International Primatological Society

IPS Bulletin

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President's Corner

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Continuity, Collaboration and Commitment: Revisited

I hope this finds everyone well. Our biennial conference, the 26th IPS Congress 2016, is now only just around the corner. Held in Chicago, this will be a joint meeting with the American Society of Primatologists (ASP). An IPS/ASP joint congress was held in 1996, in Madison. This year is the 20th anniversary of that joint endeavor. The 26th IPS congress will be August 21st – 27th, with the IPS General Assembly on the final day. The IPS Council meetings will be held before and after the main conference program, respectively. Several different satellite meetings have also been arranged. I encourage all of you to attend what promises to be an exceptional conference, and look forward to seeing many of you there. Please join us.

I would like to give you a brief overview my activities carried out as IPS President over the previous six months. I have performed two main tasks during this period, chairing the committees: to select the 2016 IPS Lifetime Achievement Award recipient; and for the election of new IPS Officers.

My first task was to chair the 2016 IPS Lifetime Achievement Award Committee. Thank you very much to everyone who took the time and effort to make a nomination. The Committee was presented with a huge selection of excellent candidates. I was incredibly touched to know that so many people have dedicated their lives to nonhuman primates. It was a difficult task to choose a single awardee from the many highly deserving nominees. The LAA 2016 is to be awarded to Dr. Jane Goodall. Her pioneering work on wild chimpanzees in Gombe, Tanzania, since 1960, has inspired a huge number of scholars to carry out fieldwork, not only on chimpanzees but also on other animals. I would like to acknowledge my fellow Lifetime Achievement Award Committee members: Joanna Setchell, Carol van Schaik, Karen Strier, Stephen Ross, Patrícia Izar, Augustin Basabose, and Claudia Fichtel.

My second task was to chair the 2016 IPS Election Committee. To assemble the committee, I worked together with Joanna Setchell, the Vice Chair of this Committee and also IPS Vice President of Research (with a further two years to serve in this position). Emails were sent to societies affiliated to the IPS asking them to recommend potential committee members. Taking these suggestions as a starting point, we sought to form a

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Claudia Fichtel, Editor

IPS Officers

committee which represented the broad geographical range of our members, and was gender balanced. Election Committee members were chosen carefully to reflect this aim.

As you may know, elections are held once every two years, in the same year as each IPS Congress, to elect half of the IPS Officers on an offset cycle. The IPS Constitution and Bylaws were updated in 2014, following discussions by the 2014 IPS Election Committee. The most significant changes relevant to the IPS Elections were as follows: we introduced term limits for IPS Officers (a maximum of 2 terms per position, with the exception of the IPS President who will be limited to 1 term only); there will be a maximum of 2 candidates nominated per position on the election slate; and we agreed to disclose the exact number of votes for each candidate, after each election.

Next, following IPS regulations, we asked IPS members to nominate candidates to run for election. My thanks, once again, to both nominators and nominees. The committee carried out systematic scoring, and discussed at length, to finalize the slate consisting of two candidates for each of the 4 IPS Officer positions up for election this year. Voting closed on July 30th and the result was announced at the beginning of August: Karen Strier is to be the next President; Catherine Hobaiter will be the next VP for Communications; Patrícia Izar, VP for Education and Outreach; and Stephen Ross will be the next VP for Captive Care and Breeding. These four Officers will serve this society over the next four years, 2016 – 2020. I would also like to acknowledge the other members of the Election Committee: Nadine Ruppert, Jordi Galbany, Julia Ostner, Mauricio Talebi, Lynne Isbell, and Augustin Basabose. The Election Committee discussed a number of important issues that require attention in the near future. For example, how best to ensure a balanced representation of the geographical range and gender of IPS members.

The role of IPS President is limited to a single term of four years. My term began in 2012, at the 24th IPS Congress in Cancun, Mexico. I chaired the 25th IPS Congress in Ha Noi, Vietnam. I will end my term in 2016 at the end of the 26th IPS Congress in Chicago. I have served this society in collaboration with the seven other IPS Officers, and all IPS members. Please allow me to take this opportunity to express my appreciation to my colleagues. I hope that this society maintains the diversity and equality of the elected Officers and members into the next generation. Mutual respect and trust between diverse people represents an important step in promoting research, education about, conservation and welfare of nonhuman primates.

To conclude my final IPS bulletin, I want to again describe to you the three "C"s. The three "C"s that should be shared among all IPS Affiliates are: Continuity, Collaboration, and Commitment.

Continuity means an uninterrupted, constant effort. The IPS was founded, and the first meeting held, in 1966. This society has held a congress every two years since that date. This is the 50th anniversary of the IPS. My hope is to see younger participants maintaining the continuous effort to promote this society, reaching into the future.

Collaboration refers to: collaboration among researchers in different disciplines within primatology; collaboration among people of different opinions. Teamwork among the IPS Officers and other society members is essential to maintain the functions of IPS in its role as an academic society. Collaboration, of course, also refers to international collaboration. We need cooperation between developed countries to support developing countries. The differences between habitat countries and non-habitat countries are important too. We are facing many serious challenges posed to non-human primates, both in the field and in captivity. Let us work together to solve these problems. To achieve this aim, joint efforts made by people holding different opinions, on many points, is likely to be essential. Therefore, I want to ask you to be tolerant towards one another. It is very easy to complain and to blame other people, but it is more important to think about compliments and collaborating to effect real change. Positive ways of thinking can make this world better for humans and nonhuman animals alike.

Commitment means active engagement based on your own free will. Freedom is a key word in maintaining strong motivation. To maintain your efforts, you need perspective, logical thinking, and solid motivation. Once you become determined, then you can bring about change.

Tetsuro Matsutzawa
President, IPS

VP for Research

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I am very much looking forward to the IPS/ASP Joint Meeting in Chicago. As the official IPS representative to the joint program committee, I have been working with the program co-chairs to create the best possible program.

During the past six months, I have served as vice-chair of the IPS Lifetime Award Committee and the IPS Elections committee. In both, we strive represent the broad geographical range of our members, and to achieve gender balance.

Outcome of the 2016 Research Grants competition

The competition was very strong again this year, with 84 applications (69 in 2015, 93 in 2014), from 16 countries (Brazil 2, Cambodia 1, Canada 50, Ethiopia 2, France 2, Germany 3, India 3, Indonesia 2, Italy 1, Nepal 1, the Philippines 1, South Africa 1, Spain 2, the UK 6, the USA 34, and Zambia 1).

I am very grateful to the members of the IPS Research Committee for their help in reviewing the applications and providing constructive feedback which we sent to all applicants: Federica Amici, Sarie van Belle, Judith Burkart, Fernando Campos, Anthony di Fiore, Antje Engelhardt, Eduardo Fernandez-Duque, James Higham, Lydia Hopper, Maren Huck, Patricia Izar, Ikki Matsuda, Amanda Melin and Julia Ostner.

Our evaluation criteria reflect the sections of the application form and include: the quality of the theoretical justification; the clarity of hypotheses and predictions; feasibility and suitability of the methods; feasibility of the timeline; the suitability of the budget; and whether the applicant has the experience required or adequate supervision to conduct the project. We do not assess the quality of the English as long as it does not obscure the readers' understanding. We do not fund projects focusing on primate conservation or on the captive care of nonhuman primates unless they also make a clear contribution to significance to theory that goes beyond the study species, because IPS has separate grant programmes for conservation and captive care. We do not assess applications based on seniority of the applicant or country of origin.

We awarded a total of US$ 11353 in eight grants:

- **Matthew De Vries** (Canada): "An exploration of intragroup variation in behaviour across habitat types during the dry season in *Saguinus imperator*"
- **Susie Lee** (USA): "Role of androgens in the modulation of parental effort and protectiveness in female macaques"
- **Rachel Sawyer** (UK): "Bridging the gap between primate food selection and sensory ecology: how do nocturnal folivorous strepsirrhines determine food quality?"
- **Mareike Janiak** (USA): "Adaptations for insectivory in digestive enzymes of new world primates"
- **Gillian King-Bailey** (USA): "Androgens, cortisol, behavior, and food seasonality in wild white-faced capuchins (*Cebus capucinus*) in Sector Santa Rosa, Área de Conservación de Guanacaste, Costa Rica"
- **Brandon Wheeler** (UK): "Can nonhuman primates socially learn the meaning of signals? An experimental test with wild capuchin monkeys"
- **Rachel Perlman** (USA): The energetics of male reproductive strategies in geladas (*Theropithecus gelada*)
- **Ghislain Thiery** (France): "Uncovering food mechanical properties from the teeth of extant and extinct primates"

As last year, none of the successful applicants included Community Conservation Initiatives in their applications.

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

Jo Setchell
VP for Research

VP for Education and Outreach

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I would like to thank the many dedicated IPS members who assisted with the review and judging for the 2016 Lawrence Jacobsen Education Development grants and the Charles Southwick Conservation Education Commitment Award. Thanks are due to: Monica Carosi, Mukesh Chalise, Chie Hashimoto, Tanya Humle, Zarin Machanda, and Anne Savage.

The list of grantees/awardees is below:

Lawrence Jacobsen Education Development Grantees

- **Thierry Inzirayineza** - Using debate as a tool to increase young people awareness about the importance of primate conservation around Gishwati National park, Rwanda (Rwanda)
- **Nick Marx** - Primate Conservation Center at Phnom Tamao Wildlife Rescue Center (Cambodia)
- **Rebecca Smith** - Paraguay's Little Monkeys: Inspiring Primate Conservation Heroes and Tackling Paraguay's Primate Pet Trade (Paraguay)
- **Gary Shapiro** - MECU6: Orang Utan Republik Foundation (OURF)'s Mobile Education & Conservation Unit, Year 6 (Sumatra, Indonesia)

Charles Southwick Conservation Education Commitment Awardee

- **Herman Syahputra** - Conservation Educator, Orang Utan Republik Foundation (Sumatra, Indonesia)

In additional the IPS and ASP education committees worked together to conduct a joint review process to determine finalists in the student paper and poster competition. Thanks are due to the following committee members who assisted: Lynne Baker, Monica Carosi, Mukesh Chalise, Francine Dolins, Tanya Humle, Lynne Miller, Lisa Parr, Anne Savage and Zarin Machanda. The students will be evaluated by a joint committee at the August meeting in Chicago. Congratulations to all of our finalists (listed below)!

Posters

- **Isabelle Clark** - Bamboo cyanide does not protect *Hapalemur aureus* or *Prolemur simus* from gastrointestinal parasite infections
- **Justin D'Agostino** - Vocal self-recognition in captive Javan gibbons (*Hylobates moloch*)
- **Meredith Lutz** - Evidence of self-handicapping in captive capuchin monkeys (*Cebus apella*)
- **Ashley Murphy** - Effects of maternal parity on infant impulsivity in socially housed rhesus macaques (*Macaca mulatta*)
- **Kourtney Phillips** - Developmental differences in rapid facial mimicry in captive chimpanzees

Orals

- **Hazel Byrne** - Phylogenetic relationships of the New World titi monkeys (*Callicebus*): First appraisal of taxonomy based on molecular evidence
- **Ashley Edes** - Does proximity to the silverback increase allostatic load in zoo-housed western lowland gorilla (*Gorilla gorilla gorilla*) females?
- **Erin Kane** - Fecal glucocorticoids, feeding behavior, and sociality among free-ranging female Diana monkeys (*Cercopithecus diana*) in Taï, Côte d'Ivoire
- **Lindsay Mahovetz** - The influence of AVPR1A genotype on individual differences in mirror self-recognition in chimpanzees (*Pan troglodytes*)
- **Christopher Marsh** - The effect of 3-dimensional habitats and microclimate changes due to forest degradation on the ranging habits and activities of Sumatran orang-utans (*Pongo abelii*)
- **Monica McDonald** - Factors influencing reproductive success in a Kinda x chacma baboon hybrid group in Kafue National Park, Zambia
- **Corinna Most** - Ecological factors influence weaning behavior and mother-infant proximity in a troop of wild olive baboons (*P. anubis*) in the Laikipia Plateau, Kenya
- **Lauren Robinson** - Happiness means welfare in brown capuchins (*Sapajus apella*)
- **Michèle Schubiger** - How task format affects cognitive performance: a memory test with two species of New World monkeys

- **Nicole Thompson** - Social influences on survival in female blue monkeys
- **Alison Wade** - Nesting habitat and plant preferences of free-ranging Nigeria-Cameroon Chimpanzees (*Pan troglodytes ellioti*) and Cross River Gorillas (*Gorilla gorilla diehli*) in the Mone-Oku Forest, Cameroon

If any IPS 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

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I thank all members of the society for submitting news items, project reports, job postings, and other items of interest for inclusion in the IPS Bulletin.

Claudia Fichtel
VP for Communication

VP for Conservation

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As usual, we have been a very busy IPS Conservation Committee this year. I'm happy to report the results of our hard work.

2016 Galante Family Winery Conservation Scholarship

For this year's competition, we reviewed 8 complete applicants for the 2016 Galante Family Winery Conservation Scholarship. This award helps source country primatologists acquire additional training/ education related to their careers in primate conservation. This year's winner is Rose Marie "Sissie" Randrianarison from Madagascar.

Sissie has requested the scholarship to help pay for a dual effort. To quote her letter of application, "I plan to use the Galante Scholarship to go to Chicago, USA to: a) learn enzymeimmunoassay (EIA) techniques at Brookfield Zoo to determine stress hormones (cortisol or corticosterone) in lemurs by measuring their glucocorticoid output in feces and urine (August 14-20, 2016); and b) participate in the joint meeting of the International Primatological Society and the American Society of Primatologists (August 21-27, 2016)."

Although the Committee is moving away from the Galante Scholarship being used for travel to an IPS meeting, this double-purpose plan by Sissie fits nicely with the Galante mission as well as allowing the individual to join us in Chicago. Congratulations to Sissie. We look forward to following your career accomplishments!

2016 IPS Conservation Grants

Each year, the IPS Conservation Committee welcomes grant proposals for the IPS Conservation Grants and we carefully review these to decide which projects will be funded. For this year's competition, we received 51 applications. It was difficult to select only a few; as with other years, many we received were top notch applications. In the end, we selected 8 proposals to fund. The following list provides the principle investigator, (country of origin in parentheses), where the work will be carried out, and the title of the project. Those with "(CCI)" were selected to receive an additional $500 from the Conservation through Community Involvement initiative. We congratulate these winners and thank them for their work for primate conservation!

- **Daniel Alempijevic** (USA), DRC. A population assessment of the critically endangered Dryad monkey (*Cercopithecus dryas*) in the Balanga Community Forest of the Democratic Republic of Congo. (CCI)
- **Parthankar Choudhury** (India), India. Status survey and Conservation needs of Primates in the Inner Line Reserve forest, Cachar, Assam, India. (CCI)
- **Allie Hofner** (UK), Cameroon. Preuss's red colobus *Procolobus pennantii preussi* density and significance in northern Korup National Park: A multifaceted approach to understanding arboreal primate abundance and local perceptions and livelihoods in a protected area.
- **Katharine Kling** (USA), Madagascar. Testing Time: Follow-up surveys of southeastern Malagasy rainforest fragments to assess long-term viability.
- **Daniel Mwamidi** (Kenya), Kenya. Conservation of Roosting and Foraging Habitats for The Endemic Mountain Dwarf Galagos (*Galagoides orinus*) in Taita hills, Kenya. (CCI)
- **Pietro Scarascia** (Brazil), Brazil. Conservation Program of the black lion tamarim (*Leontopithecus chrysopygus*) in the Carlos Botelho State Park and its Buffer Zone. (CCI)
- ***Brandon Semel** (USA), Madagascar. Climate Change, Coups, and Critically Endangered Species: First Aerial Drone Surveys of Madagascar's Lemurs
- **Jaima Smith** (UK), Indonesia. An examination and assessment of current conservation activities for Javan gibbons (*Hylobates moloch*) in West Java, Indonesia

2016 Alison Jolly Lemur Conservation Grant

In 2014, the IPS Officers voted to recognize Alison Jolly's service to IPS and her dedication to her beloved lemurs by naming one grant per year in her name. The IPS Conservation Committee is happy to announce that the 2016 winner of this named grant is Brandon Semel of the USA. We are certain that his project (listed above) will honor Alison's legacy. Congratulations to Brandon.

2016 Pre-Congress Training Program

The other activity the IPS Conservation Committee is tasked with is the selection of our Pre-Congress Training Program (PCTP) participants. Plans are being finalized for the next PCTP before the upcoming meeting in Chicago, Illinois, USA. For this exciting event, a select number of primatologists from primate habitat countries are offered full support to travel and participate in the PCTP (and the IPS meeting itself), together with a small number of primatologists serving as guest lecturers and mentors.

The PCTP program agenda includes sessions covering various conservation status and threats, as well as sessions focused on strengthening field research skills. Eligible applicants include citizens of primate habitat countries who work with primate conservation and are relatively early in their careers. For this year's competition, we received 80 applications. From these, we selected 12 participants. Congratulations to the following individuals! I can't wait to meet them all in Chicago.

- Bruce Ainebyona – Uganda
- Nestor Allgas – Peru
- Nguyen Thi Lan Anh – Vietnam
- Swetha Stotra Bhashyan – India
- Dwi Yandhi Febriyanti – Indonesia
- Lisley Pereira Lemos Nogueria Gomes – Brazil
- Karine Galisteo Diemer Lopes - Brazil
- David Momoh – Sierra Leone
- Samedi Mucyo – Rwanda
- Toky Hery Rakotoarinivo – Madagascar
- Natalia Fuentes Salcedo – Ecuador
- Bui Van Tuan – Vietnam

Thanks to the 2016 Conservation Committee

I continue to be grateful to the wonderful individuals who serve on the IPS Conservation Committee during each term. They're all busy people and their work for us is very much appreciated. The following individuals provided input on at least a portion of our work during 2016's grant cycle: Richard Bergl, Mary Blair, Ramesh Zimbo Boonratana, Drew Cronin, Alejandra Duarte, Lisa Gould, Inza Kone, Martin Kowalewski, Jenna Lawrence, Joanna Malukiewicz, Laura Marsh, Duc Hoang Minh, Bethan Morgan, Anna Nekaris, Lisa Rapaport, Melanie Seiler, Arif Setiawan, and Mauricio Talebi.

2016 IPS Conservation Silent Auction

The IPS Silent Auction has become a popular social centerpiece for our Congresses over the years. The funds raised at this event go to the IPS Conservation Fund. Because we will meet jointly with the ASP this time, we will combine our Silent Auction efforts with ASP. This promises to be a HUGE event!

PLEASE donate to this worthy cause. If you're going to the meeting in Chicago, please don't forget to bring items for 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 have a special focus on artwork – especially art work done by actual primatologists.

Be creative and help us make this the best auction ever. (If you are NOT attending the meeting in Chicago, you can still help us by making a monetary donation to the IPS Conservation Fund!)

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
VP for Conservation

Trea$ury Note$

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The IPS Treasury is looking reasonably heathy at the moment, although it is still a little difficult to accurately evaluate this, since a large quantity of revenue has been generated by the registration payments associated with the 2016 Joint Meeting with ASP. We still have taken in quite a bit more revenue than we have paid out in expenses, although that will change in the next three weeks, with expenses far outweighing revenue for the rest of the year. We have already awarded over $44,000 in grants and awards this year, and our Pre-Congress Training Program will account for another $45,000 in support for range country primatologists. Support from the Margot Marsh Biodiversity Foundation, from the Southwick Matching Challenge, and from an anonymous matching challenge have helped make these expenditures possible.

Additionally, for the first time since 2003, IPS dues have gone up. Dues for regular members are now $60 per year and dues for student members are now $30 per year. Lifetime Membership has increased to $780 (this can be paid in two installments of $390 each, with a maximum of two years between payments).

