

# International Primatological Society

# IPS Bulletin



FEBRUARY 2018

Volume 43 Number 2

## President's Corner

[kbstrier@wisc.edu](mailto:kbstrier@wisc.edu)

Greetings and best wishes in 2018!

This is going to be an exciting year, with the next major event being the 27<sup>th</sup> IPS Congress from August 19-25, 2018 in Nairobi, Kenya. The two IPS Council meetings will be held before and after the main conference program, and the General Assembly will be held during the conference. Thanks to the hard work of IPS Program Co-chairs, Janette Wallis (also VP for Conservation) and Mary Gonder, we have an amazing lineup of symposia, workshops, and roundtables, and we will have an equally amazing set of contributed papers and posters, along with many other activities and events. Updates about the meeting, including the program, will be posted over the upcoming months. Keep an eye out for messages from Janette and Mary, and from Steve Schapiro (VP for Membership and Treasurer), who has been working behind the scenes to coordinate everything with our local hosts.

Steve has also been on the frontline in keeping us all informed about the unfortunate (and I believe, unprecedented) hacking of the IPS website. There is never a good time to be hacked, but the months leading up to our membership renewal and meeting registration times would have to be among the worst. Hopefully, thanks to our webmaster, Nancy Capitanio, everything will have been completely resolved by the time you are reading this Bulletin.

The decision to hold the 2018 IPS congress in Kenya was made long before I became an IPS officer, but I am excited for this excuse to return to the country where I was introduced to primate field research almost 40 years ago. In 1979, I had the great good fortune to spend 6 months working as an undergraduate field assistant on the Amboseli Baboon Project. I was hired by the late Glenn Hausfater to help his graduate student, Jeff Stelzner, in a study of behavioral thermoregulation. It was in Amboseli that I first met Jeanne Altmann (who taught me how to identify the members of Alto's group) and Phyllis Lee (who was studying vervet monkeys for her PhD at the time). And, it was while I was following the baboons that I realized that studying the behavior of wild animals in their natural habitat was how I wanted to spend the rest of my life.

Just a few years later, in pursuit of my Ph.D., I fell irreversibly in love with muriquis in a small Reserve located in the Brazilian Atlantic Forest. Fieldwork in Brazil prevented me from attending the 10<sup>th</sup> IPS congress, which was also held in Nairobi, in 1984. Now, though, with the prospect of returning to Kenya, where my own path into primatology began, comes an appreciation for the history and networks that connect us as primatologists.

## IPS Officers

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Cat Hobaiter, Editor



These same networks reinforce the connections between IPS and both old and young national and regional primatological societies around the world. One end of this spectrum includes the Primate Society of Great Britain (PSGB), which celebrated its 50<sup>th</sup> anniversary in November 2017, and the American Society of Primatologists (ASP), which celebrated its 40<sup>th</sup> anniversary in August 2017. The other end of this spectrum includes the Chinese Primatological Society, which held its 2<sup>nd</sup> meeting in August 2017, and the newly inaugurated African Society of Primatology (ASP), which held its Inaugural Congress in July 2017.

It was a great personal pleasure to participate in the 17<sup>th</sup> Congress of the Brazilian Primatological Society (SBrP), in Pirenópolis, Brazil in August 2017, and in the 3<sup>rd</sup> Congress of the Society of Latin American Primatology (SLAPrim) in Veracruz, Mexico in October 2017. I also had the unexpected pleasure of running into IPS friends, such as Jonah Ratzimbazafy (who had just been honored by the Houston Zoo) and Marni Lafleur and others from Lemur Love, Inc. at the Wildlife Conservation Network's Expo in October 2017, and of hosting Zhang Peng, from Sun Yat-sen University and one of the founders of the Chinese Primatological Society, in my laboratory for the past 4½ months.

Another unexpected treat—and a great eye-opener—was the opportunity to participate in the Neotropical Primate Taxon Advisory Group's Husbandry Workshop, where I gained a glimpse into the incredible challenges that zookeepers face in their efforts to care for the primates in their charge. Although my own work has focused on *in situ* research and conservation, it is clear that the expertise of those who care for captive primates represents an important (and possibly under-utilized) resource for the development and implementation of management tactics such as translocations.

Many of us were reminded of the continuities that link captive and wild primate research as we learned of the devastating impact of Hurricane Maria on Puerto Rico, including the primate colony housed on Cayo Santiago Island. Under Steve Schapiro's initiative and leadership, "Project Monkey Island" was established to help

both human and nonhuman primate inhabitants. IPS is proud to be an ally in these efforts, described by Steve in greater detail in this Bulletin.

As IPS President, I chaired the Elections Committee, which identified an outstanding slate of candidates for the elections of new IPS officers for the positions of Secretary, Treasurer and Vice President for Membership, Vice President for Conservation, and Vice President for Research. Candidate and ballot information was distributed in late January and voting continued through February.

I also chaired the Awards Committee, which completed its task of selecting award winners that were approved by the IPS officers. I am very pleased to recognize: Cliff Jolly as the recipient of the 2018 Lifetime Achievement Award; Colin Groves as the recipient of a Posthumous Lifetime Achievement Award; and Milton Thiago de Melo as the recipient of a special Presidential Award for Contributions to the Development, Promotion, and Advancement of Latin American Primatology.

I'd like to thank everyone who contributed to these committees by sending nominations of candidates for IPS offices and awards. I am especially grateful to the members of these committees<sup>1</sup>, as well as all of the current officers and their committees, for donating their time, energy, and expertise in the service of IPS and its mission on behalf of all primates.

I am looking forward to seeing everyone in Nairobi in August.

Best wishes to all,

Karen B. Strier

IPS President

<sup>1</sup>Election Committee Members: Ramesh Boonratana, Catarina Casanova, Cat Hobaiter (vice chair), Inza Kone, Melinda Novak, Karen Strier (chair), Stella de la Torre, and Toni Ziegler; Awards Committee Members: Jeanne Altmann, John Capitanio, Liliana Cortes-Ortiz, Frands Carlsen, Takeshi Furuichi, Cat Hobaiter (vice chair), Anthony Rylands, and Karen Strier (chair).

## VP for Communication

[clh42@st-andrews.ac.uk](mailto:clh42@st-andrews.ac.uk)

Hello Primate folk,

Thank you to everyone who has submitted reports and information for inclusion in this edition. As well as updates from our Officers and grantees, we have an update on the work being done in Cayo Santiago and Punta Santiago following Hurricane Maria, a summary of the Nagoya Protocol, and some fantastic photographs including the inaugural congresses of the recently established African and Chinese Primatological Societies, and a blast from our 60s past.

For up-to-date happenings stay tuned to our online media for primate news, meetings, the IPS elections, advocacy, and other activities! And please do get in touch with feedback or ideas for what you would like to see IPS do for our fellow primates and primatologists.

Pant hoooots!

Cat Hobaiter

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## VP for Research

[Joanna.setchell@durham.ac.uk](mailto:Joanna.setchell@durham.ac.uk)

### VP for Research

#### *IPS Research Committee*

In our effort to improve the geographical diversity of applications and awards, the IPS Research Grants webpage now

- explicitly encourages proposals from primatologists from range-state countries
- provides several examples of successful recent grant applications on the IPS websites, with thanks to the applicants: Ilaria Agostini, Addisu Mekonnen, Ryan Burke, and Shauhin Alavi.
- provides feedback on proposals from nationals of range-state countries. Applications must be submitted by the 1st February for feedback; revised submissions must be resubmitted by the March 1st deadline.

#### *Ad hoc committee on diversity*

The Ad hoc committee on diversity will host a roundtable discussion on *Diversity and Inclusion in Primatology* at IPS 2018. The roundtable will build on the roundtable we held at IPS/ ASP 2016 in

Chicago, explore current opportunities and challenges for diversity and inclusivity in primatology and will inform future actions of the committee. Everyone is welcome to contribute.

#### *Ad hoc committee to promote sharing of experience and good practice to continue to make capture safer for non-human primates*

The ad hoc committee to promote sharing of experience and good practice to continue to make capture safer for non-human primates will host a workshop at IPS 2018, led by Elena Cunningham and co-chaired by me, Steve Unwin, Mrinalini Erkenwick Watsa, and Annette Klein.

#### *How to get involved*

If you are interested in the activities of any of these committees, or if you have specific issues you would like addressed, please contact me.

Jo Setchell

# VP for Conservation

[wallis@primateconservation.info](mailto:wallis@primateconservation.info)

## VP for Conservation

### 2018 IPS Conservation Grant Competition

The Conservation Committee of IPS is once again soliciting applications for the IPS Primate Conservation Grant competition for 2018. We will award several grants of up to \$1,500 to support primate conservation programs in the field and are anticipating some great applications.

The deadline for submitting your application is March 1st, 2018. Please make sure to use the 2018 form. Applications must be submitted in English and we offer special advice and mentoring for those seeking help with improving their English on the application. Such applications have an earlier deadline (February 14). For guidelines about the application process please see the IPS website (<http://internationalprimatologicalsociety.org/conservation.cfm>) or contact Dr. Janette Wallis ([wallis@primateconservation.info](mailto:wallis@primateconservation.info)).

### The Galante Family Scholarship

In addition to the Conservation Grants, we are also accepting applications for the 2018 Galante Family Winery Primate Conservation Scholarship. Formerly known as the Martha J. Galante Award, this fund was set up to support primate conservation and the continuing education of primatologists. More details about this scholarship can be found on the IPS web site. Applications are solicited from primatologists of primate habitat countries. Up to \$2500 will be awarded and is to be used for obtaining further conservation training. The deadline for applications is March 1st, 2018. (See: <http://internationalprimatologicalsociety.org/conservation.cfm>.)

People interested in competing for this award should:

- be officially affiliated with an academic institution or a similar organization (either taking or giving courses or doing research or conservation work)

- provide information about the program of interest (courses, congresses, symposia, field work, etc.)
- include a letter of acceptance for the respective course
- send a letter explaining his/her interest in participating in the course or event (in English)
- send a C.V. in English
- provide two recommendation letters (including information about the referee).

Send all the above by email to: Dr. Janette Wallis ([wallis@primateconservation.info](mailto:wallis@primateconservation.info)).

### 2018 Pre-Congress Training Program

The IPS Conservation Committee has just completed its review of applications for the upcoming 2018 Pre-Congress Training Program (PCTP) that will occur just before the IPS Congress in Nairobi, Kenya. We received 74 complete applications for review. From these, we selected 12 participants, four from each of the major primate habitat regions.

As you can imagine, this is a very difficult task because, once again, we had many outstanding applicants. It's always hard to say no to any applicants, but many of those who applied will surely succeed in future competitions.

The 2018 PCTP Participants are:

#### Africa:

- Charles Maingi – Kenya
- Dorothy Nakabuye – Uganda
- Raimi Ota – Benin
- Jacinto Mathe – Mozambique

#### Asia:

- Tran Dung – Vietnam
- Liu Bojun – China
- Thi Anh Minh Nguyen – Vietnam
- Dinda Prayunita – Indonesia



**Neotropics:**

- Karolina Medeiros – Brazil
- Mabel Sanchez – Peru
- Jonas Goncalves – Brazil
- Lucia Torrez – Nicaragua

Congratulations to these very special individuals. If you see them at the IPS Congress, be sure to congratulate them for receiving this special honor of being selected for the PCTP. I can't wait to meet them in Kenya and learn more about their work and plans for the future.

**2018 IPS Conservation Silent Auction**

As you all know, the IPS Silent Auction has become a social centerpiece for our Congresses over the years. The funds raised at this event go to the IPS Conservation Fund. It's not too early to think about items you may want to donate. As you travel during the next few months, or clean out your office or closets or trash (!), think about what may be suitable for the auction.

PLEASE donate to this worthy cause. If you're going to the IPS meeting in Nairobi, please don't forget to bring items to donate to the auction. We especially welcome items that are likely to receive a lot of interest (and high bids) – such as artwork, books, and other items focused on primates. This year, we're adding a special section that will feature art (of any kind) created by actual primatologists! If you are an artist, please consider donating one of your finer pieces. This does not have to be something that depicts primates: we want to see your artistry in any form!

Be creative and help us make this the best auction ever. (If you are NOT attending IPS in Nairobi, you can still help us by mailing your donated items – or making a monetary donation to the IPS Conservation Fund!) If you have questions or suggestions, please contact me ([wallis@primateconservation.info](mailto:wallis@primateconservation.info)).

