A little bit of Madagascar right here in Durham!

It is that time of year again-our most popular guest experience is back! Come walk with the lemurs of Durham. Yes, we know going to Madagascar is the ultimate experience, but for those of you who can't make it for one reason or another or just need a quick lemur fix – here is your answer! Spend approximately one hour out in a natural habitat enclosure here at the DLC along with one of our educational specialists and up to three species of lemur. There will be NO barriers between you and these amazing animals! On any given day you may see a sifaka jumping twenty feet to the next tree , observe the complex social structure of a ring-tailed lemur troop, or if you are lucky, a mother carrying her young infant. It is an experience you won't forget! Please call 919-401-7240 to ensure your spot on the best tour in town!

Price: $95/person

Age Restrictions: 10 and above

Offered: 7 days/week at 10:30am (this ensures maximum lemur viewing as they are getting fed during this time), May 1st-October 15th.

Maximum Participants: 8

A Photographer's Dream

View the Duke Lemur Center through the eyes (or lens) of our resident staff photographer, David Haring. Enjoy a morning traveling through our natural habitat enclosures photographing multiple species of lemurs with David and five other fellow photographers. This leisurely paced experienced is geared towards photographers who are interested in capturing the lemurs exhibit natural behaviors such as foraging, climbing, resting, and grooming. You will have the time to set up the perfect shot and enjoy the company of fellow photographers of all experience levels. Spaces are very limited so call 919-401-7240 soon!

Price: $150/person

Age Restrictions: 16 and above

Offered: June 28th at 8:30am;
September 27th at 8:30am

Maximum Participants: 6

Researcher Spotlight

by Mel Norris

Grunting with excitement, Geraldine, a collared lemur (Eulemur collaris), actively seeks eye contact with her trainer, Gloria Fernández Lázaro. Gloria is training Geraldine to follow a target around a short obstacle course, and it was fascinating to watch the lemur gradually make the connection between the desired action and the food reward. At first, she was distracted, but by the end of the session she had not only learned to follow the target a short distance, but also where Gloria stored the food – she would perform the task, then scoot round to Gloria's pocket and wait for her reward.

Flor, a mongoose lemur (E.mongoz) is reluctant to even come to the ground at first, but Gloria lures her down with a food reward. Once there, she is cautious but interested in the target, and Gloria concentrates on getting her to approach it. Flor's mate, Julio, seems more interested in the obstacles than the target, peering inside them and pulling them over. Gloria tries getting him to follow her finger instead, but even then, he loses interest quickly.

Mosi, a crowned lemur (E coronatus) male, on the other hand, is very interested, and despite this being his first encounter with the obstacles, performs the task perfectly several times, and will probably only need one more training session.

All the lemurs have had the same number of training sessions, so how do we explain the difference in progress?
Gloria Fernández Lázaro is a primatologist from Spain, studying animal welfare at the Franklin Institute in Madrid. She's at the Lemur Center investigating how the temperament of individual lemurs affects their training success, working with a group of 14 Eulemurs who have had no prior training. She has already assessed the temperament of each lemur, by introducing them to a novel object (a ball, a tambourine), observing their response, and classifying that response as exploratory, moderate, or inhibited.

Each lemur is now being trained to follow a target around a short obstacle course of two PVC pipe sections. The target is a red ball on a long stick, and initially the lemur is rewarded just for approaching it. Once they are used to it, they are then encouraged to follow it for a short distance until they finally complete the S-shape at least three times in two consecutive sessions. After 10 training sessions, each lemur's success in achieving the goal will be correlated with their temperament. Gloria is hoping to show that the individual temperament of each lemur affects how easily they can be trained. She hopes that this, in turn, will help to improve the care of prosimians in captivity, by enabling keepers and researchers to predict training success, and to plan training in a way that will be most effective for each animal.

LEMUR.DUKE.EDU

DAVID HARING, EDITOR & PHOTOGRAPHER • DESIGN BY HILLIKER DESIGNS
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Duke
LEMUR
CENTER
Duke Lemur Center
3705 Erwin Road
Durham, NC 27705
919-613-6936

This newsletter is dedicated to the memory of Dr. Robert (Bob) Dewar, friend, mentor, and scholar extraordinaire. Over his career, Bob took a synthetic approach to understanding the climate, prehistory, biota, and people of Madagascar, yielding unique insights into Madagascar's special place in the world. Often in collaboration with his wife and partner in all things, Alison Richard, Bob produced a matchless body of scholarly work. It was my great privilege to first see Madagascar with Bob as my guide, standing to my right in this photograph taken in 1986 on my first trip to the island, and into the field. I will always remember Bob for his keen intelligence, sense of adventure, gentle warmth and humor, and above all, his profound humanity. May he live forever with The Ancestors.

Anne D. Yoder

DINiNi

Can you pronounce DINiNi? I would guess that it goes something like "dee KNEE knee"; or at least, that's how I say it. But quite a bit more importantly, just what does it mean? Well, it's an acronym for the small grant that the DLC recently received from Duke's Arts & Sciences initiative for collaborative center grants, and it stands for the Duke Initiative for Non-invasive Neural imaging. So now you are asking yourself, but what does it really mean?