The cost of annual subscriptions to IJP has remained the same; $57 for a hard-copy plus electronic subscription or $37 for an electronic-only subscription. This is likely to be the last year that we will offer IJP subscriptions through IPS, as there is little payback for this service, and relatively few members take advantage of it.

Now would be a good time to renew you membership in IPS, especially if you registered for the upcoming Joint Meeting as a member in 2015 and have yet to pay your IPS dues for 201**6**. We will be collecting 2016 membership dues at the upcoming Joint Meeting, but paying in advance will facilitate the registration process, and make it quicker and easier for everyone. Please pay your 2016 IPS dues at your earliest convenience. Any time is a good time to make a donation to IPS, so a few donations at this point would be quite helpful. As always, you can join through the IPS website

www.internationalprimatologicalsociety.org

or through your National Primate Society (American, German, Congolese, and Spanish only).

As I mentioned above, we have already awarded over **$44,000** from the Conservation and General Funds for the 2016 calendar year to cover the Community Conservation Initiative, Conservation Small Grants, Jacobsen Awards, Southwick Awards, Captive Care Grants, Research Grants, and the Galante Award. As usual, thanks to everyone who has paid their dues, made a contribution to the matching challenges, registered for a recent Congress, or purchased IJP. 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 2015 ended up pretty good (approximately 1350 members-in-good-standing), with many members renewing their memberships for 2015 in order to get the member's discount for 2016 conference registration. 2016 membership number are down, so again, please renew your IPS membership at your earliest convenience.

There are now 227 Full or Partial Lifetime Members in IPS. New Lifetime Members include:

L. Barrett
F. Carlsen
J. Croeni
I. Norscia
J. Row

Lifetime Members will never have to pay dues again, but they can still order IJP or make contributions to the General Fund or the 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.

Let me know if you have any other Membership and/or Treasury questions, especially those related to the **2016 IPS/ASP Joint Meeting in Chicago**. Remember, you will have to be an IPS member in good standing in 2016 to receive the member's discount on registration fees, if you have not yet registered, for the 2016 Congress in Chicago.

Once again, please consider a donation to IPS (use the "**Donate Now**" function), especially to the Conservation Fund to help support primates, primatology, and primatologists across the globe.

Steve Schapiro
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IPS Treasurer and VP for Membership

Secretary General

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We are excited to welcome all attendees to the joint meeting of the American Society of Primatologists and the International Primatological Society in Chicago, August 21-17, 2016. In preparation for that meeting, I'd like to remind you of the importance of the General Assembly.

Article 9 of the IPS bylaws says this:

> The General Assembly is the gathering of the total membership attending the biennial Congress of the Society. The Assembly is called to carry out business of the Society.

Article 9 goes on to say:

> Members who intend to present a motion on the floor of the General Assembly should submit the motion to the Secretary General one month in advance of the Congress such that it can be considered by the Council at its pre-Congress meeting. Motions that arise on the floor of the General Assembly may be brought to a vote, except that the President may determine that the motion should first be referred to Council for consideration of the motion's potential impact to the Society. In this case, the Council shall consider the motion at the post-Congress Council meeting and shall communicate the result to the membership within one month.

Therefore, please communicate with me prior to the Congress if you wish to guarantee the fullest consideration of a motion.

We hope all of you will plan to attend the General Assembly, as it is very important for members of the IPS to be aware of and engaged in the governing of our organization. The General Assembly will be held from 4:15-6:15 on Friday, August 26, just prior to the closing banquet.

Nancy Caine
Secretary General

Results of the 2016 IPS Council Election

The results of the 2016 IPS Council are in. We would like to thank all of our candidates for their willingness to serve the society! Thank you also to the 261 members who participated in the voting process. The following individuals will take the office at the General Assembly of the upcoming IPS Congress in Chicago:

- President: **Karin Strier**
- Vice President for Captive Care and Breeding: **Stephen Ross**
- Vice President for Communications: **Catherine Hobaiter**
- Vice President for Education: **Patrícia Izar**

IPS 2016 in Chicago, Illinois, USA

The XXVI Congress of the International Primatological Society (IPS-2016), will be hosted by Lincoln Park Zoo's Lester Fisher Center for the Study and Conservation of Apes Chicago, Illinois, USA from August 21 - 29, 2016.
http://www.ipschicago.org

Other Interesting News Items

DONATE YOUR IJP SUBSCRIPTION

Do you currently receive paper issues of IJP that you do not use? Do you prefer to utilize the journal electronically? If so, we have a wonderful new program that will relieve you of your extra clutter while helping primate facilities in need. IPS, in association with IJP, is now offering you the opportunity to redirect your paper issues of IJP to a primate center or field station in need. If you would like to donate the paper portion of your subscription, or know of a research center/field station/ sanctuary that would benefit from receiving bound copies of the journal, please contact IPS VP for Education,

Elizabeth Lonsdorf

Report from Conservation Grant Recipient Felipe Ennes Silva

Biogeography, taxonomy and conservation status of *Mico marcai* in Aripuanã River Basin, Amazon, Brazil

Summary

The Marca's marmoset (*Mico marcai*) was described in 1993, based on three skins collected during the Scientific Expedition Roosevelt-Rondon in 1914 (Alperin 1993; 2002). Those skins were the only register of the species. Our objective was to confirm the Marca's marmoset existence on nature, make the first evaluation of its occurrence and distribution and to identify the potential threats. In 2013 and 2014, five expeditions were conducted on the interfluves Aripuanã – Marmelos and Madeira – Guariba (07°09'01"S - 7°48'10"S, 60°41'06"W 60°59'12"W) totalizing 63 days of field work. We conducted interviews with local people and visited 22 localities where we sighted *M. marcai* on 18 occasions. Other twelve primate taxa were registered. Our records of *M. chrysoleucus* and *Callibella humilis* extend the distributions in their south limit. A new species of *Callicebus* was found in Roosevelt-Guariba interfluves.

Introduction

In the last decade, more than 1200 new species of plants and vertebrates have been described in Amazon Rainforest (WWF 2010). However, the poor information available on basic aspects such as taxonomy, distribution and population parameters does not enable a reliable assessment of the conservation status of these species.

According to the Primate Specialist Group, Brazil is the home of the greatest primate diversity. Since 1990 were described 7 new species of *Mico* (Rylands & Mittermeier 2009; Rylands et al 2012) and a new genus (*Callibella*; van Roosmalen & van Roosmalen 2003). Most of these findings occurred in the region of Madeira River basin where studies on the local biodiversity are scarce. The main tributaries of Madeira River are the Aripuanã River and Marmelos River. The region has one of the highest deforestation rates in the Amazon, being infamously known as "Deforestation Arch".

M. marcai and *M. manicorensis* are expected to be found at the interfluves Marmelos–Aripuanã (van Roosmalen 2000; Alperin 2002; Rylands & Silva Jr. 2008), but the taxonomy and the distribution of these species are controversial. *M. marcai* was described in 1993 by Alperin (1993) based on three skins stored in National Museum of Rio de Janeiro. These skins were collected in 1914 during the Roosevelt-Rondon Scientific Expedition, at the confluence of Aripuanã and Roosevelt rivers. The only information available about this species was in the label of material.

van Roosmalen et al. (2000) described *M. manicorensis* and provided a map of distribution for this species reaching the Roosevelt and Aripuanã confluence. However, Alperin (2002) point out that the southern limit of distribution proposed by van Roosmalen et al. (2000) would be wrong because *M. marcai* occur at this confluence. These species are considered as Data Deficient (DD) in the latest assessment of the IUCN Red List (Mittermeier and Rylands 2008). The results of this project will contribute to understanding their Conservation Status and to purpose measures for their protection.

In January 2012, we conduct a preliminary field assessment and we confirmed the presence of *M. marcai* in the wild (Silva et al 2013). After that, the project was linked with Mamirauá Institute for Sustainable Development (IDSM) and we got small grants from different institutions to better understand the geographical distribution and the main threats to long-term conservation of these marmosets.

The aim of this project was to establish a framework for the *Mico marcai* Conservation. The key objectives were:

1. To verify the occurrence and distribution of *M. marcai*;
2. To register the presence of other primate species in the region;
3. To identify the main threats to these species;

4. To strength the relationship between local communities and the project;
5. To include *M. marcai* in the National Action Plan for Amazon Primates.

Methods

Objective 1 – To verify the occurrence and distribution of *Mico marcai* and Objective 2 – Evaluate the regional primate diversity.

During 2013 and 2014 we conducted five expeditions on the interfluves Aripuanã – Marmelos and Madeira – Guariba (07°09'01"S - 7°48'10"S, 60°41'06"W 60°59'12"W) totalizing 63 days of field work. We interviewed local residents to get information about the localities to be visited in order to register the Primate diversity with the focus on the presence of *Mico marcai*. We visited 22 localities according to the places mentioned in the interviews. The focus of our field efforts was the confluence of Roosevelt and Aripuanã rivers, the low and high Manicoré River and the middle Aripuanã River. These regions represent the main potential limits for Mico marcai distribution since we know the species located on the east bank of Aripuanã and west bank of Marmelos rivers (see Ferrari 1993 and Rohe 2007). Furthermore, the Primate diversity of this region (Marmelos–Aripuanã interfluves) is unknown and our efforts represent the first checklist of the Primate species for this site. All Primate sightings were geo-referenced with the use of Global Position System (GPS) devices and a map of *M. marcai* distribution was elaborated using the software ArcGis.

Objective 3 – Check the main threats to *Mico marcai*;

We registered the land use by the local communities and the main economic activities in the region through the Brazilian Institute of Geography and Statistics (IBGE) database. The habitat loss was estimated removing the deforested areas identified until 2012 by the Project Monitoring of the Brazilian Forest by Satellite (ProDes Project) (ProDes, 2014) from the distribution map. In addition, we assess the reports of the National Agency for Electric Energy (ANEEL) to estimate the area to be flooded during the implementation of the hydroelectric schemes at Aripuanã and Roosevelt rivers. We also registered the hunt activities and the Pet use for the Primates.

Objective 4 – To establish and strength good relationships with local communities.

We conducted meetings in three local communities (Matá-Matá, Bela Vista do Guariba and Mocambo) to inform about the project and to introduce the main objectives while working with Primates in that region. It was important to get the support of the local people and to give the first steps to implement other activities in that region (Primate census; monitoring of marmosets; Environmental Education in the local schools).

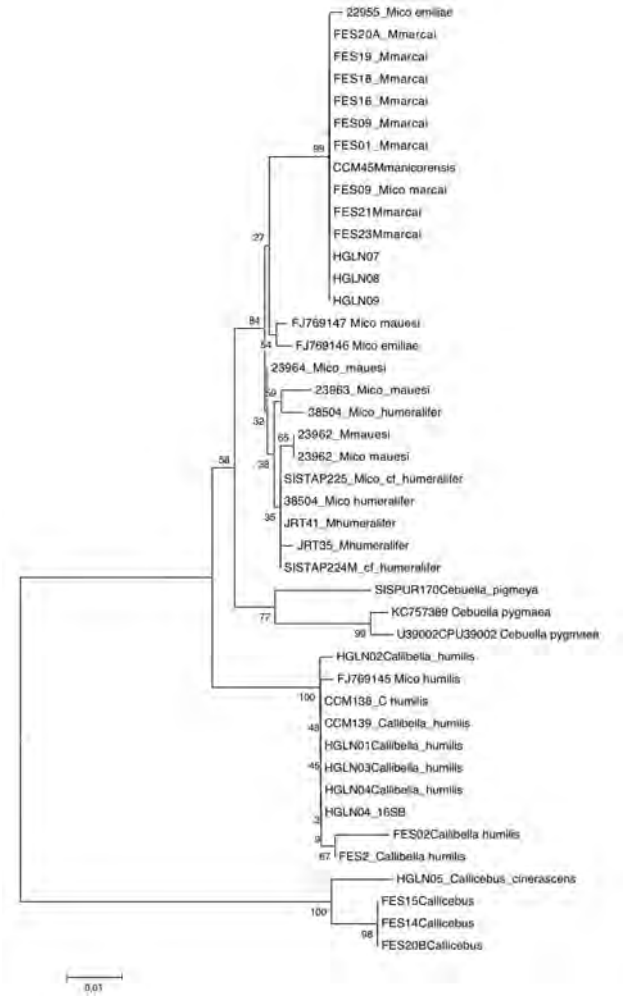

Fig. 1. The Phylogenetic tree retrieved for genus *Mico* and *Callibella* according to our first assessment based in 16s mitochondrial gene. All the specimens of *Mico marcai* are in the same clade of the holotype of *Mico manicorensis*. The specimens "2955 *Mico emiliae*" was collected by Ferrari (1993) (see the section "Achievements and Impacts").

Objective 5 – To include *Mico marcai* in the National Action Plan for Amazon Primates.

We linked the project with Mamirauá Institute for Sustainable Development (IDSM) for its formal execution and established a partnership with other 5 Institutions. As part of this network, our results will be included in the Evaluation of Conservation Status of Brazilian Fauna promoted by the Brazilian Ministry of Environment.

Results and discussion

After the first time that we recorded *Mico marcai* the following question arose: Could be *Mico manicorensis* (van Roosmalen 2000) a synonymous of *Mico marcai* (Alperin 1993)? The first step to understanding the Distribution of *Mico marcai* was to verify its taxonomic status in relation with *Mico manicorensis*. We are conducting several morphological and molecular analysis in a partnership with IDSM, Emílio Goeldi Museum, Universidade Federal do Amazonas, Universidade Federal de Brasília e the University of Salford. The first assessment will be present here while two publications about the taxonomy of *Mico marcai* are been prepared with the support of these Institutions. However, according to our first molecular assessment *Mico manicorensis* should be considered a junior synonymous of *Mico marcai* (Fig. 1) based on 16s mitochondrial marker (Silva et al., in prep). In addition, the Emilio Goeldi Museum and the Universidade Federal de Brasília are conducting morphological analysis of the recently collected specimens to confirm this assessment.

We registered 12 primate species (Tab. 1), including a new species of *Callicebus* in the right bank of Roosevelt River (Dalponte el al. 2014). We registered *Mico marca* at 14 of the 22 localities visited (Fig. 2). At the right bank of Aripuanã River, we registered *Mico chrysoleucus*, extending the southern limit of their range (Silva et al., in prep). At the left bank, we registered the presence of *Mico marcai* close to their type locality. Thus, Aripuanã River is the eastern limit of the distribution of this species as we expected. We registered *Mico marcai* at both banks of Manicoré River confirming that this river is not a barrier for this species and we registered their presence in the

Table 1. Total sightings of the primate species and survey areas where they were found.

Species/River	Aripuanã		Roosevelt		Guariba		Manicoré		Total sightings
	Left Bank	Right Bank	Left Bank	Right Bank	Left Bank	Right Bank	Left Bank	Right Bank	
Ateles chameck	1		2				2		3
Callibella humilis	1								1
Callicebus bernhardi;	7								7
Callicebus sp. n.			2	3			2	3	5
Chiropotes albinasus	2		1	1			1	1	4
Lagothrix cana			2	1		1	2	1	4
Mico chrysoleucus		1							1
Mico marcai	13								13
Pithecia irrorata	3								3
Saimiri ustus	3								3
Sapajus apella	3			1	1			1	5

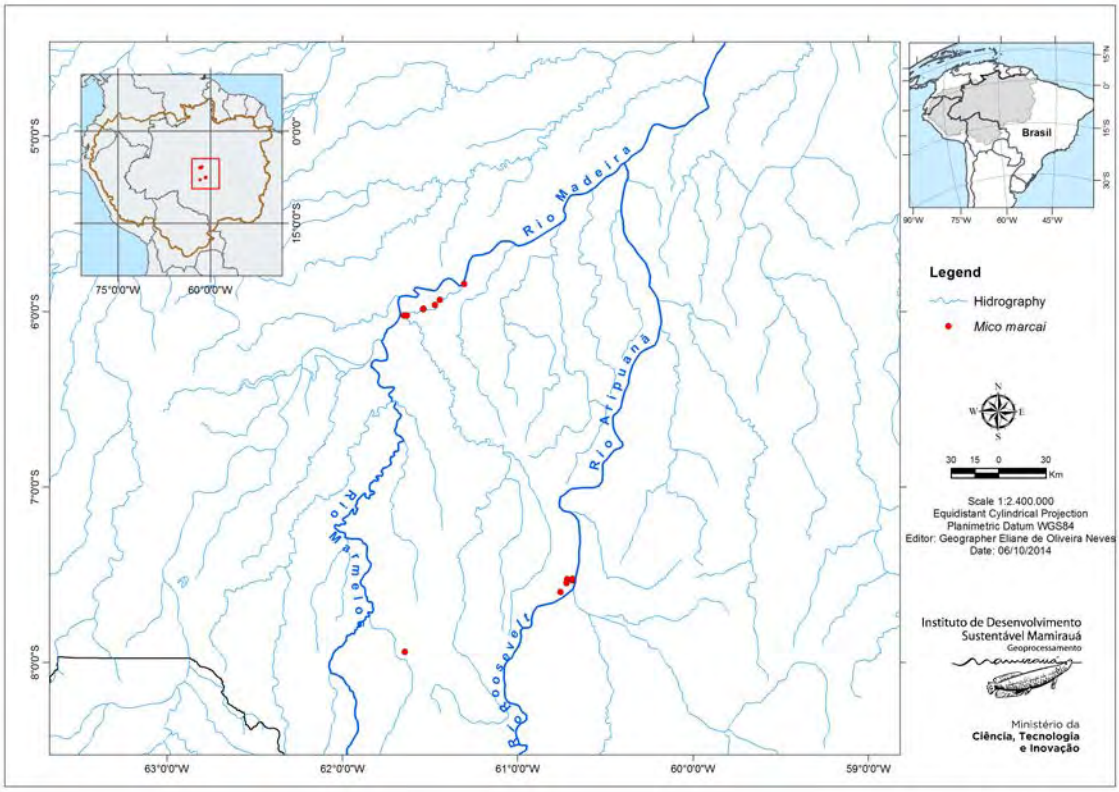

Fig. 2. The localities where we registered the presence of *Mico marcai*.

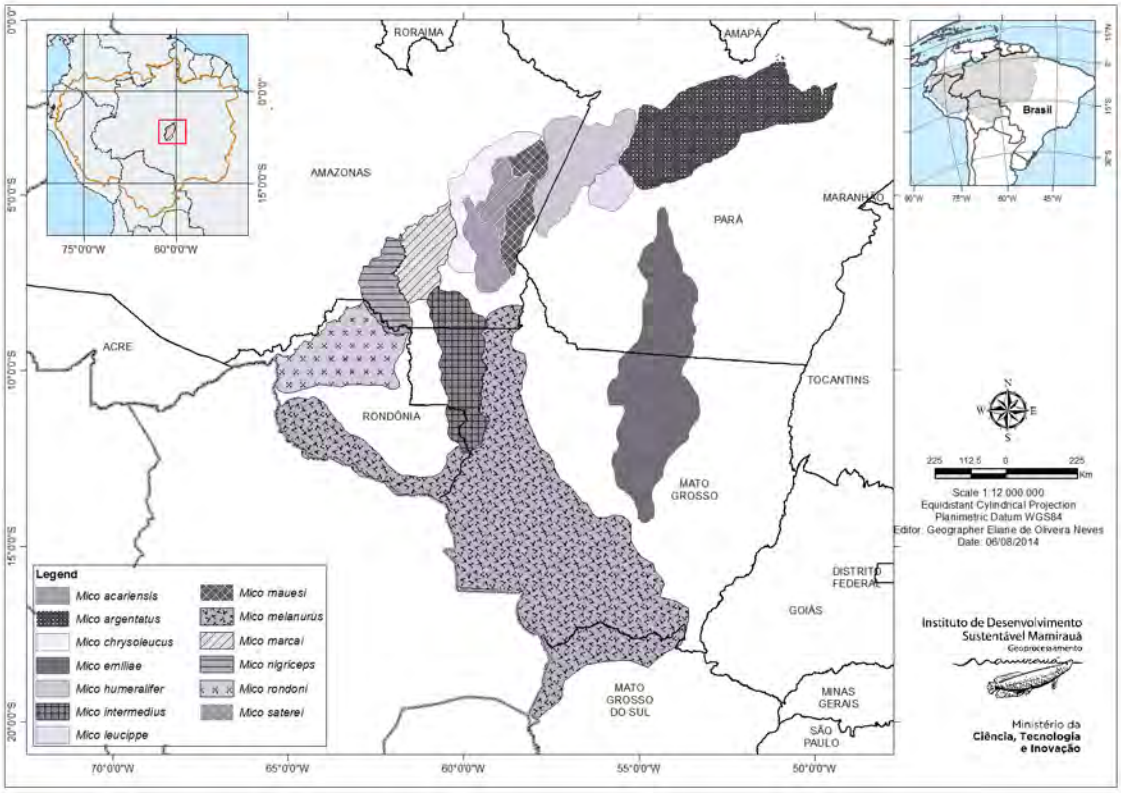

Fig. 3. The current Amazon marmosets' distribution.

left bank of Rio Branco River, a small tributary of Marmelos River. Thus, the western limit of *Mico marcai* is the Marmelos River. The distribution of this species covers a total area of 48,895 km² between Marmelos and Aripuanã Rivers being limited by Madeira River in the North and the savanna vegetation of Campos Amazônicos National Park in the South (Fig. 3).

