

DUCKLING REHABILITATION

THE RESCUE AND REHABILITATION OF NATIVE DUCKLINGS FOUND IN WA.



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INTRODUCTION

The purpose of this presentation is to provide an overview of the important components underpinning the rescue and release of native ducklings, the stages of rehabilitation of ducklings in care, housing and common medical conditions affecting native ducklings. In addition a short commentary on a condition known as angel wing is also included as this appears to have serious consequences to successful rehabilitation.

The processes identified in the document aim to reduce the number of admissions of orphaned ducklings into rehabilitation due to unsuccessful rescues and to improve the success rate (release) of orphaned ducklings through improved rehabilitation techniques.

Rescue Preparation

Duckling season runs from late August to January in Western Australia. To successfully complete a rescue, there are many things to consider. Being prepared with equipment, a rescue team and a rescue plan will ensure the best possible outcome. When taking the call for help, it is important to gather specific information on the type of rescue required, potential hazards in undertaking the rescue, local release sites and if possible the species of duckling. Most important of all, deciding if the ducklings need rescuing!

Organising the Rescue

- Ensure the “**duckling rescue kit**” is stocked and ready to go. **Set-up an enclosure appropriate** to the size of the ducklings **Organise at least 3-4 volunteers** to assist with the rescue.
- Assess the rescue **site on a map** - looking for nearby lakes/wetlands for immediate release or potential hazards such as major road.
- Make sure enough time is allocated (45-60 minutes is needed for some rescues plus travel time). The safety of volunteers is paramount. Ensure all rescue volunteers are aware of safety first when embarking on a rescue. All volunteers wear wildlife vests and appropriate safety issues are addressed –prior to the activity.

Types of Rescues

- Mother duck and ducklings are swimming in the pool (80% of calls).
- Mother duck was hit by a car and ducklings are on the road (10% of calls).
- Ducklings are in backyard with no pool (5% of calls) often wood-ducklings and
- Other (5% of calls).

The aim of every rescue is to catch the entire family and release them as a group.

Swimming Pool Rescues

Ducks will usually build a nest around a pool in the garden. Ducklings in a pool are not of great concern in the short term. Long term (over a few days) exposure to chlorine and salt can be fatal. If pools do not have low steps and if the ducklings are unable to get out of the pool they will drown.

The hardest thing about a swimming pool rescue is that the mother will often fly away from the pool if the rescue team comes too close to her. When a mother duck flies away from the pool, she is usually circling above and looking for an escape route for her ducklings.

“Get the mother first!” (AKA the “Abduction Technique”)

If the mother is caught using a net before she flies away, time will be saved and also save the mother and ducklings a lot of distress. To catch the mother:

1. Count how many ducklings there are - ducklings will often scatter when scared or if the mother sends out a “distress call.
2. Assess the swimming pool and surrounding area – taking note of buildings, roads that the mother may fly to.
3. Surround the pool with 2-3 volunteers experienced in using nets – if the mother flies off, capture mid-flight is often very easy as she is dragging water and gaining speed.
4. Capture the mother in a net – (using the telescopic net, hold the net a couple of feet above the mother duck, when she takes off for flight, capture her mid-flight or call for other volunteers with nets to capture her if she escapes).

If the mother duck is successfully captured, the ducklings can be easily scooped up using a pool net or telescopic net. The mother is placed in a pet-pack and the ducklings in a sealed box or a zip-up mesh pet carrier (ducklings can escape quite easily from pet-packs).

“Get the ducklings first!” (AKA the “Kidnap Technique”)

This technique should be used if the first technique is not successful and the mother duck flies away.

To catch the mother and ducklings:

1. Count how many ducklings there are. Assess the grounds of the swimming pool and backyard – take note of sheds, garages, carports etc.
2. Surround the pool with 2-3 volunteers experienced in using nets – if the mother happens to fly off, try to capture her mid-flight. If she escapes focus on the ducklings. Put the ducklings in a mesh pet carrier or sealed box.
5. Show the ducklings to the mother by leaving the mesh pet carrier in the open until the mother has sighted the ducklings. Slowly move the pet carrier to an enclosed area such as a shed or garage always keeping the mother in sight. Hide the ducklings away from mum so that the ducklings will be making “distress calls” to their mother. The mother duck will be able to hear this even if she is circling the house and follow them.

