ASZK
AUSTRALASIAN SOCIETY of ZOO KEEPING

thylacinus

VOLUME 44 » *No. 2*

2020

AUSTRALASIAN SOCIETY of ZOO KEEPING
PO BOX 4059
LALOR PARK NSW 2147

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Cover photo: Baby Capri.
Credit: Yvette Fenning. Finalist ASZK photo competition 2019

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http://www.aszk.org.au

FROM THE PRESIDENT

Chris Dryburgh

Hi again Members,

While our animal care community, and everyone else around our Region, have been spending the last few months triaging a balance between one of the worst bushfire seasons in living history, unseasonal flooding, and a global pandemic and all the hardships that come with it, this year has been racing by (some would say “thankfully”, or “not fast enough!”), and we have now broken the back of 2020!

Clearly, all industries have been affected by necessary restrictions imposed to curb the spread of the Coronavirus, however the one closest to our hearts is the temporary closure of the animal care industry – and not only is this closest to our hearts, but arguably one of the hardest hit with all of our income ceasing, yet our commitment to conservation and the environment enduring. Many of us are now seeing light at the end of the tunnel with the gradual lifting of most restrictions, however we mustn’t forget that some areas are entering a secondary lockdown, and are feeling the pressures all over again, and we all have a joint responsibility to continue to observe safe distancing and hygiene with the hope that we can all come out the other side of COVID19 as efficiently as possible… (I still catch myself calling it CORVID19 from time to time… surely I’m not the only one??)

In the last volume, I mentioned that our previous Secretary Brit Hides has had to step down from Committee to focus on other commitments. In her place, Andrew Daly of Taronga Zoo has picked up this role and is continuing the high standard set by Brit, supporting the Committee and our Members. In early June, the Committee met via online forum, for our regular six-monthly Committee Face-to-Face meeting. While it was only as Face-to-Face as an online meeting could provide, it was incredibly productive and well attended – most Committee even had cameo appearances by their pet dogs chiming in. The Committee were able to set goals and make progress towards planning for the next 6-12 months, and I’d like to personally thank all Committee for their ongoing and untiring contributions even when we are all spread so thin elsewhere; clearly the commitment shown by this group demonstrates that we have the right people on Committee representing all facets of our growing industry and all doing so on a voluntary capacity.

Our Annual General Meeting will be held in early August, via Zoom log-in for an online platform. Please see our website or Facebook for log-in and RSVP details. We are looking forward to a bumper attendance for this meeting, and has never before been so easily accessed by the whole Membership!

See you at the AGM, and until then; keep distant and stay resistant!

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SYDNEY FUNNEL WEB SPIDER NURSERY AT THE AUSTRALIAN REPTILE PARK

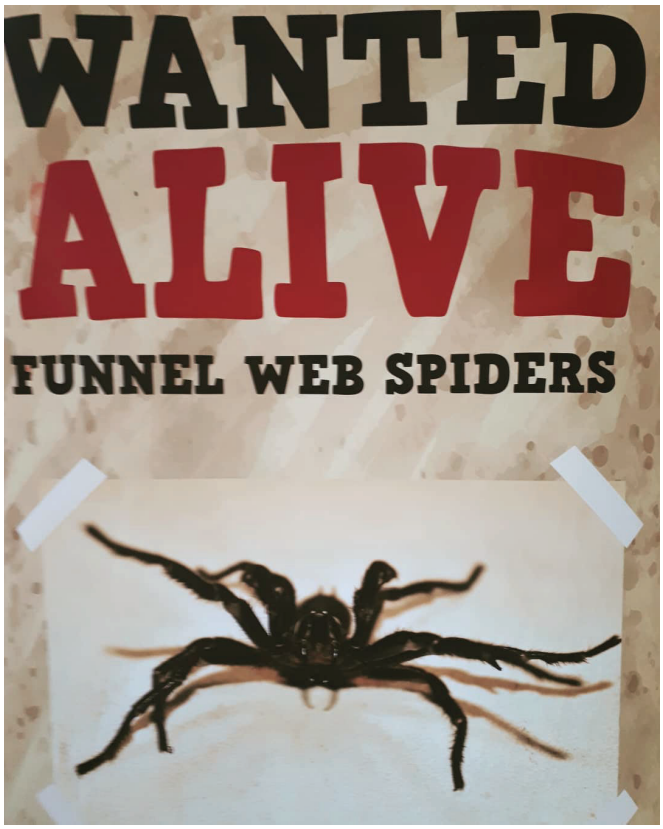
Kane Christensen, Head of Spiders

The Australian Reptile Park has a long history with venom production. We are the sole providers of both terrestrial snake venoms and also Sydney Funnel Web venom to the Commonwealth Serum Laboratory (CSL).

The raw venoms we provide each and every year are used to save thousands of lives right across Australia. We have been providing snake venoms since the 1950s and Sydney Funnel Web venom since the 1970's. Since antivenom for Funnel Webs was first released in 1981, there have been no deaths due to their bite. To provide the venom needed we need to "milk" spiders every day and process the venom before sending it to the CSL.

The Australian Reptile Park has been providing Sydney Funnel Web venom to CSL since the 1970's.

Over the years we have relied heavily on community in the Sydney Funnel Web's range to catch the spiders rather than kill them when they find them and either bring the spiders directly to us at the park or drop them to one of our collection points at various hospitals and veterinary clinics. Reptile Park spider staff also collect wild spiders when time and suitable weather permits. Due to a number of factors outside of our control, such as unseasonably dry summers, a more reliable and sustainable source of spiders would be preferred.



ARP has relied heavily on the community to catch spiders and bring them to us or drop off at a collection point.

Although female Funnel Webs are larger than males and can live up to 25 years, their venom is not as toxic. Male funnel webs can live up to five years of age but only as a mature male can their venom be used for antivenom production. As the male Funnel Web approaches sexual maturity his venom increases in toxicity to arm him for his life as a nomadic wanderer. The male leaves his burrow for the final time and will search at night for suitable females to mate with. It's during these humid summer nights that the male can wander into dwellings or stumble into pools and it is when we are most likely to encounter them.

