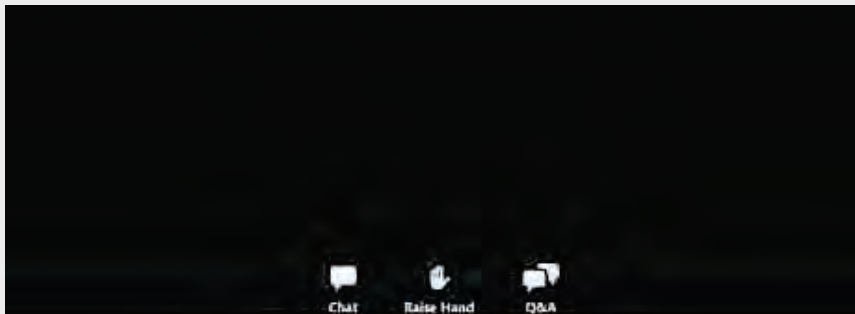




**OLAW CONVERSATIONS**  
**Developing Enrichment That Works**  
Tuesday, September 20, 2022



# Today's session



**Troubleshooting tip when trying to speak after raising hand!**  
Zoom controls vary by device. If you are still muted after the host unmutes you, try looking for the speaker icon in the top right, turning off subtitles under the CC icon, or an audio settings menu on the bottom left of your screen.

- Session will not be recorded
- Slide PDFs and certificates will be sent to attendees
- 3 ways to interact:
  - Raise hand feature
  - Chat box
  - Q and A feature.
    - There is a checkbox in the Q and A feature that provides the option to submit questions anonymously



## Leading the Discussion:

Kristina C. Bartley B.Sc. M.Sc. CLAP

Crystal H. Johnson, DVM, MPH, DAACLAM

# Developing Enrichment that Works:

*Tips on How to Create, Implement and Evaluate New and Existing Enrichment/Behavior Management Practices in Your Facility*

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*President/Founder of American Association for Laboratory Animal Enrichment*

*Director of Enrichment/ Behavior Management*

*Center of Comparative Medicine and Surgery*

*Icahn School of Medicine at Mount Sinai*

*New York, New York*

*Crystal H. Johnson, DVM, MPH, DAACLAM*

*Director, Division of Comparative Medicine*

*Georgetown University School of Medicine*

*Washington, DC*

# Background

Director, Environmental Enrichment and Behavior Management

Founder/ President of the American Association for Laboratory Animal Enrichment

Passion for Animal Welfare, Enrichment/ Behavior

# Background

Director, Division of Comparative Medicine, Professor of Microbiology and Immunology

Director, Enrichment/Behavior Management

Passion for Animal Welfare, Enrichment/ Behavior

# Overview

Enrichment/ Importance

Hallmarks to a Successful Enrichment Program

Social Housing Challenges/ Benefits

Enrichment Device Creation

Enrichment Device Evaluation

Enrichment/Behavior Management Program Sustainability

Questions

## Definition of Enrichment

- ▶ The Process of Enhancing an Animal's Environment to allow for its species typical behavior
- ▶ Successful Programs consider all aspects of a species' natural behavior including:
  - ▶ Social Organization
  - ▶ Foraging Behavior
  - ▶ Daily Activity Budgets





# Importance of Enrichment

According to the *Guide for the Care and Use of Laboratory Animals*, "the primary aim of environmental enrichment is to enhance animal well-being by providing animals with sensory and motor stimulation through structures and resources that facilitate the expression of species-specific behaviors and promote psychological well-being through physical exercise, manipulative activities, and cognitive challenges according to species-specific characteristics."

Social housing is considered the default method of housing by AAALACi unless otherwise justified based on social incompatibility, veterinary concerns, or scientific necessity approved by the IACUC.

The *Guide* also states that single housing of social species should be the exception and justified based on experimental requirements or veterinary-related concerns about animal well-being.

