



BROODER ROOM BASICS

This talk is not intended to tell you how to run your brooder room, but to offer suggestions to help you make decision as to what is best for your facility.

*speaker notes
in italics*

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Design considerations

- Easy to clean
- Size
- Dedicated space
- Multi-species functionality

Designated spaces are not necessary—although nice to have. They don't have to be large, a small utility room or hallway/storage area is sufficient. No matter the area—it should be easy to clean, both in materials used and clutter. Keeping your brooder space clean is probably the most important component to consistent success.

Easiest to Clean



This is part of the San Clemente loggerhead shrike hand-rearing facility. Note the cabinets up off the floor which makes for easy hosing. The counter top is solid surface, again easy to clean. There is nothing extra on the counter that you have to move in order to clean. Walls are white which makes it easy to see dirt and debris and it's easy to clean material. Cabinets to store necessary supplies.

Easy to clean



*Riverbanks Zoo—
can see
non/porous
counter with
nothing extra on
it. Cabinets to
store supplies
which are all also
neatly stored
within containers
and won't gather
dust and debris.*

NOT easy to clean



Unnamed facility---Wood counter top

— porous surface unless sealed, and even then not

100% for extended periods of time. Easy to clean flooring and storage up off the ground — but open allowing for dust and debris to accumulate. All the supplies underneath makes cleaning a nightmare and unlikely to occur on a daily basis.

Size DOES NOT matter



As you saw in earlier photos from St. Augustine and Santa Barbara you don't need much space to be successful. This is our incubation and brooder room facility in Galapagos where we raise 15-20 chicks over ~8 weeks, critically endangered Mangrove Finch.

Size DOES NOT matter



Santa Barbara Zoo does not have a room dedicated for chick rearing, but they have this area within their vet clinic. They've been able to raise penguins, flamingos, pigeon and waterfowl in this space.

Dedicated Space



The original APC, heat and AC present. Machines are not meant to cool—only heat so having hot rooms can create issues as can having cold rooms.

Multi-species functionality



APC designed for multi-species functionality. Countertops with brooders for small altricial species. Box brooders for starting pheasants and waterfowl, can be used for parrots. Small indoor holding cages with tiny ponds, can be used for a variety of species such as pelicans, flamingos, storks, hornbills and fledging passerines. Attached outdoor holding for all species when old enough.

Multi-species functionality



Can use a variety of spaces as well brooders. If you don't have a lot of space, can create additional space by getting creative. Can raise waterfowl, flamingos, and even lories all in the same space none of which was designed for any of these groups.



Equipment

- Climate control capabilities
- Brooders
- Scale
- Sink
- Generator/Back up battery
- Refrigerator
- Microwave
- Dishwasher

Now that you've designed your brooder room space — you'll need some equipment. Above is a wish list — some more critical than others.

Brooders.....



Many different styles — all these are commercially produced, but saw the home made very functional brooder earlier.

*Map temperatures! Put thermometer near chick not on the other side of the brooder
Know your equipment!! AICU's can be recalibrated — I get a fair number of e-mails about them not working properly.*

Scales...



Calibrate yearly—inaccurate scales can cause numerous issues.

Get a scale that weighs to the right increment—if only ever going to raise small species, get something that measures .01 g.

If you're going to raise large species, make sure the capacity is high enough.

Sink



Not necessary but makes hand-washing convenient and more likely to occur.

BROODER ROOM BASICS



RECORD KEEPING

As you can tell, everyone loves records!

Part 2

Records

- What information should you collect and why?

EVERYTHING

Even if it doesn't seem important write it down. Too often we are trying to remember what we did with said chick. Just recently got a chick and couldn't remember if we actually followed the protocol which said first 2 feeds water.