**Thanks to the IPS Conservation Committee!**

I continue to be grateful to those who serve on the IPS Conservation Committee. As I've said before (and try to repeat often), I know they are very busy people and their taking so much time to help me with the committee work is so very much appreciated. The following individuals have generously provided input on at least a portion of our work this year: Swetha Bhashyam, Mary Blair, Ramesh Zimbo Boonratana, Reiko Matsuda-Goodwin, Lisa Gould, Rachel Ikemah, Inza Kone, Martin Kowaleski, Jenna Lawrence, Joanna Malukiewicz, Duc Hoang Minh, Lisa Rapaport, Mike Reid, Arif Setiawan, Melanie Seiler, Mauricio Talebi, and Jo Thompson. I appreciate their dedication and energy.

As usual, if you have any suggestions for the IPS Conservation Committee – including new ways to raise money for the Conservation Funds, please contact me!

Janette Wallis, Ph.D.,

Vice President for Conservation,  
[wallis@primateconservation.info](mailto:wallis@primateconservation.info).

VP for  
**Captive Care**  
[sross@lpzoo.org](mailto:sross@lpzoo.org)

**VP for Captive Care**

The deadline for proposals for the IPS Captive Care and Breeding grants is the 1<sup>st</sup> March. We have already started receiving proposals and look

forward to making an announcement of the successful applicants in early May.

Cheers! Steve Ross

# Trea\$ury Note\$

[sschapir@mdanderson.org](mailto:sschapir@mdanderson.org)

## Trea\$ury Note\$

The 2017 Heather Southwick and Nacey Maggioncalda Foundation's Matching Challenge to the members of IPS raised a total of **\$35,250**. Heather's challenge was for \$10,000 in honor of her late husband and pioneering primatologist, Chuck Southwick, and all funds go to the IPS Conservation Fund. The Nacey Maggioncalda Foundation issued a \$5,000 challenge that also goes to the IPS Conservation Fund. The Margot Marsh Biodiversity Foundation and an anonymous donor, each contributed \$5,000 to meet the Challenge. Over \$10,000 was raised from donations by individual members. Thank you very much.

Over **\$88,000** in grants and awards, as well as support for Cayo Santiago (additional details concerning the Cayo Santiago initiative are presented below) were paid out from the IPS Conservation and General Funds during calendar year 2017. Support from 1) the 2016 Southwick Matching Challenge, 2) an anonymous matching challenge, and 3) your contributions, including those specifically to aid Cayo Santiago, helped make these expenditures possible. I am anticipating that **IPS will fund approximately \$125,000 in primatological endeavors in 2018** (including the Pre-Congress Training Program in association with the Nairobi Congress).

Now would be a good time to renew your membership in IPS, especially if you plan to register for the upcoming IPS Congress in Nairobi in August of 2018.

Over 750 primatologists have already registered for the Nairobi Congress and Johannes Refisch, Pauliina Upla, and their colleagues at GRASP have an outstanding meeting arranged. Over 900 abstracts are currently being reviewed by the Scientific Program committee, co-chaired by Janette Wallis and Katy Gonder. Everything looks set for a fantastic Congress in all respects. Don't forget that we will have a **Primate Photo Contest** and the **FIPA World (Primate) Cup** football tournament at the Nairobi Congress.

Look for details concerning all aspects of the Nairobi Congress on the Congress website:

[www.ipsnairobi.org](http://www.ipsnairobi.org)

Range country members who cannot afford to pay dues can now join IPS quite easily through the website. If you are a range country member and you cannot afford to pay dues, just check '**money order**' as your form of payment, and everything should go smoothly from there.

This is an exceptionally good time to make a donation to IPS. As always, you can donate through the IPS Donate Now! button

<https://www.asp.org/IPS/donations/getdonation.cfm>

As I mentioned above, we have awarded over **\$88,000** from the Conservation and General Funds for the 2017 calendar year, in addition to the **\$91,000** that was awarded in the 2016 calendar year to cover the Community Conservation Initiative, Conservation Small Grants, Jacobsen Awards, Southwick Awards, Captive Care Grants, Research Grants, the Galante Award, and the Pre-Congress Training Program. As usual, thanks to everyone who has paid their dues, made a contribution to the matching challenges, and/or registered for a recent Congress. It is your commitment to IPS, primatology, and primates that has maintained the Society's financial health up until now, and allowed us to support so many worthy programs, projects, and individuals.

Membership figures for 2017 were down a bit, but we are seeing the expected membership increase for 2018 as people re-join IPS to get the member's discount on the Nairobi Congress registration fees. **Please note that IPS membership dues are annual dues and are based on the calendar year.** So, to get your money's worth from your membership payment, please renew as early in every calendar year as you can.

We have seen a recent uptick in the number of Full or Partial Lifetime Members in IPS. There are now 247 Full or Partial Lifetime Members. New Lifetime Members include:

|             |             |                  |
|-------------|-------------|------------------|
| J. Lu       | L. Marechal | L. Swedell       |
| J. Tian     | H. Xu       | K. Carlson       |
| X. Liu      | L. Loyola   | S. Malaivijtnond |
| A. Masozera | X. Ni       | N. Okayasu       |
| L. Pozzi    | Y-J. Su     | B. Sun           |
| N. Vasey    | X. Wang     |                  |

Lifetime Members will never have to pay dues again, but they can still make contributions to the General Fund or Conservation Fund from the webpage and are encouraged to do so. If you have made a career of primatology or plan to do so, please consider a Lifetime Membership. You can either purchase the membership with one payment (\$780) or you can choose to pay in two installments of \$390 each.

As a final topic for this edition of Trea\$ury Note\$, I am sure you are all aware that Cayo Santiago and Punta Santiago (the town where those who work on Cayo live) were located at the eye of Hurricane Maria in Sept. 2017. Both Cayo and Punta suffered cataclysmic damage and are still struggling to recover. IPS was, and continues to be, instrumental in recovery efforts and fund raising for Cayo and Punta. These recovery and fund-raising efforts have several names, including a “New Dawn for Cayo Santiago”, “3Rs for the CPRC”, and “Project Monkey Island”. A group of about 40 of us (some IPS members and some others) went to Cayo and Punta around

Christmas time. Another group of us are planning on going back to Cayo from April 21-28, 2018. We would love to have you join us. We accomplished a number of things on our first visit, but the magnitude of the devastation sustained by, and the obstacles still facing, these people and this area is unbelievable. They need our help to carry on. You can find Project Monkey Island on Facebook or you can go to the website:

[www.projectmonkeyisland.org](http://www.projectmonkeyisland.org)

There is much more that I would like to say about this, but I have already taken up too much space in the Bulletin. Please feel free to contact me directly if you have questions or want additional information. (sschapir@mdanderson.org)

Let me know if you have any other Membership-and/or Treasury-related questions, especially those pertaining to the **2018 IPS Congress in Nairobi**. Remember, at this time, you will have to be an IPS member in good standing for 2018 to receive the member’s discount on registration fees for the 2018 Congress.

Once again, please consider a donation to IPS (use the “**Donate Now**” function), to help support primates, primatology, and primatologists across the globe (including Cayo Santiago).

Steve S.  
sschapir@mdanderson.org  
IPS Treasurer and VP for Membership



In the last Bulletin I wrote about the obligation of IPS members to consider hosting an IPS Congress. When we meet in Nairobi next August, we will select the site for the 2022 meeting, just as we chose Quito, Ecuador, as the site for 2020 meeting during the 2016 Congress in Chicago. I am taking this opportunity to renew my plea that you consider making a bid for 2022. The "Guidelines for Submitting a Bid to Host a Congress of the International Primatological Society," which can be found on the IPS website under the tab, "Policies and Guidelines," gives you the information you need to begin the process. The preparation of a bid takes time and careful consideration, but it serves its purpose well in guiding the development of a well-planned meeting.

IPS could not achieve its mission or goals without the all-important congresses we hold every other

year, and we cannot hold congresses without the dedication of members who are willing to step up and prepare bids.

**NOW IS THE TIME TO TALK TO YOUR COLLEAGUES ABOUT POSSIBLY PUTTING TOGETHER A BID FOR IPS 2022.**

Many of you have attended congresses over the years and have ideas about how the optimal IPS Congress should be run. Now is the time to put your ideas into a bid that will give us a successful congress in 2022.

If you have questions, please contact me or IPS Treasurer Steve Schapiro. We look forward to hearing from you.

- Nancy

## VP for Education

[patrizar@usp.br](mailto:patrizar@usp.br)

The Education committee is getting ready to review the applications for the Lawrence Jacobsen Education Development Grants and for the Charles Southwick Conservation Education Commitment Award. Details are available at the IPS website. The **deadline for submitting your application is March 1st, 2017**. Address questions and completed applications to me.

In addition, we are preparing ourselves for the student paper and poster competition for the 2018 meeting in Nairobi. All students planning to attend the next Congress were encouraged to participate and to indicate their desire to participate through the abstract submission process. We will follow the format used in the

previous IPS meetings. We will select 10-20 finalists based on expanded abstracts in advance of the Congress. Then, at the Congress, each competition judge will be able to review and directly compare all of the finalists. Check the Congress website for more details in the coming months.

Thank you! If any members are interested in serving on the Education Committee, as a student competition judge, or have specific issues they would like addressed, please contact me at [patrizar@usp.br](mailto:patrizar@usp.br)

Patricia Izar  
VP for Education



## Meetings and Announcements

中国动物学会灵长类学分会成立大会暨2017年学术年会留念

中国·西安 2017年8月19-22日

Happy New Year 2018

We thank you for helping us to develop China Primatological Society in 2017.  
Hope your New Year is filled with success, health, prosperity and happiness.



In 2017 the China Primatological Society was established with 190 members focused on primatology.  
Photo Prof. Zhang Peng, Secretary in General of China Primatological Society



In July 2017 the African Primatological Society held its inaugural congress in Abidjan, Côte d'Ivoire.  
Photo Prof. Inza Koné, President of the African Primatological Society.

# Meetings and Announcements

## The wild primate behavior short-video contest at the IPS Nairobi is here!

This contest encourages the IPS Congress participants to think about how they can effectively communicate primatology through videos to the public as well as to fellow primatologists. There are two categories for this contest. Category 1 showcases videos taken by normal cameras. Category 2 showcases videos taken by camera traps. Your video presents a single behavior or multiple behaviors exhibited by an individual or group of any unprovisioned primate species taken on or after January 1, 2010 in the wild. A video should be 0.5-3.0 minutes in length. Your video can be edited with or without narration, subtitles, or music. Acceptable entries abide by the wildlife-film ethics of the untamedscience website. Among these, the most important are the following:

1. The video is telling the truth.
2. No extensive manipulations (i.e. no modifications that could change interpretation of the behavior).
3. No provisioning was done to the animals.
4. No harm was done to the animals.
5. No disturbance was done on the animals' habitat.
6. Fieldwork abides by the IPS' "Code of best practice for field primatology."

During the symposium, the final selections will be shown to the audience. A five-person jury will evaluate the finalists. An award ceremony will present prizes to three videos in each category at the end of the symposium.

To enter, please fill in the entry form to [PrimateVideoContestIPS2018@gmail.com](mailto:PrimateVideoContestIPS2018@gmail.com) by April 30, 2018. One entry per person, please. IPS attendance is not required to enter, but we recommend IPS attendance and attending our symposium is encouraged. Anybody who is submitting an entry, but not attending the Congress, should make sure that somebody could receive an award on behalf in case you win.

## Blast from the past.. how many familiar primatology faces can you spot in this Symposium at the Justus Liebig University in Gießen in the 1960s?



Photograph contributed by Prof. Friderun Ankel Simons



## 3Rs for the CPRC

IPS members:

After a quite successful trip to Puerto Rico (see [www.projectmonkeyisland.org](http://www.projectmonkeyisland.org)) to help revitalize Cayo Santiago and Punta Santiago (December 26, 2017 – January 4, 2018), I am beginning the planning of the second **3Rs for the CPRC/Project Monkey Island/A New Dawn for Cayo Santiago** trip, scheduled for **April 21-28, 2018**. I realize that this is not an academic break time, and therefore, may be more difficult for some of you. However, this is a time that our Puerto Rican colleagues have indicated will work for them, which is a critical consideration. So, before I go into more detail about the upcoming trip, **please just email me back if there is at least a 50% chance that you are interested in participating. If there is at least a 50% chance, please also let me know whether there is a 75% chance or a 95% chance that you can go. This is how we did it last time and it worked out really well.**

Please note that while the first trip was successful and we accomplished a considerable number of things (see the P.S. below), there is still much, much more that needs to be done.

