### WE LOVE OUR VOLUNTEERS! BY NIKI BARNETT

On the evening of January 7th, the Duke Lemur Center held its 5th annual volunteer appreciation dinner. Over 50 of our more than 100 volunteers were able to join us for good food, company, games and of course, to receive their awards. In 2014, our volunteers donated 9,566 hours of their time in various departments across the DLC! We are so grateful for and humbled by their incredible contribution. This year, Jody Harper, a Technician Assistant, ran away with the most hours, donating 498 hours of her time to help care for the lemurs. A special thank you also goes out to volunteer, Julie Byrne, who serves in multiple departments, but also serves as our resident artist and designed this year's volunteer appreciation shirt. As our volunteer program expands, more members of the local community are joining the DLC team. Volunteer opportunities are now available in our animal husbandry, tour and conservation/garden departments. If you are interested in volunteering your time to help save lemurs, please go to the following link and fill out our online application: lemur.duke.edu/engage/volunteer



#### NEW EMPLOYEE SPOTLIGHT BY KAY WELSER, RESEARCH/OUTREACH TECHNICIAN

Three years ago I was a recent NCSU Zoology graduate who had just finished six weeks abroad in Namibia with Elephant Human Relations Aid. I was looking for my next step and a foot in the door; somewhere I could start getting experience and begin my career. This is when I started my journey at the Duke Lemur Center as a volunteer. Working hard both as a tour guide and technician assistant (TA), I was eager to learn and excited to spend time with the sweet prosimian faces you see pictured all over the newsletters and website. There is something unique and captivating about those little lemur faces with their giant eves, and giant personalities to match. So when a part-time position was offered in the education department, I jumped at the chance to be a part of this team. I knew that my newfound love of lemurs coupled with what I already knew about the DLC's mission was exactly what I had been searching for.

Fast forward a couple of years, and I am overjoyed to say that as of October, 2014 I am officially a full-time member of the DLC team in a newly created position, divided between the education and research departments. This means that I am able to continue to educate visitors, as well as expand our current availability for specialty tours such as Painting with Lemurs and Keeper for a Day. On top of these responsibilities, I am now also involved in the impressive research being conducted at the DLC. It is not only interesting to see such a wide variety of research in action, but more important is the impact the research has on everything we do at the Center. The non-invasive research conducted here reveals an incredible amount of knowledge that allows us to better care for lemurs in captivity, as well as better protect them in the wild.

It would be an understatement to say that I love my job. I get to work with an incredible group of endangered primates, at a worldrenowned facility with a passionate and supportive staff. I am most excited to see what the future holds for me!

#### MARCH 2015

# Iemur.duke.edu

David Haring, Editor & Photographer • Design by Hilliker Designs. This publication was printed using 100% pcw recycled paper, processed chlorine free and with soy ink.





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### GREG DYE: THE MAN BEHIND THE CURTAIN BY ANNE YODER, DIRECTOR



If you have been fortunate enough to visit the Duke Lemur Center at some point over the past several years, you will have observed a place transformed. The grounds are lush and immaculate, the buildings are clean and sparkling, and the staff can be observed walking vigorously and purposefully as they execute their appointed duties. It is a well-oiled machine. And much as I would like to claim credit for all of this beautiful precision, I cannot. There is a Wizard behind the curtain, and his name is Greg Dye. He is the DLC's Director of Administration and Operations, and we couldn't live without him. In the words of DLC grants administrator, Valorie Cook: "Greg covers more bases than most recognize. Sometimes he appears to be in all places at once - running a meeting, dealing with facility issues, planting a tree, creating a budget - he's versatile but not scattered. He leads a diverse team of personalities, job duties, and skill sets. He's focused and steady without being rigid. He's compassionate but not overly emotional. He's present and supportive but not controlling. He's comfortable under pressure and is good at diffusing tension. He's genuine and enthusiastic. He brings sobered experience to his role, yet he still gets excited about what he does."

But how did it all begin? It was 2008 and I had been the DLC Director for two years. We were deep in the process of designing our wonderful new buildings while simultaneously expanding our staff and our lemur colony. I knew that I needed help, and sooner rather than later. My first step was to persuade Andrea Katz to assume the role of colony Curator, which, very happily for me and for the lemurs, she did. (You will have also observed the fruits of her efforts and wisdom each and every time that you see lemurs frolicking in the woods, oftentimes with babies in tow.) But next, it was on to the task of finding someone to handle the reins of staff management and facilities operations. Given the enormity and the complexity of these tasks, I knew that I needed someone very special; someone with experience in housing live animals, who also knew a thing or two about HVAC and electrical systems, and who could coax the best from each individual staff member while reshaping them as a team. And a little experience with animal training wouldn't hurt. Easy to find ... right? You would think not, but then Greg Dye walked through my office door.