For starters, it means that an exciting collaboration has been established between the DLC and the "Center for In Vivo Microscopy" (CIVM), established and directed by Dr. Allan Johnson of the Duke Medical Center who is the Charles E. Putman University Professor of Radiology, Physics, and Biomedical Engineering. Dr. Johnson (aka, "Al") has spent much of his career developing non-invasive methods for magnetic resonance histology (MRH), the application of MR microscopy to study tissue architecture. And very importantly for our colony, his scanning methods have been specifically developed for imaging small mammals. It was during the process of rolling out the DLC 5-year strategic plan when Duke's Provost, Peter Lange, pointed me in Al's direction. Peter quickly recognized the fact that our mouse and dwarf lemurs would be perfect subjects for neural imaging in the CIVM. As many of you already know, mouse lemurs are known to develop the plaques and tangles that also characterize Alzheimer's disease in humans. Thus, our collaboration with the CIVM will allow us to monitor the development of these and other age-related signs of neural degeneration as our mouse and dwarf lemurs grow to old age, and very importantly, to do so without harm to the animals. Indeed, two pioneers have already been scanned: Jonas, an ancient dwarf lemur (just a month shy of his 28th birthday - perhaps the equivalent of a 105-year-old man!), and Orville, a grand old man of a mouse lemur (aged 10.5 years - let's say, in his 80's, to anthropomorphize). Al and his group have already begun the process of analyzing the scanned images, and our understanding of the lemur brain has advanced beyond anything that we could have imagined, even a year ago.

And the timing of this initiative could hardly be more apt. The A&S proposal was submitted on the virtual eve of Brain Awareness Week @ Duke (http://dibs.duke.edu/brainweek) and close on the heels of President Obama's call for a decade-long scientific effort to examine the workings of the human brain, and to build a comprehensive map of its activity. Our initiative builds on the strengths of a highly interdisciplinary team of investigators to build a preliminary database of the structure, function, activity and connectivity of the primate brain across the broad phylogenetic expanse represented by our lemurs. This database will advance fundamental science in areas as diverse as senescence (i.e., aging), dementia (e.g., Alzheimer's), environmental perception, social behavior, the regulation of hypometabolic states, the neurobiology of sleep, schizophrenia, and a host of as-yet-unimagined neurological phenomena. The assemblage of investigators, and the unique strengths of the DLC and the CIVM, will place Duke in an unparalleled position among institutes of higher learning to address President Obama's charge to the scientific community. And as specified in the DLC 5-year strategic plan, DINiNi most certainly qualifies as a Revolutionary Opportunity!

Anne D. Yoder, PhD
Director

Hosting new Duke Professor Charlie Nunn in Madagascar

By Erik Patel

The DLC's SAVA conservation project recently hosted Professor Charlie Nunn during his exploratory research mission in northeastern Madagascar. Dr. Nunn is moving to Duke from Harvard University, where he is currently an Associate Professor of Human Evolutionary Biology. At Duke, he will hold a joint position in the Department of Evolutionary Anthropology and the Duke Global Health Institute.

What are some of your research interests and how do they relate to Madagascar?
I am interested in the ecological and behavioral factors that influence the spread of infectious disease in wildlife. Recently, I have focused on how infectious agents move among different species in an ecological community, and how the composition of a community influences disease risks, including risks to humans. There is increasing research on diseases like Lyme disease in the northeastern US, but it is rarely investigated in tropical locations undergoing major land-use change. Clearly there is a need for such studies in places like Madagascar, and the region near Marojejy is particularly well-suited for such investigations.

What are some examples of how biodiversity can act as an ecosystem service to reduce disease risks to humans and threatened wildlife?
Different species respond differently to infectious disease risks. Some host species in a community very effectively amplify a disease – meaning that the parasite replicates effectively in that host – other species act as dead-ends for disease spread, perhaps because they effectively avoid the vector or launch a more effective immune system. If we lose those dead-end or diluting hosts, then the risk of disease will increase for the community as a whole. It is important to note, however, that this "dilution effect hypothesis" requires more testing to assess how robust and general it is across host-parasite systems.

You've traveled to Madagascar several times before, but this was your first trip to Marojejy National Park in the northeast. How does this park and this region stand out in your mind?
I was absolutely blown away by the forest in Marojejy. It is a real gem in many ways. First, large tracts of primary forest remain – there is less disturbance than I've seen in other locations. Second, the altitudinal range creates many types of forest types. We hiked through gorgeous bamboo forests – enjoying of course sighting of bamboo lemurs – and also old growth primary forest of various kinds, along with more open areas. Finally, it was great fun hiking on the trails – a real workout in places, more so than most any other forest I've visited! For me, that is a positive.