Information concerning the April 21-28, 2018 trip

### What we will likely be doing

In all likelihood, we will be continuing with our efforts to clear the hurricane-associated debris from Cayo Santiago. While we made good progress during our trip at Christmastime, there is still plenty of debris that needs to be cleaned up and/or removed from Cayo Santiago. The 16 pieces of floating dock that were purchased by our group and by the BRBLF group have arrived in Punta, and it seems likely to me that we would be involved in assembling and/or transporting the floating dock as a means of taking items to Cayo Santiago and removing debris from Cayo Santiago.

We will probably be involved in the remodeling of the CPRC office building (a former school) in Punta Santiago. This is likely to include the conversion of some large, open areas into smaller dormitory-style rooms for researchers and students, painting of the inside and outside of the buildings, and various other 'home improvements'.

We plan to finish work on Don Alfonso's house, directly across the street from the CPRC office building. We made considerable progress on his house at Christmastime, but we did not finish.

We will also begin restoration projects on other houses in the Punta Santiago community that were ravaged by the hurricane. These will, in all likelihood, be similar to the projects we worked on during our last trip.

### Where we will likely be staying

We are likely to be staying in a 'condo' community (Palmas del Mar) in Humacao, about 15 minutes from Punta. (I have not confirmed this yet, but I need to have some idea of how many people will be joining us before I can really work on this.). This time, we are looking to 1) cut costs, 2) minimize travel time, and 3) when possible, spend our money in Punta Santiago. So, if you want to stay in Punta, some options will be available, but please note that **the power lines to Punta are not expected to be operational until May or June, 2018**. From what I have been told, there is power (AC, internet, etc.) in the 'condo' community, and that is why I am focusing my efforts there. The food plan would be to establish a 'kitchen' near the CPRC office, with local vendors/restaurants providing meal services for us. Again, we would like to spend our money locally. That is about the clearest I can make it at this point. As we get deeper into the planning process, I will provide additional information.

Last time, we rented a number of cars to get us back and forth from San Juan to Punta Santiago. This was expensive, but worked out really well. We will likely do something similar in April.

Remember, each person will be paying for him/herself. We are unlikely to have any scholarships this time around. Whereas last time it cost about \$240 per person per day (plus airfare), I am hoping that we can cut it to about \$120 per person per day this time (again, plus airfare).

This is plenty of information for the time being. We will plan to work on Cayo and in Punta on April 22-27 (Sunday through Friday). You don't have to come for the whole time and it may be possible to come

earlier and/or leave later, but I will need to help coordinate any departures from the basic April 21-28 plan. So, let me know your level of interest and we will get things rolling.

Thanks.

Steve S. [sschapir@mdanderson.org](mailto:sschapir@mdanderson.org)

P.S. For those of you who are interested, here is more or less what we accomplished during the Christmastime visit. Also, please visit [www.projectmonkeyisland.org](http://www.projectmonkeyisland.org) for more information.

**Cayo Santiago:** Debris removal Big Cay; Debris removal Small Cay; Trail clearing - chain saw; Botanical survey and mapping; Water system assessment; Floating dock purchase, shipping, and delivery

**Punta Santiago:** Presents; Donations; Building materials and tools; Appliances; Beds; Bedding

**Don Alfonso's House:** Debris removal/cleaning; Roof; Exterior; Wiring; Toilet; Tree clearing

**Omar's House:** Roof

**Myrta's House:** Roof; Painting

**Marie's Trailer:** Debris removal/cleaning; Exterior; Interior wall; Flooring; Baseboard; Plumbing; Stove; Fridge

**Marie's House:** Painting

**Prabha's House:** Painting

**Pedro's Grandmother's House:** Painting

**Felix's House:** Stove; Cooking Pot

**Dona Carmen's House:** Tree clearing; Cart

**Documentary:** Cayo footage; Home repair footage; Interviews - Cayo people, Punta people, 3Rs people





# Nagoya Protocol on Access and Benefits Sharing

## What is the Nagoya Protocol and how does it affect your research on primates?

The Nagoya Protocol on Access and Benefits Sharing is part of the international treaty known as the Convention on Biological Diversity (CBD). The CBD was opened for signature at the 1992 Earth Summit in Brazil, and entered into force in 1993. The Nagoya Protocol is a Supplementary Agreement to the CBD that was adopted in 2010. In spite of the 17-year gap between the CBD and the Nagoya Protocol, the purpose of the Nagoya Protocol – the fair and equitable sharing of benefits arising from genetic resources – has been one of the goals of the CBD since its inception.

**Aim and implementation of the Nagoya Protocol.** The aim of the Nagoya Protocol is to ensure that the benefits associated with genetic resources, and also with traditional knowledge of biodiversity, are shared fairly and equitably. The Protocol formalizes the idea that countries in which genetic resources and traditional knowledge originate should have the option of retaining some rights over those resources and knowledge. Another underlying principle of the Nagoya Protocol is the idea that Access and Benefits Sharing is critically important for conservation and for the sustainable use of biodiversity. By providing countries with fair and equitable access to benefits from the genetic resources and traditional knowledge associated with biodiversity, the Protocol provides incentives for both conservation and research.

The Nagoya Protocol has been ratified by nearly 100 countries, including many UN member states and the European Union. The US has not ratified the Protocol, and hence is not a party to it. However, because many countries worldwide are now parties to this treaty, scientists who export biological materials from one country to another need to be cognizant of the country-specific requirements of the protocol, whether or not their home country is a party to it. Penalties for non-compliance in the countries that are parties to the treaty can be stiff.

Most (not all) countries that are home to nonhuman primates are parties to the Nagoya Protocol. This means that in addition to the research permits, collection permits, and CITES export permits that researchers already obtain, they will also need to be compliant with the requirements of the Nagoya Protocol as implemented in the country where they conduct research.

**Resources for learning more about the Nagoya Protocol.** Researchers will find the following websites very useful in learning more about the Nagoya Protocol.

1. The Access and Benefit-Sharing Clearing-House (ABSCH) includes valuable general information about the Nagoya Protocol, as well as detailed country-specific information. Under the 'Country Profiles' link, 198 countries are listed. Their status with respect to the Protocol is indicated (party versus non-party), as well as each country's national point of contact for information about the protocol, the national authority that oversees the implementation of the protocol, and a range of other useful information.

<https://absch.cbd.int/help/about>

2. The Convention on Biological Diversity, the umbrella treaty under which the Nagoya Protocol falls, has a comprehensive website with basic information, news links, updates, and program information.

<https://www.cbd.int/>

3. Knowledge about the Nagoya Protocol is highly variable across universities, museums, and captive primate facilities. Consider contacting the central research administration office at your institution to learn what they know, and what types of support they can offer to researchers. If they are new to the Nagoya Protocol, you can give them the information provided here, and also point them to the following link, with information on access and benefit sharing geared towards administrators.

<https://scbd.unssc.org/course/index.php?categoryid=4>

# Report from Conservation Grant Recipient

## Brandon Semel

### Climate Change, Coups, and Critically Endangered Species: First Aerial Drone Surveys of Madagascar's Lemurs

Brandon Semel; Virginia Tech, Blacksburg, VA

#### Introduction

Population and habitat monitoring are essential primate conservation activities (Campbell et al. 2016). However, monitoring programs are time and labor intensive, can be dangerous or impossible in challenging terrain, and trail networks necessary for land-based surveys may open up forests to increased exploitation (Cowlshaw and Dunbar 2000; Laurance et al. 2009; MacDonald et al. 2012). Novel technologies, such as drone, or unmanned aerial vehicle (UAV) surveys, may make habitat and population monitoring more reliable and cost effective than traditional sampling techniques (Koh and Wich 2012; Paneque-Gálvez et al. 2014).

UAVs have been used to conduct large-scale population estimates on large mammals from >100 m in the air (Hodgson et al. 2013; Vermeulen et al. 2013). They also have been used to successfully count seals on sea ice (Moreland et al. 2015), demonstrating a resilience to extreme conditions and their potential for use across a diversity of habitats. With UAV technology rapidly improving and costs plummeting, it now appears economically feasible to survey even more species and habitats across large landscapes, including primates (Koh and Wich 2012; van Andel et al. 2015).

Madagascar's golden-crowned sifaka (*Propithecus tattersalli*) is critically endangered and restricted to a single reserve, the Loky-Manambato Protected Area (LMPA), in northern Madagascar (Mittermeier et al. 2010; IUCN 2012a). Historically, sifakas were informally protected by local taboos. However, hunters now target all three diurnal lemur species found in the region, including the sifakas (Schwitzer et al. 2013). Increasing numbers of migrants drawn to Daraina by small-scale gold mining across the region are largely to blame (Jenkins et al. 2011; Quéméré et al. 2012). Additionally, Madagascar's 2009 coup prompted a new bushmeat trade in the region (Barrett and Ratsimbazafy 2009; Conservation International 2010).

The LMPA's forests are heavily fragmented making local extinctions a pressing threat for species in the region (Schwitzer et al. 2013). Alarming, pre-coup surveys suggested that formerly inhabited fragments had either too few sifaka individuals from which accurate densities could be estimated, or were void of sifakas altogether (Quéméré et al. 2010). Fragments may be difficult to recolonize, especially for the more arboreal *Eulemur* species (*E. coronatus* and *E. sanfordi*), for which population estimates remain unknown (Mittermeier et al. 2010).

Estimates are needed to assess the impacts of all of these threats, and long-term monitoring programs are needed to evaluate the success of conservation efforts and the ongoing impacts of climate change (Lwanga et al. 2011; Schwitzer et al. 2014; Campos et al. 2015). UAVs provide an exciting new tool with which these animals and their forest habitats may be monitored. The aims of this study were to evaluate the feasibility of using UAVs to monitor sifaka populations in the LMPA and to provide updated population estimates for the three diurnal primates in the region.

#### Methods

Surveys were conducted in five different forest fragments. Within fragments, forests were stratified by habitat type (Quéméré et al. 2010). All sampling was conducted at dawn (0600-0900 hr) and in the late afternoon (1530-1730 hr), when sifakas were resting in the canopy of sleeping trees (Meyers 1993) and other species were most active (Peres 1999).

Line Transects: Each transect crossed one habitat type within each fragment. Transect length and number varied by fragment and habitat type size. At least two transects were established (marked with flagging tape) per fragment and were spaced >1 km apart. Working with local guides, two 2-member teams walked each transect twice daily with one member rotated to a new transect each day (Buckland et al. 2010). When

lemur groups were detected, the GPS location, group size, distance between the two most distal individuals, and sighting distance and angle of the first animal seen were recorded (Whitesides et al. 1988; Buckland et al. 2010). A maximum of five days were spent conducting surveys at each site. The package “Distance” in Program R was used to calculate animal densities (Buckland et al. 2010; Miller et al. 2016). All key (half-normal or hazard rate) and adjustment (cosine, hermite-polynomial, and polynomial) function combinations were used. Model selection was based on Akaike Information Criteria (AIC) such that the model with the lowest AIC and a  $\Delta AIC > 2.0$  were preferred (Burnham and Anderson 2003). Population abundance estimates were calculated using forest area estimates from Vargas et al. (2002) and Salmona et al. (2014).

**UAV Transects:** We used an available DJI Phantom 2 quad-copter (DJI, Shenzhen, China) with a GoPro Hero4 camera (12 mega pixels; GoPro, San Mateo, California) fixed to a gimbal for image quality optimization (Fig. 1). Lemur responses to flights were assessed prior to commencing UAV surveys as lemurs are wary of aerial predators (Fichtel and Kappeler 2002). Test flights were conducted directly over habituated sifakas at 10 m height intervals. Recorded behaviors constituted two classes: “anti-predator” (vigilance, alarm calling, and rapid movement away from the UAV) and “no response.” Flyovers occurred every 10 minutes with two trials at each height and a new group every hour to avoid stress (Vas et al. 2015). Surveys were conducted at heights that minimized animal disturbance and maximized detection.



Photographs were geo-referenced by taking images at 50 m intervals along the transect as the UAV did not have autopilot software. Lemurs resting in the canopy were counted from individual photos. Observation of all individuals directly under the UAV flight path were assumed (Buckland et al. 2010). Flights and walking surveys did not occur concurrently over the same transect to avoid methodological interference.

