



# Rearing Raptors

AZA Hand rearing workshop March 2017

**Techniques we use most at ICBP and why**

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# Conservation breeding



- Conservation breeding has been the saving grace for many species, it is important to share everything we can, good and bad, to make this projects successful
- In its 50 year history ICBP has bred 67 different species of raptors to date and continues to try and increase our knowledge and successes.



*The information gained from breeding these species onsite has been shared with organisation worldwide and we aim to provide information where its needed for projects as they start and grow. We are striving to learn as much as possible, and incorporate modern technologies into what we do going forward. Sharing this information is vital – a lot of what we are developing from a technology point of view is using open source.*

*We have a very simple facility which has the capacity to incubate and hatch a large number of eggs in a very small space. Using a variety of different types of incubator gives us flexibility when hatching eggs ranging from 18g to 300g.*

*Developments in the technology we use at the Centre mean we are able to monitor the incubators remotely, map them in one go without having to move thermometers and even look at CO<sub>2</sub> levels in the incubators.*

# Incubator room





# Brooder Room

*The brooder room again is very basic and simplistic but works very efficiently. As raptors are very altricial we use small Brinsea Hatchmakers (discontinued) for very young chicks and then move them into converted vivariums which act as large care units suitable for housing multiple clutches.*



# Neonate management

*This Eurasian Griffon vulture chick rests in the bottom of a Grumbach incubator prior to being moved to the hatcher to fluff up.*

*Raptors are altricial, although some are very mobile and behave in a semi precocial way in the nest they are very dependant in parental care. The way birds are cared for by parents cannot be replicated fully in easily practicable ways so rearing methods are tailored to care for the species in the most suitable way that can be managed easily and efficiently.*



# Early stage hand rearing

*Nearly all raptors bred at the ICBP are hand reared for the first 7-10 days of their lives. With nearly all our breeding pairs in on show exhibits and we find the risk of disturbance to pairs with newly hatched chicks unacceptably high. Giving them a 7 day head start helps to negate that risk.*





# Chick care within brooders

*Chicks are placed in appropriate bowls/baskets . Baskets provide good ventilation and airflow around the chicks.*

*Substrate needs to prevent slipping and causing splayed legs.*

*Textured substrates: gravel (with or without paper towel for easy cleaning), non-slip matting, paper towels, scrunched up face cloths/towels*

*Put like with like, clutch with clutch and separate babies which need isolating.*

*Mark chicks for identification (food dye or Sharpie markers).*

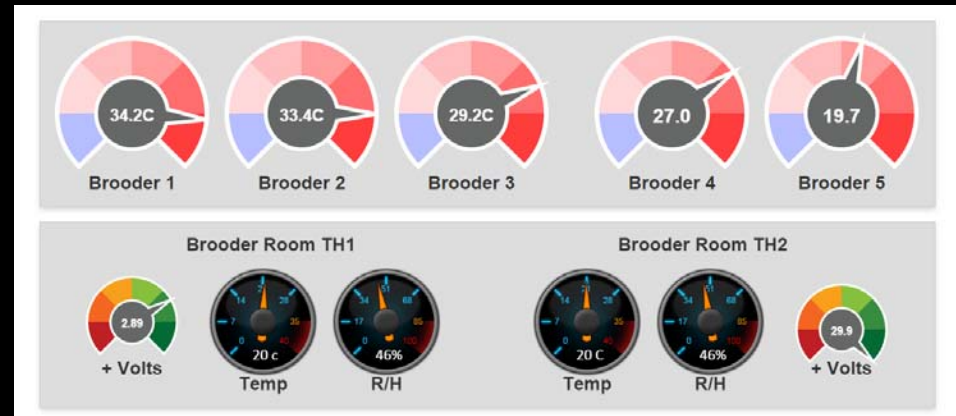


# Brooder management

- Chicks hatch and are initially brooded around 0.5°C lower than incubation temperature
- As they get older and bigger they gradually require less heat
- Approximately 0.5°C decrease in brooder temperature per day

Watch chick for signs of incorrect temperature:

