

thylacinus



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FROM THE PRESIDENT Chris Dryburgh

I've just returned again from Christmas Island in the north-east Indian Ocean where I was helping Parks Australia with some of their critical reptile recovery programs. I also had the opportunity to assist with some of their seabird rehab work. It's an incredible island with a very busy team in Parks delivering a whole suite of ambitious conservation outcomes right across the island to bring the unique ecosystem back in line with its origins. Coming back from the tropics to this winter was a rude shock though... Which brings me Cairns in only a few weeks!

The Committee and I are very excited about the Program we've pieced together, and even had to extend out the Sunday afternoon to accommodate the scale of our presentations. If you haven't registered yet, there is certainly still time. Jump on our website and grab your rego today, because not only is it a good opportunity to thaw out from winter, this year's Conference has absolutely bounced back with one of our highest attendance levels ever, some brilliant workshops and influential keynote speakers. The Committee would also like to congratulate Rebecca Marks of Taronga Zoo Sydney in her successful application for our Conference registration scholarship, being awarded to welcome her involvement... well done Becky.

We've had a couple more changes to Committee recently. Jo Thomas, formerly of Wellington Zoo Trust; our Vice President Andrew Daly, Taronga Zoo; and Memberships Officer Caroline Daly, Wildlife Sydney Zoo, have all made the difficult decision to resign from Committee and to focus on new paths and new families. We thank Jo, Andrew and Caroline for all of the ASZK's growth through their dedication and will very dearly miss their considered contribution. Thanks too, to both Liz and Joc on Committee for stepping in to take on some of the additional Exec Committee workload.

In mid-May, the Committee met in Melbourne for a busy day with an agenda spanning our Annual General Meeting and also developing our three-year Strategic Plan for the ASZK, with the final document and outcomes to be published and made available for all Members shortly. These are always huge undertakings, but are critical in ensuring we continue to meet the needs of all our Members, and that we justifiably maintain the momentum and direction of our outcomes in the longer term. This year, we thankfully had the process made far smoother with the help of ASZK Life Members Carla Srb and Jon Birkett, and independent facilitator Silva Cengic.

Just lastly, we have just heard back from the judging panel following the closure of this year's 'Bowling For' campaign applications and will have some big announcements in this area for both the 2022 and 2023 programs, very shortly! Thank you to all who prepared and submitted applications.

See you all in Cairns shortly, Chris

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Collaborative zookeeping to maintain and develop relevant behavioural husbandry conditioning programs for Orang-utan (*Pongo abelii*) individuals at Sydney Zoo.

Janet Lackey, Primate Keeper, Sydney Zoo.

In late July 2019, three Orang-utans, Santan (44-year-old male), Maimunah (35-year-old female) and Dewi (10-year-old female) arrived at Sydney Zoo. The trio arrived with a well-established repertoire of husbandry behaviours thanks to the keepers at Melbourne Zoo. This provided the Sydney Zookeepers with a good basis to work from as they settled the Orang-utans into their new home.

With Sydney Zoo still under construction this was not the easiest of tasks. The keepers used previously conditioned behaviours to build relationships with the individuals. Stationing behaviours were used to create routines throughout the construction period. Moving into the second year with the Orang-utans, the building activity was greatly reduced, and the primate team developed new goals for behavioural husbandry across the section. For the Orang-utans, this meant tailoring training goals to the individual, using classical and operant conditioning techniques. This has allowed the Orang-utans to learn new ways to voluntarily participate in their own health care.

THE ORANG-UTAN'S: THEIR INDIVIDUAL NEEDS AND GOALS

Santan, Maimunah (Mai) and Dewi arrived at Sydney Zoo with a full range of husbandry behaviours including presenting different parts of their body to the mesh, mouth open, shoulder, foot, hand injection etc. All three Orang-utans are at different stages of their lives and present with different health concerns and welfare needs.

Santan at 44 years old has significant arthritis in his hips. While in discussion with the veterinary and animal care teams about booking a health assessment and after chatting with keepers from Melbourne Zoo it was clear that we needed to work on a separation behaviour for Santan. He has a very strong hand injection behaviour, but his separation behaviour has not been practiced since he arrived at Sydney Zoo. Separation behaviours are an important part of a health check. It can be stressful for the individual to be separated from their social group into a small space. Our goal is for Santan to feel calm and confident in his anaesthetic raceway.

Mai is 35 years old, through the maintenance of their original husbandry behaviours the team had noticed that she has very long nails and that she often swishes liquid in her mouth and had some changes in her dentition. She is also inclined to stay in her nest if she can and spends limited time in the outside habitat. For Mai, our goal was to introduce nail filing and teeth brushing to assist with monitoring and maintaining her health. To help get Mai moving throughout the day, we have also set a group goal of training an exhibit recall.

Dewi is 10 years old and building her confidence was a high priority. She found the move from her birth zoo more challenging than the adults. During the first year, Dewi was inclined to spend most of her time in the dens. She will still retreat if there was any construction or new additions to the area around her habitat. Keeping in mind that Sydney Zoo is still developing, although now on a much smaller scale, we decided that resilience training was the most important goal for Dewi. Resilience training reduces stress and creates confident animals that are better equipped to deal with changes in their lives and be better prepared for life in human care.

For all three Orang-utans we have also added a group recall as a goal as this provides the keepers with way to get them moving either to their outside habitat or into the dens at routine times or in case of an emergency if required. As we started recall training, we were reminded of the importance of an emergency recall. One hot day last summer, we had a snake enter the exhibit. It proved to be highly reinforcing, and it was a challenge to recall Mai and Dewi into the dens. They followed it from above, vocalising at it and watching it closely. We were able to eventually recall them back into the dens with a high reinforcer and the snake was caught up and removed from the area.

While the goals are set for the individual, we still train these behaviours with all Orang-utans. For example, separation is important for Santan now, but this does not mean that Mai or Dewi will not need it one day. Once

trained this behaviour will remain in rotation and will be practiced either daily or weekly regardless of whether they have an upcoming health check. This ensures that in an emergency we can separate each Orang-utan with limited stress or if there is a health check booked in, the keepers will not have to allocate their time to retrain this behaviour. However, individual goal behaviours are prioritised during training sessions while the other behaviours are more slowly introduced. This is to ensure we are introducing proactive care rather than reactive.

CLASSICAL AND/OR OPERANT CONDITIONING TECHNIQUES

Looking at the goals set we needed to develop training plans and think about training techniques. It was clear that we needed to use both classical and operant conditioning. Dewi's resilience training required classical conditioning to change her emotional response to the construction vehicles and changes happening within the zoo. We are achieving this with the support of the maintenance team. They communicate when there will be work happening, or even when a vehicle will be passing by. We then ensure she has eaten before the work starts and make ourselves available in and around the dens where possible during the work or when the vehicles pass by. Using the right reinforcement also plays an important role in resilience training. Dewi is very clear in letting us know what is valuable to her at these times. While she likes peanuts and carrot, she will not come over for these during stressful times. She will however come over for a walnut or some fruit. To further assist with her resilience training we are introducing new experiences into her world in a controlled, positive, and supportive way. For example, the Australiana team bring the Dingo for walks to the Orang-utan viewing window. Initially we had an Orang-utan keeper present, and as the Dingo came into sight the Orang-utans were offered some of their training nuts. Dewi has responded well to the Dingo visits and will either interact at the window or stay in bed.

For other behaviours, such as separation, nail filing, teeth cleaning and recall we are using operant conditioning. Using approximations and new reinforcers we have had success in training tooth brushing, presenting toes through the mesh, nail filing and slide closing. We have noticed all three Orang-utans will try to take the tooth brush off the keeper if nuts are being used as the reinforcer. However, if a spray bottle with honey water is used, they are less inclined to attempt to take the brush.



Construction work at Sydney Zoo



Santan being separated



Dewi being shown a dingo



POSITIVE OUTCOMES

Introducing a holistic and tailored approach for the Orang-utans has created positive outcomes for the individuals, the keepers, and the Zoo.

Santan is very relaxed throughout his separation training sessions. In the early stages of the training, we would see him move towards the slide if he was not comfortable. Breaking the process down into small steps and not rushing gave the trainers time to read his behaviour and adjust accordingly throughout the sessions. We still see Santan move towards the slide occasionally, it tends to be when the females are in oestrus. For Santan his relaxed body posture is another way we can tell he is calm and agreeing to the slides being closed. The most interesting behaviour he presents currently is cleaning his station. As the slides are being closed, he will brush the woodwool and nut shells away from his station as if paying no attention to the slides being closed. He also shakes his feet when he does not want the session to end.

