

## **BERENTY RESEARCH PROJECTS 2014, WITH MANAGEMENT RECOMMENDATIONS**

### **RECENT PUBLICATIONS**

**BOOKS:** *Leaping Ahead: Advances in Prosimian Biology* (Series: Developments in Primatology: Progress and Prospects), 2013. Judith Masters, Marco Gamba, and Fabien Génin, eds. Based on the 2007 symposium presentations, contained Berenty chapters by Vonjy Nirina Andrianome, Kathryn Blumenfeld-Jones, Shinichiro Ichino, Alison Jolly, Naoki Koyama, Anne S. Mertl-Millhollen, Sahoby Marin Raharison, Hajarimanitra Rambeloarivony, Hantanirina Rasamimanana, Josia Razafindramanana, Voahirana Razoliharisoa, Takayo Soma, Laurent Tarnaud, Donald Raymond Tsaramanana.

### **RECENT PRESENTATIONS**

**2014 AAPA in Calgary, CA, special symposium “Ring-tailed Lemurs: A species Re-imagined”:** ALISON JOLLY, TRACY WYNDER, AMBER WALKER-BOLTON, LAURA WATCHMAN, GWENDOLYN WOOD, ANNE S. MERTL-MILLHOLLEN, KATHRYN BLUMENFELD-JONES, HANTANIRINA RASAMIMANANA, ELIZABETTA PALAGI, JOANNE L. NEEDHAM, AMBER WALKER-BOLTON, R. ETHAN PRIDE, ADAM T. KUYKENDALL, ALICIA NIEMEYER, STACIE PETERSON, JOSIA RAZAFINDRAMANANA, GIUSEPPE DONATI

### **RECENT FILMS AND TELEVISION**

2014 April: documentary film "Island of lemurs: Madagascar" 3D IMAX Corporation, Los Angeles CA.

**WEBSITE** Created by Chris Klimowicz, The University of Michigan - Dearborn  
<http://www-personal.umd.umich.edu/~fdolins/berenty/index.html>

### **2014 RESEARCH**

#### **FOREST DYNAMICS**

BLUMENFELD-JONES, Kathryn. Dept. of Anthropology, Arizona State University, Tempe, AZ 85281, USA. Assisted by TYSELL, James and MERTL-MILLHOLLEN, Anne.



Kathryn (photo: James Tysell)

Forest Change from 1973 to present. Recensused a sample of forest trees to determine which tree species are drying out, which tree species are replacing them, which tree species grow fastest in different parts of the forest, and how long different species live.

Cyclone Damage. Completed a study of how the 1999 cyclone impacted the Malaza forest. In 2000 determined how much damage was done to 1,361 trees (*Lemur news* 2000 issue 5, pages 7-8). This year recorded how well the trees recovered from the damage.

Tamarind regeneration. Remeasured a sample of 349 small tamarind trees that have been studied since 2000 to determine which areas of the forest are most favorable for tamarind regeneration.

Recommendations. Overall the forest looks healthy, especially in the areas where the invasive *Cissus quadrangularis* has been removed. Young trees are growing in those areas demonstrating that *Cissus* removal is beneficial to forest regeneration and should be continued.

## **FOREST REGENERATION**

WINCHESTER, Vanessa. School of Geography and the Environment, University of Oxford.

RASAMIMANANA, Hantanirina. Ecole Normale Supérieure (ENS), BP 881, Université d'Antananarivo, Antananarivo 101 - Madagascar

Assisted by: McCRAE, Janet,

MERTL-MILLHOLLEN Anne, University of Oregon (UO) and TYSELL, James,

Students RANDRIANIRINA, Tolotra "Ben" (ENS), RATOVOLALA, Mirana Priscilla (ENS),

WALLACE, Dee (Portland State University), GAVAZZA, Cassondra (UO), KAYNOR, Camille (UO).