## Results

Preliminary estimates from ground-based surveys suggest 11,500 (95% CI: 7,000-18,700) sifakas remain in LMPA. Densities varied by fragment, ranging from 12-42 individuals/km<sup>2</sup> (Antsaharaingy and Bekaraoka, respectively, N= 87). Crowned lemur densities are ~15 individuals/km<sup>2</sup> (N = 30). Their abundance in the region is ~7,000 individuals (95% CI: 3,300-13,500). Sanford’s brown lemurs were found in two forest fragments (Binara and Ambilondamba; N = 20). Their overall population estimate across the LMPA is 14,600 individuals (5,700-37,000 95% CI).

**Figure 1.** Malagasy research team learning how to fly the UAV over the forest.

Sifakas had varied responses to UAV flights. One canopy-resting group moved ~1 m higher in the tree and exhibited upward vigilance to investigate the noise as the UAV flew 5-15 m overhead. Two other canopy-resting groups remained stationary while exhibiting upward vigilance as the UAV flew 10-20 m overhead. Only one solitary sifaka (feeding ~3 m high in a tree on the edge of old growth forest) dropped below the canopy as the UAV flew 15-20 m above ground level, which is consistent with responses to aerial predators (Karpanty and Wright 2007). No alarm calls occurred. A single image of a sifaka from this last encounter was obtained.

UAV survey attempts were conducted on three different days. The first flight session was over a grassland transect interspersed with small forest fragments. The second and third sessions were over dry, deciduous



forests. Unfortunately, the UAV lost function after several crashes during this phase of the project. The first crash was due to battery failure and variable topography. The second crash occurred when the UAV lost power in flight and fell ~20 m. The first crash likely damaged the fail-safe return system that should have forced the UAV to land prior to losing power, or strong winds prevented its landing. Irreparable camera damage forced subsequent flights to use an iPhone, but the lack of live video feed resulted in a third crash that put an end to field trials. Based on conversations with hobbyists, professional UAV pilots, and researchers using UAVs in their fieldwork, such initial results are not uncommon (Reinsel, T., Dollar, L., Gilbert, S., pers. com.). Because density data could not be obtained from UAV imagery, we will be conducting a cost-benefit analysis based on expected costs for a UAV array with recommended improvements.

## Discussion

Our preliminary ground-based survey estimates suggest roughly a 36% decline in sifaka populations since 2006/2008 (~18,000 individuals; Quéméré et al. 2010). Crowned lemur population estimates have not been published for this area, but their densities are low (~15 individuals/km<sup>2</sup>) compared to other sites (~30 individuals/km<sup>2</sup>; IUCN 2012b). Additionally, while on the ground, we encountered active poaching of more than 60 crowned lemurs in one of the forest fragments and evidence of additional hunting pressure at several other fragments (e.g., drying racks, rotisseries over fire pits, skittish animals). Our estimates for Sanford's brown lemurs likely are too high, as they were not found in all forest types, and sample size was low.

Despite our inability to complete the full complement of methodological comparisons as planned, the UAV exercise was most informative. We successfully captured sifaka images using a low-cost, UAV-mounted camera, but this study demonstrates that challenges remain for using UAVs to monitor primate populations. Remote field conditions provide many challenging obstacles to first time users hoping to take advantage of this exciting new technology.

We currently are working with the Unmanned Aerial Vehicles lab at Virginia Tech to test alternative low cost UAVs fully capable of autonomous flight in mountainous terrain. Additionally, we plan to equip UAVs with both a visible light and thermal infrared cameras. Studies of deer under forest canopies have successfully used this technology coupled with object-based image analysis (OBIA) to fully automate the process of counting individuals, even in forested environments (Chrétien et al. 2016). Based on imagery obtained in our study, we would not recommend attempting direct primate surveys without the aid of thermal sensors, perhaps with the exception of species inhabiting short grassland environments.

As the use of UAV technology increases, we also would urge researchers to consider the consequences of automating surveys for local people (whether or not they receive training in using UAVs), how the absence of researchers on the ground affects the likelihood of illegal resource extraction, and how local people perceive UAVs. As we continue to investigate the potential use for UAVs in monitoring lemur populations, density estimates obtained during this study will be key to completing my PhD research on lemur population responses to climate change. This research is expected to continue through 2020 and will involve looking at sifaka diets and genetics across a range of different forest types.

Prior to this study, UAVs had never been used to estimate lemur populations in Madagascar, only to conduct habitat assessments (Gardner et al. 2015). We predict that with the necessary modifications, UAVs will be a more cost-effective and labor reducing means to quantify lemur populations and habitat quality compared to traditional line-transect methods. If successful, this technology can be broadly applied to the monitoring of other imperiled primates in inaccessible habitats such as marsh-dwelling Lac Alaotra bamboo lemurs (*Haploplemur alaotrensis*) and karst-dwelling *Trachypithecus* species in Southeast Asia.

## Acknowledgments

I would like to thank Rina, Ando, Amidou, Jao Fera, the KMTs of Daraina, the Fanamby staff, and MICET for their assistance with data collection and logistics. Research was supported by the NSF GRFP, Cleveland Metroparks Zoo, Cleveland Zoological Society, Stellar Aerobotics, Virginia Tech graduate school, American Society of Primatologists, and Conservation International's Primate Action Fund. Protocols were reviewed and approved by the Malagasy government and the Institutional Animal Care Committee of Virginia Tech (IACUC # 15-223). Opinions, findings, conclusions, or recommendations expressed are those of the authors and do not necessarily reflect the views of the NSF.



## Report from Education Grant Recipient Pan African Sanctuary Alliance

To the IPS Education Committee,

I am pleased to send this report about the use of the Lawrence Jacobsen Education Development Grant given to the Pan African Sanctuary Alliance in May 2017. The grant enabled PASA's Cameroon Education Program to expand to reach thousands of children across the nation.



In Cameroon, many species of wildlife are rapidly disappearing due to the illegal trades in wildlife and bushmeat. Poachers kill apes and monkeys to sell their bodies for meat in markets throughout Cameroon, where bushmeat is valued more than chicken or beef. Baby primates who are orphaned by hunters are typically sold into the illegal pet trade and spend their lives tied to a chain or a short rope, until they grow large enough to be slaughtered.

Throughout Cameroon, there is a lack of empathy for wildlife which exacerbates the threats to the country's primate populations. Animal welfare is not a familiar concept. However, culturally relevant education about chimpanzees and the threats facing them can change behaviors and attitudes toward chimpanzees, and secondarily all wildlife, and reduce these threats.

PASA is collaborating with our three member organizations in Cameroon – Ape Action Africa, Limbe Wildlife Centre, and Sanaga-Yong Rescue Center – to bring humane education to schoolchildren nationwide. With experts in Cameroon's education system, we integrated elements of our members' longstanding education programs to create a new program which is appropriate for the diverse regions and ethnic groups throughout the country.



The program is based on a children's book created by Sanaga-Yong Chimpanzee Rescue titled "Je Protège les Chimpanzés" ("I Protect the Chimpanzees"), which follows the story of a young Cameroonian boy, Daniel, who rescues a chimpanzee that has been orphaned by poachers. The story educates children about the bushmeat trade, a major threat to wildlife in Cameroon. The program's five-day curriculum also teaches the consequences of unsustainable agricultural practices such as deforestation to create farmland and slash-and-burn agriculture, illicit wildlife trafficking, and illegally owning wildlife as pets (which is a common practice in Cameroon).

PASA member organizations are now implementing the program with several thousand students in cities, towns, and remote areas, with very positive results. The primary method of evaluation is by students completing a pre-test at the beginning of the five-day program, an identical post-test at the end, and a delayed post-test several months later. These evaluations have demonstrated:

- An increase from 60% to 97% in students who understood that chimpanzees should not be eaten as bushmeat

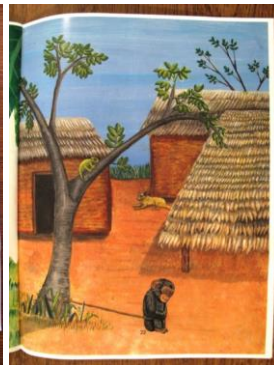
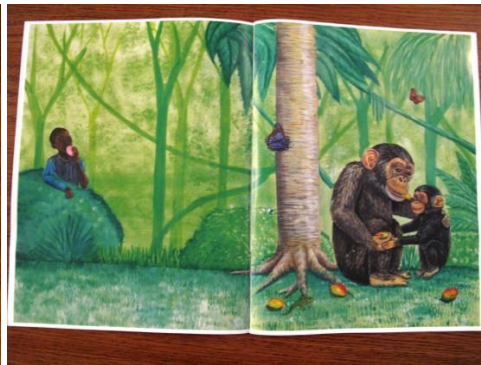
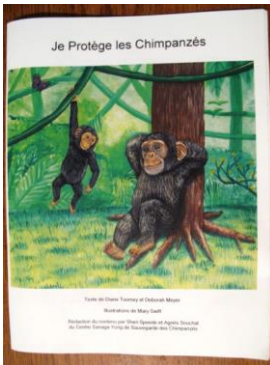
- An increase from 44% to 88% in students who knew to contact the police if they see a chimpanzee in a neighbor's house
- An increase from 69% to 99% in students who knew that chimpanzees should not live in houses

While these results indicate the program's effects on children's behaviors, its full impact will occur when the children become adults with greater empathy for chimpanzees and other wildlife, and a greater understanding and appreciation of primates. This is expected to mitigate Cameroon's rampant bushmeat trade, illegal wildlife trade, and other threats to the country's primates.

The Cameroon Education Program is extremely cost-efficient. It is conducted by experienced Cameroonian educators who are employed by the PASA member wildlife centers and earn local salaries. Furthermore, the program is engendering widespread, sustained changes in the behaviors and attitudes of thousands of children, which will have long-term impacts on the welfare of the country's primates at a low cost per student.



**The Lawrence Jacobsen Education Development Grant has enabled us to not only influence thousands of youth in the last year, but also establish a foundation on which the program continues to expand.**



*Pages from "Je Protège les Chimpanzés," created by Sanaga-Yong Chimpanzee Rescue*

On behalf of PASA and our member organizations in Cameroon, I would like to thank the IPS Education Committee for your generous support for this vital program.

All best wishes,

**Gregg Tully; Executive Director; Pan African Sanctuary Alliance**

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# Report from Education Grant Recipients

## Elysée Rasoamanana and Maurice Adiba

### Raising awareness for the conservation of *Lemur catta* in the surrounding area of Mangily, Madagascar

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#### Introduction

Reniala is a local conservation and developmental NGO, found in the Mangily area, 27km from the city of Toliara, in south-western Madagascar. The Lemur Rescue Center (LRC), is situated within in the 60 ha Reniala Nature Center, and we operate the only rehabilitation center for *Lemur catta* in Madagascar. The lemurs at our centre have been rescued from the illegal pet-trade in the Toliara region. Currently, the population of wild *L. catta* is rapidly decreasing and could soon disappear (Gould and Sauther, 2016; LaFleur et. al, 2016) . In 2016, IUCN ranked *L. catta* as one of the 25 most endangered primates. The threats to *L. catta* survival are live capture for the illegal pet trade, habitat destruction and poaching for bushmeat. In the area around LRC, there is still a great deal of illegal trafficking in wildlife, consumption of lemurs, and the destructive use of forest resources, e.g. timber harvesting and coal production. Live capture and trading of wild animals is forbidden by law in Madagascar; however the enforcement of this law is weak partly due to low public awareness of the negative effects of illegal trading. Reuter et al. (2016) estimate that 28,253 lemurs have been affected by this illegal live capture and ownership since 2010.

In April 2017, The NGO Reniala obtained the financial support of an IPS Lawrence Jacobsen Education Development Grant for developing awareness for both student and adults in the area surrounding Mangily. Our goal is to raise the awareness among local villagers regarding environmental problems and issues in the region, and emphasize how conservation programs can help both humans and wildlife in this part of Madagascar. The sites of field training are: the village of Mangily, Ifaty and Belalanda (Figure 1). With the support of the local representative government, we offered environmental education activities for both children and adults in the region. Via a number of activities, we raised local awareness of the value of *L. catta* and the remaining forests in the region. The activities carried out were divided into two parts. The activities were carried out from May to August 2017.

