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IPS BULLETIN

INTERNATIONAL PRIMATOLOGICAL SOCIETY

President's Corner Liliana Cortés Ortiz

Dear Members,

It is with great enthusiasm that I write my first introduction to our bulletin as IPS President. I am honored to serve IPS in this new role and am excited to help guide and sustain the strengths and vitality that have long characterized our Society over the next four years.

It is hard to believe that almost six months have passed since we gathered for our highly successful IPS Congress in Madagascar. The event was both excellent and well-attended thanks to the dedicated efforts of our IPS officers and the local organizing committee. Their hard work made it possible for local primatologists and IPS members from around the world to participate. I would like to express my deep gratitude to Jonah Ratsimbazafy, our former President, and to Josia Razafindramanana, who coordinated the organizing committee, for ensuring this congress was truly memorable. Special thanks also go to Michele Mulholland for organizing a vibrant scientific program, Trudy Turner for her skillful management of the finances, and all our officers, who devoted an enormous amount of time and effort behind the scenes. The ongoing commitment and enthusiasm of this outstanding team are what keep IPS vibrant and committed to the advancement of primatology.

My term as IPS President began at the conclusion of the congress. We also welcomed four new officers: Josia Razafindramanana and Fabiano Rodrigues de Melo, who are succeeding Patricia Izar and Catherine Hobaiter after their productive nine-year tenures as Vice Presidents for Education and Communications, respectively; as well as Michele Mulholland and Partha Sarathi Mishra, who have taken on new Vice Presidencies for Scientific Programming and Student Affairs. We are saying "farewell" to Pat and Cat, as well as to Karen Strier, who has tirelessly and wisely served IPS as President and Past President for the last nine years. While they are no longer part of the IPS council, I hope they will continue to support IPS with their talents, expertise, and enthusiasm as members of our Society. Looking ahead, our next biennial Congress will take place in Xi'an, China, from August 16th to 22nd, 2027. Preparations to welcome our international community have been ongoing for over two years, so stay tuned for further updates!

In my first few months as IPS President, I have had the opportunity to support and highlight the work of some of our members, including through a joint statement from IPS and the IUCN SSC PSG on Urban Luxury Trade of Threatened Lemurs, and through interviews with the media. IPS is a member organization of the IUCN, and the President serves as the representative on the US National Committee (USNC), voting on behalf of IPS. With the help of Karen Strier and Steve Schapiro, we updated our information, and I am now officially listed as the IPS representative for IUCN. I also held a virtual business meeting with our officers to learn about their ongoing activities and plans for the upcoming round of grant applications. I encourage you to visit our website for details about all the grant opportunities available to our members.

Sadly, in the months following our Congress, we lost two dear primatologists: Prof. Augustin Basabose and Dr. Jane Goodall. Dr. Basabose, a beloved primatologist from the Democratic Republic of Congo, dedicated his life to the conservation of great apes in Central Africa, particularly mountain gorillas, and contributed significantly as a member of our Conservation Committee. In this bulletin, you will find a brief note in his memory.

Similarly, Dr. Jane Goodall, one of the most iconic primatologists of our time, passed away in October. She devoted her life to studying our closest relatives, especially the chimpanzees, and to advocating for the well-being and conservation of non-human primates around the world. Her loss saddened the entire primatological community, and we include a brief note in her honor. I encourage everyone to keep in mind the message she left us in the documentary published after her passing: each of us has a role to play in saving our planet, and we choose the difference we make in the world. Let's keep her message alive in our minds, our hearts, and our actions.

At the beginning of 2026, we also lost an admired non-human primate: Ai, a chimpanzee at the Primate Research Institute of Kyoto University, Japan. Ai enabled researchers to learn so much about chimpanzee cognition, and as primatologists, we mourn her passing and are grateful for all she taught us throughout her life. This bulletin includes a commentary highlighting Ai's life and legacy.

In this issue, you will find reports on last year's programs and activities carried out by each officer and their respective committees, as well as ongoing projects. I feel so fortunate to be working with such a dedicated group of colleagues! You will also see the remarkable work of our Research, Conservation, and Education grant and award recipients. These reports are a testament to the impact IPS has in supporting global primatology.

Let's make 2026 a year of learning, support, and success for all our members!

Liliana Cortés Ortiz
IPS President 2025-2029

Secretary General

Júlio César Bicca-Marques

During 2025, I organized meetings, took minutes, assisted the President, managed the Society's administrative and bureaucratic affairs, and corresponded with individuals and institutions involved in IPS activities. The most important actions undertaken during the year are summarized below.

- I invited all affiliated European primatological societies to submit a bid to host the 2029 IPS Congress. While several societies responded appreciatively, they indicated that they were unable to submit a bid at this time; others did not reply to the invitation. I subsequently contacted colleagues in Canada, who kindly acknowledged the invitation and expressed interest in considering a future bid, although they were not in a position to proceed at present. Finally, I invited Brazilian colleagues to consider submitting a bid to host the Congress in the heart of the Amazon, in the city of Manaus. They accepted this challenge enthusiastically. The bid received written support from the Brazilian Society of Primatology, the Latin American Society of Primatology, Re:wild, and Primate Conservation, Inc.. It was formally submitted by the proposing group for consideration by the IPS Council and subsequently endorsed by the Council.
- I worked with the Treasurer and the Vice President for Scientific Programming on a revised and updated version of the IPS Guidelines for submitting a bid to host an IPS Congress.
- I assisted in the organization of the ballots for the election of a new President, Vice President for Communications, Vice President for Education, and Vice President for Student Affairs, as well as the endorsement of the first term of the Vice President for Scientific Programming and the second term of the Vice President for Ethics, Diversity, Equity, and Inclusion.
- I wrote official letters of invitation for members who required documentation to support their participation in the 2025 IPS Congress in Antananarivo, Madagascar.
- I worked with President Jonah Ratsimbazafy in preparing the agendas for the Pre-Congress Council Meeting and the General Assembly, and with incoming President Liliana Cortés-Ortiz in preparing the agenda for the Post

Congress Council Meeting. I served as secretary for all of these meetings.

- Finally, I collaborated in the development of the IPS Statement on Plastic Pollution in Primate Habitats, which was reviewed and supported by the IPS Officers.

I remind the officers of affiliate societies to promptly notify me of any changes in their leadership. Maintaining accurate and up-to-date leadership information is essential for effective communication between the IPS and its affiliate societies.

I would also like to remind the membership of the upcoming 2027 IPS Congress in Xi'an, China, and warmly encourage colleagues to begin planning roundtables, symposia, and presentations that will contribute to a scientifically rich and stimulating meeting.

I hope this report finds everyone well and actively engaged in advancing primatology, conservation, and education worldwide. At a time when respect, cooperation, and solidarity among nations are increasingly challenged, our Society remains firmly committed to mutual support, inclusiveness, and respect, both within countries and across borders. By working together as a truly international community, we reaffirm our shared responsibility to protect primates, biodiversity, and the people whose lives are intertwined with healthy ecosystems.

My best wishes to all members, and I look forward to our continued collaboration.

Júlio César Bicca-Marques
Secretary General

Treasurer VP for Membership

Trudy Turner

In 2025, IPS was able to meet all financial obligations and maintain our grants program at the same level as in the previous year. There are yearly obligations handled by the Treasurer including maintaining our USA 501.c.3 status. This allows us to continue to function as a tax-exempt entity. The Treasurer's office also maintains our Officers and Directors insurance and works with our accountants to file all necessary tax returns. The Treasurer maintains the IPS official office and all contracts are signed by the Treasurer after review by our attorneys. All banking and investments are also monitored by the Treasurer.

MEMBERSHIP

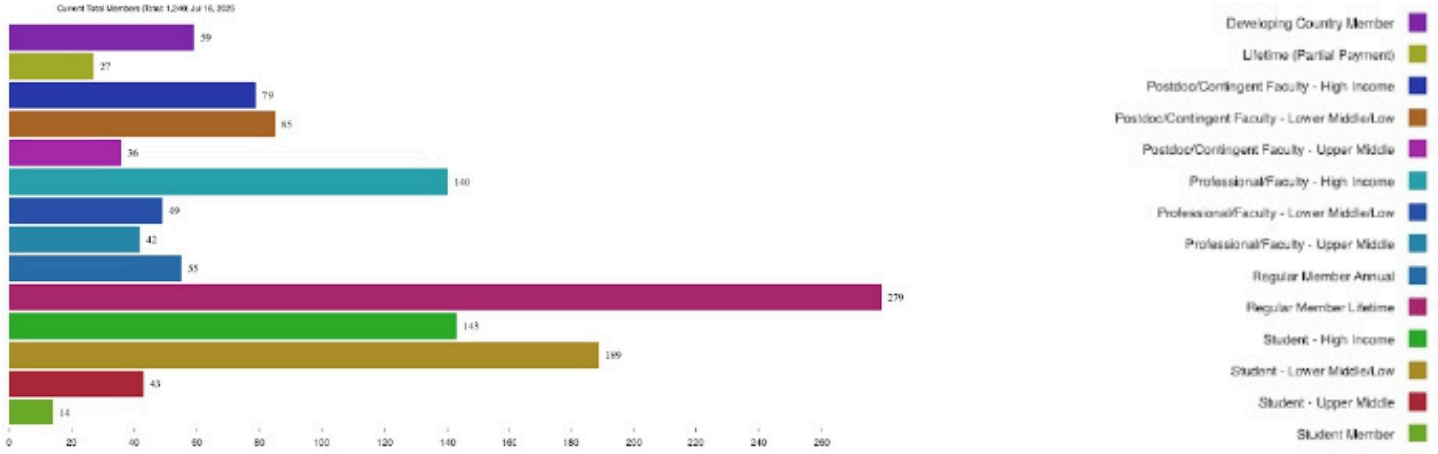
Membership numbers in IPS have increased and we have more members this year than we have had since beginning of the Covid pandemic.

Years	2018	2019	2020	2021	2022	2023	2024	2025
Membership	1262	685	1094	690	698	1020	584	1238

The cost of membership has transitioned to a system where World Bank GNI categories are used to determine the amount an individual will pay for membership. We have also added an additional category of employment to our calculation. Our new membership dues structure is:

	Professional/Faculty.	Postdoc/Contingent.	Student (max 10 years)
High Income	$100	$50	$30
Upper Middle	$50	$25	$15
Other	$10	0	0

Current membership for IPS is 1240. This is divided into the following categories



Dues should never be an impediment to joining IPS. Individuals who have difficulty paying for dues can contact me for a waiver. The new system does not seem to be an impediment to membership and we have increased the number of paying members. This structure is also used to determine the cost of registration for the congresses.

Members of IPS come from 75 countries. Listed below are the countries that have at least 10 members:

Australia	12	Germany	36
Bangladesh	11	India	54
Brazil	45	Italy	12
Cameroon	12	Japan	77
Canada	27	Madagascar	154
China	61	UK	64
France	13	USA	316

If individuals serve on IPS committees or are recipients of IPS grants, they should be members of IPS. Committee chairs currently check the membership status of potential committee members. In the future, we will also be checking the membership status of grant recipients. **Please remember that IPS members have free access to the International Journal of Primatology. Membership information is submitted to Springer by the Treasurer quarterly. Springer also provides support for the congress.**

FINANCES

Income is derived from four main sources- membership dues, registration for meetings, donations to various funds and disbursements from our accounts at Edward Jones.

The local arrangements committee for the Madagascar meetings worked extremely hard to secure support for the meetings. We are extremely grateful to our major donors including ReWild, Association Vahatra, WWR, FABPM, Bioculture Mauritius, IUCN/SOS Lemur, the Oppenheimer Foundation, and Lemur Love. We are also grateful to Susana Carvalho VP for EDEI, who secured funding to support students from Global Vistas and the Arcus Foundation. I was also able to secure additional funding from ReWild to support the registration of African primatologists. Without the generosity of all these organizations, we would not have been able to have as many people attending these meetings.

Because of the grant funding we were able to offer free or discounted registration to over 160 students. Additional monetary support to attend the congress was offered to 86 Malagasy attendees. Additional funds were provided through the EDEI grants

Expenses for the association include the congresses, the pre-congress training program, grants, operations and website costs, and bank fees.

Our funding works on a two-year cycle since registration and payment for congresses takes place over a period of several months and can span two years. Last year, we received grants and dues that exceeded spending by over $18,000. Even with the shortfall, because of our investments, we will be able to maintain our grants program.

One goal in planning the next congress is to ensure access but still stay within our budget. We will need to assess the best ways to do this.

