

NEW PROGRAMS

COME LEARN WITH US!

The Duke Lemur Center is excited to introduce two new programs to our Education Department. This winter and spring join us for our "Prosimians for Preschoolers" early childhood programs featuring two exciting parent-guided classes, Lemur Play! and Junior Observers. These classes are designed for those little lemur enthusiasts between the ages of three and five. To find out more about the classes please visit our website (<http://lemur.duke.edu/tours/prosimians-for-preschoolers/>). If you would like to ensure a space for your child, please call 919-401-7240.

We will also kick off our new summer camp program this summer, **July 15-19 and August 5-9!** This camp will be geared for upcoming 5th to 8th graders. More details will be posted on our website, e-letter and social media accounts over the next month. Please stay tuned!

Lemur Play!

January: 9, 16, 23, 30

February: 6, 13, 20, 27

March: 6, 13, 20, 27

Duration: 9:00- 10:15

Cost: \$25/per child (Chaperone free).
Second child \$20

Location: Lemur Landing classroom/
DLC campus

Class Size: 8 children

Junior Explorers

January: 11, 18, 25

February: 1, 8, 15, 22

March: 1 8, 15, 22, 29

Duration: 11:00-12:15

Fee: \$25/per child (Chaperone free).
Second child \$20

Location: Lemur Landing classroom/
DLC campus

Class Size: 8 children



DUKE'S ALTERNATE MASCOT: INSIDE THE MIND OF THE LEMUR

By Joel Bray, Duke student

How do lemurs see the world? It's a question I ask as an undergraduate researcher in a cognitive psychology lab at Duke, but I have also had the opportunity to do so from a second, more unusual perspective.

My first year at Duke, I tented with the Cameron Crazies and, when given the opportunity, enthusiastically donned a Coquerel's sifaka suit at the Duke vs. UNC basketball game. It was a hit and spawned a series of appearances on campus over the following years. The journey of that lemur culminated last spring, when I was part of Tent #1 in Krzyzewskiville. With my group's blessing, the lemur stood front and center for all of Cameron Indoor Stadium to see. An unusual sight, even famed sportscaster Dick Vitale came over to greet the Lemur. After the game, however, it was decided to let the sifaka end its career on a high note and pass into retirement.

In its place came Maky, the Lemur Center's new mascot, a ring-tailed lemur. With a soft coat and bold stare, Maky has left giant lemur-sized footprints all over campus. After making appearances at Duke's activities fair and an early-season football game, I was asked by a member of the team to support them at their match against UNC. Duke wanted to go "bowling" and needed Maky by their side.

Arriving just past the half, I was ushered to the front of the stands to repeated chants of "LEMUR!" In addition to several appearances on the stadium's jumbotron, Duke's official Blue Devil mascot paid Maky a visit to cheer the team to its stunning, last-minute victory over the Tar Heels. In the post-game rush of the field, Maky was mobbed by enthusiastic, lemur-loving fans. A father asked Maky to hold his newborn child for a photo-op, and one student remarked that Maky should be the new school mascot.

I wouldn't want to step on another primate's toes, but I'm honored by the request. The reception from students and the Duke community has been wonderful, and I look forward to running around campus in my final semester. Let's Go Duke!

RESEARCH | CONSERVATION | EDUCATION
WINTER 2013



LEMUR.DUKE.EDU

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MAD ABOUT MOUSE LEMURS



They are the world's smallest primates, weighing in at about 60 grams and easily fitting into the palm of your hand. They are pretty much everywhere in Madagascar, from the north to the south, from the east to the west, and they can be found in just about any little scrubby patch of forest that you happen to stroll into. And if you happen to make that stroll at night with headlamp on, you will see their bright golden eyes twinkling in the bushes as they leap at lightning speed from tiny branch to tiny branch. I have to tell you; it is one of my favorite sights.

I have been in a state of scientific obsession about mouse lemurs (*Microcebus*) for nearly 15 years now. When I first began studying lemurs as a group (we won't say how long ago that was!), the scientific world thought that there were only two species of mouse lemurs: a grey form in western Madagascar, and a reddish form in eastern Madagascar. Indeed, they were thought to be so general, and so widespread, that the IUCN was ready to declare them non-threatened. A lot has changed since those days! With a process beginning in 1994, and rapidly gaining momentum since then, field biologists and geneticists have been working together to investigate the species diversity of these petit lemurs. Today, the number of recognized mouse lemur species has increased to a staggering 21!! And we haven't seen the end of the road yet. When viewed through human eyes, the various species

may look awfully similar, but different species of *Microcebus* are signaling their species' identity to each other via smell and sound. Hence only by studying their genes can the tale of their long isolation from each other be revealed. Through these studies, there is so much to learn about the process of speciation, and the many ways that species boundaries, once formed, are maintained and reinforced by ecology and behavior. It's an exciting time to be a lemur biologist with an obsession for mouse lemurs!