We had launched a national search for the DLC Operations Manager and had received an outstanding

batch of applicants. I had narrowed the pool down to a short list of five candidates, several of whom were from out of state, and all of whom had superlative credentials --- though none with the magic combination of skills that I sought. It was then, at the very last moment before the HR doors slammed shut on the process that our Behavioral Management Coordinator, Meg Dye, mentioned that her husband was interested in applying for the job. With a slightly suspicious tone I inquired after her husband's credentials. But when Meg replied by saying something like, "Well, he was the lead animal care specialist at the Shedd Aquarium, the Associate Curator of Marine Mammals and the Associate Curator of the Living Coast at the Brookfield Zoo, and is the President and Co-owner of Animal Conservation Unlimited, Inc.", I believe that I said something like, "Well all right then!"

And here is where the fun began. As I mentioned above, the DLC was in a phase of major and rapid overhaul. Everyone was working at capacity, and nerves were accordingly more than a little fraved. Thus, in conducting my interview with Greg, I focused much of the conversation on "hypothetical" cases wherein staff relations were less than ideal. For each of these problematic scenarios, Greg not only had a solution, but a concrete example from his previous experience in which he had taken a situation from disaster to success. After about 45 minutes of this, I finally exclaimed "Does this stuff come naturally to you, or have you read a few of those leadership books?" Greg calmly replied that he had read and enjoyed them all. It was then that I made the remark that has stuck with (and amuses) us to this day: "Greg; I would rather read the phone book!!!"

I hired him on the spot and not a day has passed that I haven't celebrated that momentous decision.

This is not to say that Greg walked in the door knowing everything that there is to know about lemurs. Indeed, very early on, when Greg was reporting to me a lemur altercation that had resulted in a minor injury to one of the lemurs, I asked which species was involved. Greg replied, "Umm; it was brown???" But what can you expect from someone who began his career as a marine mammal trainer at SeaWorld, nearly losing his life at the age of 20 in the arms of a "playful" 1300-pound walrus who realized that she had an easy human target? After an agonizing minute-plus underwater, as Greg started to wonder if he might as well just go ahead and take in the gulp of water that would end his misery, he was



Join us for a lemur-themed week across the Triangle! Scavenger hunt details and more details on individual events can be found at lemur.duke.edu/engage/lemurweek. Hope to see you there!

**Saturday March 28<sup>th</sup>** – Join Maky and the Duke Lemur Center bright and early at 8am at the Great Human Race at Northgate Mall to kick off Lemur Week! Cheer Maky as he races other Triangle Mascots, Dance with Maky and learn all about our festivities for the upcoming week!

Sunday March 29th – Join the Duke Lemur Center crew and Maky for the official Lemur Week kick off at NOSH. Eat, drink and be merry with all the fun and festivities. NOSH will be donating 10% of sales to the Duke Lemur Center.

**Monday March 30th** –Spring 'Fashion' Show at Bull City Running Company at 6pm. Do you think the great staff at BCRC will be able to fit Maky in some cool running shoes?

**Tuesday March 31st** – Dr. Mireya Mayor is best known for her primatology research on the lemurs of Madagascar and her work as a field correspondent for National Geographic. She is a strong advocate for conservation of the endangered species of Madagascar. Please join us for Dr. Mayor's discussion about her most recent book, Pink Boots and a Machete, which follows her inspiring journey from NFL cheerleader to Fulbright scholar to field scientist to Ph.D. (Event in conjunction with Duke's Roots and Shoots Primate Palooza week)

Wednesday April 1st – Lemurs love all shades of blue and cupcakes too! Join us at Sugarland in Chapel Hill and enjoy a sweet treat to help save lemurs! Part of the proceeds from each cupcake sold will come back to the DLC to help support the lemurs!

**Friday April 3rd** – Jovian's Jubilee – 6:30pm at the Duke Lemur Center. \$75 per person, reservations are required. Enjoy an evening under the stars to celebrate Jovian's contributions to lemur conservation. The April 3<sup>rd</sup> event will be dedicated to his memory and will raise funds to ensure that we can continue in our mission to inspire the next generation of environmental stewards. Our theme for the evening will be 'A little bit of Madagascar right here in Durham', and, 'Eat Local, Save Global!'. Contact Janice Kalin at janice.kalin@duke.edu or 919-401-7252.