6. Trap the mother - Once the mother lands in the backyard ensure that there is someone hidden in the shed/garage with the ducklings and someone is hidden behind the door of the shed. When the mother walks into the shed/garage, the volunteer behind the door closes the door trapping and catching the mother. Secure the parents - Once the mother has been caught, put her in a pet pack. If there is a drake nearby, the same technique can be used once the mother has been caught (however drakes are more cautious and will take longer to trap).

Road Rescues (MVA)

Often, the eggs are hidden in low scrub up to one hundred metres from the water's edge. In this situation, the mother duck will walk her newly hatched ducklings to the water. Ducklings dutifully trail behind mum, so she is usually the first to be hit by a vehicle. The mother is usually killed on impact and the ducklings instinctively run and hide under the nearest bush and remain there without a sound (this is a survival instinct).

This type of rescue is a **priority one**. Ducklings that are not in water and without a parent are literally "sitting ducks" and will quickly become food for cats, foxes, ravens or birds of prey. It can be very difficult finding day old ducklings that are hiding and very quiet, based on verbal directions alone. The more detail gained from the person reporting the incident the better.

To find and catch the ducklings:

1. Locate the dead mother - ducklings rarely stray far from the mother even if she is dead.
2. Locate the ducklings - very slowly and quietly look (at a distance) through the undergrowth and surrounding bushes. Sometimes there will be movement as the ducklings fight to get to the bottom of the brood to hide. If there is no sign of the ducklings, listen very carefully as every so often a duckling will call for its mother. **If the ducklings cannot be located but they are heard - use a feather duster on a piece of string and drag it along the floor leading from the mother. It is surprising how quickly ducklings will run over to a moving duck (or duster) who they have mistaken as their mother.**
3. Capture the ducklings - once located, it is important not to race over and try and grab them as they will all scatter. Using the telescopic net (not a fabric net as it is not "see-through") cover and capture all the ducklings with the net.

4. Transport pack/pet carrier - once the ducklings are covered, get another volunteer to transport the ducklings one by one from under the net to a box or zip up mesh pet carrier.

Backyard Rescues (no pool)

From time to time a call will be received regarding ducklings in a backyard that does not have a swimming pool. These are usually wood ducklings as the parents nest in trees and ducklings jump from the nest onto the ground. The “abduction technique” (see above under swimming pool rescues) will not work in this scenario as the parents can run quite fast and fly. **The “kidnap technique” will need to be used.**

Whatever technique is used in this situation be mindful the parents will be highly stressed as they are out of water and exposed to predators making them “flighty”..

Other Rescues

Various other rescues will occur from time to time. In the past these have included ducklings stuck down drains, on balconies, in the neighbour’s house (gone through cat-flap), in a shopping centre and even on the freeway! These scenarios are rare and need to be addressed on a case by case basis.

The Release

Before release of ducklings of any age go through the following checklist:

- There are no larger animals (swans, adult ducks or coots etc) that will pose a threat to the ducklings.
- There are hiding areas such as reeds and bushes (do not release into open water).
- There is food available and little competition (smaller lakes with lots of waterbirds may not be appropriate).
- The water level and condition is suitable (never release in lakes that will dry up within a couple of months or that have poor water quality).

- The lake is rarely visited by humans and domestic animals (lakes which are frequented by humans and cats/dogs may not be appropriate).
- There are no major roads which may cause fatalities during breeding or migration later on.
- The weather is suitable.

Family Release

Once the ducklings and their parent/s are rescued they need to be released as soon as possible. Stress can kill ducklings or sometimes cause the parents to abandon them.

Once the release site is assessed proceed with the release. Remember this...*“Mums before bubs”*.

When releasing a family group follow these steps:

1. Find suitable release site.
2. Once confident it is safe to release - remember **Mother first** - put the mother's pet-pack into the water then slowly open the door (opening the door in mid-air will cause the mother to fly out and possibly away). Opening the pack in the water allows her swim out safely.
3. At the same time slowly lower the ducklings' box into the water. Make sure they swim after/with their mother.

Orphan Release

Orphans can be released at two stages of development.

1. During hot months where temperatures are above 30°C ducklings can be released as a group at around 7 weeks of age.
2. During colder months when temperatures are below 30°C and night temperatures drop significantly, ducklings must be released at 12-14 weeks of age once they are fully fledged.

