



Hand-rearing of Tanagers: Focusing on Techniques, Crucial care and Reintroduction to a Family Group

ASHLEY FLAGG NEAFICY

WOODLAND PARK ZOO

ashley.neaficy@zoo.org

Mary Healy Grant for AZA Avian Leadership Development Recipient

Hand-reared tanagers

Silver-beaked tanager
Ramphocelus carbo



Turquoise tanager
Tangara mexicana



Silver-beaked tanager (*Ramphocelus carbo*)



Order: Passerines

Family: Thraupidae

Range: Forests in South America
(Venezuela - Northern Paraguay)

Size: 25-30g

Age range:

males: 20 years

females: 15 years

Sexual maturity: 1 year

Nest: cup

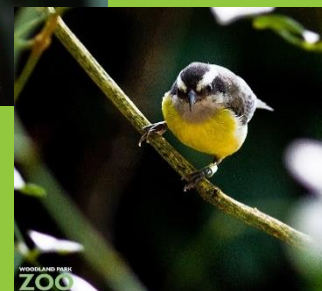
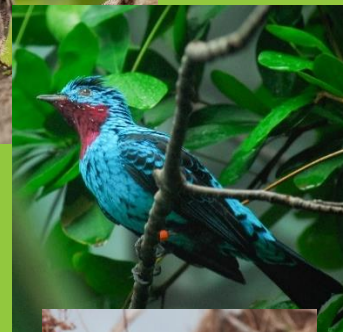
Eggs: 2- 3 blue to greenish- blue

Incubation: 12-14 days

Fledge: 12-14 days



The Dome



What's this?

- 1-day old hatchling was found on the boardwalk
- Severe head trauma
- Hand-rear
- What species is this?
 - hypothesis= Yellow-rumped cacique due to nesting behavior



Hand-rearing room setup

*AICU used as
a brooder

*Start at 96° F

*Decrease by
1° F daily



3 days later.....



Silver-beaked
tanager
“Pepe”

What do we do now?

- First time hand-rearing a silver-beaked tanager
- Why? More prevalent species and hand rearing is not common
- No current hand-rearing protocol
- Very important, viable offspring
 - Dam is wild caught
 - Sire was older male that had not bred and past hypothesized post reproduction age of 10y
 - First clutch for the pair



TANAGER HAND REARING PROTOCOL



DAY	BROODER/ TEMP.	FREQ	DIET by Weight	INTAKE	MISC.
0	95 F in nest cup w/ tissue in AICU w/ water pans for highest humidity	Every 1 ½ hrs (9x)	60% pinkie 40% Papaya Pedialyte	60-80% of body weight	Use CaCO & vitamin B-complex. Watch for signs of dehydration: Dark red color, dry feces, few urates, Increase papaya to help with these issues as needed.
1	Decrease temp by 1 degree daily if chicks are tolerating it.				Days 1 thru 8 should have daily weight gains between 15-20%
2-3	Add Nomad matting to nestcup		60% Pinkies 30% Papaya 10% waxworms Pedialyte		Should be a fecal present at most feedings.
4-5	Adjust temp as needed based on chick behavior.	Every 2 hrs (7x)	45% pinkie 35% ripe papaya 10% waxworms Add: 10% Mazuri softbill (low Fe Pellet), soaked Water		Watch for pin feathers (day 5) - resulting in much greater weight loss between feeds and overnight than in previous days. Discontinue Pedialyte and switch to water on day 4.
6-7		Every 2.5 hours (6x)			Eyes beginning to open
8-9			30% pinkie 10% waxworms 35% ripe papaya 25% Mazuri softbill (low Fe Pellet), soaked	80% of body weight for the day	Days 9 thru 11 should have daily weight gains between 10-15%
10-13		Every 3 hrs (5x)	20% pinkie 10% waxworms 40% ripe papaya 30% Mazuri softbill (low Fe Pellet), soaked		Days 12 thru 14 should have daily weight gains between 5-10%
14-15			10% waxworms 40% ripe papaya 20% soft fruit (grapes/banana) 30% Low Iron Pellet, soaked	Ad lib	Days 15-30 should show small weight gains of less than 5%. Days of minor weight loss should be expected as the bird begins to fledge.
16	Move to covered Howdy w/ heat				Expect to fledge 15-20 days
17-18	Outside w/ heat during day. No heat inside @ night				Flying Add slices of fruit: avocado, papaya, banana, orange & bugs Leave food in between feedings
19					Delete Calcium & vitamin B-complex supplements
20					Eating on own (20-40)