By the time a male Funnel Web makes it into our program quite often they are already nearing the end of their lifecycle. Unfortunately, some only last a few weeks. If we are lucky enough to get males early in the season we can have them for a few months at best. Also, we can only extract venom once a week per spider as they are very susceptible to stress if handled too often.

To create a sustainable program, that reliably produces the required number of male spiders, big systems were needed. In partnership with CSL, a new facility was planned for the hatching of large numbers of spiderlings, and growth until mature.

We agreed to start with a minimum of 10 egg sacs. With the support of local community, we were able to access local properties that were in good funnel web habitats and, over a two-month period, we collected 10 egg sacs and also had three more handed in to us at the Reptile Park.

Female Sydney Funnel Web guarding her egg sac. This was the 10th egg sac we collected that secured the funding for the nursery project.

Australia's 'biggest ever' antivenom dose saves boy bitten by funnel web spider

NSW central coast schoolboy, aged 10, was given 12 vials of antivenom after he was bitten by a male spider hiding in a shoe

▲ Matthew Mitchell was rushed to Gosford hospital after he was bitten on the finger by a funnel web. Photograph: Mark Baker/Reuters

Australian Associated Press

Fri 24 Feb 2017 14.48 AEDT

A 10-year-old NSW central coast boy is lucky to be alive after a deadly funnel web spider bite necessitated what is believed to be the largest dose of antivenom administered in Australian history.

The facility was quickly set up and we started to hatch out the spiders. We averaged 100 spiderlings per egg sac. Each spiderling was housed individually and fed once a week. While discussing the project with others in the field, it was quickly discovered that not a lot was known about raising Funnel Webs from such a young age. Plenty of research has been documented on their venom composition and bite history but very little about their captive husbandry. With a large sample size we have been lucky enough to begin to trial different feeding regimes to see which is more beneficial.

To become a self-sustaining project in the future we have also started a breeding program so we do not have to rely on wild harvesting eggs each year. We have had many successful pairings over the last couple of years but it has still been very hit-and-miss with the females laying their eggs in captivity. Even the slightest disturbance to a female who has laid her eggs will cause her to eat the eggs. We have also found with the right torch and lighting we can see which females are gravid when they get handed in

Our first mature male "Jesse" that was raised in captivity from an egg sac. Very proud moment for us all.

to us and we can keep them and have had some success this year with them laying in captivity.

At the time of writing we have just over 2000 Funnel Web spiderlings and juveniles in the facility and we are very proud to say we have so far been successful in raising over 350 mature male funnel webs over the last two years for the antivenom project from the initial 10 egg sacs, with still more to mature from those clutches in the future.

We are still in the early stages of the project and there are still more questions that need answers but all of us at the Australian Reptile Park are very proud of the unique project and, personally, as someone who is very passionate about Funnel Web spiders, I couldn't think of anything better to look forward to.

Racheal Mangan and myself working in the nursery.

Non-invasive Hormone and Behaviour Monitoring in Zoo Animals to Advance Welfare: Case study of Tigers (*Panthera tigris*)

DR EDWARD J. NARAYAN

School of Agriculture and Food Sciences, Faculty of Science, The University of Queensland, St Lucia, Qld 4072, Australia. Email: e.narayan@uq.edu.au

INTRODUCTION

Big cats are facing immense pressure in the wild from human induced factors such as poaching and habitat destruction. Tigers (*Panthera tigris)* are currently listed as Endangered (EN) on the IUCN Red List because around 2,100 - 3,100 mature individuals are left in the wild. The biggest cause of wild populations declining is poaching of both the tigers and their prey species, increased habitat destruction and human-wildlife conflicts. Conservation efforts have increased both in situ and ex situ to address declining wild tiger populations. Zoos and sanctuaries play a very important role in the managed care and rehabilitation of big cats.

Captive breeding is important for maintaining a healthy gene resource pool for zoological programs. Big cats can be difficult to breed in captivity due to various external and animal related factors. Currently new reproductive technology is available for tracking reproductive cycles of wild animals in captivity. Fecal sampling has been used in a wide range of animals including mammals, birds, reptiles and fish, to analyses reproductive hormones. The advantage of fecal sampling is that endocrine activity can be analyzed remotely, and feces can be collected with minimal disturbance to the animal.

Through understanding the breeding biology, behavior and hormonal levels in tigers, better husbandry practices and programs can be developed in order to maximize the success rate of offspring production. Tigers can mate at any time of the year, though in hotter climates breeding will occur primarily during November and April. Female tigers are induced ovulators as they ovulate from external stimulus during mating, and have a little over 107 days of gestation. The standard courtship interactions between male and female tigers include an increase in vocalisation, purring, chuffing and also moaning. Key female signs of oestrus include an increase in spraying of sent and drinking water frequently. The success rate of pregnancy increases in female tigers only until five years of age. Female tiger fertility begins to decline after five years of age.

Progesterone is one of the key female hormones essential for the maintenance of pregnancy. A similar study was done using fecal samples that were collected from two female Siberian tigers (*Panthera tigris tigris)*. The reproductive hormones were measured in all the animals, and it was found that the female tiger which was isolated had no change in progesterone levels. On the other hand, the female tiger that was housed with the male tiger had an increase in progesterone levels after mating. These levels remained high during the 106-days of pregnancy.

The current report focuses on the changes in fecal progesterone metabolites (FPM) in two adult female Bengal tigers (*Panthera tigris*), comparing between bred and non-bred females at the Zambi Wildlife Retreat, NSW.

GENERAL OBSERVATIONS

Camera observations showed signs of tigress 1 in oestrus including low moaning, playfulness and spraying of scent. The male tiger was observed howling and whining to which the female 1 responded. The male tiger was observed smelling, licking and purring while rubbing his body over the female tiger. These behaviors coincided with several mating.

CHANGES IN FECAL PROGESTERONE METABOLITES

FPM levels of female 1 (pregnant) ranged from 611-6215 pg/g. Fecal progesterone levels of female 2 (not pregnant) ranged from 532-995 pg/g. Mean FPM levels were significantly different between females 1 and 2 ($p < 0.05$). FPM levels varied significantly between time periods (categorised into early, mid and late pregnancy) ($p < 0.05$) for female 1 only.

