



The Avicultural Society of New South Wales (ASNSW)

(Founding in 1940 as the Parrot & African Lovebird Society of Australia)

Featherdale Wildlife Park

Breeding Programme for the Southern Cassowary (*Casuarius casuarius*)

(ASNSW Meeting - December 2013)

Presented by Jake Webb

Breeding Season

At [Featherdale Wildlife Park](#) we have been fairly successful in breeding them. This year has been our best year.

They usually begin mating in early August so from the end of June to very early August is when we will put them together. Unfortunately breeding them isn't as easy as just putting them together when it is the time of year for them to breed. Being such big and aggressive birds they can become pretty aggressive towards each other.

There are plenty of signs given by the birds that indicate to us that they are becoming ready to mate. Some of the signs to look for before pairing the birds together are:



- *Moulting* - they usually come into a moult before coming into their breeding time.
- *Going off their food* - I will talk about food a little bit later but the amount of food that they eat drastically reduces.
- *The males become more aggressive* - particularly our breeding male can become much more aggressive towards our keepers.
- *Becoming interested in a mate* and the *female presenting* are both signs as well.



Divider fence between the male and the female with a gate on the right.
Male bird is on the other side of the fence in the middle and the female on this side.

In the photo above you can see our divider fence with a gate on the right. That is our boy in the middle at the back with the girl on this side at the left. You can see that even though she is kneeling down she is a very big girl. She will sit in the corner right up against the fence next to him and she will either sit facing to the left or with her back to him. That is one of the signs that they are getting ready to mate and that is when we can begin to introduce the male. When they mate she usually sits with her face wedged into the corner and sometimes she makes it a bit hard for him by lying on her side. It looks really awkward when he tries. He has got to climb onto her and stand on her back and he pecks at her a bit and he keeps that up for a while. Sometimes he takes a long time before he actually gets on top of her.

Diet

The diet for our Southern Cassowaries is:

- *A 5 litre bucket of fruit* - it varies in weight depending on what fruit you use, obviously apples and pears are heavier than watermelon.
- *Bread in the summer and autumn months* - just as a filler during the middle of the day.
- *6 to 8 day old chickens daily depending on the sex of the bird* - given in the afternoon. The girls being much bigger usually get the 8 day olds whereas the smaller boys get a bit less. Coming into the breeding season we up that for the girls. It gives them a bit of protein to last them overnight before they get fed again in the morning.

With that 5 litre bucket of fruit, especially for the boys during the breeding season, they are lucky if they eat that half bucket of fruit, they don't eat any bread and we are lucky if we can get them to eat a couple of 1 or 2 day old chickens.

We give them a variety of fruit, so usually there are two types of fruit in the bucket, half and half. We put something like strawberries or something on the bottom and we sit the bananas on the top. That is because the Cassowaries can get very aggressive and if we put the bananas on the bottom they can stick to the bottom of the bucket and when you are trying to empty it out you are trying not to be attacked by Cassowaries that are trying to get it out too.



Introducing the pair to each other

Until we see the signs that they are ready to mate together, we don't put them together. They are housed next to each other but that doesn't mean that they get on with each other all year round. We did introduce them once before and our girl broke her toe so now on one of her feet the toe sticks out sideways instead of growing normally. When it is breeding time we open the gate between them and we only open it in the morning. Then in the afternoon we separate them again just to make sure that nothing happens to them overnight. Also with the female being much bigger she can tend to be a bit of a greedy guts so if it looks like she is going to start to eat all his food as well and he isn't going to get any, we separate them just so they can get a bit of food and then open them up again so they can go back together for breeding.

When we open the gate between them the boy will usually attempt to mate within the first five minutes and he will continue to mate with her on and off throughout the day. We check them every now and again as often as we feel is necessary. We are fairly confident with this pair because they have been doing it for a few years now pretty successfully.