Our investment accounts are consolidated at Edward Jones. To maintain our principle, we take between 4-5% a year. This year we were able to add to our principle by using money donated to IPS to set up a named fund. The initial contribution to this fund was with the monies collected for the grant in honor of the memory of Sebastian Ramirez Amaya and the grant in memory of Judith Masters and Fabien Genin.

We have financial obligations over the next two years. These include paying for the maintaining of our web presence and membership and conference databases and accounting, insurance and other services and banking charges. In addition, we will continue to provide grants at the maximum level we can over the next two years. We anticipate also needing to make deposits for the 2027 meetings. We anticipate being able to meet our obligations over the next cycle.

My sincere thanks to my colleagues on the executive committee, especially to those who work so hard to make the grant process happen. I would also like to thank the local committee for the Madagascar meeting, especially Josia Razafindramanana and Sylviane Volampeno for the many, many hours of work and zoom meetings that have gone into making this happen. I also especially want to thank Michele Mulholland for her tireless efforts to ensure that our congress is the best it can possibly be.

And, please remember, check for membership renewal notices. We rely on your support.

Trudy Turner
VP for Membership and Treasurer

VP for Communications

Fabiano Melo

Rationale and approach

In this document, I want to explain the rationale behind the communication analysis I made, considering the current format of the International Primatological Society (IPS) channels. My intention is to first highlight the positive elements and existing strengths that IPS already possesses, and then to clearly outline the actions that I believe should be taken over the next few years to improve communication, visibility, and engagement. So, my focus here is work towards improving, developing, and strengthening, rather than merely listing requests.

Context and audience

The International Primatological Society (IPS) is a global scientific association dedicated to advancing primatology through research, conservation, education, and collaboration among professionals worldwide. Its audience is diverse and includes researchers, conservation practitioners, students, policymakers, partner institutions, and members of the general public interested in primate science and conservation. This diversity is both a strength and a challenge, and it strongly informs my analysis and proposed actions.

Strengths and existing potential

I see IPS as an organization with exceptionally strong scientific credibility. It holds high legitimacy within academic and conservation communities, supported by its long history, international membership, and close association with leading researchers in primatology. Over the next few years, I will work towards better translating this credibility into accessible and engaging communication, particularly by showcasing members' research, field experiences, and insights through digital platforms such as social media.

I also recognize that IPS has a clear mission and well-defined values related to primate research, conservation, ethics, and international collaboration. These values are consistently reflected in formal and internal communications. Moving forward, I will focus on making these values more visible and meaningful to non-members, using social media and other digital tools to regularly connect IPS's mission to real-world examples, stories, and current issues.

In addition, IPS already maintains strong core communication tools, including an official website, mailing lists, congresses, and partnerships with journals and academic institutions. It also has a highly engaged core audience of primatologists who are willing and eager to consume and share IPS-related content. During the next few years, I will work towards integrating social media more effectively into this ecosystem, transforming it into a regular and strategic platform for communication with both members and non-members, and using it to attract new audiences and future members.

Key communication challenges

Despite these strengths, I identified several communication challenges that IPS will need to address. Currently, communication efforts largely prioritize specialist audiences, which limits IPS's reach among the general public, journalists, and decision-makers. In response, I will work towards broadening the scope of IPS communication, ensuring that key messages are adapted for wider audiences without compromising scientific rigor.

I also observed that IPS messaging is often fragmented across platforms and formats. Over time, this can reduce clarity, consistency, and visibility. To address this, I will work towards improving coordination across communication channels, reinforcing key messages, and ensuring greater coherence in how IPS presents itself.

Another challenge is the limited use of storytelling and narrative-driven communication. Much of the current content is technical and informational, which, while appropriate for specialists, does not always foster engagement or emotional connection. Over the next few years, I will prioritize the use of storytelling, visual content, and human-centered narratives to make IPS communication more compelling and relatable.

Social media and other digital tools are also underutilized. IPS has significant potential to use these platforms to amplify its activities, advocate for primate conservation, highlight members' work, and respond to emerging issues in a timely manner. Strengthening this digital presence will be a central focus of my proposed actions.

Finally, I note a relatively weak sense of community in IPS communication. Although IPS is a member-based society with regular congresses and meetings, its communication strategy does not consistently reinforce a shared identity or sense of belonging. I will work towards fostering a more inclusive, dynamic, and engaging communication environment that encourages scientists and students to feel connected to IPS beyond formal events.

Proposed actions and future directions

Based on this analysis, I propose a series of concrete actions that I will work towards implementing in the coming years. First, I will focus on developing a clear and coherent communication strategy aligned with IPS's organizational goals. This strategy will define priority audiences, key messages, and appropriate communication channels. We aim to enhance the quality and impact of our publications by developing a distinct and coherent identity for the IPS. Initially, this identity will be formally established, after which members will be invited to contribute to the Society's general publications. Standardized templates for publications, videos, and digital posts will be developed and shared with members to ensure the production of high-quality, consistent content. Finally, we will collaborate with other regional societies to implement a comprehensive science outreach strategy, in which societies support one another, thereby strengthening the collective network.

Fabiano Melo, VP communications

VP for Conservation

Tatyana Humle

I wish you all the best for 2026!
Let's work together to make 2026 a year full of success stories, meaningful new research, and initiatives that create positive impacts for our primate relatives and their habitats. Thank you all for your enthusiasm; your dedication and hard work have never been more significant

This is the perfect occasion for me to also express my deepest gratitude to the IPS Conservation Committee members for their commitment, time and help and previous grantees for their wonderful reports, please keep them coming!

This past year, we received a total of 25 applications for our **IPS Conservation grants**. We are delighted to have been able to award eight grants for a total value of $13,115; the following were the successful grantees:

- **Atikul Mithu:** Population status and conservation challenges of Western Hoolock Gibbon (*Hoolock hoolock*) in Atora Hill Reserve Forest, Northeastern Bangladesh
- **Bradley Christin:** Seasonal Variations in Primate and Wildlife Distribution: Implications for Hunting Pressure in the Republic of the Congo
- **James Blacklock:** Assessing the occupancy of Costa Rican monkeys in reforesting areas and the conservation potential of different reforestation strategies with different prior land uses
- **Julius Kizito:** Community members' attitudes towards, perceptions and conservation education of Chlorocebus pygerythrus (LC) in Kalangala district (Ssese Islands), Uganda
- **Michael Bliss-Schryer:** Identifying lemur biodiversity in lowland rainforest fragments in Madagascar
- **Sebastián García Restrepo:** Empowering local communities through community-based primate monitoring. A Conservation Tool in the Colombian Amazon (Puerto Asís, Putumayo)
- **Toussaint Rabary:** Enhancing conservation of *Varecia variegata editorum* by investigating natural forest health related to seed dispersal and deforestation and by conducting reforestation in Ihofa, Madagascar
- **Vanishree Naik:** Bridging the Urban Jungle: Rethinking the management of the Human Bonnet Macaque Interface in Mumbai, India

We also received three applications for the **Galante Family Winery Conservation Scholarship**. Our 2025 awardee is **Valentin Zarate from Argentina**. He is currently pursuing a Ph.D. in Biological Sciences (2020-2026) at the Instituto de Biología Subtropical, National Scientific and Technical Research Council(CONICET), Argentina. His research focuses on the movement and trophic ecology, and conservation of black capuchin monkeys (Sapajus nigritus) inhabiting pine plantations in northeastern Argentina. The $2,500 will support his participation in a training program on movement ecology at State University of New York (SUNY), United States. We continue to be immensely grateful to the Galante family for their continued support for this amazing scholarship which provides citizens of primate habitat countries a wonderful opportunity to enhance their training and education in conserving primates.

Major congratulations to this year's grantees; we look forward to receiving your reports which we will showcase in the IPS newsletter.

We are delighted to have ran a very successful **IPS PRE-CONGRESS TRAINING PROGRAMME (PCTP)** in Madagascar with 15 participants from across 11 primate range countries, including four from Central/South America, four from Asia, and seven from Africa including four from Madagascar. The conservation committee would like to thank especially Soamalala (Soa) Rakoto and Josia Razafindramanana for their support and assistance in organizing the PCTP program. We are extremely grateful to Re:wild and the IPS for their support of the IPS-PCTP program. I would also like to extend my deepest thanks to Trudy Turner for her help with managing the finances and the fabulous Ramesh Boonratana (Zimbo) for his voluntary help with running the program which took place at Centre ValBio, an international research station, founded by Prof. Pat Wright and situated on the edge of Madagascar's beautiful Ranomafana National Park, 12 hours drive from the capital, Antananarivo. We are immensely grateful to her team for hosting the training program and for CVB's amazing staff and guests for sharing their knowledge and enthusiasm for primate research and conservation.

Please do watch out for the next call for PCTP participants in the Spring of 2026 for the next IPS PCTP in China in 2027!

Do not forget to submit an application for (all information on the IPS website):

1. ***the new round of IPS conservation grants (Deadline March 1st)***
2. ***the Galante Family Winery Conservation Scholarship (Deadline April 1st)***

REMINDER: We offer feedback on IPS conservation grant proposals on a case-by-case basis

from nationals of primate range-state countries. For this purpose, applications must be submitted by the **1st February** for feedback; revised submissions must be resubmitted by the March 1st deadline.

All the best,

Tatyana Humle, IPS VP for Conservation,
thumle@rewild.org

VP for Welfare & Captive Care

Mollie Bloomsmith

The Welfare and Captive Care committee (WCCC) is making great progress toward our established goals.

At the IPS Congress this last summer, the WCCC sponsored a symposium titled "Recent Advances in Captive Primate Welfare Science" with nine wonderful speakers whose work was conducted in zoos, research facilities, and sanctuaries. We participated in the workshop "Writing successful proposals for IPS grants" to encourage more people to apply for the Captive Care grants, and one of last year's winners, Marina Kenyon, presented her funded project in a symposium featuring recent awardees of IPS grants. Thank you Marina!

Our Captive Care Grants program, which supports welfare work in range countries, is in full swing. In 2025 we made two awards: one to Marina Kenyon for her project, "Rescued southern pygmy loris (*Xanthonycticebus pygmaeus*) from the illegal wildlife trade quarantine house repairs" to be conducted at the Dao Tien Endangered Primate Species Centre in Vietnam, and the other to Guillermina Hernandez-Cruz for her work with the University of Veracruz and the Mexican Centre for Primate Rehabilitation "Investigating the parasitological status of trafficked spider monkeys (Ateles geoffroyi) in Veracruz, Mexico." Congratulations to both! We are very pleased that IPS can play a role in supporting their important efforts.

Currently the WCCC has one subcommittee that is revising our grant submission process. The deadline is March 1, so please apply if you are working with captive primates in habitat countries. Another subcommittee has developed proposals for two welfare-related awards that we hope to roll out in the near future. A third subcommittee has begun the onerous and important task of revising the IPS "International Guidelines for the Acquisition, Care, and Breeding of Nonhuman Primates" which were last issued in 2007.

Please contact me if you have other thoughts about topics the WCCC might address.

Mollie Bloomsmith
mabloom@emory.edu

VP for Education

Josia Razafindramanana (current)/Patrícia Izar (former VP)

As I complete my final year as Vice President for Education, I am grateful for the opportunity to share one last update with our community. Serving in this role for nine years has been an extraordinary privilege, and I am deeply appreciative of the trust, collaboration, and friendship of so many colleagues around the world. I am also delighted to welcome Josia Razafindramanana, our newly elected Vice President for Education, and wish her great success as she begins this new chapter for the Committee.

Lawrence Jacobsen Education Grant

The Lawrence Jacobsen Education Grant continues to support creative and impactful initiatives that promote primate conservation and community engagement. In 2025, we ran another successful round of the grant, supported by the generous participation of our Education Committee members, who reviewed and discussed the proposals with great dedication.

This year, we received five applications from Brazil, Colombia, the United States, Cameroon, and Indonesia. After the review process, based on standardized scoring and detailed evaluator comments, three projects were selected for funding, totaling USD 4,980. One of them included a strong community conservation component, aligning closely with the spirit of this grant.

Awardees:

- **Sebastian García Restrepo (Colombia)** — *Empowering Local Communities through Community-Based Primate Monitoring in the Colombian Amazon*
- **Camila Rezende Guimarães (Brazil)** — *2025 Course in Field Primatology of the Brazilian Society of Primatology*
- **Rahmat Hidayat (Indonesia)** — *Promoting Conservation of the Yellow-Handed Mitered Langur through Education and Public Awareness in West Sumatra*

My sincere thanks go to all reviewers who contributed their time and expertise to this process:

Adrian Barnett, Alejandra Duarte, Carla Castro, Inza Koné, Joana Ferreira da Silva, Luciana Oklander, Martin Kowalewsky, Mewa Singh, Misato Hayashi, Rachel Ikemeh, Simplicious Gessa, Suchinda Malaivijitnond, Valentina Truppa, and Zarin Machanda.