CONCLUSION

Non-invasive hormone monitoring combined with behavior tools such as cameras provide a useful means of tracking activity of zoo animals and the data can be used to gain vital knowledge regarding the animal's hormonal cycle and breeding potential. Hormone monitoring technology is a relatively cheap and reliable way to monitor physiological adaptation of zoo animals to captive management intervention.

Figure 1. Behaviors displayed by male and female tigers. A- scent rubbing by male; B male licking female; C mating behavior; D den activity by female tiger. Courtesy: Donna Wilson, Zambi.

ACKNOWLEDGMENTS:

Special thank you to Donna Wilson and the dedicated team of volunteers at the Zambi Wildlife Retreat for collaborating with this research project. Veronika Harrison conducted field work as part of third year field project.

RECENT PUBLICATIONS BY THE STRESS LAB:

Narayan, E., Perakis, A. and Meikle, W., 2019. Using Thermal Imaging to Monitor Body Temperature of Koalas (*Phascolarctos cinereus)* in A Zoo Setting. Animals, 9(12), p.1094. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6940814/

Narayan, E.J. and Gramapurohit, N.P., 2019. Urinary corticosterone metabolite responses to capture and visual elastomer tagging in the Asian toad (*Duttaphrynus melanostictus*). Herpetological Journal, 29(3). https://doi.org/10.33256/hj29.3.179183

Figure 2. Female tigress 1 with one of her cubs. The cubs were undergoing routine veterinary care.

ELENA: THE BLACK HANDED SPIDER MONKEY

Tahlia Koe, Melbourne Zoo

Spider monkeys are a type of New World monkey from Central and South America. Group size is dependent to a large extent on abundance of food. Smallest sub-groups may be 1-3 animals and the largest 7-20.

Sexes may also roam separately; males patrol territory boundaries, where aggressive encounters may occur with neighboring troops. Female spider monkeys actively choose their mates and initiate copulation, and breeding may take place at any time of the year. Females give birth to a single infant every two to four years, after a gestation period of 226-232 days or seven to eight months. Young are normally dependent on their mothers for three years, and reach sexual maturity at four years for females, five for males, after which females usually migrate to other groups.

In June 2018, Melbourne Zoo housed a group of 1.3, Oren (male), Maya (female), Isobella (female) and Estela (female). The group is made up of a hand raised female and one of the oldest spider monkeys in captivity. Our group was cohesive at present, but we do see aggression between Isobella and Estella from time to time. Maya cannot breed and Estela was contracepted.

Isobella was due to give birth during the month of June. This would be her second infant.
Her first infant was a result of mating with her brother at another zoo and the infant died after being born by caesarean. A caesarean was required in this case because of an abnormality affecting the placenta.
This placental abnormality (placenta previa) may recur in Isobella; the most likely sign of this would be significant bleeding from the reproductive tract. Additionally, we may find that Isobella suffers significant birthing complications following her previous caesarean. These complications may be difficult to detect quickly, as the signs are similar to those seen during a normal labour (abdominal pain).

Maya has successfully birthed and mother raised infants however when Estela and the male offspring Tyson were born she displayed aggression to both, so we need to consider her involvement.

With the months slowly counting down, keepers saw multiple changes in Isobella as she was preparing for the impending birth. Her appetite changed resulting in her only wanting certain types of food, such as leek and capsicum. Isobella's body began to change as well, with keepers noting that her breasts were seemingly getting larger as the days went on. This was a good sign that she was getting close to giving birth.

On the 16th of June 2018, Isobella seemed to have a normal demeanor in the morning, however that quickly changed by lunchtime. She was quite restless and something wasn't right. She had gone off all of her food, which was weird, and she would not come over to keepers at all.

By 4pm, it was clear Isobella was in labour. Contractions started at 4.05pm and moved extremely quickly. At 4.41pm, Isobella gave birth to a healthy young female. Within 20 minutes of the birth, the placenta had passed and we saw suckling from the infant in the first hour.

Both mother and infant were separated from the group immediately after the birth due to the fact that our young female, Estela, was swiping at the infant. This could be a result of the group not experiencing a birth in eight years.

Isobella and 'Elena' were both bonding and showed all the positive signs as to a mother-infant relationship. After giving Isobella some resting time, we decided to reintroduce the group one monkey at a time to the new infant. We began with our old female, Maya, as she has a close relationship to Isobella. This proved positive with both females embracing one another.

Keepers continued to monitor the group via cameras and extra observations and all signs were reflecting towards a successful mother raised infant.

Fast forward three months, keepers discovered that Elena was not being carried by mother Isobella, but instead by the older female Maya. Isobella was showing no signs of interest in Elena, completely avoiding her at all costs and happily foraging for food.

This is where our emergency plan came into place. Keepers and vet staff were working hard to try and think of ways as to why Isobella would reject the infant after 3 months and if we could reintroduce them back together.

We observed the group for a few hours in the hope that Isobella would respond to Elena's cries and try to take her back. However, by lunch time, Elena was looking weak and still Isobella had not responded the way we had hoped her to. This indicated that we needed to get Elena off Maya (the older female) in order to try and reconnect Isobella and Elena. We successfully removed her from Maya, and placed her into a den space and allowed Isobella to have access, which after some coaxing and reinforcement, Isobella allowed Elena to climb onto her. The reintroduction appeared positive, however, until Elena tried to feed, which then lead to Isobella being extremely aggressive, pulling her off and

biting her. After a few hours, she pulled Elena off, leaving her on the top bench inside the dens. Elena was clearly distressed and cried, which in turn, Isobella moved away, only looking at Elena when she cried, but not showing any concern towards the infant.

Keepers attempted multiple introductions to try and reintroduce and rebond mother and infant, however, all attempts were unsuccessful. This resulted in the decision to remove the infant from the group as she would not be getting sufficient nutrients and milk. Elena spent her first night away from the group on the 18th of September where she was under the care of the veterinary team.

Elena took to the bottle feeds well, with milk feeds occurring approximately every 1.5-2 hours. Her amounts slowly increased as she got used to the different teats, syringes and milk/lactase mix.

On the second day of being under keeper care, keepers took Elena down to arboreals to show the other spider monkeys. When she saw the others, she was reaching out and was actively trying to get to them. Maya, the older female was reaching through the mesh and trying to interact, however the older adults all came over, but quickly lost interest.