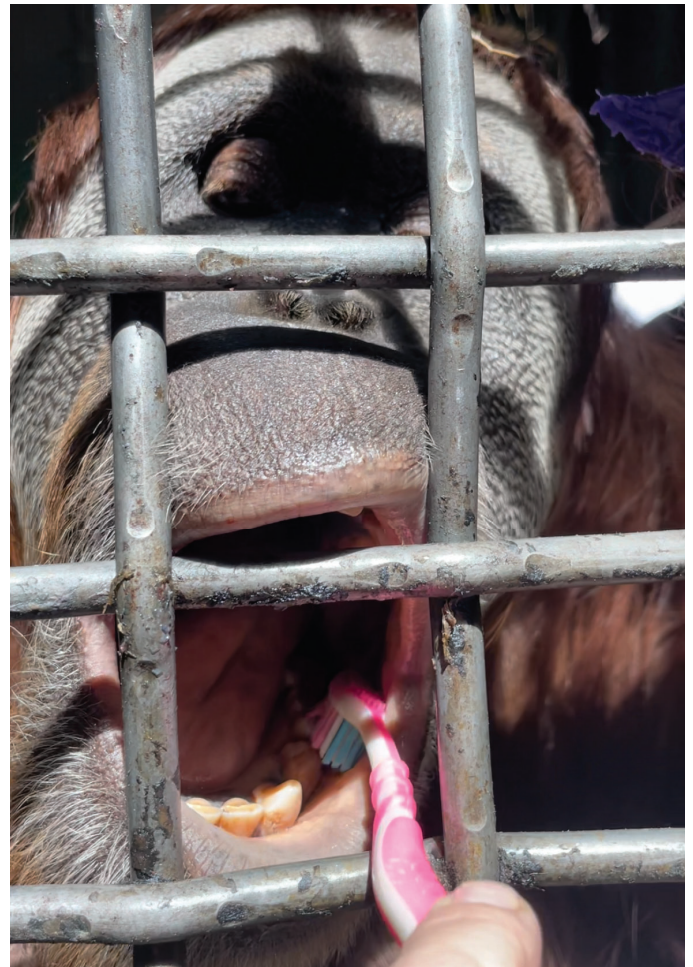
For Dewi the resilience training is ongoing, however, we are seeing great progress. She is less likely to retreat into the corner of the dens and she recovers more quickly when there is a novel or challenging change in the environment around her. Overall, she is going out for approximately 95% of the exhibit feeds and spending approximately 50% more time in the outdoor habitat, creating better viewing opportunities for our visitors and happy managers.

Introducing nail filing and teeth cleaning has allowed us to explore our health concerns for Mai, while creating a positive experience for Santan and Dewi, so we can now monitor, maintain, or medicate if required.

Additionally, recall training is progressing well. Anecdotally we have observed that all the individuals are more confident and spending more time in their environment. Recall also, saves time for the keepers as they can stick to routine shifting, cleaning, and feeding times.

CONCLUSION

The animals in our care come with experiences and skills that we can use to benefit them, us and the future keepers who will care for them. Having the insight to plan for future care builds confident animals, reduces stress and supports positive welfare outcomes. We don't always have the opportunity to meet or talk to previous keepers, if this is possible it is highly beneficial. While



Mai getting her teeth brushed

Individual planning is not always achievable, it can be done. The goals may not be as big or time consuming as tooth brushing or separation training. A goal can be a recall, participating in group feeds or building species appropriate relationships, which can be woven into the daily routine.

By using established husbandry behaviours, the keepers at Sydney Zoo were able to build relationships with the Orang-utans and further develop a low stress, tailored behavioural husbandry program for the individuals based on their needs, stages of development and health concerns.

THE POSITIVE EFFECTS OF CHUTE AND BLOOD DRAW CONDITIONING CHEETAH AT TARONGA WESTERN PLAINS ZOO

KAITLYN DOHERTY AND MELANIE FRITH
TARONGA WESTERN PLAINS ZOO

Over the past several years, the carnivore team at Taronga Western Plains Zoo (TWPZ) has worked towards establishing a cooperative care conditioning program for cheetah by training the entire captive population of cheetah at TWPZ to voluntarily enter a specialised chute and participate in conditioning for hand injection and blood draw. This in turn has significantly improved the welfare of our animals by allowing keeping staff to hand inject for general anaesthetics and annual vaccinations and eliminating the stress of darting. In January 2021 Taronga Western Plains Zoo Carnivore keeping team, in collaboration with veterinary staff, were able to successfully bleed eight cheetah in order to contribute to genetic research. This has now become a standard part of our husbandry in order to conduct general health checks and progesterone testing of cheetah without requiring sedation or general anaesthetic.

Chute Design

We currently have four custom made chutes that we use for cheetah conditioning. The first two that were fashioned by our talented welders are on wheels and have the ability to slide one lateral wall in and out. Having portable chutes means that we are able to conduct conditioning for each cheetah by placing the chute in front of their slides rather than having to move the cheetah between yards, keeping things consistent and predictable. The sliding wall also means that we can change the width of the chute to suit each individual cheetah's body condition and/or progress. Each chute also had hand access holes installed with fastenable coverings, allowing us access to various parts of the body.

While we still use these chutes regularly, they are heavy and cumbersome to move from one end of the complex to the other and so two lightweight chutes were created without wheels and to the rough body width of a cheetah. Although they do not have the ability to laterally restrict the cheetah with a sliding wall, we have found that most of the cheetah are comfortable entering and exiting by backing out without needing to turn around.

The end of each chute at which the cheetah enters and exits is open ended. The cheetah are allowed access to the chute via a slide which remains open throughout the conditioning session so that they can leave at any point, making participation completely voluntary.



Image 1: The original chute design with sliding wall and wheels



Image 2: The updated lightweight chute design



Foundational Chute Conditioning

We began conditioning the cheetah to voluntarily enter the chute by feeding them their daily diet in the chute. For this we used the chutes with the sliding wall open as wide as possible. Once the cats were comfortable entering the chute and remaining there to eat, we slowly introduced a keeper to tong feed them their food from the front of the chute and then progressed to having the chute set more narrow until they were comfortable being tong fed and with their body against the mesh.

At this point we introduced a second keeper with a clicker to come and crouch beside the chute and worked on desensitising the cats to movement and noise beside them. The clicker was used to encourage desired behaviour such as staying focused on the keeper and food at the front of the chute and remaining in the chute in a crouched position with front paws out in front of them. We also found it useful to introduce a 'slide' cue in order to re-open the chute for those cheetah that were more comfortable turning around to exit the chute rather than backing out.

In order to progress to touching, the second keeper started by holding a bamboo pole, then tapping it on the side of the chute and eventually light, quick touches to the hip area using the 'touch' cue and continuing to bridge desired behaviour with the clicker. After developing from light, quick touches to firm touches held for a longer period of time, we were able to work on using a pen and a blunt needle, tactile the area with our hands through the mesh and eventually pinch and manipulate the skin through the hand hole in preparation for subcutaneous injection.

Progressing to Blood Draw

Over the past couple of years, we have been able to continue foundational and hand injection conditioning, intensifying sessions for individuals around scheduled veterinary procedures. As a result of the positive reinforcement and voluntary participation, all of the annual vaccinations and general anaesthetics over the past four years have been hand injected by keepers. This in turn has meant that by the current stage of chute conditioning, most of the cheetah have little to no negative association with our vets.

Earlier in the year we had the opportunity to take part in genetic research of captive cheetah. The information gathered for this study would assist in identifying suitable bloodlines to breed from in order to re-release captive bred cheetah back into the wild long term. This involved



Image 3: Hand injection in the chute

having specific candidates within our population at TWPZ to be blood draw conditioned and bled within a matter of weeks. A major advantage we had is that our cheetah were already comfortable and consistent with their chute conditioning, so we were confident this would easily translate over to blood draw conditioning. As a result, nine of our cheetah were successfully conditioned for blood draw within a couple of months, with eight of these contributing to the genetic study.

To start, we focused on desensitising new sensations such as tactile to the tail base, progressing to pulling the tail out of a tail access hole and grasping the tail base firmly for extended periods of time. Although the lateral tail vein is usually easiest to draw blood from, we decided to also desensitise the back leg hock being tactiled and manipulated as a secondary option.

Preparing for blood draw also meant that we would need to shave the cats in order to locate a viable vein to draw from. Once they were comfortable with the new forms of tactiling, we introduced clippers by conducting the usual conditioning session with the clippers turned on resting a few meters away from the chute. We then got them used to the second keeper by the side of the chute turning the clippers on and off throughout the session, touching the clippers to the cat's body whilst they were turned off and then holding them close to or on the body turned on with clippers facing away to feel the vibration. Once we were able to progress to shaving them, we could start locating the veins, get the cats used to having them held and constricted and touching a blunt needle to them. We also got them used to having swabs of water and alcohol applied to the shaved areas. Where we could, we introduced a third keeper or vet crouched next to the

chute as well.

We found that the clicker was a useful tool up until this point, however once we were at the stage of preparing for blood draw, we found it more advantageous to start the session with the clicker, settle the cheetah and set expectations, and from there continuously feed without a bridge. This also meant that with the increased amount of equipment and activity behind them, the cats needed to be continuously engaged so it was important to have lots of consistent, fast food reinforcement and communication from the feeder on the cat's behaviour.



Image 4: Blood draw in the chute

Considerations, Setbacks and Adjustments

Chute conditioning as a whole has required us to be fluid and flexible around each individual cheetah's personality and previous experiences. Some have achieved goals within a matter of weeks, whereas others have taken several months.