The capture of wild animals for pets was an activity registered in the region. We registered randomly four situations where woolly monkeys (*Lagothrix cana*) were kept as a PET. Despite marmosets being registered as PET on only five occasions, is reasonable to assume that we do not have accurate information on the frequency of this activity.

The main threat identified was the habitat loss due to selective logging and forest conversion for cattle ranching. On the cities of Apuí, Novo Aripuanã and Manicoré, the herd grew from 122,898 head of cattle in 2004 to 263,684 in 2011 (IBGE, 2013). Furthermore, these cities registered a high rate of habitat loss totaling 4,639.3 km² in the last 10 years (PRODES 2014). The clear-cutting is not the only factor for the habitat loss in Aripuanã–Marmelos interfluves. The National Agency for Electric Energy approved the implementation of 7 hydroelectric schemes in the Aripuanã and Rosevelt Rivers (see document attached - "Despacho 1971"). Just the reservoir of these hydroelectric will flood a forest area of 900 km² and 640 families of traditional population will be displaced by only one hydroelectric plants. There are three Protected Areas and seven Indigenous Land that cover 35% of the *Mico marcai* distribution area. These projects will affect all these Protected Areas and, at least, five Indigenous Land.

Achievements and impacts

Our data on the *M. marcai* presence in the wild is the first for this species since 1914 (Silva et al 2013). In addition to confirming their presence, we got the first data on the distribution of this species based on field work. Rylands & Silva Júnior (2008) in the IUCN Red List provides a map for *M. marcai* distribution based in only a little information about the neighbor species:

"Its range is unknown but probably extends south along the left bank of the Rio Roosevelt and, at least, part way north to meet, somewhere, the southern limits of the range of M. manicorensis*. Ferrari (1993, 1994) reported the collection of an adult female "*C. emiliae*" on the east bank of the Rio dos Marmelos opposite the Tenharin Indian settlement (on the west bank, 07º57'S, 62º03'W). (For the correct location of Tenharin, see Ferrari 1994). Ferrari (1993) said it was easily distinguished from* M. nigriceps *(collected on the west bank at the same location) by the lack of pigmentation on the facial skin. It would seem that Ferrari (1993) presumed the identity of this animal to be* C. emiliae *based on Vivo (1985, 1991) who stated that* C. emiliae *occurred on the left (west) bank of the Rio Aripuanã: a belief arising from his interpretation of the identity of the marmoset of the Rio Castanho, here listed as* Mico marcai *(Alperin 1993). However, the true identity of the marmoset from the east bank of the Rio dos Marmelos at Tenharin has yet to be determined in light of this. van Roosmalen et al. (2000) inadvertently indicated that* Mico manicorensis *occurred at the type locality of this species."*

Our surveys and the taxonomic assessment of marmosets from Aripuanã River basin will contribute to understanding the status of *M. marcai* and to plan the next steps for its Conservation. Recently, the Chico Mendes Institute, a Brazilian Government sector linked with Ministry of Environment, conducted the "I Workshop for Evaluation of Brazilian Primates". This workshop aimed to compile the data about the Primate Distribution and the main threats to outline strategies for its Conservation and to implement the National Action Plans for Primate Conservation. At this sense, our results will be a great contribution to understanding one of the less known Neotropical Primates.

Main conclusion

According to our preliminary assessment of the taxonomy of Aripuanã's marmosets and based on the principle of priority of the International Code of Zoological nomenclature (ICZN, 1999) *Mico manicorensis* (Roosmalen 2000) should be considered a junior synonymous of *Mico marcai* (Alperin 1993).

The distribution of *Mico marcai* is limited by the rivers Aripuanã, Marmelos and Madeira. The southern limit is the savanna vegetation of the "Campos Amazônicos National Park" in the frontier of Amazonas and Mato Grosso State. However, the *Mico* species located at the south of this region remains unknown. We will conduct

an Expedition to Mato Grosso to record and to identify the *Mico* species located between Ji-Paraná and Roosevelt interfluves.

The data present here is a significant contribution to understanding the distribution patterns of one of the less studied group of Neotropical Primates: the Amazon's marmosets". Moreover, the Aripuanã River basin is a region where historically was ignore and neglected by the Science. The records of *Mico marcai* in the wild and the description of a new species of titi monkeys (*Callicebus miltoni*) is an example of this scenario (Dalponte et al 2014).

The Amazon's marmosets are not hunted for food, but the PET has been recorded for some *Mico* species. However, the habitat loss is the main threat and should be the focus of a strategic plan for the Primates Conservation in this region. The dissemination of the social and environmental impacts of the hydroelectric schemes is a critical point to raise attention for Conservation efforts in this region.

In the future

We linked the project with Mamirauá Institute for Sustainable Development (IDSM) to get an Institutional identity and we established a network with researchers from five institutions: University of Salford, Universidade de Brasília, Universidade Federal do Amazonas, National Institute of Amazonian Researches (INPA) and Emilio Goeldi Museum. This network will be important to implement the Marmosets Conservation and Monitoring Program (MCMP) in Aripuanã–Marmelos interfluves. The MCMP aims:

1. To collect data on Population Density of marmosets.
2. To understand the PET activity through interviews with the local communities and with the people living in the small cities around the rural region.
3. To strength the involvement of local communities with the project through educational activities in local schools.

It's the first step to understanding the impacts of the Hydroelectric schemes Aripuanã and Roosevelt rivers before and after their implementation and to establish a framework for marmosets Conservation.

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Report from Conservation Grant Natalia Ceballos

Conservation of the endemic and Critically-Endangered Margarita capuchin monkey in Venezuela

Introduction

The IPS Conservation Grant proposal was submitted on behalf of a collaborative team of researchers to conduct activities that will contribute in achieving our overall goal: the conservation of the endemic and Critically Endangered Margarita capuchin (*Sapajus apella margaritae*) population of about 500 individuals and their fragmented mountain habitat. This capuchin monkey is the only wild primate on Isla de Margarita, located in the Venezuelan Caribbean Sea. The major threats affecting Margarita capuchin survival are habitat fragmentation, poaching for pest control and the illegal pet trade. The project submitted followed from the priorities defined in previous studies conducted in the framework of the Margarita Capuchin Project, since 2005 (https://margaritacapuchinmonkey.wordpress.com). Results from those previous systematic studies support the Critically Endangered status of the Margarita Capuchin, however the taxonomic status of the Margarita capuchin has yet to be reviewed (Ceballos 2015). Recent work upending the systematics of the entire genus (Lynch-Alfaro et al. 2012), makes our work all the more urgent and timely. This capuchin's habitat is also of particular ecological interest, with isolated cloud forests at an exceptionally low altitude (400 m), in contrast with arid lowlands. Capuchins live in four forest fragments: Cerro el Copey National Park (71.3 km^2), Cerro Matasiete (11.4 km^2) that is part of Cerros Matasiete and Guayamurí Natural Monument); and the two unprotected forest fragments, Cerros Tragaplata (40 km^2) and Taguantar (13 km^2). There is at least one Critically-Endangered species of mammal (Margarita deer) and two Endangered subspecies, (Margarita rabbit and squirrel) in the habitat of the Margarita capuchins.

After successful pilot work, it was time for a full non-invasive sampling study for conservation genetics studies and intestinal parasitic screening to examine local population sizes and movements and health conditions of wild monkeys. Logistic and safety constrains have prevented us from completing the studies in one of the forest fragments (Taguantar). The project is ongoing and in the present report, we will focus on the results of some of the specific objectives identified in previous studies as essential for the conservation of the Margarita capuchin and its habitat: conservation genetics studies; more detailed field observations of capuchin groups, evaluation of capuchin's health and monitoring of captive monkeys.

Methods

The following methods were used to implement the project:

We conducted a non-invasive sample collection from wild Margarita capuchins and captive monkeys. We made modifications to existing non-invasive sampling techniques to generate a protocol adjusted to our study conditions and we successfully obtained samples from wild capuchins suitable for extracting DNA and for Intestinal parasitic screening. With the participation of park rangers and local people we designed and installed wood platforms in the

Fig. 1. Wood platform in the forest with bait (fruits) and camera traps pointing at the platform (red ovals).

Fig. 2. *Left*: Image from camera trap with Margarita capuchins on platform and adhesive tape on branches (red ovals). *Right*: Hair trap with hair sample..

forest and we tied bait to them (Fig. 1-3). Adhesive tape was used as hair traps inverted in branches surrounding the platforms (Fig. 2).

We installed camera traps (Wildview Xtreme2) pointing at the platforms (Fig. 1) and evaluated the usefulness of the images obtained to: determine wild capuchin health appearance; characterize capuchin groups and individuals (age, sex, individual markings, group size); determine the best location of hair traps and detect visits from other monkey species illegally released on the Island. We also conducted direct observation of the capuchins on and near the platforms in order to complement and compare the information from camera traps.

Fresh fecal sample of wild Margarita capuchins collected on platforms and samples from captive primates were analyzed for intestinal parasitic screening using direct fecal examination and flotation in a saturated saline solution and also through larvae cultivation.

Fig. 3. Capacity building. Park rangers participated actively in platforms design, installation and sampling.

Results

We faced challenges at the beginning of the project for collection of non-invasive samples from wild Margarita capuchins because these capuchins are elusive due to historical hunting pressure for pest control and more recently for the pet trade. Detailed information about the adaptations and results of efficiency in obtaining faecal and hair samples of this Critically Endangered capuchin are reported in a manuscript prepared for the book "La Primatología en Venezuela" (Ceballos-Mago et al. in prep.). We have collected 92 faecal samples and 45 hair samples (with average of 9 hairs/sample) (Fig. 2, *right*) in two of the four forest fragments inhabited by Margarita capuchins (Cerro Copey and Cerro Matasiete). We have successfully amplified DNA from these fecal samples at the Instituto Venezolano de Investigaciones Científicas (IVIC) (Gamero et al., in press) and preliminary test of hair samples have also been successful.

We completed 52 days of camera trap recordings pointed at the platforms. During this time, we did not see any other mammal or bird species on the platforms, even though there are frugivorous birds in the area (Sanz et. al. 2010). Also, exotic primates were not detected on the platforms. We have previously observed exotic illegally released primates in the habitat of the Margarita capuchins, but the numbers are low. Nevertheless, there is concern for resource competition and hybridization with introduced capuchin species (Martinez et al. 2000, Ceballos-Mago et al. 2010). Images from camera traps were useful to detect Margarita capuchins males and females of all ages visiting the platforms, including infants being carried. Camera traps were also useful to determine the best location of hair traps and monkeys' visiting hours. The maximum number of monkeys detected by the camera was four individuals, which is less that the total of about 12 individual observed directly. The images were not useful to identify individual through individual marks due to restrictions in camera resolution and light conditions, but camera trapping overall proved to be a very useful tool in our project.

During this study period 35 fecal samples from wild Margarita capuchins and 26 samples from monkeys in captivity were collected and analyzed for intestinal parasitic screening. Since samples from wild capuchins were collected from platforms, it was not possible to determine the number of individuals that corresponded with the samples. In 17 (49%) of wild Margarita capuchins samples, nematode eggs were detected. According to results from preliminary analysis the orders, Strongylida, Rhabditida, Spirurida and Ascaridida were found (Montesinos-López et al. 2014). Captive monkeys included 18 (69%) samples from weeper capuchin (*Cebus olivaceus*), 5 (19%) from howler monkeys (*Alouatta* sp), and 3 (12%) from.

Margarita capuchins. Nematode eggs were found in one margarita capuchin kept as pet in a house Five samples from weeper capuchins kept in a rescue center and a small zoo also contained eggs of nematodes. Results from howler monkeys' samples were not conclusive (Montesinos-López 2014).

Implications for conservation

The results from this study contributed to the ongoing efforts to enhance the conservation of this endemic, Critically Endangered and only wild primate on Isla de Margarita. In particular, the adaptations made during his period to non invasive sampling methods were effective to sample this elusive capuchin, at low cost, without major impacts on the environment and we made contributions for innovation in non-invasive sampling techniques and materials (Ceballos-Mago et al., in prep). This protocol will allow us to collect the samples needed for conservation genetics studies and to continue research on the intestinal parasites on these capuchins and their potential effect on monkey's health. We will be able to define conservation units, detecting hybrids and establishing kinship relations through conservation genetics analysis, in order to strategic planning for population recovery. We expect that the use of camera trap in different locations, will allow us to locate exotic primate species before disease transmission and hybridization occur and/or continue. The active participation of local people in our project has helped in the mitigation of the human-monkeys conflict. During this period a veterinarian student received training in the project activities and conducted her academic internship spending three months of fieldwork (Montesinos-López 2014). Working in collaboration with rescue centers on Isla de Margarita (Fundanisil and Centro de Albergue de Fauna Silvestre-DEA Nueva Esparta), we monitor health and welfare of captive Margarita capuchins. We contribute to local capacity building training for park rangers that participated in the design, installation of platforms and sampling collection (Fig. 3). We will now be able to conduct monitoring and adjust conservation strategies of Margarita capuchins in the long term. Our study can be used as a reference in the Caribbean region where Trinidad (a nearby island) also has monkey populations facing similar threats in very similar circumstances.

Acknowledgments

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Final Report from Conservation Grant Hoang Van Chuong

Anthropogenic pressure of local people on primates in Gia Lai, Vietnam

Background

Kon Ka Kinh National Park (KKK) is home for many primate species. However, as many parts of the world, the primate species do not inhabit areas that are free of human. Anthropogenic pressures have proven considerable implications of the conservation of Kon Ka Kinh Primate (Ha Thang Long, 2004). According to Tilo Nadler, the major threats of Viet Nam primates are hunting for subsistence, trading and medical purposes, and habitat destruction due to illegal logging or encroachment (Nadler et al., 2003). In Viet Nam, hunting is regarded as the primary threat to primate populations. It has a substantial impact on most wildlife due to high human density, the accessibility of guns, and the prevalence wildlife trade across Southeast Asia (Nadler et al., 2003). There was also the increase trend of population in KKK due to immigration for coffee farm (Ha Thang Long, 2009). It is obvious that Kon Ka Kinh primates are vulnerable in the near future, and essentially require our attention. However, there is no detail information on hunting, logging and other anthropogenic pressure that relate to the primate species' in KKK. This research is critical important because it will provide a better understanding about the impact of local people on Grey-Shanked Douc population. Following are the specific aims of the project:

- To identify the presence and status of primate populations in the study area.
- To determine what anthropogenic pressures effect on primate populations.
- To explore the role of local livelihoods on primate conservation
- To raising local people awareness on primate conservation

Methods

1. Threat Survey: Semi-structure interview were chosen to get information about local anthropogenic pressure as well as the local people perception on wildlife's value. The questionnaire will cover three themes: (1) Presence of primate taxa, (2) threats and anthropogenic pressures to primate taxa, and (3) local perception on the value of wildlife and forest. A random sample of 183 local people from nine villages was interview by questionnaire. The villages were chosen from the buffer area of the Park, base on their close to the forest.

Presence and status of primate were determined by perceptions on how the primates have change in number over the years, using descriptive statistics. Hunting and logging pressure were determined by the average frequency of villagers going to the forest, the accessibility and hours spend travelling to the areas that is believed to primate occur (Wright, 2008).

The total time for community survey was 108 days (9 villages x 12 days/village). The survey team will include 3 people: a principal investigator, another investigator is a student from Da Nang University and an assistant.

2. Raising awareness programs: Three primate workshops celebrated in Ayun Commune of MangYang Distrist to raise local people awareness on primate conservation. Local people were invited to the workshop and discussed on the importance of primate and wildlife protection. The local people also have chance to show their knowledge on primate presence and distribution during the workshops.

An awareness program also celebrates to raise awareness for local children in the areas. This program is cooperated with the Educational Department of KKK NP and Frank Fruit Zoo Society (FFZ) team in KKK NP. A set of games have design for this program, start by warm up activity, follow by the game "which species live in KKK", then the "multiple - choice questions on knowledge on primate and wildlife in KKK" and finish by the Questions and answers about attitude on primate and wildlife protection in KKK. The program was design by Educational Department with consultant by FZS team.

Poster on primate conservation was design to provide information on primate species in the area with the message to encourage local people "let's save KKK primate". These posters released during the workshop, awareness program and hang front of school, retail shop, community house where there are many local people gather.

Research accomplishment

Threat survey: Total 183 objects in 9 villages of three communes around KKK NP were interviewed. Total proposal research areas have been surveyed; questionnaires were done and data on social economic as well as hunting, logging and other pressure have been recorded. The table below shows the number of interviewees in study areas:

District	Comune	Village	Number of interview
Kbang	Krong	Tung	22
		Gut	24
		Tang Lang	15
Mang Yang	Ayun	Dekjieng	20
		Hyer	22
		Vai Vieng	20
Dac Doa	Ha Dong	Kon Bo Ram	21
		Kon Mo Ha	19
		Kon Nat	20
Total			**183**

Interview in Ha Dong commune

Presence of primate taxa: Through interview, seven taxa of primate have been identify in study area, including: Grey-shanked douc monkeys (*Pygathrix cinerea*), Northern slow loris (*Nycticebus bengalensis*), Pygmy slow loris (*Nycticebus pygmaeus*), Pig-tailed macaque (*Macaca leonina*), rhesus macaque (*Macaca mulatta mulatta*), Stump-tailed macaque (*Macaca arctoides*) and Northern buffcheeked crested gibbon (*Nomascus annamensis*). Local people call the monkey by their local name and one species could be called by different names in different areas. For example, stump tail macaque could be call as "dooc lui" or "dooc mat bre" or dooc mat gam". Local people confuse on identify the macaque species, especially monkey species. There also uncertain in identify the Northern slow loris (*Nycticebus bengalensis*) and Pygmy slow loris (*Nycticebus pygmaeus*). Almost half of people (64/104) who assert that there was two different kind of Loris in area, face the dilemma when identify two species by picture.

Threats and anthropogenic pressures to primate taxa: Almost responder (68%) assert that hunting is the most threat to monkeys (N=85). Snare trap is the most common hunting method in the area. Snare traps were not only seted in the forest but also set around farm to protect crop. Junior monkey and loris are also caught by hand. Some other traditional hunting method, such as crossbow used in the area. However, due to the shortage rosewood, which was used to make crossbow, this tool become smaller and can not hunt monkey.