Each day, Elena's milk intake increased, showing positive signs to her adjusting to the full strength formula. Elena was consistently putting on weight and losing only small amounts of weight each week.

After five days, Elena was set up in a crate inside the dens to allow the adults to see her and interact with her through vocalisations and we also set up a crate outside near the exhibit to allow Elena to spend time outside.

After two weeks of Elena living up at Vets and having regular visits down to the spider monkey group, she was moved to an approved crate inside the dens. This is where we trained her to feed through the mesh.

We also modified our dens to have a baby door installed to allow Elena to move through this space to feed. She responded to what we were asking her to do very quickly and soon felt extremely comfortable moving through the space.

There were many ups and downs with Elena's consistency with feeding, with days that she was not interested in the milk, and others she was looking for more. We decided to introduce solid foods every seven days, beginning with cooked sweet potato and rice cereal. This allowed us to put remaining milk into a mash formula to ensure she was still receiving additional fluids.

Elena spent her first night away from the group on the 18th of September where she was under the care of the veterinary team.

Numerous plans were devised for when we were to reintroduce Elena to the group upon reaching these milestones. When keepers weren't feeding Elena, they were desensitising the adults to soft toys and the milk bottles in the hope that they would get used to these objects if Isobella rejected Elena again. Before we introduced her back to the group, we wanted to establish that the group would respond well and have a slight bond with her as they had been seeing her through the mesh every day.

On the 23rd of October, we reintroduced Elena to the spider monkey group. First attempt we introduced her back to her mother, but Isobella was quite agitated. She did however vocalise and greet Elena upon seeing her, but moved away. There was no aggression observed, but she did maintain a distance away from her at all times.

This is when the second plan came into effect of introducing her to the older female Maya. Maya allowed Elena to climb onto her immediately and by 6pm, she had picked her up and was refusing to let her down. This caused some concerns that Maya would not allow us to feed Elena, however the next day, Maya was letting us feed Elena through the mesh well.

They were reintroduced to the group after three days of allowing Maya and Elena to bond. First we introduced her to Isobella, which was extremely positive. Isobella was observed to initiate play behaviours and even lay down next to Maya and Elena to encourage Elena to climb onto her.

After two weeks of Elena living up at Vets and having regular visits down to the spider monkey group, she was moved to an approved crate inside the dens. This is where we trained her to feed through the mesh.

Each week, we assessed Elena's feeding plan and adjusted it accordingly. We were able to reduce the amount of times we were feeding her as we increased her intake of milk and solid foods.

We made another slight modification to the den space and created a slide that would allow only Elena to fit through. This allows us to give Elena access to her own specific daily diet, which she learnt extremely quickly on how to gain access.

Fast forward to now, April 2019, and we believe that Elena is doing extremely well in the spider monkey group. She still receives one 60mL bottle every morning and has access to solid foods all day.

She has a portioned out diet that we place into her specific den three times a day, all whilst still having access to food on exhibit with the adults.

Keepers report that as she gains more and more confidence and she is extremely confident and she is observed to be interacting and engaging in play behaviours with all other adults, including the male Oren.

We can say that this process has shown that hand raising rejected infants can be successful with careful planning and animal training. Rejected infants can still grow and thrive in an appropriate group and grow into normal, well-adjusted adults.

URBAN CONSERVATION - BALANCING GROWTH AND WILDLIFE

Jarrad Prangell - Symbio Wildlife Park - Reptile Supervisor

JARRAD@SYMBIOZOO.COM.AU

Green and Golden Bell Frog – Litoria aurea (below)

Through-out the1960s the green and golden bell frog was considered a common frog. They are; widely distributed, explosive breeders, super invasive, highly mobile and very tolerant. This species has all the characteristics to excel.

From the early 70's through to the late 80's the species went through a brutal decline. They are listed as 'Endangered' under the NSW Threatened Species Conservation Act 1995. They are listed as 'vulnerable' under the Commonwealth's Environmental Protection and Biodiversity Conservation Act 1999.

Prior to the 1970's Green and Golden Bell Frogs had a wide distribution in Sydney; Hawkesbury-Nepean floodplain, Cooks River, Georges River, Botany Swamps, Beach lagoons and Smaller populations were known from Homebush, Kurnell, Eastwood, Riverstone, and all through the inner and western suburbs.

After the declines of the 1970s and 1980s many major populations were lost. Some sparse populations survived at Rosebery, Greenacre, Homebush, Kurnell,

Frog room at Symbio Wildlife Park

Strathfield and Arncliffe. Now believed to be fewer than 8 populations in Sydney in which only two are managed; Arncliffe and Homebush populations. All the others are currently unknown. Land degradation and feral pests such as plague minnow (gambusia) are a major concern, but their biggest threat is the introduced disease into Australia called Chytrid Fungus.

Sydney's urban sprawl began development right amongst a managed population in Arncliffe. At this point Symbio Wildlife Park acquired a critical insurance population and after threemonths of quarantine, 18 Green and Golden Bell Frogs arrived at our ex-situ captive breeding facility.

We were met with a lot of red tape and hurdles though after a busy period prepping up we were able to successfully launch our breeding facility; fully equipped with; photo sensors, thermostats, temperature alarms, irrigation, airconditioning, windows and skylights we were ready to take on the challenge, breed young and release the populations progeny.

Our first roadblock arrived in 2017 which unfortunately halted breeding. Three ponds were developed in close proximity to the site we acquired our founding animals

in Arncliffe and sadly, we were held up by contaminated soil. September 2018 came around real fast and once again… halted by the seasonal drought. The dry weather led to a die off with the vegetation and macrophytes, the habitat just wasn't suitable.

Luckily the spring rain came and the ponds flourished into a pristine habitat for bell frogs. We received approval to breed on 11th of December 2018 and within 24 hours after pairing we have our first spawning. It was a mighty challenge to raise so many tadpoles but over the course of three months we had released over 3,500 tadpoles. Multiple water changes and testings allowed us to combat one of our main concerns and that was trying to upkeep nutrition while maintaining water quality.

We have been able to achieve great results and the Arncliffe population no longer sits solely at Symbio Wildlife Park. Fortunately, in collaboration with our many important partners recent surveys have had great success finding young frogs from the sole progeny of Symbio Wildlife Parks founding animals.