Some things we have had to consider are:

- Taking food and leaving the chute – once the cats were entering the chute, we started cutting their meat into

smaller pieces and without any bones, encouraging them to remain in the chute to finish their food.

- Reinforcement - Our cheetah are fed mostly chicken or kangaroo meat. We find kangaroo meat works fine for interim sessions but most of our cheetah have a strong preference for chicken, which we use when introducing new behaviours or stimulus.
- Motivation – As much as possible, we use meat cut up from their daily diet to help ensure that they aren't overeating or disinterested. We have found that they are more motivated when they can see the food in front of them and know that more is coming, keeping their focus at the front rather than the procedure behind them. For annual vaccination and blood draw, we use as much food as is needed. Blood draw often requires extra food to allow time for adjustments such as added shaving or several attempts. However, general anaesthetic requires the cats to have little to no food and therefore the animal needs to be solid in the behaviour. We have found it best that the cat has been conditioned to 'steady' and 'touch' before the first bridge during training sessions. A chicken or carcass piece pushed against the mesh also helps to distract them at this point but can also mean that they lunge forward compromising the success of injection.
- Undesirable behaviours – we reinforce when the cats are quiet and engaged with the feeder, careful not to bridge when they are looking back at the second keeper, when they are mouthing at the mesh or sit up during the session.
- Nervousness– Some of our cheetah have had more exposure veterinary procedures than others and are well aware of what a needle looks like. Others just have more nervous and distrusting personalities. It has been important to rapport build with these individuals and ensure that conditioning is conducted at regular, consistent times by familiar keepers. Knowing each individual, what they react to and how far to push (or not push) them has been crucial.
- Timing of group animals – For cheetah in groups, timing and order can be everything. For instance, for our coalition of four males (that have since moved to Hamilton Zoo, NZ), it was important to have one of the more confident males complete his session and be shifted into the next yard first in order to encourage the others to participate after him. However, we also needed to consider following order of participation and ensure that those left waiting to partake would get along and not be a distraction, particularly when anticipating food.
- Needles – during hand injection it isn't uncommon that that needle will pop off due to the injection viscosity or the animal moving or reacting. We discuss



with the vets to determine an appropriate gauge for the viscosity of the injection and use screw top needles when we can. We also inject subcutaneously when appropriate to reduce reaction from the animal.

The Advantages of Chute Conditioning

Overall, chute conditioning has had a major positive impact on the welfare of cheetah in our care. Conducting regular conditioning sessions has helped us to build rapport with our animals as well as look after their health and wellbeing more effectively and safely. One of the main advantages of chute conditioning is that we are able to conduct most required veterinary procedures and treatments in a virtually stress free environment whilst also retaining a good rapport with the animals than we would with other methods such as darting or pole injection. Having this type of conditioning as part of our day-to-day routine assists with other aspects of husbandry such as medicating individuals and progesterone testing. Although there can still be setbacks and negative experiences with chute conditioning, we have found it takes far less time to rebuild rapport and re-establish learned behaviours and although the initial conditioning of behaviours has taken time and resources, in return we save on these in the long term.



OPERATION ONESIE

RACHAEL THOMAS AND GEORGIA CLARK, NATIONAL ZOO AND AQUARIUM

Over-grooming falls under the broader context of stereotypic and abnormal behaviours, and it has been reported in captive primates across the globe. In captivity, there are several techniques that zookeepers can implement to minimise these behaviours such as intensive training and enrichment programs, the modification of exhibits and social housing, and administering medications that aim to calm affected individuals. However, what happens when none of these techniques prove effective at stopping the undesired behaviour? This is a question that keepers at the National Zoo and Aquarium had to ask themselves when the above techniques failed to stop over-grooming in one of their Ring-tailed Lemurs.

In April 2019, Tico an 8-year-old lemur at the zoo developed a small wound the size of a 5-cent piece on the underside of her tail near her anus. Over the next few months, despite two anaesthetics, skin scrapings, blood tests and a variety of medications the wound refused to heal. In October 2019, another larger wound was discovered on the side of Tico's tail. Ring-tailed lemurs are naturally clean animals and will groom themselves regularly to clean their coats and injuries. Unfortunately, Tico become obsessive in over-grooming the second wound to the point where the wound increased in size and merged with the original wound. Keepers became concerned that her overgrooming was potentially a symptom of mental or emotional distress as there had been some unrest in the dynamics of the group when the wound occurred.

At the time, Tico was housed in a group of four females consisting of her mother Lily (the dominant female), her twin sister Kely and her younger sister Tia. The unrest in the group began when Lily passed away which left a power vacuum that Tico and Tia were both trying to fill. Tia was also picking on Kely which caused Tico further stress. To alleviate this stress, Tia was removed from the group and introduced to her older brothers. Keepers also implemented intensive training and enrichment programs, modified feeding schedules to minimise predictability, and placed Tico on Lovan, a calming medication. However, despite the implementation of these techniques, the obsessive behaviour was proving difficult to break and the wound continued to increase in size.



Figure: The wound in May 2020. It had doubled in size since April 2019

In December 2019, the decision was made to cover the wound in medicinal bandages to prevent Tico from accessing it. It was hoped that the application of certain dressings would also allow the wound to heal faster. To start with, bandaging the tail helped speed up the healing process. However, much to everyone's dismay, Tico became a master of removing the bandaging to the point where keepers were having to catch her daily to re-apply the bandage. After a few months, the question over Tico's quality of life was raised by the vet team and management. However, the primate team was not ready to give up on Tico just yet. As a result, Operation Onesie was born!

Keepers were looking for a way that would prevent Tico from accessing her tail and they investigated numerous options including baby pants. However, the challenge

was finding something that would stay up without Tico pulling it off and something that she wouldn't get tangled or caught in. Eventually, the primate team decided that a full-body onesie would be the best option. The onesie was modified from a set of dog pyjamas purchased from Petbarn. In terms of size, the pyjamas purchased were designed for small dog breeds such as French bulldogs. The front of the suit was cut in half and press studs were added to allow keepers and vets to place Tico in the onesie without sedation and without getting bitten. The shoulder area was also taken in to ensure a snug fit as lemurs have smaller shoulders and chests in comparison to bulldogs. Infant socks were used as a tail covering and were attached to the base of the onesie using press studs. This allowed the socks to be removed easily during check-ups and cleaned regularly for hygiene purposes.

In June 2020, Tico was fitted with the onesie. To apply the onesie, Tico was manually restrained by a keeper and her back feet were placed in the leg joints first. The onesie was then slid over her back and attached at the front. The sock was then able to slide down the tail and be secured to the base of the suit. The first few weeks was a process of trial and error. Within the first week, the suit had to be tightened around the back as Tico learned how to free one of her arms through the neck of the suit. She also figured out that, with enough force, she could rip the sock attachment off the onesie. To counter this behaviour, keepers resorted to using cable ties to secure the sock to the onesie which worked a treat! A second suit was also purchased and modified to allow for changes should one of the suits be damaged and need repair. Over the new few months, with twice weekly bandage changes, weekly sock changes and fortnightly onesie changes, the wound slowly began to heal.



Figure: Keepers manually restraining Tico to do a bandage change.



In August 2020, the decision was made to remove the bandage completely and allow the wound to dry out and heal naturally. Keepers observed Tico with bated breath during this period, but she surprised everyone by leaving her tail alone. In fact, she almost seemed to enjoy the extra warmth that the onesie gave her during the cold Canberra winter! Over the next few months, the skin on Tico's tail was able to dry out and her hair began to slowly grow back.

The decision on when to remove Tico from the onesie permanently was a difficult one. However, it was one decided by Tico herself. In early November 2020, Tico's sister Kely passed away leaving Tico housed by herself. Keepers made the call to introduce Tico to two of her younger brothers because they were worried that the stress of Tico being housed by herself would cause her to overgroom herself again. Keepers debated if Tico's onesie should be removed for the introduction in case the boys decided to grab her suit and pull at it. However, the primate team agreed that they had come too far to risk Tico re-injuring herself if given access to her tail prematurely. During the introduction process, Tico was desperate for attention and love from her brothers. Unfortunately, to start with, the boys were terrified of her onesie and did not know what to make of her! After several hours in together, the boys eventually worked up the courage to approach her and both were observed struggling to groom her through the onesie. On the 23rd November, Tico's brothers finally figured out how to 'help' her out of her suit as keepers arrived that morning to find Tico onesie-less and covered in dreadlocks. She has been naked ever since!

Despite concerns that her tail would not fully recover, almost all her hair has grown back except for the area on the underside of her anus where the original wound occurred. Operation onesie was such a success that we were able to use it again for another Ring-tailed lemur that had undergone a tail amputation in November 2020. In this case, the zoo's eldest lemur Zandry continued to overgroom the surgery site and kept damaging the stitches on the tip of his tail. He was placed in the same onesie, however this time the sock attachment was designed to cover the entirety of his tail. The sock was also reinforced with an internal layer to minimise damage caused from Zandry chewing on the sock. The tail was bandaged under the sock to promote healing. Once vets were satisfied with the process, the bandage was then removed to allow the wound to continue to heal naturally. Zandry's onesie was removed once he had desirable hair regrowth on his tail and he has also been naked since April 2021.