Basic info

5	Common Name:	Raggiana Bird-of-paradise	
6	Species Name:	Paradisaea raggiana	
7	Hatch Date:	16-Mar-17	
8	Accession #:	417023	
9	Band #:	CM: Black	
10	Hand Rearing Protocol Dated:	BOP HRP 2017	
11	Parent Encl #:	AA06001	
12	Male Parent Acc #:	408034	
13	Female Parent Acc #:	404120	
14	Egg #:	17-306	
15	Sex:		
16	Death Date:		
17	Age @ Death (days):	-42810	
18	To be pinioned (Y/N)		
19	INCUBATION		
20	% Egg Weight Loss:	10.6%	
21	Expected % Egg Weight Loss:	9-15%	
22	Incubation irregularities?	N	
23	Pipped below aircell?	N	
24	Pip to Hatch Interval? (hrs)	25.45	
25	Estimated Time of Hatch:	745am	
26	Parent Hatched?	N	
27	Reason pulled:		
28	Stage/Condition:		
29	INITIAL CONDITION AFTER HATCH		
30	Vitality = strong/weak	strong	
31	Seal condition = closed/open	open	
32	Edematous or dehydrated		
33	Skin color:		
34	Down color:		

Who are the parents, weight loss, hatch date time, pip to hatch interval, basically anything of use that could help diagnose issues, prevents having to look back through extra records.

Daily information

5	Species:	Raggiana Bird-of-paradise																																	
6	Hatch Date:	16-Mar-17	Change Supplements to % solids for columbids/psitticines																																
7	Accession #:	417023	Change Self Feed Amount or Amount Solids Fed to Self Feed Amount WHEN bird is self feeding																																
8	Band #:	CM: Black	0	0	OR use this for Self feed amounts																														
9	BOP HRP 2017	chick wts	530	600	0630	700	730	800	830	900	930	1000	1030	1100	1130	1200	1230	1300	1330	1400	1430	1500	1530	1600	1630	1700	1730	1800	1830	1900	1				
10	Date	Age/ Body Wt/ % Change	Ca	B	Meds ?	Actual % of BW Intake	Lo Daily % Intake	Hi Daily % Intake	Target Feed Freq	LoTarget Amount to Feed/Day	Hi Target Amount to Feed/Day	Lo Target / feeding	Hi Target/ feeding	Actual Solids Intake (g)	Self Feed Amount (g)	Actual Fluid Intake (cc)																			
11	16-Mar-17	0				17.2%		30%	9	0.00	3.06	0.00	0.34	1.75	0.00	0.00																			
12	Amount SolidsFed (g)	10.20																																	
13	Self Feed Amount																																		
14	Oral Fluids																																		
15	Supplements																																		
16	Crop(0,R,1,2,3)																																		
17	Response (G,F,P,NFR)																																		
18	Feces																																		
19	17-Mar-17	1	0.02	0.04		37.1%		40%	9	0.00	4.21	0.00	0.47	3.91	0.00	0.00																			
20	Amount SolidsFed (g)	10.53					0.47			0.51				0.49		0.40																			
21	Self Feed Amount	3.2%																																	
22	Oral Fluids																																		
23	Supplements																																		
24	Crop(0,R,1,2,3)																																		
25	Response (G,F,P,NFR)			NFR																															
26	Feces																																		
27	18-Mar-17		0.04	0.08		51.9%		50%	9	0.00	6.10	0.00	0.68	6.33	0.00	0.00																			
28	Amount SolidsFed (g)	12.20				0.70	0.70			0.65			0.68			0.72																			
29	Self Feed Amount	15.9%																																	
30	Oral Fluids																																		
31	Supplements																																		
32	Crop(0,R,1,2,3)																																		
33	Response (G,F,P,NFR)																																		
34	Feces																																		
35	19-Mar-17		0.06	0.13		55.8%		55%	9	0.00	8.16	0.00	0.91	8.28	0.00	0.00																			
36	Amount SolidsFed (g)	14.84				0.95	0.94			0.91			0.93			0.73																			
37	Self Feed Amount	21.6%																																	