Frog ponds in Arncliffe where 3,500 tadpoles were released that were raise at Symbio Wildlife Park

Tadpole rearing room

BEHAVIOUR matters

HOW WILDLIFE SYDNEY ZOO TREATED ASPERGILLOSIS IN A CAPTIVE EMU CHICK

Shania Kelly, Wildlife Sydney Zoo, Darling Harbour

In July 2019 WILDLIFE Sydney Zoo (WLSZ) received two emus, Mildred & Milo at three weeks old. Both emus settled in well to their new home in Kangaroo Walkabout and were growing and developing normally when, in December we noticed Mildred excessively panting. This is usually considered normal behaviour in particularly hot weather however, when we compared her behaviour with factors such as weather, smoke (during bushfires) and activity (e.g. running) we confirmed it wasn't being triggered as a natural response to heat or activity. After investigation our Vet recommended we begin treating for Aspergillosis. This meant an oral treatment as well as nebulizing with an F10 solution

As I am sure anyone who has worked with emus knows, they can be difficult! Unsurprisingly, we ran into several issues in regards to their medication, in particular the task of nebulising her! Restraining her would be highly stressful for all involved and a risk to both staff and animal. So, we created a "nebulizing room" (below).

Our nebulizing room was created out of a double-door airlock with plastic sheets to create an air tight space, keepers would ask the emus to enter the space and we could pump the nebulizing gas in through a small hole in the wall. Understandably the emus were reluctant to enter a small space, so first we conditioned them to the area by feeding them increasingly close to the room. Once they were comfortably walking into and eating inside the room we began adding the plastic sheets. At each step grapes were used as a reinforcer in addition to their diet. Once they were comfortable with the sheets we began closing the door. Nebulizing as part of her treatment was required

daily. While the nebulizing treatment was only required for one of the emu's, Milo was involved throughout this entire process, mostly because you couldn't get rid of him, additionally, his presence made Mildred more confident in the space.

Once we started treatment it was decided the only way to check her progress was through an Xray of the lungs. Due to high risk of complications from aesthetic in ratites we opted for a voluntary X-ray. We are fortunate to have access to a mobile X-ray machine so we were able to bring the x-ray machine to her. Initially, we attempted the behaviour without any prior training just by luring and hoping she might just sit and eat. We had very little success and after five attempts had gained an almost passable image. Definitely something to improve on!

On April 2nd 2020, after only a few shots we successfully got clear radiograph images

This meant conditioning Mildred to a situation with people surrounding her, someone holding up a big silver board and all staff wearing big green gowns... as well as keeping her still long enough to get a clear picture.

Over two weeks the team worked hard to establish her confidence. First, we started by carrying a large silver board approximately the same shape and colour as the real X-ray board, we would give her some food for just sitting near the board while we held it stationary. Once she didn't react at all, another staff member could crouch down on the left side and hold the board up, all the while we used their diet and additional grapes as reinforcer. We did this session several times, each time adjusting the board height and distance just like the vet nurse will need to do before finally introducing the green X-ray gowns. These didn't seem to bother her at all and so we moved on and started sessions with the set-up that we would have on the day with the Vet & Vet nurse. To ensure she remained stationary we hid the reinforcer and showed flat palms.

On April 2nd 2020, after only a few shots we successfully got clear radiograph images. These showed amazing progress in Mildred's lungs with "clear lungs and air sacs", a great outcome for all.

This creative, out-of-the-box thinking allowed us to provide the highest level of care for our emus and the team are so proud of what they achieved and delighted that all their hard work is paying off with significant improvement in the health of the animal.

• ASZK • MEMBERSHIP STATISTICS

239	FULL MEMBERS
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39	ASSOCIATE MEMBERS
0	ASSOCIATE PARTNERS
7	RECIPROCAL
22	CORPORATE
13	LIFE MEMBERS
2	OVERSEAS
3	OVERSEAS CORPORATE

TOTAL **326**

• MEET AN ASZK MEMBER •

Nerida Taylor

KEEPER

TARONGA WESTERN PLAINS ZOO

For how long, and whereabouts, have you worked in the Zoological/Aquarium Industry?
Taronga Western Plains Zoo is my first paid zoo job and have been a keeper here now for 8 years. Before that I was a volunteer guide at Melbourne Zoo.

What is your favourite animal, and why?
Would have to be Rhinos. Don't make me choose an actual species – it's like being asked if you have a favourite child! I have had the pleasure of working with Black, Greater One-Horned and Sumatran Rhino, so these are all favourites. WHY? Each for very different reasons. Black rhinos are both challenging and rewarding to work with at the same time. GOHR remind me of triceratops and Sumatran rhinos are like giant puppies.

What is your favourite thing about TWPZ?
Definitely the amount of space we have and the range of species that I get to work with.

What changes or improvements would you like to see in the future of zookeeping/aquarists?
I think zoos have come a long way from the old days of cement pits and animals performing for entertainment but there is still definitely room for improvement with regards to enclosures that meet all of the animals' natural behaviours. The current move towards training and conditioning for husbandry procedures will only benefit the animal's health and welfare so would like to see more of that.

What is your greatest animal achievement thus far?
Getting the opportunity to work with Sumatran Rhino's at the Sumatran Rhino Sanctuary thanks to a Taronga fellowship

What is your most memorable experience with wildlife?
Trekking through the Sumatran jungle and having sticks/branches thrown down at us by a male orang-utan from the trees above us.

What is your most embarrassing zoo/Aquarium moment?
I also work with Siamangs which are housed on a set of islands. We manually row out to the islands in order to service/clean them. One day I forgot to secure the boat to the dock of the island I was working on. Next thing you know I had a visitor yell out to me that the boat was floating away. Needless to say I had to jump in after it, but only after taking off my radio and removing my phone and keys from my pockets of course!

GETTING AN EAGLE'S VIEW INTO WELFARE AND TRAINING FOR BIG BIRDS OF PREY

BRITTANIE BISHOP, MOONLIT SANCTUARY

Figure 1: Building process of the Wedge-tailed Eagle aviary

Wedge-tailed Eagles (Aquila audax) are one of Australia's most iconic raptor species. Moonlit Sanctuary welcomed Aquila (female) and Sprit (male) to the park in 2017. The entire staff cohort was filled with excitement and anticipation for the arrival of the two beautiful birds.