Operation Onesie proved to be lifesaving for not one, but two lemurs at the zoo. If operation onesie has taught us anything, it's to not be afraid to think outside the box to solve undesired behaviours in our animals.



Figure: Zandry in his modified onesie

BEHAVIOUR · matters ·

VOLUNTARY ECG READINGS WITH CHIMPANZEES (*PAN TROGLODYTES*) AT HAMILTON ZOO.

ROWENA FRAIOLI, HAMILTON ZOO

Introduction

Heart disease has become a growing concern for captive great apes. It is a major cause of death in captive housed Western Lowland Gorillas, Orangutans, Chimpanzees and Bonobos (Boyd et al., 2019). The Great Ape Heart Project (GAHP) is a group of experts in this field, with the ultimate goal of reducing mortality and improving the health and welfare of captive great apes (Cloutier Barbour, C. et al., 2020). Boyd et. al. (2019) states the GAHP collect and maintain a database of ECG results and medical information relating to the status of cardiac health of great apes from participating institutions. By sending the information we gather, we create a larger pool of data which will help them improve the health of captive great apes. At Hamilton Zoo we are working towards voluntary ECGs and cardiac ultrasounds as they are the least invasive techniques of obtaining this information.

With the recent loss of our fifty-year-old chimpanzee Sally (who had pre-existing heart disease) it motivated us to become more proactive with monitoring efforts. To monitor the rest of the troop's heart health we decided to use the Kardia Mobile (KM) ECG machine after reading the abstract of Cloutier Barbour et. al. (2020) who used the FDA-cleared, easy to use, portable device, that takes 30 seconds and produces medical-grade ECG recordings. These recordings can be saved on your phone and can be sent directly to vets/GAHP as a PDF file for review. It can detect Atrial Fibrillation, Bradycardia, Tachycardia, or normal heart rhythm. We chose Luka (our alpha male) to be the first to do the training as there has been concern for his heart health, also he enjoys learning new behaviours, picks things up quickly, and is very patient.

Method

purchased an Alive Cor KM ECG device which connects to a mobile device via Bluetooth through the Kardia app. This can be downloaded from the app store.

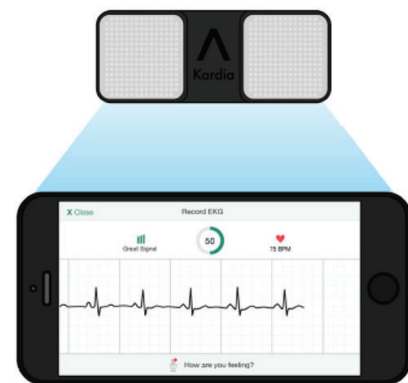


Image: Cloutier Barbour et. al. (2020). Monitoring great ape heart health through innovative electrocardiogram technology: Training methodologies and welfare implications. *Zoo Biology*, 39(6), 443-447.

I designed a sturdy, stand-alone wooden structure that holds the device and mobile phone that can be attached to the mesh. Made with two layers of plywood, the top layer is cut out so it can fit a mobile phone and the device securely, it has a locking system (so the chimps don't try and get the device out using a stick or fingers) and hinges to make a fold-out table that is easy to store when it is not in use. Our grounds team made it for us.

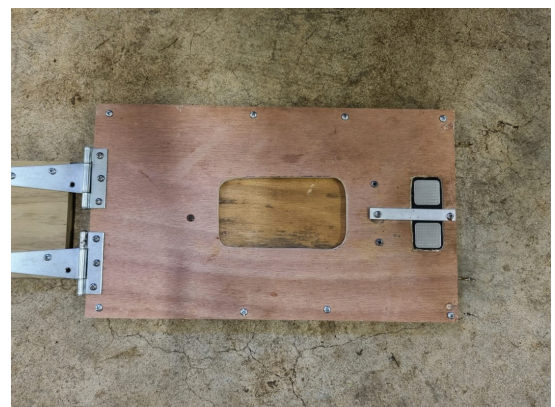


Image of the board - length 42.2 cm x width 24.7 cm - Imke Askevold (2021)



Picture hooks were screwed in to attach to the mesh (we trialled D shackles first with carabiners, but this made the device too far away for Luka's fingers to reach the plates) this made it easier to move the device into a good position quickly.

Training

The wooden platform was attached to the mesh. Luka was called over. He came and was reinforced. I touched the plates, and he mirrored this behaviour and was reinforced. I then touched his finger and then the plate (as a target) saying "touch", and once he did this, it was reinforced. I then pushed his fingers onto the plate and reinforced him again. Luka already knew the "hold" cue, so the final step was duration.

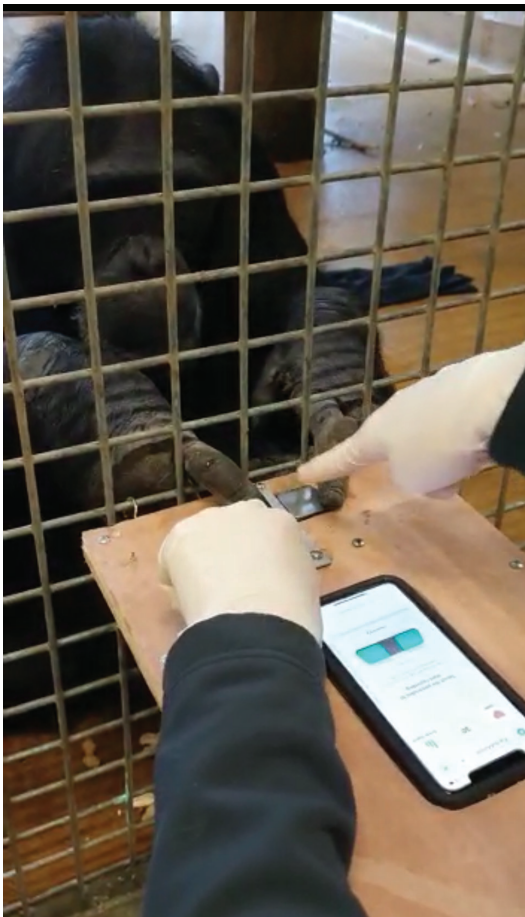


Image: Luka in position for training with one finger on plate, other lining up in correct position: Isobelle Harris (2021)

As we continued Luka came over and still wanted to do the training but was showing signs of frustration. He was only offering me one finger and moving it from one plate to the other. This was when I decided we needed to take a step back. The behaviour was broken down into stages, individual hand presentation, index finger on each hand which were then lined up to the plates and then placing

them on the plates. After that he understood what I was asking, I then added in the cue "plate" and duration was worked on.

The device needs 30 seconds to collect the data required, and the subject needs to be sitting very still. To do this, duration was worked on slowly at first. Luka was breaking from the hold position, so I tried continuous feeding to encourage him to stay in position and we got our first full reading on the 11th September 2021.

We have now increased the time between rewards in the 30 second hold on the plates. Luka actively comes over to participate when he sees the wooden platform, and the other chimpanzees in the troop are showing interest in coming over to observe and participate. We are working on less movement for the readings by gently pushing down Luka's fingers on the plates for the full 30 seconds.

Results

Luka has had over 10 successful ECG readings that have been looked at by our vet team and are being sent to the GAHP.

We are now working on training the other chimpanzees in the troop and making it part of their daily training routine.

Discussion

By having a second device we can now train two individuals at the same time. The other individuals are working on hand and finger when not using the device. To further my knowledge, I am in the process of learning how to read the ECG data we have collected.

Once we have the ECG readings of all the troop members, I would like to start training the individuals to participate in voluntary ultrasounds with the vet team and share the results with the GAHP.

Conclusion

As this is a new technology, there are currently few participating institutions in the region. The GAHP is looking for as many institutions holding great apes to get involved to help their research to aid in the understanding and treating of cardiac disease in all great ape species and improving the health and welfare of great apes in managed care (<https://greatapeheartproject.org>).

Training our troop to voluntarily participate in ECGs and ultrasounds allows us to have better insight into their heart health, in turn enabling us to step in and act if necessary

References

Boyd, R., Danforth, M.D., Rapoport, G., Sleeper, M.M., Devlin, W.H., Kutinsky, I., Brainard, B. & Murphy, H.W. (2019) Great ape heart project guidelines for the echocardiographic assessment of great apes. *Journal of Zoo and Wildlife Medicine* 50(4): 822-836

Cloutier Barbour, C., Danforth, M.D., Murphy, H., Sleeper, M.M., & Kutinsky, I. (2020) Monitoring great ape heart health through innovative electrocardiogram technology: training methodologies and welfare implications. *Zoo Biology* 39(6): 443-447.

Great Ape Heart Project <https://greatapeheartproject.org>



BACK 2 IT IN 22 - CAIRNS -

26 - 28 August 2022

ASZK is holding its first face to face conference since 2019 in Cairns this year.