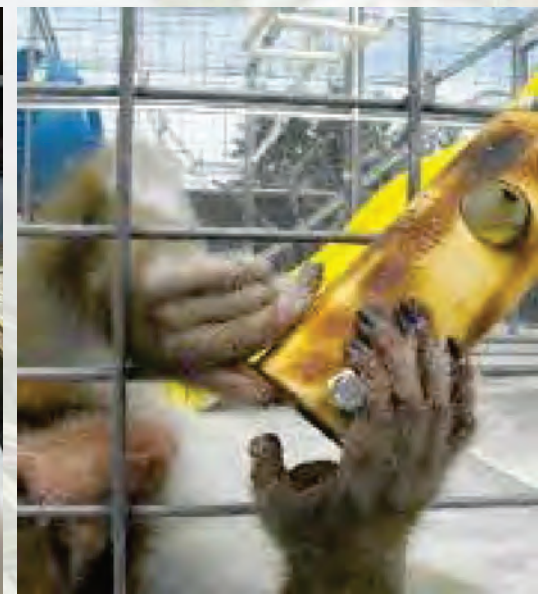


What are some of the types of Enrichment implemented in your facility?

Put your answers in the chat or raise your hand!

# Types of Enrichment

- Structural
- Social
- Food-Based
- Cognitive
- Sensory





Do You have Pets?



How much money do you spend on toys, comfortable bedding, or daycare a month?

What are some of the top barriers to a successful enrichment program?





# Barriers!!!

1


FINANCIAL  
CONSTRAINTS OR  
PRIORITIZING  
FUNDING

2

INTERFERES WITH  
RESEARCH, CREATES  
VARIABLE

3

STAFFING FOR  
IMPLEMENTATION



Enrichment/  
Behavior  
Management  
Program

Plan/Vision

Buy-in

- Institutional Leadership
- Research Community
- Vivarium Personnel





Development → Vision → Plan

- Mission
- Program evaluation
  - Institutional Culture
  - Resources
- Goals
- Plan
  - Budget
  - Implementation

# Plan/Vision

## Program Proposal for CHJ School of Medicine

### Proposal:

To expand the current environmental enrichment program to include all species of animals housed in CHJ facilities with an added behavior management component. The expansion of the program will create a need for at least two full time personnel to implement and or coordinate the program. These individuals can be converted from other areas within the current CHJ department or new hires.

### Background:

Environmental Enrichment is the provision of stimuli that encourage species appropriate behavior with the intent of satisfying an individual animal's physical and psychological needs. Environmental enrichment is achieved by modifying the animal's environment with the goal of providing a wide range of behavioral opportunities. Successful programs take into account all aspects of a species' natural behavior including social organization, foraging behavior and daily activity budgets. The *Guide for the Care and Use of Laboratory Animals* states that single housing of social species should be the exception and justified based on experimental requirements or veterinary-related concerns about animal well-being. Moreover, social housing is considered by AAALAC International the default method of housing unless otherwise justified based on social incompatibility, veterinary concerns, or scientific necessity approved by the IACUC.

### Initial Goals:

- Pair/group-house all social species.
- Provide foraging opportunities at least once weekly for all species.
- Create a variety of manipulanda for nonhuman primates.
- Standardize behavior monitoring and enrichment evaluations for all species.
- Cultivate positive reinforcement training (PRT) in nonhuman primates for general clinical/research procedures.
- Develop a dedicated space for enrichment preparation and storage.
- Train all husbandry/technical personnel on Environmental Enrichment SOPs.

# Proposal

## Projected Costs:

### Startup Cost

- NHP manipulanda (variety of 3 devices/50 animals) \$5000.00
- Dogs, Pigs, Rabbits, Ferrets (variety of 3 toys/50 animals of each species) \$5000.00
- Conventional/IVC Rodent shelter and nesting/(5000 cages) \$15000.00
- Transgenic/Breeding rodent shelter enrichment/(1000 cages) \$3500.00
- Miscellaneous Equipment (blender, kitchen utensils, popcorn popper, bags) \$2500.00
- Environmental Enrichment/NHP positive reinforcement training for personnel \$10000.00

**Total Cost= \$41000.00**

### Monthly Cost

- NHP manipulanda/50NHP \$1500.00
- Foraging substrate (Rodents, Guinea Pigs, Rabbits, Ferrets) \$1500.00
- Enrichment treats/50 animals of each species (Pigs, Dogs) \$500.00