But the excitement goes far beyond the arcane obsessions of a lemur evolutionary biologist. The biomedical community is also beginning to sit up and take notice of mouse lemurs, and what these animals can tell us about the aging process. It turns out that mouse lemurs tend to develop plaques and tangles, just as humans do when in the clutches of Alzheimer's disease. Investigators from around the world, well aware that all DLC research projects are strictly non-harmful, are focusing their energies on developing non-invasive techniques to study the aging process in mouse lemurs. At this point, the mouse lemur genome has been sequenced to a level of detail that nearly rivals that of the mouse and the human. Over time, we will be watching our mouse lemurs closely, monitoring their health and their aging process, as we also characterize their genomes in fine detail. Ultimately, we hope to identify those genes that correlate with healthy aging versus those that signal a predisposition for Alzheimer's-like symptoms and other signs of age-related pathologies. And the beauty of it is, the mouse lemurs will never know a thing about it. Ah, to be a DLC *Microcebus*: living out one's days in the leisure and comfort of a mouse lemur condo, while pushing the frontiers of science. Now that's living!

Anne D. Yoder, PhD
Director



As the year comes to an end, the staff at the DLC is thinking about new beginnings. New infants that is! The holiday season brings us *sifaka* infants, and the first, a healthy female, was born just today (19 December) to a 5 year old female named Rodelinda. This is Rodelinda's third infant (not many five year old *sifaka* females can say that), and all have been females! *Sifaka* infants are the bright lights of the DLC's winter, and three more pregnant females (*Drusilla*, 19.5 years old; *Pia*, 13.5 years old; and first time mom *Irene*, 5.5 years old) will give birth between now and mid-February. With a total population of only 55 animals in captive breeding programs (all owned by the DLC), each infant is a treasure.

Most diurnal lemurs breed in the fall/winter, and give birth in the spring. *Sifaka* (*Propithecus coquereli*) are our only diurnals to breed in the summer, and with a gestation of close to 5 ½ months, birth season runs from mid-Dec to mid-Feb. An infant weighs about 100 grams at birth and clings tightly to its mother from the moment it's born. Our technicians and veterinary staff monitor each *sifaka* infant very closely to be sure it's thriving, observing nursing behavior and mother-infant interaction, and weighing the infant nearly daily in the first week of life.

As we await each new *sifaka* birth, we're also keeping close watch on all of our other breeding pairs- crowned lemurs, mongoose lemurs, blue-eyed black lemurs, ring-tailed lemurs, and ruffed lemurs. Some pairs have bred already and others will over the coming weeks. And then spring will roll around, bringing a new set of births at the DLC. To everything there is a season!

VOLUNTEER SPOTLIGHT

By Niki Barnett

Spencer Ziegler



How long you have been volunteering at the Center?

I've worked at the DLC since August, 2012

What is your favorite part of the DLC?

What I truly love about volunteering at the Center is seeing the fascination on the faces of our young guests as they meet the lemurs. Their engagement and appreciation provides me with the energy to run the tour.

What is your favorite lemur?

My favorite lemur has to be our *Aye-aye*, Endora. They're just an evolutionary smorgasbord, with this captivating collection of attributes thrown together. Whenever I bring a tour around, Endora is always hopping around with her surprising agility, drawing oohs and ahhs from the visitors.

Kay Welser



How long you have been volunteering at the Center?

I have been volunteering at the DLC since August 2012

What do you do?

I am a NCSU Zoology graduate who currently works at Southpoint Animal Hospital. I am a volunteer tour guide and technician assistant at the DLC

What is your favorite part of the DLC?

I love everything about DLC! From the tours, to the lemurs, to the people that work here. I've learned so much in just a short time and feel like I learn a new fact every day!

What is your favorite lemur?

I love all the lemurs, but I think my favorites would have to be a toss up between the red ruffed lemurs and the coquerel *sifakas*!

THE DUKE LEMUR CENTER IS SO MUCH FUN. I LOVE SEEING THE LEMURS JUMP AND PLAY. I THINK THEY ARE EXTREMELY INTERESTING.

-Rebecca K.
Duke School
fifth grader

NEW LEMUR CENTER DATABASE UNDER DEVELOPMENT

By Sarah Zehr, Data Manager

Did you know....