We have had an overwhelming response to papers and as such have compiled a very comprehensive program. A copy of the program can be found on the ASZK website.

Registrations are open until 20 August and includes all social events, lunches and visits to other facilities.

Hope you can join us for what promises to be a great event.

Any queries email eo@aszk.org.au or visit www.aszk.org.au for more information.

• MEET AN ASZK MEMBER •

Kate Hickey

UNGULATE KEEPER
SYDNEY ZOO



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

I started at Mogo Zoo working with small carnivores and primates for 3 years. This is where I first discovered otters. I worked with a pair called Buffy and Moustache and I fell in love with the species. These were such fun times soaking up the south coast lifestyle. I then moved to Rockhampton Zoo where I got the amazing opportunity to work with chimpanzees. I also got the privilege of working the reptile section. Never in a million years did I think I would be working with estuarine crocodiles. It was amazing. After 4 years in the tropics, I moved to National Zoo and Aquarium. During the 5 years I was there, I got to work with so many different species and lead the small carnivore section. A huge highlight of my career happened here. We bred otters! I'm currently at Sydney Zoo working with the ungulate team. Three months in and loving it.

What is your favourite animal, and why?

Asian small-clawed otters. They are so much fun and always eager to learn. Enriching and training them over the years has been such a delight. I always loved ferrets as a kid and otters are like ferrets that swim! I can't speak highly enough about them. I admire their strong family bonds, their endless energy and their feistiness. They are such a great draw card for zoos.

What is your favourite thing about Sydney Zoo?

It's so exciting to be part of the ungulate team, working towards an amazing mixed species savannah habitat. I'm learning so much.

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

I would like to see more emphasis on upskilling keepers to design and build enrichment for their animals. More in-house incentives for innovative enrichment ideas and scientific based enrichment studies. More goal-based enrichment programs for groups of animals and individual animals. Challenging animals within their species-specific capabilities as well as their individual capabilities has the power to change an ordinary life into an extraordinary life.

What is your greatest animal achievement thus far?

A few years ago, I worked with the keepers from Phnom Tamao Wildlife Rescue Centre in Cambodia to help kick start an enrichment program for their animal collection with the lovely Emma Pollard from Wildlife Alliance. This was the first time I felt I really made a difference. The one thing that really stood out from this project was how skilled the keepers at the sanctuary were at building enrichment. They were impressive. I was very inspired coming home.

What is your most memorable experience with wildlife?

Attending the 13th International Otter Congress in Singapore. I got together with a couple of the attendees to see if we could track down the famous Bishan 10, a family of smooth-coated otters that live in the city. With some help from the locals, we found them. We followed them for a day as they moved through reservoirs, parks, across roads and ran amuck on a tennis court. The Singapore government led a clean-up of the city's rivers and reservoirs and with the improved water quality came the return of smooth-coated otters. The otters have become a local and international attraction. It's so hopeful to see a wild animal, a wild predator, return to a highly urbanised city park and be respected and embraced by the locals. The otters even have a Facebook page dedicated to them called Otter Watch. It's an inspiring conservation success story connecting people and wildlife.

What is your most embarrassing zoo moment?

Falling into the otter pond, mid keeper talk... more than once.



Kits after kanoodle? The trials & tribulations of breeding Binturong

Olivia Clarke, Mogo Wildlife Park

Mogo Wildlife Park is a captive animal facility home to a range of exotics animals, including 1:1 Binturong, Baru & Daisy. We began breeding attempts with our pair in 2021 and this is what we have learnt along the way.

Mogo currently houses one male & one female binturong. Baru is our male, he is 13 years old & was born at Taronga Zoo in Sydney. He has a calm & placid nature, we are able to work free contact with him & he is also an encounter animal. Previously, he has never been introduced or lived with a female. Daisy is our female, she is 6 years old & was born in the Netherlands. She moved to over to Australia & was first at Hunter Valley Wildlife Park, before moving to Mogo in 2020. Daisy is not as placid as Baru & is very territorial of her exhibit & dens, therefore we work protected contact with her. She has never been introduced to male or bred before.



Baru



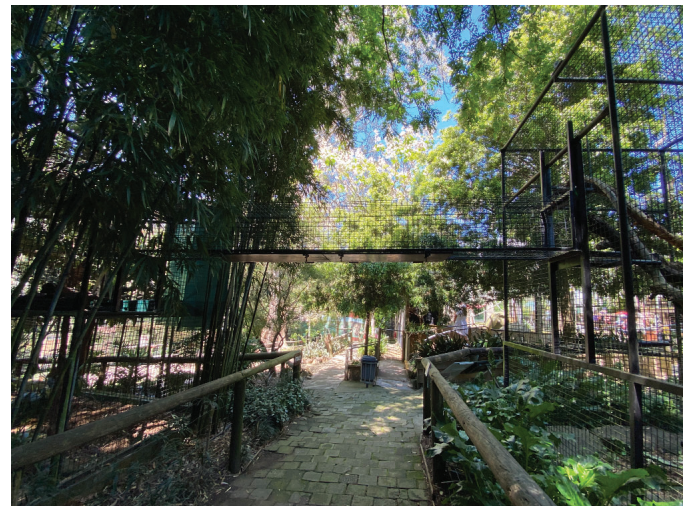
Daisy

Once it was decided that we were going to begin introducing the pair, some plans were put in place for a slow introduction to each other, as well as some modifications that needed to happen to the exhibits in order to connect them.

We began scent swapping – swapping bedding materials, enrichment items & putting faeces from one another in each others exhibit. This allowed them to become familiar with having another animals scent in their space, on top of already being able to see each other from across the exhibits. Both Baru & Daisy responded well to the scents & in turn, increased the amount they would each scent mark

around their exhibit as well.

The other plan was for the exhibit modifications, to install an overhead raceway that would join the two exhibits. It was placed above the public walkway, it is able to be opened on either end to allow one or two access points & created the opportunity for mesh to mesh contact prior to introducing them completely. It also is a very positive experience for our guests to have a binturong walk overhead!



The Raceway

Once the raceway was installed, we began to introduce Baru & Daisy via mesh to mesh contact. Initially, it was not entirely well received on both ends – Daisy would run & charge at Baru on first approach, which made him hesitant to continue to come over to her, but they both gradually relaxed. We also allowed each of them into the others exhibit to explore & become familiar (whilst the other was locked in their dens). These intro's taught us that binturong's have a variety of vocals & we were able to learn which were positive & negative. Both binturong's make a "whooshing" sound (almost like a loud exhale or hiss like noise) when approaching each other & it is their way of greeting or saying hello in a positive manner. They also have a low clucking noise that they began to make to one another once comfortable with mesh to mesh contact & they would sit together, clucking & licking noses (very cute).



Baru and Daisy meeting in the raceway

After a few weeks of positive mesh contact, the decision was made to open up the race completely & allow contact. We weren't entirely sure of Daisy's oestrus cycle at this point or what the indications of her being in season were. We opened up the slide for the first time in March 2019, but it was not successful. Both binturong's were uncomfortable, vocalized loudly & chased each other. We closed the race & separated them successfully after a couple of minutes. The timing for her season wasn't quite right.

In May 2019, we noticed a lot of positive oestrus signs – vocalizing, Daisy rolling over in the raceway to Baru & her vulva was becoming more swollen/visible, so we opened the race again. This introduction was very successful & both binturong's were comfortable in each others presence within a few minutes. After 2-3 days, we saw the first mating behaviours & Baru was beginning to mount Daisy – this then lasted for about 3-4 days. Once her oestrus was ending, we were hopeful to be able to keep them together permanently, but Baru became very vocal & somewhat aggressive towards Daisy, so the decision was made to separate them again.

This first introduction was unfortunately not successful with pregnancy & we have since introduced them 3 more times in 2021. Each introduction is now very smooth, we are able to pin point Daisy's oestrus & we have learnt that she cycles every ~66days. Each introduction follows the

same pattern, with a lot of mating behaviour taking places for 3-4 days after initial introduction. We have also not been able to keep the pair together post-oestrus, as Baru continually changes his behaviour around her once its ended. They do have mesh contact 24/7 via the raceway, with access changing equally between the two.

Aside from breeding attempts, we have also begun ultrasound training for Daisy in order to check for pregnancy down the track if she shows signs. She is also being trained for voluntary hand injections. We have gotten into contact with other zoo's who have had success so that we can learn what to look out for in a pregnant female. We are still able to work free contact with Baru & there has been no behavioural change in him towards us, or to the public during encounters. We continue to work Daisy protected contact with no issues, we have found the introductions to Baru have relaxed her also.

The biggest thing I learnt – binturongs are actually so LOUD! When housed alone, they are not, but don't let that fool you!

We are still hopeful that Daisy will become pregnant, hopeful that time & experience plays to their favour this coming year. However, if they are never successful in breeding, it is still a very enriching experience for the pair to have this contact & it has given & continues to give us keepers a great learning opportunity.



