

HAND REARING TASMANIAN DEVILS

NEW LIFE

September 1st is the official start of spring and a time that is warmly welcomed in the highlands of Cradle Mountain, the warmer lengthening days are an indication that cold winter months are behind us and warmer summer months are approaching.

Spring is a beautiful time of the year where ever you may live and it is the season which commences new life for many different species all over the world, including marsupial carnivores such as the Tasmanian devil.

Baby Tasmanian devils have spent the last 3-4 months tucked away in their mothers pouch, protected from the cold winter months. Tasmanian devils generally breed in late summer and early autumn and are born just 21 days later. Females give birth to 20-30 fetuses and as mum only has 4 nipples it is a case of the strongest that will find their way into the pouch and latch on. It is here that they stay permanently attached to their lifeline for the next few months.

The arrival of spring and the longer warmer days is nature's way of giving these young devils the best chance of survival. The young emerge from the pouch within the safety of their den at the ripe old age of 16 weeks, their eyes have opened, they have developed fur, they are becoming vocal and mobile and exploring the surrounds of their internal new world.

Life for these little guys is becoming tougher by the day. Young devils grow rapidly and within weeks they will start to play with one another, display aggression, compete for their share of mum's milk and even venture outside of the confines of their safety zone, the den. Baby devils are certainly vulnerable to predation so they have to have their wits about them on these little excursions outside.

Young devils will generally spend around 10 months with their mother, during this time they will learn what they need in order to survive through their sibling interactions, lessons learnt from mum and let's not forget instinct. Tasmanian devils possess a natural instinct from the day they are born which focuses on survival as only 60% of individuals that make it to the pouch actually survive to reach maturity.

Once the young reach 10 months of age they are completely independent of mum, she has done her job and one day will just up and leave in order for her to regain body condition for the next breeding season just a few months away.

These young siblings will in-turn disperse in various directions over the next few days once they realize mum is not returning and food drives them out into the big wide world. It is not uncommon at this time to see juvenile devils wandering around during daylight hours following their nose in search of food. They appear unfazed by humans but it is most likely their desire to eat which makes it appear unafraid.

They are particularly vulnerable to starvation, predation, and competition from adult devils and road kill at this time. Devils are opportunistic feeders, meaning they will eat anything at anytime this is particularly handy if you're a juvenile trying to find food for the first time. As they mature they will have to compete with other devils in order to eat, this can be dangerous at the best of times particularly if you are small they can suffer fatal wounds or even be killed by adult devils. In addition to this devils utilize the road ways of a night as it often presents an easy meal, however this easy meal caused by human vehicles often causes the death of the devil themselves, we lose around 2000 animals to road kill each year, many of them juveniles.

If they make it through these vital months of summer and autumn then they should be well conditioned for the cold winter ahead. They will start preparing to breed themselves the following summer providing they make it through the winter (which in the highlands of Cradle Mountain many succumb to harsh weather conditions) and are strong enough to compete for the right to breed ensuring future generations of Tasmanian devils.

The life of a Tasmanian devil in the wild is 5-6 years and during this time they may reproduce 3-4 times during their short life – therefore reproduction is crucial to sustain the survival of the species.

DEVILS@CRADLE SANCTUARY

Devils @ Cradle is a privately owned sanctuary focusing on carnivorous marsupials, primarily the Tasmanian devil and is located on the boundary of the World Heritage listed wilderness of Cradle Mountain National Park. As a registered carer for the species we are fortunate enough to see into the precious little lives of a very secretive animal during the hand rearing stages of baby devil joeys on an annual basis. This is a responsibility that we take on very seriously and is in the form of both captive bred animals within the breeding program at the sanctuary and orphaned wild joeys from various areas handed in by the general public.

Generally the ages vary from just furred 4-5 month old orphaned animal found in the pouch of a road kill mother through to 5-6 month old captive bred animals through the need of intervention due to being outcompeted by stronger siblings or even the purpose of conditioning for educational purposes at the sanctuary. Beyond these ages is a small milestone they have made it through a critical stage, the weather is generally warm and dry and they are starting to show signs of real agility, strength and independence.

Hand rearing baby devils is a big responsibility and one that should be undertaken with the required outcomes in mind for the individual you are caring for, certainly not for the carer themselves. Whether is for re-introduction into the wild or for retention within captivity there are techniques and preparation for their future.