Setting up the nesting area

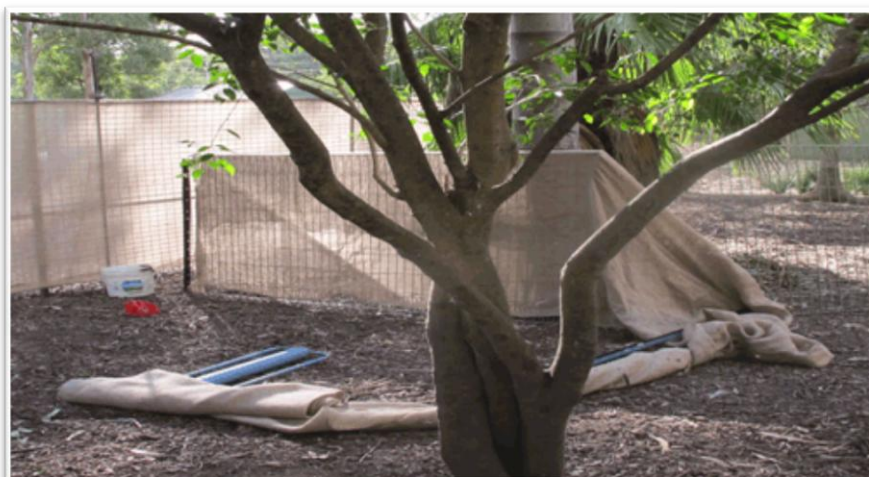
When mating has started, or we think it is about to start, we start setting up the nesting area where it needs to be and where we build the nest site is important for a number of reasons.

1. Members of the public like to know what is happening and we enjoy letting them know and letting them see, but if we did put it right up the back it would work just as well. If we put it down the front people ask lots of questions and we are happy to show off that we can breed such an important bird.
2. Ease of access for keepers. When we have to go in there to switch the eggs or get the young (which I will talk about a bit later), it makes it much easier for us in relation to where we build the nest.



Screen between the male and female when the male Cassowary is on the nest

We put up hessian along the fence as a divider so that it stops him seeing her when he is sitting on the nest. We don't want him being distracted by her walking up and down and becoming a bit of a flirt.



Hessian divider between Brolga garden and male Cassowary

We also put up another barrier on the other side because we have a [Brolga](#) in that other garden and when we jump over to feed the Brolga we don't want our male Cassowary to see us in our green uniform walking up and down and scaring him up off his nest.

So we put up the barriers as you can see in the photo and then the nest we put in behind there. The male Cassowary can't really see through but when we are looking through we can usually see him. We can see a bit of his outline and a bit of his colour.



Preparing the Cassowary nesting site (raked leaf mulch)

We put nice fresh mulch there and we rake that up so that it is usually raised up about 45cm-70cm from the rest of the mulch on the ground. So we end up with a barricade on both sides and a barricade around his nest.

Egg swap

When the female starts to lay her eggs we place dummy eggs on the nest. We have [Emu](#) eggs that we've blown out, we fill them with water and place paper mache over them and paint them a brighter green because Cassowary eggs are a brighter green, more of a fluoro green, compared to the dark green of an Emu egg.

The first egg we incubate ourselves so we put it into an incubator that we have. The 2nd, 3rd and 4th egg we place into another incubator that we have but this incubator is set to 14° Celsius. Putting the egg in that small refrigerator keeps it at suspended animation. That means the egg is not going to start incubating if it is kept at around that 14° Celsius. The aim is to keep it between 10° to 17° so we aim to keep it at that 14°. We can keep them like that for up to 10 days. Once the 5th egg is laid we take the 2nd, 3rd and 4th egg out of that incubator and put the 5th egg back on the nest and take away the dummy eggs. Any longer than that and we would have to put the 2nd, 3rd and 4th egg back down and we wouldn't be able to wait for the 5th egg.

The male incubates his own eggs and they will hatch with only a day or two difference between the oldest and youngest instead of a week or more. So if you let him incubate them the whole time it is two and three days between when she lays her eggs so this way we put the suspended animation eggs back down at the same time and the babies hatch between 12-24 hours of each other which they all grow up at the same age and same height and that way you don't get a larger one accidentally kicking or injuring a younger one. We remove the eggs close to the end of the incubation length which is usually between 56 to 63 days. Unusually this year they hatched at about 49 days. We had a plan to take them on the Wednesday, we went down and checked them on the Tuesday; and we could see that there was a baby down there.

Why we take the eggs and raise the young ourselves

We do this for a number of reasons.