Stage 1 - Rehabilitation

Introduction

Duckling rehabilitation can be very difficult if appropriate resources and equipment is not available. For successful rehabilitation

(rearing), ducklings should be rehabilitated in three [3] stages. Each stage is different in terms of diet, husbandry and enrichment.

Admitting Ducklings into care

Stage 1 is required for ducklings aged from one to 18 days old (0-2 ½ weeks). When a new brood of ducklings arrives 'de-stress' in a warm hot box for approximately thirty minutes then, weigh and assess each duckling. Examinations do not need to be too intense but a quick check for any bleeding or fractures must be completed. If the ducklings appear healthy, they can be placed into a warm reptile vivarium set up prior to capture (see example below).

Husbandry

Enclosures recommended for Stage 1 ducklings are reptile vivariums as they are easy to clean and retain warmth. Temperature should be closely monitored at all times. A heat light or "brooding light" above a raised platform is essential so that ducklings can get off the floor (which can become wet and cold) close to the warmth. It should be noted that the temperature in the vivarium should not exceed 30 degrees. **NOTE: Vivariums will overheat and exceed estimated temperature ranges if they are not in a temperature controlled room (air-conditioned).**

Substrate should consist of newspaper (approx. 3-4 sheets thick) and bath towels or appropriate absorbent material which covers the entire floor surface (and the raised platform).

Enrichment

Small trays of sifted clean sand can also be provided. Ducklings' need some sand in their diet for healthy digestion. The vivarium glass should be covered over to provide "protective enrichment" which allows the ducklings to feel safe in their enclosure.

Diet

Stage 1 ducklings need to be fed 3 times per day. To prepare food for stage 1 ducklings:

1. Finely chop 3 cups of DARK leafy vegetables (strictly no iceberg lettuce).
2. Finely chop ½ cup of freshly picked grass (not lawn).

3. Roughly chop ½ cup sprouted seeds (sunflower, wheat, millet, mung bean, snow pea).
4. Puree ½ cup dark greens, ½ cup water, 1/8 tsp BVM powder and 1tsp insectivore powder.
5. Using a Stage 1 duckling tray, add the 3 cups of chopped greens, ½ cup of chopped grass, ½ cup sprouted seeds and pour the greens/insectivore slurry over the top.
6. Fill tray to the top with luke-warm water and serve.
7. Provide 2 feeds a day on a separate flat plate of chick starter. EACH DUCKLING must only receive ½ tsp each of chick starter.
8. Provide 2 feeds a day on a separate flat plates of insects. ½ tsp of mealworms (in bran and pollard) and ½ tsp. of slaters.

* If there are more than 6 ducklings in a vivarium, feed on 2 separate plates to ensure all ducklings get a chance to eat.

Stage 2 - Rehabilitation

Moving up

Stage 2 is required for ducklings aged from roughly 18 days to 40 days old (2 ½ - 6 weeks). Moving straight from Stage 1 to 2 can be stressful and result in deaths. One to two days before moving to Stage 2, the heat light should be turned off during the day so that ducklings can acclimatise to normal Stage 2 conditions.

When first moving ducklings to Stage 2, do not put them outside on the first day. This will allow them to adjust to their new enclosure without the added stress of the outside elements.

Husbandry

Enclosures for Stage 2 ducklings should be light weight and portable, so they can be moved inside at night and outside onto a grassed area during the day. They should also be easy to clean and retain warmth at night.

Tractors consist of an enclosed hut area and netted area to allow for free movement during the day.

At night the tractor is undercover with a heat light attached to the hut. During the day the heat light is removed and the tractor taken outside where the ducklings are released from the hut and able to move freely in the enclosed area of the tractor.

During the day the duckling tractors can be moved outside onto a grassed area and the ducklings let out of the fiberglass hut. There is a sliding perspex sheeting acting as a barrier (door) which slides out from its fitting.