1 days worth of data

Data collection

						On Meds (Y)	Actual % of BW Intake	Lo Daily % Intake	Hi Daily % Intake	Target Feed Freq	Actual Feed Freq	LoTarget Amount to Feed/Day	Hi Target Amount to Feed/Day	Lo Target / feeding	Hi Target/ feeding	Actual Solids Intake(g)	Self Feed Amount (g)	Actual Fluid Intake (cc)
10	Date	Age/	Body Wt	% Change														
11	16-Mar-17	0	10.20	12			17.16%	0.00%	30.00%	9	5	0.00	3.06	0.00	0.34	1.75	0.00	0.00
12	17-Mar-17	1	10.53	20	3.2%		37.13%	0.00%	40.00%	9	8	0.00	4.21	0.00	0.47	3.91	0.00	0.00
13	18-Mar-17	2	12.20	28	15.9%		51.89%	0.00%	50.00%	9	9	0.00	6.10	0.00	0.68	6.33	0.00	0.00
14	19-Mar-17	3	14.84	36	21.6%		55.80%	0.00%	55.00%	9	9	0.00	8.16	0.00	0.91	8.28	0.00	0.00
15	20-Mar-17	4	18.30	44	23.3%		56.17%	0.00%	55.00%	7	7	0.00	10.07	0.00	1.44	10.28	0.00	0.00
16	21-Mar-17	5	22.75	52	24.3%		55.87%	0.00%	55.00%	7	7	0.00	12.51	0.00	1.79	12.71	0.00	0.00
17	22-Mar-17	6	27.34	60	20.2%		55.71%	0.00%	55.00%	7	7	0.00	15.04	0.00	2.15	15.23	0.00	0.00
18	23-Mar-17	7	33.55	68	22.7%		56.36%	0.00%	55.00%	7	7	0.00	18.45	0.00	2.64	18.91	0.00	0.00
19	24-Mar-17	8	40.70	76	21.3%		31.82%	0.00%	55.00%	7	4	0.00	22.39	0.00	3.20	12.95	0.00	0.00
20	25-Mar-17	9	0.00	84	100.00%		#DIV/0!	0.00%	0.00%	0	0	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00

All our the data we collect on the front pages is then collated in one place so we can put that data to use at the end of the season when we want to update protocols with what we actually did.

Daily information

5	Species:	Raggiana Bird-of-paradise																		
6	Hatch Date:	16-Mar-17	Change Supplements to % solids for columbids/psitticines																	
7	Accession #:	417023	✓	Change Self Feed Amount or Amount Solids Fed to Self Feed Amount WHEN bird is self feeding																
8	Band #:	CM: Black	0	0	OR use this for Self feed amounts															
9	BOP HRP 2017	chick wts	530	600	0630	700	730	800	830	900	930	1000	1030	1100	1130	1200	1230	1300	1330	14
10	Date	Age/ Body Wt/ % Change	Ca	B	Meds ?	Actual % of BW Intake	Lo Daily % Intake	Hi Daily % Intake	Target Feed Freq	LoTarget Amount to Feed/Day	Hi Target Amount to Feed/Day	Lo Target / feeding	Hi Target/ feeding	Actual Solids Intake(g)	Self Feed Amount (g)	Actual Fluid Intake (cc)				
11	16-Mar-17	0				17.2%		30%	9	0.00	3.06	0.00	0.34	1.75	0.00	0.00				
12	Amount SolidsFed (g)	10.20														0.34				0.28
13	Self Feed Amount																			
14	Oral Fluids																			
15	Supplements																			
16	Crop(0,R,1,2,3)																			
17	Response (G,F,P,NFR)																			GFR
18	Feces																			F
19	17-Mar-17	1	0.02	0.04		37.1%		40%	9	0.00	4.21	0.00	0.47	3.91	0.00	0.00				NF
20	Amount SolidsFed (g)	10.53					0.47			0.51				0.49		0.40				0.51
21	Self Feed Amount	3.2%																		
22	Oral Fluids																			
23	Supplements													Ca/B						
24	Crop(0,R,1,2,3)																			
25	Response (G,F,P,NFR)			NFR			FFR			GFR				G/FFR		GFR				GFR
26	Feces						F			NF				NF		F				NF
27	18-Mar-17	2	0.04	0.08		51.9%		50%	9	0.00	6.10	0.00	0.68	6.33	0.00	0.00				
28	Amount SolidsFed (g)	12.20			0.70		0.70			0.65			0.68			0.72				0.76

Weights



10% daily weight gains does not apply to all species, Sunbirds gain 40+%/day the first few days, and there is a curve with higher gains earlier and smaller gains closer to fledge.