Taboo on hunting Loris still remains in the area. Local people in Ha Dong and Krong consider that eating Loris will bring bad luck for them. However, this practices just common for the elderly. Many young people no longer keep this taboo and some of them hunt the Loris. The taboo for other primate species does not exist in the area.

Guns are still illegally used in the areas. Almost gun is home-made, developed from sport gun. Hunter hide gun in the forest to escape from

Left: A hunter in Ayun commune was making snare trap
Right: A hunter was showing traditional hunting method (crossbow)

Left: Hunter with his gun and pig-tail macaque in Krong commune. *Right*: Pig tail macaque kept in resident house in Ha Dong commune

FPD and local police. According to a trader in Ayun commune, there are at least ten guns in the area. However, because hunter aware that hold gun is illegal and they avoid answering the related question. Therefore, the number of guns could not be firm.

The hunted monkeys usually sell to local trader or rising as pet. The trading price of primate meat is from 90000 VND to 110000 VND per kilogram.

Over a half of responder (54%, N = 183) think that they don't have enough living opportunity in the area. The main job in the area is farming. However, farming is unable to afford their family. Therefore, local people usually go to the forest to earn money. The primry purpose of people going to the forest is for nontimber produce (44%), following by hunting (25%) and logging (12%). The most common nontimber produce in the area is honey (from March to May), Gold lame orchid (*Anoectochilus setaceus*) (from September to November).

Although 49.4% interviewees confirm that it is hard to access to the forest, 64.7% frequently go to the forest (over two times a month). There is a significant different of frequency going to the forest among three commune (Kruskal Wallis: $\chi 2= 12.404$, df = 2, p = 0.002). People in Ha Dong and Krong communes are going to the forest more frequent than in Ayun commune. This probably Ha Dong and Krong communes are nearby the forest, they just only take a half of hour to go on forest in the buffer zone and about a half day to go to the core zone. Forest becomes more accessible by the existing track through forest that connected Ayun commune and Ha Dong commun. There also new road constructing between KBang and MangYang district just in around the buffer zone of KKK NP. Local people usually drive scooter to the area they still could access, hide scooter in the forest and walk the core zon. This practice, with the construction of road, makes forest become easier to access.

Problems and limitation: Almost local resident are ethnic people, some of them could not speak Vietnamese fluently and refused the interview. However, these were the minor cases and don't affected so much to project.

Almost interviewers were illiterate and many of them could not identify location in map as well as built the basic map. Therefore, the participatory map could not be used widely. Instead of that, I used the key informants, who usually go to the forest and have deep understanding in primate to produce map. I also consulted information from FZS team, who has long year researched on Grey-shanked douc in survey area.

Training and educational accomplishments

Tran Kim Ly is the student has been supervised by the project. Ly had been selected from students from Biology Faculty. Ly participated in project at the first time and gained a lot of experience from the project, especially the skill to work with local communities. She was successfully completed minor thesis for university graduation in June with the title: "The impact of local people to Grey-shanked douc langur in Kon Ka Kinh National Park". Her thesis is one part of the project with the focus in Grey-shanked douc.

I also have train interview technique in primate conservation for 21 students from Danang teacher collage in August 2014. This was an annual educational activity of KKK NP management board and Frankfurt Zoological Society as part of Primate conservational effort in the area. After my lesson, all students had basic skills to interview and practiced interview in DekaJieng village of Mang Yang commune.

Conservation accomplishments

Three workshops have been conduct in Dekajieng, Vaivieng and Hyer commune of Ayun commune, MangYang District. These workshop aim to to raise people awareness on primate protection. The workshops will aim to provide information of the primate species in area as well as conservation status of these primates. Total 52 local resident

attend to the workshops show their knowledge on primate as well as their opinion in primate conservation. In the end of the workshops, almost local resident, who endure with crop raiding (27/31) understand that primate is protected by law and agree to not using trap to deal with monkey crop raiding.

Identify and discuss about location and efect of new road to wildlife

Awareness program: an awareness program celebrated for children in KKK NP. Over 100 children participate to this program. By participating in the series of game in the program, the children aware that KKK is home to primate and primate is need to conserve. Primate poster and present was distributed to children in the end of program.

Present posters and award in the end of program

Primate poster: 500 Poster on Primate have been design and release to raise local people awareness on primate conservation. The logo of IPS was put in the poster. Over 150 posters have been release to the local people during the workshops and awareness program. The remaining posters was hang on the front of community house, school and retail shop, where many people usually gather.

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Budget report

The following table presents the budgeted amount and actual amount for the project. The currency exchange apply in the day received award (12/05/2014) (1 USD = 21070 VND).

Donor	Description	Budgeted Amount	Actual amount	Difference	Explain
Primate workshop: 3 workshops					
IPS	Conference room fee (including loudspeaker, projector, light) for Workshop in Vaivieng village	100	94.9	5.1	Increase of USD currency compare to VND
IPS	Conference room fee (including loudspeaker, projector, light) for Workshop in DekaJieng village	100	94.9	5.1	Increase of USD currency compare to VND
IPS	Conference room fee (including loudspeaker, projector, light) for Workshop in Hyer village	100	94.9	5.1	Increase of USD currency compare to VND
IPS	Tea break (candy, cake, cigarette, soft drink) for Workshop in Vaivieng village	100	93.0	7.0	Increase of USD currency compare to VND
IPS	Tea break (candy, cake, cigarette, soft drink) for Workshop in DekaJieng village	100	99.7	0.3	Increase of USD currency compare to VND
IPS	Tea break (candy, cake, cigarette, soft drink) for Workshop in Hyer village	100	98.2	1.8	Increase of USD currency compare to VND
IPS	Print Banners for Workshop and 500 primate Poster	390	459.4	-69.4	Print more poster than projected (projected to print 300, but printed 500 actually)
Awareness Program					
CCI	Conference room fee (including loudspeaker, projector, light) for Awareness program in Ayun commune	100	94.9	5.1	Increase of USD currency compare to VND
CCI	Candy, cake, soft drink water for 100 children (60.000 VND each child)	285	285	0	-
CCI	Candy for children during the interview trip (to build rapport with local people)	115	92.5	22.5	Reduce to fix the budget
Total		**1490**	**1507.4**	**-17,4**	

Final Report from Conservation Grant Nixon Sajita

The rare DeBrazza monkey: population monitoring and community awareness in and around Kisere Nature Reserve, Kakamega Forest, Western Kenya

Introduction

Kenya's Kakamega Forest complex, located in the western part of the country, harbors fauna more typical of the Congo basin, with which it was once likely connected. One such species is the DeBrazza's monkey (*Cercopithecus neglectus*), which appears to be located only in Kisere Nature Reserve (Wahome 1989; Wahome et al. 1993), a forest island of ca. 470 ha at the northern end of the entire forest complex (Mitchell et al. 2009). This species is rare in Kenya, although its geographic range stretches across equatorial Africa, where it is consistently located in riverine micro-habitats within forests. DeBrazza's monkeys were first identified along the rivers that border the Kisere Nature Reserve, part of the Kakamega Forest complex, in 1984 (Muriuki & Tsingalia 1990). The three groups that constitute the population have since been occasionally censused (Wahome et al. 1993, Chism & Cords 1997, Walker & Sajita 2011). These resports estimated that the population comprised 30-40 individuals.

Conservation of this primate in Kisere Nature Reserve is challenging for several reasons, including recent and projected ongoing loss of forest cover from destruction, encroachment and habitat degradation (Müller & Mburu 2009), which occur against a backdrop of high human population density (Lung & Schaab 2010) and low protective coverage by Kenya Wildlife Service (KWS) personnel because of financial constraints and distance of the forest from the KWS station. This situation threatens the DeBrazza monkeys with local extinction. With funding from a 2013 IPS conservation grant, we carried out an on-the-ground approach to DeBrazza conservation, including population monitoring and public education.

Population monitoring: methods

Our team carried out population monitoring of the DeBrazza monkeys in Kisere Nature Reserve between May 2013 and May 2014. The fieldwork represented a collaboration between members of the Kakamega Forest Guides Association and the Research and Community Wildlife/Education officers of the Kenya Wildlife Association (KWS).

The field team, usually 1-2 people per day, surveyed forest edges along the Isiukhu and Nandamaywa Rivers for DeBrazza monkey troops. On a weekly basis (total mean monthly observation days = 8), observers equipped with binoculars and data sheets counted and monitored troops A and B along the Isiukhu River and troop C along Nandamaywa River. Observations took place from 06:30 until noon, when the monkeys' activity typically ceased. Observers classified individuals by sex as adults or sub-adults, or as unsexed juveniles and infants. Some animals could be distinguished individually using a combination of beard presence, tail shape, and nipple coloration and shape. When animals were feeding, the team recorded the food source to species and plant part whenever possible.

Population monitoring: results

Our team counted a total of 46 individuals in three groups. All groups contained a single adult male, multiple adult females and young (Table 1). The monkeys' daily activities followed a predictable diurnal schedule, with feeding along the riverbanks most likely early in the morning and late in the afternoon. Like other guenons, they were mainly frugivorous, harvesting foods from at least 15 tree species (Table 2). Other primate species in the forest, including, black and white colobus monkeys (*Colobus guereza*), blue monkeys (*Cercopithecus mitis*), red-tailed monkeys (*Cercopithecus ascanius*), and olive baboons (*Papio anubis*) foraged within the De-Brazza group homeranges. We also observed that Troops A and B had homeranges that overlapped along a ca. 100 m stretch of the Isiukhu River.

Table 1. Group composition of three DeBrazza's monkeys groups in Kisere Nature Reserve

	Total size	Adult male	Adult female	Subadult male	Subadult female	Juvenile (unsexed)	Infant (unsexed)
Group A	16	1	6	2	3	3	2
Group B	14	1	5	2	3	2	1
Group C	16	1	4	1	2	4	4

Table 2. List of food plants and parts for DeBrazza's monkeys in Kisere Nature Reserve. The order of plant species matches the frequency with which monkeys were observed feeding from each species.

Species	Fruit/seeds	Young leaves
Olea capensis	X	
Ficus thoningii	X	
Uvaropsis congensis	X	
Ficus sur	X	
Blighia unijugata		X
Prunus africana	X	X
Cassipourea ruwenzorensis		X
Celtis durandii	X	X
Chaetacme aristata		X
Solanum mauritarium	X	
Lantana camara	X	
Psidium guajava	X	
Khaya anthothecca	X	
Celtis africana	X	X
Manilkara butugi	X	

Discussion and recommendations

The total population size we documented (46) suggests that overall numbers have not declined relative to previous censuses in the last 20 years and may have increased slightly. Nevertheless, it is clear that DeBrazza's monkeys at Kisere face human-induced threats, including poaching, illegal logging, firewood collection and farming along the river banks. These threats stem from high human population growth in the area as well as poverty, which together drive an over-reliance on the forest and its rivers to satisfy human needs.

In the course of the study, Kenya Wildlife Service established a ranger post to ensure the primates' population stability and protection of their habitat. There remains a need to implement alternative strategies to provide for the community's livelihood, and to enhance their involvement in the conservation of Kisere Forest Nature Reserve.

The research team recommends specifically the initiation of awareness campaigns to reduce the use of firewood for cooking, with greater reliance on alternative fuels such as briquettes made from leaves and waste paper and more efficient upesi stoves. Farm forestry should also be encouraged. Farming along the river banks can be controlled through clear demarcation of the forest boundary and through regular patrols by community scouts in collaboration with KWS rangers and the local administration.

Community education activities

The Kakamega Forest Guides Association together with the KWS Community Education Officers, including KWS Community Education Warden Joyce Kurui, Sgt. Joram Masimba, Ranger Cherop S., and the Kakamega Forest Conservation Arm Chairman, Saul Shamalla, carried out an environmental conservation education program in nine primary schools and five secondary schools. They also carried out public awareness outreach activities through village meetings in the six villages around the Kisere Nature Reserve from May to July 2013,

September to November 2013 and February to April 2014. The team reached a total of 800 students and 475 adults. KWS contributed transport, educational materials and personnel to this outreach program.

The program included lectures given by Joyce Kurui and members of the Kakamega Forest Guides Association about Kenya Wildlife Service mandates, structures, and role in wildlife protection; species identification, distribution, and conservation status; and threats to wildlife habitats and sustainable alternatives. The lectures were supplemented with visual aids, including posters, brochures, projected slides, guide books and binoculars, models of animals (including a variety of primates and birds), and energy saving devices (upesi stoves and briquettes made from leaves and garden refuse). The programs included active participation by community members in wildlife conservation games, tree planting, discussions, and forest walks.

Results

The school and the community groups were interested in learning about and carrying out activities that would foster forest conservation by reducing human pressure on Kisere Nature Reserve. Specifically, community groups drew up a program to rehabilitate the disturbed riparian areas along the river banks by planting indigenous trees. The environmental conservation outreach program to schools around the forest was well received. Each school followed up with the formation of an environmental club. Each school also established a tree nursery and a woodlot of 100 seedlings. Two energy-saving upesi stoves were installed at Fuvale Primary School for demonstration purposes, i.e. to show community members how the stoves work and thus encourage them to begin using these stoves in their own homes.

There are future plans to aid in the installation of the upesi stoves in all schools and households around the Kisere Nature Reserve, with financial help from Ivakale Ev, a German NGO, and KEEP members' assistance with installation. In addition, we plan to expand the environmental conservation education program to reach a wider community by involving more stakeholders in conservation efforts; this expansion will involve KEEP (Kakamega Environmental Educaiton Program), Kenya Wildlife Service, Kenya Forest Service, and the Kakamega County govnerment. Specific activities will include the establishment of tree nurseries and woodlots in additional schools, and rehabilitation of degraded riparian areas through replanting of indigenous trees and bamboo.

Acknowledgements

I want to thank IPS for awarding funds to carry out the above project and the Kenya Wildlife Service office at Kakamega for their support and contributions.

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Accounting

We received KES 159,463.20 into our account on 30 April 2013. The exchange rate was therefore 79.89 KES per USD.

ITEM	Requested amount USD	Amount delivered in KES	Actually spent KES
Gumboots, 4 pairs	48	3,835	3,800
Rain coats, 4	48	3,835	3,800
Digital camera*	216	17,257	17,065
Notebooks, pens, clipboard, machetes, umbrellas	61	4,873	4,820
Transport cost (fuel)	312	24,926	38,195**
Field research allowances	811	64,792	50,400
Printing brochures	200	15,978	15,800
Flip board	60	4,793	4,750
Flip charts	84	6,711	6,640
Marker pens	30	2,397	2,370
Printing/laminating poster	126	10,066	9,960
Unbudgeted: bank fee, energy saving stove, tree seedlings	0	0	1,863
TOTAL	**1996.00**	**159,463**	**159,463**

* Camera remained in possession of Nixon Sajita, to be used during Environmental Conservation Education outreach programs carried out jointly by KWS and KEEP members.

**The large discrepancy for transport costs can be explained by the extension of the of the observation period of De-Brazza Monkeys from 8 to 12 months and a change in the method of transportation from car to motorbikes due to car malfunctions.

Report from Captive Care Grant Recipient Sonya Kahlenberg

Finalizing a forest enclosure for orphaned Grauer's gorillas in eastern Democratic Republic of Congo

Summary of Project Activities

The Gorilla Rehabilitation and Conservation Education (GRACE) Center was established in eastern Democratic Republic of Congo (DRC) in 2009 as the only facility in the world dedicated to caring for rescued orphaned Grauer's gorillas (Gorilla beringei graueri), a highly endangered great ape found only in eastern DRC. GRACE's ultimate goal is to rehabilitate and eventually reintroduce gorillas back into the wild. GRACE currently has 13 gorillas in its care, aged 3-14 years. GRACE gorillas live in a single social group and have daily access to a new 24-acre forest enclosure to help them learn survival-critical skills in preparation for reintroduction. The enclosure is the largest gorilla enclosure in the world and is located near Tayna Nature Reserve, which is natural Grauer's gorilla habitat.

During the 6+ hours that the gorillas are inside the forest enclosure each day, the GRACE caregiver team walks around the enclosure's perimeter to monitor the gorillas along the fence lines and from five tall observation towers. The goal is to keep an eye on where the gorillas are inside the forest and to monitor the enclosure fence for potential issues (e.g., vegetation touching hotwire, areas of erosion under the fence line). This constant monitoring is especially needed because of the frequent and often severe storms in this region. The observation towers are quite tall and are a hazard during such storms, due to the risk of lightning strikes. Staff therefore cannot stay in towers during storms. This means that caregivers either have to stay out in the elements with raingear as their only protection or run to the nearest building at GRACE. The buildings can be quite far away, depending on which fence line the staff member is monitoring when the storm hits. Seeking shelter at GRACE is also not optimal because that means leaving the gorillas unmonitored inside the enclosure. During storms is precisely when issues can arise with the fence, so having staff there to keep an eye on the situation is ideal.

Building the rain shelters

Aerial view of GRACE gorilla forest enclosure

GRACE caregivers now can stay dry while monitoring the gorillas!

To help with this challenge, GRACE was awarded an IPS Captive Care Grant in 2015 to build several rain shelters around the forest forest enclosure. Construction took place in February and March 2016 and was done by GRACE maintenance staff. Thanks to this support, GRACE's gorilla caregivers can now seek shelter from the elements without leaving the gorillas and fence unattended. This is a safer situation for both the staff and gorillas and will help prolong the life of the enclosure.

Conservation through Community Involvement (CCI)

A key part of GRACE's mission is to work with people living near the Tayna Nature Reserve not only on conservation-related projects, but also on projects that help the local community with some of the challenges they face. Katoyo, the Tayna-area village nearest to GRACE, has a simple health clinic that is consistently filled with patients, mainly women who come to give birth and for post-partum care. A major issue for the clinic and its patients was that the onsite latrines had fallen into disrepair and were no longer usable.

Katoyo clinic

We combined support awarded from the IPS Conservation through Community Involvement (CCI) fund and from the Houston Zoo to help build a new latrine for the clinic. This project was conceived by the community and led by GRACE Facility Manager, George Kakule, as part of the community project for his 2015 Houston Zoo Wildlife Warrior Award (recognizing his outstanding leadership on the gorilla forest enclosure project).

Building the latrine (1)

Because the new latrine improves human hygiene near the forest, it has positive implications for the health of wild gorillas and other resident wildlife as well as for the nearby orphan gorillas at GRACE. This facility improvement also makes an important difference in the lives of local people, especially women who frequent the clinic. Also, it will further strengthen our relationship with the community. Their support is essential to help conserve the Tayna Nature Reserve, which is a priority habitat for the 3,800 Grauer's gorillas that now remain in eastern DRC.

Building the latrine (2)

Sonya Kahlenberg
GRACE Executive Director

Final Report from Lawrence Jacobsen Conservation Education Award Liyong Emmanuel Sama

Enhancing the conservation of the endangered Nigeria-Cameroon chimpanzee through community awareness and conservation education in schools and communities

Introduction

This is the final report of a project carried out in 2015-2016 by CIRMAD in the North West Region of Cameroon with the 2015 Larry Jacobsen Conservation Education Development Grant of the International Primatological Society.

Background

One domain of activities of the Centre for Indigenous Resources Management and Development (CIRMAD) is the conservation of the endangered Nigeria-Cameroon chimpanzee (*Pan troglodytes ellioti*) under our Participatory Programme for the Protection of Chimpanzees (PAPPro-Chimps).

This entails projects that lead to the overall goal of enhancing the survival of the endangered great ape species, with primary focus in the North West Region of Cameroon, which forms the heart of the Bamenda Highlands, itself a hotspot of biological diversity and endemism. Today the chimpanzee is the flagship species of this area, after the other big mammals like the elephant, lion, giraffe and the leopard have gone extinct, and as the critically endangered Cross River gorilla exists only in the Kagwene Gorilla Sanctuary bordering a just small portion of the North West Region.

