THE Enrichment RECORD

Volume 4, JULY 2010

Global Research Education and Training, LLC •57 S. Main Street, #190, Neptune, NJ 07753-5032
Email: mackta@gr8tt.com • Website: www.gr8tt.com

FOOD FOR THOUGHT

For Quality, Affordable Enrichment Solutions™

Look to Bio-Serv and see the difference!

Bio-Serv has worked passionately for more than 20 years to develop an extensive line of Environmental Enrichment devices and treats to challenge and capture the interest of research animals.

Not only will we supply you with the products needed to set up or expand your enrichment program, our experienced staff is available to provide guidance and answer any questions you may have about our products and how they are best used as part of a successful program.

To discuss enrichment options contact our Enrichment Specialist:

Karena Thek

kthek@bio-serv.com

Ph: 570-730-6055

Bio-Serv®

Delivering Solutions™

◆ Nutritional ◆ Enrichment ◆ Medicated ◆ Special Needs

ISO 9001:2008 Certified

Toll Free: 800-996-9908 U.S. & Canada

Phone: 908-996-2155

Email: sales@bio-serv.com

www.bio-serv.com

THE Enrichment RECORD

Please direct all inquiries to
Rhoda Weiner, Editor: *rmbw19@verizon.net*

WE'D LOVE TO HEAR FROM YOU!

We welcome your comments, observations and contributions to *The Enrichment Record.* Contributors include lab animal veterinarians, principal investigators, animal care staff, animal behaviorists, animal technologists and members of the bioscience community who promote the 4 Rs: reduction, replacement, refinement and respect.

Share your story ideas with Rhoda Weiner, Editor at *rmbw19@verizon.net*
Guidelines for authors can be accessed at *www.gr8tt.com/docs/GUIDELINES-FORAUTHORS.pdf*

Please give credit where credit is due.

Outstanding animal care is truly a team effort, and we ask you to credit colleagues, published reports, articles, and other reference materials that have contributed to your enrichment article. Great ideas don't happen in a vacuum, and we encourage you to list all sources of inspiration.

The Enrichment Record ***is not a peer-reviewed journal. However, the Editorial Board of this E-Zine is composed of dedicated volunteers who have extensive experience and expertise in the care of laboratory animals. Members of the Board are involved with all aspects of this publication.***

The Enrichment Record is published in October, January, April and July. If you are interested in advertising in *The Enrichment Record,* please visit:
http://www.gr8tt.com/docs/adrates.pdf

Publisher:
GR8 (Global Research Education & Training, LLC)
57 S. Main Street, #190, Neptune, NJ 07753-5032
http://www.gr8tt.com
Jayne Mackta, *President & CEO*

IN THIS ISSUE | July 2010

about the cover

A large produce truck pulls up to the loading dock with the week's delivery of fresh produce... huge strawberries, perfectly ripe bananas, watermelons at the peak of their ripeness and the biggest mangos one could imagine.

See page 11 for the full story.

Join the Discussion!

To facilitate informed discussion about environmental enrichment, we have joined the Linkedin Group called **Laboratory Animal Sciences.** This group allows members of the laboratory animal science community and our readers to interact over a web-based platform to compare ideas and methods. To participate, you will need to create a Linkedin account and then join the Laboratory Animal Sciences Group.

It's easy! It's free! It's a safe and secure place where you can say what's on your mind.

Click here to get started.

In Other Words

A QUARTERLY E-ZINE/FORUM FOR:
Discussing environmental enrichment in the optimal care of laboratory animals

Documenting best practices and approaches for addressing challenges of implementation & assessment at every level

Sharing data on the impact of environmental enrichment on the science

Building the case for integrating enrichment into research design

When you think of Disney, what comes to mind? Mickey Mouse? Bambi? All those beloved cartoon critters that live in the hearts and minds of an adoring public? Disney characters certainly contribute to the anthropomorphism that causes children of all ages to celebrate animal liberation (remember *The Rats of NIMH?*) and oppose animal research. Yet behind the scene, Disney has an Animal Program that can serve as a model for any institution that uses animals.

Believing that it is everyone's job to enrich, Disney's philosophy is eloquently stated in the simple statement: "Our quality of work is their quality of life."

According to Disney: "Enrichment is a process, not an object or event." To be successful, enrichment programs "must be fully integrated into the animal management program and supported at all levels of the institution."

If you are struggling to find new words and ways to boost institutional support for your enrichment initiatives, take a page from the playbook of the folks pulling the strings at Disney: *http://www.animalenrichment.org/*

Speaking about boosts, check out the "Report in Brief" (page 21) issued in conjunction with the release of the seventh update to the National Research Council's *Guide for the Care and Use of Laboratory Animals.* Listed are key findings relevant to the revised *Guide*. The very first point is that "The 3 Rs—replacement, refinement, and reduction—continue to be the core foundation of the *Guide* for scientific laboratory animal use." Enrichment, which is gaining recognition as an important form of refinement, merits attention in its own right. #6 states: "Environmental enrichment can enhance animal well-being, provide sensory and motor stimulation and promote psychological health."
http://dels.nas.edu/global/ilar/Guide

In other words, you can expect to be hearing much more about EE from AAALAC site visitors and LAS professionals in tune with the times. You can weigh in with your opinions and comments by joining the **Laboratory Animal Sciences** group hosted by Szczepan Baran on Linkedin. Szczepan has set up "The Enrichment Record" subgroup to facilitate

discussion. He has recently posted the question, "What does refinement mean to you?" and we are happy to report that colleagues are starting to think about refinement and respond. ***Join Linkedin.*** *Click here to get started.*

Jayne Mackta

Jayne Mackta, Publisher
President & CEO, Global Research Education & Training, LLC (GR8)

Letter to the Editor

Enrichment TIP

In your very interesting article about Post-Surgical Environmental Enrichment in Rodents, *the authors concur with the Institute of Laboratory Animal Resources (U.S.)* Guide for the Care and Use of Laboratory Animals *when it states, "It is desirable that social animals be housed in groups (and I agree); however, when they must be housed alone, other forms of enrichment should be provided to compensate."*

I have a trick for that. I made a rat cage separated by a plastic wall (polycarbonate) with many holes on it. In that way, the rat which had surgery could still be in contact (smell and see) with his groups, and no animal could remove his stitches. Our rat recuperated very fast, without the problem of isolation.

I have also suggested to the CCAC (Canadian Council of Animal Care) committee responsible for the 3Rs to add another R. I see that you've added a 4th R, Respect. My 5th R is for Recycling. A lot of normal laboratory animals, which are often pathogen free, are euthanised at the end of an experiment, after a biomethodology workshop or for many other reasons, and put in the garbage. I believe that even dead, they could still be of use—to feed sick birds of prey or animals living in museums and schools. I hope one day we will be more responsible about how we use our animal resources.

Daniel Houle (RMLAT), *Montreal, Quebec, Canada*

The Enrichment Record is published quarterly.
If you are interested in advertising in The Enrichment Record, please visit: http://www.gr8tt.com/docs/adrates.pdf
or contact Jayne Mackta, Publisher: mackta@gr8tt.com
Visit out website—browse past issues: www.gr8tt.com/enrichrecord.html

ADVERTISING RATES
Single Issue
1/4 page $350
1/2 page $500
Full page $1,000

4 Issues
1/4 page $1,120
1/2 page $1,600
Full page $3,200

ADVERTISING DEADLINES
January Issue—*December 1*
April Issue—*March 1*
July Issue—*June 1*
October Issue—*September 1*

The Enrichment Record is an 8.5" x 11" format.
Full color; 300 dpi pdfs accepted.

Enrichment and Behavioral Management Programs Around the World

Article by
Kathryn Bayne
M.S., Ph.D., D.V.M., DACLAM, CAAB
Global Director, AAALAC International

Introduction

The recent increase in research collaboration and outsourcing of animal research and testing across country borders has led to a need for institutional representatives to have a sound understanding of the regulatory/legal/policy framework pertaining to laboratory animals in countries of interest. For some aspects of laboratory animal care and use, there are no codified standards; in such cases, knowledge of common practices in the country of interest may be informative. One program element that may have a significant impact on laboratory animal welfare is the provision of environmental enrichment (Bayne, ILAR J and others). For this reason, there is much interest in the scope and quality of enrichment and behavioral management programs for laboratory animals around the world.