**Saturday April 4<sup>th</sup>** – Lemur Week Egg-stravaganza. The lemurs will host their very own egg hunt on the lawns of the Duke Lemur Center from 3-5pm. Maky the Lemur-Rabbit will be hopping about and available for fun egg hunt photos. There will be a egg hunt for little ones and a lemur egg-Quest for older kids who need a challenge. Enjoy art, jumping, dancing and lemurs for an afternoon. American Meltdown Food Truck will be on-site to fill your bellies. \$25 per family, reservations are required. Contact Janice Kalin at janice.kalin@duke.edu or 919-401-7252.



#### March 28th -April 4th 2015

# JOVIAN'S GREAT LEAP TO STARDOM!

BY CHRIS SMITH, EDUCATION SPECIALIST (WITH DUKE OFFICE OF NEWS AND COMMUNICATIONS)

I am sure everyone who reads this newsletter has heard about the sad passing of our sifaka superstar, Jovian, on November 10th. What follows is a brief account of the unexpected level of mourning that followed his death, as he became an overnight internet sensation, as well as some information about his great leap to stardom with the Kratt Brothers in 1997. For Jovian's full story, please see: http://today.duke.edu/2014/11/jovianobit

Outside the Lemur Center, Jovian was famous as "Zoboomafoo" the leaping, prancing otherworldly star of the PBS Kids show by the same name, hosted by brothers Martin and Chris Kratt. He was a graceful, long-limbed co-star with cream and russet fur and bright, intelligent light blue eyes and he taught millions of children what a lemur is. The show aired 65 episodes in just over two years, 1999-2001, and continues in syndication.

"He was great to work with," said Martin Kratt, a 1989 Duke graduate who had volunteered at the Lemur Center as a student. "He'd jump in through the window and we'd feed him mangoes or garbanzo beans. Sometimes he'd grab our noses with those soft sifaka hands."

Millions mourned the loss of Jovian through the Internet and social media. Traffic to the Lemur Center's website crashed its servers after tens of thousands attempted to visit for the news. More than 13 million people on Facebook saw the news and millions more expressed their sympathy on Twitter and Instagram. Those old enough to watch the show as kids reached out online and shared their stories along with their parents who often enjoyed the show just as much:

I grew up with the Kratt Brothers and Zoboomafoo. Little did I know, I would end up at the University that "Zoboomafoo" called home! It's sad to hear of this loss, but it brings back great memories of childbood adventures alongside Zoboomafoo! Thank you for touching my life, Jovian!

Bless him. My son, who is 10, watched Jovian for several years. For his 2nd Birthday, I made bim a Zoboo cake and got bim a Zoboo stuffed animal which he HAD to have with him at all times; be carried Zoboo with bim for four years and to this day, Zoboo is the only stuffed animal be sleeps with. Thank you for the joy you brought to my son's life, Jovian. Enjoy your new life across Rainbow Bridge.

RIP Jovian, you were the staple of my childbood and prob the reason I'm obsessed with animals to this day. God bless you, you crazy lemur.

Rest in peace in the jungles of beaven. Goodbye sweet prince. I hope there's an endless snack machine in heaven for you.



Jovian was born at the Duke Lemur Center in the spring of 1994 to parents Flavia (a female who had been wild caught in Madagascar in 1986) and Nigel, who had been born at the Center in the winter of 1972. Jovian was living in a group that included just him and his parents when they were visited and filmed in June 1997 by Chris and Martin Kratt who planned to produce a PBS Kid's show called Zoboomafoo. The Kratt brothers wanted to host their wildlife show for kids with an unusual cohost: a sifaka named Zoboo. Most of the time Zoboo would be played by a talking lemur puppet, but the brothers were interested in obtaining action footage of a real sifaka to intersperse with footage of the puppet.

They auditioned several sifaka groups at the Lemur Center on film. But it came as no surprise to anyone who was familiar with Flavia's group that the Kratts selected Jovian and his somewhat elderly father Nigel to be the model for Zoboo. "They and their family were, and still are, the most distinctively beautiful sifakas in our colony, as well as being the easiest and most delightful animals to work with," said David Haring, the center's registrar and photographer.