This site of our primary focus is denoted in Thee Regional Action Plan for the Conservation of the Nigeria-Cameroon Chimpanzee (*Pan troglodytes ellioti*) (Morgan et al. 2011) as the North West Region Chimpanzee Conservation Planning Unit. It suffers the progressive conversion of forests for agriculture and pasture, with only a few forest patches remaining as habitats of the remnants of the endangered chimpanzee. These are the Kom-Wum Forest Reserve (8,029 ha), the Fungi Forest Reserve (84,758 ha) the Ako-Mbembe Forest Reserve (2,849 ha). There are also the Tubah Forest with some connectivity to a forest that straddles Awing and Balikumbat as a chimp habitat site. The vast Southern Menchum forest and the Ntem Forest are also believed to hold some populations of the *P. t. ellioti*.

Our actions under the PAPPro-Chimps programme include:

i. conservation education, also through art
ii. habitat management
iii. support to law enforcement
iv. community conservation initiatives

CIRMAD's involvement in the chimpanzee conservation work effectively started with the presentation of a paper titled: Conservation of the Nigeria-Cameroon Chimpanzee in the North West Region, during the commemoration of the 2012 World Environment Day in Bamenda.

CIRMAD's Participatory Programme for the Protection of Chimpanzees (PAPPro-Chimps) responds to the statement of need in the Regional Action Plan for: "… NGO partners to work with government to implement conservation activities in the region for the continued survival of the chimpanzees."

As beneficiary of the 2015 Larry Jacobsen Conservation Education Development Grant of the International Primatological Society, CIRMAD set out from September 2015 with the project goal, to mould local youths who can help to accelerate change in societal attitudes towards wildlife, with focus on the endangered chimpanzee as the flagship species of this area.

Project achievements

To achieve the project goal, the following planned activities were undertaken and realised as follows:

<table>
<tr><th>Activity</th><th>Status</th><th>Comments</th></tr>
<tr><td>Reproduction of 300 more of the Chimp Poster for field distribution</td><td>Fully achieved</td><td>300 copies of a multifaceted poster of the P. t. ellioti (first produced in 2014) were reprinted. These were and further distributed in the target chimp habitat site communities through/by the student members of the various “Chimp Survival clubs” to palaces, schools, administrative and municipal offices, public spots and some key individuals).</td></tr>
<tr><td>Educational expedition with “Chimp Survival Clubs” to the local chimp habitat sites,</td><td>Fully achieved</td><td>Field trips were organised for an average of 25 members of each “Chimp Survival Club” for the educational expedition to its local chimp habitat site, along with club patrons, a naturalist and/or the Municipal Forestry/Wildlife Officer. The expedition involved the following school clubs and habitat sites:
<table>
<tr><th>No.</th><th>School</th><th>Chimp habitat site</th></tr>
<tr><td>1.</td><td>Government High School (GHS), Kejom Keku</td><td rowspan="2">Tubah-Awing- Balikumbat forest cluster</td></tr>
<tr><td>2.</td><td>Government Technical College (GTC), Balikumbat</td></tr>
<tr><td>3.</td><td>Government Secondary School (GSS), Ngolain-Mentang, Fundong</td><td>Kom-Wum Forest Reserve</td></tr>
<tr><td>4.</td><td>Government High school (GHS), Benakuma</td><td>Southern Menchum forests</td></tr>
<tr><td>5.</td><td>Government High School (GHS), Esu</td><td>Kimbi-Fungom National Park, formerly Fungom Forest Reserve.</td></tr>
</table>
In all 137 students were led to the field and educated on the ecology and habitat type of the endangered Nigeria-Cameroon chimpanzee. The most memorable trip was the one to the Babanki-Finge forest of the Tubah-Awing-Balikumbat forest cluster with the Chimp club of GHS-Kedjom Keku where our naturalist was Martin Mikes, a Czech, of the Kedjom Keku Project. His familiarity and knowledge of the forest and his experience in a sort of Analog Forestry practice therein were important learning points to the students. Like is more or less the problem with most of the forests of the Bamenda Highlands hosting the endangered great ape, the Tubah forest suffers so much threats of timber exploitation, poaching, farm encroachments, cattle grazing, new human settlements, and the attendant bushfires that we could not reach chimp nests, as the chimpanzees move deeper into the most rugged zones for safety.</td></tr>
<tr><td>Radio talk over local Community Radio stations</td><td>Partially achieved</td><td>This activity was a partial success because the earmarked Wum Community radio was not functional, therefore the chimp clubs of GHS-Esu and GHS-Benakuma could not participate in radio talks. it was an exiting experience with positive feedback from the communities of the other three “Chimp Survival Clubs”.</td></tr>
</table>

Unforeseen difficulties and mitigating measures taken

Difficulty	Mitigating measure taken
In project planning we had overlooked the June-July- August school holidays, during which the school club creations could not be done.	The project therefore commenced only upon school resumption in September 2015.
The difficulty of keeping back some members of a chimp club from participating in the educational expeditions.	In most cases we had to take along more students than planned, at further expenses.
Transport cost for the chimp club members to the community radio stations was an arisen line of expenditure initially omitted in project budgeting.	The budgeted money for the two localities without functional radio stations were used offset that.

Chimp club for work on Southern Menchum forest

Community benefits

- Enlightenment, on wildlife conservation.
- Economic benefits from project execution funds spent locally during field activities.
- Conservation leadership development in the youths.

Dissemination of results (with others)

This Final Report will be summed up and circulated to the Regional Delegate of Forestry and Wildlife and the Association of Environmental Education – North West (ASEC-NW) with which we have been closely working. A copy will be posted on the CIRMAD website and newlines of it will be posted on Facebook, Twitter and LinkedIn as we have already been doing with the progress of the project.

Earlier creation of Esu chimp club

Timeline (Respect of timeline and necessary deviations)

Though initially planned to start from June 2015, the project could only kick off upon the resumption of schools, because we had overlooked the June-July-August 2015 school holidays, during which the school club creations could not be done. This necessitated the prolongation of the project to March 2015.

Looking forward

The multi-site projects of the pilot phases of our PAPPro-Chimps having given us footholds and better understanding of the problems of the various chimp habitat sites of the Bamenda Highlands; we are now ct, with Chester Zoo support, to create and work with more chimp clubs in the Kom-Wum Forest Reserve, we ardently want to address the seriously destructive

human activities of the Tubah-Awing forest cluster. It is a vulnerable habitat of the endangered Nigeria-Cameroon chimpanzee, threatened with timber exploitation, conversion of forest for farmlands, hunting, cattle grazing and the attendant bush fires. Our main objectives for TUF are:

- To increase community awareness and conservation education on the dwindling chimpanzee habitat, through a coloured poster.
- To curb illegal activities in TUF by blending the use of traditional conservation laws with national legislations and the creation and support of vigilante committees in adjacent villages for proximate law enforcement.

To attain these objectives we are looking for funding support to:

- organise a workshop to document and blend the traditional conservation laws of adjacent villages with national forestry/wildlife legislations.
- Create, legalise and empower village forestry/wildlife vigilante committees in the concerned villages
- Production of a poster for community education on the protection of TUF, its chimpanzee and other biodiversity, and water catchments.

Donor recognition/use of logo in project

In recognition and appreciation of the project grant, the logo of International Primatological Society was given pride of place and IPS always mentioned in any related mail and literature, like the article titled: CIRMAD in Chimpanzee Conservation as found at http://www.cirmad.net/cirmad-in-chimpanzee-conservation/.

The IPS logo featured prominently at the exposition stand of CIRMAD during the 2015 World Environment Day in Bamenda.

Concluding comments

Normally we have had shortcomings in the execution of this first the project with the support of Larry Jacobsen Conservation Education Development Grant; but learnt useful lessons to better execute our subsequent project phases. But most important of all we solicit your feedback to guide us to greater performance.

To me, by its pioneering support for this project makes the IPS an incontrovertible international partner in the implementation of the Regional Action plan for the Conservation of the Nigeria-Cameroon Chimpanzee (Morgan et al., 2011).

Budget: a breakdown, differences and justification

a) Expenditure summary per source:

Expense item	IPS ($)	Sac Zoo ($)	IDEA WILD ($)	CIRMAD ($)	Total ($)
Project equipment, materials and services	75		100	121	296
Reproduction of chimp posters		450			450
Field trips for educational expeditions to chimp habitats	1,300				1,425
Radio talks over community radio stations	125				
TOTAL	**1,500**	**450**	**100**	**121**	**2,171**

b) Detailed income/expense

Item	Budgeted Amount ($)	Actual Amount ($)	Diff.($)	Funding Source	Comments
Reproduction of chimp poster	450	450	0	Sac Zoo	
Field trips to 5 chimp habitat site communities (transport, board/lodging)	700	700	0	IPS	
Educational expeditions to chimp habitats (transport & snacks)	600	600	0	IPS	
Transporting of chimp club members to the radio	0	50	-50	IPS	
Radio talks over local community radio stations	125	75	+50	IPS	Omitted during project planning/budgeting
Communication (internet, telephone and post)	96	96	0	CIRMAD	
Project stationery and camera accessories	50	50	0	CIRMAD & IPS	
Documentation (printing and photocopying)	50	50	0	IPS	
Digital camera	?	100	0	IDEA WILD	As equipment support for CIRMAD's chimp conservation projects.
Total	**2,071**	**2,171**	**0**		

End of Year Report 2015 from Lawrence Jacobsen Conservation Education Award Katie Chabriere, Noga Shanee

Neotropical Primate Conservation Peru

Introduction

This year we continued to advance in many aspects of our project. We built a new tree nursery with the capacity to produce tens of thousands of native seedlings per year; the majority of the reserves we have helped to create are gaining independence by acquiring funding and support from different sources; and we carried out surveys on all reserves to gain a biological baseline which can be compared to future monitoring programs in order to measure the impact of conservation efforts on biodiversity. Our various research programs have allowed us to gain unique insight into both the ecology of wildlife and social issues related to conservation. This year was also especially productive in our fight against wildlife trafficking, with the rescue of thousands of animals from the illegal trade through several parallel campaigns and actions all over Peru. This included the excellent news of the closure of Pucallpa's "Bellavista" market, the biggest wildlife market in Peru. Both Neotropical Primate Conservation UK and Associación Neotropical Primate Conservation Peru are becoming increasingly recognized for the positive impact our work is having throughout Peru and Latin America in general.

Three of Peru's endemic primate species: the yellow-tailed woolly monkey (*Lagothrix flavicauda*); the San Martín titi monkey (*Callicebus oenanthe*); and the Peruvian night monkey (*Aotus miconax*), serve as flagship species for our project. Our aim is to create communally and privately run reserves and foster broader conservation awareness throughout Peru. By doing so, natural forest corridors will be protected and, consequently, vital habitat will be conserved for many species, and natural resources preserved for the people who live there.

The Community Based Conservation Network for the Endemic Primate Species of Northern Peru evolved from a smaller project initiated through preliminary work undertaken in early 2007 [12,13] using experience gained in the first years of the project's operation. This project has advanced the conservation of the three flagship species as well as many other sympatric primate species and countless other endangered and endemic species of flora and fauna.

The project involves scientific investigation to instigate the creation of community reserves that act as biological corridors between protected areas. It also raises public awareness of how conservation issues, such as environmental degradation, impact upon local communities and provides education primarily focused on young people in the area.

NPC UK and NPC Peru are run by the dedicated conservationists Brooke Aldrich, Liz Tyson, Dr Hannah Parathian, Izzy Hunt, Katie Chabriere, Laura Dalgetty, Ashley Atkins, Dr Mika Peck, Nestor Allgas, Sandra Almeyda, Alejandro Alarcon, Yeissy Sarmiento, Dr Noga Shanee and Dr Sam Shanee who, together with our great network of friends, colleges and associates, donate their time and talents helping us meet our goals.

Investigation

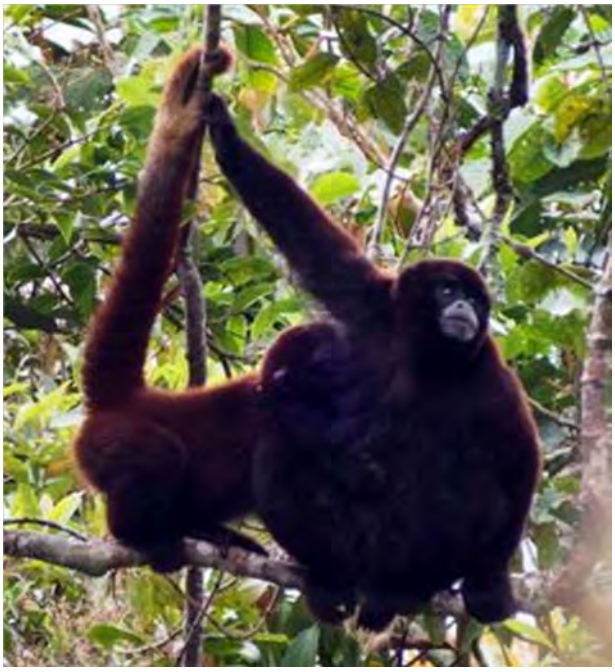
A central focus of our work is the integration of investigations into the ecology of primates and wildlife in general, their conservation needs and developing non-invasive research methodologies. This year we carried out investigations on a broad range of topics.

In 2015 we ran a new research program for monitoring the yellow tailed woolly monkey (*Lagothrix flavicauda*) population at our La Esperanza field site in Peru. The project, headed by NPC Peru vice president Sandra Almeyda, as part of her MSc thesis project at the University of Alabama, used camera traps in the forest canopy to monitor behaviour, diet and ranging of *L. flavicauda* and other species. This system was pioneered by our friends at the Fundación Pro-Conservación de los Primates Panameños in Panama and has now been used to successfully monitor primate populations in several other

areas. The equipment was donated to NPC Peru by Idea Wild with additional camera traps loaned to us by the University of Alabama. We are currently in the process of reviewing photography and footage collected using the traps. We can confidently report that the system is proving to be extremely effective in monitoring montane forest primates. An additional outcome from this study has been the first ever recording of geophagy among yellow tailed woolly monkeys. Belgian PhD candidate Vinciane Fack has now begun the long term monitoring of this behaviour.

This year we welcomed back former volunteer Karla Ramirez, who completed her field work with us as part of an MSc thesis in Environmental studies. Her work focused on the political ecology of conservation in rural communities, specifically to understand local perspectives on community conservation decision making processes. It especially focused on how local people related to the creation of the Royal Sun Angel Gardens Conservation Concession managed by the local group "Asociacion Productores Agropecuarios La Primavera". The study investigated the benefits gained by local stakeholders thanks to their decision to protect the area. Results from this study also formed part of the first management plan for the La Primavera Conservation Concession.

We continue our behavioural data collection on yellow tailed woolly monkeys (*Lagothrix flavicauda*) at our La Esperanza field site with data collection on diets, ranging, seed dispersal and group ecology, to name a few. To further increase the impact of this data, in 2012 we began standardizing our data collection methodologies with similar research projects in Colombia and Ecuador who also work with Atelinae (spider monkeys, woolly monkeys and muriquis), and have recently joined with projects in Brazil. To further coordinate research and conservation efforts across the Neotropics, NPC Peru became an institutional member of the Latin American Primatological Society (Sociedad Latino Americano de Primatologia, http://www.slaprim.org) and NPC co-founder Dr Sam Shanee attended the IUCN's Red Listing workshop in Texas in January.



We also continue surveys of yellow tailed woolly monkeys in other areas. This year NPC Peru's Yeissy Sarmiento, with funding from Conservamos por Naturaleza undertook distribution and abundance surveys of *L. flavicauda* in and around the Berlin Forest Private Conservation Area; work which has confirmed the presence of two groups of yellow tailed woolly monkeys in the area, consisting of five individuals each.

Furthermore our research with Proyecto Washu (http://www.proyectowashu.org) and researcher Laura Cervera of the Universidad Laica Eloy Alfaro de Manabi in the Pacific coastal and western montane forests of Ecuador continues. During two field expeditions we conducted rapid primate surveys and conservation evaluations of multiple sites. This work is on-going and we will be presenting our results later this year.

The results of our long term investigation into the illegal primate trade together with extensive investigation by Peruvian veterinarian Patricia Mendoza were recently published in a special addition of the American Journal of Primatology. The article "Diagnostic overview of the illegal trade in primates and law enforcement in Peru" was published in an issue dedicated to studies of the illegal trade in primates. In our paper we estimate the volume of trade in primates in Peru, for the pet and bushmeat trade, in the hundreds of thousands per year, with the larger bodied Atelidae (spider, woolly and howler monkeys) facing the greatest threat. We found that government authorities lack sufficient staff, capacity, resources, infrastructure and protocols to efficiently combat this trade. Also, the complicated legal framework, lack of cooperation and antagonism with the public further limit these efforts. Wildlife authorities in Peru are able to confiscate only a fraction of the primates traded and intervene mostly in cases of private pet owners rather than traffickers. We estimate that the current rate of illegal trade in primates is comparable to levels of trade prior to the 1973 ban on primates' exportation. Our recommendations include the requirement that decision makers and international funders channel effort towards 'on the ground' actions, such as increasing authorities' abilities to act, giving them 'in action' training in law enforcement and establishing strict control measures against corruption.

Another investigation we ran was focused on land trafficking, which can be defined as the illegal usurpation, appropriation and/or commerce of lands. It is closely linked with rural migration and can be seen as an activity that organizes and facilitates migration to forest frontier zones. Therefore, it is closely linked to deforestation of virgin forests. Unfortunately, it is a very common practice in Amazonas, San Martin, across Peru, and in Latin America in general. Loopholes in Peruvian legislation, conflicting policies and institutional inefficiencies impede authorities from efficiently confronting land trafficking and even encourage it. Corrupt officials play an essential role in facilitating this trade. Although local people are often aware of the problems related to land trafficking, their ability to control it is greatly impeded by social factors and by the dangers of confronting

organized criminals. Land trafficking is a little studied issue with great environmental and social implications and must be addressed both on academic and practical levels in order to confront the biodiversity loss related to migration to frontiers forest zones. We have begun focusing efforts on confronting this illegal activity which threatens to further destroy some of the most fragile habitats in the areas we work.