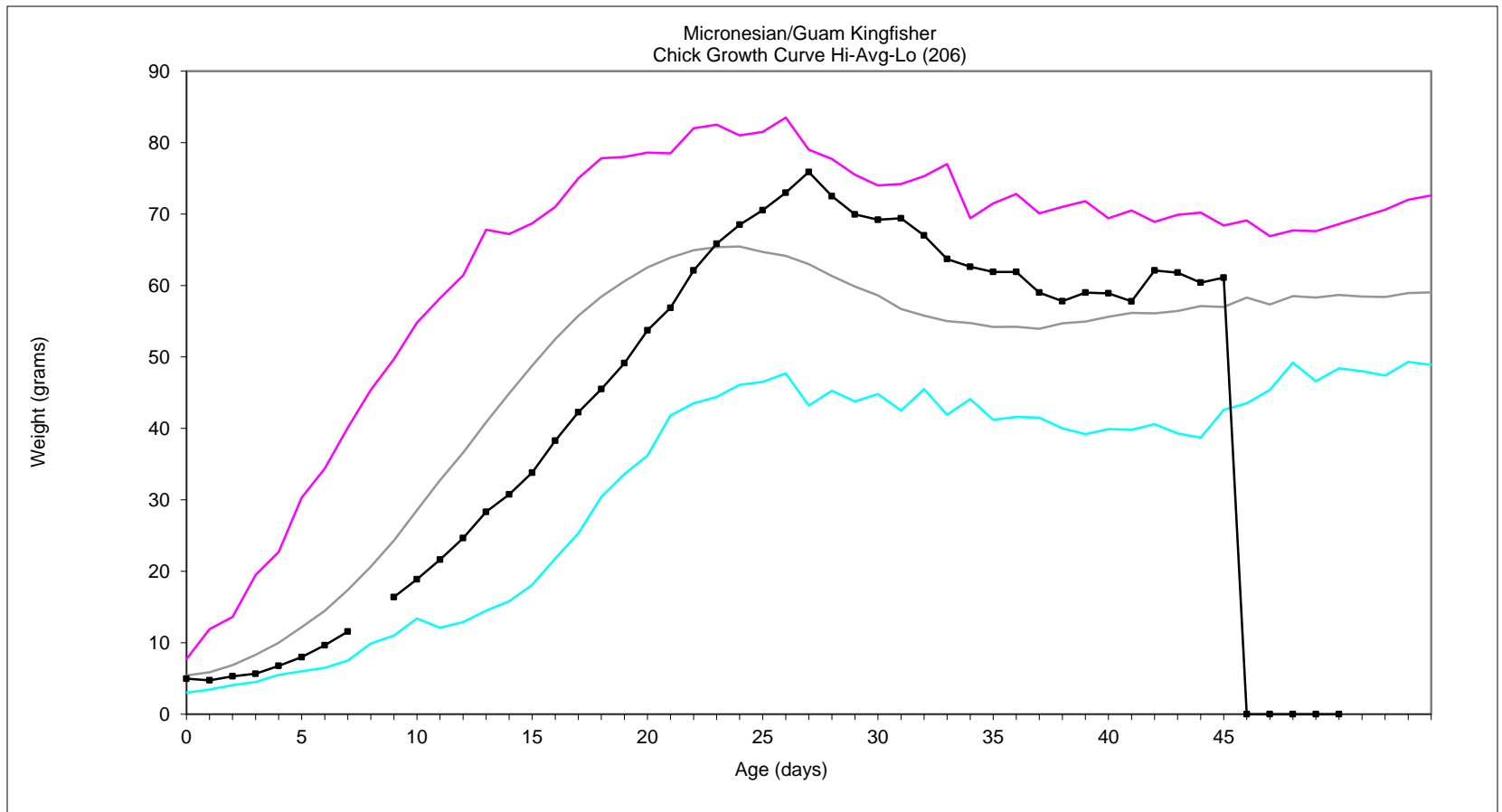
Weights and Intakes

7	Accession #	415082	✓	Change Self Feed Amount or Amount Solids Fed to Se					
8	Band #	CM: BIK	0	0					
9	June 2015 HRP	chick wts	530	600	0630	700	730	800	830
10	Date	Age/ Wt/ % Change	Ca	B	Meds ?	Actual % of BW Intake	Lo Daily % Intake	Hi Daily % Intake	Target Feed Freq
11	22-Jul-15	0				30.1%		50%	7
12	Amount SolidsFed (g)	3.52							
13	Self Feed Amount								
14	Oral Fluids								
15	Supplements								
16	Crop(0,R,1,2,3)								
17	Response (G,F,P,NFR)								
18	Feces								
19	23-Jul-15	1	0.01	0.02		52.7%		50%	7
20	Amount SolidsFed (g)	4.10			0.30			0.30	
21	Self Feed Amount	16.5%							
22	Oral Fluids								
23	Supplements				Ca/B				
24	Crop(0,R,1,2,3)								
25	Response (G,F,P,NFR)				GFR			GFR	
26	Feces				F			F	
27	24-Jul-15	2	0.02	0.04		51.9%		50%	7
28	Amount SolidsFed (g)	4.39			0.31			0.35	
29	Self Feed Amount	7.1%							
30	Oral Fluids								
31	Supplements				Ca/B				
32	Crop(0,R,1,2,3)								
33	Response (G,F,P,NFR)				GFR			GFR	
34	Feces				F			NF	
35	25-Jul-15	3	0.02	0.05		62.5%		60%	7
36	Amount SolidsFed (g)	4.72			0.40			0.40	
37	Self Feed Amount	7.5%							
38	Oral Fluids								
39	Supplements				Ca/B				
40	Crop(0,R,1,2,3)								
41	Response (G,F,P,NFR)				GFR			GFR	
42	Feces				F			NF	
43	26-Jul-15	4	0.03	0.06		#DIV/0!		60%	7
44	Amount SolidsFed (g)								
45	Self Feed Amount	-100.0%							

9	June 2015 HRP	chick wts	530	600	0630	700	730	800	830
10	Date	Age/ Wt/ % Change	Ca	B	Meds?	Actual % of BW Intake	Lo Daily % Intake	Hi Daily % Intake	Target Feed Freq