1. We can keep a much closer eye on all the young ourselves to make sure that they are developing and eating properly and that they are getting everything they need.
2. It is much easier to microchip and sex them and move them to other institutions when the time is right instead of going in there and trying to keep the male away while we are trying to find which baby we are going to send away; and
3. The adult male is a lousy parent.



Cassowary chick hatching from its egg

The photo above shows a Cassowary chick hatching from its egg. With the help of the ultrasound machine that we have we are hoping that in the future we will be able to tell if an egg is fertile or not. You can see how thick that shell is and the colour of it which makes it almost impossible to candle it. There is no light that is bright enough that will go through that. We number the eggs so that we can tell which ones should hatch first.

This year we were contemplating leaving some babies in there or at least one egg and seeing how it went. We thought that it would be really cool to see all the little Cassowary babies growing up with dad, but like I said before there were babies that had hatched and the male had already pecked at them before we got down there and saw them.



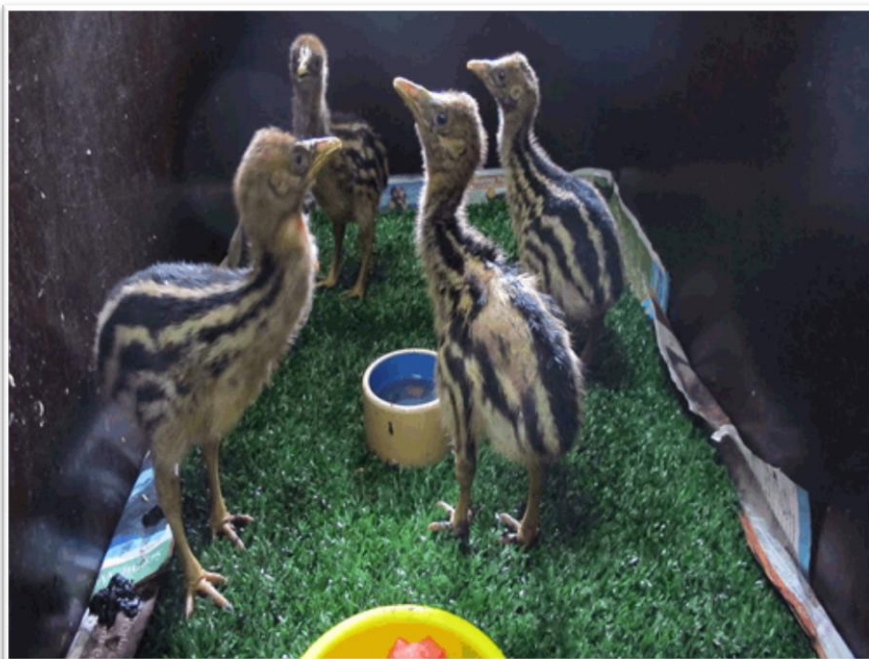
Cassowary chick that was hatched by the male (showing injury to its back)

The photo above shows the back of one of the babies that we pulled out. We think that when it hatched and came out from underneath him, and while he was incubating the last two eggs, he pecked at it.



Cassowary chick that was hatched by the male (showing injury to its stomach)

In the photo above is another one that he had pecked at and this one had a pretty big hole (like a type of gash) underneath on its stomach. We were pretty worried, especially about this one if it was ever going to survive. Luckily enough for us our vet was able to stitch it and treat it and it survived.



Cassowary chicks being hand raised at Featherdale

In the photo above you can see a few bald patches on the back of the chick on the right in the foreground there, where the father pecked at him, but luckily he survived and we have all four babies going well at the moment, getting strong and eating like little champions. It is our best year for Cassowaries so far.

Diet for the young

For the first 24-48 hours they don't usually eat, they are struggling to stand up more than anything. The first fruit that we try and get them to eat is blueberries just because they are the right size for them to pick up and the perfect size for us to fiddle around with. We just push them around a bit to encourage them to eat and they don't go all mushy like a bit of strawberry would. After that we try to get them to eat other fruits which we cut to the same size as a blueberry. We also give them pinkies and crickets. Crickets are good enrichment, they chase them around and pick them up and the pinkies are just for protein overnight. At the moment they are getting about 10 pinkies each in the afternoon.

Questions/Discussion

(A short time was allowed for any questions and general discussion following Jake's very interesting presentation.)