What are your thoughts on the new Duke Lemur Center SAVA Conservation Project?
I was very excited to hear about the project when I was originally recruited to Duke, and even more excited after seeing the forest and the region. There is wonderful infrastructure falling into place for conducting research, and excellent possibilities for involving students in research. The area also has many opportunities for development and global health projects, including some obvious student projects. All in all, the Duke Lemur Center SAVA Project was a major draw in my consideration of Duke! I also plan to be doing work at the Lemur Center, which was another big attraction of Duke.

Over my many visits to the Duke Lemur Center with children over the years, I have found both the subject matter and the actual opportunity a high point of our year. Students consistently come away excited and enriched by their exposure to these amazing animals. The staff's interest and knowledge are conveyed to the students in an age appropriate manner which is admirable.

It's as close as one can come to visiting Madagascar without a passport...

Don Henchel
Montessori Community School
Elementary
Grades 1-3
Durham, NC

The DLC is definitely the best way you can see lemurs without traveling to Madagascar! At Duke School, the 5th grade service-learning project has been working with the Duke Lemur Center. The students get to learn about several different species of lemurs. The staff is friendly and very knowledgeable. They know everything about every species of Lemur in the center, and they are really good about answering all the children's questions. Duke Lemur Center is a wonderful facility raising awareness, research, and interest in these critically endangered and charismatic creatures.

Tamara Spankie
5th grade teacher
Duke School

Four Years as a Work Study

By Brandon Semel

Having worked at the Lemur Center over the past four years as an undergraduate at Duke, I have experienced the joy of seeing dozens of newborn prosimian infants, the excitement of watching several new building projects come to completion, and the awe of observing lemurs in their natural environment in Madagascar. But I'm getting ahead of myself. My real experience with the Lemur Center began thirteen years ago at what was then the Duke Primate Center. As a third grader from northern Illinois, I wrote a short story about lemurs and the threats to their survival. Hoping to encourage my interest on this topic, my dad sent the story to Dr. Ken Glander, then Director of the Center. Dr. Glander warmly welcomed my family and me to the Center, and from that early age I knew that I would be back.

When it finally came to visiting and applying to colleges my junior year of high school, Duke was still at the top of my (very short) list. Of course my visit to Duke would not have been complete without another trip to the Center. Once again the kind hospitality of the Center was extended to me, only this time by Charlie Welch and Andrea Katz. They assured me that if I were to be accepted to Duke, they would find some kind of work for me at the Center.

Two years later, I found myself at the Lemur Center once a week, cleaning cages and feeding critically endangered species that few people get the opportunity to see, let alone interact and work with. The animal care technicians quickly took me under their wing and they still delight in telling visiting friends that they were the ones who first taught me how to use a washing machine. Dr. Glander soon became my academic adviser, and the summer after my sophomore year I had the opportunity to go to Madagascar to study the main predator of most lemur species, the fossa. It was an amazing experience that allowed me to see beyond the Center's role as a research and educational facility, and into its more difficult to directly observe role: conservation.

Soon after returning from Madagascar, the Lemur Center welcomed Dr. Erik Patel to oversee its conservation initiative in northeastern Madagascar. I was quickly connected with Dr. Patel who offered me the opportunity to study silky sifakas at one of his field sites as part of my semester abroad in Madagascar my junior year. Dr. Patel continued to mentor me and, along with Dr. Glander and Dr. Digby (the Directors for Undergraduate studies of Duke's Evolutionary Anthropology Department), advised the completion of my senior thesis on the ecology of silkies living on a forest edge. The experience that I gained while working with Dr. Patel has since afforded me the opportunity to work in Madagascar as a teaching assistant for a field training school and continue to pursue my own research interests.

My four years at Duke are now over, and I cannot imagine them without the Lemur Center. Not only has the Center provided me with incredible opportunities to pursue my passions and interests to their fullest, but I have met a lot of incredible people along the way. This summer I will once again be returning to Madagascar to teach at the field school and conduct my own research. Following that I will be starting classes at Northern Illinois University where I will be pursuing a Masters in Anthropology under a rising champion in lemur research and conservation, Dr. Mitch Irwin. I could not be more grateful for the kindness, support, and guidance that the Lemur Center has provided along this journey, and I sincerely hope that my most recent visit to the Center following my graduation ceremony is far from my last. In the words of the Malagasy, veloma namako, misaotra betsaka! Goodbye my friends, thank you very much!

What is it about Primates and Fruit Bats?

By Gregg Gunnell Division of Fossil Primates

Many primates like to eat fruit and most prefer living in warm, tropical or semi-tropical forests – so do fruit bats (megachiropterans) – yet one group is relatively common in the fossil record (primates) while the other (fruit bats) is virtually unknown by fossils. Curiously, the one well documented occurrence of fruit bats in the fossil record is based on a series of lower jaws that were originally identified as representing ancestors of the living lorisoid primate Perodicticus, commonly known as the potto. These specimens are from Miocene rocks in East Africa and were christened with the scientific name of Propotto leakeyi by none other than the eminent American paleontologist George Gaylord Simpson in 1967. Two years later, another famous paleoanthropologist, Alan Walker, recognized the true affinities of Propotto and demonstrated that it was a fruit bat instead of a primate.