The following sections will discuss the developmental stages of joeys and our experiences and the techniques which we believe are most suitable for hand rearing baby Tasmanian devils of these various ages.

GROWTH AND DEVELOPMENT

BIRTH – babies are born in very early development at approximately 1cm. in length. At birth the fetus travels by touch, totally blind, to secure a nipple within the pouch. The nipple will swell within their mouth ensuring a secure lifeline within the safety of the pouch for the next few months.

4 WEEKS – ears are appearing, lips and whiskers are forming, limbs are developing.

6 WEEKS – pink in color and approximately the size of a jelly bean

8 WEEKS - pigmentation is starting to develop working from the nose down to the tail. -

12 WEEKS – fur is developing well, the eyes are opening for the first time, they are becoming more aware and starting to making little sounds.

16 WEEKS – they will start to exit the pouch, well furred, able to crawl around and explore their surrounds

20 WEEKS – significant development is noticed once they emerge from the pouch they constantly climb on mums back, play with their siblings or are off exploring and really quite mobile.

30 WEEKS – the young are now weaned, they will lap water, chew on meat, continue to climb all over mum, have developed their teeth and a range of vocalizations and spend most of their time digging tunnels, climbing, basking in the sun or playing, now the competition between siblings is becoming quite obvious and independence from mum is starting.

40 WEEKS – at this point mum has done her job, their diet consists of mostly meat and water and they are fully independent ready for the big world outside.

At the sanctuary we perform pouch checks at certain timeframes to confirm numbers, sex of the individuals and to ensure adequate development, these checks take place at 7 weeks just prior to their potential second estrus cycle and again at 12 weeks.

EQUIPMENT AND TECHNIQUES FOR HAND REARING

Artificial pouch – cage - enclosure

A woolen beanie within a shoulder bag works well at a young age and is convenient if you are carrying them with you. The confines of a beanie well represent a pouch and a shoulder bag keeps the joeys close and resembles the swaying motion of mum. In addition, in the early stages especially for very young joeys we have found that the beanie tucked up the jumper provides security warmth and the reassurance of one's heart beat. As they become more agile and confident you will find that the beanie may not be needed and like to climb up to your shoulder underneath your jumper and peer out your collar.

As they develop and become more mobile and agile we progress to a fully enclosed cage approximately 1metre square which we fill with natural material such as straw or ferns, however shredded paper can be used. This allows for them to climb and scratch about with a bit of space in safety.

You will find baby devils (in fact most devils) like the comfort and reassurance of confined spaces, I have often temporarily had a baby devil escape to under the couch, the bed or the fridge.

From around 7 months on we will introduce them to a larger enclosure, they are now very active, agile and becoming independent and need space to develop their digging, climbing and running skills. We provide an easily accessible safe, dry roofed box within and plenty of sunlight for basking along with soil for digging, branches for climbing and natural things to chew on such as fur, bones and wood. They can be predated upon by birds, so bear this in mind if the enclosure is open (at the top), cover is suggested as they feel comfortable hiding under foliage and similar things and can prove a handy escape.

Temperature

Body temperature is all that is required, however if the young is wet it is crucial to dry out the fur thoroughly and increase body temperature gradually not rapidly.

Diet and Feeding

A number of marsupial milk powder products are available, we have found that divectelact has worked well for us and therefore that is what we continue to use. However, Wombaroo and Bio-Lac are suitable also.

In most cases milk should be used via a bottle with a teat suitable for devil joeys aged between 3 and 6 months beyond this age they should be able to lap. We have found that a bottle works well initially as you can easily monitor their intake and this also enables a bonding process to occur between the joey and carer. We will often use a bottle for a week or so at regular feeds (3-6 times per day depending on their intake) and leave some milk for them to lap at other times. Once they discover the ability to lap they don't look back your job becomes much easier.

Once they are lapping (generally around 6 months) you can introduce blood into the bowl and over time start to add some mince. Devils are messy feeders on the bottle and lapping. You will find that they cover themselves most of the time and will need cleaning and wiping off. It is a good idea to place some newspaper under the bowl so as it is easy to clean.

Scat observation should be conducted daily to ensure they are of the right consistency and not too liquid. A proper diet for the animals age whether it be accurate milk mixtures or a combination of milk and meat should ensure the right consistency occurs.

Consistently runny scats can cause dehydration and veterinary advice should be consulted.