That ring-tailed lemurs most often will have a just a single infant at a time, and about 27% of pregnancies at the DLC result in twins. But once, in 1983, a ring-tailed lemur female named Sappho had triplets!

That adult sifakas at the DLC weigh around 4000g (8.8 lb) on average, but that in September of 1991, an adult female named Sabina reached an all time high of over 10 kg (22 lb)– more than twice the size of a normal sifaka! Needless to say, she went on a diet.

That a 252g (8.9 oz) fat-tailed dwarf lemur named Jonas is the oldest of his species on record? He's still going strong at 27.5 years of age!

That the average weight of a new born aye-aye is 105g (3.7 oz), but Styx, a female born at the DLC in 2010, weighed only 72g (2.5 oz) at birth, making her the smallest surviving aye-aye infant ever born here. Around the clock care from the DLC animal care and veterinary staff after her birth got her through those first critical weeks, and she is now thriving and is exactly the right size for a 2.25 year old aye-aye at 2280g (5 lb).

That we had 48 infants born in 2012, the most in a single year since 1996! But the year with the highest number of infants born was 1984 – with a whopping 252 new arrivals!

That a fat-tailed dwarf lemur named Dias had more infants than any other



female of any species at the DLC. She had 17 litters between 1976 and 1989 – for a grand total of 36 offspring in all!

The last time lemurs were imported to the DLC from Madagascar was in 1993. We still have 12 wild-caught lemurs currently living in our colony, and their average age is over 28 years!

Detailed records have been kept on each animal in the DLC colony since it was established in 1966; we have housed over 4100 animals here throughout our history, and the sheer volume of data we have accumulated is mind-boggling! But as you can imagine, records have been kept in a variety of formats depending on the technology available at the time. So very old records are still in paper format, many hand-written, with a move to computerized text files, spreadsheets, and simple databases as technology progressed (yes, the lemurs have been here at Duke longer than computers!). Because of the patchwork of formats in which the data are kept, it can be difficult to extract and analyze all of the information needed to answer questions about animal health or husbandry without searching through several different files from a variety of sources – a process that can be very time consuming and still not always yield complete results. So at the beginning of 2012, with funding support from

the DLC, NESCent, and Duke Natural Sciences, we initiated a DLC Database Project with the goal of verifying and extracting data from various source files and consolidating it into a single database from which we can quickly access and analyze the information. We have made great progress so far, and are already not only able to recover all kinds of fascinating facts about animals in our colony like the ones listed above, but we can assess animal growth and development, make better medical and colony management decisions, and support countless research projects using this long-term data. But even after a year of hard work, we have really only uncovered the tip of the data iceberg - there is so much more to be done! New grant funding from the National Science Foundation will support continuation of the data project for the next two years so we can expand the growing database and implement new methods for better documentation of even more animal details. Having this information at our fingertips will support the research, conservation, and education aims of the DLC, as well as help to ensure that we are able to keep the lemurs healthy, happy, and reproducing, thus maintaining this unique resource long into the future.



The Division of Fossil Primates (DFP) at the Duke Lemur Center (DLC) is changing but you might not notice because we are also staying much the same. Our major focus remains on the fossil record of primates, and what that record can tell us about how we humans and our closest relatives (other primates) came to be the way we are today. That commitment to specimen-based research will be a constant in our program but the players will change as we shift from a singular focus on anthropoids (humans, apes, monkeys) to a broader approach that will begin examining the fossil history of lemurs, lorises, and tarsiers in more detail.

There are many reasons for the shift in strategy, some of it economic, some of it political, some of it pragmatic as we devise a new agenda for the DFP. In the past the DFP has been deeply involved in fieldwork in Egypt and Madagascar – while we will continue some of these efforts, we will shift our main fieldwork focus from Africa to North America. Many of you may not know this, but between 65 and 45 million years ago, North America was the epicenter of the primate world. During the early and middle Eocene (55 to 45 million years ago), the American West was home to one of the largest and most diverse assemblages of primates known anywhere on the planet. Most of these primates would probably look familiar to you if you were to see them in the trees around you today – in fact a large number of them would look very much like the lemurs you see when you visit the DLC. One of the questions we are very interested in answering is whether or not these North American primates from 50 million years ago actually are ancestors of today's lemurs, or whether they simply look like living species but are much more distantly related.