To do justice to the diverse approaches to enrichment and behavioral management around the world would entail a discussion beyond the limits of this publication. Therefore, guidelines and regulations in a representative sample of countries in select regions of the world will be described to give a sense of the status of this program element world-wide.

Europe

The study and implementation of enrichment techniques is long-standing in Europe. Journals such as *Laboratory Animals* and the *Scandinavian Journal of Laboratory Animal Science* often feature reports of enrichment research across a variety of species. The National Centre for the Replacement, Refinement and Reduction of Animals in Research (*http://www.nc3rs.org.uk/*), established by the government of the United Kingdom, is a significant funder of 3Rs research and hosts educational conferences on the subject. Their website also makes available reports of projects funded by the NC3Rs. In addition, the Universities Federation for Animal Welfare (*http://www.ufaw.org.uk/*), whose motto is "science in the service of animal welfare," publishes texts and hosts conferences that address a number of animal welfare topics—including enrichment. The regulatory system in Europe very strongly supports enrichment of research animals. The proposed (revised) European Directive has several passages related to enhancing animal welfare by enhancing the animals' environment. Examples include (emphasis added):

> "Animals, except those which are naturally solitary, shall be socially housed in stable groups of compatible individuals. In cases where single housing is allowed in accordance with article 32 (3), the duration shall be limited to the minimum period necessary and visual, auditory, olfactory and/or tactile contact shall be maintained. The introduction or re-introduction of animals to established groups shall be carefully monitored to avoid problems of incompatibility and disrupted social relationships.
>
> All animals shall be provided with space of sufficient complexity to allow expression of a wide range of normal behaviour. They shall be given a degree of control and choice over their environment to reduce stress-induced behavior. Establishments shall have appropriate enrichment techniques in place, to extend the range of activities available to the animal and increase their coping activities including physical exercise, foraging, manipulative and cognitive activities, as appropriate to the species. Environmental enrichment in animal enclosures shall be adapted to the species and individual needs of the animals concerned. The enrichment strategies in establishments shall be regularly reviewed and updated.
>
> Bedding materials or sleeping structures adapted to the species shall always be provided, including nesting materials or structures for breeding animals.
>
> Within the animal enclosure, as appropriate to the species, a solid, comfortable resting area for all animals shall be provided. All sleeping areas shall be kept clean and dry."

The amount of cage space afforded common laboratory animals, such as mice and rats, differs between the European Directive and the *Guide for the Care and Use of Laboratory Animals*—a common standard used for determining suitable cage space for rodents in the U.S. and many other parts of the world. For example,

Mice - US		Mice – EU Directive*		Rats - US		Rats – EU Directive	
<10g	6 in^2	Up to 20g	9.3 in^2	<100g	17 in^2	Up to 200	31 in^2
Up to 15	8	> 20 to 25	10.8	Up to 200	23	>200-300	38.75
Up to 25	12	> 25 to 30	12.4	Up to 300	29	>300-400	54.25
>25	>15	> 30	15.5	Up to 400	40	>400-600	69.75
				Up to 500	60	>600	93
				>500	>70		

Mouse cage height: US = 5", EU = 4.72" Rat cage height ~7" for both *In stock and during procedures

Although a direct comparison between European and U.S. cage space for rodents cannot be precise due to the different weight categories used in the Directive and the *Guide*, it is clear that in general more cage space is afforded mice and rats in Europe.

continued on page 6

continued from page 5

China

The use of animals in research is increasing in China due in part to outsourcing of animal work to that country, but also due to accelerating support from the Chinese government for a strong biomedical research program designed to benefit the Chinese people. Concomitant with this growing industry is a change in societal concern for animal welfare. As an example, Davey and colleagues have documented this both in student attitudes toward animal welfare (Davey 2006) and in zoos (Davey et al. 2005). In the first instance, he polled students about their level of concern for animal welfare across a variety of issues. His results affirmed that Chinese society has generally positive attitudes toward animal welfare initiatives. In the latter study he and his colleagues evaluated the impact on the Chinese public of zoo exhibits that included environmental enrichment. The enriched exhibit promoted greater zoo visitor interest, measured by the duration of the visit to the exhibit and other parameters.

More specific to the laboratory animal environment, of note, the *Guidelines on the Humane Treatment of Laboratory Animals* (2006) published by the Ministry of Science and Technology state that the facility and environment must provide for the animals' behavioral and physiological needs. Also, the topic of the animal's housing environment, including enrichment, is being discussed at conferences more often (such as, *http://www.ibclifesciences.com/china/overview.xml*).

Other Pacific Rim Countries

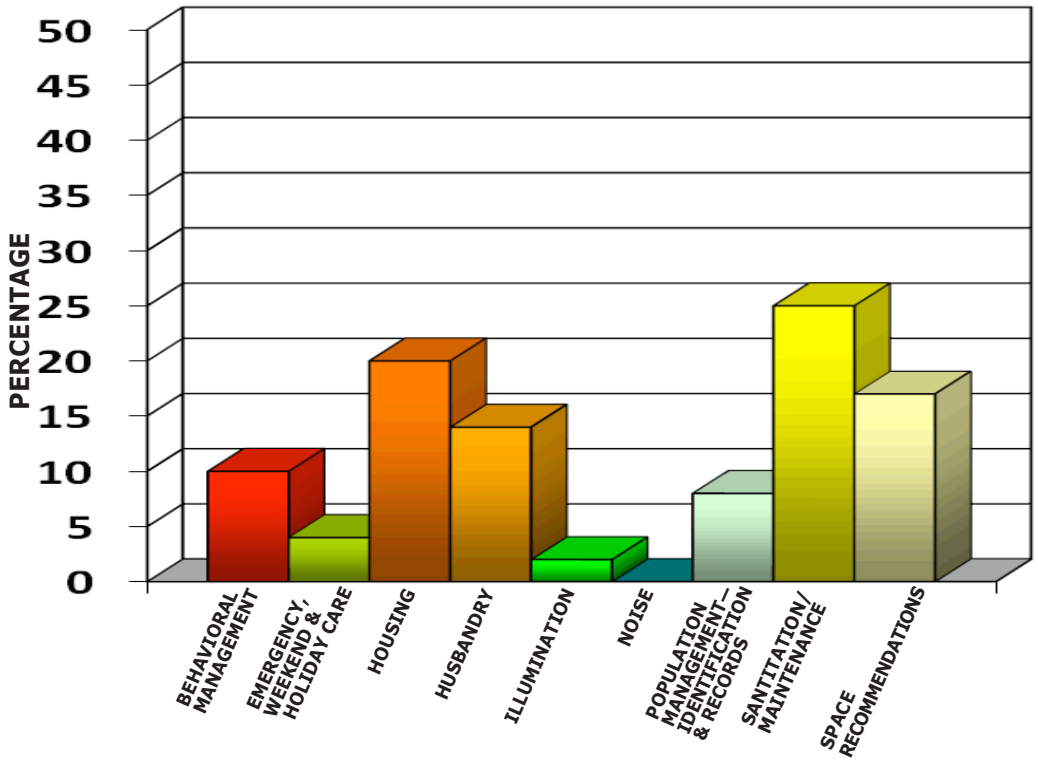
The concept of providing enrichment to laboratory animals is well-entrenched in several countries in this part of the world. For example, at the 6th World Congress on Alternatives and Animal Use in the Life Sciences, Hachisu (2006) reported that "People are now more interested in toys for animals and improving cage sizes, thinking what toys are best for which animals and how cage sizes should not limit animal activities…."