#### Education environmental for student

With the help of teachers and with the support of parents, we carried out two types of activity for primary school student: class workshop and recreational activity. The goal is to explain the importance of lemur conservation as the slogan “Learn to protect”. The students are CE2, CM1 and CM2 of three public primary school EPP (Ecole Primaire Publique) of Ifaty, Mangily and Belalanda (Toliary province).

For class workshop, we broadcasted an educational documentary entitled: “Lemur, habitat and habits” (<https://www.youtube.com/watch?v=WcGndoxWtM>) presenting lemur biology, lifestyle and threat, and how to protect them. A total of 192 students between 10 and 15 years old took part of the workshop (Belalanda: 70, Ifaty: 87 and Mangily 35). At the end of the workshop, an evaluation was made to understand the understanding and commitment of the students after the animation. Evaluation of workshop result is based on measuring changes of attitude and what they learned about lemurs and why to conserve them. Post-evaluation are about basic biology of Lemur, their endemism, their threat, their protection. In class, only 46,71% of student answered correctly of 50% of the questions. But these results are not entirely reliable because most of the students in these rural classes did not know how to read and write well. In oral, the students responded better to the questions often heard in chorus.

In addition, the children made drawings of ring tailed lemur and their habitat to know and come closer to the animals (figure 2). We asked children to share them with their parent. In this way, we hoped to influence and educate adults through children.

We also distribute some leaflet about how to do and how don't to do with lemur and poster to leave a lasting message.

The workshop was very interactive: students are curious and dynamics.

For the second part of environmental education, we had a guided tour of the Reniala Park and the Lemur Rescue Center. The objectives were to initiate them to know a natural forest, the fauna and the flora that it shelters. The visit included lessons in *L. catta* behavior, positive reinforcement, environmental enrichment, animal nutrition, and maintaining clean and sanitary enclosures. When visiting the reserve Reniala spiny forest, students are very curious by asking questions and have fun. In addition, an interactive game to find out and determine the name of plants eaten by *L. catta* (figure 3). At the end of the activity, oral questions were asked of the children. They were able to give the correct answer about the lifestyle of the ring tailed lemur and why it is important to leave them in the forest. The winning groups received a certificate “guardian of Lemur”.



Figure 1: Localization of the project intervention area



Figure 2: The students showing their drawing



### Environmental training for adult

The goal is to improve the knowledge and environmental awareness of communities that have been identified as primary centers of illegal trade and in zone who use Lemur as bushmeat. By including leader of local community, we aim to reinforce the application of the law on wildlife trade but also on the management of natural resources. 55 adults took part of the training. Didactic materials for all the workshops included power point presentations and course support and about UICN, CITES, hunting laws. The training was successful as participant asked what have they do to protect the environment (Figure 4)

Post-evaluation of knowledge and motivation, and engagement of each participant were made. All participants responded correctly of at least 50% of post-evaluation question. 70% responded correctly of 80% of the questionnaire. All respondents appreciate the training and wanted to share their knowledge with their entourage. the reasons given were as follows: they could share their knowledge, their know better Madagascar biodiversity and why to protect them, they know what is forbidden and what is not, that lemur is very important for Madagascar, that lemur is facing the threat of extinction, that there are animals which they have no right to hunt, that Madagascar is a hotspot of biodiversity that we need to protect, that lemur are not pet, they know the international conventions for the protection of nature.

In addition, documentary film about lemur and the mission of LRC

(<https://www.youtube.com/watch?v=OYF2jv9zGGs>) were broadcasted in order to inform why saving lemurs and how to maintain the well-being of lemurs when we welcome them.

To be sure that people know how much hunting and pet lemur is illegal. We posted 60 posters in Malagasy for local community; in French and in English for tourists and for foreign resident were distributed in Mangily, Belalanda and Toliary town (Figure 5).

### Commentary and conclusion

The village of Mangily, Belalanda and Ifaty are rural community where there is a lack of general information. In addition, environmental education is not part of the Malagasy school curriculum. Public schools don't have the means to undertake nature and fauna outing for their pupils. Therefore, this project has helped to make possible for children and adults to know the scientific and socio-economic values of Malagasy biodiversity with a view to preserving and protecting lemurs and their natural habitats. The environmental information and education work carried out in this project constitutes a pioneering activity on the areas of intervention, which deserves to be extended to other sites. To have the desired impact, environmental education should be intensified and systematic

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Figure 3: Outdoor workshop: children identifying plants eaten by *L. catta*



Figure 4: A woman participant speaking during adult environmental training



Figure 5: The display of poster denouncing live capture in the villages of Mangily



# Report from Conservation Grant Recipient Parthankar Choudhury

## Final Report from Conservation Grant Recipient Parthankar Choudhury

### INTRODUCTION

India is blessed with 430 species of mammalian fauna belongs to 49 families and 185 genera (Choudhury, 2016). Northeast India, the seven sister states of India is located between Indo-Himalayas and Indo-China sub-regions, harbours 269 mammalian species (Choudhury, 2013). The region provides shelter to many elusive mammals many of which are listed in the IUCN Red List and some are included in Schedule I and part of Schedule II of the Indian Wildlife (Protection) Act, 1972.

Although this region is endowed with good forest cover but a decline of greeneries have been indicated during the past few decades, which has a bearing on the entire mammalian fauna. Mammalian fauna is further influenced negatively by diverse and pervasive anthropogenic threats in the form of countless human activities, loss of roosting and foraging territory, indiscriminate killing due to superstitions or fear of diseases, unprecedented hunting for trade, folk medicine and also bush-meat. Despite of all sincere efforts of conservation by the state forest officials, a total of 123 Greater One-horned Rhino have been killed by poachers during 2006-2015 and the count is going on day by day. This being the story of the state animal of Assam (India), the condition of rest of the mammalian fauna is worse. Until now around 0.37% percent of mammalian fauna have become extinct from northeastern India while 13% percent have been categorized as threatened, 29% have been categorized as data deficient.

This study focused on population estimation, study on resource partitioning of three primate species [Phayre's leaf monkey (*Trachypithecus phayrei*), Capped langur (*Trachypithecus pileatus*) and Northern pig-tailed macaque (*Macaca leonina*)] and initiation of conservation approach through community conservation. Till date, no serious work has been initiated to address the issues related to primate conservation in the area. The aims of this research project were to, (1) To assess the presence and status of Capped langur, Northern pig-tailed macaque and Phayre's leaf monkey in the Inner-line reserve forest and its adjoining areas; (2) To study the habitat characteristics and feeding ecology of Capped langur, Northern pig-tailed macaque and Phayre's leaf monkey in the Inner-line reserve forest, (3) To study the activity profile of Capped langur, Northern pig-tailed macaque and Phayre's leaf monkey in the Inner-line reserve forest and (4) To know the anthropogenic pressure and other conservation related issues of Capped langur, Northern pig-tailed macaque and Phayre's leaf monkey in the Inner-line reserve forest.

### METHODOLOGY

**Study area :** The Inner-Line Reserve Forest (ILRF), Cachar, Assam, India (lying between 24°22'–25°8'N longitude and 92°24'–93°15'E latitude) is a potential forested area which can come under legal protection (Map-1). The area is very important for primate conservation, as it supports eight different primate Species (Islam et al, 2013). Unsustainable harvesting and promotion of monoculture since middle part of 19th century has led to sharp population decline of various fauna and primates in particular.

The work have been done in four phase. As the project topic is related to three primate species, initially, we have done pilot survey in the reserve forest along with photos of the target ape, so that the villagers residing inside the reserve forest could easily identify the species and suggest their possible location.

Modified line transect method (as per Burnham et al, 1980 and Srivastava et. al, 1999) were followed to know the status and distribution. To know the location of target species, existing forest trails were selected by random sampling method and transect were laid covering 10-15 km each day. During survey period, walking transects were started 5.30 to 6 AM and terminated in the evening (4 to 5 PM) with slower pace and as quietly as possible. In every 500 meter we stopped walking for 5-10 minutes to listen any sound, movement or song, recording the geographic coordinates and assessing the surrounding areas. On sighting of primate group, data on number with age-sex were recorded along with sighting distance as well as habitat parameter followed by monitoring of the group for a while to confirm their identification. In case of sound, the sources

were followed as per the direction to locate the group and collect the related data. Care was taken during the survey period to cover at least 15 percent of all the representative areas of Inner-line reserve forest in the stratified random manner (Mueller-Dombois and Ellenberg 1974).

The second phase was done with structures interview among the local stakeholders. During this phase scheduled questionnaire were asked among the people residing inside as well as adjoining areas of the reserve forest. Third phase included ecological studies and during fourth phase awareness programme were conducted in the forest villages. A total of six awareness programme have been organized in six different localities of reserve forest where issues related to primate were discussed.

Habitat assessments were done using quadrat sampling method following Mishra (1968) and Ambasht (2008). Once the primate was encountered the quadrat was laid out as 10mx10m, 20mx20m and 30mx30m based on the visibility of the area. Importance Value Index (IVI), diameter at breast height (DBH), tree height and canopy cover were estimated for all the trees ( $\geq 10\text{cm}$ ) that occur inside the strip.

**Behaviour study:** Activity budgeting was done using scan sampling by walking along the species to record different actions as per Fashing (2001). For this, one focal troop was selected for behavioural study and the species was followed for recording of behavioural data. The troop was followed at 5 minutes interval. Various activities like feeding, grooming, locomotion, resting, playing and others was noted down. Social behaviour was studied in relation to human and group behaviour within the troops.

### Sampling regime:

**Activity budgeting:** The study was conducted during November 2016 to April 2017. The study group of comprises of adult male, adult female, juvenile and infants. Activity budgeting of each of the individuals of the focal troop was recorded by instantaneous scan sampling methods (Altmann, 1974), at 5 minutes interval from dawn to dusk (6 AM to 6 PM). Data was collected on the group of primates between November, '16 to April, '17. Scan study provides data on different activities, broadly classified into feeding, resting, movement, calling and other social activities (Hasan et al., 2007). Group was followed from 07-10 hours (mean 9 hours per day). The major activities as classified by Hasan et al., (2007) were as follows:

**Feeding (FD):** When an individual was actively manipulating a potential food source, putting food into the mouth or masticating, when moving and masticating at the same time. **Moving (MV):** It included directed or non-directed movement from one place to another. **Resting (RS):** It included inactive period when the individuals remained idle at a place.

**Grooming (GR):** It is a characterized by rhythmic sweeps and plucking movements of the fingernails for cleaning skin debris, spots, ectoparasites or vegetation trapped in the fur.

**Other activity (OA):** Other activity included aggression, playing, calling and mating.

## RESULTS

**A. Status and distribution of primate species:** The study reveals viable number of primate troops in Inner-Line Reserve Forest which is distributed almost all over the reserve forest (Map-1-b). During the study, we have documented 12 locations for primates out of which four belong to Phayre's leaf monkey, seven belong to Capped langur and three belong to Northern pig-tailed macaque. Surveys were mostly conducted in the buffer zone as well as the adjoining areas of the reserve forest except for a few areas of the core zone, which is completely inaccessible due to dense vegetation and hilly terrain.

During the course of the study a total of 37 individuals of Phayre's leaf monkey were encountered in four locations; of these 11 were identified as adult male, 14 as adult female 10 as juvenile while two were unidentified. Bigger troop with maximum (13) number of individuals was found in Dholaikhal while smaller troop with minimum (7) number of individuals was documented in Makanjipur. The mean troop size of the seven study groups was 9.25. Seven troops of Capped langur were encountered during the study period. The maximum numbers of individuals (13) were encountered in Sonachera while the minimum were documented in Arjuntilla (6). Altogether 61 individuals were documented of which 17 were adult male, 27 adult female 15 juvenile while the rest were unidentified. The mean group size of the seven study groups was 8.71. Northern pig-tailed macaque was documented from three location of Inner-Line Reserve Forest. All the group contains 12 individuals incorporated in 3 adult male, four adult female, four juvenile and one identified individuals of Northern pig-tailed macaque. Highest number of individuals was found in east Dhalaikhal while the lowest was documented in west Dholaikhal. The mean group size of the seven study groups was 4 (Table-1).