We are partnering with Duke's Department of Evolutionary Anthropology on a project that will provide new information to assess the relationships between North American Eocene primates like *Notharctus* and *Smilodectes* with living lemurs. One unique aspect of living lemurs is the presence of a grooming claw on the 2nd toe of the foot – we are devising a strategy to maximize our potential to find complete skeletons of Eocene primates in Wyoming to see if they too possess this grooming claw. If they do, it would be a strong piece of evidence to link them with living lemurs.

The DFP will always be at the forefront of primate research—thanks to the many faculty, staff and students that actively visit, use and help to grow our collections. While our main focus is changing to North America, we will not forget our roots in the rest of the world as Madagascar, Egypt and SE Asia will continue to play important roles in our overall research plan. We are excited about the future direction of research here at the DFP – wherever it ultimately goes it will be worth the ride!

DECADES OF DLC RESEARCH

By Peter Klopfer, Professor Emeritus
Duke Dept of Biology/DLC co-founder

In the 1960s I was studying the neuroendocrine aspects of mother-infant relations in goats, when John Buettner Janusch persuaded me that lemurs would serve better. In exchange for space at the Zoology Department's Behavior Station, which I directed, he offered to move his lemur colony from Yale and share it with me. Together, we obtained funding from NSF, NIH and NIMH for a primate facility that would serve our research interests. I needed cornerless enclosures for my animals and as local builders could not manage round buildings, our architect, Henry Mayfield designed the present hexagons (these are the aye aye rooms still used today). As a sidenote, John's original meeting with me was occasioned by the civil rights movement of those days, for details of which I refer you to my little book, "Politics and People of Ethology".

After John left Duke (a sad tale - not one to be told here), I decided to abandon any pretense of being able to manage the facility, and the university transformed it into a center and accepted responsibility for its administration. My present interests resulted from a bike ride with researcher Andrew Krystal. He was describing the importance of sleep for survival when I asked how that accorded with the absence of sleep during hibernation. Just the week earlier, one of my "grandstudents" had documented deep and continuous torpor in a lemur, and I assumed this meant sleep deprivation for months at a time could be sustained. We agreed this would be worth looking into, and our project (the neurophysiology of sleep and torpor in the fat-tailed dwarf lemur) was born. Together with Cathy Williams, Bobby Schopler, Kathrin Dausman, Susanne Kobbe, Anne Yoder, Sheena Faherty, and others we are finding this to be an exciting adventure.

MOUSE LEMUR MANAGEMENT! IT'S EASY, RIGHT?

By Bevan Clark, Primate Technician II

Do you need a population of tiny endangered primates managed? Do you need to know who's related to whom in that population? Well, no need to visit Maury Povich because I am the person you seek!

Earlier this year I ventured away from the Lemur Center to attend a course on Population Management in Wheeling WV. Twice a year the AZA (Association of Zoos & Aquariums) offers professional development classes for those who work at zoos or in zoo related fields. Set on the grounds of lovely Oglebay resort, courses are offered on topics such as studbook management, enhancement of enrichment for captive animal populations, and population management through the analysis of genetic and demographic data. Previously, I had attended an AZA course to learn how to be an effective Studbook keeper. Studbooks are wonderful resources for historical and current captive population data, and they can assist in better management of those populations. As the North American regional studbook keeper for dwarf and mouse lemurs I am very familiar with this "who's who" of small nocturnal primates. Almost all of the North American population recognized by the AZA is located at the Duke Lemur Center! How convenient!

In order to properly and responsibly grow our current population it was a must for me to further my education. My main objective for attending the population management course was to be able to make informed breeding recommendations and recommend possible transfers to other institutions for our growing population of grey mouse lemurs and fat-tailed dwarf lemurs. Although some folks thought I was lolling away at a posh resort, I was actually laboring through classes for 12-14 grueling hours a day. The course was a series of lectures, class work and presentations. For those folks with desk jobs this may not seem too torturous but for a roomful of animal keepers this can be pretty tough.



Most keepers are not used to staying in one spot for 12+ seconds much less 12+ hours! However, the knowledge I gained in this course was extremely valuable, and was instantly incorporated on my return to the Lemur Center, into the development of our mouse lemur breeding plans for 2013.

In early December Colony Curator Andrea Katz, Senior Technician Britt Keith, and I hashed out who gets the call to "the big leagues" for breeding in March, the start of mouse lemur breeding season. During our session we discussed issues such as; how closely related are animals, who is overrepresented in the population, are certain animals too old or too young to breed, how aggressive were certain breeding groups last year, are we still aiming for multiple male and multiple female breeding groups, etc? There are many variables to consider! We also must take into account the amount of observation time needed to accurately record breeding pairs (so we don't need Mr. Povich's paternity seeking assistance), safety of the animals, and behavior.