Since that time fruit bats and primates have been strangely linked together. In one case fruit bats were even proposed as being "flying primates" based on some shared characteristics between primates and megachiropterans in the connections between the retina and the midbrain that are not found in other mammals. Bats and primates were once thought to be members of a Grandorder of mammals known as Archonta. Based on molecular relationships, we now know that bats are not members of Archonta and that fruit bats are not primates but are instead what they have always appeared to be, real bats.

So why all of this talk of bats in the Lemur Center Newsletter? In yet another strange twist, the search for fruit bat fossils has once again led us back to primates. A fieldwork initiative that was originally started in 2009 was designed to try and find fossil fruit bats in an area where they commonly occur today, SE Asia. Following on that early work we traveled to the island of Sumatra in Indonesia in the summer of 2012 to continue the work and began to find the first fossil mammals from the Eocene of Indonesia but as yet no fruit bats. Additionally, during those intervening three years it was determined that another animal from similar aged deposits in the Eocene of Thailand that was first described as a prosimian primate (with the tongue-twisting name of Maungthanhinius) was, in fact, a fruit bat instead. This told us that both fruit bats and primates existed in the Eocene of SE Asia and the DFP, because of its pursuit of the former, is now perfectly placed in SE Asia to pursue fossils of primates as well as fruit bats. To that end we have initiated continuing fieldwork in Sumatra and will expand into Borneo in coming summer field seasons in order to maximize our chances of finding fossil primates and bats. Fruit bats and primates may be forever linked, not because they are related to one another but because they live in the same places and eat the same foods – the hope is that finding one will lead to finding both. Let the searching begin!

Lisa Hathaway

How long have your been volunteering at the Center and what do you do? I have been volunteering as a diet prep TA since May of 2012, and I recently trained to become a Tour Guide. I spend my Wednesday mornings preparing lemur diets and cleaning enclosures, and my Wednesday afternoons leading a tour group.

What is your favorite part of the DLC? My favorite part of the DLC is when the spring weather arrives and some of the lemurs move outside to the Natural Habitat Enclosures (NHE) to free range. I imagine that the NHEs might be the favorite part for the lemurs too! It is incredible to observe them leaping through the trees in their own element.

What or who is your favorite lemur? All of the lemur species at the DLC have their own endearing qualities and my favorites seem to change often depending on which ones I am spending time around. Presently, I am fascinated by the blue-eyed blacks. Their blues eyes are mesmerizing and their pushy personalities never fail to amuse!

Bill Cramer

How long have your been volunteering at the Center? I began at the Center September, 2012

What is your favorite part of the DLC? I have become familiar with the animals in the four wings that I regularly clean and I enjoy seeing them and spending time around them. I also get a great deal of pleasure observing the DLC staff at work. I transported animals to DLC in the '80s and felt that it was easily the best run facility I had ever seen. The Lemur Center seems even more impressive to me now.

What or who is your favorite lemur? My favorite animal changes frequently. My current favorite would probably be the rubriventer "Hopi"

DNA SAYS LEMUR LOOKALIKES ARE TWO NEW SPECIES

By Robin Smith, Communications Specialist

Scientists have identified two new species of mouse lemur, the saucer-eyed, teacup-sized primates native to the island of Madagascar. The new study brings the number of recognized mouse lemur species to 20, making them the most diverse group of lemurs known. But because these shy, nocturnal primates look so much alike, it's only possible to tell them apart with genetic sequencing. The new mouse lemurs weigh 2.5 to 3 ounces (about 65 to 85 grams) and have grey-brown fur. "You can't really tell them apart just looking at them through binoculars in the rainforest," said senior author Peter Kappeler of the German Primate Center in Goettingen.

The researchers named one of the new species the Anosy mouse lemur, or Microcebus tanosi. Anosy mouse lemurs are close neighbors with grey mouse lemurs and grey-brown mouse lemurs, but the genetic data indicate they don't interbreed. The researchers named the other new species the Marohita mouse lemur, or Microcebus marohita, after the forest where it was found. In Malagasy, the word "marohita" means "many views."

"Despite its species' name, this mouse lemur is threatened by ongoing habitat destruction, and 'many views' of its members are unlikely," the researchers write. The two new species were first captured by co-author Rodin Rasoloarison of the University of Antananarivo in Madagascar during trips to the eastern part of the country in 2003 and 2007. Rasoloarison weighed and measured them and took tiny skin samples for genetic analysis in the lab.

Duke Lemur Center Director Anne Yoder and co-author Dave Weisrock analyzed two mitochondrial and four nuclear DNA genes to figure out where the animals fit into the lemur family tree. Their genetic analyses were published in 2010, but this is the first time the species have been formally named and described.