- Too hot: panting, lying spread out, salty nares
- Too cold: shivering, cool to touch when handled



*Due to high volume of chicks at the peak of the season we keep the brooders set at a specific temperature then move the birds between them rather than making constant adjustments. Data loggers and temperature monitors have been deployed in ICBP brooders to provide a dash board on a screen showing all brooder temps. This is accessible online so I can check remotely that none of them are over heating and all is working correctly.*



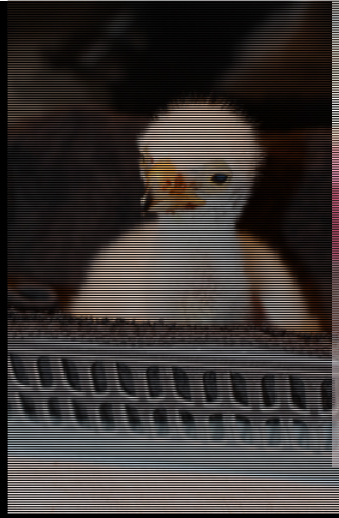
# First few days on earth....

- Feeding raptors
- Food mix - Ratio of food
- Appropriate amount of food
- Number of feeds

*The chicks receive a food mix of 1/3 rat, 1/3 quail and 1/3 day old chicks which have all been skinned, gutted and minced. This mix includes the bones for high calcium level required for growth. Pinkies and fuzzies also work very well and when handling small volumes of food for only one or two chicks are more convenient.*

*Usually giving a small amount (one or two mouthfuls and pinch of Avipro) between 12 and 24 hours of age (depending on hatch time) and after their first mute – kick start metabolism but not over loading it.*

*Amount given/weight gain should be carefully monitored, slowly building in first 48 hours from 2% total body weight per feed up to 10% total body weight per feed. Based on 3 feeds per day evenly spaced.*



# Food prep

- Food in the case of raptors is raw whole carcass diet – skinned and gutted-minced or finely chopped **WITH BONE INCLUDED**
- Calcium is extremely important at this stage, early growth should be slow so chick can assimilate the calcium and lay it down in strong healthy bones
- Food should be prepared fresh each day and stored in the fridge
- Before each feed an appropriate amount of food should be warmed ready to feed and saline/electrolytes added
- Warm by putting into a clean container and floating in a bowl of warm (not hot) water – do not microwave



*The food mix is vital, generally we see very few problems and need to supplement very little. The vultures we rear in India receive a calcium carbonate supplement to help with their calcium levels every day – this is calculated from the amount of food they received the previous day. They also receive direct sunlight by putting them outside with supervision. Not possible in UK temperatures!*



# Technique

*Different species have a different feeding response which parent would use to stimulate the chick, so its important to replicated this well enough to encourage the chick.*

*Owls need to feel food touch their feathers by the mouth.*

*Eagles, hawks and kites are very visual and will lunge forward to grab food held slightly above them.*

*Falcons will gape and wait to feel food touch the top of their mouth before they close their mouth and swallow, They will also lie!*



*Overfeeding can cause huge problems with growth and development. 10% rule works well for us and is easy to follow. Weigh before each feed, give up to 10% of that bodyweight in weight of food - based on 3 feeds per day.*



# Record keeping

Initially chicks may lose weight as they use yolk sac (days 1-2) then start gaining. Over feeding causes problems, recording weight gain also shows if a bird is not eating enough. Weight is used to calculate calcium supplements.