Charles Southwick Conservation Education Commitment Award

The Charles Southwick Award, generously supported by the Southwick family, recognizes individuals with a deep and long-term dedication to primate conservation education. In 2025, the Committee received six nominations, and the award was granted to **Professor Ronald E. Sánchez Porras (Costa Rica)**, whose sustained contributions exemplify the legacy of Dr. Southwick.

This year's award also carried a moment of remembrance. We honor Heather Milne Southwick, who passed away in April 2024 and had been a tireless supporter of this recognition and of her husband's work. Her generosity and commitment to conservation and education will be remembered with affection and gratitude.

IPS 2025 Student Awards for Best Presentation and Poster

The Student Competition continues to grow and remains one of the most inspiring components of our Congress. For the 2025 edition, we received 259 abstracts, including submissions for the Global South Awards. Each abstract was evaluated independently by three reviewers from a panel of 61 colleagues, using a blind and standardized process.

Based on z-score thresholds, 30 posters and 25 oral presentations were selected for in-person evaluation during the IPS Congress in Antananarivo. All students were contacted with the results, and those selected were encouraged to prepare for on-site judging.

The final awards were announced during the closing ceremony. Below is a summary of the results.

Poster Awards
Honorable Mentions

- Faratiana Rafianinantsoa — *Local perceptions impact on lemur conservation, Marotandrano Special Reserve*
- Ginot Kava — *New Protected Area of Ambohidray: A potential conservation site for lemur diversity*
- Andrianina Sarah Rajaonarivelo — *Pre-partum Behavioral Plasticity in Eulemur fulvus within the Forest Fragments of Ankadivory, Tsinjoarivo, Madagascar*

Best Posters

- Henrique Rufo — *Skillful Foragers: Capuchin Monkeys' Strategies for Handling Toxic Prey*
- Rassina Farassi — *Habitat use and the demographics of object manipulation by wild chacma baboons*

Oral Presentation Awards
Honorable Mentions

- Julia Omena — *Begging for a Bite: The Role of Infant Solicitation in Capuchin Food Sharing*
- Jean-Basile Andriambeloson — *The neglected role of the smallest lemurs, Microcebus spp., as seed dispersers*
- Mabia Cera — *Monkey Meltdowns: A Path to More Care or Just Growing Pains?*
- Nancia Raoelinjanakolona — *Vulnerability of a lemur community to edge effects in a Malagasy tropical rainforest*
- *Best Oral Presentations*
- Steffi Dekegel — *Shade tree management and biodiversity conservation in cocoa agroforestry systems: identifying thresholds for Golden-headed lion tamarins in Southern Bahia, Brazil*
- Felipe Buffalo — *Seasonal and nutritional drivers of the foraging strategies of a wild frugivorous-faunivorous primate*

My sincere thanks go to all reviewers who contributed their time and expertise to this process:

Adriana Hernandez-Aguilar, Alejandra Duarte, Amanda Korstjens, Andrea Presotto, Andrés Link, Angela Maldonado, Anindya Sinha, Anna Nekaris, Bernardo Urbani, Briseida Resende, Catarina Casanova, Claudia Fichtel, Dorothy Fragaszy, Eleonore Setz, Erica van de Waal, Filippo Aureli, Giuseppe Donatti, Goro Hanya, Gu Fang, Gustavo Canale, Hajanirina Rakotondrainibe, Helena Teixeira, Irene Delval, Ítalo Mourthé, Izeni Farias, Janette Wallis, Jean Boubli, Jessica Lynch, Joanna Setchell, João Pedro Souza-Alves, Juan Carlos Serio Silva, Julie Razafimanahaka, Kateryna Makova, Kathelijne Koops, Kimberly Hockings, Luciana Oklander, Makiko Uchikoshi, Marilyn Norconk, Marina Cords, Martha Robbins, Melissa Emery Thompson, Mewa Singh, Misato Hayashi, Natalia Ceballos Mago, Ngwe Lwin, Olivier Kaisin, Pablo Stevenson, Patricia Wright, Peter Kappeler, Rahayu Oktaviani, Sam Shanee, Sarah Hankerson, Satoshi Hirata, Sébastien Couette, Shoji Kawamura, Stanislav Lhota, Tainara Sobroza, Tiago Falótico, Ute Radespiel, Valentina Truppa, Valeria Romano, Vanessa Fortes, Waldney Martins, and Xyomara Carretero-Pinzon.

Closing Thoughts

Looking back, I am proud of the steps we have taken toward making our educational programs more equitable, inclusive, and representative of our global community. It

has been a privilege to contribute to this work and to support so many excellent conservation, education, and student initiatives.

With gratitude and warmest wishes to you all, and with great confidence in Josia Razafindramanana as she assumes the Vice Presidency for Education, I close this final report.

Patrícia Izar
Former Vice President for Education

I am pleased to introduce myself as the new Vice President for Education of the International Primatological Society and to thank the outgoing VP for a smooth transition. My background is in primate ecology and conservation, with more than 15 years of research in Madagascar, including long-term work on lemur ecology at Berenty Reserve and conservation efforts in the country's dry forests (northern and western parts). Alongside research, I have led and supported conservation and capacity-building initiatives through organizations such as IMPACT Madagascar and Maliasili, and I currently lecture in Biological Anthropology and Sustainable Development at the University of Antananarivo. These experiences have shaped my strong commitment to education, collaboration, and capacity building in primate range countries.

During my first two months in this role, I have focused on understanding ongoing IPS education initiatives and on setting up the IPS Conservation Committee, while identifying opportunities to further strengthen support for students, early-career researchers, and practitioners. IPS Education currently offers two funding opportunities: the **Lawrence Jacobsen Education Development Grant (up to US$1,500)** to support the development of primate conservation education programs linked to field conservation, local communities, schools, or training in conservation education techniques; and the **Galante Family Winery Conservation Scholarship (up to US$2,500),** dedicated to recognizing individuals living in primate habitat countries that have made a significant contribution to formal and informal conservation education in their countries. **Proposals received by February 1 may benefit from feedback and review by the IPS Education Committee prior to final submission**. I look forward to working with IPS members to further strengthen education as a cornerstone of primate conservation.

Josia Razafindramanana
Vice President for Education

VP for Research

Marina Cords

On behalf of the IPS Research Committee, I am happy to report that we were able to support 12 exciting projects in the 2025 granting cycle, out of 56 total applicants. We awarded a total of $18,815, with 8 awards going to PhD students, 3 to Masters students and one to a permanent faculty member. Their projects are listed below, along with the country of their citizenship and affiliation.

- Adela Cebeiro (Spain/USA), Monkey see, monkey crack? Invesitgating learning strategies in primate nut-cracking
- Nicholas Chapoy (Denmark-USA/USA), Ranked-based differences of vocal communication in male white-faced capuchins (*Cebus imitator*)
- Julien DiGiovanni (France/USA), Cultural mechanisms in the evolution of complex tool behaviors in central chimpanzees (*Pan troglodytes troglodytes*)
- Kaitlyn Gerstner (USA/USA), Assessing the Impacts of Seasonality and Anthropogenic Exposure on the gut microbiomes of savanna chimpanzees (*Pan troglodytes verus*) in Senegal
- Joelle Hass (Canada/Canada), Visual adaptation and the gut-eye axis in rhesus macaques
- Maggie Hoffman (USA/USA), Behavioral impact of variable terrain across wild chimpanzee populations
- Claire Kirchhoff USA/USA), Gombe baboons from birth to bones
- Nelle Kulick (Poland-USA/USA), Navigating ecological extremes: behavioral and physiological flexibility in wild white-faced capuchins
- Verónica Torres- Solórzano (Mexico/Mexico), Energetic trade-offs between immunity and reproduction in mantled howler monkey females
- Sofia Weaver (USA/USA), Investigating the role of the gut microbiome in high-altitude adaptation of Peruvian woolly monkeys (*Lagothrix* spp.)
- Bright Yeboah (Ghana/USA), Foraging and risk avoidance behavior of *Cercopithecus lowei* in a human-dominated landscape at the Boabeng-Fiema Monkey Sanctuary in Central Ghana
- Edward Zamora (USA/USA), Function and flexibility of loud calls in *Colobus vellerosus*

At the IPS Congress in Madagascar, we had an excellent sarahsymposium of former grantees, not only in the research funding stream but in conservation, education and captive care and welfare. We plan to make this a recurrent event at our congresses, giving all grantees an opportunity to show what they accomplished with IPS funding. Please note as well that several former grantees have submitted reports for this bulletin.

I always like to take this occasion to remind IPS members that the Research Committee offers pre-submission feedback on draft proposals from nationals of range countries. We received 6 such requests in 2025 and one of the final proposals was funded. If you know applicants who would could benefit from this service, please help us get the word out: we realize that access to mentorship varies considerably, and we have the capacity to offer feedback to more people than those who approach us.

Also, many thanks to the Research Committee members that helped review proposals in 2025. They include: Katherine Amato, Andie Ang, Rebecca Chancellor, Oscar Chaves, Liliana Cortes-Ortiz (now the IPS president!), Laurence Culot, Sofya Dolotovskaya, Nate Dominy, Cedric Girard-Buttoz, Fumihiro Kano, Stan Kivai, Amanda Koerstjens, Andres Link, Suchinda Malaivijitnond, Victor Narat, Nga Nguyen, Rindra Ramanankirahina, Ariadna Rangel, Julie Teichroeb, Yamato Tsuji, Chris Young, and Eva Wikberg. We will need to replace quite a few members after 2026 (after they will have served the maximum 8-year term), so if you are interested in joining us, or want to nominate potential candidates, please be in touch!

Finally, keep in mind that the next round of proposals will be due on March 1st 2026, with pre-proposals for pre-submission reads due February 1st, 2026. These are our dates every year. See the IPS web pages for application form, FAQs and sample applications that were successful.

Marina Cords, VP Research

VP for Scientific Programming

Michele Mulholland

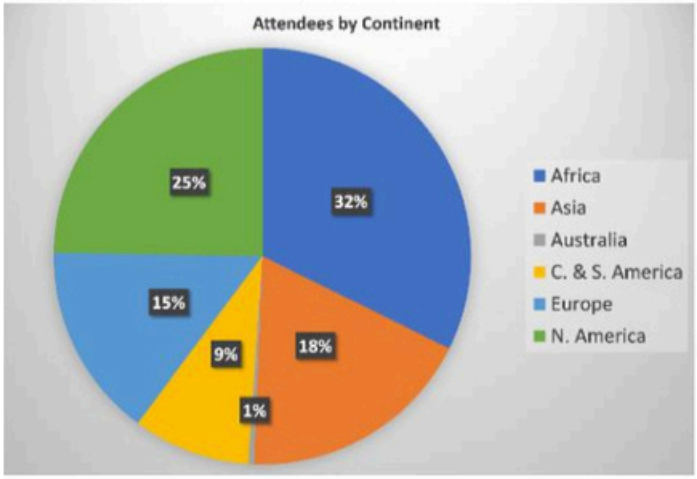
IPS Congress 2025

The 2025 Congress in Madagascar July 21-26, 2025 was an incredible success. We had 759 in-person attendees and 133 virtual attendees, representing multiple continents (see image below). We had wonderful keynote talks by Jonah Ratsimbazafy, Fabiano Melo, Pat Wright, and Joerg Ganzhorn, and a very heartfelt collaborative tribute to Judith Masters and Fabien Génin. The program included 31 symposia, 6 roundtables, 8 workshops, 43 paper sessions, and 2 poster sessions. There were 749 presentations covering a host of topics such as conservation, genomics, grant funding, habitat use, research methods, health and parasites, evolution, behavior, human-primate interactions, tool use, welfare, behavioral and veterinary management, new technologies, and more. You can see the full program online here.

I would like to thank the 2024-2025 Executive Committee of the Scientific Program for their review of all symposia, roundtable, and workshop proposals, recruitment of abstract reviewers, and their own reviews of abstracts as well. We had representatives on the executive committee from several regional/national primatological societies:

- Shinichiro Ichino representing the Primate Society of Japan.
- Karim Ouattara representing the African Primatological Society.
- Luciana Oklander representing the Latin American Society of Primatology.
- Steve Schapiro representing the American Society of Primatologists.