**Total Cost = \$3500.00**

### Annual Cost

- Enrichment technician/coordinator \$35000.00 - \$65000.00 (Atlanta cost) X 2 people
- Rodent, Rabbit, Ferret enrichment \$18000.00
- NHP primate enrichment \$18000.00
- Pigs and Dogs enrichment \$6000.00

**Total Cost = \$112000.00 - \$172000.00**

- **Total Cost without Salary included: \$42000.00**

## Summary

- The numbers above are an estimate based on the environmental enrichment planned previously discussed.
- The estimates are based on an average of 50 animals per species excluding rodents.
- The enrichment technician salary range requires cost of living adjustment for New York.
- All cost can be adjusted based on the enrichment chosen for each species and the frequency applied.
- Continuing education for the enrichment team will also need to be factor into the annual budget.



## Institutional Leadership Support



Director, Animal Care  
Program



Administrative – IACUC,  
IO, Dean for Research, CFO



Resources – Financial,  
Personnel, Space allocation

How Do You convince the CFO that enrichment is important when it costs money to implement and there is no cost recovery model?





# Research Community



Communication



Benefits



Study variability



Collaborative  
approach



Collaborative Approaches



# Collaborative Approaches







What are some of the hurdles you have experienced from internal department staff?



## Vivarium Personnel



Animal Care Staff



Veterinary Staff



Facilities/Maintenance

Implementation





# Enrichment Budget Creation and Defense



Program Initiatives



Species/ Behavior/Enrichment Focus



Animal Number Projections



Plan A, B, C



# Internal Departmental Staff Challenges



Appropriate Staffing



Training

Enrichment

Animal Behavior

# How Do You Train Your Staff on Normal vs Abnormal Animal Behaviors?



## Departmental Staff Challenges



Trained Staff on Enrichment  
Distribution



Transparency of Enrichment  
Schedules



Is Everyone on the Same  
Page?



## What is the Best Enrichment to Offer?

Put your answers in the chat or raise your hand!



# Challenges of Social Housing

Surgery

Aggression/Fights

Study Aims

Endpoints

# Socially House Uncastrated Male New Zealand White Rabbits


Human Infant Pants for Postoperative Protection  
during Social Housing of New Zealand White Rabbits  
(*Oryctolagus cuniculus*)

Kristina A Bartley <sup>1</sup>, Crystal H Johnson <sup>2</sup>





**Can/Should NHP's be Socially  
Housed with Cranial Implants?**



Aggression in group housed nonhuman primates:  
Do you separate permanently? What is your facility's criteria?  
Is there a standard?



Does your Institution have a social housing policy?

# Social Housing Policies



Social Housing Policy



Ordering Animals/  
Planning study to  
conform to social housing  
policy and standards