In Singapore, the *Guidelines on the Care and Use of Animals for Scientific Purposes* (NACLAR 2004) state, as examples:

> "Most animals used in Projects are housed in environments dissimilar to their natural habitats. Wherever possible, such animals should be provided with stimuli that promote the expression of normal behaviour appropriate to the species.
>
> Almost all species of animals used in Projects have well defined social structures and prefer to live in groups, although care must be taken to ensure that animals are socially compatible. Individual housing is stressful for such animals, and social isolation should be avoided whenever possible and limited to meet specific Project objectives. The effects of physical isolation should be minimized where possible by:
>
> (a) the use of non-contact communication, whether visual, auditory or olfactory;

Percent of Each Element of Total Animal Environment Mandatory Items (2003-2008)—Global Data

Key factors that likely impact global implementation of appropriate enrichment for laboratory animals include the economic development of the country; the religious and cultural context; and exposure to other cultures via published literature, travel to animal facilities or conferences in other countries and information available on-line. With much of the information regarding enrichment published in the English language, a language barrier may impede access to and understanding of this information, and ways to make this information more available, such as through translations, should be considered.



(b) the judicious use of mirrors which can be helpful;

(c) increasing the complexity of an environment with apparatus such as climbing equipment, objects and gnawing sticks as may be appropriate to the species concerned."

As a final example, the Laboratory Animal Scientist's Association—India (*http://www.lasaindia.org*) has as one of their objectives the promotion of the 3Rs. Environmental enrichment is broadly considered a Refinement, and thus falls under the purview of LASA's aims.

AAALAC International

The on-site assessments of animal care and use programs conducted by AAALAC International world-wide include the implementation of a behavioral management program by the institution undergoing the accreditation evaluation. The data from site visit findings are periodically analyzed and shared to assist institutions in better understanding AAALAC's expectations for accredited animal care and use programs (for the most recent publication of these data, see *https://www.aaalac.org/commerce/bookstore.cfm)* The chart on page 6 shows the percent of Behavioral Management mandatory items for correction of all mandatory findings in the category of Animal Environment. The relatively low percentage (approximately 10%) of findings in this component of the animal care and use program support the concept that institutions seeking accreditation (albeit a subset of all institutions using animals for research, testing and teaching) understand the importance of providing enrichment in accordance with the *Guide.*

***Kathryn Bayne**, M.S., Ph.D., D.V.M., is Global Director for the Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC). Previously she led a research program at the National Institutes of Health on nonhuman primate psychological well-being and environmental enrichment programs for primates, dogs, cats and swine. A certified applied animal behaviorist and a Diplomate of the American College of Laboratory Animal Medicine, Dr. Bayne is a member of the Institute for Laboratory Animal Research (ILAR) Council and has served on the National Academies' committees to revise the* Guide for the Care and Use of Laboratory Animals, Psychological Well-Being of Nonhuman Primates*, and* Guidelines for the Care and Use of Mammals in Neuroscience and Behavioral Research*. She was the 1998 recipient of AALAS's prestigious Garvey award, the AVMA's 2009 Animal Welfare Award and Washington State University College of Veterinary Medicine's 2009 Distinguished Alumnus Award for Excellence in Teaching and Research.*

Upcoming Meetings

International Workshop on Alternative Methods to Reduce, Refine, and Replace the Use of Animals in Vaccine Potency and Safety Testing: State of the Science and Future Directions
September 14—16, 2010
William H. Natcher Conference Center
National Institutes of Health
Bethesda, MD, USA
Please register by:
August 30, 2010
http://iccvam.niehs.nih.gov/meetings/BiologicsWksp-2010/BiologicsWksp.htm

For information contact:
NIEHS/NICEATM
(919) 541-2384
Email: niceatm@niehs.nih.gov

10th International Conference on Environmental Enrichment
August 13—20, 2011
Host:
Oregon Zoo and Oregon National Primate Research Center
Portland, Oregon

8th World Congress on Alternatives & Animal Use in the Life Sciences
August 21—25, 2011
Montréal, Quebec, Canada
Host:
Canadian Council on Animal Care (CCAC)

Article by | **Kimberly A. Wasko, CVT, VTS, RALAT**

Department of Surgery
Drexel University, College of Medicine
Philadelphia, PA

THE Zen OF ENRICHMENT

Attaining Enrichment Enlightment

Background Animals love enrichment just as much as people do. Enrichment gives animals something to occupy their minds and encourages them to be more active. The goal of enrichment is to increase activity and stimulation levels in the captive or limited environment. It helps animals demonstrate their natural behavior, adds variety to their day, allows them exercise, gives them choices in their environment, and enhances their well-being. Enrichment generally enhances the animal's life pleasures and should be an integral part of the daily care of laboratory animals. Enrichment also gives us the chance to study and observe the animals' behavior.

Since animals respond differently to social and environmental interaction, a consistent enrichment program is an outstanding channel for achieving these objectives. However, once a program is instituted—*What Next?*

Objective Have fun! That's what's next! Re-evaluating your program regularly allows diversity. Enrichment is creative and dynamic. It can be basic, simple to comprehensive, and detailed. After envisioning, creating, and instituting an in-depth program for all of our rodent animals, we could not stop there. We needed to evolve to the next level. The enrichment possibilities were boundless –ideas were whirring a mile a minute. With the new ideas came the Zen of Enrichment.

Design—What We Did—Fresh and Distinctive

The introduction of various food treats and devices was the initial start to our enrichment program. Treats and devices (Bio-Serv, Frenchtown, NJ) were first implemented for our surgical patients. Then we eliminated chemical restraint for noninvasive procedures and introduced a socialization program.

Currently, our expanded physical environment, social environment and the opportunity for physical and mental challenges have brought about new experiences for the rodents and fun for all involved.

continued on page 10

"ZEN"

new home: dream come true

new home with second story: awesome

moving day for "chuck" and friends: priceless

(Continuing the Enrichment Adventures with Chuck and Kim)

Kimberly A. Wasko, CVT, VTS, RLATg
Department of Surgery, Drexel University College of Medicine, Philadelphia, PA, USA

Inntroduction

- Animals love enrichment just as much as people do
- Enrichment items give the animals something to occupy their mind and encourage them to be more active.
- Enrichment increases activity and stimulation levels in the captive or limited environment.
- Helps animals demonstrate their natural behavior, adds variety to their day, allows them exercise, gives them choices in their environment, and enhances their well-being.

Objective

- Have fun!
- Re-evaluating your program regularly allows diversity
- Evolve to the next level - basic, simplistic to comprehensive and detailed.

Moving day for "Chuck" & Friends

A.) "Chuck" in his new 2 story single-home

B.) The girls move to their large rancher style home

C.) "Chuck" takes a rest on the second story level after a long day of moving

Design: *Our* Physical Environment

A.) Physical environment: Non-standard approved cage size: 18 x 14.75 x 8 inches

B.) Physical environment: Non-standard approved cage size: 18.2 x 15.9 x 15.9 inches

C.) Physical environment: Several inches of Enviro-dri® bedding

Design: *Our* Social Environment

A.) Social handling: petting, holding

B.) Group housing

C.) Human interaction with Chuck and Kim; 2x/week or 5-10 minutes/session

Design: *Our* Physical & Mental Challenges

A.) Mental challenge: How to get the treats through the bars

B.) Physical challenge: Confetti making at its finest

C.) Agility course: 2x/week at 10-15 minutes/session

Design: Standard Physical & Social Environment

A.) Physical environment: Standard approved cage size: 10.5 x 19 x 8 inches

B.) Standard group housing

Discussion

- New additions keep animals stimulated and persistently challenged
- Expanding your enrichment program can permit the animals to enjoy and benefit from fresh encounters
- Expanding an enrichment program has endless opportunities

Acknowlegements

The author would like to express sincere appreciation to Bio-Serv of Frenchtown, NJ, for their continued support and dedication to environmental enrichment. The author would also like to express her gratitude to Techniplast of Exton, PA for their generous donation of the Double-Decker caging unit to support environmental enrichment.

