lemurs have been very reactive to birds of prey, so it will be interesting to see what their response is the first time we open the slides out into their new exhibit! We suspect they will take quite some time to venture out of their ‘safe space’, but as we all know in the animal industry, expect the unexpected! We will be closely monitoring their behaviour at this time to observe how they are interacting in and with their new environment. We will have assigned viewing stations for guests to view the animals set around the exhibit up with different structures, such as a ‘crashed’ plane, a baobab tree and beehives. These areas not only are heated or cooled areas for the lemurs, but are also designed to help us engage customers in the story of Madagascar and the plight of all Lemur species in the wild when our walk through tours begin this year. Watch this exciting space!

The Monarto chimp troop have been going well across the summer period. Lots of indoor play has been taking place inside in the air-conditioning! Hannah’s daughter Hope will be turning two this February -the duo have gone viral a few times with their playful antics. Hannah is a super playful mum who enjoys throwing Hope in the air and catching her, throughout this process Hope can be seen smiling and if you’re lucky enough to be inside heard laughing. Adult female Galatea continues to have consistent swellings but is yet to fall pregnant. This February we also celebrate a decade of Tsotsi being alpha male of our troop – this is a huge milestone for him and our group. Tsotsi was born at the Adelaide Zoo before moving to Monarto to form our new troop in 2009. It has been a very rewarding experience to watch him grow in to this role.



Ungulates

Monarto Safari Park has reached another significant milestone in the development of its new “Wild Africa” precinct, with the first herds of animals released into the site. To date we have moved several blackbuck, ostrich and a breeding herd of 38 Scimitar horned oryx into an enclosure we have named “Etosha”, of roughly 180 acres. Although this may sound large, this is actually one of Wild Africa’s smallest habitats! Some of the northern pastures tip the scales at over 500+ acres, which will eventually provide visitors with one of the largest safari experiences outside of Africa. Next on the list of animals to move across from our current site are breeding herds of eland, zebra and bachelor addax, and these animals will eventually be joined by giraffe and rhino.

These pastures were sown several years ago with a mix of hardy, perennial grasses, which have now become established across the entire site. Being deep-rooted they will be able to cope with a significant amount of grazing pressure, and combined with some supplementary feeding, will prevent the pasture becoming depleted and overgrazed. Several areas of intact, wooded outcrops combine with undulating topography to form a complete habitat, which will become home to a range of species. Keepers have been very busy conditioning our animals in preparation for moving them over and “releasing” them, and have also been very busy planning on how we are



going to manage the animals! Monitoring and managing mixed species herds, catching and identifying young and observing inter species interactions will be part of many discussions over the next year, but one thing we can all agree on, is that we are entering a very new, exciting phase in the history of Monarto Safari Park!

Mark Mills

Carnivores

On the 3rd of November 2020 Forest, one of our female Spotted Hyenas, gave birth to twin cubs. This was her first set of twins after being mum to four other single cubs over her breeding life. The cubs were born in the early hours of the morning and around 30 minutes apart. It is always incredible to see how independent hyena cubs are just hours after being born, with a full set of teeth, eyes open and are ready to go. We even witnessed one of the cubs digging in the den and flicking dirt into mums face just after being born. The cubs are now 15 weeks old and are starting to spend more time out of the den and enjoying time hanging out with both parents. They are already very



inquisitive and have been seen taking many objects back into the den to play with, such as fresh herbs and flowers, sticks and bark. The cubs have received their vaccinations and received a full bill of health from their health checks. DNA testing has recently returned and confirmed that both cubs are female, this is very exciting for the region.

We recently said goodbye to our male lion cub, Khari, who had just celebrated his first birthday with his three sisters. Khari had initially showed a mild ataxic (wobbly) gait at 6 months of age which appeared to stabilise until he reached almost 11 months of age when it began to become evident again. A CT scan at the Roseworthy Veterinary campus three weeks ago indicated a narrowing of the spinal canal in the cervical vertebrae causing compression on his spinal cord. Medical management initially stabilised him but as he started to decline again it was decided that surgical intervention to reduce the pressure on the spinal cord was our last resort to allow him to lead a normal life. Unfortunately such complicated surgery is not without its risks and despite an initial good response he rapidly deteriorated over the last 24 hours and our Veterinary team had to make the decision to euthanase him on humane grounds.

This was very sad for all the team and everyone as usual worked so hard as a team to give him a chance at a normal life.

Late 2020 was also a sad time for the carnivore team, losing both male cheetah, 'Saadani' and 'Lion'. Both males showed quite developed symptoms of renal disease and post mortem results indicated this as well as other issues. We are making plans for the future for males and to begin breeding cheetah once again.