A grand enclosure was designed and constructed to allow for the natural behaviors of Wedge-tailed eagles as well as the training opportunities that this environment presents. The construction was a massive team effort and was led by the project management team with keeping staff and volunteers helping. It was also designed to allow for positive reinforcement training opportunities. The aviary was built 30 metres long by 8 metres wide and 6 metres high with high perches and natural scenery for optimal use by the birds. The enclosure design included two 'lock-aways' off to the side of the aviary (figure 2). The lock-aways were designed to assist in training the wedge-tailed eagles to calmly go into the enclosed space so keepers can clean and maintain their enclosure while reducing any potential stress for the birds. We added a log outside the lock-aways as a feeding platform to encourage their proximity to that area and to assist with their training progression

Figure 2: One of the lock-aways

Once the incredible birds were out of quarantine and with the help of Martin Scuffins from Leah Valley Hawk & Owl Sanctuary, we were able to release them into their new space. These birds were housed side by side during their quarantine and had not been in the same space before.

Upon the initial release into their enclosure, no negative or abnormal behaviors were observed. The hard work was over and the real fun was about to begin!

As zookeepers, we often get free daily lessons from the animals that we work with. This can happen in a variety of ways. Sometimes these lessons present themselves easily or they can present themselves as challenges to overcome. One thing is for certain, they are all learning experiences. The ever changing behaviour from our animals tells us that every individual has a mind of their own; they are all individuals and can't be grouped together or labeled as a species 'norm'. It is within our role to understand that the individual may act differently to any pre-established ideas of their behavior.

When our wedge-tailed Eagles all of a sudden started acting differently when keeping staff entered their enclosure, we had to remind ourselves of the ever changing challenges when working within this industry. The Wedge-tailed Eagles had started to display behaviors which included the birds flying up and down the aviary at high speed, vocalizing and flying up into the enclosure roof mesh. It was agreed by the Avian team that these behaviors were negative and all previous training plans were ditched so we could all work together to create a positive welfare state for our wedge-tailed eagles.

We went from having a weekly roster that incorporated cleaning, training and feeding schedules, to then sneaking into the aviary once a day to feed the birds and only cleaning once a week when two keepers were present for safety. The team worked with the amazing Ryan Cartilage from Animal Training Academy who came out to visit us at Moonlit Sanctuary in July 2018. His ideas for combining positive reinforcement training and animal welfare were exactly what we needed to better enhance our skills to create the best positive environment for our wedge-tailed eagles. He suggested that we first collect data by videoing and understanding the birds behaviors. It was also important for us to limit the amount of times we went inside the aviary and to slowly reintroduce our presence to start building up their trust again. Their welfare was our number one priority.

The Avian Team Leader, Lauren Arabena, was quick to get lots of data and analyze the findings to discover that the Wedge-tailed Eagles behavior was improving gradually due to the decrease in keeper activity inside the aviary. We also found that they would go near the lock-aways when food was present but would take the food to a different location to eat it.

Figure 3: View of current enclosure

With all of the support from Ryan, Martin, our Life Sciences Manager, Lisa Tuthill, and the entire Moonlit Team, we were able to come up with a new training plan that incorporated many small steps to success. By putting these into practice, we have now been able to reduce any negative behavior by almost 100%. We now see the birds sitting still and just watching keepers as they enter and exit the enclosure. We have now started moving the food sources closer to the lock-aways and have captured them on camera, eating inside the lock-aways of their own free will. Our next step is to secure their food to the feeding station so that they are reinforced by food only when they are close to the lock-aways. This will be a slow, gentle introduction process but we now know the comfort level of our birds and are so excited to see how they take on this new challenge. Their welfare has increased ten-fold and we have learnt so much about them throughout the process.

Figure 4: 'Spirit, Our male Wedge-tailed eagle

KING ISLAND BROWN THORNBILL AND KING ISLAND SCRUBTIT SURVEY – 16 MARCH – 23 MARCH 2020

Falk Wicker, Healesville Sanctuary, Zoos Victoria

From 16 March to 23 March I was lucky enough to join a group of 4 bird researchers on King Island, Tasmania to look for 2 endemic and critically endangered taxa – the King Island Brown Thornbill (or Archibald's Thornbill) and the King Island Scrubtit. The survey was partially funded by ANU and BirdLife Australia but two participants (including myself) volunteered. Unfortunately, I had to return early from this trip due to Covid19 restrictions being put in place.

The aim of this survey was to find new potential sites for both species with a focus on King Island Brown Thornbill and to confirm and quantify presence/absence at some historic sites. Dr Matt Webb (Difficult Bird Research Group, ANU) organised the survey and arranged access to private land, which held the majority of new sites.

Some of the sites we visited looked very promising for the thornbill with a good mix of appropriately aged vegetation. Unfortunately, we did not find the thornbills at many sites. We did detect them at two sites that were north of what was thought to be the most northerly distribution though – that was encouraging!

Witnessing the destruction, degradation and segregation of previously very good sites was very concerning though. King Island is famed for its beef and dairy industry, which puts a lot of pressure on the few remaining forested areas. Not all clearing is permitted and illegal deforestation continues. Nowadays, forests and woodlands cover less than 4% of King Island. Only 0.3% of the land is covered by Melaleuca ericifolia forest – the primary habitat of the Scrubtit. It is no surprise that species like King Island Emu, Grey Goshawk, Forty-spotted Pardalote, and Gang-Gang Cockatoos have all disappeared. Spot-tailed Quoll and Common Wombat had to face hunting pressure in addition to loss of habitat – they are also extinct on King Island. Animals that are doing incredibly well now are Bennett's Wallaby and introduced open country birds like Turkey and Ring-necked Pheasant.

For the detection of the scrubtit but particularly the thornbill we used call playback utilizing some of the few available sound recordings. Identification can be difficult because of the presence of the superficially similar and very common Tasmanian Thornbill. Seeing the thornbills well can be challenging as they move through the treetops. I did manage to get some poor quality photos of the thornbill – possibly one of the least photographed

A site in the south with a mix of White gum and Brooker's gum – we did not find any thornbills here.