Publications, Presentations and Theses

Alarcon Pardo A, Peralta Aguila AP (2015) Nuevo registro del Búho Estigio (*Asio stygius*) en el bosque montano húmedo de Amazonas, Perú. Boletin UNOP 10(1):59-62

Allgas N, Shanee S, Peralta A, Shanee N (2015) Yellow-tailed woolly monkey (*Oreonax flavicauda*: Humboldt 1812) altitudinal range extension, Uchiza, Perú. Neotropical Primates 21:207-208

Di Fiore A, Chaves P, Cornejo FM, Schmitt CA, Shanee S, Cortés-Ortiz L, Fagundes V, Roos C, Pacheco V (2015) The rise and fall of a genus: Complete mtDNA genomes shed light on the phylogenetic position of yellow-tailed woolly monkeys, *Lagothrix flavicauda*, and on the evolutionary history of the family Atelidae (Primates: Platyrrhini). Molecular Phylogenetics and Evolution 82:495-510

Horwich RH, Shanee S, Shanee N, Bose A, Fenn M, Chakraborty J (2015) Creating modern community conservation organizations and institutions to effect successful conservation change. Pp 131-162 in: M. Zlatic (ed). Precious Forests-Precious Earth. INTECH, Croatia

Shanee S, Shanee N (2015). Measuring Success in a Community Conservation Project: Local

Population Increase in a Critically Endangered Primate, the Yellow-tailed Woolly Monkey (*Lagothrix flavicauda*) at La Esperanza, Northeastern Peru. Tropical Conservation Science 8:169-186

Shanee S, Allgas N, Alarcon A, Shanee N (2015) Distribución y nuevos registros de Xenarthra para el nororiente del Perú, con notas sobre su conservación. Edentata 16:28-36

Shanee S, Allgas N, Shanee N, Campbell N (2015) Distribution survey, ecological niche modelling and conservation assessment of the Peruvian Night Monkey: *Aotus Miconax Thomas*, 1927 (Mammalia: Primates: Aotidae) in north-eastern Peru, with notes on the distributions of *Aotus* spp. Gray, 1870. Journal of Threatened Taxa 8:6947-6964

Shanee N, Mendoza AP, Shanee S (2015) Diagnostic overview of the illegal trade in primates and law enforcement in Peru. American Journal of Primatology. Online early addition

Shanee N (Accepted) Government and Community Based Primate Conservation Initiatives in Peru. In: MT Waller (ed). Primate Conservation in the 21st Century. Springer

Shanee S (Accepted) Predicting future effects of multiple drivers of extinction risk in Peru's endemic primate fauna. In: MT Waller (ed). Primate Conservation in the 21st Century. Springer

Alarcon-Pardo A (Submitted) Abundancia poblacional y variables estructurales del habitat de la lechucita bigotona Xenoglaux loweryi (aves: strigidae) en dos localidades del distrito de yambrasbamba – Amazonas, Peru. Undergraduate Thesis. Universidad Nacional Mayor de San Marcos, Peru

Alarcón Pardo A, Shanee S, Shanee N, Huamán Rojas G (Submitted) Descripcion de la Dieta de la Lechucita Bigotona (*Xenoglaux Loweryi*) A Traves del Analisis de Heces. Internacional de Ornitología Neotropical.

Campbell N, Nekaris KAI, Pereira T, Shanee S (Submitted) A new technique for conservation assessment of nocturnal mammals: a case study of occupancy of night monkeys (*Aotus miconax*) in Peru

Shanee N, Shanee S (Submitted) Migration, land trafficking and conservation in the 'no-man's land' of north eastern Peru.

McCragh E (In Prep) Social interactions and proximity preferences of yellow tailed woolly monkey (*Lagothrix flavicauda*) females with dependent infants, at La Esperanza, Peru. MSc Thesis. Universidad de Gerona, Spain.

Orench L (In Prep) Rates of intra-group aggression in wild yellow tailed woolly monkeys (*Lagothrix flavicauda*) at La Esperanza, Peru. MSc Thesis. Universidad de Gerona, Spain

Peralta-Aguilar A (In Prep) Helmintos Gastrointestinales en el Mono Choro Cola Amarilla (*Lagothrix flavicauda*) y Mono Nocturno Andino (*Aotus miconax*) en el departamento de Amazonas - Perú. Undergraduate thesis. Universidad Alas Peruanas, Peru

List of popular publications featured in the news and internet:

- http://news.mongabay.com/2015/09/the-ballad-of-pepe-lucho-policing-domestic-wildlife-trafficking-in-peru/
- http://news.mongabay.com/2015/12/200000-of-perus-primates-trafficked-for-pet-trade-or-bushmeat-yearly/
- http://news.mongabay.com/2015/12/bellavista-no-more-perus-infamous-wildlife-market-reduced-to-rubble/
- http://news.mongabay.com/2015/05/community-conservation-increases-endangered-monkey-population-in-peru/
- http://www.onegreenplanet.org/animalsandnature/rescued-from-the-illegal-exotic-pet-trade-vish-the-sloth-gets-a-happy-ending/
- http://www.onegreenplanet.org/animalsandnature/community-conservation-brings-critically-endangered-monkey-back-from-the-brink/
- https://www.thedodo.com/baby-vish-sloth-rescue-1006995985.html
- http://www.onegreenplanet.org/animalsandnature/illegal-wildlife-market-reduced-to-rubble/
- http://www.franimals.org/noga-shanee-saving-monkeys/

Protected areas

We continue to assist many different communities, community groups and local individuals who have chosen to take the initiative of conserving their own forests.

In Peru there are two kinds of non-government protected areas:

- Privately owned lands, such as titled family plots or community lands, which can be registered as Private Conservation Areas (ACP) for an unlimited time through application to the Ministry of the Environment.
- State-owned land (not titled) which can be registered with the respective Regional Government as a Conservation Concession (CC) for up to 40 years, renewable.

We are currently working on the creation and maintenance of reserves of both kinds however, the process of creating these reserves is long, expensive and complicated. It includes: repeated coordination with local communities and capacity building to ensure responsibility for a conservation area; biological and socioeconomic investigations; elaboration of a detailed proposal; repeated coordination with authorities. In the case of CCs, publication of the project in government and national newspapers is also required, as well as in the respective municipality for a month each, to allow objections and, after the creation, the elaboration of yearly reports and management plans. It is important to note that new laws further complicate this process, while loosening the requirements for other, much less sustainable land uses demonstrating that the state does not prioritize conservation.

In September the new management plans for four of the Conservation Concessions we helped create were handed into the regional government of San Martin. These plans detail past achievements and focus areas for future work in each area over the next five years. The CCs included were Gran Simacache, Royal Sun Angels Gardens, Shitariyacu and Tres Quebradas. The management plans were a combined effort between the associations, local government and the NGO's Proyecto Mono Tocon (PMT), Amazonicos por la Amazonia (AMPA) and NPC. Each plan includes information on: environmental and social aspects of each area; details of the administration of each concession; research programs; training; evaluation of ecosystem services; activities schedule and budget. Unfortunately, because of major changes in the law that occurred immediately after we handed in the management plans to the regional government, these plans have not yet been approved and may have to go through some adjustment, of which we are not yet aware.

During January and February we undertook biological monitoring trips for mammals, birds, amphibians, reptiles and plants in four of the protected areas we have helped create with local communities. We also undertook the initial biological inventories for the creation of the new Alto Renaco Conservation concession in San Martin, Peru.

Preliminary results show a great diversity of species present in the areas. These species were registered from direct visual and auditory observation as well as from prints and tracks. Species recorded included tapirs, anteaters, peccaries, deer, wild cats as well as many other species that were previously harder to observe due to high hunting pressure for bushmeat before the creation of the reserves. This shows that populations of these species are beginning to recuperate thanks to the conservation efforts of the local communities we work with. Data gathered during these studies and those prior to the creation of the reserves will serve as a base line from which we can continue to monitor changes in the population dynamics of communities of wildlife to better decide on management options. We also hope that in the long term we will be able to properly measure the effects of climate changes on species, particularly those most susceptible to changes in habitat.

All the associations we work with are now integrated in regional conservation federations run by members of local conservation groups with the help of the regional governments and different NGOs. These federations (Redes de conservación regional) are an excellent way for local groups to support one another and to raise funds for their work. We financially and technically support our groups´ participation in the federations and are happy to see them becoming an integral part of a community of local conservationists. We encourage all the groups we have helped to develop independently and learn to secure their

own long-term financial and technical support. We are therefore happy to report that a number of these groups have succeeded in achieving this, thanks to various NGOs and institutions, allowing them to further their work and reduce dependency on us.

Alto Renaco – The area is managed by a group of local coffee farmers from the area, called the "Asociacion Campesina de Caficultores Alianza Ambiental". We have finished the initial evaluations needed to prepare the Technical Proposal to be presented to the regional government of San Martin. We have published details of the proposed area to be covered by the reserve in local and regional newspapers as well as in four municipalities and are awaiting full details of changes to the relevant laws before proceeding with the next stage of this work. We hope to have good news soon!

El Quinillal - The Asociación de Protección Ambiental del Bosque El Quinillal (APABOQUI) handed in the technical proposal for the creation of the "El Quinillal" conservation concession. This area covers 10,696 ha of tropical dry forest in the San Martin region. NPC, together with Peruvian NGO AMPA, was able to help the association with biological inventories and coordination. We also paid for the publication in local and national press of the final resolution (N°001-2015 - GRSM -ARA - DEACRN) which announced the official creation of the reserve. We will continue to provide help to this conservation initiative into the future.

Gran Simacache – This 41,000 ha area still presents many difficulties for its management and protection, four years after its official creation. The "Farmers' Association for the Conservation of the Natural Forests of Simacache" are struggling with the very high number of illegal land invaders. The group has filed many formal complaints and requests for help to the police, army, environmental public prosecutor's office and the San Martin regional government. Although the law granted conservation administrators the assistance of the authorities in cases of the entrance of third parties into reserves, there has been no adequate response from the authorities. The group suffers from growing numbers of threats on their lives and is having difficulty handling the situation without the all-important government intervention. Peru was recently ranked globally as the fourth most dangerous country for local conservationists and there is much proof from throughout the country that the government's continual lack of support is aggravating the situation [14,15,16]. The association members have put a lot of their own time, money and effort into their dream of protecting this special area. They face a lot of pressure from land invaders and hunters that illegally enter the area, and have even been, temporarily kidnapped and assaulted, events which have only made the group even more determined to fight for their forests. NPC had been helping the association with the technical and legal aspects of the reserve creation and are now supporting them in maintaining it. This year we intend to increase pressure on the regional government to coordinate with other authorities and finally respond to demands for support.

Sun Angel's Gardens – This conservation concession is administrated by the Association of Farmers of La Primavera. This group has advanced in its management capacities and is the most independent group we are working with. They have managed to secure different development grants from the government, using their achievements in conservation as a proof for their management abilities and commitments. These projects allow them to increase their income and in its turn give them better opportunity to dedicate more of their time and effort to conservation initiatives. There is one land invader in Sun Angel´s Gardens, who recently clear cut about 3 ha. In the last patrol of the area, in December, the association had given the invader an ultimatum to leave and if not they will involve the Ronda Campesina to take him out of the reserve and sanction him.

Iguahuana - This small area of 423 ha of rare Maranon dry forest, managed by local farmer Mr Rosas Torres with the support of the Ronda Campesina of Delta village is slowly advancing. We have undertaken periodic visits to the area to give environmental education sessions in local schools and village meetings. There are not many other conservation activities in the area, but the Ronda is in charge of vigilance and stops any intruders.

Shitariyacu and Tres Quebradas – These two reserves are currently doing very well. They have the support of two other NGOs, AMPA and

PMT, who are located in San Martin and doing a lot of environmental education and development of tourism activities. Therefore we have reduced our involvement in these areas, and offer our support whenever it is needed, mainly for biodiversity monitoring.

La Pampa del Burro – This Private Conservation Area belonging to the Yambrasbamba Campesino community has secured financial help from Peruvian NGO SPDA and the Amazonas Private Conservation Network. This funding has enabled them to locate signs, border marks, and trails and build basic accommodation to allow them to receive tourism, and provide a resting place for patrols. There are still illegal settlers in the reserve who have clear cut some land for agriculture and continue to illegally extract timber and orchids from the reserve. These people were reported to the police by the community about a year and a half ago and are now going through trial. Hopefully this case will end positively soon. The community had also found a person trafficking orchids from the reserve and denounced her immediately with our help to the police. The orchids were confiscated and the woman is now under investigation.

Hocicón, The Monkeys' Jungle, Quscarumi and Marona - These four areas are not registered with the government but with the Ronda Campesina and are part of our novel conservation model; Areas Ronderils de Conservacion Ambiental or ARCAs. The Ronda Campesina is a network of autonomous civil organizations aimed at self-protection. They practice vigilance and civil justice in the rural Peruvian countryside where state control is insufficient. It is the largest and most influential grassroots movement in North Eastern Peru. This type of area has a double impact. Most importantly they allow fast and effective conservation from local initiatives. In our work we have found that people living in or near forests demonstrate high environmental consciousness and a capacity to administer protection in rural areas that state agencies cannot match. Secondly, these reserves focus attention on state conservation systems that necessitate high economic investment and lengthy bureaucratic processes. This excludes local people and misses many opportunities for conservation by a population that does not have the means or academic expertise to follow traditional conservation routes.

These four reserves are just an example; there are hundreds of ARCAs throughout Peru that are the autonomous initiatives of many different Ronda bases, ranging in size from tens to thousands of hectares each. Our mission is to geo-reference as many of these reserves as possible and help them establish a firm legal status. Mapping the ARCAs is very time consuming and complicated, and therefore only a small fraction of these reserves have been registered with us. However, we have great satisfaction knowing that so many areas are being protected as a result of our efforts with or without our direct involvement.

Table 1: Protected areas NPC is involved with their creation or maintenance

Name of area	Type of protected area	Size (ha)	Protected primates	Our type of involvement	Current situation
San Angel's Gardens	CC	7418	*Aotus miconax, Ateles belzebuth, Alouatta seniculus, Cebus yuracus, Saimiri macrodon, Saguinus leucogenys*	Primary NGO involved	Created in December 2012 by the regional resolution 536-2012/GRSM/ARA/DEARN
El Gran Simacache	CC	41,269	*Ateles belzebuth, Alouatta seniculus, Cebus yuracus, Sapajus macrocephalus, Saimiri macrodon, Cebuella pygmea, Callicebus oenanthe, Aotus miconax, Aotus sp. Saguinus leucogenys*	Primary NGO involved	Created in December 2012 by the regional resolution 534-2012/GRSM/ARA/DEARN
Iguahuana-Dry Forests of Delta	CC	423.1	*Cebus yuracus, Aotus sp.*	Primary NGO involved	Created in October 2012 by the regional resolution 388 2012-GRA/GRDE/DRA/D.
Shitaryacu	CC	1591.53	*Callicebus oenanthe, Alouatta seniculus, Saguinus leucogenys, Saimiri macrodon, Aotus nigriceps, Cebus yuracus*	Collaboration with Proyecto Mono Tocon	Created in December 2012 by the regional resolution 535-2012/GRSM/ARA/DEARN
Tres Quebradas	CC	4,176.54	*Callicebus oenanthe, Alouatta seniculus, Saguinus leucogenys, Saimiri macrodon, Aotus nigriceps, Cebus yuracus*	Collaboration with Proyecto Mono Tocon	Created in December 2012 by the regional resolution 537-2012/GRSM/ARA/DEARN
Alto Ranaco	CC	3,372	*Callicebus oenanthe, Alouatta seniculus, Cebus spp. Leontocebus leucogenys*	Primary NGO involved	Registration process underway
El Quinial	CC	10,696	*Callicebus discolor, Leontocebus leucogenys, Alouatta seniculus, Aotus nigriceps*	Collaboration with AMPA	Created November 2015 by the regional resolution N°001-2015 - GRSM - ARA - DEACRN

Name of area	Type of protected area	Size (ha)	Protected primates	Our type of involvement	Current situation
Pampa del Burro	ACP	2776.9	*Oreonax flavicauda, Aotus miconax, Ateles belzebuth, Cebus yuracus*	Primary NGO involved	Created in June 2013 by Ministerial Resolution 208-2013-MINAM
Hierba Buena-Allpayacu	ACP	2,282	*Oreonax flavicauda, Aotus miconax, Cebus yuracus*	Collaboration with SPDA and the University of San Marcos	Created in June 2011, by Ministerial Resolution No.123-2011-MINAM
El Breo	CC	113,826	*Oreonax flavicauda, Aotus miconax, Ateles belzebuth, Callicebus discolor, Aotus sp.*	Helped in biological research needed for registering the reserve	Created by the Asociación de Conservación de los Bosques Comunales de 2 de Mayo with the help of AMPA in 2009
Sacha Runa	CC	2537.8	*Lagothrix poeppigii, Leontocebus leucogenys, Callicebus discolour, Cebus sp., Alouatta seniculus, Ateles chamek*	Helping with research	Asociación Ecológica Sacha Runa-Sauce with the help of AMPA
Copallin	ACP	11,549	*Oreonax flavicauda, Aotus miconax, Ateles belzebuth, Cebus yuracus*	Helped in biological research needed for registering the reserve	Created by the community of Copallin with the help of APECO and SPDA in 2011
Pucunuchu	ACP	23.5	*Callicebus oenanthe, Leontocebus leucogenys, Aotus sp.,*	Helping with research	Created by the NGO AMPA
Mangapa-quina	ACP	13.5	*Callicebus oenanthe, Leontocebus leucogenys, Aotus sp.,*	Helping with research	Created by the NGO AMPA
Larga Vista 1	ACP	22.3	*Cebus sp., Alouatta seniculus, Leontocebus leucogenys*	Helping with research	Created by Mr. Teofisto Delgado Ríos
Larga Vista 2	ACP	22.5	*Cebus sp., Alouatta seniculus, Leontocebus leucogenys*	Helping with research	Created by Mr. Teofisto Delgado Ríos and Mrs. Sheila Solano Reátegui

Name of area	Type of protected area	Size (ha)	Protected primates	Our type of involvement	Current situation
Rio Nieva Reserved Zone	ANP	36,348	*Oreonax flavicauda, Aotus miconax, Ateles belzebuth, Alouatta seniculus, Cebus yuracus*	Part of management committee, help in research, communication with the communities around and within the reserve	Mapping and biological and socioeconomic surveys
Cordillera de Colan National Sanctury	ANP	39,215.8	*Oreonax flavicauda, Aotus miconax, Ateles belzebuth, Alouatta seniculus, Cebus yuracus, Saimiri macrodon*	Part of management committee and help in research, communication with the communities around the reserve	Created by the state in 2009
Hocicón	ARCA	509	*Aotus miconax, Ateles belzebuth, Alouatta seniculus, Cebus yuracus*	Main NGO involved	Created by Libano Ronda base in 2012
The Monkeys' Junngle	ARCA	324	*Callicebus oenanthe, Alouatta seniculus, Leontocebus leucogenys, Saimiri macrodon, Cebus yuracus, Aotus sp.*	Main NGO involved	Created by El Tambo Ronda base in 2013
Marona	ARCA	874	*Callicebus oenanthe, Alouatta seniculus, Leontocebus leucogenys, Saimiri macrodon, Cebus sp., Aotus sp.*	Main NGO involved	Created by Marona Ronda base in 2013
Quiscarumi	ARCA	11	*Callicebus oenanthe, Leontocebus illigeri*	Main NGO involved	Created by San Miguel de la Marginal in 2014

Education

Last year NPC staff and volunteers gave dozens of talks to varied audiences including children of all ages, university students and staff, NGOs, governmental agencies, grassroots organizations and associations and academics in Peru. These activities focused on areas within the buffer zones of conservation reserves, wildlife trafficking hotspots and gatherings of community leaders arriving from wider areas. Talks were mainly about the importance of forests and wildlife, the dangers of climate change, extinction processes, the consumption of bushmeat, sustainable agriculture etc. and they supported the reserves by increasing interest in the communities around them.

In November we ran an education campaign for children and adults in areas around the conservation reserves we are helping manage in Amazonas and San Martin regions. The campaign was shorter than planned as the schools in both regions closed a month early and some roads were blocked because of the state of emergency declared in northern Peru in preparation for the El Niño phenomenon. However, Catalina Ocampo Carvajal and Dr Noga Shanee, who ran the campaign, managed to reach many schools, using videos, games and stories to teach environmental awareness to more than 450 children from seven schools in Bagua, Mendoza, Libano, Santa Cruz, La Primavera, San Miguel and El Tambo. We also gave talks to the adults in the villages we visited about the connection between the El Niño Phenomenon, deforestation and agriculture, promoting more sustainable ways of life.

Further to this we ran a special cultural exchange project between fifth and sixth grade students in La Esperanza and schoolchildren from Ligné, Belgium. The children exchanged letters, drawings, videos and photos telling each other about their lives, families, school and especially about the local environment. They sent small souvenirs as gifts to each other. This program was organized by Vinciane Fack with help from Jane Topping, Catalina Ocampo, Carolina Castillo and Nestor Allgas.