In October 1997, the Kratts returned to Durham with a complete stage set erected inside a specially constructed outdoor cage. For nearly two weeks they filmed Jovian, Nigel and Flavia leaping around and exploring what was to become known on Zoboomafoo as Animal Junction.

"You can probably see all three of them on the show, but Jovian was the star," Kratt said. "He was young and good-looking and very gentle."

finally rescued by his teammate, the only person in the organization with less animal training experience at the time than Greg. True to character, the take-home lesson for Greg was not "don't ever get into a tank of water with a 1300-pound walrus." Rather, it was that "nothing works without teamwork."

As Dr. Ron Banks, Duke's Director of Animal Welfare Assurance, puts it: "He is the quiet confidence of a clear vision; possessing the assurance of a skilled mentor quietly guiding the team to be better and do more than any others think possible." Or more whimsically, also

#### WHY I SUPPORT THE **DUKE LEMUR CENTER BY SUSAN FITZGERALD**

"Don't you want to help Nigel find a wife and have a family?" asked Dr. Elwyn Simons. I was ten years old and Nigel, the only Coquerel's sifaka at the Duke Primate Center, was right in front of me. I was filled with joy at being so close to such a beautiful animal, but also sad that he was the only lemur of his species at the Center.

It was 1980 and I was on my first trip to the Duke Lemur Center, then the Duke Primate Center. The Director of the Center, Dr. Simons was giving my family a tour, as we were getting ready to move to Madagascar where my father was preparing to serve as the U.S. Ambassador. Over the following years, a relationship was renewed between Madagascar and the United States that allowed Duke to bring lemurs from the wild to the Lemur Center. A mate was found for Nigel, and so began a very successful captive breeding program for Coquerel's sifakas. I also became even more enchanted with lemurs.

Many years later I moved to Durham for a job that had nothing to do with lemurs. But what my employer did not know was that my desire to be closer to the Duke Lemur Center was a major part of my decision to move to the area. Within weeks of arriving in Durham I became a volunteer tour guide at the Center.

Through my volunteer work here over the years, I have seen first hand how special the Duke Lemur Center is. Yes, I still love to see the Coquerel's sifakas, which always make me think of Nigel. But I also think about how the Center's mission is unique in the way that it combines research, education, and conservation. I have tremendous respect for the Center's work

from Ron, "Greg is in real life the Elf on the shelf; the gnome in the garden; the will of the wisp; the Tinkerbell of the forest; the consciousness of lemurs past ..."

And so it came to pass that we owe thanks to a walrus for helping to shape the leader that we all know as Greg Dye.

PhD, Director



and the people who do it. The deep knowledge of lemurs created by the Center's research and care of the animals is possible because of the Center's tight focus on prosimians.

I feel privileged to volunteer at the Lemur Center and to be able to showcase the Center's research, education, and conservation efforts to visitors every week. It is also priceless for me to share my love of lemurs with my husband and two daughters, who have now fallen in love with lemurs through their frequent visits. As a family we regularly make financial donations to the Center, which recently included the adoption of a fat-tailed dwarf lemur, Raven. We love receiving the reports on "our" lemur, whose picture hangs in our family room for all to enjoy. Every time we look at Raven, we are reminded of the uniqueness of lemurs, and this makes us happy to be contributing to their welfare. I hope you will join my family and me and help support the Duke Lemur Center in whatever way you can.

## **SEARCHING FOR FAT-**TAILED DWARF LEMURS IN THE RAINFOREST LOWLANDS OF MAROJEJY BY MARINA BLANCO, POST DOC

I cannot bear to stay inside my tent – I am sweating profusely, just sitting by the open door, in the shade. A few days ago we left the coastal town of Sambava in two 4x4s, drove for less than 2 hours and hiked the rest of the day, for about 6 hours, forming an endless line with 43 porters carrying equipment and food for a 3-week expedition. We stopped a couple of times to rest and to switch porters between villages. I enjoyed a warm orange Fanta along the way, a delightful treat even for a non-soda drinker like me. After a short night at the Madagascar National Park office in the village of Antongodriha and a quick breakfast the following morning -a sizable pile of rice- we set our sight to our destination:  $LAT = -14.323508^{\circ}$ , LONG  $= 49.686426^{\circ}$ .