We were successful in recruiting a team of 64 abstract reviewers who were able to review all submitted abstracts (2-3 reviewers per abstract) even with the quick turnaround time due to the date change of the Congress. Thank you to all the reviewers!



IPS Congress 2027

I will be working closely with the local hosts and the IPS Treasurer (Trudy Turner) to ensure we are on track for another successful congress in 2027. Planning is underway and we are really excited for 2027. We hope to have a website with general information available in Fall 2026.

I am currently building the 2026-2027 Executive Committee of the Scientific Program, again with representatives from many regional/national primatology societies. The Executive Committee will be working on planning our plenary speakers, reviewing sessions proposals, and recruiting abstract reviewers. If anyone would like to pre-emptively volunteer to review abstracts, please contact me directly at program@internationalprimatologicalsociety.org.

We greatly appreciate your service to our society!

Michele Mulholland, VP for Scientific Programming

VP for student affairs

Partha Sarathi Mishra

Dear Primatologists,

I am honored to have been elected as the Vice President for Student Affairs at the International Primatological Society (IPS). As I embark on this new role, I am excited to engage with fellow officers and learn more about my responsibilities. My primary goal is to enhance student welfare and improve representation within our community.

To effectively achieve this, I seek your insights into the needs and challenges faced by the student community at IPS. Your suggestions, particularly those tailored to specific regions and diverse student groups, would be invaluable.

One initiative I propose is the creation of a forum where students can voice their opinions and foster a sense of global community. Additionally, I aim to establish mentorship opportunities that connect early-career researchers with mid-career and experienced primatologists, helping nurture the next generation of leaders in our field.

I encourage all regional primatology organizations and societies to collaborate in sharing ideas that could benefit students everywhere. We recognize the importance of showcasing students' work to enhance visibility in primatology, especially through improved social media engagement. While IPS officers will facilitate these efforts, we will need volunteers or interns to assist in this initiative.

Moreover, we are committed to increasing student membership in IPS, which will greatly support primatology students, particularly those in lower-income and underrepresented countries. I urge every student to engage with IPS as we strive to better serve you.

Please feel free to reach out to me with your ideas and thoughts.

Best regards,

Dr. Partha Sarathi
Vice President for Student Affairs

VP for Ethics, Diversity, Equity, & Inclusion

Susana Carvalho

The new IPS EDEI committee(s) are dedicated to promoting and supporting ethics, diversity, equity, and inclusion within our Society and worldwide in our profession. We seek to take concrete action to make our profession more accessible, safer, and a better place for all. As part of our mission, the committee has created three new awards (Conference Broadening Participation Grant; EDEI Recognition Awards, EDEI grant) with the hope of offering these awards biannually, before (i.e., participation grant), during (i.e., recognition award) and after (i.e., EDEI grant) each IPS conference. Given the novelty of our mission, the EDEI committee also embraced the search for funding to enable the implementation of these new initiatives. The committee also worked on the creation of new resources/tools (e.g., Codes of Conduct, Guidelines for Grants/Awards; Safety guidelines, please see details below), revised documents proposed by other IPS committees, organised a Roundtable for IPS Madagascar focused on discussing 'Safe Spaces in the Field', started to gather data, and implemented actions to strengthen inclusion and connectivity within IPS and its Affiliated Societies. I would like to start by sincerely thanking each member of the EDEI committee(s). The committee includes representation of, at least, 17 countries, at present.

I am extremely grateful for their time, wisdom, invaluable contributions, commitment with all EDEI matters, and for assisting me so promptly, while enthusiastically engaging in every discussion.

Thank you to:

Adrienne B. Chitayat
Andie Ang
Christopher A. Schmitt
Elodie Freymann
Erin Riley
Giuseppe Donati
Harmonie Klein
Himani Nautiyal
James Bukie
Janette Wallis
Jo Setchel
Karen Strier
Katarina Almeida-Warren
Leandro Jerusalinsky
Liliana Cortes-Ortiz
Lydia Greene
Marina Blanco

Marina Cords
Marni LaFleur
Megan Beardmore-Herd
Nadine Ruppert
Patricia Izar
Reiko Matsuda Goodwin
Seheno Andriantsaralaza
Stella de la Torre
Stephanie Poindexter
Susan Cheyne
Tatyana Humle
Thalita Sacramento
Tyler Andres-Bray

I would also like to thank the new affiliate members who were recently nominated by their Societies to join our EDEI committee:

Adeola Ayoola
Filipa Abreu
Ishika Ramakrishna
Khonesavanh Phandanouvong
Lucero Hernani
Santanu Mahato
Songtao Guo
Tony Estrella
Yongcheng Long

On behalf of the committee, I would also like to express our gratitude to Trudy Turner, the IPS Treasurer and VP for membership. The new EDEI grants, awards, and funded initiatives, added hugely to the treasurer's workload and increased pressure during the very busy period of congress preparations. I am grateful for all the work and patience with our novel role.

A sincere thank you is also due to the organising committee for IPS Madagascar, including Michele Mulholland and Josia Razafindramanana. Without their work, it would have been impossible to implement some of the EDEI initiatives that are available at the congress.

I am grateful to all my fellow VP officers for the support and guidance during the first steps of the new EDEI VP – this is much appreciated.

We are very grateful to Susan Cheyne, member of the EDEI committee, for her generosity and contributions. Susan prepared in full the document 'Conference Tips for First-Timers' and offered it, allowing us to edit, translate and to make it available to all. This is a very valuable and novel resource.

We are also very grateful to Marni LaFleur, Marina Blanco, Lydia Greene, and members of local organising committee, for their leadership in preparing the Safely Navigating Tana document. The document has been made available to all via the conference website.

Finally, I would also like to sincerely thank Megan Beardmore-Herd and Harmonie Klein, for their invaluable work and dedication during my time as a VP. Their frequent assistance, and their skills to collect data, and organise information, have made it possible to accomplish Much more work, in a much more organised manner than I could ever do alone. Thank you.

On behalf of the committee, I am pleased to report on our main activities between August 2023 and September 2025:

Raising funds for EDEI initiatives during IPS Madagascar and beyond

The current VP has raised a total of $23,100:

- Arcus Foundation Grant ($18000)
- Global Vista Foundation ($5000)
- Wildlife Conservation Society QUEER Employee Resource Group and American Association of Zookeepers ($100)

Raising funds for IPS China 2027

We have been offered funds from the Global Vista Foundation (amount to be determined but higher than the first donation, focused on funding participants from Africa and South America)

IPS EDEI Broadening Participation Grant

We created this grant with the aim to assist participants from under-represented groups to attend the IPS conferences (both in person and virtually) and help widen representation at IPS events. Here is a summary of our first call:

- Received 94 applications
- EDEI assessment panel evaluated
- Funded 26 in person attendees + 5 online registrations from 14 countries (Bangladesh, Bhutan, Brazil, Cameroon, Colombia, India, Kenya, Madagascar, Panama, Paraguay, Philippines, Tanzania, Uganda, UK) – Access to grantee details available via request here
- Created and shared an award letter and grant contract with grantees to ensure grantees could make use of funds to attend the conference and to give confidence to funders that money is being used for the purpose it was given
- Collated bank details, signed grant contracts, and collected proof of registrations from grantees so that funds could be distributed by Trudy Turner, the IPS Treasurer and VP for membership
- Collected voluntarily shared images from grantees to display during the IPS Madagascar 2025 Congress.

This immense task, that involved the production of many documents, and required many assessments, meetings and communications were possible only due to the dedication of the following members of the assessment panel:

Himani Nautiyal
Janette Wallis
Jo Setchell
Katarina Almeida Warren
Marina Blanco

Patricia Izar
Reiko Matsuda Goodwin
Susana Carvalho
Tyler Andres-Bray

IPS Ethics & Diversity, Equality, Inclusivity Recognition Awards

We created this Recognition Award to recognise individuals, projects, or field stations carrying out initiatives that seek to promote and give excellent examples of Ethics and Diversity, Equality, and Inclusion within primatology. Here is a summary of our first call:

- Received 9 strong nominations
- EDEI assessment panel evaluated
- Selected 3 awards + 3 commendations (Mulheres pela Primatologia - 1st place; Citalahab Field Station by KIARA - 2nd place; Razafindratsima Lab - 3rd place; Perspectives – commendation; Deepika Bora – commendation; Nimba Chimpanzee Project – commendation)
- Produced awardee certificates to present during the awards ceremony at the IPS Madagascar 2025 Congress
- Collected voluntarily shared images/videos from awardees to display during the awards ceremony at the IPS Madagascar 2025 Congress.

This task, that involved the production of many documents, required various assessments, meetings and communications was possible only due to the dedication of the following members of the assessment panel:

Harmonie Klein
Marina Blanco
Marni La Fleur
Reiko Matsuda Goodwin
Stephanie Pointdexter
Susana Carvalho

Key resources produced by the committee

- Guidelines/Criteria for Broadening Participation Grant
- Guidelines/Criteria for Ethics & Diversity, Equality, Inclusivity Awards
- Code of Conduct for the IPS Madagascar 2025 Congress
- Code of Conduct for IPS elections of new officers
- Tips to Safely Navigate Tana (led by Marni La Fleur, Marina Blanco, Lydia Green and the IPS local organising committee)
- Conference Tips for First Timers (led by Susan Cheyne, translations to Spanish and French by Liliana Cortes-Ortiz, Harmonie Klein, and Tanya Humle).

Organisation of Initiatives and other EDEI tools/resources

- Roundtable Safe Space in the Field during IPS Madagascar 2025 Congress (led by Veronarindra Ramananjato, Marina Blanco, Lydia Greene, and Susana Carvalho, with guest speakers Rassina Farassi, Harmonie Klein, Marni LaFleur, Ny Ony Ratovonjanahary, Hoby Ambinintsoa, Seheno Andriantsaralaza, and invited speaker Meredith Palmer)
- Produced two EDEI Posters with conference information and QR codes to access EDEI documents created (this replaces the video that was initially planned to advertise the EDEI actions and safety/tips to attend the conference)
- Together with organising committee, we arranged the availability of the hidden disability lanyards, a quiet area, signalling, etc.

EDEI Welfare officers

Ten welfare officers volunteered for the IPS Madagascar 2025 Congress. The welfare officers were provided with online tools and a meeting with the VP to discuss their role during the congress. Na additional in-person briefing meeting is planned in Antananarivo before the congress commences.

We thank the following volunteers who made it possible for IPS to have this support available:

Adrienne Chitayat
Harmonie Klein
Himani Nautiyal
Joelisoa Ratsirarson
Liliana Cortes-Ortiz
Marni la Fleur
Nadine Rupert
Onja Razanamaro,
Susana Carvalho
Tim Eppley

Volunteer Translators

We created forms to collect data on needs for translation, as well as interest from participants in helping with translations during Q/A sessions (Google form to collect data on volunteer translators/and needs for translations). The response was very positive, and we have recruited 28 volunteer translators for Q&A sessions, covering 10 languages (Hindi, Bengali, Assamese, German, French, Spanish, Malagasy, Portuguese, Thai, Italian). They will be identified in the conference via their blue lanyard. This will be a trial, and we will assess if the 'volunteer translation' is effective and should be repeated in future IPS events.

Ongoing EDEI Research

Funded by Arcus Foundation (and led by Harmonie Klein, Megan Beardmore-Herd and Susana Carvalho. During the process of obtaining funds, it was agreed with the funder that we had na urgent need at IPS to collect data and carry out surveys – to ensure that we are investing funds and time in addressing the most pressing issues and to better plan to achieve the broader goals. Here is a summary of the aims of this first period of research:

- Data collection for 5 months (May to September 2025) to:

a) survey current initiatives working on safety at field sites and EDEI at field sites;
b) design surveys to collect membership data on experiences at field sites;
c) design surveys to collect non-membership data on experiences at field sites;
d) use data from ongoing initiatives to reach out and propose the formation of a collective/consortium for the creation of a good practice manual with training/certification;
e) use data from surveys with membership and non-membership to inform decisions and curricula for training;
f) write collective paper to outline the needs and steps of the good practice 'manual';
g) organise workshop with collective stakeholders to agree on action plan, with the goal to conclude the manual and make training/certification available for field sites by 2027.