Cassowaries can be very dangerous with their feet can't they?

They can be yes. So we condition our animals so that when we enter an exhibit we don't feed them until they go where we want them to go. Some are much more obliging than others but each exhibit has its own spot that we condition them to go to. For such a large animal the Cassowary is not very steady on its feet. If there is a Koppers log or anything bigger than that laying down they very rarely step over it, they always go around it. We have logs or stumps or trees in the exhibit and we go in very slowly and once he goes behind a tree or a stump we walk in and put the food in the bowl and then we back out and he comes around and eats it.

It is their claw that is dangerous isn't it?

Yes, it is their claw that is the dangerous part. If anything does go wrong we have a rake handle with the end of rake that's cut off. Some places have a board that they use like a shield but I think that the rake is better. If you ever need to you can hold it against their chest because all their power is when they kick forward and push down. So if you put enough pressure on its chest (*and it should be noted that this is a practised skill*) it puts it him off balance and makes it harder for him to kick. If you have a shield and it side steps you, it is hard to move that around. It is very rare that we have to use that.

Up in New Guinea they catch them and eat them don't they?

Yes they do but they usually take the young and they get the young to follow them around for the best part of 12 months while they feed them up and then they slaughter them. They don't really hunt adults that much.

Jake you know how the cock is a good incubator but he isn't a good parent, would it be worthwhile trying him with emu chicks?

If you had the opportunity of perfect timing where you could swap the egg and put a fertile emu egg in then I guess you could try it but from what we saw with the baby Cassowaries it is not going to happen.

The main reason we wanted to do it was just for our benefit. We thought it would be cool to watch, but it would then be a nightmare to catch a baby Cassowary up when it is about six months old to send to another zoo. You wouldn't only have to be worried about catching it, but dad would be after us as well.

It would be a nightmare for keeping every single day if you have got the dad there and he is looking after and defending his young ones.

Yes it would be, every single day. Once the eggs and the babies are gone he goes back to his normal self.

Comment

Graeme Phipps: When we used to see them in far north Queensland they would leave these large sloppy droppings along the tracks where they walk because as you said before they don't really like walking through the undergrowth of the forest very much and they would walk down these walkways much more. Then what happened was that [C4 - Community for Coastal and Cassowary Conservation](#) would come along and scrape up all the droppings and they would put the whole dropping into a flower pot and up would come all these trees because the Cassowary is a vector of the forest. C4 would grow these Cassowary trees on a bit and then plant them out everywhere. It helps to show in a sense how important Cassowaries are to the health of the forest. There are a lot of fruits but if they didn't eat them and move around there would be no way for them to be dispersed anywhere. Maybe you could get one of these excrement pads from the wild Cassowaries and grow some Cassowary trees? They are a phenomenal animal aren't they? They truly are.

The young chick with the sores on it, were they on it when you saw it hatch?

You saw earlier where the barricades were, on the right-hand side of them, one of the keepers (Chad) went in to feed in one of the aviaries and just looking back across to the nest to check on them he saw one of the babies out. We thought the worst actually, we thought it was dead. So we jumped in there and me with my defensive skills, I had the little rake with me and held it just to keep him distracted while Chad picked up the baby. Then we noticed another baby down at my feet and so we had to go face to face with the Cassowary just to pull the baby out of the way. That is when we saw they had been pecked and we thought they were both dead. They were just laying on their side. He must have just kept pecking and pecking them until they were lucky enough to roll out the way.

Actually this year I had some [Princess Parrots](#) hatch and they had sores on their head like that and on their backs too. Then another one hatched and it was caused by the egg shell being stuck to the body and when the egg shell came away it actually tore patches of the skin off. It look liked the birds had been pecked at but it was probably caused by the humidity this season being particularly bad and the eggs actually stuck to the young. The parents probably pulled them off and took the skin patches with it, I am not sure. They just healed up normally but that is the first time I have ever seen sores like this and when I saw the sores on the Cassowary babies I was thinking maybe he is not to blame. However the injuries were very deep and the bruise that came out around them was very dark as well so we can't absolve him of the guilt.

(Graeme Phipps thanked Jake for his presentation saying that it was a great talk and a most unusual one. Members agreed applauding Jake for his talk and the information he shared.)

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