Forerunner forum - Interviews with Stalwarts of the Zoo Community

Featuring John Lemon

Perth Zoo's Manager of Zoology, John Lemon, has worked across the professional animal care industry throughout Australia in a career spanning back to the 1980s. Animal collections in his early zookeeping career were incredibly diverse, with taxa representing all corners of the planet – species not seen across Australasian zoos these days. John has worn many hats and served on many committees undertaking roles to not only manage captive animals, but also to bolster and protect threatened species in the wild; none more-so than his pioneering work across southern Africa. Here, John sits down with us to talk about his career, his global studies, the much stronger radiation of South American fauna in zoos of the 1980s and 90s, founding an in-situ conservation approach supporting the most threatened large carnivore in Africa, and how the ASZK was able to assist with fundraising in 2013.



John, please tell us about your beginnings in the Australian zoo keeping industry in the 1980s and across the 1990s. What was the industry like, and what were some of the species better represented in collections?

Being born and bred in Dubbo NSW I was an eager six-year-old that ventured through the gates on the opening of Western Plains Zoo on February 28th 1977. I fulfilled my dream of working there from 1989 until 2002. Holding position of Divisional Supervisor, specialising in African Carnivores and Primates. During this I also held the positions of Australasian Primate Society President, Australasian Species Co-coordinator and Studbook Keeper for Cheetah.

Though Veterinary medicine and in particular Chemical restraint was well advanced the necessity to undertake manual restraint for a majority of species was a skill based that staff had to undertake almost on a daily basis. Capture and restraint skills were taught and tested.

Zoo keeping has changed over the years, it used to be just feeding and cleaning and the occasional observation. Now, it's also about animal behaviour, their welfare and providing enrichment and tools so that we can meet their needs.

During the late 80's early 90's South American Taxa was well represented including species such as Guanaco, Brazilian Tapir, Rhea, Patagonian Cavy, Collared Peccary, Capybara and Maned Wolf.

Primate Collections were varied including such species as Tonkean and Sulawesi Macaques, Entellus Langurs, Patas Monkeys, representation of the majority of Gibbon Species and even White Fronted Lemurs!

Massive Bird Collections such as Perth Zoos World Of Birds that, at the time was one of the largest and most diverse Aviary displays in the Southern Hemisphere.

Most Zoos had one or two core species that they were renowned for that no other Zoo held in the region whether it be African Elephants, Orangutans, Black Rhino or Fijian Crested Iguanas.

Advances in Animal Welfare, collaborative and cooperative species management plans, workplace Health and Safety, Operant Conditioning and advances in enclosure and holding facility design have improved and changed the husbandry and care of the species for the better.



We understand that your interests, particularly around African carnivore species, took you around the world to gain experience and knowledge, and to advance your education in this field. Where did you expand your travel to, for ex-situ husbandry experience and to undertake courses?

My passion for Cheetah and Painted Dogs led me to travel the world gaining work experience at other Institutions which included; De Wildt Cheetah and Wildlife Centre South Africa, San Diego Wild Animal Park U.S.A, Fossil Rim Wildlife Centre Texas U.S.A, White Oak Conservation Centre Florida U.S.A, Honolulu Zoo Hawaii U.S.A, New Zealand Zoo's and Australian Zoological Institutions.

My studies include the two-year State Zoo Keeping Certificate which I was Award Dux for the course (TAFE N.S.W.), 3-year National Zoo Keeping Certificate (Box Hill TAFE Victoria), Post Graduate Certificate, Captive Vertebrate Management (Charles Sturt University, CSU.), Graduate Diploma Captive Vertebrate Management (CSU), Masters Captive Vertebrate Management (CSU), Conservation Biology & Biodiversity (UNSW). Awarded Zoo Studies Scholarship (CSU), Certificate IV in Business Management (West Coast TAFE WA), Certificate III Captive Animals (Western Sydney Institute TAFE), Certificate IV Captive Animals (Western Sydney Institute TAFE), Foundations of Leadership (AIM/University

Western Australia). I was also a Finalist for the coveted 'Audi Terra Nova Awards' South Africa for contribution to conservation, 2003.

In the year 2000, you travelled to Zimbabwe on a fellowship to work closely with the Painted Dog Research Project. This became a formative trip for your future, and that of Painted Dogs as a species, building the foundations for Painted Dog Conservation Inc in Australia. Take us through the history, achievements and milestones of PDC Inc, which next year celebrates its twentieth anniversary year, an indicator of not only its ongoing relevance in-situ, but also its success.

My burning passion to do more for Conservation, I applied and was awarded the New South Wales Zoo Friends Fellowship to undertake field work in Zimbabwe in 2000 with the Painted Dog Research Project. I returned to the project in 2001 with own funding. During 2002, aware that the plight of the dogs was worsening, I resigned from Western Plains Zoo to work full time for the Project (unpaid position) in the capacity of Project Officer Painted Dog Conservation. During 2003 I completed the largest rehabilitation holding facility for the dogs in the World, as well as rescuing several dogs from lethal Snares, Education Work to Rural Communities and Anti-poaching Patrols.

We established Painted Dog Conservation Incorporated (Australia) as a non-profit Organisation, in 2003 to provide support for projects in Africa that are actively conserving the African Painted Dog.

PDCInc is registered on the Register of Environmental Organisations in Australia, (tax deductibility for donations). A "Public Fund" bank account with its own management committee has been set-up to receive donations. To date, we have raised over \$2.5 million AU for in situ Painted Dog conservation in Africa.

Objects of Association

To advance conservation for the public benefit of the African Painted Dog, (also referred to as a Wild Dog) *Lycaon pictus*, through education promoting and disseminating research into such conservation and seeking to achieve their sustainable management.



Mission Statement

PDCInc has as its mission:

- To develop PDCInc into an increasingly effective organisation in:
- Provision of resources and facilities to support research into *Lycaon pictus*, aka African Wild Dog
- Conservation of *Lycaon pictus*, aka African Wild Dog with particular emphasis on threat prevention
- Education of the wider community on dogs and related wildlife issues
- Treatment and care of sick or injured dogs and the rehabilitation of such dogs back into their natural environment
- Increasing in the range states the population of *Lycaon pictus*, aka African Wild Dog

Focusing on:

1. Supporting Research
2. Supporting Direct conservation of the dogs
3. Supporting Conservation education
4. Supporting Capacity building for the future
5. Supporting Community development
6. Supporting Anti-poaching and habitat protection
7. Supporting rehabilitation of sick and injured dogs for future release

Conservation Partners' Current Work

PDC Inc currently supports the work of eight projects based in South Africa, Zimbabwe and Zambia (and previously a project in Namibia) with both financial and on the ground support.

Endangered Wildlife Trust (South Africa)

PDC Inc. has contributed towards the building of a Rehabilitation Centre for Painted Dog relocations/rehabilitation and holding facilities prior to release. In addition, a new veterinary clinic has also been funded to further increase the survival rate of injured painted dogs plus a project vehicle.

Zambian Carnivore Programme (Zambia)

PDC Inc. Has contributed towards the purchase of field research equipment, such as radio-collars and telemetry equipment, field vehicle spare parts, rebuilding of a field station, in addition to the provision of 6 vehicles (purchased in Australia and shipped to Zambia-primarily Land Rover Perenties) to ensure field work and research can be conducted in any conditions. I have also chaired the Zambian Carnivore Programme Board for more than a decade.

Conservation South Luangwa (Zambia)

PDC Inc supports Anti-Poaching Teams each year, which are deployed to remove the deadly snares from the bush. The Team also arrests poachers, and also rescues and rehabilitates injured wildlife

Chipembele Wildlife Education Trust (Zambia)

PDC Inc has supported a Full Time Education Officer for the community, and now supports the development and delivery of Education materials to the community, teaching them about wildlife education, provision of conservation clubs for the young people.

Shinganda Wildlife Wilderness (Zambia)

PDC Inc supports the Anti-poaching team of Shinganda Wildlife Wilderness-so deploying the scouts in an area of Kafue National Park, removing deadly snares and rescuing injured wildlife.

African Wildlife Conservation Fund (Zimbabwe)

PDC Inc supports the provision of Radio Collars and telemetry equipment, camera traps and other field equipment. We have previously funded a vehicle for field work and motorbikes

Painted Dog Conservation (Zimbabwe)

PDC Inc. Has contributed to the following area over the last 22 years:

Support of an Anti-Poaching Unit, again removing deadly snares from the bush, arresting poachers and rescuing injured wildlife and subsequent upgrades to rehabilitation centre I built in 2003.

Provision of Field equipment-radio collars and telemetry equipment

Kevin Richardson Foundation (South Africa)

Supporting the purchase of land for lions, funding the rescue of Cub petting Lions and investigation into the canned Hunting Industry.

In 2013, the ASZK proudly supported fundraising efforts for Painted Dog Conservation Inc, through our ‘Bowling for Painted Dogs’ campaign, where, with events held right around Australia and New Zealand, we were honoured to raise 8,400AUD to be directly streamed towards PDC Inc’s conservation efforts across Zambia, Zimbabwe and Namibia. Was this mostly protective and surveillance infrastructure, and how are these areas holding up nine years later in 2022?