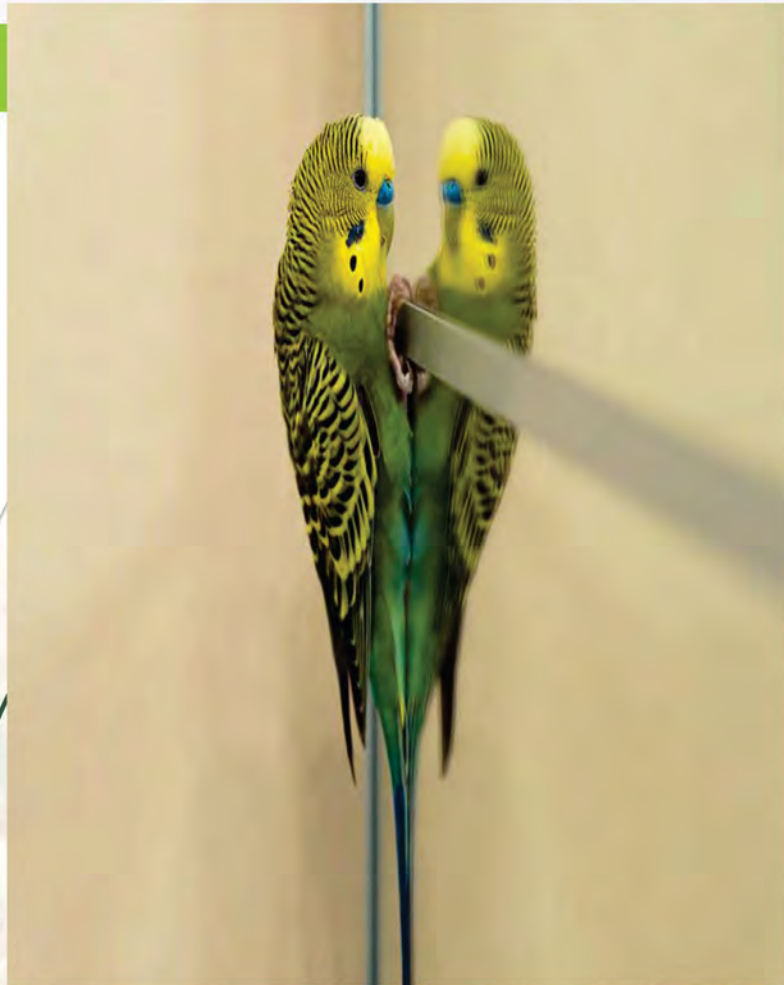
Single Housing Cards



Acclimation Policy



What Can You Do If an Animal  
is Left Singly Housed?











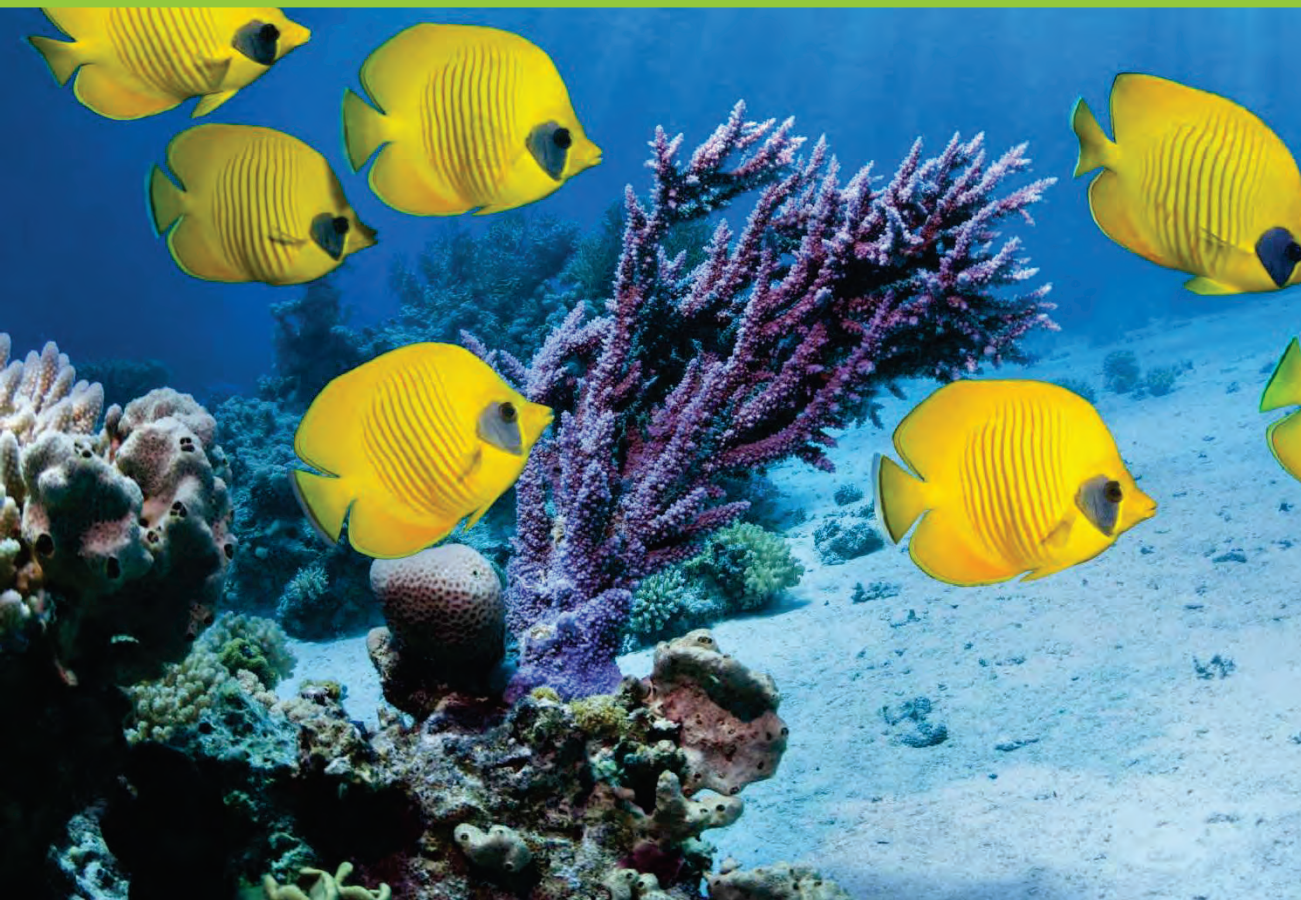
Animals exhibiting  
abnormal behaviors:  
Treatment?  
Documentation?