Our goal for 2013 is to maintain our population size of 50 animals and wait until we have more room here at the center to expand again [In order to keep DLC population levels constant, and yet still have a breeding program, we are starting to loan mouse lemurs to qualified AZA institutions, such as the Bronx Zoo]. So while I stare at the calendar in anticipation of mouse lemur "March madness," I'll keep myself busy getting my Barry White CDs out of storage and hoping that my match making skills will once again work some mouse lemur magic!

BEST JOB EVER? MY FRESHMAN YEAR WITH THE LEMURS

By Katie Beacham, Duke undergrad

Lemurs, aye-ayes, and lorises... I guess you wouldn't classify my job as ordinary. As a freshman at Duke I have what I consider to be the best job ever. Choosing a university is a decision that impacts the rest of your life. No pressure, right? Luckily for me I had some help from my furry friends. As soon as my college acceptance rolled in I hopped on the phone with the Duke Lemur Center (DLC). I wanted to know how soon I could get involved with the lemurs. To be honest, I wasn't expecting much to come from my phone calls. Boy was I wrong! Everyone I talked to was welcoming, friendly, and encouraging. They explained to me what the DLC does, how I could support them, and who I should contact. I knew right then that I had found a home base. If I had any chance of meeting some lemurs, it was Duke for me.

One of the first steps I made in Durham was to the DLC. Excitement coursed through me along with some pre-job interview nerves. I couldn't help but look around at awe and think, "Wow, at such an amazing place, is there a spot for me?" The day finally arrived and I headed off to my interview with Erin Ehmke and Meg Dye. To say I was nervous would be a complete understatement but I mustered up all my courage and decided to throw caution to the wind and just be me. Thanks be to all lemurs, I was chosen to be an Animal Behavior work study student! Erin and Meg informed me that I would be helping to care for the lemurs, conduct training sessions, observe aye-aye as they transitioned to new habitats, and collect behavioral data.

My first few weeks of work went by like a blur. I was introduced to more prosimians and people than I could remem-



ber, I tackled the diet boards, learned how to use the computer systems, and discovered that lemurs are some smelly critters! Through it all I had the guidance and mentorship of Meg and Erin. They answered all of my questions and trusted me completely. I was assigned six of the DLC lemurs for training sessions: brown lemurs Fiery and Frigga, red-bellied lemurs Hopi, Cheyenne, Hannibal, and a male blue-eyed black lemur Olivier. Every shift I come in and perform five minute training sessions with each of them and then track their progress in a computer system. Training is one of my favorite aspects of my job. There is nothing like being that close to a lemur. I thought I would be scared going into their environment but I have learned that there is a mutual trust and relationship between trainer and animal. I started by simply walking up to their habitat and standing there, to gradually transitioning inside by myself. I discovered that each lemur had their own personalities and strengths. All I had to do was show them that I was trustworthy and they would open themselves up to me.

Another of my favorite parts of my job is animal observations. I head into the nocturnal rooms with a pen, clipboard, watch, and red head-light to watch the aye-aye. Every two minutes I record their behavior and write short notes about their activity.

One of my favorite memories occurred when I was observing Angelique. I was in the corner of the almost all dark room when she scurried right up to me and dropped down towards my clipboard. Before I knew it she had swung herself towards me and had a firm grip on the board. If I had learned anything it was to never get into a match of tug-of-war with an aye-aye. I relinquished the board and quickly called Erin for help. Luckily, she rescued the clipboard and Angelique was unharmed. Working at the DLC is truly a life-changing experience. It's hard to put into words how much I have learned in my few short months here. The support that the DLC staff has given me is unreal. They have been patient, generous, supportive, and trusting of me around their priceless animals. There are very few places that would take in an 18 year old and allow them to have the amount of control that I have been trusted with. I have more stories and experiences from the DLC than I could ever imagine and it's only the beginning. I will always remember the bright blue morning when I was walking around the DLC at the start of my shift and the free ranging lemurs began to call. Screeching and howling permeated all around me, soaring through the forest. I couldn't help as a huge smile spread across my face and I realized- this is exactly where I belong!

I REALLY LOVE THE LEMUR CENTER BECAUSE YOU ALWAYS LEARN SOMETHING. IT'S VERY INTERESTING BECAUSE WHENEVER WE GO THERE, WE DO SOMETHING VERY UNIQUE. MY FAVORITE PART WAS WHEN WE GOT TO STUDY WHAT THE LEMURS WERE DOING AND HOW OFTEN THEY DID IT. WE WERE LIKE SCIENTISTS DOING RESEARCH.