Burning off a strip of Melaleuca woodland to clear for pasture.

Australian birds.

We found King Island Brown Thornbills at three new sites. King Island Scrubtits were not detected at any unknown sites, somewhat confirming the dire situation this species is in.

According to a recent paper (Quantifying extinction risk and forecasting the number of impending Australian bird and mammal extinctions, 2018, Geyle et al.) the King Island Brown Thornbill is the taxon that is most likely to go extinct within the next 20 years in Australia. Less surprisingly, on that list Orange-bellied Parrot comes in at a close second while King Island Scrubtit is a depressing

The holy grail on King Island – King Island Brown Thornbill.

3rd place. Other familiar species on that list are Regent Honeyeater, Plains Wanderer, Swift Parrot and Mallee Emu-wren.

During our stay, we recorded other animals including Blotched Bluetongue, Lowland Copperhead, Tiger Snake, Common Brushtail Possum, Bennett's Wallaby and many leeches but focused heavily on birds (73 species altogether). Endemic birds King Island shares with Tasmania - on top of Scrubtit - are Green Rosella, Black Currawong, Yellow Wattlebird, Black-headed, Strong-billed and Yellow-throated Honeyeater, Dusky Robin, Tasmanian Thornbill and Tasmanian Scrubwren. Most of these are easily seen in suitable habitat. Tasmanian Boobooks (a recent split from Morepork) are also present.

Another avian feat are Orange-bellied Parrots who use King Island as a stopover during their migration.

Scrubtits seem to be confined to swamp forests with mature Melaleuca ericifolia and a dense understorey.

To help the birds of King Island visiting the place is a great idea, especially during the annual bird survey week "Wings on King" (https://www.birdsofkingisland.com/wings-on-king) which was launched in 2017. Surveys are organised and access to private land arranged. This is a fantastic way of getting to know some of the more remote areas and potentially finding some exciting birds. Telling locals about your interest in birds can help raise awareness too. Joining conservation organisations to help strengthen our voice is always a good idea.

I am looking forward to returning to King Island and hopefully finding scrubtits and brown thornbills again!

The semi-pelagic Black-faced Cormorant and a Great Cormorant (right).

Blotched Bluetongue

· ASZK · NEW MEMBERS

The ASZK Committee would like to welcome the following new members

FULL MEMBERS

LUKE NEWING
Perth Zoo

ASHLEY OKORN
Calmsley Hill City Farm

MEGAN ALLEN
Currumbin Wildlife Sanctuary

TIARNE BODEY
Gumbuya World

JULIEANNE DOMASCHENZ
Halls Gap Zoo

ALISON EDWARDS
Zoos Victoria

KATE BYGRAVE
Zoos Victoria

MEAGHAN WEALANDS
Tasmania Zoo

NADIA PATANE
Currumbin Wildlife Sanctuary

LOUISE TEGG
Healesville Sanctuary

LILY BENNY-MORRISON
Currumbin Wildlife Sanctuary

DENNELL BURGOYNE
Zoos Victoria

REBECCA RUSSELL-COOK
Taronga Zoo

ASSOCIATE MEMBERS

CASSIE DICK

SAMANTHA LOVETTE

ELLEN MARFLEET

JENN BOWLES

ALEX METCALF

SHANE STEPIAN

AUCKLAND ZOO

The Auckland Zoo Veterinary and Volunteer departments teamed up during Covid-19 'New Zealand Alert Level 4' lockdown to produce facemasks to protect both human and animal health!

With rapidly dwindling stocks of N-95 facemasks available in the country, and information coming in that primates and carnivores could be susceptible to the virus being transmitted from humans, Senior Vet An Pas started looking into ways of making facemasks for the Veterinary, Primate and Carnivore keeper teams.

An found an approved pattern online and then called on our wonderful zoo volunteers to start sewing. None of the Auckland Zoo volunteers were able to come on-site during lockdown so they showed fantastic dedication by continuing to support our work even from home, carefully cutting and stitching over 180 masks! As the fabric stores were all closed of course, the volunteers used any cotton fabrics they could lay their hands on lying around at home, so we had an amazing array of colours and designs - frogs, kittens, butterflies and even Peter Rabbit!

Keepers used masks whenever they were in close proximity to primates and carnivores or preparing their food, and the Vet Team used masks whenever they were examining or carrying out treatment and anaesthetic procedures on these species.

Lockdown meant that the Veterinary team was split into mutliple sub-teams working separate shifts to guard against losing our whole Vet department to illness or isolation. We were also very conscious that our role working with all of the animal care teams in the zoo meant we had the potential to spread illness between departments if we weren't scrupulous with our disinfection and hygiene. Luckily we're well versed in quarantine practices - some may have accused us of enjoying lockdown a little too much!

The hardest thing for us during lockdown was distancing ourselves from our zookeeper colleagues. Usually we would perform procedures with keepers present with their animals but our distancing requirements meant taking information and clinical histories over the phone and have an animal drop off and collection system – a very odd way of working!! Photos and videos from the keepers were an invaluable way of checking up on things like wounds and lamenesses that were already under treatment but we drew the line at examining animals via Zoom calls!

NZ has now dropped to 'Alert Level 1' - just about business as usual - and we're really looking forward to being able to get out and about more, catching up with our animals and zookeepers in "person".

(Pictured above vet nurses Kylie, Mikaylie and Breeze wearing the masks)

Celine Campana

HEALESVILLE SANCTUARY

As everyone else, Healesville Sanctuary is living through the Covid19 restrictions. We are now in our second lock down for the year with a promise of it being reviewed in six weeks. Hopefully, this lock down will not last as long as the last one which was three months.

New staffing to occur is a six month contract as Life Science Manager on the Bird Team which was successfully gained by Nick Atchison. Nick is no stranger to Zoos Victoria as he worked as Curator at Werribee's Open Range Zoo many years ago. Since then, he has worked in several zoological institutions within Australia and overseas. Nick begins his role here on 20th July.