Liquid vitamin B complex to be used at **1cc/50g food fed**

* Thank you to San Diego Zoo for your contribution*

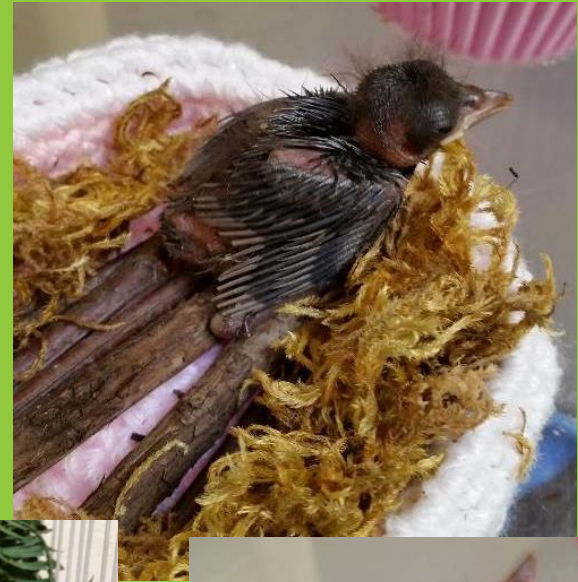
Calcium carbonate - Use 1% of amount fed previous day

Let the rearing begin..



- Icterid diet was a higher protein diet vs fruit based tanager diet
- San Diego Zoo gave us baseline information to create a WPZ tanager hand-rearing diet
- Challenges:
 - Regulating weight gains - ex: more food during feather production
 - Daily ad lib diet - most days 10% or less weight gain
 - Limit waxworm consumption to avoid MBD (metabolic bone disease)
 - No mealworms or giant mealworms due to impaction risk
 - Loss of chicks at 1-2 weeks due to parasites
 - Corid (Amprolium 9.6%) given during breeding season - 5 days on / 5 days off
 - 1 drop Corid given first 5 days of rearing

Getting bigger!



How to avoid imprinting?



- Introduce to a Turquoise tanager in holding
- 1st step: attach a small wire holding cage to holding
- 2nd step: put into holding with turquoise tanager
- 3rd step: keeper access food dish from outside enclosure, grasp food with tweezers
- 4th step: once silver-beaked tanager seen eating from dish without keeper help, discontinued supplemental feeding



A few months later....

“Pepe 2”



- Another chick was found on the ground in the dome
- Determined it was a silver-beaked tanager based on what we learned previously
- Healthy hatchling
- Hand-reared



Turquoise tanager

(*Tangara mexicana*)



Order: Passeriformes

Family: Thraupidae

Size: 20g

Distribution: Humid forests in Columbia, Trinidad, Venezuela and south to Bolivia and Brazil

Breeding: Occurs for most of the year

Nests: cup shaped filled leaves, dead grasses, twigs

Clutch size: 2-3 eggs

Incubation: 12- 14 days

Fledge: 14 days

- 4-5 adults will assist with nestlings and juveniles
- Forage on their own at 6 weeks
- 8 weeks of age: full adult plumage



Observations



- Found on the ground in a 25-30 ft tall exhibit
- Based on feather development 9 days old
- 1.1.1 conspecifics and 1.1 Silver-beaked tanagers in enclosure
- Nest too high up to be put back
- Hand-rear tanager diet