The study was published in the March 26 online issue of the International Journal of Primatology. During a 2012 return trip to the forest where the Marohita mouse lemur lives, Rasoloarison discovered that much of the lemur's forest home had been cleared since his first visit in 2003. The state of the lemur's habitat prompted the International Union for the Conservation of Nature (IUCN) to classify the new species as "endangered" even before it was formally described. "This species is a prime example of the current state of many other lemur species," Kappeler said. Mouse lemurs have lived in Madagascar for 7 to 10 million years. But since humans arrived on the island some 2,500 years ago, logging and slash and burn agriculture have taken their toll on the forests where these tree-dwelling primates live.

Only 10 percent of Madagascar's original forests remain today, which makes lemurs the most endangered mammals in the world according to the IUCN. "Knowing exactly how many species we have is essential for determining which areas to target for conservation," Kappeler said.

A better understanding of mouse lemur diversity could help humans too. Mouse lemurs are a closer genetic match to humans than mice and rats, the most common lab animals. At least one species - the grey mouse lemur (Microcebus murinus) - develops a neurological disease that is strikingly similar to human Alzheimer's, so the animals are considered important models for understanding the aging brain. "But before we can say whether a particular genetic variant in mouse lemurs is associated with Alzheimer's, we need to know whether that variant is specific to all mouse lemurs or just select species," said Lemur Center Director Anne Yoder.

"Every new mouse lemur species that we sample in the wild will help researchers put the genetic diversity we see in grey mouse lemurs in a broader context," she said.

CITATION: Rasoloarison, R., et al. (2013). "Two new species of mouse lemurs (Cheirogaleidae: Microcebus) from eastern Madagascar." International Journal of Primatology. http://dx.doi.org/10.1007/s10764-013-9672-1

BBC AND IMAX FILM CREWS VISIT DLC

By David Haring

Two film crews (IMAX and BBC) visited the DLC the last two weeks of April, making it among the most hectic weeks here, ever. If you don't believe me, just ask our Curator, Andrea Katz, who spent months scheduling nearly every second of both crew's visits, an incredibly complex task! First to appear, for a weeklong stay, was IMAX, consisting of around a dozen people wrangling tons of equipment. They are filming a movie on lemurs (mostly shot in Madagascar), and had been discussing their DLC footage needs with Katz for weeks. They were only interested in obtaining two specific images: a family of fat-tailed dwarf lemurs sleeping in and exploring the top of a hollow log, and a shot of a ring-tailed lemur working a touch screen computer as he had been trained to do by researchers from the Brannon lab at Duke.

As you might imagine, the IMAX camera is huge, and along with its supporting equipment, it took up an entire room (normally occupied by the fat-tailed dwarf lemur family) in the Nocturnal Building (NB). Once camera set up was complete, a hollow log was carefully positioned, and the stars of the show (Nighthawk, Vireo, Raven, Crow and Jaeger) were brought out from their "dressing room" cage and placed on the log. All performed admirably (except Nighthawk, who did not like the bright lights and curled up and went to sleep). Much of the filming, for both IMAX and BBC, could not have been successfully accomplished without weeks of training of the animal subjects by Meg Dye and the technicians involved (Julie McKinney, Fallon Owens, and Mack DesChamps). Next issue Meg will be discussing the techniques by which the fat-tailed dwarf lemur family and one aye-aye (Ardrey for the BBC segment) were transformed, via training, from typical DLC lemurs to international film stars!

BBC filming began in earnest the 22nd of April and continued (in earnest) until the last possible bit of daylight had faded a week later. Although BBC was here longer than IMAX, their crew was smaller, with only about five total people, and their operation seemed a lot less hurried and intense, and much more seeped in the elements of traditional nature documentary filmmaking, where careful observation and knowledge of the natural history of the subject animals is of paramount importance. The crew was working on "Planet Primate" a new three part BBC series about primates of the world which focuses on the "physical, social, and intellectual adaptations that have allowed primates to spread across the globe". We will keep you updated as details on the release dates of both these exciting films become available!

LANTO'S VISIT TO DLC

By Charlie Welch, DLC Conservation Coordinator

As many of you know, DLC's SAVA Conservation initiative is carried out on the ground in Madagascar by project director Dr. Erik Patel, and project manager Lanto Andrianandrasana. Although Erik has been to DLC numerous times, Lanto had yet to visit the organization for which he works. That all changed this month when we were presented with an opportunity by the new Duke Africa Initiative for Lanto to come to the US and Duke as one of three Africa region invitees. Lanto will be here for a one month period, the month of May, with some responsibilities to the African Initiative, but spending most of his time here at DLC. It was extremely important for Lanto to become acquainted with DLC, our objectives, and the dedicated staff that make our varied programs work. We hope that Lanto will return with a much better understanding of DLC's mission including the critical importance of the conservation work that he and Erik are executing in Madagascar.

We are extremely indebted to the Duke Africa Initiative for making Lanto's visit possible, not only from a financial perspective, but also for assuming organizational responsibilities for a foreign visitor coming to Duke, not an insignificant task.

Kathy Windsor

How long have your been volunteering at the Center and what do you do? Two years ago I started scanning historical records for Registrar David Haring. As much fun as that was, I really wanted to do something that got me a little closer to the lemurs, and I eventually started helping Niki Barnett at Lemur Landing. My job now is pricing items for the gift shop, folding shirts, writing 'thank you' cards, etc.