-Caroline L.
Duke School
fifth grader

GOING TO THE LEMUR CENTER IS AN AMAZING EXPERIENCE. I REALLY ENJOYED OBSERVING THEIR BEHAVIOR.

-Joey S.
Duke School fifth grader

THIS LEARNING EXPERIENCE IS VERY INTRIGUING BECAUSE I USED TO GO TO THE LEMUR CENTER WHEN I WAS YOUNG. NOW, WHEN I VISIT I ALWAYS LEARN SOMETHING NEW ABOUT THE LEMURS. FOR EXAMPLE, THE LAST TIME WE WERE THERE I LEARNED HOW LEMURS WERE REALLY SMART AND SOMETIMES LEMURS REMEMBER THINGS BETTER THAN US! LEMURS ARE ALSO IMPORTANT TO RESEARCH. WE STILL HAVE A LOT TO LEARN ABOUT THEIR UNIQUE ADAPTATIONS.

-Max W.
Duke School fifth grader

MADAGASCAR ROSEWOOD SYMPOSIUM AND CONCERT AT DUKE

By Charlie Welch,
Conservation Coordinator

On December 3rd, an interdisciplinary symposium addressing the ongoing problem of illegal cutting and trade of Madagascar rosewood and ebony was held on Duke's East Campus. The symposium was a collaboration between the Duke Kenan Institute for Ethics and the DLC, with Professor Lou Brown of Kenan taking the lead. Lou also has a personal interest in Madagascar as she too has experience in the SAVA region, doing social and community work. The primary objective of the symposium was to stimulate a discussion of not only the illegal removal of precious woods, but also of human resource use in general, from the diverse perspectives of conservation, socio-anthropology, and regulation. Panel members representing the different perspectives were invited from around the US. The discussions during the three different panels throughout the day were quite thought provoking and at times intense – there was not always agreement, but then we did not expect there to be!

Another objective of the symposium was to provide Lou's freshman focus class in ethics the experience of grappling with extremely complicated real-life ethical issues, which are difficult to resolve. The class participated actively in the symposium by assisting with organization and logistics, as well as presenting and participating in the different panel discussions. After the symposium ended, it was clear that the students had all been impacted by the day's proceedings.

In addition to the symposium, the day's events included a concert by New York City based Malagasy musician Razia Said, at the Duke Coffeehouse. Razia is originally from the SAVA region and



upon seeing what the rosewood trade is doing to the region, has become an activist against the illegal activities. In October of 2011 she teamed up with other Malagasy musicians to put on a concert near the town of Antalaha, in the SAVA, in protest of the rosewood cutting and traffic. Razia's concert at Duke included songs about the illegal logging, and other environmental problems in Madagascar, but above all was a poignant and rocking end to a long day of stimulating discussions!

The combined events were an excellent opportunity for us to expose Madagascar, along with its serious environmental problems, to the wider university community. It was also an opportunity to demonstrate DLC's commitment to working towards solutions. DLC is sometimes viewed as being singularly focused on lemurs, when in fact our objectives are much broader and more diverse.

The symposium and Razia Said concert were funded by various small grants and support from both DLC and the Kenan Institute, but the primary grant which allowed us to host the two events was a grant from the new Duke Africa Initiative. The Africa Initiative is an exciting new program at Duke which has the objective of bringing together different university faculty, students, and departments working in the Africa region. We feel the Initiative has an exciting future at Duke, and we are particularly pleased to have been included in the first round of AI grants!

NEW DIGITAL RADIOGRAPH MACHINE

By David Haring:
Registrar/photographer

On a recent January morning, Alphard, a 23.7 year old male ruffed lemur made DLC history. For the previous several very warm days he had been cavorting with his family in 14 acres of NHE4 forest, feeding on tree buds and climbing the tallest trees. But on the morning of the 12th, Alphard was found in his heated shelter laying on his side totally unresponsive to his keeper, Fallon Owens, only moving when she got close enough to him to touch him, at which point he jumped, but just a bit. Fallon called for aid, and Alphard was rushed to the exam room where Dr Bobby Schopler got to work.

Alphard's symptoms (he was using neither his right arm nor leg), and the fact that he had been free ranging through tall trees in the forest, meant that he might have had a fall, and be suffering from fractures or internal bleeding. Fortunately, the DLC had just installed a new digital radiograph machine, and Alphard became its' first patient. Dr Schopler has been delighted with the detail of the digital x-rays, and the quickness and ease in using the new machine. Unlike our old film based X-ray machine, the new one requires no half hour warm up, nor does it require constant monitoring and periodic changing of chemicals.