Investigated the degree of natural regeneration in the different forest types identified in 2007 by BLUMENFELD-JONES in Malaza and, for comparative purposes, extended the survey to include Ankoba and Bealoka. Used the Rapid Site Assessment methods as described in *Restoring Tropical Forests: a Practical Guide* (Elliott *et al.* 2013). The Kew approach, with data collected from transects of up to 250 m shows where regeneration is failing. In nine of the transects, regeneration is not a problem, but in five, *Cissus* and tall grass (*Panicum maximum*) are predominant and regeneration is very limited. Leaves of the main tree species were collected, identified where possible, dried, taped into a book and photographed. The book was left at the Kew office in Tana. The photographs will be copied and returned to join the other reference book deposited in Naturaliste. Soil analysis from the transects is in progress.



Vanessa & Janet creating sample book  
(photo: James Tysell)



Ben, Camille, James, Mirana, Kathryn  
doing survey(photo: Vanessa Winchester)

### Recommendations

- To continue with *Cissus* removal plans.
- To patrol all the forest areas every 6 months to eradicate any new growths of *Cissus*. Although *Cissus* is mainly in the degraded areas, some was seen in Ankoba and a little in healthier parts of Malaza.
- With a view to eventual reforestation in parts of the reserve, the existing seedling nursery should be expanded to include the native tree species identified in the survey. We suggest that guidance on seed germination and nursery techniques should be sought from the Kew office in Tana and from the Rio Tinto (QMM) nursery at Fort Dauphin.
- The level of ground water in the nursery well is now being monitored (once weekly before watering in the morning) for correlation with rainfall data already being collected daily.



The Berenty nursery (photo: Vanessa Winchester)



## **FOREST REGENERATION—INVASIVE SPECIES**

WALLACE, Dee M. (Student). Portland State University, USA

Evaluated the Malaza forest area that was the traditional range of troop D (D, D1 and D1A) for the impact of invasive vegetation. Because troop D1A was discovered to have moved out of this range, the focus became understanding how forest changes might have impacted the ranging of this lemur troop. Initial analysis of the results indicate the urgent need to remove the invasive species *Cissus quadrangularis*, especially from large *Tamarindus*, *Albizia* and *Acacia*, which are potential lemur feeding and sleeping trees.

Recommendations: WALLACE's work with invasive species in Forest Park, Portland, Oregon, USA included removing invasive species; planting native vegetation in the cleared areas to discourage reintroduction of the invasive species, and providing educational information to visitors such as

- Staying on trails so as not to spread the invasive vegetation
- Not feeding or handling wildlife to prevent disease transmission and injury to both people and lemurs, and encouraging them to maintain a natural and healthy vigilance when it comes to people

To prevent spreading, remove *Cissus* first in areas that currently have few invasive species in order to create a buffer area that limits the spread. Then progress to more highly impacted areas, starting with the large trees and taking care not to cover or damage healthy saplings with the piles of vines.



Hanta (Photo by Vanessa Winchester)

## **LEMUR POPULATION AND DEMOGRAPHY**

RASAMIMANANA, Hantanirina. Ecole Normale Supérieure (ENS), BP 881, Université d'Antananarivo, Antananarivo 101 - Madagascar

Student: RANDRIANIRINA, Tolotra "Ben" (ENS)

Census of groups and individuals of *Lemur catta* and *Propithecus verreauxi* in several forest regions: Ankoba, Tourist Front, Gallery, Sisal factory, Anaramalangy, Analalava, Anevotany, and Rapihy.

Observed *Lemur catta* troops BINGO, POTI and GATE during one month in three forest regions: Malaza, Akison forest and Rapihy, with a focus on determining the cause of lemur territory displacement.

## LEMUR MATING SEASON SOCIAL BEHAVIOR

MERTL-MILLHOLLEN, Anne S. Dept. of Anthropology, University of Oregon, Eugene, OR, USA

RASAMIMANANA, Hantanirina. Ecole Normale Supérieure (ENS), BP 881, Université d'Antananarivo, Antananarivo 101 - Madagascar

Students: GAVAZZA, Cassondra (UO), KAYNOR, Camille (UO), RATOVOLALA, Mirana Priscilla (ENS).



Camille, Cassondra, Anne (Photo by James Tysell)

Observed *Lemur catta* troops A2, G3 and YF and recorded social behavior during and after the mating season. The onset of the mating season was April 17, which confirms the seasonality observed in 12 prior years of data, range April 8-May 2.