Earlier this year, Dr. Erik Patel (DLC's SAVA Conservation Project Director) and I had searched Google Earth with hopes of finding a low-elevation patch of dry forest within Marojejy National Park to conduct surveys, and that's where the pin had dropped on the satellite image. The main objective of the expedition was to find out whether Cheirogaleus medius, the fat-tailed dwarf lemur (the same species as housed by the DLC), was living there. Fat-tails are commonly found in western deciduous forests in Madagascar and appear to be dry forest specialists. Yet, the species has been previously observed in northern and northeastern Madagascar (e.g., Daraina forest) and thus, it was at least conceivable to find the species somewhere within the park. Our previous expeditions to Marojejy had only included areas around the tourist circuit (far east side of Marojejy), where we were able to identify not one, but three dwarf lemurs species: C. sibreei (a high altitude species, found above 1400m), in addition to C. crossleyi and C. major, the two largest dwarf lemur species, living side by side at lower elevation rainforest, near Campsite 2.

As we arrived at our theoretical destination on the complete other side of the park (far west side), GPS in hand, we found ourselves on the top of a grassy hill. Thus, we had to continue our search about 1.5 km downhill for another hour or so, hiking along the margins of a wide river (the natural divide between the park and bare areas patchily occupied by human



settlements) until we came across a fairly pristine location to set up camp. Our tents were scattered between rocks and thorny vines, close to a lively stream with small waterfalls flowing into a pond of sorts. A brief traditional speech was made by a local resident and small amounts of honey and tokagasy (the locally-made rum) were offered to the ancestors to respectfully request permission to camp and conduct our surveys.

Early expeditions by Safford et al (1988) and Goodman et al (2000) revealed that the far west side of Marojejy is somewhat drier than the east in part due to a rain shadow as the highest areas of massif are on the east side. Villagers on the west side are acutely aware of this and are not able to grow much vanilla but grow coffee and other crops more suited to a slightly drier landscape. In fact, many migrate each year to the east side to grow vanilla. During our explorations of the area, led by a member of the local village park guards (CLP's), we discovered that the open areas identified as such from satellite images were partly secondary growth forest

# AVEN CAVE YIELDS UNDERWATER TREASURE TROVE **OF SUBFOSSIL LEMURS** BY GREGG GUNNELL. DIVISON OF FOSSIL PRIMATES

Lagerstätten – that word sends a shiver of excitement up and down the spine of every paleontologist. In German the word means 'storage place' or 'deposits' but in paleontology it has come to mean a very rich fossil deposit that contains complete or nearly complete specimens that sample a wide variety of the biota living at the time of deposition. As you might imagine, Lagerstätten are quite rare. Some of the more famous examples are the Burgess Shale in Canada which preserves soft body outlines of ancient (530 million years ago) Cambrian animals, the Jurassic (150 Ma) Solenhofen limestones in Germany where the famous Archaeopteryx is found and the middle Eocene



(45 Ma) Messel Oil Shale in Germany which preserves whole skeletons of many birds, mammals, reptiles, amphibians, and insects.

I have had the good fortune to have been in on the discovery of two different Lagerstätten as well as to have studied fossils from others including Messel and the well-known Eocene Green River Shale in Wyoming where beautiful skeletons of fossil bats have been found. The first Lagerstätten our team discovered was in 1998 in Pakistan, a place we named Gandhera Quarry. It preserves a remarkable wealth of early Eocene (52 Ma) mammals from Balochistan Province – an assemblage that has yet to completely studied.

As far as DFP is concerned, the most exciting Lagerstätten discovery happened just recently, in October 2014, at an underwater cave site in SW Madagascar, a place called Aven Cave. The discovery of subfossils at Aven Cave was initially reported by Ryan Dart but local knowledge of the site is common. A joint team from the University of Antananarivo, Duke University, University of Massachusetts, Brooklyn College and Midwestern University led an expedition to this cave site. The expedition was generously supported by the National Science Foundation and the National Geographic Society, the latter sending along Waitt Foundation Program Director Fabio Esteban Amador to participate in the work. With the assistance of Mr. Lovasoa Dresy, the director of Tsimanampetsotsa



National Park, and the cave diving skills of Phillip Lehman and the Dominican Republic Speleological Society dive team, a treasure trove of subfossils was discovered.

Only a preliminary survey has been made of Aven Cave to date but it is clear already that it is one of the richest subfossil sites ever discovered in Madagascar. The initial list of animal specimens found in the cave includes three genera of extinct lemurs (Pachylemur, Mesopropithecus, and Megaladapis) as well as one species of a living form, Lemur catta, the familiar ring-tailed lemur. In addition to the primates there are abundant specimens of bats (Hipposideros), carnivores (the extinct fossa Cryptoprocta spelea as well as a smaller, still living, viverrid), two species of rodents, an extinct pygmy hippopotamus, crocodiles, turtles, and two bird species including the extinct elephant bird Mullerornis.