TARONGA ZOO *Marine Mammals*

Taronga Zoo, Sydney, is excited to announce the latest birth of a female Long-Nosed Fur seal (formerly known as New Zealand Fur Seal). Kekeno gave birth to the new pup on December 21st 2020, the first fur seal pup in 20 years at Taronga. Weighing in at 3.5kg at birth, she is now weighing at 5.5kg, and thriving. Awaiting a name through a public naming competition, this little girl is completing her swimming lessons off display with mum close by so they can both enjoy the exhibit soon. This little pup is practicing her diving by playing with sinking enrichment toys and taking advantage of a pool we have had specially designed with a moveable floor. This floor changes the depth of the pool, so we can slowly increase the depth to build confidence swimming and deep diving. We look forward to sharing her with the world soon and helping her explore the Seal Bay exhibit.

Mel Grainger



Herpetofauna Department

The warmer months of Spring and Summer often brings a burst of breeding activity in reptiles and amphibians, and this latest season has been no exception in the Taronga Herp collection. Excitingly, Christmas Day saw the birth of our first successful litter of Eastern Pilbara Spiny-tailed

Skinks. A pair of offspring each weighing about 20% of their mum's weight were born as pretty advanced big babies. These small, but robust little skinks are colonial rock dwellers inhabiting a small range in northwest Western Australia and are a brilliant orange with black flecking to camouflage well with the red oxide rock escarpment country of the Pilbara region.

Further to these Spiny-tailed Skinks, we also saw regular breeding in our Red-barred Dragons, Cunningham's Skinks, and several of our frog species, with the team still anxiously counting down on the incubation of several other clutches of eggs!

We've also just wrapped up the end of our most successful season in our Bellinger River Turtle recovery program. Since 2016, we've been working closely with OEH following a huge die-off event across the entire limited range of this species, and with several pilot releases of genetically viable captive-bred turtles, this program is really gaining momentum and moving in a positive direction. In a few years' time, Symbio's young wild founders will reach breeding size and together with Taronga's wild founders we'll be able to progress breeding and repopulating in a collaborative effort.

In late 2020, Taronga Zoo opened a new conservation facility for the Northern Corroboree Frog. This critically endangered species was put further at risk of extinction when a severe bushfire burnt through approximately 70% of remaining populations in January 2020. In order to expand the capacity for this species, and secure an important insurance population from the Fiery Ranges, Taronga was awarded a grant by the Federal Government.

The new public display facility is a 12 metre long converted shipping container, equipped with rows of holding enclosures, twenty-five breeding tanks, water filtration and accurate climate-control to mimic wild conditions. In April 2020, the first batch of eggs were collected from the wild and reared to metamorphosis at Taronga before being transferred to the new facility. Over the next two seasons, additional genetic diversity will be attained from the wild through egg collections, effectively securing this species from extinction into the future.

It has recently been announced that Taronga will invest in a new Reptile and Amphibian Conservation Centre in the coming years to replace our (not so) current and dated 25 year old infrastructure. Early planning and designing has already commenced, and the build is likely to occur over a couple of stages from late 2021. With change on the horizon, this project is a huge undertaking and will be in



DOLPHIN MARINE CONSERVATION PARK *Celebrating 50 Years – Twin Anniversaries!*

Dolphin Marine Conservation Park in Coffs Harbour is celebrating its 50th Birthday. The park and animal sanctuary officially opened on Boxing Day in 1970 with a dolphin called Droopy, two emu chicks and four kangaroos rescued from floods.

Over the past 50 years, the Park has helped rescue, rehabilitate and release thousands of animals back to the wild including sea snakes, sea turtles, dolphins, whales, sea lions and fur seals.

Today, the Park is home to animals deemed unreleasable and Australian sea lions as part of the crucial national endangered species breeding program.

Dolphin Marine Conservation Park focuses on conservation and education through its philosophy: “Experience. Discover. Act” The marine team shares unique insights into marine mammal’s natural behaviours and inspires over 50,000 visitors a year to take care of their ocean and land environments.

Supported by the government and Coffs Harbour Council, founder, Hec Goodall and his team began construction on the then named “Pet Porpoise Pool” in 1968. Greg Pickering was part of the original construction team and this year celebrates 50 years at Dolphin Marine Conservation Park too!



The Taronga Northern Corroboree Frog Facility

conjunction with a much-needed new Wildlife Hospital, with the two projects being constructed in unison.