International Centre for Birds of Prey - Chick Rearing Record

Species GRIFTON VULTURE Egg ID G.V. # 1-14 Hatch Date 7/2/2014

Parent IDs: SIRE ID \_\_\_\_\_ DAM ID \_\_\_\_\_

Brooder No. HATCHMAKER #1 Rearing Note \_\_\_\_\_

Date	Time	Temp C/F	Hum %	Weight Empty	Weight Fed	Weight of Food	Crop % - %	Response Score 1-5	Notes	Init
7/2	1700	36.0	50%	162.3	163.8	0.5	5%	5	VERY KEEN STRAIGHT AWAY LEFT MEAT. AMAZING INSTINCT, LESS AMAZING AIM. BIT SLEEPY BUT ATE V. WELL "YAY"	HC
- 11-	2150	35.0	-	161.3	163.4	2.1g	10%	5		HC
8/2	0900	34.8	-	157.1	161.9	4.8g	10%	5	VERY KEEN. MOVED ON TO MINCE W/ BONES -	HC
- 11-	1400	34.8	-	159.5	164.8	5.3g	10%	5	VERY GOOD - CO-ORDINATION IMPROVING.	HC
- 11-	2130	34.8	-	159.3	166.0	6.7g	10%	5	VERY GOOD - "happy vulture"	HC
9/2	0820	34.8	-	159.5	168.5	9.0g	15%	5	VERY GOOD -	HC
- 11-	1415	34.8	-	165.1	178.1	13.0g	10%	5		HC
- 11-	2150	34.6	-	170.7	184.2	13.5g	10%	5		HC
10/2	0816	33.2	-	177.0	188.7	11.7g	10%	5		HC
- 11-	1410	33.4	-	183.6	202.2	18.6g	10%	5		HC
- 11-	2120	33.4	-	194.1	206.0	11.9g	10%	5		HC

Fostered to \_\_\_\_\_ Fostering Notes \_\_\_\_\_

Ring Number \_\_\_\_\_ Date rung \_\_\_\_\_

Holly Cale - February 2013

FeedR-BoP

Home

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?

Select Facility

Select Action

Select Baby

Baby

Record Feed

Record historic feed

Edit Baby

Select another Baby

Daily Weight Gain Trend

Feed Date/Time	Start Weight	Rec. Feed Amount	Rec. CaCO3 Amount	End Weight	Actual Feed	Crop %	Response	Comments	Alerts	Fed By
2016-12-16 16:16:29	<div>↑</div> <div>270.00</div>	27.00	0.51	297.00	27	100	Very Good	Right leg pushing out [Suggested Values] Feed (over 3 feeds p/d) : 27g. CaCO3 (over 3 feeds p/d) : 0.51g.		Adam Bloch
2016-12-16 16:11:11	<div>↓</div> <div>234.00</div>	23.40	0.51	256.00	22	35	Very Good	[Suggested Values] Feed (over 3 feeds p/d) : 23.4g. CaCO3 (over 3 feeds p/d) : 0.51g.	The amount fed was less than the recommended feed amount	Adam Bloch
2016-12-14 22:50:31	<div>↑</div> <div>265.00</div>	26.50	0.25	280.00	15	100	Very Good	Needs to slow down when eating [Suggested Values] Feed (over 3 feeds p/d) : 26.5g. CaCO3 (over 3 feeds p/d) : 0.245g.	The amount fed was less than the recommended feed amount	Adam Bloch

Once chick is eating well aim for 10% or less of chicks body weight per meal (if feeding 3 x daily).

Keeping accurate records is important. This is software being developed by ourselves for use with raptors and but will probably carry on for other species in the future.

# Problems Encountered During Rearing



*Being familiar with healthy chicks helps you to notice when a chick is becoming ill. Once a healthy chick is 24 hours old, it should be able to hold its head up, reach for food (albeit clumsily) and have a good appetite. An unhealthy chick will be lethargic and often dehydrated, refusing food or not taking enough food*

*Feet should be nice and plump, if feet look smaller and start to wrinkle, the chick is dehydrated and in urgent need of fluids. Giving fluids to rehydrate a chick which is not eating is vital – saline, critical care or Emeraid depending on age and duration of fluid therapy.*

*Chicks which have lost appetite or are very lethargic should be started on antibiotic (palatable Synulox or equivalent) immediately.*

*Supplements can also be given if there is a worry about a chick. Avipro is a probiotic which can encourage healthy gut bacteria. Nutrobal is a multivitamin with additional calcium.*

# Parent Rearing



- As long as they are good parents.... Mum knows best..... But it doesn't always come naturally....