**B. Habitat study:** A total of 116 tree species belonging to 36 families have been documented across the study area during the study period. The top fifteen tree species in the study area having highest IVI are *Artocarpus chama*, *Chrysophyllum roxburghi*, *Dysoxylum gobra*, *Diospyras taposia*, *Toona ciliata*, *Cynometra polyandr*, *Madhuca indic*, *Vitex altissim*, *Euphorbia pulcherrim*, *Semecarpus anacardium*, *Anthocephalus cadamba*, *Mesua ferra*, *Samanea saman*, *Sterculia villosa* and *Hydnocarpus kurzii*. The values of relative density, relative frequency, relative dominance and importance value index were not same and varied among the species in all the areas.

**C. Behavioural study:** Activity budgeting was done during November, 2016 to April, 2017 to calculate the diurnal time spent by different primate species in different activity. A total of 1850 scan records for Phayre's leaf monkey and 2215 scan records for Capped langur have been documented during the study period. The percentage (%) of time spent in different activity for both the species is shown in Table 2.

**Quarterly activity budget of Phayre's leaf monkey (*Trachypithecus phayrei*):** As the project was time bound, and hence there was time constraint, this study was done for three month periods. The annual activity profile showed that the Phayre's leaf monkey during daytime spent the maximum time in resting or sleeping followed by feeding, moving grooming and in other social activity which includes mating, calling and playing. In the present study, the annual daytime spend by group of Phayre's leaf monkey for resting is calculated as (33.99%) followed by feeding (33.53%), moving (21.83%), grooming (5.91%) and other social activity (4.74%) (Figure 1/A).

**Quarterly activity budget of Capped langur (*Trachypithecus pileatus*):** The activity budgets have been calculated for three month periods. The annual activity profile showed that the Capped langur during daytime spent the maximum time in resting or sleeping followed by feeding, moving grooming and in other social activity which includes mating, calling and playing. In the present study, the annual daytime spend by group of Capped langur for resting is calculated as (38.80%) followed by feeding (30.82%), moving (17.54%), grooming (8.50%) and other social activity (4.35%) (Figure 1/B).

**Monthly variation in activity budget of Phayre's leaf monkey (*Trachypithecus phayrei*):** The study shows variations in the time allotment in different activities is different in every month. Maximum resting was observed in the month of December (35.93%) while lowest was recorded in the month of January (32.03%) during the three month study period (Nov., '16 – Jan., '17). Phayre's leaf monkey was found spending highest time in terms of feeding in the month of January (35.10%) and lowest in the month of November (32.56). The time spent in moving was highest in the month of January (23.96%) and lowest was in the month of December (19.10%). The time spent in grooming was highest in the month of December (7.04) and lowest in the month of January (3.90%). The Phayre's leaf monkey were seen performing social activities which was recorded highest in the month December (5.03%) and lowest in the month of November (4.19%)

**Monthly variation in activity budget Capped langur (*Trachypithecus pileatus*):** During this study, it has been observed that the variations in the time allotment in different activities are different all the month of the year. Maximum resting was observed in the month of February (39.79%) while lowest was recorded in the month of April (33.85%). Capped langur spent highest time in terms of feeding in the month of April (33.85%) and lowest in the month of February (27.88). The time spent in terms of moving was highest in the month of April (18.54%) and lowest was in the month of February (6.88%). The time spent in grooming was highest in the month of February (11.52) and lowest in the month of April (4.78%). The time allotment in other social activities of Capped langur was recorded highest in the month April (4.92%) and lowest in the month of February (3.93%).

**D. Anthropogenic pressure:** Inner-line reserve forest is the largest reserve forest of Assam(India) contains 24 forest villages of which, 12 are inhabited solely by tribal groups, such as Halem, Jaintia (P'nar), Reang, Mizo, Hmar, Dimasa, Khasi and Kuki; 7 solely by non-tribal people, such as Bengali Hindu (Scheduled Caste), Bengali Muslims, north Indian and ex-tea garden labours and the remaining 5 by a mixed population of tribal and non-tribal people (Islam, 2016). They use forest areas as their means of livelihood and thus they perform various activities including cultivation, shelter and timber collection; moreover, they extract various non timber forest products (NTFPs) for their daily needs. All such activities have negative impact on the survival of primates in the reserve forest.

The primate species face a number of threats in the study area. Among all the threats, the percentage for timber logging was 44.92% followed by cultivation (30.96%), NTFP collection (8.88%), Hunting (6.34), forest fire (5.83%) and illegal trade/poaching (3.04%) (Fig.-2).

People (26.65%) residing inside as well as the adjoining areas of Inner-line reserve forest do not know about the Wildlife (Protection) Act, 1972 for protection primate or other wild animal. On the other hand,

majority of people (70.05%) have information of these laws, but do not have an elaborate idea about the consequences of killing, hence killing or harassment of primate is not an illegal task to them, while negligible percentage of the villagers (3.30%) have some idea about consequences provision of penalties under the act. Villagers are of the opinion that primates in Inner-line reserve forest are decreasing since the preceding decades. Some people (63.96%) have direct or indirect experiences of using primate species as bush meat and means of earnings via illegal trade, 21.07% of people informed that they never had such experience while 14.97% of people did not share their idea regarding the consumption or selling of primate in the reserve forest. Man-primate conflicts have also been documented during the observation. Some people (34.01%) have mentioned that they do so because the primates destroy their harvest. However, by and large, there was no report from majority of the villagers (56.09%), while only few people (9.90%) do not have any idea of such issue.

## DISCUSSION

The study has been carried out in the Inner-line reserve forest of Cachar district, Barak Valley, Southern Assam (India) documented 37 individuals of Phayre's leaf monkey from 4 different localities, 61 individuals of Capped langur from 7 different localities and 12 individuals of Northern pig-tailed macaque from 3 different locations of Inner-line reserve forest. Due to the lack of research on primate population throughout the region, viable population structure for a particular area is not known. Lots of researchers have been worked on the distribution of primates across the country. Information on the distribution of primate is found in the studies of Choudhury, 1986, Napier and Napier, 1967; Prater, 1948; Ellerman and Morrison-Scott (1951) and Finn (1929). In Tripura Choudhury (1992) and Mukherjee (1982) have done some work on Phayre's langur. Likewise Mukherjee et al. (1988) and Alfred (1992) have carried out research on primates in Arunachal Pradesh and Meghalaya respectively. Choudhury (1988) have reported occurrence of Phayre's langur from Gharmura, Cachar district of Southern Assam. Bose (2003) reported 17 individuals of Phayre's leaf monkey from 3 different localities of Inner-line reserve forest. Islam (2016) in his study in the Innerline reserve forest reported a total of 33 individuals of Hoolock gibbon from 7 different localities of Inner-line reserve forest.

During the study a total of 116 tree species belonging to 36 families have been documented across the study area (6 sites). A similar study by Islam (2015) reported 143 tree species belonging to 45 families the Inner-line reserve forest (10 sites). This difference may be due to the type of habitats, localities and numbers of study sites. Habitat plays an important role in the survival of primate. Habitat degradation and its fragmentation acts as an important factor for the population decline of most of the wild animals (Wade et al., 2003). Hence, characterization of habitat serves as a crucial parameter to understand the impacts of various forms of damage as well as alteration of a particular habitat in terms of management and reinstatement of a particular area. Selection of right habitat serves a principal module for the existence of a species in species ecology, (Rosenzweig, 1981).

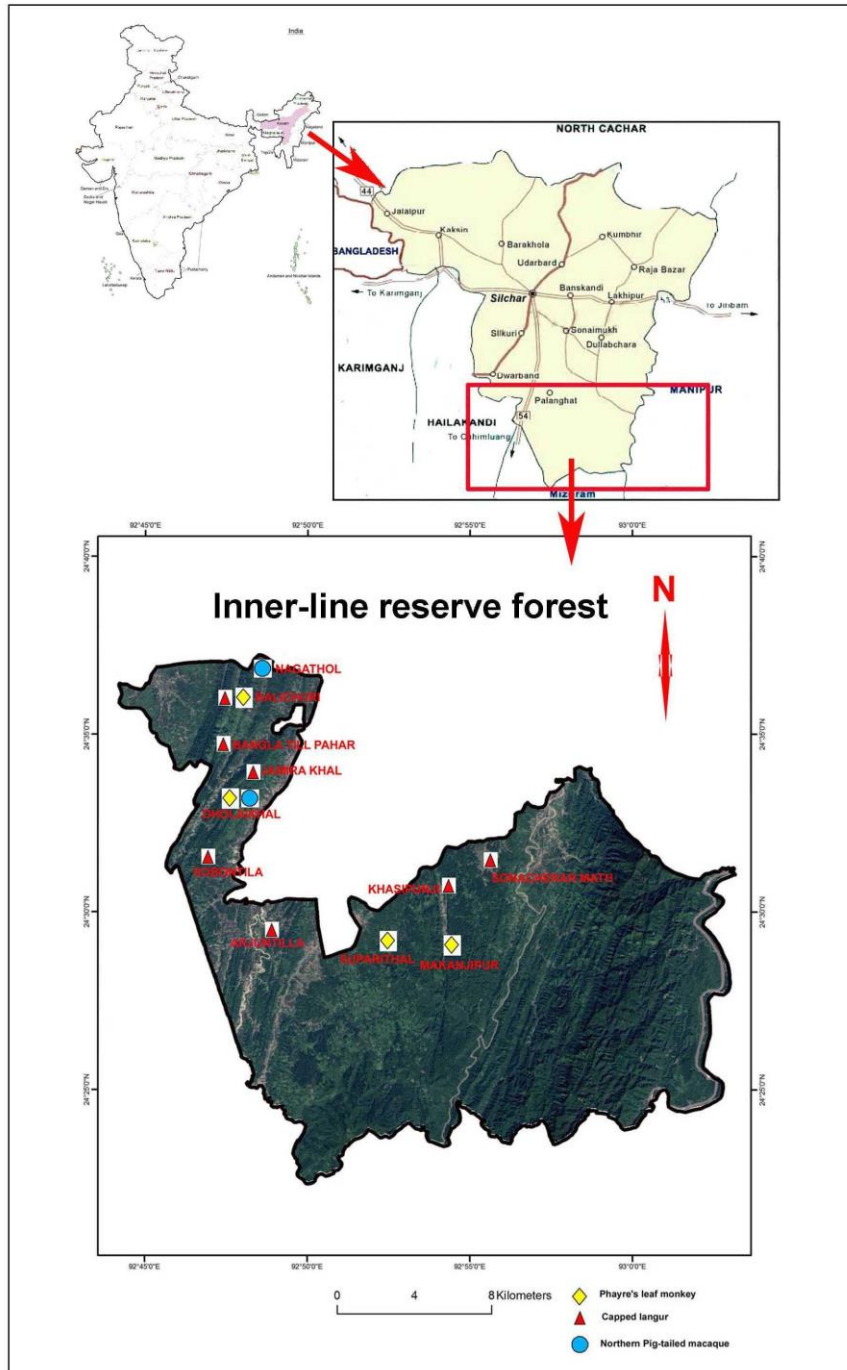
Activity budget is the calculation of time budget of different activities of a particular animal. In the course of this study it is found that the Phayre's leaf monkeys spend maximum time in resting (33.99%). Bose (2005) in his study at Sepahijala wildlife sanctuary also reported that the Phayre's leaf monkey spent most of their day time in resting (46%). while in Borjalenga they spent most of their time feeding (39.9%).

During the study period it is found that the Inner-line reserve forest act as an important habitat of tribal communities who depends of the reserve forest as means of livelihood. Forest villagers collect firewood, non-timber forest products, practice jhum cultivation (slash and burn) and in course of that kill wild animals including primates. The present study documented timber logging as the most severe threat for primates. As the primates are mostly arboreal in nature, cutting of trees pose direct impact in regards to habitat as well as food supply.

Information gathered through questionnaire survey revealed that the population of primate species is decreasing in number in Inner-line reserve forest along the past few decades. People cut trees and thus destroy forest habitat while some of the poachers trap and carry them to the nearby state i.e. Mizoram, where kill and sell them. It needs mentioning here that the Mizo people, (inhabitants of Mizoram) consume almost each and every animal. It has been our assumption that the trade in wildlife and cutting of trees can be controlled either

by the way of providing alternative means of livelihood and also through intensification of awareness programs. Stringent enforcement of the legal provisions [as contained in the Wildlife (Protection) Act, 1972 of India] can be the other effective step. With the aim of curbing illegal trade of wild flora and fauna we had select one village adjoining to the Reserve forest (Loharbond) and carried out awareness programme in

the form of discussion as well as counseling with school children, elderly people, village head, hunters and young children. As a result the daily firewood collection has decreased from 1000-1200 quintal to 0 kg. Same procedure can be followed in other areas adjoining to the ILRF to save the left out primates in particular and wildlife in general. Prohibition of felling of trees in protected areas will help to increase wilderness of forest that would be of immense help to sustain the wild flora and fauna in this and similar other areas.