In September we hosted our second field course focused on methods in investigation and conservation of Latin-American primates and biodiversity in general. The course was held in the city of Rodriguez de Mendoza, Amazonas, with the participation of an excellent group of 11 students and professionals from Peru, Ecuador, Honduras, Colombia, Panama, Spain and Italy, as well as teachers and specialists in many fields related to primate conservation from Peru, Spain, Israel and England. This course offered an introduction to the theoretical basis of Neotropical primate ecology, field studies, anthropological investigations and community based conservation. The practical part of the course applied what was taught during theory classes: behavioural monitoring, census techniques, triangulation and diet of Neotropical primates. This part of the course was carried out in the Hocicon Ronda Conservation Area, managed by the Libano ronda base. It is an area within the buffer zone of the Royal Sun Angel's Gardens Conservation Concession which is managed by another community partner the Asociación de Productores Agropecuarios La Primavera. Thanks to the initiative of both these groups these areas now protect

important examples of Peru's biological diversity. We thoroughly enjoyed sharing our knowledge and experiences with these young conservationists and hope they will now help spread these ideas throughout the neotropics and further afield through their own work in protecting primates.

The Berlin Forest Private Conservation Area together with Conservamos por Naturaleza have been developing environmental education in the seven villages surrounding the reserve based on participation in local meetings to explain the objectives of the area and the work involved. NPC Peru's Yeissy Sarmiento took charge of this work last year carrying out many activities including workshops in primary and secondary schools in the area giving presentations on primates such as the yellow tailed woolly monkey (L. flavicauda) and the Peruvian night monkey (A. miconax). One of the principle activities was the promotion of TiNis (Tierras de Ninos, Kids Land) created by local group "Asociación para la Niñez y su Ambiente" gaining participation of 12 teachers and 319 school children.

"A TiNi is a space of at least half a meter square where any child voluntarily protects life, promotes welfare of themselves, nature and others and is recognized as an agent for global change"

Three primary schools were selected to develop TiNi's, involving teachers and students between 6-12 years old. Together they made small vegetable patches, gardens and composters using recycled materials to improve the environment around their schools. This project was possible thanks to funding by Conservamos por Naturaleza.

Community development

We continue our efforts in sustainable economic development but as expected this is the most challenging part of the project. One way we achieve this is by seeking out larger markets and establishing a connection between buyers and local producers in Sacha Inchi. We have also helped the Campesino Community of Yambrasbamba gain a $5000.00 (US) award from the Peruvian NGO Sociedad Peruana de Derecho Ambiental, which allowed the community to build a multi-purpose house within the Pampa del Burro Private Conservation Area. This house has rooms for tourists and park guards to stay the night and an open space which will serve as a visitor's centre, exhibiting photos and information

from the conservation area. This grant has enabled the community to install welcome signs at the entrances to the reserve and begin installing way markers on the borders of the reserve to stop the agriculture encroachment.

As part of our community assistance programs in La Esperanza we ran a free three month English program for the community's primary and secondary school children. The classes included many games and fun activities which encouraged the children to learn English. Conservation was also a major theme in these classes, and the high school students gave presentations in English about the yellow tailed woolly monkey, as the final activity of the course. The program was run by Jane Topping who came especially from England to offer her time and expertise to the community. One of the activities carried out during this course was building a mini herbarium in La Esperanza. The children collected and pressed plants, learning about the incredible biodiversity of the area whilst also learning English. The next English courses will start in March and will include more villages in the area.

Reforestation

In July we began construction of a tree nursery in the village of La Esperanza. The aim of this project was to supply trees of native timber and fruit species to local farmers from the villages of La Esperanza, Buenas Aires, Yambrasbamba, Miraflores, Santa Rosa, La Florida and La Perla del Imaza. Thanks to funding from WWF's Education for Nature program and the Swiss Science Agency Network we were able to construct a nursery capable of holding ~20,000 trees in potting bags as well as five germination beds for producing seedlings from seeds collected

locally. We were also able to employ local technicians and trainees from the community. As part of this work local staff received training in reforestation and nursery techniques from the technicians. Additionally, we organized meetings in the villages included in the project to explain the importance of forests, forest connectivity and reforestation. At these meetings interested community members could sign up to receive trees to plant on their land, either for forest recuperation, silvo-pasture and/or living fences. We had over 151 participants in this program and have so far distributed over 4,500 trees of five native species. There are still thousands of seedlings in the nursery that we will distribute in the coming months. We are also hoping to secure funding to keep this program running indefinitely.

Wildlife rescue

This year saw great advances in our battle against illegal wildlife trafficking in Peru. We organised and were involved in the reporting, confiscation, rescue and/or transport of 1956 animals, 272 of them classified as Threatened by the IUCN and/or protected under national law (014-2014-MINAGRI, see Table 2 and Fig. 1-3). We have a few cages installed in our office and can give animals preliminary care before they are delivered to rescue centres, a journey that takes between five hours and two days depending on the rescue centres. Animals normally stay with us for a day or two in the middle of the journey to relax and to assess their health situation. Some animals, which we suspect will not be able to survive, because they are too young or injured, are given to us in custody by the authorities, until they are strong enough to be integrated in one of the centres.

This year we were involved in the intervention of two illegal shipments of parakeets, one of more than 650 birds and the second of over 1000. Both were confiscated by the police in Amazonas. The authorities contacted us to help in their care and transport and so they spent a few days at our project in order to recover from the journey before we transported them to rescue centres in San Martin, where they stayed until their wings grew back after being clipped by the traffickers. The majority of them, which were able to fly, were released back to their natural habitat. During these encounters with such a large amount of birds we saw first-hand the terrible conditions in which parrots are trafficked. When we took them out of the boxes they were being smuggled in we found many of them dead, and many more died in the following days even after receiving the best care we could give them. The journey of trafficked parakeets from the jungle to the coast can take up to a week during which time up to 100 animals are stuffed into small crates without food or water. Few survive to be sold illegally in markets or to be smuggled out of Peru.

To assist the work of the authorities in San Martin, we built them two temporary holding cages in their Moyobamba offices where animals can be kept for a few days until a rescue centre is able to receive them. We were pleased to see the cages are being used by the authorities, and that they have so far provided shelter for quite a few rescued animals.

Thank you so much to Veterinarians Milagros Ramos Munar and Patricia Mendoza for all their great advice and help with these rescued animals.

Table 2: Live wildlife rescued with the help of NPC

Number of individuals	Species	Latin name	IUCN status	Peru's law	CITES
1	Red howler monkey	*Alouatta seniculus*	LC	NT	II
1	Orange winged parrot	*Amazona amazonica*	LC	-	II
2	Scarlet-fronted parakeet	*Aratinga wagleri*	LC	-	II
1	South American fur seal	*Arctocephalus australis*	LC	EN	II
3	White bellied spider monkey	*Ateles belzebuth*	EN	EN	II
3	Black spider monkey	*Ateles chamek*	EN	EN	II
3	Chestnut-tipped toucanet	*Aulacorhynchus derbianus*	LC	-	II
2	Boa	*Boa constrictor*	NL	-	II
1653	White winged parakeet	*Brotogeris versicolurus*	LC	-	II
3	Maranon White-fronted capuchin	*Cebus yuracus*	NL	-	II
1	Two-toed sloth	*Choloepus didactylus*	LC	-	II
1	Pacarana	*Dinomys branickii*	VU	VU	NL
5	Yellow footed tortoise	*Geochelone denticulata*	VU	-	II
4	Agouti	*Dasyprocta fuliginosa*	LC	-	NL
1	Silvery woolly monkey	*Lagothrix poeppigii*	VU	VU	II
1	Ocelot	*Leopardus pardalis*	LC	-	I
1	Margay	*Leopardus wiedii*	NT	DD	I
1	Slender mouse opossum	*Marmosops noctivagus*	LC	-	NL
2	Coati	*Nasua nasua*	LC	-	III
1	Collared peccary	*Pacari tajacu*	LC	-	II
43	Yellow-spotted river turtle	*Podocnemis unifilis*	VU	VU	II
1	Peruvian bush anole	*Polychrus peruvianus*	DD	DD	NL
3	Black mandibled toucan	*Ramphastos ambiguus*	LC	-	II
1	Saddle-back tamarin	*Saguinus fuscicollis*	LC	-	II
1	Andean Saddle-back Tamarin	*Saguinus leucogenys*	NA	-	NL
3	Black capped capuchin	*Sapajus macrocephalus*	LC	-	II
2	Humboldt penguin	*Spheniscus humboldti*	VU	EN	I
211	Titicaca water frog	*Telmatobius culeus*	CR	CR	NL

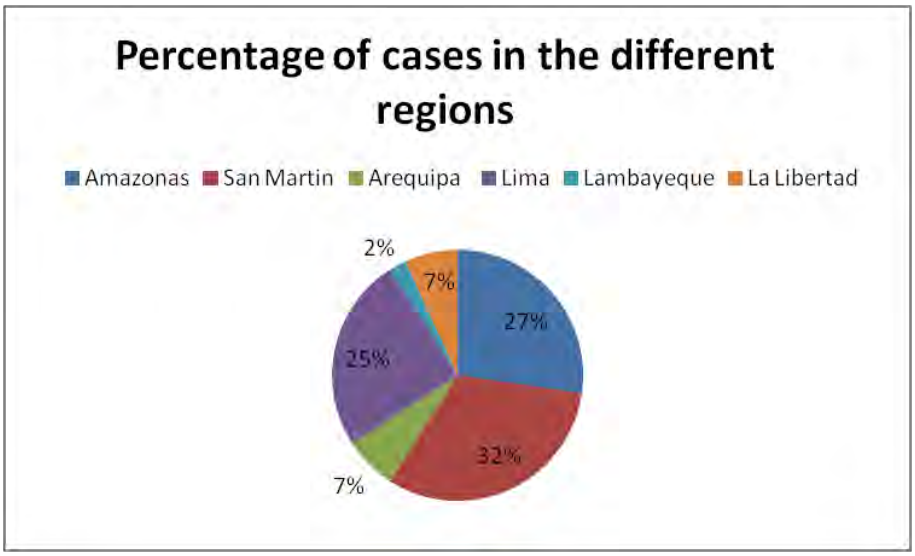


Figure 1.

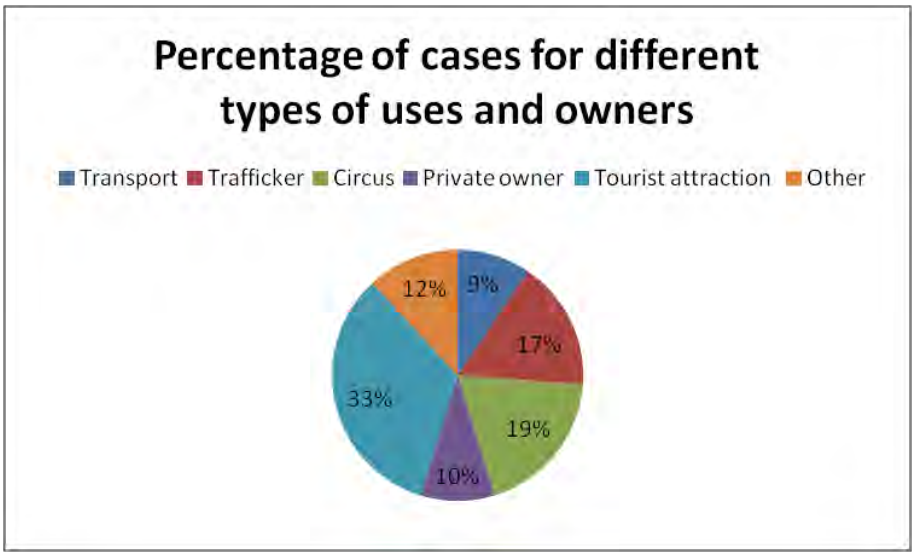


Figure 2.

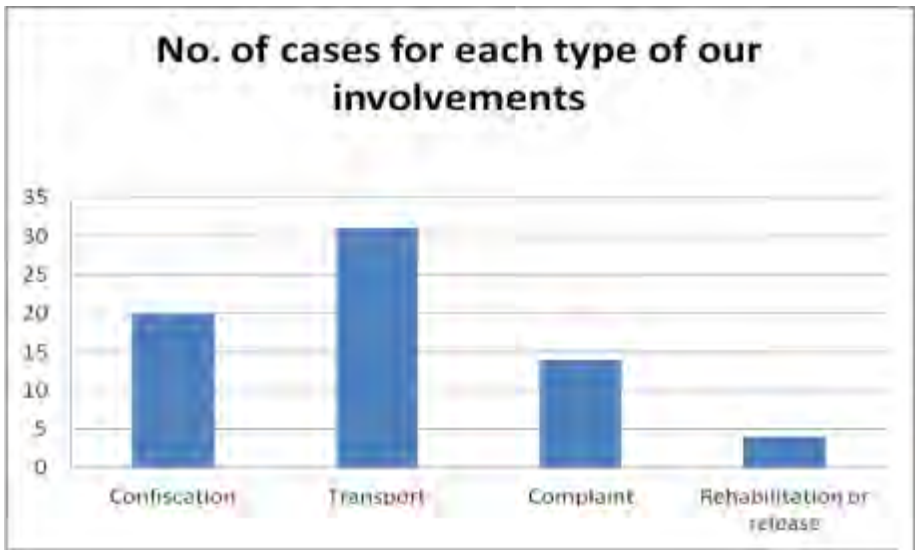


Figure 3.

Campaign: the official general complaint "DenunciaFauna"

This campaign was started in April 2014 with three main aims:

1. Confiscate animals and make sure traffickers receive proper penalties.
2. Identify authorities' deficiencies in acting against trafficking.
3. Draw public attention to the fight against wildlife trafficking in Peru.

Since April 2014 we handled 175 formal complaints from all over Peru, reporting on thousands of wild animals kept illegally in captivity. We also reported irregularities in official permits given for wildlife exploitation and alleged cases of corruption within the authorities. Seventy five percent of all cases included at least one threatened species. We are currently in the process of gathering information from the authorities about the results of the cases we reported. This is very complicated and time consuming because of the bureaucratic requirements of the authorities. We know that not all the cases were attended to (see Fig. 4). In other cases the authorities were too slow to act and failed to rescue the animals, but we do know that so far 961 animals have been rescued as a result of this campaign and hundreds of skins, animal parts and bushmeat have also been seized. The more complex cases involving irregularities within the authorities are also under investiga-tion. We are grateful to all our anonymous informants who provide the information about trafficked wildlife and to the great people in Peru's wildlife authorities who have made a real effort to attend these reports.

Figure 4

Health assessment for rescued primates

Together with the Peruvian vet Patricia Mendoza, a wildlife specialist, we visited four rescue centres in San Martin region in order to evaluate management and give advice on issues of animal health and enrichment. These visits were requested by the Regional Environmental Authority of San Martin, as part of their efforts to improve wildlife control and management. This is part of a larger project we are planning to set up to create a national pre-release protocol for the re-introduction of primates. Wildlife authorities request animals to be in good health and to be tested for epidemical diseases prior to release. However, there are no specific guidelines about quarantine, or approved protocols for health assessments and diseases that must be treated to ensure a safe release process. Also, some of the most important tests are currently unavailable in Peru therefore many monkeys have to remain in rescue centres because their condition cannot be evaluated. Of higher concern, are several cases of primates being released without a medical examination or any habituation period that may enhance their ability to survive in the wild, as well as not going through any quarantine or health assessments that may reduce the risk of disease transmission to wild populations. We are hoping to be able to change this situation and make sure that primates can be returned to the wild in the safest way for them and other wildlife.

The end of Bellavista Wildlife Market

On the 28th of October, the biggest wildlife market in Peru was torn down!

The market of "Bellavista", run by the municipality of Coronel Portillo, Pucallpa, was the largest open wildlife in Market in Peru and one of the largest in Latin America. Hidden in amongst its legal merchandise, this vast market offered a variety of illegal goods including wild animals and drugs. Human trafficking was even thought to have occurred here.

Over the last 20 years, millions of animals have been openly sold in this market, both live, for the pet trade, and dead, as bush meat, skins, skulls or other trophies. Just a few blocks away from the city centre, the trade that freely occurred at Bellavista encouraged the belief that trafficking in wildlife was both legal and acceptable. Whilst it operated hundreds of complaints about wildlife trafficking, other illicit activities and unsanitary conditions it caused were received by the authorities. However, the mafias which controlled the market, often resisted authorities through force, therefore, the complaints were archived one after another and the traffickers enjoyed freedom and security.

In October Bellavista's legal trade was transferred to a new specially built market. The new site was constructed in a way that allows authorities to control trade more easily, and wildlife trade will not be permitted. Bellavista was one of the main focuses of NPC's anti-trafficking campaign, and since 2013 we continually registered complaints about the market, organized protests and worked to educate the public and authorities. It is important to understand that the closure of the market does not mean the end of wildlife traffic in Pucallpa. Because of the outrageous lack of response of the national and regional wildlife authorities to the trade of fauna in Ucayali region, there are still hidden warehouses around the city in which wildlife traffickers conceal thousands of animals. But the fact that the main centre of commerce is now gone is a huge step forward, and from now on traffickers will be unable to conduct their business or have direct access to the public.

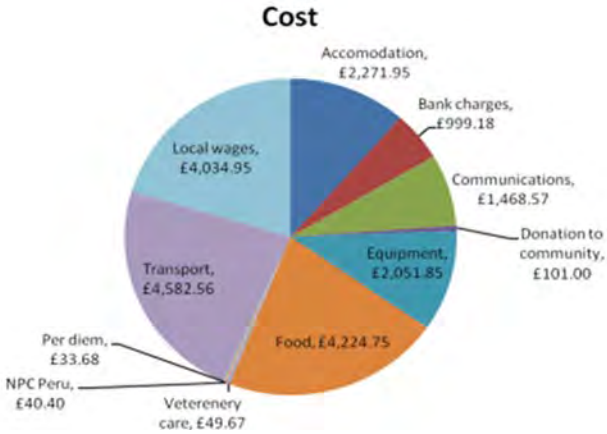
We give our heartfelt thanks to the municipality of Coronel Portillo for closing this terrible market and we promise to continue working in Pucallpa for as long as it takes to combat the trafficking of wildlife! We continue to

invite the people of Pucallpa and visitors to give us information that can help us find the animal warehouses or dealers through our campaign; denunciafauna@gmail.com

Finance

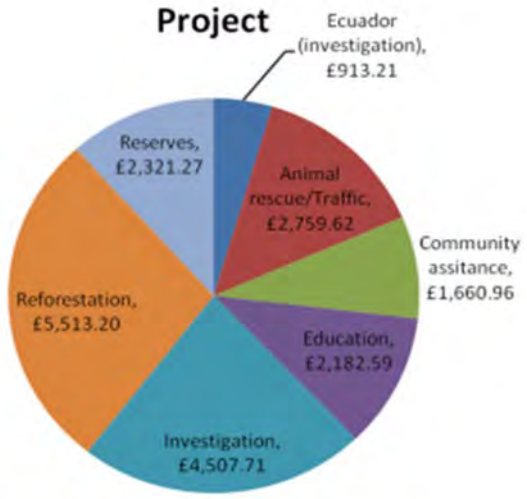
As in previous years we keep our expenditure extremely low. We take pride in being a charity, which depends largely on volunteers, in using an office donated to us by the villagers of La Esperanza and not owning vehicles or other high-cost equipment. However, our project's costs have increased heavily in the last years due to the increase in our activities. Both conservation and investigation work are quickly advancing, leaving us with growing financial responsibilities. This year we have operated as two distinct organisations; Neotropical Primate Conservation and Asociación Neotropical Primate Conservation Perú, each with their own specific budget.