Diet & Feeding

Stage 2 ducklings require a change of diet to allow them to mature and learn skills necessary for survival in the wild. Changes in diet are as follows:

Stage 2 ducklings need to be fed 3 times per day. To prepare food for stage 2 ducklings:

1. Finely chop 8 cups of DARK leafy vegetables (strictly no iceberg lettuce).
2. Roughly chop 2 cups of sprouted seeds (sunflower, wheat, millet, mung bean, snow pea).
3. Puree 2 cups of dark greens, 1 cup water, 1/4 tsp BVM powder and 2 tsp insectivore powder.
4. Using a stage 2 duckling tray, add the 8 cups of roughly chopped greens, 2 cups of sprouted seeds and pour the greens/insectivore slurry over the top.
5. Fill tray to the top with luke-warm water and serve.
6. In the morning, scatter the chick starter in the lawn whilst the ducklings are outside on the lawn. EACH DUCKLING must only receive 2 tsp each of chick starter. On a flat plate provide insects. EACH DUCKLING must only receive 1 tsp of mealworms and 1 tsp. of slaters.
7. In the evening, provide the same ratios of chick starter and insects on flat plate. Use the food to attract the ducklings into the hut area of the tractor by placing the food on the flooring of the hut and sliding the perspex sheeting once all ducklings are safely inside.

Stage 3 – Rehabilitation

Moving Ducklings

Stage 3 is required for ducklings aged from roughly 40 days to 85 days old (6 - 12 weeks).

A week before moving to Stage 3, the heat light should be turned off during the night so that they can acclimatise to normal Stage 3 conditions.

Husbandry

Enclosures for Stage 3 ducklings need to be large (minimum of 30sqm) with plenty of room to walk, swim and fly. The substrate should be sand and/or grass. Having rocks, concrete or sticks on the floor can cause a condition known as *Bumble Foot* (see *Common Conditions*). This is why the sand MUST be turned over every day with a metal rake so that it is soft.

Ponds should be deep enough so that the ducklings can dive and swim.

Diet

Stage 3 ducklings need to be fed 3 times per day. To prepare food for stage 3 ducklings:

Check numbers

1. Finely chop 12 cups of DARK leafy vegetables (Strictly no iceberg lettuce).
2. Finely chop 2 cups of sprouted seeds (sunflower, wheat, millet, mung bean, snow pea).
3. Grate ½ cup carrot.
4. Puree 3 cup dark greens, 3 cup water, 1/4 tsp. BVM powder and 2 Tbls insectivore powder.
5. Using a Stage 3 duckling tray, add the 12 cups of roughly chopped greens, 2 cups of sprouted seeds and cover with grated carrot and pour the greens/insectivore slurry over the top.
6. Fill tray to the top with luke-warm water and serve.
7. Provide 2 feeds a day on a separate flat plate of chick starter. EACH DUCKLING must only receive 2 Tbls each of chick starter.

*** If there are more than 8 ducklings in the enclosure, feed on 2 separate trays to ensure all ducklings get a chance to eat.**

Common Problems

Treatment is based on our experiences and success in treating the conditions and do not purport to be the only methods of treatment for the particular condition.

Please download the full paper via the AWRC website for a comprehensive outline of Common Problems found in native ducklings and how to treat them. Common problems outlined in the full paper are:

- Toxic Shock
- Angel Wing
- Hypothermia
- FTT
- Asphyxiation/Aspiration Pneumonia
- Hypoglycaemia
- Bumble foot
- Foamy Eye

Angel Wing

In 2008 Native ARC observed numerous pacific black ducklings and shelducklings in care develop wing deformity during the developmental stages of growth (3 – 7 weeks of age). After initial consultation with Murdoch University Veterinary Specialists in Perth, it was confirmed the ducklings were suffering from a condition known as *Angel Wing*. Since 2009, Native ARC has been investigating possible causes of angel wing and whether it is due to a specific factor or a combination of factors.

What is Angel wing?

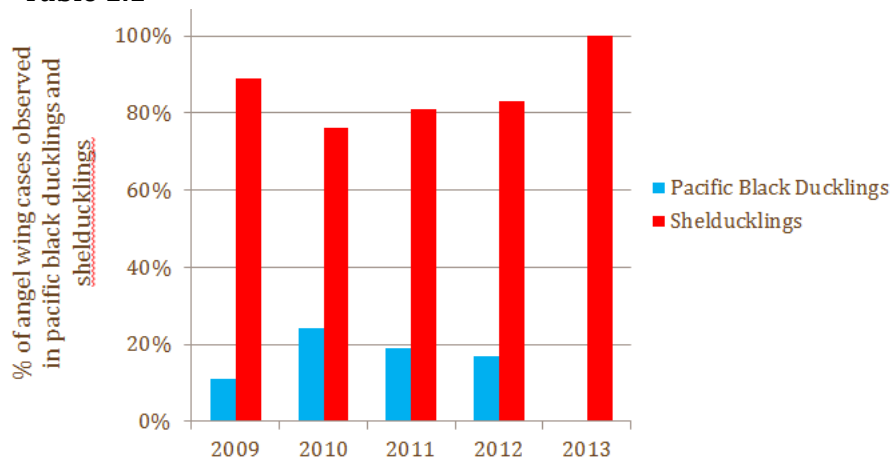
Angel wing is a condition that affects primarily water fowl. The condition presents itself during developmental stages (when feathers and pin feathers are growing) around the age of 3-7 weeks