This ability to almost instantaneously x-ray and get a diagnosis for lemurs who might have suffered the effects of a fall, or from any number of other conditions, is revolutionary for the Center, and will in the future save lemur lives and help the Veterinarians maintain their sanity. In Alphard's case, the digital x-rays provided beautiful images of his innards, but no obvious abnormalities were detected. So the Vets could cross off trauma as a possible cause of his condition and quickly forge ahead to other areas where there might be a problem. Dr Schopler soon discovered via a blood test that Alphard's glucose levels were very low. Although he remains of this writing a very sick lemur, his prognosis is good, after all he is under the care of the finest lemur Vets (now with some of the finest equipment) in the world!



NEW STAFF AND STAFF CHANGES

By Greg Dye

Niki Barnett is now the Lemur Center's Development Officer & Education Program Manager. As our programs continue to grow, so does our need for a more diversified funding base: Niki has proven she the right person to lead both of these critical programs.

Chris Smith's title has changed to Education Specialist. Chris will be Niki's right hand person in keeping our tour and education programs running smoothly and efficiently.

Janice Kalin joins the DLC team as a Development Associate. She will be working with Niki to handle the day to day tasks of managing the Center's Development Program, and implementing new initiatives to grow our donor base. Janice has worked as a volunteer tour guide at the Center for over a year.

Robin Smith joins the DLC team as our part time Communications Specialist. Her focus will be to educate the scientific community and the general public about all the incredible research going on at the Lemur Center, as well as our work in Madagascar. If you have a publication, in any stage of development, related to a Duke Lemur Center project, Robin <ras10@duke.edu> would love to help publicize your work!

Sarah Zehr rejoins the DLC team as our Data Manager. Sarah will continue her work to create an extensive user friendly database incorporating our 45+ years of data. Sarah will be stationed in the Miaro Research lab.



TRAINING FOR RESEARCH AT THE DLC

By Meg Dye, Animal Behavior and Enrichment Coordinator

The Duke Lemur Center (DLC) has over 40 years of experience with all aspects of non-invasive lemur research including physiology, genetics, behavior and cognition. Since the Center opened in 1966, more than 1,200 articles involving DLC research have been published in scientific journals. With such a diverse and rich history, is there room to refine and expand on the type of research that is done at the Center? YES!

Utilizing our animal training program, select animals have been conditioned to participate in research prior to data collection. By incorporating research behaviors into daily training sessions, the animals have a clear understanding of the task that will be used for data collection. Similar to humans, the lemurs are calmer when they understand what is expected of them. In addition, conditioning and practice prior to data collection has refined the process by reducing the amount of time a researcher needs to collect accurate data.

Duke graduate student Michael Granatosky is studying the anatomical adaptations required to navigate through a complex environment, especially when faced with obstacles such as gaps between branches or when having to adopt an inverted (upside-down) posture to successfully locomote from point A to B. Prior to data collection, we started introducing two red-ruffed lemurs and two black-and-white ruffed lemurs to a horizontal pole similar to the one the lemurs would travel on during data collection. We then conditioned the animals to travel under the pole from one end to the other without stopping. Once the lemurs were reliably achieving this task, the training sessions were transferred to the research room. After a few practice trials to adjust to the new environment, the lemurs were quickly traveling as they had been trained and data was collected!

The training program is also opening more opportunities for research in which the answer must come from the animal themselves. Gillian Moritz, a graduate student from Dartmouth College, is studying aye-aye color discrimination ability in low levels of light. Given the choice between two checker board samples, one blue and one grey, the animals were trained to choose the blue card (the “correct” card). Initial training was done in white light when the aye-aye’s color discrimination ability should have been most accurate. During data collection, lights were lowered to more closely mimic their natural nocturnal conditions, and their ability to distinguish between the cards (randomly assigned left or right) was tested. With the aye-aye’s long fingers, it was easy to see which card they chose.

UNEXPECTED TRIP OF A LIFETIME: PART I

By David Haring:
Registrar/photographer

One afternoon late last September, DLC Conservation Coordinator Charlie Welch came into my office with a serious look on his face. He closed the door, sat down, and then proceeded to say he needed to talk to me about something important. If he was my boss, these actions might have been cause for alarm. But since I have always had a convivial relationship with Charlie, and since I knew he was about to lead a Duke Alumni group tour to Madagascar, my response was the opposite: my pulse rate immediately shot up, not from dread, but from excitement!