Not only is there a diverse (many species) faunal assemblage coming from Aven Cave, the sample is also abundant (species represented by many specimens) with many specimens represented by complete or nearly complete skeletons. We anticipate many more and surprising discoveries in the future. Stay tuned for updates from Aven Cave!

# JONAS, WORLD'S OLDEST FAT-TAILED DWARF LEMUR HAS PASSED **BY DAVID HARING**

#### 

Jonas, the Duke Lemur Center's oldest fat-tailed dwarf lemur (in fact, the oldest captive fat-tailed dwarf lemur in history), died on the 23rd of January at the age of 29.6 years. He was a Lemur Center favorite and he leaves behind a stunned technician staff actively planning his 30th birthday party, which would have fallen June 17th.

For an animal weighing a mere 226 grams, 29 years is a tremendous life span! The record for the second oldest captive fat-tailed dwarf lemur (Cheirogaleus medius) who also lived at the Lemur Center, is held by a female named Lydia who was born in August 1982 and died in October, 2007 at the ripe old age of 25.

Jonas's parents, Dias and Felix, gave birth to a whopping 36 infants—17 litters in all, with Jonas' litter being number 13. Of course Jonas most likely only knew one or two of his 35 siblings, primarily his litter mate/ brother Zenas with whom he lived for nearly a year.

Sadly, Jonas never produced any offspring of his own (perhaps one of the keys to his longevity?). But he never lacked for company, living with a succession of fellow fattailed dwarf lemurs, as well as sharing free range rooms in his younger years with a variety of interesting prosimian species, including lesser bushbabies, slender lorises and mouse lemurs.

Here's what dwarf lemur hibernation expert Marina Blanco had to say about Jonas: When I think of Jonas, I instantly remember his "diamond" eyes (because of his cataracts). Soon after I arrived at the DLC three years ago. I heard rumors of an "ancient" dwarf lemur with a strong personality living in the nocturnal house. I had been studying wild dwarf lemurs in Madagascar and, unfortunately, I had failed to capture many old individuals, as life in the forests gets prematurely truncated by predators and disease way before dwarf lemurs can reach their life span potential. Meeting Jonas inspired me to revise an argument that had been installed in "life-history" literature: that hibernation is correlated with longevity. In simplistic words: if your body is not "working full time" metabolically-speaking, you will age more slowly and live longer. Jonas, a member of the only primate group of hibernators, was the poster child of longevity in Cheirogaleus! He'll be remembered by many for his temper, personality, handsomeness, resilience and... his genes.

areas previously cleared to grow coffee, vanilla, fruit trees and rice. We also discovered why it was so easy to navigate this forest. As it turned out, we were using trails previously cut by illegal loggers, who had removed and transported precious woods out of the park in the times following the "coup d'état" in 2009.

Despite these discouraging signs of habitat disturbance, we combined our efforts and organized several night walks and trapping sessions. Traps were set near fruiting/flowering trees between 4-15 m high and baited with large pieces of smelly bananas (in order to make sure we had enough provisions, we crossed the river on Sundays to visit the small village of Anketsahely, just outside of the Park, to purchase ripe bananas, coconuts and an occasional chicken). During the nights, we would record the location of dwarf lemurs and during the day we would relocate traps in proximity to those sightings. In the end, our trapping efforts resulted in the worstever record of my fieldwork history, only 1 capture over 399 trapping opportunities. Despite these challenges, we are dependent upon decreasing metabolic rates by were able to confidently report that: 1) C. medius, the fat-tailed dwarf lemur is not present in this forest; 2) C. crossleyi was the species captured and observed during our night walks; 3) Crossley's dwarf lemurs occupied a variety of areas, including more pristine forest as well as disturbed areas and secondary growth forest in proximity to forest edge.