Other actions to strengthen inclusion and diversity within IPS and affiliated Societies:
We invited representatives of the largest regional or continental Societies to join the EDEI committee, to join efforts for key actions, listen to the voices of primatologists more globally, and better connect with ongoing efforts by primatological societies. So far, the following Societies were invited to nominate a representative to join our EDEI committee:

European Federation of Primatology
American Society of Primatology
Latin American Primatological Society
African Primatological Society
GERP Madagascar
SE Asian Primatological Association
Association for Indian primatologists
China Primatological Society
Australasian Primate Society (extinct)
Primate Society of Japan

7 Societies have joined so far (European Federation of Primatology, American Society of Primatology, Latin American Primatological Society, African Primatological Society, SE Asian Primatological Association, Association for Indian Primatologists and China Primatological Society).

Next key actions – to develop and implement after IPS Madagascar – agreed on the last EDEI committee meeting held on July 1, 2025:

- IPS Code of Conduct
- Announcement of EDEI grant
- Field Station Accreditation certification.

Closing remarks:
I am honoured and grateful to have been given the opportunity to continue in my role. The period of this report was a window of time of intensive work led by the EDEI committees(s). The committee feels positive about the collective work done so far and motivated about what we are planning to achieve.

With very best wishes
Susana Carvalho
IPS VP for EDEI

IPS Grantees

CONSERVATION GRANTS AWARDEE

Dessalegn Obsi Gemeda

Can forest loss and degradation affect human-grivet monkey coexistence in south-western Ethiopia?

Dessalegn Obsi Gemeda (PhD), Jimma University College of Agriculture and Veterinary Medicine, Department of Natural Resource Management, Ethiopia

1. BACKGROUND/INTRODUCTION

Wild animals are increasingly damaging agricultural lands, leading to significant coexistence challenges with humans due to crop destruction and livestock depredation. It is widely acknowledged that primates, such as chimpanzees and baboons, often enter agricultural fields in search of food, especially as their natural habitats are increasingly being encroached upon. The conversion of land for agricultural purposes along with the rising human population has been positively correlated with an increase in negative human-wildlife interactions [1]. Forest loss can have a significant negative impact on primates [2, 3]. Forest degradation limits food availability, leading to resource competition, which then results to negative human-wildlife interactions. These often reach their peak in areas heavily influenced by human activity, particularly where humans, livestock, and wildlife coexist. In human dominated landscapes, the land cover is significantly changing and it is crucial to understand changes in land uses that can affect both humans and other living creatures. The prevalence and frequency of interactions with wild mammals are commonly linked to these changes in the environment [4]. Research on human-wildlife coexistence has been conducted in different parts of Ethiopia [5, 6]. Most previous studies conducted in Ethiopia have primarily addressed this topic using household surveys, with limited information at the species level. However, they have revealed that negative interactions mainly concern grivet monkeys (*Chlorocebus aethiops*), listed as Least Concern on the IUCN red List. Moreover, mitigation strategies have received little attention.

2. PROJECT OBJECTIVES/AIMS

The main objective of this study was to assess the influence of forest loss and degradation on human-grivet monkey interactions and existing adaptation strategies in both species.

3. BRIEF OVERVIEW OF STUDY LOCATION AND METHODS

This research was conducted in Sasiga district, located in East Wollega Zone of south-western Ethiopia (Figure 1).

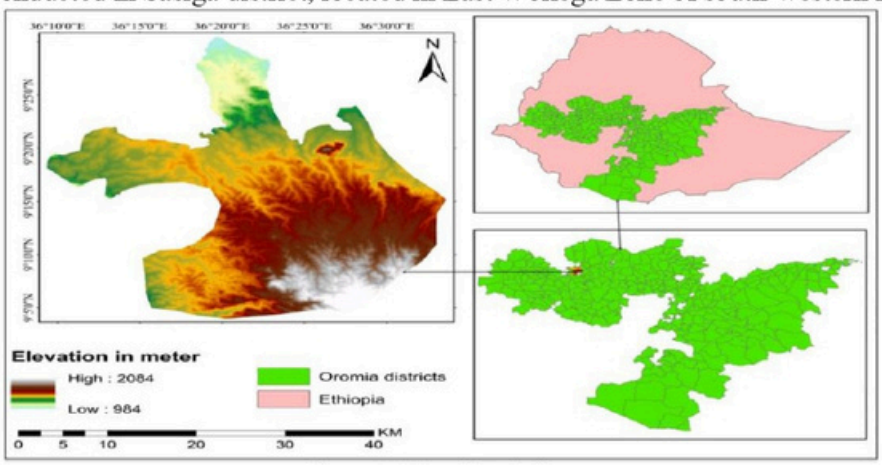


Figure 1: Map of study área

A multi-stage sampling technique was implemented, utilizing a purposive sampling method to select Sasiga district from 17 districts within the East Wollega zone. Four villages were purposively selected using simple random sampling to select 204 households. This study employed a combination of geospatial technologies and household surveys. For the land use cover (LU/LC) change analysis, the satellite images were obtained from the United States Geological Survey (USGS) website (https://earthexplorer.usgs.gov). For this purpose, Landsat-5 Thematic Mapper (TM) 1992, Landsat-7 Enhanced Thematic Mapper Plus (ETM+) 2002 and 2012, and Landsat 8 Operational Land Imagery (OLI) 2024 and were used with a path/row of 170/054. For ranking the existing human grivet monkey conflict mitigation approaches, the weighted average index (WAI) with six-point Likert scale was used.

The district elevation ranges from 1,262 to 2,051 meters above sea level. Covering a total area of 836.7 km^2, Sasiga district has a population density of 137.1 individuals per square kilometre. The climate in Sasiga is predominantly characterized by a temperate climate with a humid zone comprising 57% of the area, while a tropical climate representing

approximately 43%. Annual rainfall of the district range from 2,000 to 2,800 mm, while the mean maximum and minimum temperatures range from 20°C to 30°C, and 10°C to 25°C, respectively. Key crops grown locally include barley, wheat, maize, peas, sorghum, soybeans, linseed, sesame, groundnuts, bananas, coffee, and among others.

4. KEY RESULTS/MAIN FINDINGS OR OUTCOMES

Results showed that agricultural land increased from 16.6% in 1992 to 24.2%, 46.4% and 46.86% in 2002, 2012, and 2024, respectively (Table 1 and Figure 2), i.e., an increase of 30.26% in agricultural land over the past 32 years. Conversely, grassland, shrub-land and forest, which are the main natural habitats for the grivet monkey, experienced a decline in area coverage, although the rate of decrease varied among these LU/LC classes. Forest land cover declined from 9.2% in 1992 to 7.08% in 2024. The grassland declined from 35.4% in 1992 to 25.86% in 2024, reflecting a decline of 9.54%. In 2024, the distribution of land cover in the study area was 46.86% for agricultural land, 25.86% for grassland, 17% for shrub-lands, and 7.08% for forests. Based on community perception, forest loss has a significant negative impact on primates.

All households interviewed reported frequent occurrences of negative human-grivet monkey interactions, especially concerning crop-foraging. All the interviewees reported that these had increased recently. In recent years (2022 to 2024), the grivet monkeys started to forage crops that they did not consume before such as sugarcane and sugar beet. Moreover, the grivet monkeys were reported to consume all vegetables and fruits grown by people in the region. However, agricultural yield loss cannot primarily be attributed to crop foraging by grivet monkeys as climate change and land degradation, mainly causing declines in soil fertility, also significantly affect agricultural productivity and community livelihoods, often driving the expansion of agricultural activities and natural habitat loss. Nevertheless, agricultural yield loss was one of the key factors influencing community perceptions of the grivet monkey. The local communities in the study area ranked scarecrows, crop guarding, chasing, and the use dogs as the top four crop-foraging mitigation approaches (Table 2). The methods of killing, use of sound, land use planning, and cultivating less palatable crops were ranked as 5th, 6th, 7th, and 8th, respectively.

Table 1: LU/LC cover between 1992 and 2024

LU/LC	1992 (ha/%)		2002 (ha/%)		2012 (ha/%)		2024 (ha/%)	
Agriculture	17295.9	**16.6**	25295.8	**24.2**	48295.9	**46.4**	48798.7	**46.86**
Grassland	36874	**35.4**	33733.2	**33**	25721.8	**24.7**	26926.1	**25.86**
Shrub-land	37068.3	**35.6**	32285.6	**32.4**	19598.8	**18.8**	17749.6	**17**
Forest	9616.6	**9.2**	9530.2	**9**	7218.34	**6.9**	7348.35	**7.08**

Table 2: Mitigation approaches employed locally to reduce crop foraging by grivet monkeys using WAI (N=204)

Mitigation options	Degree of importance							
	Very high	High	Medium	Low	Very low	Not important	WAI	Rank
Scarecrow	440	260	90	20	8	0	4	1st
Crop guarding	25	396	183	48	14	0	3.26	2nd
Chasing	264	108	72	26	72	0	2.66	3rd
Dogs	100	36	237	44	51	0	2.29	4th
Killing	55	12	21	112	17	0	1.06	5th
Sound	0	4	9	134	40	0	0.92	6th
Land use planning	50	16	6	14	0	0	0.42	7th
Use of less palatable crops	0	0	0	6	2	0	0.04	8th

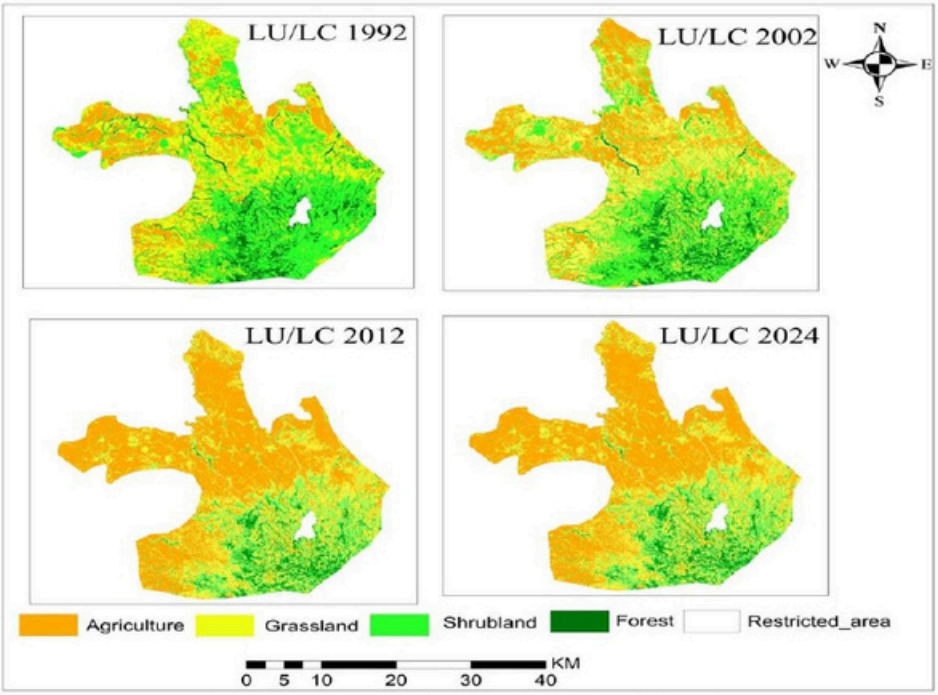


Figure 2: Distribution of LU/LC map of the study area

5. IMPLICATIONS OF PROJECT/DISCUSSION OF RESULTS

Habitat loss and degradation, specifically of natural forest and grasslands, are significantly threatening the survival of grivet monkeys and other primate species such as Olive Baboon (*Papio anubis*) and black and white colobus monkeys (*Colobus guereza*) [7]. However, little has been reported on the impact of colobus monkeys on agricultural crops. The loss and degradation of natural forests have a lasting detrimental impact on primate species. Negative interactions between people and wildlife are common in various regions of Ethiopia, leading local communities to develop negative perceptions of primates, particularly grivet monkeys. The local community and the key informant interviews confirmed a significant perceived increase in the number of grivet monkey in the regions. Most of them declared that their population doubled as compared to the past two decades, although it is unclear whether this is a real increase or one that is based on perception due to increased human encounter with the species as people are increasing converting land to agriculture. On the other hand, human population also significantly increased during this period in the study area. The exponential growth of both human and potentially grivet monkey populations on limited land resources intensifies competition for resources. Grivet monkeys used to consume only a few agricultural crops such as maize, sorghum, and banana, while in recent years (2022 to 2024), they have begun to forage on a wider range of cereal crops, fruits and vegetables, which intensifies coexistence challenges between humans and grivet monkeys (Figure 3).