*Sometimes it can take years for parents to develop the skills they need to be good parents but they can be helped along.*



# Putting Chicks Back



- ONLY PARENTS STILL SITTING ON A DUMMY EGG WILL ACCEPT A CHICK.
- If the parents have stopped sitting do not risk the chick.

- Young can be introduced to parents between 7 and 21 days old.
- Inexperienced parents benefit from having slightly older, more robust, chicks! Up to 3 weeks is possible.
- Experienced parents can have chicks back from 7 days onwards.



*Putting chicks back is nerve racking. By having a slightly larger, more robust chick which has been grown on in the brooder room can alleviate that stress but never negate it. Parents must be sitting on dummy eggs. Usually will except a straight swap, dummy egg for 7-10 day old chick. Sometimes it takes more work. Put the egg shell around the chick to add illusion of hatching. Timing is everything, make sure parents are not starting to come out of condition.*

# Monitoring chicks on the nest site

*Closely monitor the CCTV to make sure chicks are continuing to do well with parents. Look for parents brooding and feeding the chick. Look to see the chick has a crop. Is moving around on the nest regularly? If you are worried chicks can be physically checked by going into the aviary, but disturbance should be kept to an absolute minimum.*



# Surrogate rearing

- Putting like with like
- How it can assist in natural breeding later on – enhancing pair bonds
- Does size really matter?



*Surrogate rearing can be useful for both parents and chick. If a pair of birds are known to be poor parents and their chicks should not be risked they can be reared by others of the same or very similar species. Sticking with family groups and matching as closely as possible will still give viable birds for future breeding although it may take a little longer for pair bonds to form. Parents who seem to be doing everything right but are not laying fertile eggs can encourage a stronger pair bond, bring birds more in sync with each other and produce fertile eggs the following year. Surrogate rearing is also necessary with species which exhibit cainism if you want both chicks to survive.*



# Creche rearing

- Teaming up birds single hatching with others – same family groups
- Aggressive vs non aggressive groups
- Avoiding cainism

*When no parents are available creche rearing works very well with some raptor species. This works well with kites etc, even of different ages sometimes.*

*With species which are aggressive to their siblings they can be separated by a perspex or glass 'wall' so they can see each other but not make contact.*

*This can usually be removed once they are nearly fledged. Its important to get birds which will be creche reared or reared in isolation feeding independently from an early age.*



# Hand rearing

- Hand rearing early on is straight forward
- Hand rearing can be done with isolation rearing to avoid imprinting
- Alternatively choosing to fully imprint a bird may be a better option. Occasionally it's the only option

*Hand rearing is a very useful tool for either birds without suitable parents or for training some species. Hand rearing can be done with isolation rearing to avoid imprinting. Making informed decisions at this stage is important. Providing warmth (heatlamp etc) and food without the bird coming into contact with people works, ideally if they can see other birds at a distance once they are big enough. (pictures would have been very useful at this point!)*



*Choosing to deliberately imprint it very useful too. For example all owls which we train and fly at ICBP are hand reared, often in a group so they can be housed with others at a later date or possibly go on to breed. Socialising the birds and introducing them to the scenarios and environments they will encounter later in life is vital.*



# Imprinting

- Health risks
- Behavioural aspects
- Agression
- Social imprinting
- Food imprinting
- Undoing imprinting

*Creating a healthy happy imprint requires consideration. Some birds if handled badly or without consistence can become aggressive or too focused on one person. There are health risks associated with imprinting.*

*Most commonly if imprinted females are not allowed/able to lay eggs the calcium build up in their systems can cause heart and other health problems.*

*Stress in imprints is often overlooked, as although they are well socialised they can suffer different stress factors, such as separation anxiety etc, which can lead to weakened immunity and contracting infections such as aspergillosis. Imprinting can be 'undone' and socialising with other birds and even producing breeding pairs is possible, but it takes time and care when introducing imprints.*





If only....



# Where do we go from here?

- Consulting/giving advice
- Managing the captive breeding within the SAVE vulture program
- Supplying data and tuition
- **Sharing information**



**Thanks for listening**  
**Any questions?**





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