Arguably one of the biggest and best bowling events the grand total raised from the sale of T-shirts and “Bowling for Painted Dogs” was distributed evenly between three main areas of our supported projects including:

- PDC Inc. Anti-Poaching Patrol in Zambia managed by South Luangwa Conservation Society <https://cslzambia.org/>
- Our community education field expenses in association with Chipembele Wildlife Education Trust <https://www.chipembele.org/>
- Our field-based large carnivore conservation and research in collaboration with Zambian Carnivore Programme <https://www.zambiacarnivores.org/>

The funds went straight to our Anti-poaching team in Zambia to buy new field kit as well as supporting our Community Education Program with School Incursions and collars for our Painted Dog work in Zambia. All activities have continued to flourish and the equipment bought is still in use. Our thank you from 2013 still rains true, so thanks again to ASZK and all those involved in the Bowling Night!



As with all of the world’s more successful conservation efforts with long term legacy, Painted Dog Conservation Inc sustains a collaborative approach with many other local bodies, projects, NGO’s and foundations across southern Africa. Who does PDC Inc currently partner with to provide cooperative support to the conservation of painted dogs and other African carnivore species? How important is building a network of bodies and agencies to approach broadscale conservation, especially when it spans across a number of nations across a species’ range state?

Our current funded projects are: - Zambian Carnivore Programme, Conservation South Luangwa, Chipembele Wildlife Education Trust, Shinganda Wildlife Wilderness, Painted Dog Conservation, African Wildlife Conservation Fund, Endangered Wildlife Trust and the Kevin Richardson Foundation.

Our patrons play a crucial role in promoting our work amongst various audiences. They include Bradley Trevor Greive (Founding Patron and New York Times Best Selling Author), Tony Park, also a bestselling Author and a Major in the Australian Army Reserve, Simon Reeve former Channel 7 reporter -apart from his extensive media history with Beyond 200, Seasons, Wildlife, Good Medicine, Quizmaster, It’s Academic, The Force, Sunrise and Weekend Sunrise and the host of Million Dollar Minute (to name a few!), he is passionate about Africa and it’s wildlife, and moved to Botswana with his family for two years.

Dane Haylett-Petty former Captain of the Melbourne Rebels Rugby Team and Player for the Australian Wallabies, Fabrizio “Fuz” Caforio, one of the World’s finest Wildlife Artist’s, Nathan Ferlazzo from Marini Ferlazzo, a family business based in Melbourne, Australia. Founder and wildlife artist, Nathan Ferlazzo, creates unique art to support wildlife conservation around the world including PDC Inc. and Jean-Claude Van Damme, legendary 80’s Action Hero, Belgian actor, martial artist, filmmaker, and fight choreographer. We are also fully endorsed by Sir Richard Branson.

Some of our partners include Perth Zoo, National Zoo and Aquarium, Monarto Safari Park, Creations for Wildlife,



Human Society International Australia, The Bushcamp Company, WWF Zambia, Kafunta Lodge, Untamed Brewing Company, Tribal Village, Painted Wolf Wines, Gillie and Marc and of course ASZK.

We have a large membership base of which many have become Life members and as well as financial supporters.

In the countries we operate we have a great working relationship with National Parks and Wildlife Services as well as other Government and Non-government organisations. Without the support we would be unable to operate within the countries and be able to make a real difference to Conservation.

Too often the sustainability of research and conservation efforts is compromised because local communities are not effectively involved. We undertake a comprehensive multi-level approach to help ensure sustainability by training, educating, sponsoring, and employing young African wildlife professionals from the secondary school level through to international graduate programs. Collectively, this helps to ensure that the best and brightest have the opportunity to contribute their talents to wildlife conservation now and into the future.

The success of our work fundamentally rests on our diverse and effective collaborations with local, national and international partners, agencies, organizations and institutions that collectively provide the expertise, resources and energy to address the myriad conservation challenges facing the areas we work in and the region as a whole.



Now working for Perth Zoo, what is your position title and tell us about the projects and outcomes of your current role?

I somehow balance my time between the African Projects and my role at Perth Zoo.

I am just about to start my 20th year at Perth Zoo and my current role is the Manger Zoology (formerly known as the Curator Operations) which is responsible for the management of the Directorate Keeping staff including budgets, staff management, animal husbandry standards and practices; their review and implementation. I lead and plan the section's input across organisational activities such as exhibit planning and delivery of visitor animal experiences. Assisting the Director in strategic planning, policy and related advice that supports management of the Zoo's collection and partnerships.

In addition, providing high level advice to the Director in planning for the human, financial and physical resources to manage the animal collection, creating an environment for innovation and cooperation that supports continuous improvement and greater operational efficiencies.

I also must ensure the staffing requirements of the section are well managed including the recruitment and rostering of Keepers, leave planning, performance assessments and training and development in accordance with Zoo policies and procedures, as well as being responsible for budget planning, reporting and management of finance for the section including ensuring compliance with Government policies and practices in procurement, contract and financial management. I lead a team of four Supervisors and around 70 keeping staff responsible for animal welfare and providing optimum care for around 1500 animals.

I also serve on Perth Zoos OSH committee, Emergency Management Action Group, Minor and Capital Works Committees, Manage the Firearms Team and Chair the ZAA Standards and Accreditation Committee.

What is the current status of Painted Dog populations and their various threatening processes, and do they have different impacts across several nations?

It is estimated that 120+ years ago there were around 500,000 Painted Dogs. Over the last 30 years the Painted dog population has declined dramatically. Dogs have disappeared from 25 of the 39 countries in which they were previously found, and only 6 populations are believed to number more than 100 animals.

Today it is believed that between 6000-6500 dogs remain in 600-1,000 packs only and most of these are to be found in eastern and southern Africa. The dramatic reduction in the Painted dog population has been attributed to several factors, among them, human population growth and activities, deterioration of their habitat and contact with domestic dogs and the diseases they carry such as parvovirus distemper and rabies.



Hyena, jackal and leopard will steal their food from the killing site while lions will kill both adults and pups however these are natural occurrences to which the animal has survived for millions of years.

Man is by far their greatest killer and yet with a little care he could be their saviour. He condones the wanton killing of adult dogs and puppies by whatever means.

Road kills are a major killer of these animals. Man perceives the method of killing prey is abhorrent and as such sets traps, snares, with little thought for the suffering of the animal that gets caught.

The loss of one dog to a pack can have a devastating effect on the survival of the whole pack.

Nearly twenty years after the inception of Painted Dog Conservation Inc, what changes have you observed and documented over these years about the fragmented populations of the most threatened large carnivore in Africa?

The biggest change we have been involved in began on August 18th 2011, when the governments of the republics of Angola, Botswana, Namibia, Zambia and Zimbabwe signed a treaty to establish the Kavango Zambezi Transfrontier Conservation Area (KAZA TFCA).

Roughly the size of Sweden, this will be the world's largest conservation area. Its creation will allow the movement of wildlife across international boundaries, thereby improving dispersal opportunities and effectively their chance of survival.

Comprising 520,000 square kilometres that span five countries. Studies show that the critically endangered Painted dog mostly remains within the Kavango-Zambezi Transfrontier Conservation Area (KAZA) during its long periods of migration. This confirms that the wildlife corridors most important for the conservation of the Painted dog and other



threatened species fall within the boundaries of KAZA's protected zone. Migration is essential for the preservation of many animal species. Individual animals have to leave the areas in which they were born in order to settle and reproduce elsewhere. This facilitates genetic exchange between physically distant populations, strengthens critically low population levels, and allows for the settlement of new areas. In landscapes shaped by human activity, however, it is becoming increasingly difficult for animals to cross through populated areas that separate their habitats. For this reason, countries are increasingly establishing wildlife corridors and other protected zones.

Results suggest that most of the wildlife corridors that have been identified pass through KAZA, with northern Botswana appearing to act as a central hub for the animals. Another important corridor connects national parks in Angola and Zambia. While the corridor still runs through places that are largely unprotected, the KAZA initiative does intend to place these zones under protection. There's still more potential for expansion, however, since there are several suitable migration routes not currently covered by KAZA.

Not all areas are equally suited for establishing wildlife corridors. In some countries, animals encounter no problems during migration, whereas in countries such as Zambia and Zimbabwe, high population density – with its human settlements, road networks and agricultural activity – poses the greatest obstacle to animals on the move.

What impacts have the ongoing Covid pandemic had on their in-situ conservation?

The economy has been severely affected by COVID-19. Income from tourism has diminished largely because of travel restrictions. When the overall budget of a country decreases, allocations for conservation funding — which may not be perceived as essential by policymakers — may drop consequently.

Moreover, by drawing a parallel with past financial crises, expect a reduction of donor funding for conservation for the next couple of years.

With the reduction of conservation funding, conservation operations could be compromised. A reduced budget means fewer resources and people to look after protected areas. Conservation operations are also affected by lockdown policies that reduce or eliminate the ability of people to get to key conservation locations.