That’s because the second Charlie sat down with that serious demeanor, I had an insane notion that his visit had something to do with his upcoming Alumni trip. Specifically, that he just might be here to inform me that someone from the Lemur Center was getting the opportunity to go to Madagascar! Sure enough, Charlie proceeded to tell me that a slot in the trip had been reserved and paid for in full, but a family emergency had forced a last minute cancellation. However, the gentleman who had purchased the trip was kind enough to allow his vacancy to be filled by someone at the Center. Then, unbelievably, Charlie asked me if I was interested in going! In shock, I sputtered that I was thrilled, but would have to think about it and get back with him the next day.

Of course I accepted (who would turn down a trip to Madagascar!), and only hesitated because the departure date was in a mere ten days, leaving me (since in the meantime I had to attend a conference in Florida) less than a week to get ready! If you have never experienced a photographer preparing for a once in a lifetime trip to an exotic locale, here’s how it goes: there is the initial frenzied period, where



a massive amount of photographic equipment is assembled in one (large!) area. Then, there follows several agonizing days or weeks of gradual weeding out of equipment deemed not absolutely essential, so that the final bare bones selection of gear can actually be carried onto a plane by one person, in reasonably good health, without requiring the services of a small army of porters. And believe me; all this agonizing generally takes a lot longer than a week!

But I made it, and a little over a week later, I was standing on the balcony of the Hotel Colbert, one of Antananarivo’s (AKA Tana, Madagascar’s capital) better establishments, looking over the beautiful, quiet city (we had just arrived at 3am) and drinking a celebratory Three Horses beer from the room’s minibar (this was before I learned that mini bar purchases were not included in the trip price!). It still had not quite sunk in: I was actually in Madagascar! And just two days later, the Duke Alumni tour group (myself, Charlie, a local guide, Duke physicians and friends of the Lemur Center David Howell and Sara Miller, and Megan Elwing, a Lemur Center volunteer) were officially off on a 2.5 week long whirlwind tour of no less than seven different lemur reserves and parks covering a wide geographic area in the northern half of the country.

First we visited Analamazaotra Special Reserve and the nearby Mantadia National Park (both near the town of Andasibe, about 90 miles east of the capital city) where we had the privilege to see diademed sifaka and indri (and the even more awesome privilege

of hearing indri!). Then it was on to Charlie’s former workplace, the lovely Zoo Ivoloina near Tamatave (Madagascar’s largest port) on the east coast. The next day we hopped a plane to the city of Sambava, spectacularly located on the Indian Ocean. There we joined Erik Patel for a grueling five hour drive the following day to the Loky Manambato Protected Area near the town of Daraina in northeastern Madagascar, the only place where one can see the critically endangered golden-crowned sifaka. The next night we were back in Sambava where we caught a flight the following morning to Diego Suarez in the northern tip of Madagascar. From Diego, we made day trips to the Montagne d’ Ambre National Park and Ankarana National Park (where we saw fantastic tsingy rock formations and abundant crowned lemurs). Then back to Tana and, a day later, on to the splendid Anjajavy resort/reserve, on the northwest coast. Anjajavy is only accessible by private plane and is located in the middle of an unspoiled dry forest reserve containing abundant populations of red-fronted lemurs and, most importantly to me, Coquerel’s sifaka. After three wonderful, restful days at Anjajavy it was time for me to head home, but Charlie, Sara, David and Megan, under the guidance of Erik Patel, got to spend an unforgettable few days in Marojejy National Park (not far from Sambava), where they

got up close and personal sightings of the silky sifakas, one of the most endangered of the lemurs, in one of the most spectacular settings in Madagascar.

For me, this was the trip of a lifetime! And one of the best things about it was that it provided the opportunity to see, in their natural habitat, all three species of sifaka (Coquerel’s, golden-crowned and diademed) which I have worked with during my 30 some years at the Lemur Center (either as a caretaker, studbook keeper or population manager). We saw a great variety of other lemurs on our journey (red-fronted, crowned, sanford’s, indri, bamboo, woolly lemurs, and mouse lemurs), but only those three species of sifaka, making it feel almost like this trip had in some fashion been tailor made for me. Since, over the years, many visitors, volunteers and Lemur Center staff have also had the privilege to see or take care of golden-crowned sifaka, diademed sifaka or coquerel’s sifaka, I thought it might be interesting in subsequent editions of the newsletter, or the Lemur Center blog, to focus more closely on the time we spent during our travels with these three species, in the reserves which shelter them. So, stay tuned for more detailed snapshots of sifaka life in the wilds of Madagascar!