Record keeping

A journal and a set of digital scales are two pieces of important equipment. The joeys weight should be recorded weekly ensuring weight is being gained consistently. The ID (white) markings should be recorded on a diagrammatic sheet for future reference. Daily or at the least weekly records should be kept indicating the development, diet, behavior, housing, feeding techniques and any health issues, treatments or abnormalities.

Hygiene

FEEDING – Equipment used for feeding such as bottles, teats and bowls should be cleaned in boiled water to prevent bacteria which can be harmful for the joey.

HOUSING - Where used pouches should be kept clean and washed regularly with natural based cleaning products. Confined spaces such as cages should be cleaned out daily we find that newspaper laid on the base of the cage allows for easy cleaning of scats and spilt milk, meat left-over etc. In addition nesting material needs to be changed regularly also.

Behavioral considerations

Tasmanian devil joeys are best raised with siblings or other similar aged devil joeys. This is how they develop many of their learnt behaviors and will become more confident, assertive and more likely to develop their wild behaviors from playing with one another.

Natural materials such as soil, branches, wood, vegetation and water will allow for honing the necessary skills for the development of their natural wild behaviors.

A safe place to retreat will also ensure the animal feels safe preventing stressful situations.

Stress is a condition that can kill young joeys of any species, it is vital that the joey remains in a stress free environment away from pets, infants and too many people or too much noise.

Joey behavior - CAPTIVE VS WILD

From our experience Tasmanian devil joeys when taken into care at an early age (3-5 months) do not noticeably differ in behavior between wild and captive born animals. They display the same natural behaviors one would expect of a wild animal and possess the same natural instincts.

In captivity they would certainly be aware of human sounds and smells, but upon emerging from the pouch are naturally very shy and allusive. Wild animals of course would not know the first thing about humans unless they were born under a house but are also shy and allusive.

Beyond this age behavior changes as they become accustomed to their environment and aware of their surroundings. We have had 6-7 month old orphans or captive bred animals that are really not interested in being handled by us carers and certainly let you know about it. Again this depends on the personality of the individual.

Personality traits

Interestingly almost all devils have white markings unique to each individual, whilst a very small percentage are born totally black, these markings are generally confined to the chest, shoulders and rump. In addition to their physical traits each individual devil has its own personality traits some are assertive, some submissive, confident, shy, some tolerate handling while others don't, these different personalities add to the interesting nature that these animals possess. While to a degree this can be altered with conditioning or within certain environments generally speaking they carry these traits from a young age throughout their life.

PREPARING FOR A CAPTIVE LIFE

Joeys that have been born in captivity are not able to be released without approval from the state authority. Therefore most captive born joeys that are hand reared for one reason or another generally end up back in captivity. At the Devils @ Cradle sanctuary certain animals fill certain roles within our population; we have animals that carry strong genetic diversity and are our primary breeding animals, others with less diversity may be required as better display animals or even handle able animals for educational purposes. Therefore during the hand rearing of our joeys we condition or prepare the animal for the role it will play within our population respecting this is a wild animal and the natural personality that the individual possesses.

As an example if we require an educational animal within the sanctuary we will select say two individuals at an early age, either siblings or similar aged joeys. Age is certainly a factor in this process as it is much easier to condition a 5 month old joey than it is an 7 month old joey to be

tolerant of handling. Quite quickly we will get to know which of the two has the personality more suited and the conditioning process over the next few months would prepare the animal for this role.

Alternatively if we needed to intervene with a joey for welfare concerns for whatever reason and it was an individual with strong genetics we would minimize the human contact during the later stages of hand rearing and continue with this once it was introduced into the breeding population. During the stages of hand rearing we would get to know their personality type which helps us prepare them for breeding and mating selection.

These techniques respect the fact that these are wild animals with varying personalities. In all cases it is important to retain their wild behaviors and we certainly don't condition any animal to the degree that it loses their natural wild instincts. Their diet, enclosure space and housing conditions such as socializing all assist in maintaining wild behaviors.

PREPARING FOR RE-INTRODUCTION

Alternatively unless authorized approval is given due to welfare circumstances or species conservation needs, hand reared wild orphans at the end of their rearing period are destined to be re-introduced back into the wild.

Every year between September and December, orphaned baby Tasmanian devils are handed in at the sanctuary by concerned citizens who have found a devil dead on the road with babies within the pouch or crawling on or nearby their mum. The babies range between 3-5 months as anything older would be waiting back in the den wondering where mum had got to, and would certainly die from starvation, predation or road kill themselves within the following days.