Chris Dryburgh and Michael McFadden



“Greg and Elephant Seal ‘Sophie’ in the 1970’s” (Photo Credit – Pet Porpoise Pool historic photos)

Greg and his brothers, Spencer and Rob, contributed

enormously to the development and success of Dolphin Marine Conservation Park. Spencer worked with seals, Rob on park maintenance and Greg was the marine animal specialist. Today, Greg works part-time in the marine team and mentors the marine team, sharing his unique knowledge and skills to the next generation of marine animal carers. Spencer still visits the park regularly is helping the next generation of animal carers.

Congratulations Dolphin Marine Conservation Park on an impressive 50 years and congratulations Greg Pickering for being integral to this milestone.

We asked Greg for his top three highlights:

1/ Raising “Buttons”. The five-month-old dolphin calf was rescued from a creek near Hat Head. Sadly, her mother had choked on an eel and lay dead on the creek bed. Buttons had to be hand-fed using a dairy calf milk teat and premium diluted baby formula! She thrived and five years later gave birth to Zippy, one of the Park’s remaining resident dolphins. Where did the name “Buttons” come from?

“Everyone who saw her said she was “cute as a button”, said Greg.

2/ Rescuing “Minki”. The young female Minki Whale washed up exhausted on a local beach covered in shark bites. Greg remembers her fondly, “She had these large soulful eyes as big as tennis balls and seemed utterly helpless.”

She was treated with expensive antibiotics to help the infection. Greg hand-fed her handfuls of arrow squid, having to put his arm into her mouth so she could gently coax them down her throat with her soft tongue. (Minki Whales are a baleen species and therefore have no teeth). Sadly, despite round the clock care and the best medication, Minki succumbed to her wounds and died three weeks later.

3/ Treating Bucky for Cancer. Bucky was the Park’s iconic male dolphin who lived for (50) years in the Park after being rescued as a calf near Nambucca. Greg was responsible for training Bucky to participate in his medical care.

“It was a privilege to build such a trusting relationship with Bucky that enabled our vet to conduct biopsies and essential procedures to treat his mouth cancer.”

Finally, we asked Greg what he enjoyed most about his time at Dolphin Marine Conservation Park. “Interacting with the animals and imparting my knowledge to the visitors. And you can’t beat seeing the joy on the kids’ faces

when they first see our animals”, he added enthusiastically.

These days, Greg’s two grandchildren Max (5) and Scarlet (2) love visiting Poppy and his animals in the Park!

Congratulations Dolphin Marine Conservation Park on an impressive 50 years and congratulations Greg Pickering for being integral to this milestone.

March Update

March was a wet and windy month for many places across Australia and Coffs Harbour was no exception! Dolphin Marine Conservation Park was forced to close its doors to guests on a few occasions due to heavy rain and flooding. We are thankful to our dedicated staff who worked tirelessly through the rain to continue to provide the highest care for all the animals – including the Life Support team who maintained the water quality despite not being able to pump from the nearby ocean creek for a few days! The Park is also grateful to those visitors who braved the weather to come and learn about our wonderful marine animals!

Throughout March many animals have come into care for rehabilitation, including sea birds, marine turtles (including hatchlings), and penguins. Dolphin Marine Rescue staff also partnered with NSW Parks and Wildlife Service to arrange possible assistance in the rescue of a stranded dolphin near Seal Rocks, NSW. The dolphin managed to free it self from the rock pool itself in high tide.



Hatchling turtles brought into Dolphin Marine Rescue for rehabilitation”



BOWLING

For Sun Bears



15th-21st November 2021

• ASZK NEW MEMBERS •

The ASZK Committee would like to welcome the following new members

FULL MEMBERS

| | |
|-------------------|-------------------------------------|
| LIAM STEVENS | Australian Wildlife Sanctuary |
| REBECCA RYMAN | Mogo Zoo |
| EMMA MCKENZIE | Conservation Ecology Centre |
| CAITLIN TOMSETT | Featherdale Wildlife Park |
| BRADLEY HOLLAND | Ranger Reds Zoo & Conservation Park |
| EMILY RUPP | Australia Zoo |
| EMILY PARTRIDGE | Australian Reptile Park |
| COURTNEY TURNBULL | Koala Park |
| LAUREN COOK | Walkabout Wildlife Park |
| LEONIE PASCUA | Dubbo Zoo |
| REBECCA KOP | Maru Koala & Animal Park |

ASSOCIATE MEMBERS

| |
|------------------|
| CAROLINE BOYD |
| JORDAN GODFREY |
| MITCHELL D'COSTA |
| HELEN LILLEY |



ASZK CONFERENCE

10-12 September 2021
Sydney Region
More information coming soon
at
www.aszk.org.au

