

Captive Husbandry and Reproductive Efforts for the Genus *Eleutherodactylus*

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Need for Action

Due to a variety of environmental pressures including habitat destruction and fragmentation, emerging disease, climate change, and human interaction; many reptile and amphibian species throughout the world are in decline, some will likely face extinction in the coming decade..

The integration of captive reproductive programs with in-range partnerships for future repatriation efforts is crucial in preventing a species extinction.

La Necesidad de acción

Razones por el disminuendo de las poblaciones:

La destrucción del medio ambiente, cambio de clima, enfermedades, y la interacción humana.

Muchos reptiles y anfibios están en peligro de extinción en la próxima década.

Captive Assurance Colony

- A collection developed to sustain a species over time for use in a conservation program
- Genetic banking
- Repatriation
- DERP (display, education, research populations)



Colonia Captiva

- Una colección hecha para sostener una especies por un tiempo designado para uso en los programas de conservación
- Bancos genéticos
- Para Dejarlos ir en el ambiente
- Exposición, educación, y para estudiar las poblaciones

- Controlled *ex-situ* environments can provide secure space for research that needs to be done.
 - effects of disease
 - behavioral/reproductive studies
 - phylogenetic relationships and unknown taxonomic territories



- CAC's can provide genetically diverse multi-generation breeding colonies

Ambientes controlados pueden proporcionar espacio seguro para la investigación que se necesita hacer.

- Effectos de las enfermedades
- Estudios de la reproducción y comportamiento

Creating Infrastructure La creación de la infreestructura





Cost of one *Bio-Secure* frog lab

- Trailer Cost (48x8x8) 2200.00
- ZOO MED:
 - Naturalistic Terrarium (12x12x12) 41.16x10= 411.60
 - Naturalistic Terrarium (18x18x18) 77.57x13 = 1008.41
 - Naturalistic Terrarium (18x18x24) 91.38x5= 456.90
- 18" NT Hood (2) bulbs Case of 6=138.60 (x3) = 415.80
- Racks 3'x14" 60.00x6= 360.00
- 4'x24" 70.00x6= 420.00
- Cabinets 100.00x4= 400.00
- Utility Sinks- 70.00x3= 180.00
- Desk- 100.00
- WetVac 16 gallon- 81.44
- Hose- 20.00x3= 60.00
- PVC Wall- 48x8 (on each side) 32pcx116.49=3727.68 (-15%) = \$3167.00
- Self Tapping screws/rubber washers/silicone seal- \$100.00
- Window Unit for QT- 400.00
- Light Fixtures for QT/Main- 240.00
- HVAC for Main- donation+free labor! (512 cubic ft)
- Bins for changing- 10.00x2= 20.00
- Bins for treating drain water- 200 gallon 41x66x26 = 655.90
- 8 Pairs of crocs- 10.00x8= 80.00
- Lab coats- already have
- Doors Metal Exterior w/Deadbolt (3)- 600.00 (lowes 160.00 pc + knobs)
- Anti Fatigue Rubber Mats- Lowes 36x36 x (32pc)= \$640.00 (20 a pc)
- Lowes Whirlpool R/O Water Filter 147.00X 2= 294.00
- Misc plumbing/check valves/lighting/filler/silicone- \$1000.00
- Hot Water heater (instant)- \$200.00
- Cool seal for ceiling (both trailers 5 ga)- \$150.00
- Emergency Lights- donation
- Outlets 20 total (16 main/2prep/2QT)- \$50.00 GFCI breaker \$20.00 outlets
- 2 outdoor lights/2 outdoor outlets- \$50.00 (25 ea)
- Hurricane straps- \$200.00 (10 total, 5 on ea side)
- Power upgrade from commissary transformer- \$900.00

Total Cost- \$14,861.05



Eleutherodactylus coqui
Common Coqui





The Importance of Parental Care in *Eleutherodactylus* in Captivity:

- decrease in stress
- decrease in egg mortality due to fungus/mold
- newly hatched frogs tend to eat better

La importancia del cuidado de los padres en captividad

- disminuir el estres
- disminucion de la mortalidad de los huevos debido a hongos y moho
- ranas recien nacidas comen mejor

Eleutherodactylus monensis
Mona Island Coqui



Captive Reproduction

- Number of egg clutches: 6
- Eggs per clutch: 15 (range 12-19; n = 5)
- Egg diameter: 5.29 mm (range 4.70 – 6.00; n = 12)
- Nest site: Concavity in substrate
- Parental Care: none observed
- Incubation period: 21 days (range 13-28; n = 4)
- Froglet hatch size: 8.67 mm (range 8.49-9.78 mm; n = 14).