Problems



- Underweight for age
- Loss in weight
- Bloody stools
- Dehydrated
- Balance issues (potential ataxia?)
- Poor feather development
- Trouble defecating
 - Lists far forward and topple over

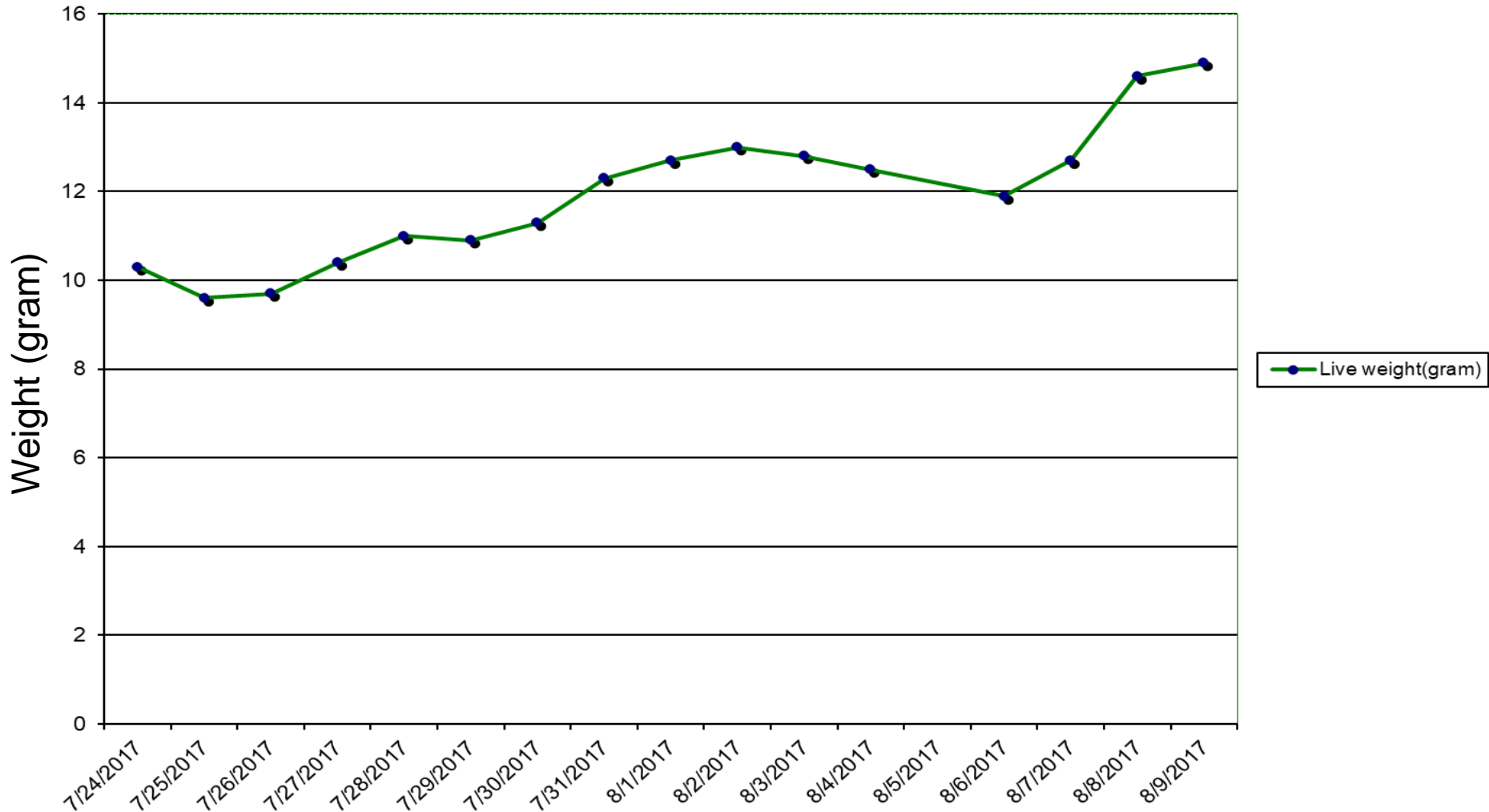
What to do next?