11	22-Jun-15	1	0.00	0.00		51.6%		50%	7
12	Amount SolidsFed (g)	4.03			0.30			0.31	
13	Self Feed Amount	-3.1%							
14	Oral Fluids								
15	Supplements								
16	Crop(0,R,1,2,3)								
17	Response (G,F,P,NFR)								
18	Feces								
19	20-Jun-15	2	0.02	0.04		50.6%		50%	7
20	Amount SolidsFed (g)	4.94			0.36			0.36	
21	Self Feed Amount	22.6%							
22	Oral Fluids								
23	Supplements								
24	Crop(0,R,1,2,3)								
25	Response (G,F,P,NFR)				GFR			GFR	
26	Feces				NF			F	
27	21-Jun-15	3	0.03	0.05		62.9%		60%	7
28	Amount SolidsFed (g)	5.44			0.52			0.47	
29	Self Feed Amount	10.1%							
30	Oral Fluids								
31	Supplements								
32	Crop(0,R,1,2,3)								
33	Response (G,F,P,NFR)				GFR			GFR	
34	Feces				NF			NF	
35	22-Jun-15	4	0.03	0.07		61.9%		60%	7
36	Amount SolidsFed (g)	6.51			0.58			0.57	
37	Self Feed Amount	19.7%							
38	Oral Fluids								
39	Supplements								
40	Crop(0,R,1,2,3)								
41	Response (G,F,P,NFR)				GFR			GFR	
42	Feces				F			F	
43	23-Jun-15								
44	Amount SolidsFed (g)								
45	Self Feed Amount								
46	Oral Fluids								
47	Supplements								
48	Crop(0,R,1,2,3)								
49	Response (G,F,P,NFR)				GFR			GFR	

Compare intakes to weight gains for these 2 birds. Almost identical intakes, but bird 415082 had significantly smaller gains in comparison.

Weights



Know what is normal for the species or overall taxa group if it's a new species. GKF lose on average between 18-34% over 3 week period, alarming if you have no other data as a reference point.

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