Does your Facility have a devoted Behavior Management/Enrichment team?

## Let's Talk About It:



- Scenario 1:
- Aquatic Enrichment:
- You've just received kudos for your enrichment/behavior management program from AAALAC/ Kudos!
  - Recommendations:
    - Aquatic Enrichment
    - What would you do?

How do you effectively train your staff on a new enrichment device you would like to implement?

Who do you train?

Did it work?

Let's Talk About It



Enrichment  
Device  
Creation








Where do you receive your enrichment ideas?

Put your answers in the chat or raise your hand!



## Step 1: What Animal Behaviors Are You Targeting/ Enhancing?

Grooming

Grooming in NHPs?

Rooting


Rooting in Pigs?

Gnawing

Gnawing in Rats?

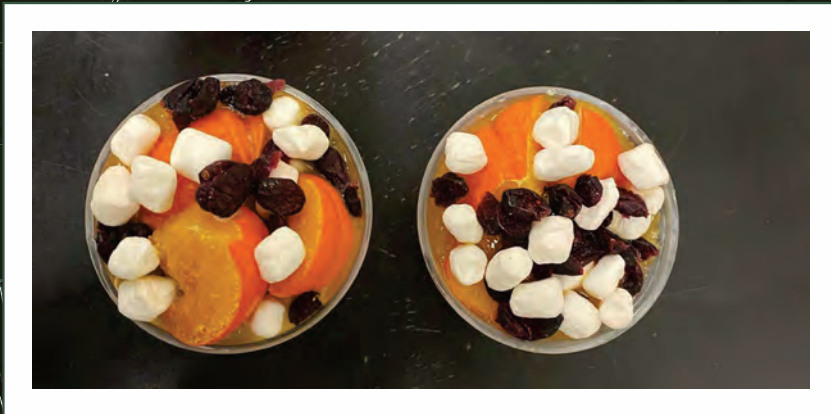
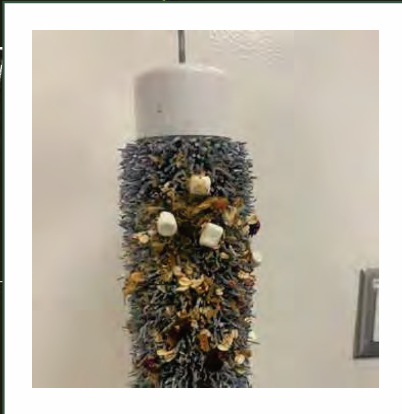
Digging

Digging in Rabbits?

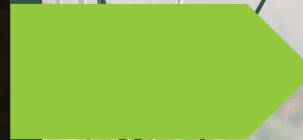


Step 2:  
What Do You Currently  
Have in Stock?





Step 3:  
What  
Season is  
It?





Do you Provide Seasonal  
Enrichment to specific  
species? If so, what?

# Holiday Party!



## Step 4: What are Other Facilities Doing?



Talk to your colleagues!



Best ideas are shared!