What is your favorite part of the DLC? That's easy to answer, it's the staff! Their appreciation for the little things I do for a couple of hours a week, make me feel like I, too, make a difference. They are the glue that keeps this place together. They are the COOLEST!!!

What or who is your favorite lemur? I love every opportunity I have to get near the lemurs. I love looking into the beautiful eyes of the blue-eyed blacks, but those comical sifakas are so darn entertaining it's hard not to have a special affection for them. A couple of times techs have taken me in with the aye-ayes. They are amazing!!! So, it's hard to name a favorite.

Wrapping up DLC's 2013 Birth Season!

By David Haring

We are heading down the home stretch of the DLC birthing season, with only one diurnal lemur (Foster, a blue-eyed black) yet to give birth. Then it's on to mouse lemur birthing season!

The big news this season is the successful birth of two blue-eyed lemurs, to two different moms! First time mom, West produced a beautiful male infant 3/24, followed three days later by first time mom Margret giving birth to a healthy female. If Foster delivers successfully, we will have had three blue-eyed infants born to three different moms, a genuine population explosion for this species!

In the crowned lemur department, our 11 year old female, Tasherit, gave birth in late April to twins, a male and female. When these youngsters get a bit older, and start to show more dramatic color differences, they will provide a dazzling display of sexual dichromatism for our tour path visitors. First time crowned lemur mom, Mosi, gave birth 20th of May, a mere 72 hours ago, and so far she is being an excellent mother!

We have also had four black and white ruffed lemur infants born this past week. Both Kizzy and Grace (a first time mom at age 16 years) gave birth to twins, and all four infants appear to be thriving. The significance of Kizzy's twins suddenly skyrocketed with the death on May 12th of their sire, 32 year old Amor, after a long battle with cancer. Before the birth of this years twins, Amor had sired only five surviving offspring, really not having had the opportunity to breed until being introduced in 2009, at the ripe old age of 28, to Kizzy (his one and only mate).

In not so new diurnal infant news, we had three sifaka births this year (one in December, 2012, and two in February), all are thriving. One discouraging fact was that of eight sifaka infants born (at the DLC and some of the zoos which have animals on loan from us) seven infants were male, with only one female birth! Generally more males are born than females in captive sifaka, often at a rate of 2 to 1, but this ratio is truly alarming, and hopefully a onetime occurrence.

Rounding up our diurnal infant wrap up, all three of the ring-tailed lemur females who were designated by the SSP to be breeders, produced offspring this Spring, so now there are four adorable ring-tailed infants bouncing off the walls and onto their mom's heads. If everything goes as planned, no less than nine of these infants will be on display on the DLC tour path for the next month or so, making it a great time to visit the Lemur Center!

Aye-aye Conference in San Diego

By Bobby Schopler, DLC Veterinarian

For three days this February, zoo specialists and conservationists from around the world gathered at the San Diego Zoo to talk about the aye-aye. Only a handful of zoos house, breed or study aye-aye, so the total number of attendees was somewhat small, but our mission was big: to share ideas, successes and failures, in order to improve the care and reproduction within the global captive population of this highly endangered, most intriguing and unique animal- with the ultimate goal of achieving a sustainable captive population.

The natural history and behavior of aye-aye in the wild, and the status of wild populations was summarized by Eleanor Sterling of the American Museum of Natural History (her dissertation was the first-ever study of aye-aye in the wild). Dr. Ed Louis of Omaha's Henry Doorly Zoo, who has carried out and supervised extensive field work in Madagascar since 1998, discussed his research on the genetics of wild aye-aye populations.

Representatives from Ueno Zoo in Japan presented their caging and feeder ideas for aye-aye housing. A major challenge to any institution maintaining aye-aye is preventing finger fractures. The animals forage and generally investigate their world using a bizarrely flexible (and extremely delicate) middle finger, aptly named the "tapping finger". Aye-ayes also have the largest brain to body mass ratio of any lemur and those large brains can get them in trouble. They stick their fingers in places they have no business investigating (and which other species of lemur would have no interest in): through cage wires or into metal poles or screw holes (after they have removed the screw). Their fingers can get trapped between wall and wire or at metal connectors which can lead to fractures and even amputations of the finger. Proper aye-aye care also relies on good enrichment. In the wild these nocturnal animals travel over huge territories (up to 360 acres!) to forage for grubs. This type of wide-ranging foraging combined with an active mind makes for easily bored animals in captivity. Representatives from the Bristol Zoo and the Durrell Wildlife Conservation Trust in the Channel Islands demonstrated rope-filled indoor/outdoor housing and novel enrichment ideas like bamboo and log insect feeders. Ropes can be moved into different configurations more easily than logs and rigid structures, and provide a more interesting environment for captive animals.