Author's contact information: Kimberly.Wasko@DrexelMed.edu

Standard Physical Environment

The physical environment entailed a standard cage unit size for a rat at 10.5 x 19 x 8 inches in a polycarbonate cage with typical corncob bedding (approximately ½ to 1 inch depth). The enrichment device(s) may vary, but a common device is an easy cardboard tube.

Our Physical Environment

We upgraded our physical environment to IACUC approved caging units size 18 x 14.75 x 8 inches with ½ to 1 inch corncob bedding layering the bottom of the unit. In addition, we added 6-8 inches depth of Enviro-dri® bedding (Shepherd Specialty Papers, Watertown, TN) to encourage nesting and burrowing. Another new cage unit we added was the *Double-Decker* cage unit (Tecniplast, Exton, PA) size 18.2 x 15.9 x 15.9 inches. We fitted the *Double-Decker* unit with a red divider between the first and second levels to provide a "hiding", protective area. Corncob bedding also layered the bottom of the bottom of the unit ½ to 1 inch in depth. We added 3-4 inches of Enviro-dri® bedding to the first level and 2-3 inches on the divider to the second level. The animals also received their wood gnawing blocks, fleece cozies and food treats 2xs/week.

Standard Social Environment

The social environment included same-sex conspecific housing when applicable. Human interaction involved animal handling during cage changing plus handling for the experiment. Typically, nothing extra was implemented.

Our Social Environment

We also included same-sex conspecific housing at every opportunity. Human interaction involved not only handling during cage changing and during the experiments, but 2xs/week petting, holding, and positive reinforcement at 5-10 minutes/sessions to reduce stress and improve tolerant handling.

Standard Opportunity for Mental and Physical Challenges

Typically, there is none. Other than what is fitted in the cage unit originally as the enrichment (example: cardboard tube), the animal remained unstimulated and unchallenged.

Our Opportunity for Mental and Physical Challenges

We engaged the animals in physical challenges immediately when we introduced the larger cage units and bi-level cage units. We also engaged them directly with the additions of copious amounts of bedding material to encourage their natural behavior modes of nesting and burrowing. Other distinctive methods included placing dried fruit chunks in between the bars of the cage lid to encourage physical activity and mental activity. We added the Enviro-dri® bedding on top of the cage lid to encourage the animals to pull the materials through the bars. We also continued to allow the animals to explore an ever-varied agility course 2xs/week for 10-15 minutes/sessions, stimulating senses, mind, body and spirit. The two new caging units were alternated to offer different experiences to the animals.

Discussion

Expanding our current enrichment program permitted the animals to enjoy and benefit from the new encounters. The fresh additions kept them stimulated and persistently challenged. The response was undoubtedly remarkable. The animals were calm, active, sociable, and simply —HAPPY! They attained their enlightenment. A Zen saying goes…*When you get to the top of the mountain, keep climbing.* May your enrichment program keep climbing too!

Acknowledgements

The author would like to express sincere appreciation to Bio-Serv of Frenchtown, NJ, for their continued support and dedication to environmental enrichment. The author would also like to express her gratitude to Techniplast of Exton, PA for their generous donation of the Double-Decker caging unit to support environmental enrichment.

REFERENCES

1. **NRC** [National Research Council], 1996. Guide for the Care and Use of Laboratory Animals. 7th ed. Washington DC: National Academy Press.

2. **Bayne KAL, Beaver BV, Mench JA, Morton DB**, 2002. Laboratory Animal Behavior. Laboratory Animal Medicine. 1229-1264.

Article by | **William Singleton, D.V.M., DACLAM**

HUMAN ENRICHMENT
Can I Get Just a Little ?

Enrichment can be defined as the provision of novelty and complexity to a given situation or environment to make it more stimulating. It will vary depending upon species, institution, primary housing environment and available resources. Historically the concept of enrichment in the laboratory animal research community has focused primarily on nonhuman primates and the provision of novelty and complexity to their living environments, ultimately leading to more species-typical behaviors. Governmental regulations also require the opportunity for exercise for canines that live in housing environments that don't allow significant levels of activity. Although regulations do not require the provision of enrichment to many of the species commonly used in laboratory animal medicine, there is a universal trend to provide enrichment to all species when possible.

Case Study: A large produce truck pulled up to the loading dock with the week's delivery of fresh produce…huge strawberries, perfectly ripe bananas, watermelons at the peak of their ripeness and the biggest mangos one could imagine. Julius, on his first day of work, was being given a tour of the animal facility. Seeing the fruit, he thought he was working in the best place ever because employees got all these great fruits. After several weeks of orientation, he was given the task of working the loading dock on a Monday morning when animals and produce were delivered to this facility. Although adequately trained in working the loading dock, he was paired with a seasoned employee. When the produce truck arrived, Julius asked his colleague where the produce went, since he had never seen any in the staff break room. He was told that it went to the primates for their enrichment. As if he could read Julius' mind, he quickly added that the fruit was not for the employees, who would be reprimanded if caught eating any. Julius, being a model employee, complied but did have the passing thought that it would be nice if the employees could get just a little. *continued on page 12*

continued from page 11

What Do You Think?

Do you really need enrichment? If you do, what would/does human enrichment look like for you? Would just a piece of fruit do? Would something more substantial, like a bonus or a raise work better? When we talk about human enrichment, do we mean environmental enrichment like we provide to animals or simply the general enrichment of humans? A literature search on human enrichment resulted in a variety of articles ranging from recovering from trauma and understanding universal consciousness to improving a student's ability to progress successfully through school. The literature search revealed no universal definition for human enrichment. So our challenge is to define what human enrichment is for those of us working in laboratory animal environments, to make that definition relevant to the human experience, and not to extrapolate too heavily on what we have learned from the provision of enrichment to laboratory animals.

Do humans need to be enriched? More specifically, do you and I need to be enriched during our daily work experience? If we accept our initial definition of enrichment as the provision of novelty and complexities to a given situation, we can see that there are many situations that would constitute enrichment in our daily lives. The birth of a baby, a new car, moving to a new home, starting a new eating regimen, developing a hobby, starting a new job, reading a book, traveling to new cultures, and learning a new language are just a few activities that potentially provide enrichment. These things add value to our lives and make us feel good.

What would constitute enrichment in the work setting? If we can define the minimum requirements for a work setting, we can see what might be enriching at work. Is there a minimum standard that is ideal for any work situation? Tom Wujec, in his book *Return on Imagination: Realizing the Power of Ideas* [1], states that people move into a flow of efficiency when the challenge of the job is just above the skill level. Malcolm Gladwell states in his book *Outliers*[2], that the keys to a fulfilling job are autonomy, complexity and a connection between effort and reward. I find these two lines of thought to be complimentary. Find a job you like to do, get the training required to perform your job and then find the opportunity to maximize your skill sets: you are on your way to "flow". Add to that the appropriate recognition for work done well, and you have the ideal job.

I believe it is in the area of "connection between effort and reward" that we find the realm of human enrichment in the work place. Proper job assignments and training are extremely important in any work environment and represent the basic foundation of satisfying work; how we are recognized can be that one factor that makes all the difference.

Several studies have been done to answer the question, "What is the ideal form of recognition?" To my surprise, the results of these studies unanimously determined that the most significant form of recognition is a non-monetary demonstration of appreciation for work done. The challenge for those in management positions is to find what forms of recognition can be considered adequate enrichment to create and maintain the ideal work environment. What forms of recognition can lead to positive stimulation of the work experience? Money is a good place to start, for certainly receiving adequate pay for the job done is desired by all. But, as the study revealed, money is not the greatest form of enrichment. Advancement is a way to demonstrate recognition and appreciation. Offering variety to the work experience can also be a demonstration of appreciation. Award programs, advanced training, employer sponsored social gatherings, informative staff meetings where information is freely shared and healthy dialog is encouraged are additional ways in which recognition/enrichment can be given.

Ultimately for humans, enrichment needs to make us feel valued and good about the contribution we are making. We can deduce that enrichment, when appropriately given to animals, may make them feel good, but we don't have to make assumptions about what works and what doesn't work as effective enrichment for us. For some, it's money; for others, it's the opportunity to share ideas and see them implemented; others just want a handshake and a sincere thank you for a job well done. As with animals, there is not one form of enrichment that works for all. Some days, a banana just will not do, and then there are other days when a banana will hit the spot. We should take the time to think about what kind of enrichment works for us and share that information with those who are empowered to provide it.