NPC – UK total expenditure in 2015 was £19,858.56; this was divided between the following costs:



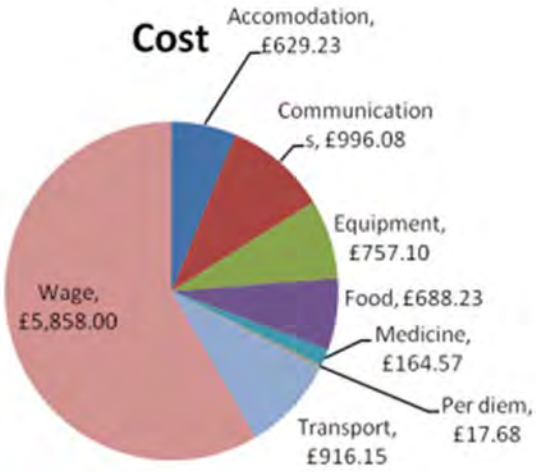
Accommodation = £2,271.95
Bank Charges = £999.18
Communications = £1,468.57
Donation to community = £101.00
Equipment = £2,051.85
Food = £4,224.75
Veterinary care = £49.67
NPC Peru = £40.40
Per Diems = £33.68
Transport = £4,582.56
Local Wages = £4,034.95

And between the following project areas:



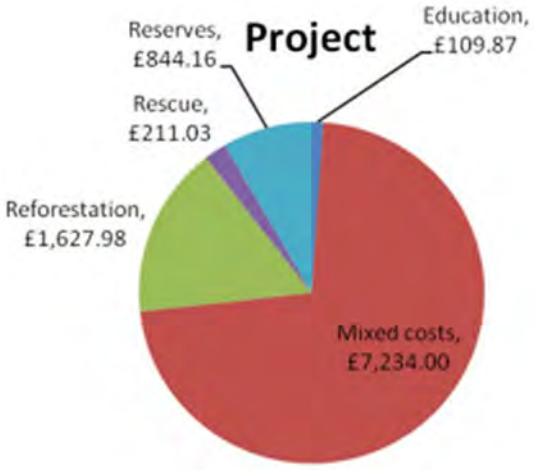
Animal Rescue/Traffic = £2,759.62
Community assistance = £1,660.96
Ecuador (Investigation) = £913.19
Education = £2182.59
Investigation = £4,507.71

Asociación NPC Perú total expenditure in 2015 was £10,027.04; this was divided between the following costs:



£629.23 = Accomodation
£996.08 = Communications
£757.10 = Equipment
£688.23 = Food
£164.57 = Medicine
£17.68 = Per diem
£916.15 = Transport
£5,858.00 = Wages

And between the following project areas:



£109.87 = Education
£7,234.00 = Mixed costs
£1,627.98 = Reforestation
£211.03 = Rescue
£844.16 = Reserves

* All costs approximate values based on exchange rates correct on 26 January 2016, actual values will vary based on exchange rates at time of expenditure.

As always we want to offer our sincere thanks to all those who help fund our conservation work and made all our activities possible. In 2015 we received grants from International Primate Protection Leauge, Primate Education Network, Science Agency Network, The Rufford Foundation, International Primatological Society Jacobsen Grant, Wild Futures, Primate Conservation inc, The Middleburg Trust, WWF Education for Nature Program, Rainforest Trust.

We also wish to thank the individuals that help support our work with donations, last year these were Sadie Legh, Jane Batty, Jem Legh, The Aviary, Stefan Taal, Jennie O'Reilly, Tom Macke, Breanna Powers, Patricia Latas, Stewart Leo McFadden, Marc Thibault, L. Soer and Elena Ronquillo.

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Neotropical Primate Conservation – UK

Associación Neotropical Primate Conservation Peru

Report from IPS Research Grant Shannon Hodges

Effects of habitat destruction on infant care in the San Martin titi monkey (*Callicebus oenanthe*) in Peru

Background

Primate responses to habitat destruction are well documented for general behaviors such as traveling and feeding (Boyle 2008; Johns 1985; 1986; Martínez and Wallace 2011), though not for parental care. Since survival to maturity has been listed as an important variable for population growth rate (Blomquist et al. 2009), assessing changes in parental behavior specifically will be important for designing conservation measures that aim to improve population levels. For example, if parental care is greatly impacted by exposure to human activity, then conservationists may choose to focus on developing ecological buffers between primates and human settlements.

To better understand how habitat destruction affects primate parental care, I studied the parental behavior of San Martín titi monkeys (Callicebus oenanthe) living in areas that differ by level and type of destruction. Found only in northeastern Peru, populations of this species have experienced extreme habitat destruction as a result of logging, pasture clearing, and hunting (Bóveda-Penalba et al. 2009; Shanee et al. 2013a). As an outcome, most San Martín titi monkeys live in mixed primary-secondary or secondary forests that have undergone varying amounts of habitat loss and fragmentation (Shanee et al. 2013b). These variable habitats provide an ideal system for comparative conservation research.

Project description

From June to November in 2015 I carried out a pilot study on San Martin titi monkeys (*Callicebus oenanthe*) in the San Martin Department of Peru. The purpose of this study was to collect preliminary data for my dissertation research and to test my proposed research methodology. Logistical support and research assistants were provided by local NGO Proyecto Mono Tocon, which works to conserve *Callicebus oenanthe*.

Jossy Luna-Amancio, the PI, and Rosario Huashuayo-Llamocca

Peruvian conservationists Jossy Luna-Amancio and Rosario Huashuayo-Llamocca worked as research assistants in the field and helped to assess habitat destruction, habituate titi monkey groups, and collect preliminary data on non-parental behaviors. This research was supported in part by an Research grant provided by the International Primatological Society.

The main goal of my dissertation research project will be to identify the effects of habitat destruction on parental care in titi monkeys. The hypotheses to be tested for my dissertation project will be 1) habitat destruction affects parental behavior, 2) habitat destruction changes levels of stress, and 3) stress changes parental behavior. I predict that habitat destruction will be negatively correlated with parental behavior in titi monkeys, based on research indicating that habitat destruction leads to decreased parental investment (Hinam and Clair 2008; Luck 2003). Based on research in spider and howler monkeys, I predict that habitat destruction will be positively correlated with cortisol levels, which are physiological indicators of stress (Martínez-Mota

et al. 2007; Rangel-Negrín et al. 2009; Rimbach et al. 2013). I also predict that cortisol levels and parental care will be negatively correlated (Saltzman and Maestripieri 2011).

I conducted research at two forested sites within the San Martin Department of Peru. The main goal of this pilot study was to collect preliminary data on habitat destruction levels at each site, as well as to collect behavioral and hormonal from all caregivers in four titi monkey groups. I successfully assessed level of habitat destruction for each site, collected behavioral data from two titi monkey groups, and validated the efficacy of hormonal sample collection.

Field sites

With the help of three field assistants, I located two field sites that exhibited distinct levels of habitat destruction. The first field site, located in Calzada, was a 2.17-hectare fragment of secondary forest. This site exhibited a high level of habitat destruction, as determined by level of habitat connectivity, resource availability, and intensity of exposure to human activity. As no forest corridors or islands of forest were present at this site, it was considered to possess low habitat connectivity. Fruit resources were much less abundant than in primary forest, therefore resource availability was considered low here. Additionally, the forest fragment was surrounded completely by cultivated fields and pasture managed by local landowners. Landowners and domesticated animals were present in and around the forest on a daily basis. For this reason the Calzada site is also considered to experience high intensity exposure to human activity. To sum up, this site was categorized as experiencing a high level of habitat destruction based on its low connectivity, low resource availability, and high intensity exposure to human activity.

Pasture clearing by fire at the Calzada site

Crop cultivation at the Calzada site

The second field site, located in Yantaló, was a 2.06-hectare fragment of mixed primary and secondary forest. This site exhibited a moderate level of habitat destruction compared with the Calzada site. Two areas of connectivity were present at this site, giving it a high connectivity rating. Fruit resources were as abundant as those found in primary forest, therefore this site was considered to have high resource availability. Since humans and domesticated animals were present at this site on a daily basis it was considered to experience high intensity exposure to human activity. In sum, this site was categorized as experiencing a moderate level of habitat destruction based on its high connectivity, high resource availability, and high intensity exposure to human activity.

Pastured area of the Yantaló site

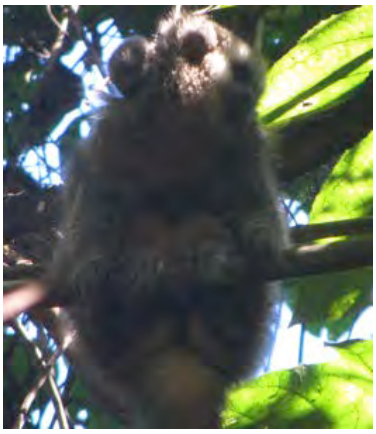
Cattle passing through forest at Yantaló site

Study subjects

At each site I habituated two titi monkey groups, for a total of four study groups. The first infant was born July 14th to a group at the Calzada site. The Calzada group was composed of a mated adult pair, two subadult offspring (not pictured), one juvenile, and an infant. The second infant was born October 1st to a group at the Yantaló site, which was composed of a mated adult pair, one juvenile, and an infant.

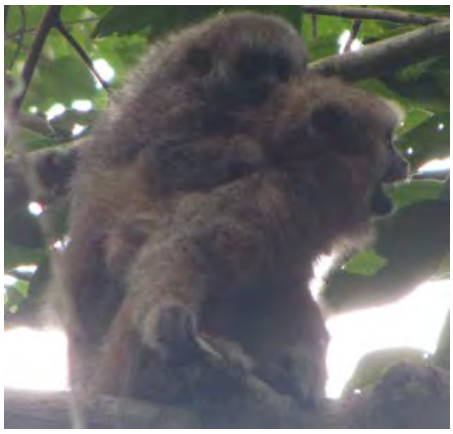
Data collection

I collected data on infant care provided by all group members, including carrying, nursing, grooming, and playing with the infant. Data on infant care was collected for Group A from August 1st until November 13th (ages 2-17 weeks), and from October 23rd until December 11th (ages 3-7 weeks) for Group B. I used instantaneous focal sampling to collect data on infant care behaviors every two minutes. To measure cortisol levels, I collected fecal samples from the forest floor using latex gloves and placed them into sterile test tubes with 98% ethanol alcohol to improve preservation. Though I was not able to have fecal samples analyzed for cortisol levels during this field season, I was able to establish a partnership with the Instituto de investigaciones de la Amazonía peruana (IIAP) in Iquitos to analyze fecal samples from future research in Peru.



Calzada female and infant

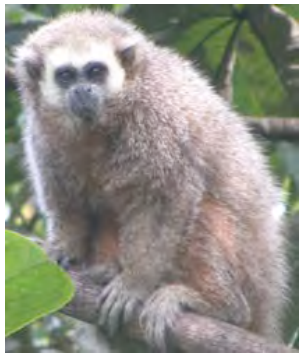
Calzada male with infant



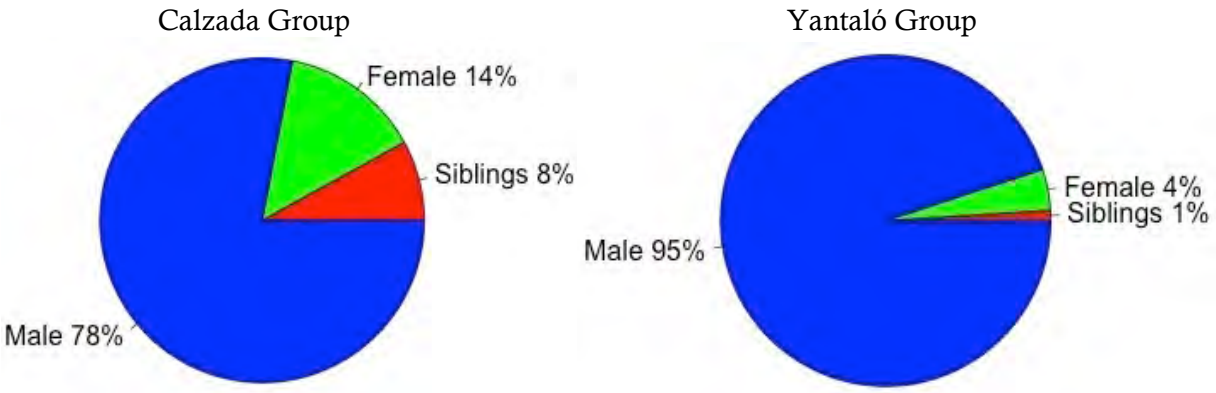
Calzada juvenile with infant

Yantaló male with infant

Yantaló female



Yantaló juvenile



Average infant care provided by members of each group from infant ages 3-7 weeks old

Data analysis

Raw behavioral data on parental care by each age and sex class per group across infant ages 3-7 weeks (the infant ages of overlap for both groups). Raw data were transformed into proportions of infant care and final infant care proportions average was obtained from weekly averages.

Preliminary results

In Group A, 78% of the infant care was provided by the male, 14% was provided by the female, and 8% was provided by the 3 siblings (average of 2.6% per sibling). In Group B, 95% of the infant care was provided by the male, 4% by the female, and 1% by the offspring.

Discussion and future research

Given the small sample size (n = 2) caution should be used when interpreting results more broadly. Preliminary results may suggest that higher levels of habitat destruction lead to increased proportions of alloparental care, however further research is needed to rule out the possibility that outcomes are based on differences between the study groups (e.g. climate, group composition). I plan to return to Peru in 2016 to collect and compare data on the same two groups followed for this study, as well as one more group living in a habitat exhibiting low habitat destruction (high connectivity, high resource availability, and low intensity exposure to human activities). I expect to find that an adult male living in the low habitat destruction group will provide an even greater proportion of the parental care than the male living in the moderate habitat destruction group.

In addition to changes in level of parental care, I observed that sibling care was 8 times higher in the group experiencing severe habitat destruction (Calzada group) compared with the group experiencing moderate habitat destruction (Yantaló group). I have developed several hypotheses to explain address these findings. First, changes in habitat lead to increased energetic demands for parents, which are offset by alloparental care. Second, mature offspring that are unable to disperse from areas with low connectivity have the opportunity to contribute to infant care, and do so to appease resident adults, which are competing with subadult offspring for resources (food and mates). Third, prior exposure to infants has increased sibling tolerance for infant caregiving. These hypotheses are not mutually exclusive and all or some combination of them could explain my findings.

Dissemination of results

I presented my preliminary findings to Proyecto Mono Tocon, the NGO that I partnered with to complete this project. I also presented results to local Calzada government workers in Peru, who will communicate the importance of Callicebus oenanthe conservation to local citizens that work and live in areas inhabited by this Critically Endangered species. Results will also be shared during a podium presentations in the Department of Anthropology at Texas A&M University, and as a poster presentation at the 2016 Joint Meeting of the International Primatological Society and the American Society of Primatologists in Chicago, Illinois.

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Project expenses

Research supplies and equipment: $991.17

Funds were used to purchase field clothing and rubber boots for work in a tropical environment, 2 watches for the PI and one assistant, 1 backpack, 2 machetes for the PI and one assistant, and 2 camera batteries for a digital camera that was used to record pictures and videos of study subjects.

Assistant salary: $506.35

Funds were used to pay the salary for one field assistant from October 15 to December 15 in 2015.

Detailed budget

Research Supplies/Equipment	
Field clothing (pants, shirts, boots)	$687.68
2 Digital watches	$108.23
1 Backpack	$120.10
2 Machetes	$6.98
2 Camera batteries	$68.18
Assistant Salary	$506.35
Total Costs:	**$1,497.52**

Funding Opportunities

Nominations solicited for the Charles Southwick Conservation Education Commitment Award

In honor of Dr. Charles Southwick's longstanding commitment to conservation education, we have developed the Charles Southwick Conservation Education Commitment Award. This award is dedicated to recognizing individuals living in primate habitat countries that have made a significant contribution to formal and informal conservation education in their countries. The amount of the award is $1,000: $750 will be given directly to the recipient and $250 will be given in the recipient's name to a project of their choosing in their community.

We encourage investigators working in primate habitat areas to nominate members of their staff (or of the local community) that they feel have made a significant contribution to conservation education in their study area. Eligible candidates must be residents of the region in which they are working and include education staff, field assistants, graduate students, or other individuals that are directly involved with providing educational programs to the people living around the project area.

Candidates do not need to have an advanced degree to be eligible. Nominators should provide the name, title and full mailing address of their nominee, along with a letter of recommendation stating the nominee's qualifications for the award, focusing on past and potential contributions to conservation education. A copy of the nominee's resume should also be included. Supporting letters from other individuals acquainted with the nominee's work may be submitted as art of the packet.

Deadline for applications is **March 1st, 2017**.
Email applications to:
Dr. Elizabeth Lonsdorf
elizabeth.lonsdorf@fandm.edu

Galante Family Winery Primate Conservation Scholarship

Grant proposals are solicited from professionals of habitat countries of primates. Money awarded is to be used for conservation training including: transportation to the course or event location, course or event fees, or expenses during the event period.
People interested in receiving this award should:

- be officially enrolled in 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.)
- send a letter explaining his/her interest in participating in the course or event (in English)
- send a C.V. in English
- include a letter of acceptance for the respective course
- provide two recommendation letters (including information about referee).

Deadline for applications is **March 1st, 2017**.
Send the completed grant proposal by email to:
Dr. Janette Wallis
janettewallis@sbcglobal.net

Lawrence Jacobsen Education Development Grant

The Education Committee of IPS solicits grants of up to $1,500 to support the development of primate conservation education programs as part of the Lawrence Jacobsen Conservation Education Award. These initiatives should support field conservation programs, work with local community and/or schools, or are used to provide training in conservation education techniques.

Application information and forms are available on our website.

Deadline for submission is **March 1st, 2017**.
If you have any questions regarding this award please contact

Dr. Elizabeth Lonsdorf
elizabeth.lonsdorf@fandm.edu

IPS Research Grant

The IPS Research Committee awards grants of up to $1,500 to support outstanding primate research proposals. We invite proposals for primate-oriented research projects with a strong theoretical component. These projects can be conducted in the field and/or in captivity. Scientific excellence will be the primary selection criterion. Proposals for projects focusing solely on primate conservation or on the captive care of nonhuman primates will not be considered by the Research Committee and should be directed to the Conservation or Captive Care Committees.

Deadline for applications is **March 1st, 2017**.
If you have any questions regarding this funding mechanism, please contact

Dr. Joanna Stechell
joanna.setchell@durham.ac.uk

IPS Conservation Grant

The Conservation Committee of IPS is soliciting applications of up to $1,500 to support the development of primate conservation field programs. The committee expects to distribute up to $10,000.00 per year.

The deadline for this award is **March 1st, 2017**.
For guidelines about the application process please see the IPS website or contact

Dr. Janette Wallis
janettewallis@sbcglobal.net

IPS Captive Care Grant

The Captive Care and Breeding Committee of IPS awards grants of up to $1,500 for projects focusing on captive care issues that relate to: (1) the status of primates in captivity (e.g., sanctuaries, private, commercial) in range countries, (2) information from local wildlife officials and field researchers on the problems relating to captive primates, and (3) improving conditions for the well-being of captive primates in range countries.

Deadline for applications is **March 1st, 2017**.
For guidelines about the application process please see the IPS website or contact

Dr. Christoph Schwitzer
cschwitzer@bcsf.org.uk

Upcoming Meetings

XXVI Congress of the International Primatological Society (IPS-2016)
21 – 29 August 2016, Chicago, Illinois, USA
http://www.ipschicago.org

Winter Meeting Primate Society of Great Britain
10 - 12 January 2017, Durham University, UK
http://www.psgb.org/meetings.php

15th Conference Gesellschaft für Primatologie (GfP)
15 - 17 February 2017, Zürich, Switzerland.

Behaviour 2017
Joint Meeting of the 35th International Ethological Conference (IEC) and 2017 Summer Meeting of the Association for the Study of Animal Behaviour (ASAB)
30 July – 4 August 2017, Estoril, Portugal.
http://behaviour2017.org

40th Meeting of the American Society of Primatologists
25 – 28 August 2017, Washington D.C., USA.