During one of our last nights in the field, as I was trying to sleep on top of my sleeping bag and wishing I had a tent with a better ventilation system, I thought of how difficult it may be to hibernate in a place like this. Sure, it was not winter and temperatures were not necessarily representative of those characteristic of the hibernation season, but I had gathered from the local assistants that this area was fairly warm year round. If energy savings

**DIDO AND** MOHAWK BY SARAH ZEHR, DATA MANAGER



As the articles in this newsletter are being edited, Valentine's Day has just past. What better time to celebrate the lemur couple who have been together longer than anyone else at the Center (except Charlie and Andrea!). Red-bellied lemurs (Eulemur rubriventer) Dido II and Mohawk, who met upon arrival at Duke when they were very young, have been living together ever since - for over 28 years! Dido arrived from Madagascar in November of 1985, and was waiting here for Mohawk when he arrived from Madagascar the following year, in August of 1986. He moved in with her and her group once he cleared quarantine on September 19, 1986. Dido and Mohawk had 10 offspring between 1988 and 1996, including one set of twins, and three of their daughters are still living at the Lemur Center today -Cheyenne (age 26.7), Hopi (age 24.9) and Fox (age 19.8). They continued living with offspring and other group members until June of 2003, and it's just been the two of them ever since. Dido is around 30 years old, and Mohawk is around 32 (ages are estimated because they are wild-caught).



Our family passionately believes that maintaining the world's biodiversity is crucial for our generations as well as future ones. Our parents are local Durham residents and brought us to the Lemur Center in 2013. We were amazed by the breadth of the program, and by how enchanted our young children (and us) were with these magnificent animals. Our children asked question after question about lemurs and about Madagascar after the visit. To see the lemurs jump and roam about in the free-range locations is an experience that could only be exceeded by a trip to Madagascar itself. During that visit, one of the lemurs had escaped and that comical episode inspired us to give back in an effort to help all the good work Duke is doing.



means of reducing body temperature (which approximates the immediate environment during hibernation), would it be worth remaining inactive for a large part of the year, as opposed to extending the reproductive season, provided food was still available? There is so much we just don't know about hibernation in the eastern lowlands. I realized that I was replacing my obsession of finding fat-tails with that of studying hibernation in these truly tropical forests (I have dedicated my hibernation work to dwarf lemurs inhabiting montane and high-altitude habitats thus far). In other words, will dwarf lemurs from the lowland rainforests of Marojejy unlock some of the remaining mysteries of tropical hibernation? We hope to eventually find out.

## LOSS OF SPECIES DIVERSITY AT THE LEMUR CENTER IS NOT A BAD THING

BY DAVID HARING

Repeat visitors to the Lemur Center might notice lots of changes the last five years: our two new buildings have come on line and are doing a splendid job of housing our diurnal lemurs; with the opening of a new tour path, our education programs have expanded dramatically; and new staff have been hired and are busily working at jobs ranging from fundraising and community outreach to research data entry. Less visible, but still highly significant, are the gradual changes occurring in the composition of our lemur colony.

Back in the mid-eighties when I first started at the Center, our colony consisted of 756 animals of 28 different varieties (species and subspecies), 19 of which were lemurs with the remaining 9 species consisting of galagos and lorises (1986 inventory). Now, through careful breeding management, transfers of lemurs to qualified zoos, and natural attrition, the Lemur Center's colony is intentionally much smaller (although we have added two species since 1986: pygmy slow lorises and ayeayes), consisting of 234 prosimians of 19 varieties, 16 of which are lemurs.

Though ancient history, it is important to understand how the Lemur Center established such an incredible lemur collection, which peaked in size and diversity in the 1980s. During the tenure of the Lemur Center's second Director, Dr. Elwyn Simons, a mind boggling 113 animals of 16 different prosimian species were wild caught and imported to the Center, between the years 1982 to 1993 (mostly from Madagascar, but also the tarsier-rich countries of Borneo and the Philippines). 1993 was the last year the Lemur Center imported animals from the wild (and included, as many may remember, Romeo, our diademed sifaka "prince", and the golden-crowned sifaka, Titus).

Such a massive importation of wild caught animals would be all but impossible today. Since lemurs are endangered and highly protected (CITES Appendix I, the highest level of protection offered wildlife by international law), even applying for the required permits would be a massive undertaking, and receiving approvals might very well be impossible. Even if imports were approved by the U.S. and Madagascar governments, the logistics and funding necessary to capture, care for, and transport anywhere near that number of lemurs across the globe would be staggering. If small numbers of lemurs are ever again imported from Madagascar to

Durham, they would most certainly be captive born animals from zoos in Madagascar, and not lemurs captured from the wild. But at this point all agree that investing in conservation projects to protect wild lemurs in their native habitats while maintaining our current thriving colonies of lemurs is the way to go.