You never know, someday there may be a banana at work —just for you!

William Singleton *is president of Animal Care Training Services (ACTS), a company created in 2007 to Empower Excellence through training and development in the laboratory animal care industry. He served as president of the Laboratory Animal Welfare Training Exchange (LAWTE) from 2008-2009.*

References:

1. *Return on Imagination: Realizing the Power of Ideas;* Tom Wujec, Sandra Muscat; Financial Times Prentice Hall
2. *Outliers: The Story of Success;* Malcolm Gladwell Little, Brown and Company, 2008

The Environmental Enrichment Team

The University of Texas at San Antonio (UTSA)
Laboratory Animal Resources Center

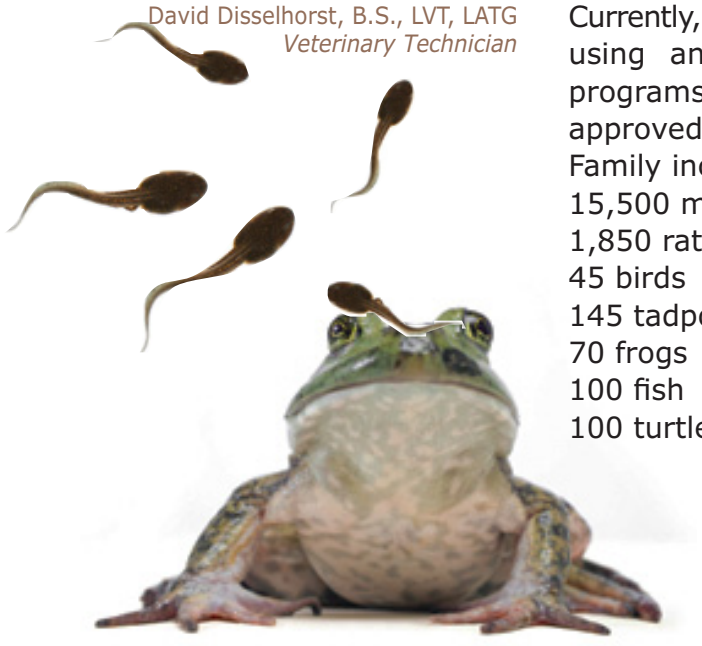
We maintain vigilance in ensuring that our animals experience proper care and handling with minimal discomfort or pain, as well as live in an enriching environment. In the long run, animals that are most comfortable and less stressed are better research subjects.

Marcel Perret-Gentil, D.V.M., M.S.
University Veterinarian
Director
Laboratory Animal Resources Center

Luis Zorrilla, B.S., RLATG
Assistant Director
Laboratory Animal Resources Center

Laurie Long, LATG
Quality Assurance
and Training Coordinator

David Disselhorst, B.S., LVT, LATG
Veterinary Technician



The Laboratory Animal Resources Center (LARC), established at UTSA in 2007, is committed to providing UTSA faculty, staff and students with high quality, cost-effective research animal resources. LARC's primary concern is the welfare of the animals used in the facility, while promoting best practices for the responsible use of animals. These actions result in quality science merging with animal welfare.

LAB FAMILY

Currently, UTSA has approximately 36 investigators using animals in various research and teaching programs. The IACUC has on file approximately 73 approved protocols. In a typical year, LARC's Lab Family includes:

15,500 mice
1,850 rats
45 birds
145 tadpoles
70 frogs
100 fish
100 turtles

continued on page 14

The overall program focus is changing, as a surgical facility is under construction. When the facility is completed, LARC will be able to house USDA regulated species.

Why was Environmental Enrichment a priority from the first day?

"For us, it was the obvious.

1. It is an animal welfare and ethical issue. We felt it was our duty to provide a more "entertaining" environment to stimulate species-typical behaviors.
2. We believe that enriched animals are less stressed. The less stressed an animal is, the more physiologically normal it is, which translates into more reliable data."

"We want our lab family to be as stress-free as possible."

What are the goals of LARC's Environmental Enrichment program?

"To understand our animals better, to understand how well various lines thrive in a particular environment. This is especially true due to the many transgenic lines that now exist. We encourage our technicians to get to know their animals as well as possible and report any stereotypical behaviors, ultimately allowing us to address further enrichment needs.

We work closely with investigator labs to increase their awareness of enrichment and the value it brings to their research."

Describe the minimal EE in your facility

All species: Social housing.
Mice: Nestlets.
Rats: EnviroDri.
Frogs: Simulated lily pads.
Tadpoles: Simulated lily pads and plastic tubing.
Turtles: Elevated basking platforms in the water tank.
Birds: Birdbaths, freshly chopped vegetables and millet spray.

Improvements on the agenda

LARC is currently investigating other forms of enrichment to reduce intra-cage fighting, enhance post-surgical recovery, prevent post-partum cannibalism and provide advanced wound care. The findings will result in the addition of new enrichment components to diminish the stressors that lead to abnormal behaviors by encouraging species-specific behaviors. These components will enhance the animals' overall environment, thus improving consistency in data yield.

Equally important is increasing staff awareness of the effects of their mere presence in an animal room. Subtle changes such as new sounds and odors (e.g. colognes) can stress the animals.

What are the challenges to extending or enhancing the program?

"We have to ensure that the new enrichment does not affect the ongoing research. The first challenge will be to provide the best environment for the animals, but we have to be careful not to affect data by introducing variables. Before adding a new form of enrichment, we first discuss it with the researchers to ensure we will not interfere with their studies. The second challenge will be to tailor the enrichment to each species, strain and particular research situation. The third challenge will be convincing investigators of the need for specific enrichment and showing how it can improve their results."

If you could add a question to the protocol on enrichment, how would you word it?

We are planning to add the following questions when we launch the new protocol*:

For withholding enrichment:

1. Are there experimental or scientific reasons why any animal on this protocol should be exempted from routine environmental enrichment procedures (e.g. novel cage objects)?

*Modified from Duke University's protocol

2. Specify the specific environmental enrichment(s) for which you request an exemption.
3. For each animal or study group requiring this exemption, identify the specific group and indicate the number of animals involved.
4. Indicate the duration of the exemption that is required for each animal and/or study group and explain the reason that particular time period is necessary.
   NOTE: *Durations that exceed one year require annual review and re-approval.*
5. Please describe the experimental or other scientific reasons why animals on this protocol should be exempted from standard species-specific environmental enrichment.

For withholding social housing:

1. Specify the specific housing arrangement that is requested under this exemption (e.g., single housing; restrictive housing, isolated housing, etc.).
2. Please describe the experimental or other scientific reasons why animals on this protocol should be exempted from standard species-specific social housing and specify the length of time that the exemption must apply.
   NOTE: *Durations that exceed one year require annual review and re-approval.*

Environmental Enrichment and Training

"We integrate environmental enrichment by discussing the normal behavior of the laboratory animals during biomethodology classes. We then move onto enrichment and environment, and how both affect normal behaviors, which in turn can impact the research. Our goal is for the researcher to understand the animal they are working with so that if they see a change in a specific behavior, they will understand that something may be wrong. We stress the overall environment, handling, caging, bedding, feed, etc. and their impact on their animals. Thus, the better the environment, the better the animal's health will be, leading to better and more consistent data.

We also do opportunistic training with investigators when issues arise such as breeding problems. We continually interact with investigators when they are in their animal rooms to address their animal-related needs."

"Research facilities accredited by AAALAC go the extra mile."

Little Things Add Up

"We want our lab family to be as stress-free as possible."
The team encourages technicians to see animals as members of the lab family, to try to make the environment as natural as possible, and to bring peace and quiet to the animal room. If investigators master the art of minimizing stress, understand that specific enrichment needs vary, and handle animals in a way that minimizes stress, their data quality will be improved. Animals that respond well to handling and recognize handlers as "friends," will be physiologically superior research subjects!