Implementing Zoos Victoria's new welfare code meant a review of all our encounters. Giving the animals freedom of choice if they wish to participate in an encounter is the foundation of the new welfare code. In line with that, the reptile encounters, which originally consisted of animals being brought out of their enclosures and either being held by the keeper or Visitor Engagement Ranger or being placed on the public. With the implementation of the new welfare code, the reptile house had an areas renovated which has now become a Reptile Encounter room. The species within are free to move about and reside there. The visitor can come in and be seated and watch the animals therein. Additionally they can offer food on forceps to the lizards and dragons or stand next to a large python if it is reclining in an admissable area. The animals have the choice of remaining or moving away.

Reptile encounter room allows reptiles the opportunity to participate or not.

We managed to secure some Dinosaurs for our Lost Sanctuary exhibit. This consists of a large bush area at the rear of the Sanctuary. Amongst the rocks, trees and shrub now reside 50 dinosaurs that are powered by generators and on sensor systems to make them move and growl as visitors go past. A great favourite with the children with one family recently going through the exhibit three times.

Dinosaurs for our Lost Sanctuary exhibit consists of 50 life sized dinosaur animatronic models

We have had to cancel all our scheduled events such as Wine for Wildlife, member events and school excursions. However, it has given us some time to do a few renovations even whilst on skeleton crew staff. We are very lucky at Zoos Victoria in that no jobs have been lost and those not necessary in to actually on site have been working from home. Let's hope the next time I write, things are back to normal.

Carla Srb
Species Management Officer

Moved?

Make sure you let us know your updated mail/email address - contact us at

membership@aszk.org.au

MELBOURNE ZOO
Australian Bush

The team has been working on getting voluntary weights using positive reinforcement for our Koalas, Bush Stone Curlew and Squatter Pigeon. This has been achieved by using simple and strategic antecedent arrangements.

Photo Credit: Zoos Victoria/Nicole Newell

Ectotherms

This year's Southern Corroboree Frog egg release went ahead despite two disastrous events - bushfires and coronavirus (COVID-19). Extraordinary circumstances this season meant it was the first year Zoos Victoria did not directly participate in the release.

Nonetheless Zoos Victoria Amphibian Specialist Damian Goodall (below) oversaw the production of 1380 eggs at Melbourne Zoo during the breeding season. These are even more critical to boost wild frog numbers following recent bushfire impacts. Zoos Victoria Threatened Species Biologist Deon Gilbert safely delivered the eggs to Dave Hunter (Threatened Species Officer, NSW Office of Environment and Heritage) who released the eggs into Mt Kosciusko. Some of the natural sites affected by fire were still suitable for release with vegetation regenerating. A number of the disease-free field enclosures also escaped the path of the fire, allowing safe havens for the frogs to continue to thrive and help save their species.

Photo Credit & Compiled by Zoos Victoria / Damian Goodall

Another great achievement by the team is the successful weighing of our Aldabran Giant Tortoise males through positive reinforcement training.

Photo Credit: Zoos Victoria / Raelene Hobbs

Wild Sea

The Melbourne Zoo Wild Sea team managed to vaccinate all four Asian small-clawed Otter pups through protective contact in their training chute for their third and final vaccination. The pups are growing so fast and gaining so much more confidence with their swimming.

Carnivores & Ungulates

The carnivore and ungulate team have had many animal changes with some departures and arrivals.

Jave, one of our collard peccaries, had to be euthanised due to an ongoing health condition. This now leaves Melbourne Zoo with the last three remaining collared peccaries in Australia.

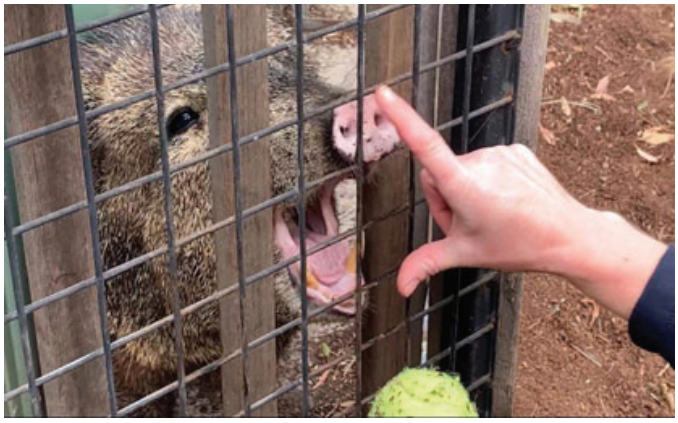
In 2017, a pair of snow leopards arrived at Melbourne Zoo as part of the EEP breeding program. Female Miska came from the UK and male Kang-Ju from Germany. In October 2019, Mebourne Zoo keepers started introductions with the pair, with many successful matings. On 26th of January, Miska gave birth to three cubs and is doing a fantastic job as a first-time mum. At their first vaccinations the cubs were sexed as 1.2 and the cubs have developed well. With the cubs being so confident we were able to train them well enough to hand inject them for their second set of vaccinations. This was a fantastic achievement minimising the stress on the cubs and mum.

Three Snow Leopard cubs at Melbourne Zoo. Photo credit: Zoos Victoria

With ZV's training focus on 'most positive, least intrusive', the team chose to avoid physically restraining the Snow Leopard cubs for their 12-week vaccination and train them to accept their vaccination by hand. Whilst it was not a full hip lean-in that we would expect from our adult cats, and we relied heavily on luring, the cubs still had full choice and control to leave the training session at any time. This is a huge achievement and a first for any big cat cub at Melbourne Zoo

We have also had other firsts with our animal training at the zoo this year. Some highlights have been:

- Hand injection of our Wild Dogs.
- Voluntary tail presentation for blood draw with our Sumatran Tigers.
- Hand inject/open mouth behaviours with our Peccary group (below)



- Head x-ray for our elderly giraffe Twiga (RIP). (below)

Photo Credit & Compiled by Craig Williams & Monique Counihan / Zoos Victoria

Finally, here are some more super cute photos of the Snow Leopard cubs

Photo Credit by Zoos Victoria

News collated by Melvin Nathan

International Congress of Zookeepers

INTERNATIONAL ZOOKEEPER DAY

"Connecting Keepers Worldwide"

October 4

AUSTRALASIAN SOCIETY OF ASZK ZOO KEEPING

ICZ INTERNATIONAL CONGRESS OF ZOOKEEPERS "Connecting Keepers Worldwide"