List of Resources:

- ▶ Aalae.org
- ▶ LAREF
- ▶ Enrichment Club/ Virtual Enrichment Club
- ▶ AALAS
- ▶ Otto Environmental
- ▶ Animal Specialties and Provisions
- ▶ Bioserv
- ▶ Pinterest
- ▶ Animal Behavior Society
- ▶ Shape of Enrichment



What Resources  
Do You Have?





## Step 5: Any Restrictions?



Research Restrictions



Facility Restrictions



Study Restrictions

## Let's Talk About It

- ▶ What restrictions does your enrichment program have? How have you posed a solution?
  - ▶ Space?
  - ▶ Dietary Restrictions
  - ▶ Budgetary Restrictions



# Adjust and Try It!





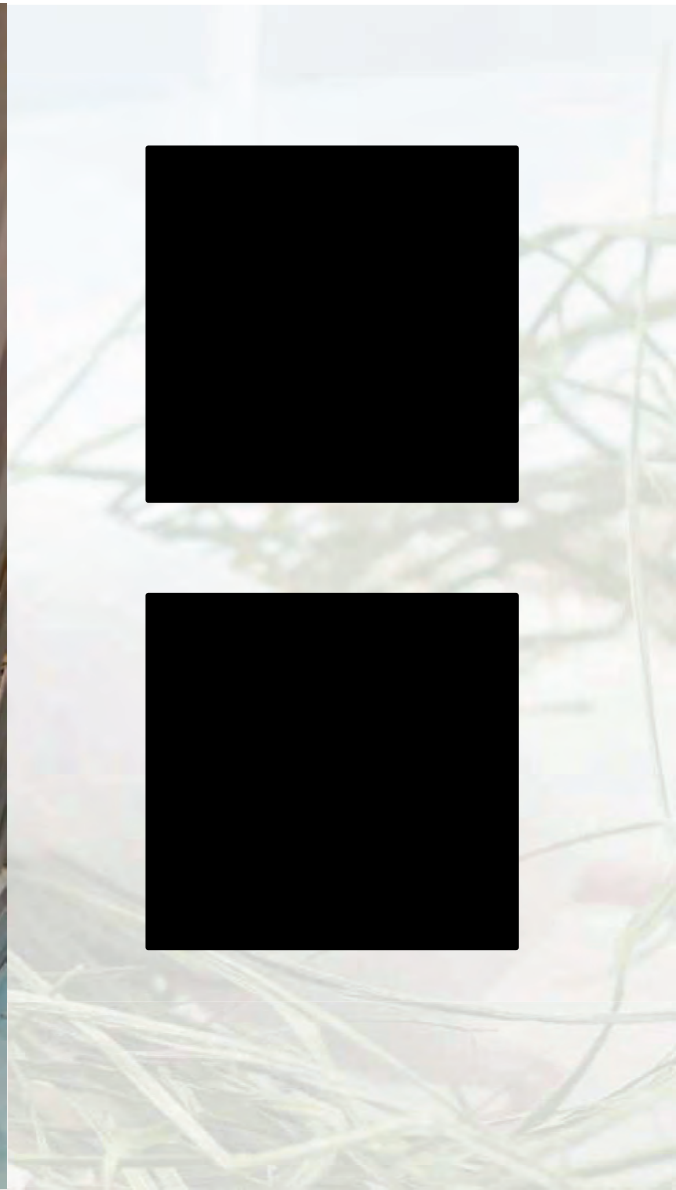




# Sometimes It's not Creation....

➔ But using what you already  
have







## How Can You Successfully Implement Enrichment Devices/Ideas



Husbandry Staff Buy-In?



Supervisor Buy-In



Management Buy-In



Anticipation of Clean up time




Anticipation of Schedules



Enrichment  
Device  
Evaluation





Who is  
Responsible  
for  
Evaluating  
Enrichment  
Devices at  
Your Facility?