Thoughts on the Future of Environmental Enrichment...

There is a growing consensus in the field that Environmental Enrichment is an essential component for an effective animal research program. Because providing a more natural environment to animals lowers stress and provides more realistic biological activity, research data can only be more reliable—hopefully leading to the need for less "confirmatory" studies. This itself should result in the reduction of animals needed for research.

A Final Note

The team believes AAALAC accreditation is a powerful environmental enrichment motivator. "Research facilities accredited by AAALAC go the extra mile."
http://vpr.utsa.edu/larc/index.php

Following Up

In the last edition of The Enrichment Record, Steven J. Schapiro, Ph.D., University of Texas M. D. Anderson Cancer Center, summarized the 2010 Primate Training and Enrichment Workshop (PTEW) held in Bastrop, TX. The university, in conjunction with the Yerkes National Primate Research Center and Active Environments, has been offering the workshop since 1992. We thought it would be valuable to speak with past attendees to discover how the environmental enrichment and positive reinforcement training techniques featured at PTEW have benefited their programs.

"A great training program enriches both people and animals. In my opinion, PTEW is a great program!"

Bonnie Friscino, *Colony Manager*
Wisconsin National Primate Research Center
University of Wisconsin-Madison

One of the first PTEW participants—she attended in early 1992—Bonnie Friscino, then working for Merck, was also one of the first pharmaceutical employees to attend. Working with primates, she hoped to confirm that her techniques for a cooperative training program in a pharmaceutical environment were valid—and to enhance her basic knowledge of primate behavior.

Bonnie "walked away" with important new concepts, designs and devices for primate environmental enrichment. She learned that the simpler the device, the better. She, along with all the PTEW participants, also learned that you can make many devices and toys inexpensively with Polyvinyl chloride, commonly known as PVC, a low cost plastic that is also heat resistant, easy to stabilize, and has great versatility.

Today (eighteen years later!), Bonnie uses the same PVC toys she learned about at that early PTEW in Balstrop, TX. "PVC," she says, "is now a universal material for making toys at all eight primate centers."

"PTEW techniques gave me the tools to train animals in a humane and caring way, a way that nurtures their well-being. PTEW is a great workshop. I can't say enough good things about it!"

Anna Shahverdi-Trice, *Enrichment Coordinator*
University of Maryland, Baltimore

Anna has attended three PTEWs and found them to be immensely valuable in supporting her work as an Enrichment Coordinator. "We learned many techniques we were unaware of," she says, citing how to make PVC Cap Feeders for her primates as an excellent example that she has successfully implemented.

Anna is particularly appreciative of the Positive Reinforcement Training Techniques that she learned at the workshops. Teaching primates to accept the pole and collar through positive reinforcement has been enormously helpful.

"PTEW is the single most valuable meeting for people who recognize the importance of enrichment and training in their scientific programs, enrolling the highest quality and highest health animals into trials."

Melanie Graham, *Associate Program Director*
Preclinical Research, Schulze Diabetes Institute,
Department of Surgery, University of Minnesota

The animals who support the breakthrough medical research at the Schulze Diabetes Institute are critical to the success of our ongoing clinical transplant program. We are committed to the highest level of care and highest

standard in welfare for all animals in our program. Part of this care includes environmental enrichment and training of nonhuman primates. We include everyone from general husbandry staff to investigators in enrichment to ensure animals are healthy, active, and exhibiting a wide diversity of natural behaviors.

As an investigator and IACUC member, I appreciated that the program was well rounded—enrichments are presented as a spectrum, from simple to complex—anyone can find aspects that will benefit their program. My technical staff that I have sent over the years always come back excited and with new ideas for structural enclosure changes, novel objects, ideas to encourage new foraging behaviors—and, most of all, are re-engaged and excited about their work.

This meeting also allows the opportunity to connect and share ideas beyond the meeting agenda. We are proud to have an extensive animal training program at Minnesota, and it is always rewarding for me to hear that my technical staff has shared training tips and ideas from their own experience with others, supporting our responsibility as scientists to the 3Rs."

Christine Shirey, Zookeeper at St. Augustine Alligator Farm in Florida, attended the Advanced PTEW at Utah's Hogle Zoo this past April. With more than 1000 reptiles, birds and mammals to care for, she found the workshop to be extremely valuable in helping her to focus on:

- Presenting behavioral management ideas relevant to environmental enrichment, training, and animal welfare
- Solving communications issues among directors, curators and zookeepers
- Making environmental enrichment and enrichment training more cohesive
- Encouraging program leaders to understand that they must depend upon one another
- Developing Training and Enrichment changes in protocols to prevent problems from occurring
- Becoming more proactive rather than reactive
- Defining goals
- Nurturing happier animals
- Solving problems before they occur!

SHARING CAN ADVANCE ANIMAL WELFARE

The Enrichment Record wants to create a searchable database containing policies, protocol questions and SOPs for environmental enrichment. Our success depends on your willingness to share this kind of information.

To learn more, contact Jayne Mackta, Publisher: mackta@gr8tt.com

Effects of Environmental Enrichment During the Post-Surgery Recovery Period of Rodents

Breaking away from the traditional practice of housing rodents individually in a barren environment post-surgery, and implementing pair housing with a compatible companion and enrichment, can improve post-surgical recovery. Identifying specific environmental and nutritional enrichment, which facilitate a quicker recovery in rodents, will provide further rationale for including them in rodent post-surgical protocols. **Please click here for a great poster!**

http://www.gr8tt.com/images/erPG17Effectsopt.jpg

Meeting Reporters Needed

We are looking for volunteers to write summaries of meetings, workshops, and conferences addressing any aspect of environmental enrichment for lab animals. Meeting organizers are welcome to assign a recorder.

To request "Guidelines for Meeting Up Summaries," send your name, contact and meeting information to

info@theenrichmentrecord.com

In the last issue, the author of *Two Different People, Similar Story* should have been Connie Kester.

Funny Stuff | Caption Reports

Cartoonist: Danny Kelly

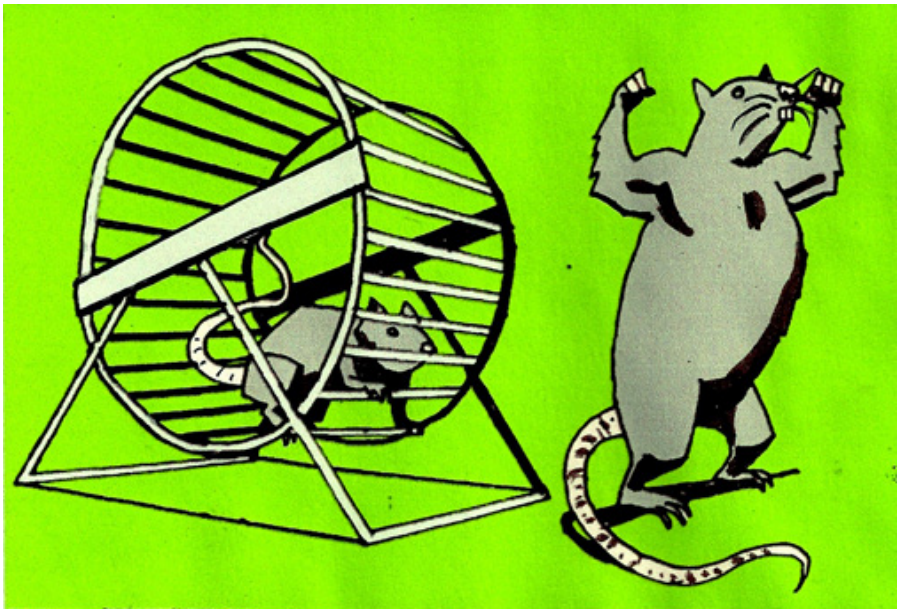
We all agree that animal research is serious business. But there is still a place for laughter in our lives... even in the lab. So, in the spirit of good fun, we invited our readers to explore their lighter side and to share their world view from the perspective of our mascot beagle. Happily, clever captions came in by the crateful.