(depending on species) and into adulthood. The primary wing feathers become stunted pointing out laterally, instead of lying flat against the body. The result is a carpus (wrist) which is twisted outwards and unable to perform its usual function. Other symptoms include stripped flight feathers in the wrist area. In growing juveniles the stripped feathers may resemble sickly blue straw protruding from wings. In adult birds the disease is incurable and the bird must not be released. In young birds, wrapping the wing and binding it against the bird's flank, together with feeding the bird a more natural diet, may reverse the damage.

Species affected

Shelducklings appear more prone to developing the condition than other duck species as observed at Native ARC. Other duckling species admitted which have never been diagnosed with angel wing include, wood ducklings, teal ducklings, pink-eared ducklings, musk ducklings and mallard ducklings.

Table 1.1



Shelducklings appear to be more susceptible to developing angel wing with an average

of 84% of all angel wing cases at Native ARC being seen in this species as seen in **Table 1.1**.

Factors relating to the development of Angel Wing?

- Dietary factors such as high protein/calorie consumption or high sugar consumption.
- Growth factors such as fast growth in relatively slow-growing temperate and tropical species.
- Incubation.
- Injury/Genetics.

Potential factors that may contribute to this condition

- High protein/calorie intake.
- Vit D deficiency.
- Lack of exercise.
- Combination of above.

High protein/calorie intake?

One possible factor was excessive protein/calorie intake. In 2009/2010 all ducklings were fed a vegetarian wet diet consisting of greens, vegetables and some fruits in addition to a dry (protein) diet of mealworms and a chick starter protein supplement. Ducklings were fed up to four times a day and protein portions were provided generously and without measure. This was the standard feeding practice for all ducklings prior to 2009. The percentage of all ducklings that developed angel wing from 2009-2010 was on average 14.1% as seen in **Table 1.2**.

In 2011 Native ARC began measuring protein portions and reducing the amount provided to ducklings. Ducklings were still provided with a vegetarian wet diet as above however they were restricted to 10% of their body weight in protein a day divided over two meals, 5% in mealworms (in bran and pollard mix) and 5% in chick starter. The percentage of all ducklings developing angel wing from 2011-2013 was on average 2.7% as seen in **Table 1.2**.

By restricting protein consumption, over three years Native ARC found there was an 11.4% reduction in angel wing cases seen in all ducklings at the centre.

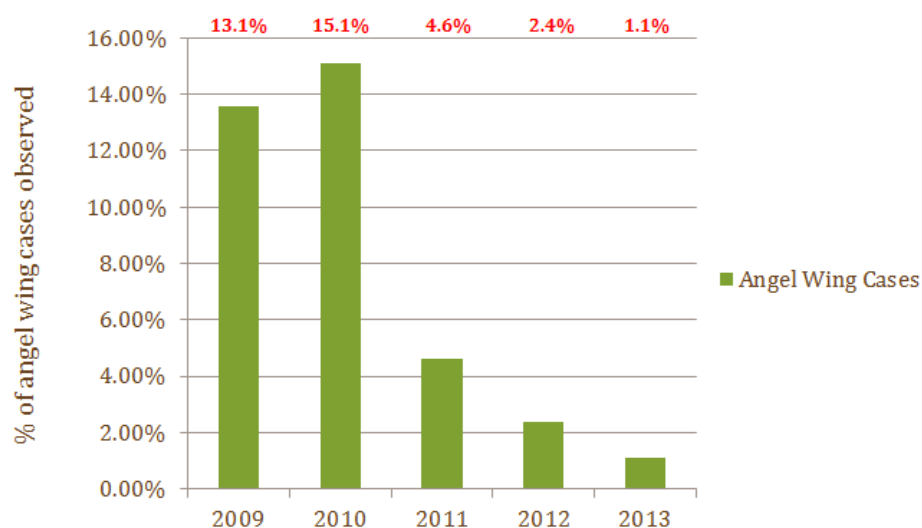


Table 1.2

Vit D Deficiency and Lack of Exercise.