Figure 3: Grivet monkey foraging on sugar beet, which was not common in the past

The main driving factor for the escalation of negative human-grivet monkey interactions is the destruction of the grivet monkeys' natural habitat, specifically forests and grasslands. The increasing demands for forest products for household furniture, coupled with the destruction of forests for agricultural expansion affect primate species. Local communities have clearly confirmed a decline in the availability of wild foods generally consumed by grivet monkey, which is likely compelling the monkeys to seek out highly nutritious crops to supplement their diet. The presence of both humans and grivet monkeys on agricultural lands results in competition for resources, eventually resulting in 'conflict'. The grivet

monkey has adapted to incorporate new agricultural products into their diet, which further deteriorates relations with people. Household surveys revealed that the use of scarecrows made from clothes, crop guarding by youth, chasing, and deterrence using domestic dogs are the key mitigation approaches employed by people to minimize foraging incidents by grivet monkeys on agricultural crops, although it still remains unclear as to how effective these measures are. It is critical to further understand these issues to help improve coexistence between grivet monkeys and people in this region of Ethiopia.

ACKNOWLEDGEMENTS: We acknowledgement the International Primatological Society and Primate Conservation, Inc., USA for funding this study.

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CONSERVATION GRANTS AWARDEE

Isabela Normando Mascarenhas

MINIMIZING RISKS ASSOCIATED WITH THE CONSERVATION TRANSLOCATION OF THE BUFFY-TUFTED-EAR MARMOSET (*Callithrix aurita*) IN ATLANTIC FOREST, SOUTHEASTERN BRAZIL

Isabela Normando Mascarenhas*
Mountain Marmosets Conservation Centre
Universidade Federal de Viçosa, Brazil

Conservation Grants

1. BACKGROUND/INTRODUCTION

The buffy-tufted ear marmoset (*Callithrix aurita*) is an endangered Brazilian primate, threatened by habitat loss, competition and hybridization with its invasive congeners. The species is covered by the National Action Plan for the Conservation of Atlantic Forest Primates and the Maned Sloth (PAN- PPMA), directed by the Brazilian Ministry of the Environment and Climate Change (MMA, 2019; MMA, 2025). The PAN-PPMA defined strategies for the species conservation, among them: manage *C. aurita* populations aiming at their viability; manage allochthonous primates in areas important for the *C. aurita* conservation; and evaluate important disease for Atlantic Forest primates. Our research aims to adhere to those guidelines and minimize health risks related to the translocation of *C. aurita* from *ex situ* to Atlantic Forest fragments in southeastern Brazil.

2. PROJECT OBJECTIVES/AIMS

The present project aims to monitor the health and evaluate the occurrence of relevant pathogens for primate conservation and public health in *Callithrix aurita* from *ex-situ* management (Figure 1) and in free-living invasive hybrids *(Callithrix sp.),* (Figure 2), in areas considered for *C. aurita* reintroduction or population reinforcement. In parallel, it aims to surgically sterilize individuals of *Callithrix sp.*, since their presence in *C. aurita* home range represents a major threat to the species' *in situ* conservation (MALUKIEWICZ et al, 2020). We intend to endorse information for the consolidation of a disease (health) risk analysis and a veterinary protocol for *C. aurita* translocation from *ex-situ* management to Atlantic Forest fragments in southeastern Brazil.

3. BRIEF OVERVIEW OF STUDY LOCATION AND METHODS IF/AS RELEVANT

Between 2021 and 2025, we monitored the health of *Callithrix aurita* at the Mountain Marmosets Conservation Centre from the *Universidade Federal de Viçosa* (MMCC-UFV), collecting biological samples and data related to their

performance in *ex situ* management. The MMCC-UFV is located in the city of Viçosa, state of Minas Gerais, southeastern Brazil, and it was designed as one of the essential fronts for the success of the Mountain Marmosets Conservation Program (MMCP), which in turn works to implement the guidelines stipulated by the PAN-PPMA.

We also evaluated and collected biological samples from free-living invasive hybrids (*Callithrix* sp.), captured in Atlantic Forest fragments in the municipalities of Viçosa and Rio Doce, state of Minas Gerais, areas assessed for the conservation translocation of *Callithrix aurita*. All *Callithrix* sp. were captured by Tomahawk traps (45cm x 21cm x 21cm), baited with bananas. We took them to the Veterinary Hospital of the *Universidade Federal de Viçosa* for chemical restraint, clinical evaluation, collection of blood samples and surgical sterilization.

All procedures followed ethical approval by the Ethics Committee for the Use of Animals of the *Universidade Federal de Viçosa* (number 13/2021 and 46/2022) and by the Brazilian Government through the license SISBIO (number 77828-3).

4. KEY RESULTS/MAIN FINDINGS OR OUTCOMES

Since the inauguration of the MMCC-UFV in 2021, seven individuals have died, including two subadults and five adults, after recurrent episodes of diarrhea no longer responsive to clinical treatment. Postmortem examinations revealed severe inflammation of the gastrointestinal tract (7/7), associated with hepatic lesions (5/7), and pneumonia (1/7). The results of aerobic bacterial cultures from rectal swabs varied among the individuals tested: *Escherichia coli* and *Citrobacter freundii* (2/3) – microorganisms that are part of the normal microbiota of the analyzed material; and *Pseudomonas* sp. (1/3) – bacteria associated with secondary infections. Although mortality was recorded, the relatively high birth rate offset these losses. In 2024, the resulting demographic balance of +21.08% indicates a net population increase, suggesting a positive demographic trend for the long-term persistence of the population.

Between 2021 and 2025, 103 free-living hybrids occurring in the *C. aurita* home range in the municipalities of Viçosa and Rio Doce were captured and subjected to surgical sterilization. Males underwent deferentectomy (N=60) and females underwent salpingectomy (N=43). These animals were kept under observation for approximately seven days after the surgical procedure, where they were monitored for behavior and healing. After total recovery, we released all free-ranging individuals at the original site of capture.

Preliminary serological analyses revealed an absence of neutralizing antibodies against yellow fever virus (YFV) in the population of the MMCC-UFV. However, it was identified in 1.31% (1/77) of free-living hybrids (*Callithrix* sp) in areas evaluated for *C. aurita* conservation translocation. To date, in both populations, no serological evidence of Mayaro virus infection has been observed. Additionally, molecular screening did not detect *Plasmodium vivax*, *P. brasilianum*, or *P. simium*, etiological agents of malaria in humans and non-human primates. Further analyses are required, as a subset of the collected samples has not yet been processed.

Parasitological examinations performed through sedimentation tests have already demonstrated peculiarities when comparing *C. aurita* from the MMCC-UFV and the free-living hybrids (*Callithrix* sp.). *Primasubulura jacchi* and *Prosthernorchis elegans* eggs were identified parasitizing the free-living population, which was not observed in the *ex-situ* population. On the other hand, we identified eggs of *Platynosomum* sp. in the groups from the institution in 2021, 2022, 2023 and 2025, what was not observed in free-living hybrids, invasive animals in areas evaluated for *C. aurita* release.

5. IMPLICATIONS OF PROJECT/DISCUSSION OF RESULTS

The population of buffy-tufted ear marmosets *(Callithrix aurita)* from the Mountain Marmosets Conservation Centre has been performing well. However, pathological findings observed during necropsies may be related to the presence of chronic inflammatory processes; bacterial infections (primary or secondary) or even viral infections. Acute or chronic stress may trigger diarrheic syndromes associated with immunosuppression in callitrichids, predisposing them to gastrointestinal infections, which highlights the importance of management practices aimed at minimizing stress.

The control of invasive hybrids (*Callithrix* sp.) in *C. aurita* home-range proved to be a safe and feasible strategy to support conservation efforts. Our project represents an initial step toward establishing a continuous sterilization program for invasive hybrids, integrated with active surveillance for arboviruses and other vector-borne diseases involving non-human primates in their transmission cycles. *Callithrix* species can serve as effective sentinels for such pathogens (BANDEIRA et al, 2025), many of which represent threats to both primate conservation and public health in Brazil, as evidenced by the impact of the yellow fever outbreak in 2016–2017 in the southeast, which resulted in a large number of confirmed human cases and deaths, as well as numerous epizootics affecting neotropical primates (REZENDE et al, 2018)

The outcomes of this study, together with the consolidation of ongoing sterilization and surveillance programs, provide valuable information to assess impacts and monitor pathogen circulation in endangered primates' species, and inform public health agencies, enabling them to implement preventive measures in both urban and rural areas. Furthermore, these findings have been crucial to inform a disease risk analysis and develop a veterinary protocol for the conservation translocation of *C. aurita* from MMCC-UFV to Atlantic Forest fragments in southeastern Brazil, aiming to maximize the health of translocated individuals and to minimize the risk of introducing new pathogen(s) to the destination area.

6. ACKNOWLEDGEMENTS

This study could not have been carried out without the guidance and encouragement of my advisors, Prof. Dr. Fabiana Voorwald and Prof. Dr. Fabiano Melo. Thank you to all the individuals and institutions that have been contributing to this study, including the *Laboratório de Virologia Veterinária de Viçosa* (LAVEV); the Molecular Biology and Immunology of Malaria group (BMIM) from the Rene Rachou Institute - Fiocruz Minas; and the Veterinary Parasitology Laboratory from the *Universidade Federal de Viçosa* (UFV). Thank you to the Mountain Marmosets Conservation Program; the Veterinary Hospital and the Clinical Laboratory from the Department of Veterinary from UFV for their continuous assistance. This study has only been made possible through the support provided by the Coordination for the Improvement of Higher Education Personnel (*CAPES*), the Wildlife Conservation Network (WCN), and the Primatological International Society (IPS).

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Figure 1: On the left, Chiquita, the first breeding female Callithrix aurita at the Mountain Marmosets Conservation Centre; on the right, her inquisitive twins born at the institution. Photo credits: Bárbara Antonucci and Kayo Ramos.

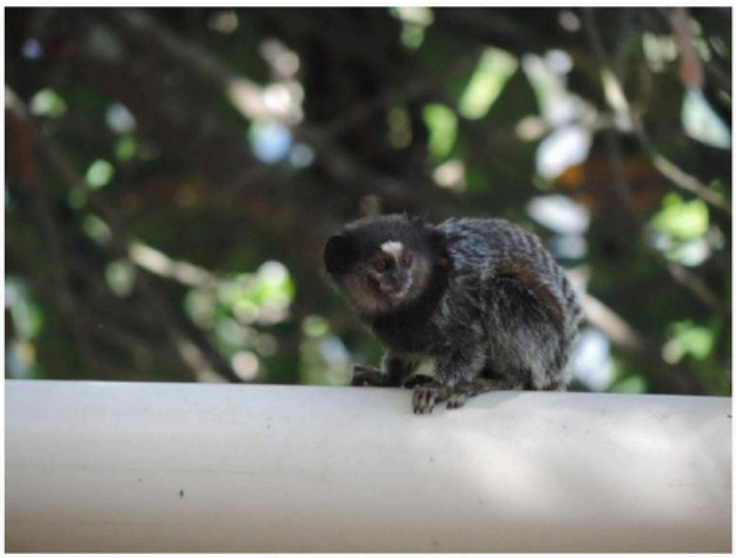


Photo credits: Natassha Andrade

CONSERVATION GRANTS AWARDEE

Gaspard Nzayisenga

Final Report on IPS Funded Training Program
Recipient: Gaspard Nzayisenga
Funder: Galante Family Winery Conservation Scholarship
Submitted to: Tatyana Humle, VP for Conservation, and the IPS Conservation Committee **Date:** July 2025

1. **Executive Summary**

From May 1 to June 15, 2025, I completed a comprehensive six-week training program in the United States, supported by the Galante Family Winery Conservation Scholarship. The training took place at the California National Primate Research Center (CNPRC), UC Davis, and the Houston Zoo (HZ), Texas. This report outlines the diverse clinical experiences that significantly enhanced my veterinary capacity for wildlife and primate conservation.

2. **Training Overview**

The training took place from May 1 to June 15, 202. The first four (4) weeks were spent at CNPRC, UC Davis, California, while the last two weeks were at the Houston Zoo, Texas. The training was organized by Gorilla Doctors and funded by the IPS through the Galante Family Winery Conservation Scholarship (for $2,500).