THE WINNING CAPTION

"Could ya do a beagle a favour and pick up this stuff if you pass the enrichment room, it sure would make me dog-gone happy."

—Jacqueline Schwartz

THIS ISSUE'S CONTEST



Please submit your captions to *rmbw19@verizon.net*

Share your ideas with Rhoda Weiner, Editor at *rmbw19@verizon.net*

ADVERTISER INDEX

There's an old saying that "You can't dance at two weddings at once." You also can't attend all the meetings and conferences taking place that offer the latest information in the field of laboratory animal science. **Meeting Up** will provide summaries of panels, workshops and symposia covering topics relevant to Environmental Enrichment. If you want more information about any of the presentations described or want to contact the presenters, let us know and we will be happy to connect you: info@TheEnrichmentRecord.com

Laboratory Animal Enrichment Symposium
April 15, 2010
Colonnade Hotel, Boston, MA
Sponsors: *MSMR, MGH-Comparative Medicine, NEBAALAS, Merck, Bio-Serv, Covance, Topaz, Purina Lab Diet, ASAP, Suburban Surgical, Anderson bed o' cobs, Techniplast, Lomir, Lab Animal News, Innovive, Britz, Roe Biomedical, Ancare, The Jackson Laboratory, Marshall, LabRepco and Mouse Specifics.*

By **Karena Thek**, *Regional Sales Manager, Bio-Serv*

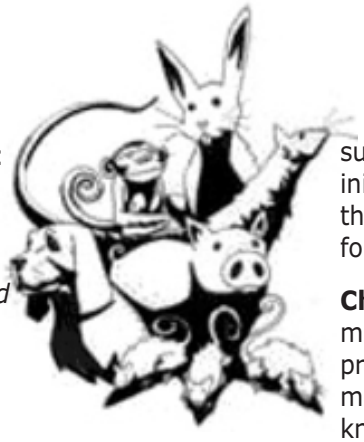
Another exciting learning and networking opportunity occurred April 15, 2010 in Boston, MA, when the Massachusetts Society for Medical Research (MSMR) hosted their annual free member Laboratory Animal Enrichment Symposium at the Colonnade Hotel. The keynote speaker, Dr. Joseph Garner of Purdue University, presented amazing data to convey the importance of rodent enrichment and care in our industry. He made quite an impact immediately by pointing out how many medicines and study practices actually fail when moved from the study model to the human model. He then suggested that many failures occur because the psychology of the animal was ignored. "Psychology directly effects biology," Dr. Garner said. Thus, when researchers are writing protocols or working with animal models, they need to understand this important link. Dr. Garner also discussed the impact of stress, abnormal behaviors and enrichment concepts and practices.

Second general session speaker, Dr. Hannah-Buchanan-Smith of the University of Stirling, Scotland, discussed unique approaches for Primate Enrichment accompanied by great videos. The day continued with vendor presentations from Bio-Serv, Purina Mills, TOPAZ Technologies and Covance, where Dr. Kimberly Cohen and co-worker Dawn Boyers explained the enrichment and socialization program that Covance has implemented in their breeding program. The day ended with Valerie Hare and Jackson Zee, from the *Shape of Enrichment,* presenting and facilitating the team enrichment challenge, where participants joined groups to develop and design enrichment concepts.

As in years past, the event was well attended by over 200 lab animal professionals, including technicians, veterinarians and managers. Participants commented that the symposium was "engaging, informative, insightful, a powerful day of learning animal welfare practices." Special thanks to Gina Savastano and Lynne Walsh for all their behind the scenes efforts and dedication to making this day come together in such a positive way. Anticipation for next year's event is already building!

continued on page 20

continued from page 19



Environmental Enrichment and Behavioral Management Symposium April 15, 2010
National Conference Center
West Windsor, NJ
Sponsors: *Merck & Co., Inc. and New Jersey Association for Biomedical Research*

By **Keiana Dunn**, *B.S., RLAT*

The 3rd annual EE symposium was intended for animal caretakers, veterinary technicians, veterinarians, behaviorists and principal investigators who have an interest in enriching the environments of the laboratory animals with which they work. The goal of the event was to create a forum to educate the research community about environmental enrichment practices and the ideologies surrounding enrichment for countries outside of the United States. In scope; 1) research model enhancement using EE/acclimation approaches; 2) how to determine if EE fosters desired species-specific behaviors; and 3) assessing the impact that EE has on the animals' well-being.

Kathryn Bayne, Ph.D., D.V.M., DACLAM, CAAB (Global Director AAALAC, International) presented "Enrichment and Animal Behavior Management Programs around the World: The AAALAC International Perspective". Dr. Bayne discussed how the ideology of EE is valued differently around the world. There is a strong initiative for regional peer councils outside the US to build relationships and offer suggestions that enhance enrichment programs. Internationally, there has been slow progress to change the cultural views and practices when it comes to enriching the laboratory animal's environment. AAALAC International is working to narrow the gaps and help countries meet the minimum standards required by respective laws, while increasing excellence in animal care and use. Dr. Bayne pointed out how India has implemented a "4th R". Not only has India been practicing the 3 Rs (reduction, refinement, and replacement) concept, they have adopted "rehabilitation".

Paul Knepley, D.V.M. (Attending Veterinarian, Covance Research Products) discussed "The Acclimation of the Laboratory Primate, Dog and Rabbit to the Research Environment". Dr. Knepley offered an inside look into how Covance enriches and acclimates their animal colonies prior to delivery to research facilities. Much care and effort is taken to get the animals well adjusted and socialized. Covance encourages researchers to establish relationships with the suppliers and inform them of their unique needs. As a result of this dialogue between supplier and researcher, if training is needed, it could be initiated at Covance to make the transition less stressful on the animals. An example of this is pole and collar training for nonhuman primates.

Christina Winnicker, M.S., D.V.M. (Director of Enrichment and Behavioral Medicine, Charles River Laboratories) presented "Rabbit Enrichment and Behavioral Management". Dr. Winnicker's discussion focused on, "How do you know if you are providing the right enrichment for your animals?" To help answer the question, the ethology should be examined. What are species-specific behaviors and how do the animals behave in their natural environment? Dr. Winnicker covered basic rabbit behavior, including the fundamentals for comforting them in a research setting.

Dr. Winnicker talked about rabbits having a variety of important vocal and body language cues. When frightened or threatened, the animals will vocalize by a loud scream, grunt, growl or thump. When exhibiting fear or submission, rabbits will crouch, holding their ears tightly against their heads while avoiding eye contact. On the other hand, contented rabbits will lie on their abdomens or sides with their hindlimbs either tucked underneath or stretched while their ears lay back. Rabbits can purr, click, or grind their teeth at a low volume when happy. Once the species specific behaviors have been identified, Dr. Winnicker questioned whether the animals would mimic the behaviors in an unnatural environment. This point is where the alignment of the animal's welfare needs, facility's requirements and enriching goals should converge to answer the question, "Is it working?"

Discussing approaches to enhance rabbit EE, Dr. Winnicker suggested introducing a "rabbit hut" to create more usable space for the animals. The device would provide a loft and allow the animal to rest on top, aid in standing or offer shelter. Other options are to use a cage side grate to offer visibility for neighboring animals or pair-housing with another conspecific.

Georgia Mason, Ph.D. (Professor, University of Guelph) spoke about "Environmental Enrichment: Three Novel Uses for an Old Concept". The first concept introduced was on "Environmental enrichment: refining impacts to improve animals' abilities to cope." Studies have shown that "True enrichment can enhance full brain function and decrease fear and frustration." Data showed how animals with an enriched environment responded in a more positive manner to the challenge presented than those animals not exposed to enrichment. Dr. Mason's second topic, "Environmental enrichment and experimental sensitivity: improving abilities to detect treatment" was illustrated by studies where

there was a physical decline in the use of enrichment with compromised animals. Dr. Mason coined the phase, "Enrichment is likely to 'drop out' in impaired animals". Dr. Mason's third concept focused on, "Environmental enrichment and external validity: testing treatment effect generality." Randomizing the enrichment that is offered may be helpful in assessing effectiveness and may also determine whether the data is consistent and limits the variability of the results.