Threats to conservation are increasing. This increase is caused by the alteration of conservation operations but also by the increase in rural poverty caused by the COVID-19 crisis. Rural Africans living near protected areas may use the natural resources of these areas to address their own poverty. This could result in a higher frequency of poaching, tree cutting, mining, consumption of bush meat, etc. All these factors could lead to undesirable outcomes such as population declines and extinction of local species. Consumption of wild animals may also have the additional effect of increasing the risk of future pandemics.

Covid-19 is predominantly seen as a human health crisis, but its impact is wide-reaching. Conservation efforts are suffering, and this may persist in the long term.

The Pandemic has also impacted on our fundraising efforts here in Australia to support our in-situ projects. In particular, the inability to host face to face events due to Covid Restrictions –in fact, there was a period of 18 months with no hosted fundraising events. However, due to travel restrictions, we found that we received more one-off donations as supporters weren't spending their money on travel and other expenses.

We must be prepared for these extra challenges. Resources must be made available and wildlife protection efforts redoubled.

We have been blessed that all our supported projects have continued to operate during this time, but we need to keep the funding coming in and I look forward to undertaking fundraising activities and field work this year.

And remember, everyone can still make a difference in these challenging times as any donation of \$2 and above are tax deductible.

Follow us on Website www.pdcinc.org.au Instagram: [painteddogconservationinc](https://www.instagram.com/painteddogconservationinc)



TARONGA ZOO *The Return of Crowds to Taronga's 'Seals for the Wild' Presentation*

Taronga Sydney is finally starting to receive bigger crowds visiting the 'Seals for the Wild' presentation, which is great for the conservation society and especially for the animals. As seal training sessions continued during lockdown, mock presentations were recorded and streamed via platforms such as 'Taronga TV'; however, nothing really compares to inspiring large crowds, face to face (*Photo above. Credit Jose Altuna*).

Taronga is also starting to see new seal faces in the 'Seals for the Wild' presentation, including Moby, the male Australian Sea lion (*Neophoca cinerea*) born four years ago at Taronga, and new star, Abel, a rescued male Long-nosed fur seal (NZ Fur seal) (*Arctocephalus forsteri*), who featured for the first time after re-opening. Whilst not able to do presentations staff were able to focus more time preparing the newer seals in an effort to have them ready for visitors as they came back to the zoo.

While breeding season for the Long-nosed fur seal is now

over, hopefully seasoned parents Bondi and Keke have been successful, following on from their achievement with 13 month old, Birubi. If indeed they have been, Taronga will be able to add to the growing colony of five Fur seals.



Photo Bondi and Keke Credit Brad McKenzie

Article by Jose Altuna, Senior Marine Mammal Keeper

Primates

As always it has been a busy few months on the primate unit. Excitingly, the primate keepers have been able to combine back into one office after being split into two teams throughout Covid.

Taronga's chimpanzee community has been through a few events in recent months, starting with the loss of oldest chimp, Spitter. Spitter was 61 and the well-respected matriarch of the group. She was in good health until presenting with a sudden lameness. Unfortunately, she didn't respond to treatment and her condition quickly deteriorated and the decision was made to humanely euthanise her. Keepers had started working with Spitter to accept an atomiser syringe and she readily accepted being sprayed in the mouth with delicious Powerade. On the day of her euthanasia she was given a high dose of sedative in the syringe, while lying in her comfy bed in a raceway. She went off to sleep with no stress and was then euthanised by the vet team. As is common practice with deaths in the group, we allowed the other chimps to come in and see Spitter in the service area. She was left there until the group wandered away. It was revealed on post-mortem that Spitter had ruptured a disc in her spine and the injury was untreatable. She is greatly missed by her keepers.



'Spitter' – photo by Laura Fidler

In other primate news, five Francois langur males were sent to Singapore recently. The males were trained to go into crates and congratulations to their keepers who managed to get most of them into crates for three vet checks in the month before their transaction. One of their keepers, Tim, recently travelled through Singapore and got to go and visit the langurs behind the scenes. 'The boys' seem to be getting on well and even went back into their crates to be moved after quarantine. Great job langur keepers.

And finally, our Bolivian squirrel monkey group has grown by another six, taking the total to 24 monkeys. Two males, Vivo and Vampir, were introduced back into the group to attempt to alleviate some social issues with the females. Introducing males out of the typical season can instigate a breeding season and although the presence of the males improved the social issues, it resulted in 6 births in mid-March. The infants are already off their mothers' backs, exploring the islands and interacting with other members of the group. Their genders are not yet confirmed although keepers are hoping to add a few more females to the group after last season's infants ended up being 6 male and 1 female. Vivo has since left Taronga to start a new group at Sydney Zoo.



New infant squirrel monkey – Photo by Laura Fidler

Article by Laura Fidler – Senior keeper, Primate Unit

MONARTO SAFARI PARK *Primates*

As Ring-tailed Lemur breeding season is upon us, we introduced adult male Hendrix to the female breeding group (0.7.3). He is a successful breeder from last year and with positive behaviours already observed we hope to have some more pups born this year. The three pups from last year were microchipped and sexed as 2.1. Our group of male Lemurs (8.0) have been experiencing some hierarchical issues with a few injuries obtained.



Still more busy times on the Ring-Tailed Lemur section with the progression of the Lemur walk through exhibit, with additions of more shelters and heat to keep them all cosy during the cold season. As the exhibit is coming closer to being finished the Lemurs have access to the exhibit almost all the time except when work is being conducted. Steady work has also been carried out on the tortoise exhibit which is contained within the Lemur exhibit and soon we will have Radiated and Aldabra tortoises in residence.

The chimp troop at Monarto suffered a loss of Galatea's infant who did not survive after birth due to a congenital defect. We were all very saddened by this loss but at the same time were greatly encouraged to see Galatea's

showing some positive signs of her future mothering ability. Galatea also developed an anal fistula during the birthing process and will be undergoing surgery in the coming days.

Our youngsters Zola (2) and Hope (3) are still as ever a delight in the troop, growing in their confidence with their games and antics. Every day there is a different game, from ganging up on and playing with their young mate Enzi (6), with one jumping from up above and one 'attacking' from below; to bubble bath and water play all over the mezzanine; to inventing many new ways to leap and fall into the hammocks suspended throughout the dayroom. There are many times that you also spy the older troop members getting involved in their fun with chasing and tickling sessions a plenty!

Chelsea Teoh, Primate Keeper, Monarto Safari Park

WELLINGTON ZOO *Snow Leopards*

It is an exciting and busy time at Wellington Zoo, we are building a Snow leopard habitat using the base of an old Sun Bear habitat and extending that significantly to create a large space for two cats. Wellington Zoo has been working hard to design the habitat, create engaging visitor experience, and join with our new conservation partner Mountain Spirit, based in Nepal. The new habitat is being built in our Asia precinct and after a couple of months of demolition, we are ready for the main steel structure and mesh roof to go in over the next couple of months. It is fantastic to see this project coming to life and with the development well underway we hope to be ready to welcome Snow leopards Asha and Manju from Melbourne Zoo in early 2023, they will be the only Snow leopards in New Zealand, and it will be a great opportunity for our visitors to learn all about them. We're looking forward to sharing more updates on this project as the construction progresses.



Wellington Zoo's old Sun bear exhibit



Construction progress so far



Construction progress



Future – Render of the future Snow leopard habitat

Holly McDonald



**• ASZK •
MEMBERSHIP
STATISTICS**

210	FULL MEMBERS
19	ASSOCIATE MEMBERS
25	RECIPROCAL
6	CORPORATE
13	LIFE MEMBERS
0	OVERSEAS
1	OVERSEAS CORPORATE

TOTAL 250

• ASZK NEW MEMBERS •

The ASZK Committee would like to welcome the following new members

FULL MEMBERS

JOSH ALLEN	Symbio Wildlife Park
KAHLIA BRITTON	Wild Cat Conservation Centre
SASHA BROOK	Taronga Western Plains Zoo
HAYLEY BROOKS	Taronga Western Plains Zoo
MELANIE BROWN	Wildlife Sydney zoo
JENNIFER BROWN	Central Coast Zoo
JACQUELINE CANTRELL	Taronga Western Plains Zoo
JENNIFER CARDEN-DAVID	Australia Zoo
LACHLAN CHARLTON	Wildlife HQ
KATE BYGRAVE	Zoos Victoria
SHARON DICKER	Central Coast Zoo
KAITIE FARCARIS	National Zoo
PAUL FINDLAY	Dreamworld
MIA HAMMOND	Zoos SA
JOSEPH MACKERETH	Cairns Aquarium
HANNAH MCCRACKEN	Wildlife HQ
HAYLEY MEER	Currumbin Wildlife Sanctuary
RHYS POWNEY	Central Coast Zoo
DEBBIE PRITCHARD	Taronga Zoo
EMMA COLLETT	
ANDREW DARSANA	
LUKE GLENDENNING	
JACOB LETO	
JAMES WALKER	
DENBY WALKER	





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- CAIRNS -



CONSERVING OUR FUTURE