3. **Objectives**

- Strengthen clinical veterinary skills in primate and other wildlife medicine .Gain experience with a broad range of species
- Learn advanced diagnostic and treatment protocols
- Apply this knowledge to conservation work in wildlife conservation in the field

4. **Clinical Training Highlights**

At California National Primate Research Center (CNPRC):

- Assisted with and observed varied clinical procedures, including:
    - Wound care and management
    - Skin conditions diagnosis and management
    - Limb amputations
    - Cesarean sections and neonatal care
    - Dental work, including extractions
    - Ophthalmic procedures
    - Management of gastrointestinal (GIT) issues, including chronic diarrhea cases
    - Etc…
- Exposure to medical record systems, sedation protocols, and species-specific anesthesia techniques

5. **Zoo-Based Veterinary Exposure (Houston Zoo)**

- **Species diversity:** I had the opportunity to work on different species, including but not limited to Birds, Rodents (e.g., capybara), Reptiles (e.g., snakes, Komodo dragon, alligators), Carnivores, Elephants, and Nonhuman primates (e.g. siamang)

- **Clinical procedures included:**
- General health checks under anesthesia
- Imaging (ultrasound, radiographs)
- Blood collection and lab diagnostics
- Managing complex physiologies and unique species-specific health considerations

6. **Outcomes & Application**

- Significantly expanded clinical confidence across species
- Strengthened capacity for clinical decision-making
- Gained familiarity with multispecies anesthesia and procedural planning

- Enhanced ability to translate clinical skills to field settings, especially for primates such as Mountain Gorillas and Golden Monkeys
- Built lasting professional connections and a clearer understanding of international standards in wildlife care

7. Budget Summary

- **Total Awarded:** $2,500
- **Used For:**
- International travel

8. Acknowledgements

I express my deep gratitude to:

- The Galante Family Winery Conservation Scholarship for enabling this opportunity • Gorilla Doctors for coordination and logistical support
- Veterinary teams at CNPRC and Houston Zoo for their mentorship and guidance • IPS Conservation Committee for their support and continued encouragement

9. Conclusion & Future Steps

This training was transformative, providing hands-on experience in advanced clinical care and exposure to a diversity of animal clinical procedures. I plan to integrate these skills into field conservation work and share them with local colleagues through mentorship and capacity building. I am excited to keep building collaborations that bridge field conservation and high standard veterinary care.

Photos

Photo 1. Gaspard at the CNPRC

Photo 2. Gaspard with the HZ veterinary team

Photo 3. Collecting a Cerebro-Spinal Fluid for diagnostic purposes

Photo 4. Dr. Gaspard Nzayisenga and the zoo team releasing a 105-lb loggerhead in Galveston, Texas. The turtle was nicknamed "The Rock" after being found stuck in mud at low tide. It was rescued and recovered with the zoo before returning to the wild!

CONSERVATION GRANTS AWARDEE

Patrick Tusiime

The International Primatological Society, 2024 Galante Family Winery Conservation Scholarship Report.

By the Awardee, Patrick Tusiime

In May 2024, I was fortunate enough to receive the 2024 Galante Family Winery Conservation Scholarship, valued at $2,500. This generous support allowed me to pursue my Introduction to One Health course at the University of Edinburgh and I am immensely thankful for this incredible opportunity that has significantly contributed to my professional growth.

My decision to enroll in the MSc One Health program stems from my unique experiences living and working near Kibale National Park (KNP), renowned as "the primate capital of the world." I share a profound connection with KNP, which has enriched my life as its neighbor and served as a source of inspiration throughout my career. This deep-rooted relationship fuels my commitment to its preservation, advocating for conservation efforts and fostering a harmonious coexistence between its wildlife and the surrounding communities. Through this program, I aim to acquire the essential skills and knowledge needed to create and implement effective solutions that will benefit both my community and the conservation of the park and its primate inhabitants.

I am immensely grateful to the Galante Family Winery Conservation Scholarship program for providing me with the support necessary to pursue my aspirations. Without this opportunity, advancing toward my dream would have been a challenge.

The course was a little more expensive than the award, i.e. £2,125, but my employer, The Kasiisi Project, generously covered the additional cost for me.

By the end of the course, I felt more equipped to engage in critical thinking and collaborative efforts to tackle the complex health issues that affect the well-being of humans, animals, and the environment in my community and beyond. Through the course, I developed a thorough understanding of the intricate ways in which health challenges and solutions intersect across various disciplines and geographical boundaries, gained valuable insights into the interconnectedness of human, animal, and environmental health, along with a solid understanding of the One Health framework. Additionally, I learned about the ethical considerations, practical strategies, and tools for implementing a One Health approach in real-world situations, including data collection, interdisciplinary research, and public health interventions that encompass both human and animal populations.

Most significantly, the course empowered me to advocate for a One Health Approach, which is essential for bridging gaps between different sectors and striving for more cohesive solutions.

I have completed two additional courses with the assistance of my employer, the Kasiisi Project, and still need to tackle seven more courses and a dissertation while I seek further funding. My goal is to finish the master's degree by 2029 but I already feel a strong motivation to apply the knowledge and skills I've acquired from the first courses.

I am in the process of conceptualizing an ecosystem health model center that will serve as a learning hub for my community, demonstrating how humans, animals, and the environment can coexist in harmony and promote overall health. In addition, I'm inspired to research the impact of reduced human respiratory diseases on Chimpanzee health in Kibale National Park.

Finally, I would like to express my heartfelt gratitude to the Galante Family and The International Primatological Society for your generous support of my education. Your assistance fuels my passion for conservation and wildlife management. I also wish to thank my mentors, Dr. Sonya Kahlenberg and Dr. Taylor Weary, for their invaluable guidance and unwavering support in helping me achieve this award and for their continued encouragement in my professional journey.

Thank you!

EDUCATION GRANTS AWARDEE

Emily Otali

Inspiring Future Ugandan Conservationists through Career Days

Grant recipient: Kasiisi Project

Applicant: Emily Otali, Ph.D., Kasiisi Project Country Director

Report date: August 14, 2025

Background

The Kasiisi Project works with communities outside Kibale National Park, in western Uganda. With 13 primate species, Kibale is known as the "Primate Capital of the World". It has the largest chimpanzee population in Uganda and has the most important chimpanzee tourism site in the world. However, a rapidly increasing human population surrounds the national park, 50% of whom are under 17 years old, reflecting the national trend. These communities are characterized by poverty and low levels of education (77% of rural children do not attend secondary education). This population increase, together with the fact that the park used to be a hunting ground for the local kings, and later was used as a settlement for refugees; has led people viewing the park as a "free" resource. This has resulted in snare setting and other illegal activities. Around 30% of the chimpanzees in Kibale have been snared and many suffer from debilitating injuries from snares.

The Kibale Chimpanzee Project provides multiple layers of chimpanzee and other wildlife protection inside the park by conducting snare removal patrols; chimpanzee health monitoring and intervention; and through the presence of researchers, which deters poachers.

However, the conservation of wildlife and its habitats relies heavily on local communities and must be spearheaded by locals. The Kasiisi Project, which is the outreach arm of the Kibale Chimpanzee Project, partners with 16 government-aided primary schools on the edge of Kibale National Park, near the Kanyawara chimpanzee community. Our work is centered around three main pillars: (1) Education – to ensure access to a quality education so children can reach their full potential, (2) Health – to provide services and education to keep children in school and promote healthy living, with a focus on the special needs of girls, and (3) Conservation – to instill a lifelong appreciation for wildlife and nature and a strong conservation ethic in the children.

Each year, Kasiisi Project's conservation education program engages 9,000 schoolchildren around the park. The program works with after-school wildlife clubs and conducts field trips for students and teachers, hands-on activities, and commemoration of globally important days like Earth Day and World Chimpanzee Day.

Summary of Project Activities

Thanks to the IPS Jacobsen Education Grant, in 2024-2025, we launched a new effort to connect students with Ugandan conservationists using a "Career Day" model to encourage interest in conservation careers.

Guest presentations included Kibale Chimpanzee Project field assistants, veterinarians, members of Snare Removal Team and prominent Ugandan conservationists ranging in field of expertise from environmentalists to primate behavioral researchers (Table 1). They gave presentations about their work and their personal and professional journeys. A question-and-answer session with students followed presentations, along with a hands-on activity for students led by the conservationist and the school's Wildlife Club. In general, we coordinated Career Days with the commemoration of global days. Career Days were hosted using an all-school assembly format for grades Primary 4 through Primary 7.

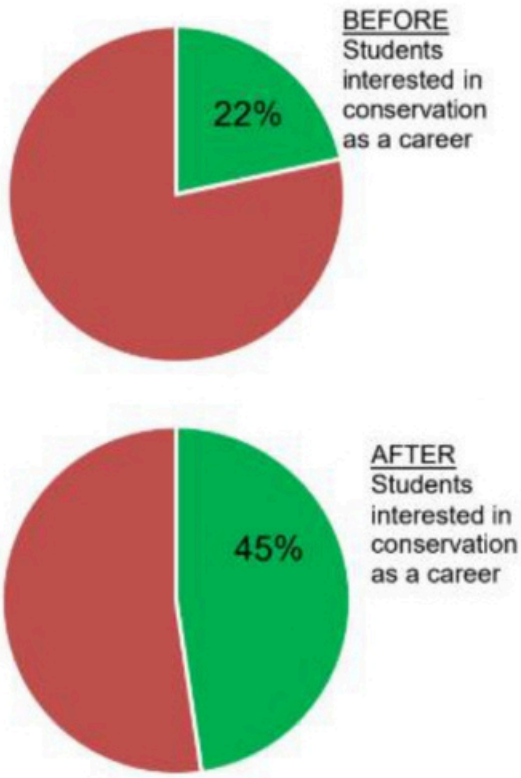
Table 1. Conservation Career Day Speakers

Year	Speaker	Title	Event	Activity
2024	Kanyiginya Eunice	District Environment Officer of Kabarole District	Earth Day	Tree planting, recycled materials contest
2024	Dr. Emily Otali	Country Director, Kibale Chimpanzee Project	World Chimpanzee Day	Animal behavior observations & data collection
2024	Abowe Daniel	Environmental Scientist at Uganda National Council of Science and Technology & National Environmental Management Authority	International Day of Climate Action	Tree planting, improved cookstoves construction
2025	John Justice Tibesigwa	Chief Warden of Kibale National Park/Uganda Wildlife Authority	Earth Day	Tree planting
2025	Dr. Peter Apell	Jane Goodall Institute of Uganda	World Chimpanzee Day	Vet equipment demonstrations

*Note in addition to these speakers, we hosted presentations at Wildlife Clubs by research assistants, vets, and the snare removal teams affiliated with Kibale Chimpanzee Project.

Before our Conservation Career Day project began in 2024 school year, we asked students in a written survey about their interest in pursuing a conservation-related career. The same question was repeated after the project's first year of running. We repeated the survey in 2025, but we don't yet have results from that survey.

In all, 1,632 students were exposed to Ugandan conservationists through the Career Day program. Before the program, 22% of students responded that they had considered pursuing a career in conservation. After Year 1 of the Career Day program, 45% of the students responded that they would consider pursuing a career in conservation after the talks, an increase of 23%.



Summary

When you ask rural Ugandan children what they want to be when they grow up, they are usually only aware of traditional careers like teaching, engineering, medicine, and nursing. This project was a pilot effort to expose children to new careers, especially in conservation and to give them better access to Ugandan conservation role models. Participating students are now not only aware of other career paths through this exposure, but they are also more interested in pursuing conservation as a career.

The Kasiisi Project works to build interest in and enthusiasm about conservation through our Wildlife Club activities and conservation education teaching, and this new program complements those efforts. We have already expanded the project to our 2025 school year and aim to keep offering it, if funding allows. Ultimately, the aim is to have more children from the local communities near Kibale National Park to join the many conservation warriors already working in Uganda. This country's young population will play an important role in safeguarding the future of Kibale and its primates. Thank you to IPS for the opportunity to design and implement this program.

Conservation through Community Involvement (CCI)

Our grant for conservation through community involvement was used to test the borehole water of one of our 16 schools for safe consumption. Iruuhura Primary School had recently received a borehole through funding from Rotary International, and we needed to test the water before the 500 school children and over 1000 local community members around the school could drink it. The water sample from the borehole was taken to the National Water and Sewerage Corporation laboratory for testing. Parameters tested for included, among others, alkalinity, E-coli, PH, electrical conductivity and turbidity. The water from the borehole was found to be compliant with bacterial and chemical characteristics as per national standards. We were therefore happy to hand over the borehole to the school and community for use.