The American zoos which house aye-ayes (Philadelphia, San Francisco, Omaha, Cincinnati, Cleveland, Denver) also sent representatives to the conference. The DLC's Julie McKinney gave an overview of care, feeding and breeding of aye-aye. Bobby Schopler talked about veterinary concerns, emphasizing tapping fingers and dental issues. The DLC has had the best success at breeding aye-ayes of any other institution in the world. Since the importation of the first aye-ayes from Madagascar in 1987, there have been 25 infants born which survived for longer than five years, and 21 of those animals are still living! In addition, there have been 7 surviving births at American institutions holding aye-aye on loan from the DLC.

Outside of Madagascar, the world's captive aye-aye population consists of 8 males and 6 females residing in Jersey, Frankfurt, Berlin, Bristol and London zoos; 5 males and 5 females in Japan and 16 males and 17 females in the U.S. (7 males and 10 females are currently at the DLC) for a total worldwide captive population of 29 males and 28 females.

The sad truth is that there are not many places willing and able to house these animals, given the animals' need for large enclosures, and the aye-aye's constant wear and tear on exhibits as they explore, chew and forage in every nook and cranny. Due to space restrictions there are only two recommended U.S. breedings this year: a pair in Cincinnati and a pair in Omaha. Space permitting, the DLC's three ancient wild caught females (Endora, Ozma, and Morticia), will be allowed to breed as well, but may not be successful due to their age. There is hope on the horizon though!

Europe is planning to expand the numbers of institutions housing aye-aye as well as the numbers of aye-aye recommended to breed. To increase genetic diversity in both U.S. and European populations, seven aye-ayes will be exported from the U.S. to Europe in the next couple years, and one young male will be imported from Japan to the U.S.; he'll likely to come to the DLC for breeding. Later on down the road, assuming that successful breeding increases in Europe with the infusion of new genes, European zoos will be sending up to 7 animals back to the U.S.

Duke Alumni Tour to Madagascar: Part II

By David Haring:
Registrar/Photographer

Last newsletter I talked about my "trip of a lifetime" to Madagascar (a Duke Alumni tour led by Charlie Welch), and promised to give a more detailed description about parks we visited in three radically different parts of the country, each containing populations of one of the three species of sifaka the DLC has housed in the decades I have worked here. This issue I will talk about seeing the magnificent diademed sifaka (many describe it as the most beautiful of the lemurs) inhabiting two neighboring reserves (Mantadia National Park and Analamazaotra Special Reserve), located about 90 miles east of the capital Antananrivo. Unspoiled and huge, Mantadia is only a few miles from the Analamazaotra Special Reserve which adjoins the town of Andasibe and is one of the most popular and heavily visited lemur reserves in the country. Although I had never had the privilege of visiting Mantadia, I had visited Analamazaotra on two different occasions, in 1987 on my first trip to Madagascar, and again in 1994. Back in those days, the town and reserve were both referred to by the old French name Perinet (at least by us oblivious westerners), which actually is the name the French gave to the impressive and still standing train station constructed in the 1930s.

During my first trip to the area in 1987, I travelled with four American graduate students from Tana to Andasibe on the fantastic train which, due to cyclones and landslides too numerous to mention, no longer runs. Back in 87, the only place for westerners to stay in Andasibe was a hotel located in the massive stone station. Although offering somewhat shabby accommodations, not having been renovated since the French left in 1960, the hotel's dining room was relatively opulent: white linen table cloths with fresh cut flowers, huge windows and formally dressed waiters with bare feet. Unlike today, when Andasibe is one of the most tourist oriented towns in Madagascar, visiting westerners (Vazaha) were truly a rarity in those days, and I saw no other tourists. After arriving, we walked the short distance from town to the reserve entrance, but could not find anyone at the gate to collect fees and allow us entrance into the park. So we just walked (illegally) into the park and started to explore sans any sort of guide, which you simply cannot do these days.

One of the members of our party, Joe Macedonia, was planning his dissertation research on lemur vocalizations, so he was packing a tape recorder on which he proceeded to play recordings of the Indri's song, in an attempt to elicit the local live Indri to answer. It worked like a charm, although of course this too was illegal, and I was treated to my first ever Indri calls! Back at the hotel, we hired a guide, and made arrangements for a nocturnal walk through the park, giving me my first glimpse of nocturnal lemurs.

Even in Madagascar, change is inevitable, and the difference in Andasibe 25 years later is remarkable. Now there are at least half a dozen hotels in town. The train station looks abandoned, and that elegant restaurant is long gone, as well as the shabby hotel (no great loss there!). Our tour group had booked bungalows in a delightful hotel a short distance from town, and that evening we drove to the park for a night hike. The paved road leading up the reserve entrance was swarming with tourists, all shining flashlights randomly and somewhat frantically into the forest in a scene that to me looked more like a desperate search for a missing child than a quiet night hike seeking nocturnal lemurs. I must admit at this point, I felt a twinge of yearning for the good old days!