BREAKOUT SESSIONS

Nonhuman Primates, Dogs and Pigs, Rodents, Rabbits and Ferrets
An information exchange to resolve species-specific enrichment issues and share successes or disappointments.

Enrichment in Safety and Toxicology
Issues and insights into challenges of providing enrichment for animals on safety assessment and toxicology studies.

Animal Enrichment, the Workflow Challenges
An open forum to share creative solutions to managing industry-wide challenges raised by standardization of species-specific programs. Small animal enrichment devices create a myriad of challenges ranging from ergonomic issues, worker exposures to allergens and difficulty processing through automated systems. Large animal items present their own set of challenges, such as floor drain clogs, frequent replacement, surveillance and monitoring of damaged items, as well as an increased demand for appropriate sanitation.

Clinical Enrichment Strategies for Nonhuman Primates
Panel members presented case examples to highlight their efforts to evaluate the origin of these behavioral challenges and enrichment strategies utilized to handle them.

Creating an Enrichment Study
Tips on creating a valuable and meaningful enrichment study and communicating results effectively through publications or presentations.

Enrichment Training for Your Staff
A discussion of strategies for overcoming resistance from investigators and caretakers to provide enrichment using training to engage staff members with the goals, benefits and purpose of enrichment and behavioral management.

For information on contacting speakers or questions on content: *Genevieve_andrews@merck.com*

Resources

GUIDE FOR THE CARE AND USE OF LABORATORY ANIMALS

Report in Brief/Key Findings

This seventh update to the National Research Council's *Guide for the Care and Use of Laboratory Animals* integrates recently published data, scientific principles, and expert opinion to recommend practices for the humane care and use of animals in research, testing, and teaching. The *Guide* is an internationally accepted primary reference on animal care for the scientific community. Previous editions have served as the basis for accreditation of institutions worldwide by the Association for Assessment and Accreditation of Laboratory Animal Care International. Also, use of previous editions has been required for researchers supported by the United States' National Institutes of Health. Additions to this eighth edition of the *Guide* include expanded coverage of the ethics of laboratory animal use; components of effective Animal Care and Use Programs; and new guidelines for the housing, environment, and enrichment of terrestrial and aquatic animals, and for veterinary and clinical care.

1. The three Rs—replacement, refinement, and reduction—continue to be the core foundation of the Guide for scientific laboratory animal use. The three Rs are a practical strategy for researchers to apply when considering experiments that involve the use of laboratory animals and in designing humane animal research studies.

2. A framework for an Animal Care and Use Program is provided to help institutions integrate regulations, policies, and principles with day-to-day operations and management. Discussion of institutional policies and responsibilities, personnel and program management and oversight, occupational health and safety, and animal facility design and management is provided to help in developing an effective animal care and use program.

continued on page 22

continued from page 21

3. The utility of the performance standards approach for animal care and care practices is reaffirmed. The performance standards approach describes a desired outcome but with flexibility to those responsible for managing animal care and use in achieving this outcome.

4. For the first time, the Guide contains information on the care and use of fish and other aquatic species, reflecting the growing use of these animals in research.

5. Housing space or enclosures should account for animals' social needs. Social animals should be housed in stable pairs or larger groups of compatible individuals. If there is a compelling reason to house animals singly, it should be for the shortest duration possible.

6. Environmental enrichment can enhance animal well-being, provide sensory and motor stimulation, and promote psychological health. Examples of enrichment include structural additions such as perches and visual barriers for monkeys and other nonhuman primates; elevated shelves for cats and rabbits, and shelters for guinea pigs, as well as resources such as novel objects and foraging devices and nesting material for mice. Like other environmental factors, enrichment may affect the experimental outcomes and should be appropriately controlled.

7. The updated *Guide* provides the first discussion of animal biosecurity practices. Animal biosecurity refers to all measures taken to contain, prevent, and eradicate infections that may cause disease or otherwise make laboratory animals unsuitable for research. Elements of a successful animal biosecurity program include ensuring that only animals in good health enter the facility, that materials such as food do not harbor infectious agents, and that practices are in place to limit cross contamination should an infectious agent be introduced. In addition, a comprehensive ongoing evaluation of animals' health status is needed.

8. Expanded information on topics such as transportation, pain and distress, euthanasia, and veterinary medicine is given. An acceptable veterinary program that offers a high quality of care and ethical standards is expected, regardless of the number of animals or species being maintained.

Committee for the Update of the Guide for the Care and Use of Laboratory Animals: ***Janet C. Garber*** (*Chair*), Garber Consulting; ***R. Wayne Barbee***, Virginia Commonwealth University; ***Joseph T. Bielitzki***, University of Central Florida; ***Leigh Ann Clayton***, National Aquarium, Baltimore; ***John C. Donovan***, BioResources Consulting; ***Coenraad F.N. Hendriksen***, Netherlands Vaccine Institute, The Netherlands (until March 2009); ***Dennis F. Kohn***, Columbia University (retired); ***Neil S. Lipman***, Memorial Sloan-Kettering Cancer Center and Weill Cornell Medical College; ***Paul A. Locke***, Johns Hopkins Bloomberg School of Public Health; The Honorable ***John Melcher***, U.S. Senate (retired); ***Fred W. Quimby***, Rockefeller University; ***Patricia V. Turner***, University of Guelph, Canada; ***Geoffrey A. Wood***, University of Guelph, Canada; ***Hanno Würbel***, Justus Liebig University of Giessen, Germany; ***Lida Anestidou*** (*Study Director*), National Research Council.

The National Academies appointed the above committee of experts to address the specific task requested. The members volunteered their time for this activity; their report is peer-reviewed and the final product signed off by both the committee members and the National Academies. This report brief was prepared by the National Research Council based on the committee's report.

For more information, contact the Institute for Laboratory Animal Research at (202) 334-2590 or visit *http://nationalacademies.org/ilar*. Copies of the *Guide for the Care and Use of Laboratory Animals* are available from the National Academies Press 500 Fifth Street, NW, Washington, D.C. 20001; (800) 624-6242 • www.nap.edu.

http://www.nap.edu/catalog.php?record_id=12910

Quality Enrichment. *Quality Results.*

At **Animal Specialties and Provisions** our goal is to give you everything you need to keep your animals physically active and cognitively healthy. From the very best shelters, foraging devices, nesting materials, tunnels, swings, toys and food items to an imaginative and experienced staff – we will help you create the perfect enrichment environment for your animals. Put us to the test today.

ASAP Animal Specialties And Provisions

We Satisfy Your Animals' Desires

215-804-0144 • Jacky@animalspecialties.biz

www.animalspecialties.biz

LabDiet®

Your work is worth it.®

Satisfy their *needs*, enrich their *senses*.

Macro-Pack
Provides ideal method of delivering superior and constant nutrition along with animal enrichment.
200 X 75-gram packs per box • Four products available

Monkey Jumble®
A fusion of seeds, nuts, fruits and vegetables for enhanced palatability. The assortment of flavors and textures will keep primates interested over long periods of time.

Monkey Morsels
A tasty mixture of small fruits, seeds, and vegetables that are especially suited to encourage the natural foraging instincts of primates.

Health Products
Specialized products to enrich performance and well-being. Products include PriMade® Hydrating Electrolyte Replenisher, Vitamin Supplement Tablets, and PriLieve® Series medicated tablets for maintenance of health and prevention of disease.

LabTreat® Primate Enrichment Products
Primate enrichment products, perfect for reward, reinforcement, and psychological well-being. Products include Foraging Bits, Primate Crunch®, High Fat Primate Treats, Monkey Delight® Tablets, LabTreat® Enrichment Tablets, LabTreat® OmniTreat® Enrichment Tablets & Pellets, and LabTreat® Primate Enrichment Pellets.

For more information visit www.labdiet.com or email info@labdiet.com