In 2012 Native ARC undertook investigation of the possible effects of Vit D deficiencies and lack of exercise in angel wing patients. Ducklings with angel wing develop the condition in the developmental stages of growth between the ages of 3-7 weeks. Ducklings in 2011 and 2012 were housed in reptile vivariums between the ages of 0-4 weeks. Ducklings received little UV exposure and reduced exercise.

In 2013 ducklings were housed in reptile vivariums from 0 – 2 ½ weeks and moved to Stage 2 enclosures earlier to allow more exposure to UV light and more opportunity for exercise.

The percentage of ducklings that developed angel wing in 2011 on a restricted protein diet with reduced UV exposure/exercise was 4.6% in comparison to 1.1% seen in 2013 with a restricted protein diet although an increased UV exposure and exercise. Although other factors may have contributed to this, it should not be dismissed that there was a significant drop in angel wing cases of 3.5% with additional UV and exercise provided.

Treatment discuss

While there has been success achieved with the above interventions once an animal develops angel wing the treatments vary in their successful application. Treatment intervention of angel wing is difficult, often unsuccessful and the types of intervention debatable amongst rehabilitators and veterinarians. Some treatments include calcium injections, binding of wing feathers until adulthood and growth inhibitors. Native ARC has had moderate success with the following treatment plan if detected in the early stages of the disease (2-5 days of the symptoms being observed). Intervention outcomes are based on five years of investigation which indicate 1 out of 4 ducklings will recover if the following treatment is provided:

1. Apply a figure 8 bandage to both wings. Maintain this for 10 days. Once the figure 8 bandage is removed, tape the wing tips together. Maintain this for 5 days.
2. Eliminate protein from the diet and provide wet, vegetarian diet only.
3. Increase UV exposure and exercise.

Ducklings who do not respond to treatment should be euthanased or re-homed to a life in captivity (depending on individual state laws). Animals affected do seem to adapt well to a life in captivity and do not suffer any long lasting effects from the disease other than physical deformity. Ducks with the disease should not be released as they will be unable to survive long term as a result of lack of flight in the event of a predator attack, migration (species specific for dietary requirements), drought, bush fire and pollution.

Conclusion

Whilst Native ARC's is still in the early stages of investigating angel wing, there are two possible factors which have been observed which may be the cause or contribution to the disease. The major cause appears to be excessive protein/calorie consumption with an 11.4% drop in cases over a three year period when protein in the diet was reduced.

A second factor was a significant drop in angel wing cases of 3.5% over a three year period with additional UV and exercise provided.

Based on this data provided and initial investigations these two factors appear to be associated with the development of angel wing in wild ducklings reared in captivity.

Ongoing Investigations

Native ARC is continuing investigation of possible causes and treatment of angel wing in native ducklings and will continue to log dietary/husbandry statistics which are focused on protein restriction, UV exposure and exercise. Feeding plans for both shelduckling and pacific black ducklings will be modified to incorporate a more natural diet free from excessive amounts of protein. Our aim is to reduce the percentage of angel wing cases being observed in captivity to 0% through refined feeding and husbandry practices.

If you are interested in taking part in this research please email the Animal Care Coordinator on animalcare@nativearc.org.au.

Dean Joseph Huxley was born in Fremantle, Western Australia and has a life-long background working with orphaned native birds. He completed six months work experience with two Perth based veterinary clinics in 2006 and went on to become a volunteer at Native ARC (Native Animal Rehabilitation Centre) Inc. In recognition of his commitment to wildlife rehabilitation he was awarded the City of Cockburn's "Volunteer of the Year, 2009" for his work in wildlife rehabilitation and began volunteering at the Kanyana Wildlife Rehabilitation Centre. He studied a BSc in Conservation & Wildlife Biology at Murdoch University and is currently completing a Certificate 1V in Training & Assessment and conducts numerous wildlife rehabilitation workshops across Perth. Dean was appointed the Animal Care Coordinator at Native ARC in 2010 and took on the role of part time manager in January 2012. Dean is a Registered Wildlife Rehabilitator with the Department of Environment & Conservation WA and specialises in the rehabilitation of baby birds.