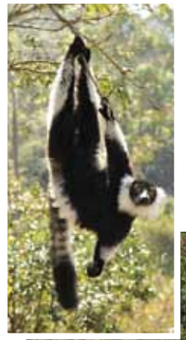
The next morning dawned bright and misty. Pre-dawn, a group of noisy guides had assembled outside my hotel room, so I grabbed my headphones and IPod in a futile attempt to get a bit more sleep. I gave up an hour later and took the headphones off, only to be greeted by the distant, lovely sounds of a group of Indri singing their morning serenade: surely one of the most distinct and beautiful sounds in all of nature! I wondered how long had this most ethereal of aural events been going on, while I had been oblivious, cocooned in the soothing but familiar sounds of an Indie Rock band from Ohio? Beyond the obvious lesson to not wear noise canceling headphones while visiting Indri territory, I wondered if there could be a deeper message here? Something about the need for everyone to occasionally unplug themselves from their electronics in order to more fully revel in the wonders of nature which surround us?

An hour or so later our tiny but intrepid tour group stood in the middle of the Analamazaotra reserve. Our guide had located a group of diademed sifaka resting in the top of a huge tree, and I had my first glimpse of this species in the wild! It was difficult to see them they were so high up, yet I managed to get a somewhat acceptable photo of a mom and infant, without having to shove more than five or six of my fellow flabby tourists out of the way (kidding!). Apparently diademed sifaka have fairly recently been introduced to the park, so this was a group well habituated to the presence of humans. Not to be unkind, but Analamazaotra, despite offering a reasonably easy opportunity to see a spectacular collection of animals, is a somewhat fragmented, degraded rainforest, not at all like being in the unspoiled tropical wilderness type of rainforest we all aspire to.

All the guides in the reserve had cell phones, so when a group of sifaka or Indri (or some other notable critter) was located, the call went out to one and all, and immediately, what had been a semi-private viewing of a charismatic lemur species became an event shared with 40 or 50 people. Ah, yes, progress! Amazingly enough, some things in the reserve remained the same. When a family group of Indri was sighted an hour or so later, one of the guides, pulled a tape player out of his pack, and (shades of 1987!) played a tape of Indri singing their morning call. Once again the tape was immediately answered by living animals, and the haunting, indescribable wail of a family group of Indri gently (but loudly) enveloped us. Most of the readers of this newsletter, being lemur and Madagascar fans, have probably seen a nature film featuring the sounds of the Indri, but this simply cannot compare to hearing it "live". I'm not sure if the first time I heard Indri, being a callous youth and all, brought tears to my eyes, but this time it certainly did.

Two hours later, and we had left Analamazaotra behind and were on our way to get a brief taste of the unspoiled Mantadia National Park, a huge area adjacent to the much smaller reserve. Mantadia's entrance was about 13 miles from Andasibe, but the road is simply awful, so the trip takes nearly an hour. Apparently the road was much better maintained just a few years back, when a graphite mining company had a thriving operation close to (or perhaps even inside) the Park , but now the mining company is gone, and it looks like the road is heading towards a more natural state, to put it politely. It's not necessarily a bad thing, when a road leading to an unspoiled National Park in Madagascar is poorly maintained; as this means that any illegal timber harvesting has to be done by local people, who then must pretty much hand carry the wood out.

The most famous lemur to inhabit Mantadia is the diademed sifaka, but it also has a healthy population of Indri (and at least seven other species of lemurs). Amazingly, there has only been one researcher to study diademed sifaka in the wild, Joyce Powzyk, a Duke Biological and Anthropology graduate student who completed her dissertation (a comparative study of Indri and diademed sifaka) in the 90s. I must confess, Joyce has always been one of my heroes. Not only is she a fine scientist who was able to write a fantastic thesis under difficult field conditions, but she is also a superb artist and has illustrated and/or written at least 15 children's books. Plus, she used to walk, at least once a week, the steep mountainous 25 mile round trip from her field site in Mantadia to buy supplies in Andasibe, during the entire period that she was doing her thesis work. Personally, after being pounded around in a vehicle for a few long minutes, I began to have doubts whether I could even ride that distance, much less walk.



Finally we pulled into Mantadia NP entrance, and it was a delight from the moment we stepped out of the vehicle. The parking lot was both small and empty, always a good sign, and even a cursory glance at the surrounding forest revealed larger trees than any we had seen the entire trip. Unfortunately we only had a couple of hours to walk a short loop, a lovely stroll through old growth forest that at least provided a glimpse of the beauty of the National Park. For a while the trail followed a meandering stream, then started gaining altitude, eventually bringing us to a scenic overlook, which provided superb views over miles and miles of unspoiled rainforest. A hundred yards past the platform the trail crested the ridgeline, and our guide stopped and pointed, and there they were: a family group of diademed sifakas, including a mother with infant! These animals were obviously used to the limited number of tourists that came through, but that proved to be a good thing, as they were completely comfortable with us, and two of the group members even came over to investigate us closer, offering a few all too brief photo opportunities. Then the group jumped some distance away: too far for photos, but still close enough to admire, so we had a few minutes to savor them as they went about their business: Enchanting! And the best part: the guides didn't have cell phone reception, and even if they did there would be no one to call. It was just us, the diademed sifaka, and the magnificent rainforest!