Since those days a number of prosimian species have come and gone from our collection, most likely never to return. There are a number of reasons for this decline, but the driving force involves space, and is quite simple: there never was enough room or resources at the Lemur Center (nor at partner zoos) to continue to maintain and grow healthy populations of so many species of prosimians. Our "gone prosimians" include the lesser bushbaby, the brown bushbaby, the potto, two species of tarsier, the slender loris, giant mouse lemur (Mirza), white-fronted lemur, common brown lemur and diademed and goldencrowned sifaka (the disappearance of these two sifaka species and the tarsiers was due more to husbandry and medical concerns than space issues).

And it is inevitable that this decline in species diversity will continue for another few years, as we currently house six species with very small numbers (three or less) of mostly geriatric animals. Soon the unique vocalizations and behaviors of the common black lemur, red-fronted lemur, Sanford's lemur, bamboo lemur, slow loris and our last bushbaby will be gone forever from the Center. Although our redbellied lemur population is a bit larger (six animals), ages range from 19 to 32, and their breeding days are over. Expect the final disappearance of this species at the DLC within the decade.

When the red-bellied lemurs make their final exit, 18 species will have disappeared from the Center since the mid-1980s, with a gain of only two species. Where does that leave us, and is the loss of a great deal of our diversity a bad thing? I must admit that as a photographer, and admirer of the staggering diversity of prosimians, it was fantastic to be surrounded for so many years by such a vast variety of lemur species. But I am happy to report that the recent trend to focus on larger numbers of fewer species is a good thing. For years, the Lemur Center has been working with the Prosimian Taxon Advisory Group (PTAG), an organization composed of representatives of those



U.S. zoos and conservation organizations having a strong commitment to prosimians, to devise a plan as to which species should and could be housed and managed in North American zoos. The PTAG's mission is to examine the conservation needs, breeding potential and sustainability of all prosimian species, and then develop recommendations for their population management based on available space, the needs of the species and of the organizations housing them.

So which prosimian species has the PTAG recommended be maintained in captivity? There are thirteen: collared, crowned, blue-eyed black, mongoose, ring-tailed, mouse, red ruffed and black and white ruffed lemurs, aveayes, Coquerel's sifakas, pygmy slow lorises, and brown and lesser bushbabies. Long term goals of the Lemur Center mesh nearly perfectly with the species recommendations of the PTAG. The only exceptions are that the Lemur Center wants to continue to breed dwarf lemurs (due to their research potential in the field of hibernation), and with growing numbers of dwarf and mouse lemurs, does not have space to maintain either species of bushbaby. The total captive population numbers of the species the Lemur Center will continue to breed and manage (with the cooperation of both U.S. and international zoos) are

not only larger (because a number of institutions have made long term commitments to housing them) but more genetically healthy since now the populations are carefully managed for sustainable growth with an emphasis on breeding the most genetically important pairs. Gone forever are the days when zoos (and to a certain extent the Lemur Center) held one or two pairs of as many species as possible, replaced by cooperative efforts on the part of all institutions to maintain viable populations of a more limited, carefully selected number of species.

One can only make an educated guess as to why our visionary Director, Elwyn Simons, selected the species he did to bring to Duke so long ago, but make no mistake, it was his decision. This was before the days of long range strategic planning and endless committee meetings: Dr. Simons drove the Lemur Center's mission to save and study lemurs, nearly single-handedly. Certainly a species' perceived level of endangerment, its rarity and level of taxonomic uniqueness played roles in Simons' decisions (hence the importation of ave-aves, giant mouse lemurs, golden-crowned sifakas, diademed sifakas, blueeyed black lemurs, mongoose lemurs, and tarsiers). He also based importations on which animals were already at the Lemur Center, many of them descendants from the original colony brought to Durham in 1966 from Yale University by founding Director, Dr. John Buettner-Janusch (for instance, Coquerel's sifaka and red ruffed lemurs, both in need of a fresh genetic infusion).

Many of the 16 species of prosimians imported by Simons thrived in captivity, with only a couple of outright failures (tarsiers, golden-crowned sifaka). Had the political climate at the University been more favorable (for instance if funding had been available for new caging and additional staff), most certainly 11 of Simons' 16 imported species could have thrived. As it is, seven species did quite well, and they form the genetic backbone of seven of the 13 species recommended for breeding by the PTAG. Even today, 30 years after Dr. Simons' decisions, more than half of the PTAG's recommended species owe a significant debt to one man's vision, and of course the commitment of generations of Lemur Center technicians, curators and Veterinarians. And that is something everyone at the DLC should be proud of!

