

Episode 1: Introduction

Megan: Tonga soa! Welcome to the Duke Lemur Center's virtual tour! We're so excited to introduce you to all of the animals that call this place home, and to all of the amazing work we're able to do here and across the world in Madagascar.

The Duke Lemur Center has been here in Durham since 1966, so we've been working with lemurs for a very long time. We have over 200 lemurs, and actually a few bush babies, living here in North Carolina. And we have 15 different species of primate, particularly strepsirrhine, or prosimian primates, which are the early, early branch of the primate family tree that lemurs call home.

We have three very important parts to our mission. We are a non-invasive research facility. We also work in conservation; we have for over 25 years now in Madagascar. As the Education Programs Manager here, I oversee, of course, our educational programming. Now, that mostly includes on-site tours and visits, but we are bringing it to you virtually now, and we are working a little bit more on having outreach available.

The education program actually serves two very important purposes here at the Duke Lemur Center. We are very proud to be a part of Duke University, and to work with them to help educate students and people from all over the world. The education program is also a really important source of funding for the Duke Lemur Center.

We are so happy that Duke supports us and provides about half of our funding for the Lemur Center to operate, take care of all of these lemurs, and do all of our work over in Madagascar every single year. But, the education program actually is self-funding and all that extra income that comes from you supporting us, either by helping us with this virtual tour, by coming out for a program here, or by purchasing any of the merchandise we have available—that actually goes right back into all those amazing programs we do here and all the way across the world in Madagascar.

So, thank you so much for supporting us today, and we really hope you enjoy your visit!

Alanna: Alanna here! I'm going to tell you a little bit about the research that happens here at the Duke Lemur Center. So, we are a non-invasive research facility. Our research is either voluntary, where the lemurs get to decide if they want to cooperate or not, or passive. Passive research looks very similar to our researchers simply collecting poop samples from the lemurs after the lemurs are done munching on their favorite snacks.

We have a lot of different types of research that happens here at the Duke Lemur Center. They include anything from locomotion to cognition to behavioral studies. Some examples of these are: We have some researchers looking to see just how well our lemurs are able to walk along branches that are angled at different angles. So anywhere from vertical (all the way flat) to horizontal.

We have some researchers looking at how lemurs respond to novel objects, which is very simple: placing something new inside the lemur's enclosure. One of our researchers did this by taking a kid's transformer toy and introducing that into their enclosure, and some of our lemurs had some very interesting reactions to that transformer!

Other cognition research looks like our color vision studies, where we have a researcher trying to see if some of our lemurs can tell the difference between red and green.



Research is very important here and it is our primary motivation, because it can teach us more about the evolutionary histories of the lemurs; it can tell us more about our evolutionary past as humans; and it helps us in our conservation efforts as well, by telling us what the lemurs need in their environments and in their habitats in Madagascar.

Anna: For scientists who come to the Duke Lemur Center, our research staff can help train the lemurs to get them used to any new material they may be using—like a puzzle feeder that might be a little scary for a lemur who's never seen one before. By making the introduction from the animals to that device something gradual, slow, and encouraging for the lemurs, the lemurs can choose to participate in research that helps us understand their species, and continue the non-invasive research mission of the Duke Lemur Center.

Positive reinforcement training is an important part of the work we do here at the Duke Lemur Center. Positive reinforcement means we ask the lemur do a task, like following someone's finger when they point to a specific area of their enclosure, or voluntarily walking in a kennel. And then, we give the animal a food reward when they choose to participate. No lemur is ever punished for choosing not to participate, or for having an off day and not doing well in training that day.

We also train with our lemurs to make sure routine medical procedures are nice and easy. That can be applying a monthly flea and tick treatment, making sure that we can give our lemurs haircuts so that we can identify individuals that may look really similar to one another, or weighing the individuals once a month. We can train with an animal that's nice and healthy, maybe feeling their stomach or palpating an abdomen if an individual may become pregnant. And then, when that lemur does become pregnant, the veterinarians can do those routine exams and not have that be anything new or scary for the animals. These procedures are something that the animal is really used to, and knows to expect a food reward when they choose to participate.

Faye: Lemurs as a group are the most endangered vertebrates in the world today, and they're only found on the island of Madagascar. Madagascar is the fourth largest island in the world and has very high levels of endemism and biodiversity. An **endemic species** is one that's only found in one area of the world, and in Madagascar, about 80% of all the plants and animals on that island are *only* found in Madagascar. This makes conservation a huge priority on the island of Madagascar.

One of the reasons Madagascar boasts so much biodiversity is that it has three distinct eco-regions, so habitats are very different in these regions. Over here, on the east coast of Madagascar, we have the tropical rainforest area where we get a lot of rainfall from a rain shadow effect coming up the mountains. On the west coast, there's a dry deciduous forest, so lemurs from that area are pretty at home right here in North Carolina. And then in the south of Madagascar there's a spiny desert, which is a really strange and unique ecosystem. There are lots of spiny trees, cacti, and succulents in that area, and of course, they don't get much rainfall.

Current troubles facing lemurs include deforestation and habitat fragmentation, as well as bushmeat hunting and the illegal pet trade. Deforestation has a long history in Madagascar. We think that the first humans probably arrived in Madagascar as early as 10,000 years ago, although it may be a little later than that. Since the 1950s, 44% of Madagascar has been deforested, and currently only about 10% of the island is forested. That's bad news for our tree-loving lemurs!

The main cause of deforestation in Madagascar is an agricultural practice called **tavy**, or what we know as slash-and-burn agriculture. The way this method is used, is that a farmer will cut down the vegetation in one area, clear the land, and then burn that vegetation to put ash into the soil. That puts a lot of nutrients into the soil to help the crops grow. That land can be farmed for several years, but after a while those nutrients are leached out, and the farmer has to move on to new land.



The current population in Madagascar is about 26 million people, and farmland is growing scarce. A lot of farmland has been over-farmed to the point where nothing will grow there anymore, and there's been a lot of erosion and topsoil loss, which contributes to the deforestation problems. Most people living in Madagascar today are subsistence farmers, meaning that they only grow enough for them and their families to eat to survive. So, in order to solve conservation problems, we have to help the people first.

The Duke Lemur Center has been involved in conservation work as part of the Madagascar Fauna and Flora Group, and now as part of our own operation in the SAVA region of Madagascar. Our conservation projects are focused on community engagement and capacity building: really making connections with the people who live in these vulnerable areas where deforestation is happening, and trying to provide the resources needed to make their lives better, so that we can all help the lemurs together.

Some of the conservation projects we're working on right now include environmental education; sustainable farming practices; home gardens; focusing nutrients, protein, and child health; and also helping to subsidize the purchase and use of more fuel-efficient stoves. Charcoal can also be a cause of deforestation in Madagascar, so if we reduce charcoal use, that reduces deforestation in turn.

The Duke Lemur Center's conservation work in Madagascar is fully funded by grants and donations, so if you'd like to help us save lemurs here and in the wild, you can check out the "Protect" page on our website: lemur.duke.edu/protect.