Map- 1: Study area map along with the distribution of Primate species



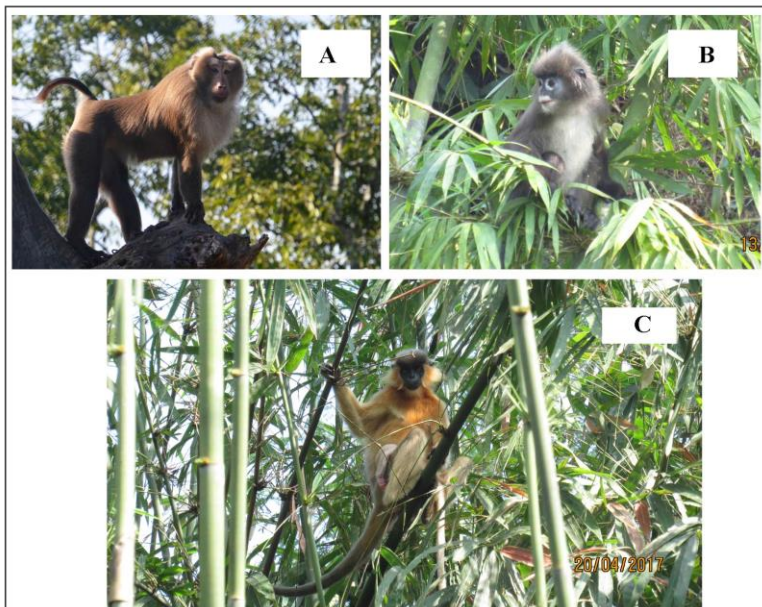
**Table 1. Distribution pattern and mean group size of Phayre's leaf monkey (PLM), Capped langur (CL) and Northern pig-tailed macaque (NPTM) in Inner-Line Reserve Forest.**

| Sl no. | Location       | GPS coordinate                 | PLM                |    |    |       | CL |    |    |       | NPTM |   |   |       |
|--------|----------------|--------------------------------|--------------------|----|----|-------|----|----|----|-------|------|---|---|-------|
|        |                |                                | No. of individuals |    |    |       |    |    |    |       |      |   |   |       |
|        |                |                                | M                  | F  | J  | Total | M  | F  | J  | Total | M    | F | J | Total |
| 1      | Arjuntilla     | 24°28'45.02"N<br>92°48'54.74"E | 0                  | 0  | 0  | 0     | 1  | 4  | 1  | 6     | 0    | 0 | 0 | 0     |
| 2      | Balichuri      | 24°34'31.05"N<br>92°47'07.05"E | 2                  | 4  | 3  | 9     | 2  | 4  | 4  | 10    | 0    | 0 | 0 | 0     |
| 3      | Bangla tilla   | 24°33'14.32"N<br>92°47'59.52"E | 0                  | 0  | 0  | 0     | 2  | 3  | 3  | 8     | 0    | 0 | 0 | 0     |
| 4      | Dholaikhal     | 24°32'30.41"N<br>24°32'30.41"N | 4                  | 5  | 4  | 13    | 0  | 0  | 0  | 0     | 0    | 0 | 0 | 0     |
| 5      | Dholaikhal (E) | 24°31'45.21"N<br>92°47'23.45"E | 0                  | 0  | 0  | 0     | 0  | 0  | 0  | 0     | 2    | 3 | 1 | 6     |
| 6      | Dholaikhal (W) | 24°32'30.41"N<br>92°46'10.18"E | 0                  | 0  | 0  | 0     | 0  | 0  | 0  | 0     | 0    | 1 | 1 | 2     |
| 7      | Jamira Khal    | 24°30'58.51"N<br>92°47'17.32"E | 0                  | 0  | 0  | 0     | 2  | 4  | 3  | 9     | 0    | 0 | 0 | 0     |
| 8      | Khasiapunji    | 24°30'20.65"N<br>92°53'15.44"E | 0                  | 0  | 0  | 0     | 2  | 4  | 1  | 7     | 0    | 0 | 0 | 0     |
| 9      | Makanjipur     | 24°27'21.26"N<br>92°53'19.06"E | 3                  | 2  | 2  | 0     | 0  | 0  | 0  | 0     | 0    | 0 | 0 | 0     |
| 10     | Nagathol       | 24°35'15.70"N<br>92°46'18.11"E | 0                  | 0  | 0  | 0     | 0  | 0  | 0  | 0     | 1    | 1 | 2 | 4     |
| 11     | Sobontilla     | 24°29'55.57"N<br>92°46'56.11"E | 0                  | 0  | 0  | 0     | 3  | 3  | 2  | 8     | 0    | 0 | 0 | 0     |
| 12     | Sonachera      | 24°26'25.98"N<br>92°50'35.64"E | 0                  | 0  | 0  | 0     | 3  | 6  | 4  | 13    | 0    | 0 | 0 | 0     |
| 13     | Suparithal     | 24°27'55.33"N<br>92°50'55.62"E | 2                  | 4  | 2  | 8     | 0  | 0  | 0  | 0     | 0    | 0 | 0 | 0     |
|        | Grand Total    |                                | 11                 | 15 | 11 | 30    | 15 | 28 | 18 | 61    | 3    | 5 | 4 | 12    |
|        | Mean           |                                |                    |    |    | 7.5   |    |    |    | 8.7   |      |   |   | 4     |

\*M-male, F-female, J-juvenile

**Table 2. Time (%) spent in different activities by *Trachypithecus phayrei* (November, 2016 to January, 2017) and *Trachypithecus pileatus* (February, 201 to April, 2017).**

| Name of sp.          | Month    | Feeding    | Resting    | Moving     | Grooming  | Other Activity | Total |
|----------------------|----------|------------|------------|------------|-----------|----------------|-------|
| Capped langur        | February | 27.88      | 39.79      | 16.88      | 11.52     | 3.93           | 100   |
|                      | March    | 30.72      | 38.70      | 17.19      | 9.20      | 4.19           | 100   |
|                      | April    | 33.85      | 37.92      | 18.54      | 4.78      | 4.92           | 100   |
|                      | Mean±SD  | 30.82±2.99 | 38.80±0.94 | 17.54±0.88 | 8.50±3.43 | 4.35±0.51      | 100   |
| Phayre's leaf monkey | November | 32.56      | 34.01      | 22.44      | 6.80      | 4.19           | 100   |
|                      | December | 32.91      | 35.93      | 19.10      | 7.04      | 5.03           | 100   |
|                      | January  | 35.10      | 32.03      | 23.96      | 3.90      | 5.01           | 100   |
|                      | Mean±SD  | 33.53±1.37 | 33.99±1.95 | 21.83±2.49 | 5.91±1.75 | 4.74±0.48      | 100   |



**Focal Primate species: A. Northern pig-tailed macaque (*Macaca leonina*), B. Phayre's leaf monkey (*Trachypitecus phayrei*) and Capped langur (*Trachypitecus pileatus*).**

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# Report from Conservation Grant Recipient Mohamed Kibaja

## Conservation of the Endangered Ashy red colobus monkey (*Piliocolobus tephrosceles*) in unprotected habitats of western Tanzania

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### Introduction

The aim of my project, titled 'Conservation of the Endangered Ashy red colobus monkey (*Piliocolobus tephrosceles*) in unprotected habitats of western Tanzania', was to contribute to the Ashy monkey conservation in Tanzania by: 1) determining its distribution, population status and threats in two unprotected areas: Mbuzi Forest Area and Masito-Ugalla Ecosystem, 2) designing the conservation action plan for the species and implementing urgent conservation and restoration actions in Mbuzi Forest Area, and 3) conducting community conservation awareness campaigns in both areas. I present preliminary results of Ashy monkeys conservation threats and conservation campaigns carried out in surveyed sites of the Ufipa plateaus and Masito-Ugalla Ecosystem.

The successful conservation of a primate species requires detailed knowledge on its distribution, numbers and conservation threats. These are important to determine conservation priorities, identify areas of high conservation value and design successful management plans for the species (Kühl *et al.*, 2008) as well as to guide the creation of protected areas, corridors, buffer zones, demarcation of boundaries and tourism planning.

Ashy monkeys are folivorous monkeys that feed predominantly on leaves (Struhsaker, 1975), but supplement their diet with fruits, flowers, seeds and insects (Struhsaker, 1975, 2010; Kibaja, 2012, 2014). They exist on the eastern border of the Rift Valley in Kibale National Park in western Uganda and western Tanzania (Struhsaker, 2005). In Tanzania, they are found in Mbizi and Mbuzi forests on the Ufipa Plateau, in Gombe Stream and Mahale Mountains National Parks on the eastern shores of Lake Tanganyika (Rodgers, 1981; Davenport *et al.*, 2007) and in the Masito-Ugalla Ecosystem (Ogawa *et al.* 2004; Moyer *et al.*, 2006; Iida *et al.*, 2012).

They are an endangered species (Struhsaker, 2008; 2016). Their population sizes are declining due to chimpanzee predation and habitat alterations (Watts, and Mitani 2002; Struhsaker 2005, 2016). Their population size has been estimated at 20,000 individuals in all its geographic range; the largest known population is that of Kibale National Park in Uganda (Struhsaker, 2005; Chapman *et al.*, 2007). Censuses conducted ten years ago in the Ufipa Plateau estimated a population size of 1,354 Ashy monkeys: 1,217 and 137 animals were in the Mbizi and Mbuzi Forests respectively (Davenport *et al.*, 2007). The average red colobus group size has been reported as 45-50 individuals in Kibale and 55-59 individuals in Gombe (Struhsaker and Gubbs in Oates *et al.*, 2008), and 40.56 and 34.25 in Mbizi and Mbuzi forests respectively (Davenport *et al.*, 2007). However, the present status of the species is unknown. This species was reported in biodiversity surveys in Masito-Ugalla and Greater Mahale Ecosystems (Ogawa *et al.*, 2004; Moyer *et al.*, 2006; Iida *et al.*, 2012) but it has never been systematically studied in these areas. Thus, the present project intended to assess its distribution and population status and conduct conservation awareness campaigns in previously-not-surveyed areas in western Tanzania.

### Methods

#### Study sites

The study area was comprised of the following study sites: Mbuzi Forest Area and Masito-Ugalla Ecosystem in western Tanzania. 1) Mbuzi Forest area encompasses Mbuzi Forest and its neighbouring areas: Chala, Ufipa escarpment and Rondokazi area. The Ufipa plateau where Mbuzi Forest Area occurs receives 800-30



1200 mm of annual rainfall (United Republic of Tanzania or URTa, 1998). 2) Masito-Ugalla Ecosystem (5° 52'S, 30° 25'E, approximately 10,872 km<sup>2</sup>) is predominantly miombo woodland interspersed with evergreen gallery forest having relatively low human impact, receiving 955 mm of average annual rainfall (Hernandez-Aguilar, 2009). Elevation ranges from 900 to 2000 m above sea level (URTb, 1998). It possesses at least 50 mammal species including wild dogs, elephants, lions, chimpanzees and other 7 primates species (Iida *et al.*, 2012).

### **Data collection and analysis**

Absence/presence and line transect surveys were conducted between September 2015 and August 2017. Two teams comprising 3 people each simultaneously searched for red colobus using line transects (following Peres, 1999). When a group was encountered, the number of individuals, sex and age composition, sighting distances to the group, GPS position and bearing from the observer to the group were recorded. Because this method can leave out some groups (Ferrari *et al.*, 2010), especially in very large areas, it was complemented with complete counts (*sensu* Davenport *et al.*, 2007, 2008).

Total population size estimates will be obtained by summing up groups found in all sites of the Ufipa plateau and Masito-Ugalla Ecosystem (in progress). Human signs were also recorded along line transects. I computed encounter rates of human signs recorded on transects (number of records of signs per total transect length in a given site) and Overall encounter rates as number of records of signs per total transect lengths from all sites combined.