The reason that this period (Sept – Dec) varies so greatly is females will cycle 3 times each season if they are unsuccessful at producing offspring in their first, they will cycle again at 55 days and 42 days respectively.

Coincidentally whilst writing this story in early October one evening I received an email from a person who had found just that – two baby devils crawling on top of mum who had been recently been killed by a car. They had obviously survived the impact and crawled out of the pouch to see what was going on, unfortunately by the time the joeys were delivered to the sanctuary the following day the female had died most likely from the impact or stress however her brother was still doing okay.

Soon after arrival we had him feeding from a bottle containing Divetelact which was very promising as the first 24-48 hours is crucial and often difficult to get the joey drinking due to stress or lack of physical condition, and he was getting stronger by the hour.

He was lightly but fully furred, weighed around 170grams, estimated at about 4 months old and typically showed that strong instinct to survive, it looked like he was going to have a future after all.

Devils are an endangered species so each and every orphan is vitally important and needs to be reared by an experienced carer to ensure its best chance of survival. We contacted DPIPW which maintains the database of devils within care to provide them with the details of the incident and the joey we will maintain updates on his progress and liaise with them in relation to his future whether it is in captivity as a breeding animal or re-introduced back into the wild.

Once his future is determined we will prepare him for his life ahead. At approximately 6 to 7 months if re-introduction is to occur we will back off the human interaction as much as possible, as he will be starting to become independent, locate him in a naturally furnished off display enclosure with similar aged young and allow him to learn what he needs in order to survive in the wild.

Between the age of 10 and 12 months he will undergo a veterinary health inspection, record his unique body markings have an ID micro-chip inserted under the skin at the back of his neck and be released – with our best wishes.

Devils @ Cradle has been operating a remote camera based monitoring program of Tasmanian devils within the Cradle Mountain area for over 5 years now and we have used these monitoring techniques to successfully monitor releases in the past. So there is the potential to hopefully see this little guy again in the months following his release and in years to come.

ISSUES

Food intake

The first days of hand rearing are crucial, often it can be difficult to get the joey started on milk due to stress or physical condition, but it imperative that the joey gets milk. If a bottle or lapping does not work, then often a syringe can prove useful. Get the joey to a vet if it is not feeding losing weight and energy, we have even inserted a tube into the belly of joeys that will not feed to ensure they are getting the required intake. This should only be done with veterinary consultation.

Abnormalities

If the joey is displaying abnormal neurological or physical behavior it is suggested to consult veterinary advice quickly.

Rickets

Rickets is a deficiency of vitamin D. Some joeys can develop rickets as they age from not having enough vitamin D in their diet. It could also be a deficiency in phosphorus, calcium or simply that the animal is not getting enough sunlight.

A proper diet and available sunlight prevents rickets from occurring in Tasmanian devils and other species.

Aggression

Depending on the personality trait of the animal aggression can sometimes mean stress, as suggested joeys are best raised with siblings or similar aged animals which can assist reducing stress. Certainly teasing or provoking the animal to bite can potentially cause aggressive behavior and is not recommended as devils even at a young age have sharp teeth and strong jaw power.

Devil Facial Tumor Disease (DFTD)

DFTD is a unique contagious cancer which has been found in the species since 1996. Statistics are saying it has infected 60% of the island with up to 90% mortality in certain infected areas. Research and monitoring indicate the population response on the western side of the island is seemingly showing resistance which supports genetic diversity as a potential key to the disease. Some parts of the west coast of Tasmania are still disease free and there is potential for it to remain this way, time will tell.

Vertical Transmission trials have been researched and shown that mothers do not pass this disease onto their offspring which has greatly assisted orphans from diseased mother being reared for re-introduction or breeding diversity within captivity.

SUPPORT

Tasmanian devils are currently under a serious threat to their long term future through DFTD, habitat destruction and road kill. More now than ever every devil is vitally important and the education and awareness surrounding these threats is also very important as we humans play a pivotal role in their survival.

The Devils @ Cradle Tasmanian devil sanctuary is a privately owned facility that provides conservation support for the species in various areas; education and awareness, captive breeding, orphan rearing and field monitoring.

Support of our conservation work is greatly welcomed so please feel free to visit our online sites;

www.devilsatcradle - www.facebook.com - www.twitter.com - www.youtube.com

Wade Anthony. Managing Director.