Enrichment Coordinator

Enrichment Technician

Husbandry Technician

Animal Welfare Committee

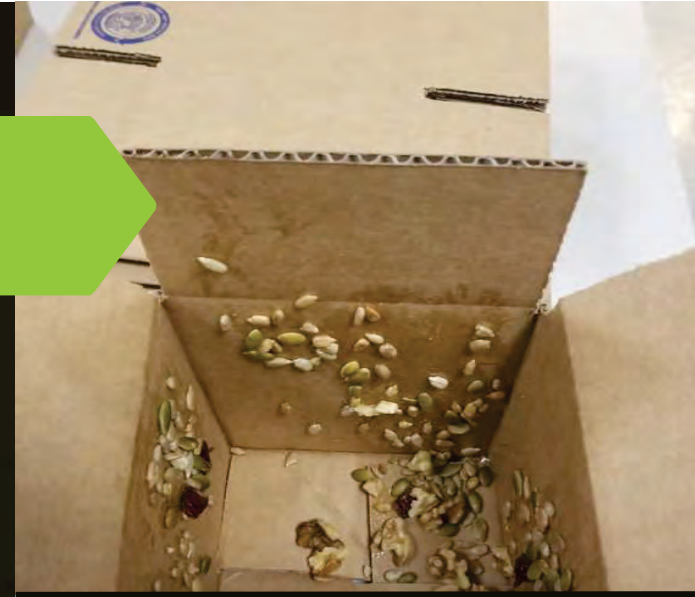
Veterinary Technicians

How often do you  
evaluate  
enrichment  
devices?



## What Do You Use to Evaluate New and Existing Enrichment Devices?

- ▶ Documentation
- ▶ Video Footage
- ▶ High Valued Enrichment Category
- ▶ Low Valued Enrichment Category



# Enrichment Evaluation



## Enrichment Device Evaluation

Device Name: \_\_\_\_\_

NHP Room # \_\_\_\_\_

Description: Please describe the methods used for this device (Amount of water, type of bubble bath, temp of water etc.).

\_\_\_\_\_

\_\_\_\_\_

1. In your opinion, on a scale of 1 to 5 did the NHPs enjoy the enrichment device? 5 being they thoroughly enjoyed the device, 1 being they showed no interest.

1    2    3    4    5

2. How long did the NHPs engage in playing with the device?

< 15 min      >30min - <45min      1 hour      >1 Hour

Comments: \_\_\_\_\_

3. How long did it take for you to administer the enrichment device including any preparation time needed prior to giving the animal the enrichment device?

< 15 min      >30min - <45min      1 hour      >1 Hour

4. Do you feel the NHPs benefited from the enrichment device provided? Yes or NO

a. Please Explain \_\_\_\_\_

5. Did you notice any aggression between the animals while using this enrichment device? Yes or No

a. Please Explain if needed \_\_\_\_\_

6. Do you feel adequate supplies were available for this device to be successful? Yes or No

a. Please Explain \_\_\_\_\_

7. Did the enrichment device cause any facility or husbandry issues that need to be corrected?

a. Please Explain \_\_\_\_\_

Additional Comments:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## High Value vs. Low Value Enrichment

- Longer Prep Time
- Increased Clean Up Time
- Highly Desired
- Increased Interaction with Enrichment



- Shorter Prep Time
- Shorter Clean Up Time
- Less Desired
- Decreased Interaction with Enrichment Item



# High Value Enrichment vs. Low Value Enrichment

- ▶ Based on duration animals spend with enrichment device/ toy
- ▶ Clean up time
- ▶ Immediate or Learned Interest/ Interest overtime
- ▶ Placement: Inside or Outside Cage
- ▶ Distribution Time
- ▶ Prep Time





Institutional Buy -in



Evolving plan



Financial Resources



Commitment

Sustainability







## Resources

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**LAREF**

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[AALAE](#)

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**Virtual Enrichment Club**

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**AALAE Facebook Forum**

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**Shape of Enrichment**

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**NC3rs**

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**American Society for Primatologists**

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**Wildfare**

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A white mouse is shown in a nest of straw. A large, semi-transparent 3D gear is overlaid on the mouse, symbolizing a cycle or a process. The background is a soft-focus image of the nest. On the left side, there are two green arrow-shaped graphic elements pointing to the right.

Questions



**Thank you!**  
**Next Session: TBD**