### **Preliminary results on Ashy red colobus monkeys**

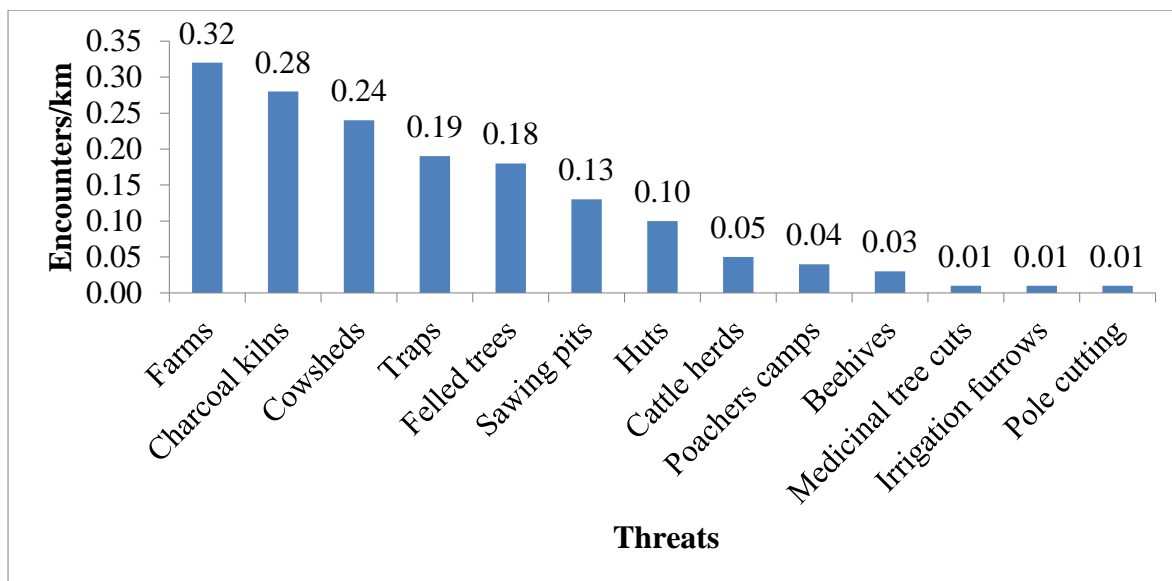
A total of 77.9 km were walked in the Mbuzi Forest Area on the Ufipa plateau and 1329.7 km in the Masito-Ugalla Ecosystem. I discovered new localities harbouring this endangered Ashy monkey. The groups recorded were variable in size among the sites surveyed in Tanzania (in progress). Groups were found in montane forest mosaic in Chala Forest and in severely degraded montane forest patches in Mbuzi Forest. In the Ufipa escarpment 56.3% of the groups were found in narrow gallery forest and 43.7% in dense woodland. In the Masito-Ugalla Ecosystem 96.8% of groups were found in the montane forest and gallery forest whereas only 3.2% were in the dense woodlands.

### **Conservation threats**

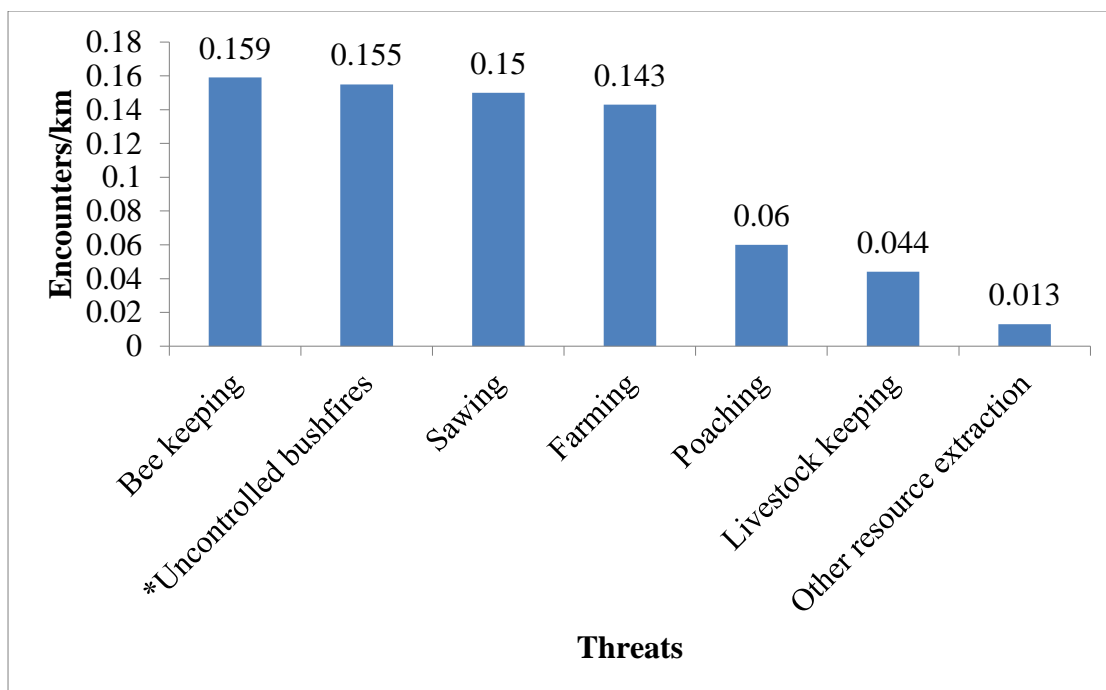
Bushfires and influx of livestock keepers are a common problem in the entire study area. On the Ufipa plateau (all sites), the leading human activities are farming, charcoal making, sawing and selective logging, and poaching (Figure 1). Each study site in the Mbuzi Forest Area on the Ufipa plateau experiences different forms of human activities of varying degrees of severity. All forms of anthropogenic activities are besetting the entire Masito-Ugalla Ecosystem. Major human signs were condensed into sawing, farming, sawing and poaching as the leading activities (Figure 2). The ecosystem has recently been invaded by cattle herders from Mwanza, Shinyanga and Tabora. Cattle signs abound. Poaching is common in the entire ecosystem, though more severe in the proximity of village lands. Poaching is intensified by the presence of the past refugee villages at Mishamo, situated at the centre of this area. Uncontrolled bushfires are also common. Beekeeping is the only environmentally friendly activity in the area (Figure 2).

### **Conservation campaigns and action plan**

My IPS funding was spent in supporting the impending community participation. In collaboration with some village environmental committees, we conducted excursions for evicting pastoralists who illegally invaded Mbuzi forest area (Mbuzi Forest, Ufipa escarpment and Chala Forest). In addition, the Sumbawanga Natural Resource officers were also active in making road blocks for impounding wildlife, fish and forest products collected from Mbuzi Forest, Ufipa escarpment catchment, Lake Rukwa and Uwanda Game Reserves. In both study areas, conservation campaigns were conducted for different target groups: villagers, elders, village and religious leaders, students and District Forestry officers regarding the conservation of Ashy monkeys and their habitats. Talks were given to Tanzania Forestry Services (TFS), Agency permit issuing officers of the Ministry of Natural Resources and Tourism in Dar es Salaam (who surprisingly did not even know the presence and status of this endangered primate in their forests they manage).



**Figure 1.** Encounters of anthropogenic threats per kilometre in the Mbuzi Forest Area on the Ufipa plateau (ER = encounter rates of types of threats per total transect length in the entire study area).



**Figure 2.** Encounters of anthropogenic threats per kilometre in the Masito-Ugalla Ecosystem (ER = encounters per kilometer of threats in the Masito-Ugalla Ecosystem; \*= needs appropriate quantification method).

Moreover, talks were given to Forestry, Fisheries, Wildlife and Natural Resources officers in the Sumbawanga, Nkasi and Mpanda Districts (Figure 3). Progress reports were given to Forest and TFS officers in Nkasi and Mpanda Districts. They contained information about the status and threats that Ashy monkeys face in their areas, and asked the respective Districts to take actions for the conservation of the monkeys. Lectures, excursions and poster displays were held to sensitize audiences (primary and secondary school students, villagers and village committees) in the following villages: Lwega, Lugonezi and Mwese in the Masito-Ugalla Ecosystem; and Chala A, Chala B, Swaila and Mfinga villages on the Ufipa plateau (Figures 4-10). Face to face interviews were held for farmers growing crops in the Mbuzi Forests. However, in the Mbuzi Forest, some farmers did not seem willing to devote their land for the participatory community

conservation. Leaflets bearing the information on the status of Ashy monkey were distributed to villagers, elders, pupils, religious leaders, teachers and farmers in several villages of the study area.

One of the goals of my project was to produce a conservation action plan for Ashy monkeys in Mbuzi Forest. However, this needed to be delayed due to the following reasons. Firstly, the budget of USD1334 allotted for this was not awarded by the Prince Bernhard Nature Fund, instead it was funded by the Rufford Foundation but not until July 2017. Secondly, there is a concern that the action plan should also include the newly discovered sites harbouring this endangered primate on the Ufipa plateau. Thus, the procedure will start from January 2018.

### Conclusion and recommendations

Conservation of the endangered Ashy red colobus in Tanzania, aside from the two National Parks of Gombe and Mahale, remains imperative. Anti-poaching activities should be intensified on the Ufipa plateau. The Masito-Ugalla ecosystem has remote large pristine forest patches which are promising for the survival of this primate. One of such forests is the Ntakata. I strongly recommend that this forest is upgraded into any form of strictly protected area in order to save its wildlife before it is too late. The Government should increase the number of wildlife rangers (forest guards) and village scouts in all Districts Councils in western Tanzania. Also, community conservation should be increased for endangered primates and other wildlife occupying village lands in the ecosystem. All the proposed reserves in the Masito-Ugalla ecosystem should be swiftly made to happen.



**Figure 3.** Principal investigator (middle) sensitizing forest, wildlife and natural resource officers in Sumbawanga District about the status of Ashy monkeys.



**Figure 4.** Talks with a religious leader on the status of Ashy monkeys and environmental conservation in Chala Forest.



**Figure 5.** Talks with elders adjacent Mbuzi and Chala Forests.



**Figure 6.** Talks and poster displays in school teachers and village scouts, in Mwese ward, Masito-Ugalla Ecosystem.





**Figure 7.** Excursions to the Sitwe Forest patch occupied by Ashy monkey in Mwese ward in the Masito-Ugalla Ecosystem.



**Figure 8.** Arrival in the Sitwe forest. Students, teachers and village committees watching Ashy monkeys in Mwese ward.



**Figure 9.** *In situ* delivery of conservation education to secondary school students in Sitwe Forest, Mwese ward.



**Figure 10.** Delivering conservation education to primary school pupils in Mwese ward.

### Acknowledgements

I am very grateful to the International Primatological Society (IPS), the Rufford Foundation, the Quota Scheme of Norway, the University of Dar es Salaam (UDSM) and the Centre for Ecological and Evolutionary Synthesis at the University of Oslo for their generous funding. I am grateful to my supervisors R. Adriana Hernandez-Aguilar, Nils C. Stenseth and Cuthbert L. Nahonyo for their continuous guidance and support. I thank to the Tanzania Wildlife Research Institute (TAWIRI) for allowing me to conduct this research in my country. I thank the Nkasi, Mpimbwe (former Mlele), Mpanda/Tanganyika and Sumbawanga Districts Councils and Tanzania Forests Services (TFS) Agency for their cooperation. Special thanks should go to my research assistants Levi matana and Michael Munisi. I lastly convey my thanks to field guides: Herman Dominick (Swaila village), Leonard Ernest (Swaila village), James Siumbu (Chala ward), Frank Nkalasa (Chala ward), Daud Ndasi (Chala ward), Christopher Mtindo (Mwese, Lugonezi and Lwega Villages), Ally Ahmadi (Mwese village), Thabiti Ali Mongomongo (Mpanda town), Saidi Fimbo /Sokolo (Mishamo ward), Juma Pesambili (Bulamata village), Hamisi Hussein (Mishamo ward), Msafiri Dunia (Kapalamsenga village), Magugudi Kebelo (Mgambazi village), Honda Isaya (Sunuka village) and Ramadhani Kiembwe (Sunuka village). Others are Levocatus Kolokoloni (Katuma village), Kalolo Kangulunga (Katuma-Mpembe villages), Idd Nyuki (Kasansa village), Anoni Mwanalubinza (Kansansa village), Raphael Leo (Muze village), Abasi (Ikubulu village), Juma Kalutwa (Lubalisi village), Moshi Rajabu (Uvinza town), Busoti Juma (Uvinza town) and Rajabu Maeleba (Uvinza town).

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