Other questions addressed:

- did females, when in estrous, lead more of the troop progressions, thus influencing location of copulations and what were the relationships between troop members (GAVAZZA)
- what proportion of the food resources utilized by troop YF, “the breakfast troop,” came from the three parts of its range: the forest, the landscaped area with exotic species, and the restaurant (KAYNOR)
- are lemur intra-troop aggression levels different during the mating season than during the gestation season (RATOVOLALA)

## MALE OLFACTORY SIGNALLING TO FEMALES, MATING OUTCOMES, AND CONSERVATION STRATEGIES

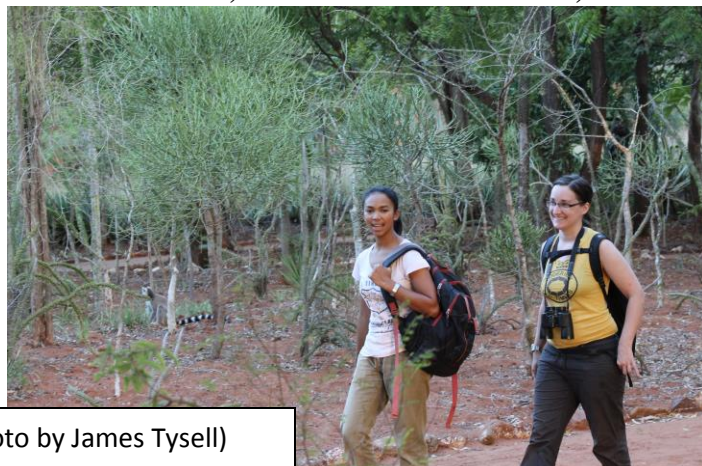
WALKER-BOLTON, Amber, Dept.

of Anthropology, University of Toronto, Toronto, ON, Canada

Research Assistant:

SEHENOMALALA, Narina

Colombe, University of Antananarivo



Colombe and Amber (Photo by James Tysell)

Fieldwork conducted between April 15<sup>th</sup> and June 2<sup>nd</sup> 2014. Two groups were followed from 0900 hrs to 1130 hrs and 1430 hrs to 1700 hrs each day on a rotating basis. 164 15-minute follows were completed during the morning and 169 follows were completed during the afternoon for a total of 333 follows or roughly 83 hours of observation time.

Data were collected on proximity maintenance between adult females and adult males. Point samples of behaviour were taken at the start and end of each follow. Data were collected on all anoint and waft tail displays performed from males to females with duration of anoint tail recorded when possible. Aggression and submission were recorded in order to create dominance hierarchies for each of the groups. Mating was observed on one occasion: April 27<sup>th</sup>. One reason so few mating events were seen this year is because data collection started later in the morning.

Group composition changes were significant, with A1 group dissolving completely. Eight individuals in total were missing from the previous year: four adult females, two juveniles, and two yearlings. One missing female was of advanced age while the other three were not. The alpha female of RG (Pipa) was found deceased near the crocodile enclosure on Tuesday, May 27<sup>th</sup>. Pipa was last observed on Sunday, May 25<sup>th</sup> and showed no signs of illness. The body showed no signs of obvious trauma from humans or predators, and it is unclear how she died.

More group mergers occurred this year, with the surviving members of A1 group moving to the neighbouring Restaurant Group. This included two males and the two females who had in the previous year merged from Lost Group and an unknown group. Interestingly, Pipa became alpha female of the groups she merged into each time (A1 and then RG). It is believed that two unknown juveniles who appeared in RG are the offspring of Finch and Chris, the two missing A1 females. DNA analysis will determine whether this is the case. Ranging patterns of the two groups changed back to their original areas prior to 2013. Unlike in 2013, the lemurs did not range in the forest at all during the day. The main priority of this field season was to collect hair samples from all new group members. This objective was successfully completed by Colombe Sehenomalala with hair samples from five yearlings and three juveniles. Hair samples were collected from juveniles to confirm their identity.

Conservation initiatives were instituted by the de Heaulme family to protect the groups against poaching. Guards were selected to monitor the individual members of Restaurant Group and Museum Group. These four guards were trained by Colombe Sehenomalala over the course of five days and studied the groups on their own for another five days. The result of the training was that two of the guards were able to identify each of the individual members of the two groups with the other two guards being able to identify some group members.