- Increased feedings to every 1 to 1.5 hours
- ↑ papaya = ↑ hydration
- ↑ Pinkies = ↑ protein → weight gain?
- ↓ Grapes: not properly digesting and to allow for more calorically dense food
- Keep waxworms still at 10%
- Addition of Bene-bac for digestive support
- Addition of Emeraid sprinkled on food
- Addition of Corid - 1 drop on food 6 days
- First three days: food soaked in Pedialyte
 - Then water soaked food

Growth curve (hand-reared)



Weight Graph for GAN: WNW17-20831/[206380/SEATTLE]



After changes...

- More formed fecals & absence of blood
- Weight & mobility abnormalities
 - Quality of life assessment
 - Pros: Great feeding response, BAR
 - Cons: poor mobility/ stability, weight not stable, passing full food items, breathing abnormal at times
- Days later: mobility became more normal but still not maintaining weight
 - Final attempt
 - Decrease pinkies- increased grapes and papaya
 - Introduce back on exhibit to parents as they were still feeding clutch mate

Reintroductions to parents on exhibit



- 2 food dishes: one for bugs, one for fruit on top or side
- Perching attached to outside of crate (parent perching)
- Parents able to feed through wire
- Supplemental feedings until confirmed feeding from parents

Results



- Immediate response and approaching from parents: attacking keepers
- Supplemental feedings every 2 hours
- Chick eliciting a feeding response as parents approached
 - Confirmed feeding from parents 2 days after introduction
 - Open trap cage door to allow to move around the exhibit

Time to explore!



**Final
exhibit
setup**





Date	Value	UOM	Notes
7/24/2017	9	10.3	gram
7/25/2017		9.6	gram
			Gain of 1% from yesterdays weight.
7/26/2017		9.7	gram
			Gain of 7.2% from yesterdays weight.
7/27/2017		10.4	gram
			5.77% increase. RCR
7/28/2017		11	gram
			.92% decrease. RCR
7/29/2017		10.9	gram
			3.67% increase. RCR
7/30/2017		11.3	gram
			Gain of 8.8 % from yesterday's weight.
7/31/2017		12.3	gram
			Gain of 3.25% from yesterday's AM weight.
8/1/2017		12.7	gram
			2.36% increase. RCR
8/2/2017		13.0	gram
			1.56% decrease. RCR
8/3/2017		12.8	gram
			2.34% decrease. RCR
8/4/2017		12.5	gram
8/6/2017		11.9	gram
8/7/2017		12.7	gram
			weight taken at the 3:30 feed.
8/8/2017		14.6	gram
			weight taken at the 3:00 feed. AFN
8/9/2017		14.9	gram
9/5/2017		17	gram
10/2/2017		16.6	gram
1/22/2018		17.2	gram
2/18/2018		17.5	gram
2/26/2018		19.2	gram

Important dates:

7/24/17 @ 9d old: Found on ground/hand-rearing began

08/02/17 @ 18d old: intros to parents


08/04/17 @ 20d old: confirmed feed from parents

08/08/17 @ 24d old: Supplemental feedings stopped

09/05/17 @ 51d old: Normal weight range for age

What did we learn?



- Growth stages of silver-beaked tanager chick
- Tanager hand-rearing diet
- Ability to adapt to crucial and non-crucial scenarios
- Utilize parents when applicable and do reintroductions
- Imprinting not an issue with tanagers
- Techniques to combat dehydration, weight loss and abnormal fecals
- Corid treatment during breeding and rearing season =  chick mortality
- Eliminate mealworms and giants and limit waxworms

Thank you!



Kim Szawan
Robyn Russnogle
Joanna Klass
Mark Myers
Shawn Pedersen
Nicole LaGreco @SDZ