Reproduccion Captiva

- Numero de nidadas:6
- Huevos por nidada: 15
- Diametro del huevo: 5.29mm
- Sitio del Nido: agujero en la tierra
- Cuidado de los padres: ningun observo
- Periodo de incubacion: 21 dia
- Tamaño de las ranas recien nacidas: 8.67mm

Reproductive Events

Oviposition

July 2012 - 3

October 2012 - 1

July 2013 - 2

Eventos Reproductivos

Julio 2012 - 3

Octubre 2012 - 1

Julio 2013 - 2





General Observations

Observaciones generales



Color Variation



Axillary Amplexus



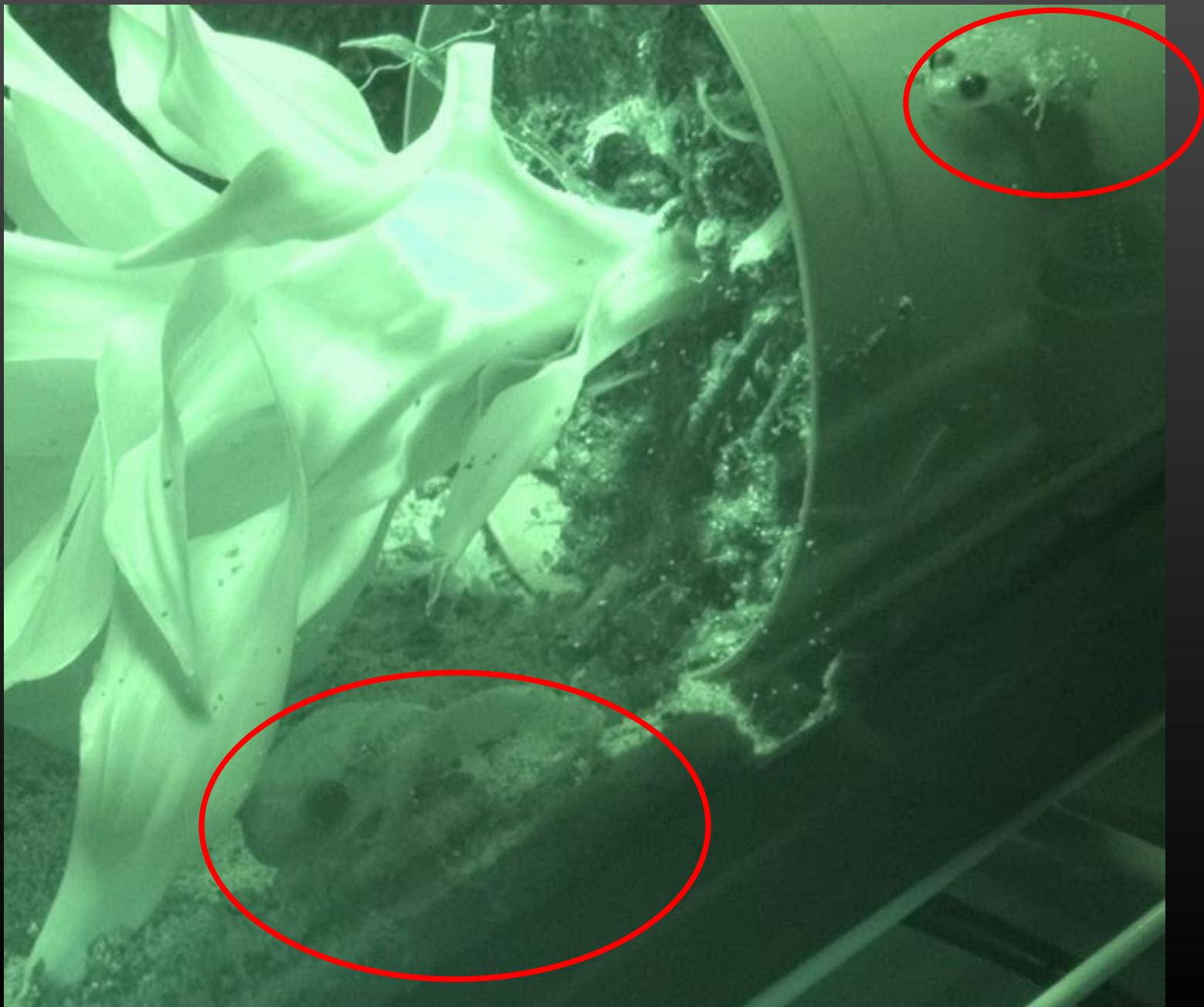
Nest Concavity*

*All concavities dug during our study varied from 38.1 to 50.8 mm in width and reached a depth of approximately 25.0 mm (n = 4).

* Sitios de nidos eran de 38.1mm-50.8mm anchos y un profundo de 25.0mm (n=4)



Day 9





Initial Program Challenges

Froglet mortality due to severe Metabolic Bone Disease (MBD), possibly caused by Fluoride exposure; inhibiting the absorption of calcium during egg development (A. Pessier, pers. comm.)

All municipal water was originally run through a biological filtration system.

F- 0.38 MG/L

Water was changed to R/O to remove fluoride and reconstituted with calcium.

Ca 27.4 MG/L

F- (none) reporting limit .05



Retos del programma inicial

Mortalidad de las ranas debido al (MBD) o enfermedad osea metabolica debido a la exposicion de fluoruro inhibiendo la absoracion de calcio durante el desarollo del huevo.

Toda la agua municipal se ejecuto inicialmente mediante una filtracion biologico.

F- 0.38 MG/L

Agua se cambio a R/O para eliminar fluororo y se reconstituyo con calcio.

Ca 27.4 MG/L

F- (none) reporting limit .05



Eleutherodactylus antillensis
Red-Eye Coqui



Eleutherodactylus cochranae
Whistling Coqui



Modelo: San Antonio Zoo







PROYECTO COQUÍ



Gracias CaribPARC!