FINANCIAL REPORT

Expense category	Unit Cost (USD)	Units	Total (USD)	IPS Request (USD)	Total Spent (USD)	Rationale
Salaries						
Conservation Education Manager (0.2 FTE x 10 months)	$89	10	$890	$0	$0	To design and manage project
Conservation Education Assistants (0.2 FTE x 10 months x 3 people)	$219	10	$2,190	$400	$450	To execute project activities
Transport						
Boda hires ($570 to visit all 16 schools x 4 people)	$570	4	$2,280	$500	$500	To transport vets and anti-poaching team to 16 schools
Transport reimbursement plus accommodation/food (x 3 speakers)	$300	3	$900	$200	$200	To reimburse out-of-town speakers for fuel, food, accommodation
Boda hires ($570 to visit all 16 schools x 2 trips x 4 staff)	$2,280	2	$4,560	$300	$300	Local travel for staff to organize events at schools
Equipment & Supplies						
Laptop	$500	1	$500	$0	$0	To run projector for presentations
Microphone & speaker	$300	1	$300	$0	$0	Sound system for speaker presentations at schools
Generator fuel	$20	35	$700	$0	$0	To run projector for presentations
Paper & copying	$50	1	$50	$0	$0	For student evaluations
Supplies for WLC activities	$350	1	$350	$100	$50	Activities in WLCs associated with vet and anti-poaching presentations
Staff airtime ($50 x 4 staff)	$50	4	200	$0	$0	Coordination of all activities
Other						
Unforeseen costs	$200	1	$200	$0	$0	
Overhead @ 10%	$1,300	1	$1,300	$0	$0	Project administration in Uganda
GRAND TOTAL			**$14,420**	**$1,500**	**$1,500**	

PROJECT PHOTOS

Kanyiginya Eunice speaks to students about her work as a District Environment Officer of Kabarole District.

Top: Dr. Emily Otali describes her personal journey as Africa's first female PhD primatologist as a chimpanzee researcher with Kibale Chimpanzee Project. Bottom: Students show Otali their datasheets from their animal behavior observations conducted in their compounds.

Uganda Wildlife Authority employee and Kibale's Chief Park Warden, John Justice Tibesigwa speaks to students about his work with the park.

Top: Dr. Peter Apell, a veterinarian and Manager at Jane Goodall Institute, Uganda, lets students try out veterinary equipment. Bottom: Apell chooses student volunteers from the audience.

Abowe Daniel, an Environmental Scientist at Uganda National Council of Science and Technology & National Environmental Management Authority, works together with students to make a fuel-efficient cook stove.

A student asks a question during Q&A.

A student leads song and dance to welcome the speaker and celebrate the Career Day event.

RESEARCH GRANTS AWARDEE

Dishari Dasgupta

Exploring intentional gestural communication in free-ranging Hanuman langurs in India

Dishari Dasgupta, Indian Institute of Science Education and Research (IISER), Kolkata, India

[Research]

BACKGROUND

Recent studies have highlighted that non-human primates (NHPs) exhibit intentional gestural communication, modulating their signals based on the attentional state of the recipient and displaying goal-directed behavior (1). Once thought to be unique to humans and great apes, intentional communication has now been documented across several monkey species (2,3). While most research has focused on intentionality in intra-species interactions, emerging evidence indicates that NHPs can also communicate intentionally with other species. A notable example comes from a study on free-ranging Hanuman langurs (*Semnopithecus entellus*) conducted between 2019 and 2021 in Dakshineswar, West Bengal, India (4). These highly provisioned langurs used a variety of gestures to solicit food from nearby humans, demonstrating flexibility and strategic adjustment in their behaviour. The study documented multiple solicitation techniques that increased their success in obtaining food, suggesting the possibility of deliberate, goal-directed communication.

These observations raise a key research question: do the begging gestures employed by Hanuman langurs contain hallmarks of intentional communication, such as audience sensitivity and goal-directedness? Investigating this could provide critical insights into the cognitive underpinnings of inter-species communication and the adaptive strategies employed by primates living in human-dominated landscapes.

PROJECT OBJECTIVES/AIMS

(i) To explore whether the solicitation gestures displayed by the highly provisioned troop of Hanuman langurs is intentional or not.

(ii) To assess whether these solicitation gestures with intentional hallmarks are location-specific or prevalent across different langur troops.

BRIEF OVERVIEW OF STUDY LOCATION AND METHODS

Study Location: The study was conducted on free-ranging Hanuman langur (*Semnopithecus entellus*) troops located in five distinct sites in the state of West Bengal, India. We carried out the experiments from May 2024 to March 2025 in Dakshineswar, Kalyani, Sarenga, Habibpur, and Chandannagar.

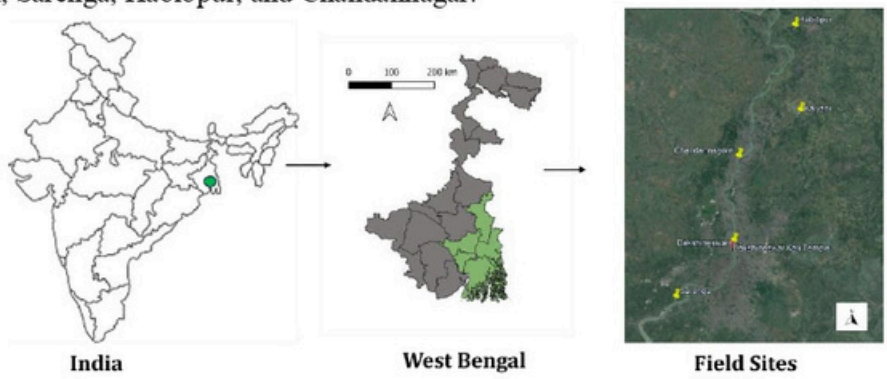


Figure 1: Map of Study Sites

Methods: We assessed intentional communication in langurs using a food-offering paradigm. An experimenter approached a focal animal (2-5 m), established eye contact, displayed a food item for 10 seconds, and then placed it aside. The subject's response was recorded for 15 seconds. Food was provided if begging gestures occurred; if not, the cue was repeated once. A control condition, without food, was also conducted. Each troop completed 30 experimental and 30 control trials, performed by different experimenters with a 5-day interval to prevent habituation. We quantified three hallmarks of intentionality: (i) Goal-directedness: Presence of solicitation gestures and approach, (ii) Audience checking: Head orientation towards the experimenter when the trial starts and (iii) Attention state: Body and head orientation towards the experimenter during the solicitation gesture.

Ethical Permission: No Hanuman langurs were harmed during this work. All work done was in compliance with approved guidelines of animal rights regulations of the Institute Ethical Committee, IISER Kolkata, India.

Figure 2: Snapshot of ongoing IGC experimental trial.

KEY RESULTS

A total of 300 trials (150 experimental, 150 control) were conducted across five field sites, revealing a fundamental behavioural divergence: solicitation gestures were observed in 138 experimental trials (92%) but in zero control trials. Solicitation gestures were noted among all the langur troops. To quantitatively assess the intentionality of this communication, we modelled the presence of four established hallmarks using bias-reduction logistic regression, comparing experimental against control conditions.

The analysis provided robust statistical evidence for all three targeted hallmarks of intentional communication. The experimental condition was a significant positive predictor for each behaviour. The effects were strongest for Goal-directedness, demonstrated by gestures and approach (Gesture: $\beta = 7.95$, $p < .001$; Approach: $\beta = 8.53$, $p < .001$), and for

Attention-getting, indicated by body and nose orientation ($\beta = 8.20$, $p < .001$). Audience checking was also a significant, though more moderate, predictor ($\beta = 3.80$, $p = .008$). (Figure 3; Table 1).

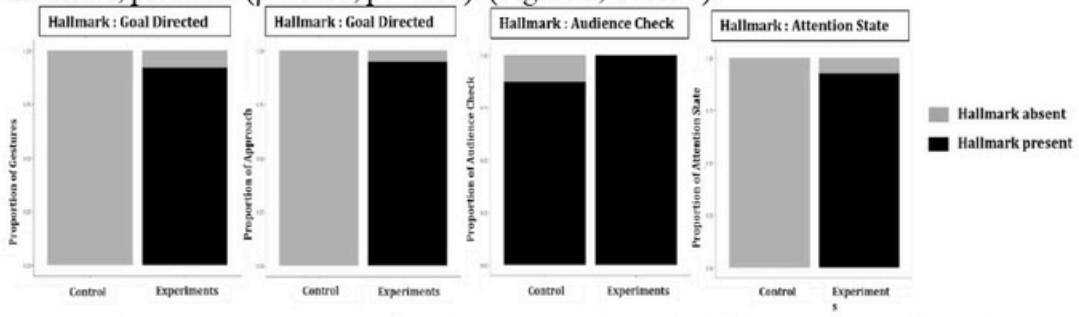


Figure 3: Plots showing the hallmark presence/absence for control and experimental trials. First two plots are for goal directedness hallmark (gesture and approach), third plot is for the hallmark audience check and fourth hallmark is for attention state.

Behavioural Outcome	β Coefficient	Std. Error	z value	p value
Gesture	7.95	1.45	5.49	< .001
Approach	8.53	1.47	5.82	< .001
Attention State	8.20	1.45	5.64	< .001
Audience Check	3.80	1.44	2.63	.008

Table 1: Results of logistic regression models predicting the likelihood of intentional communication hallmark

IMPLICATIONS OF PROJECT/DISCUSSION OF RESULTS

This study offers the first evidence of intentionality hallmarks in Hanuman langurs, a species long habituated to humans but not previously tested for such cognitive abilities. The findings show that langurs do not merely react to human presence but deliberately engage in communicative acts to obtain food. The contrast between experimental and control trials supports the interpretation that their gestures were purposeful and directed at the experimenter. The display of goal directed behaviours such as gesturing and approaching, combined with audience checking and sensitivity to human attentional states, reflects hallmarks of intentional signalling (1). Similar patterns have been documented in rhesus macaques, which adjust begging gestures depending on human attention and in bonnet macaques, which employ hand extension gestures to request food (2,3). Our results align with these findings while extending them to Hanuman langurs in India.

ACKNOWLEDGEMENTS

I acknowledge the financial support received from the International Primatological Society (IPS) research grant. I also thank Indian Institute of Science Education and Research (IISER) Kolkata for the institutional support. I am indebted to Anindita Bhadra and Manabi Paul for their guidance. I sincerely appreciate Shriparna Chattopadhyay, Sruti Banerjee, Pratyusha Adhikary, Prajna Debnath, Bipasha Chatterjee, and Rishita Tarafdar for assisting me in the fieldwork.

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RESEARCH GRANTS AWARDEE

Melissa Zarate

POPULATION GENETIC ASSESSMENT OF THE YELLOW-TAILED WOOLLY MONKEY (*LAGOTHRIX FLAVICAUDA*) IN PERU

MELISSA ZARATE, BOSTON UNIVERSITY DEPARTMENT OF ANTHROPOLOGY RESEARCH GRANT REPORT

1. BACKGROUND

Primate populations are rarely static, but exist as dynamic systems requiring continuous monitoring, particularly for conservation. As increasing habitat fragmentation inhibits migration among groups or subpopulations, measuring gene flow between these units is essential for understanding their connectivity (1). Migratory isolation may increase inbreeding, reduce genetic diversity, and heighten vulnerability to disease or environmental change, ultimately threatening population viability (2). Conversely, geophysical barriers—whether natural, spatial, or anthropogenic—play key roles in allopatric speciation (3). Combining population differentiation and phylogenetic analyses with landscape assessments can reveal barriers' influence on gene flow, local extinction risk, or adaptive divergence leading to speciation.

Habitat fragmentation is a serious threat to the yellow-tailed woolly monkey (*Lagothrix flavicauda*), as its already-low population numbers may be greatly impacted by genetic drift and low genetic diversity as a product of habitat discontinuity. The evident 200-kilometer gap in the species' geographic range (4) raises questions about the genetic differences between the separate populations and how genetic drift may be acting locally. Further, *L. flavicauda* has a limited altitudinal range (above 1000 meters above sea level) that may be associated with genetic adaptation to high elevation, as well as a potential dispersal limit that can impact gene flow. The population and landscape genetic analyses in the awarded project assess these potential limitations to gene flow, providing important information to conservation initiatives for the protection of the species and its habitat.

2. PROJECT AIMS

a. Determine how isolated the southern *L. flavicauda* population in Junín is and better understand its relationship to populations in the northern landscapes.

b. Determine what specific landscape features inhibit *L. flavicauda* gene flow.

c. Engage local communities by presenting the project aims, gauging people's interest in local wildlife conservation initiatives, and initiating education programming at local schools.

3. STUDY LOCATION AND METHODS

We collected *L. flavicauda* fecal samples from five localities in San Martín, Amazonas, and Junín during the grant period, adding to those from our 2019 pilot collection. The collection expanded northern population coverage to include Uchiza, roughly midway through the range, improving assessment of isolation-by-distance (IBD). I traveled with an aspiring researcher hired through a collaborating Peruvian organization, and together we walked with local guides along existing trails near farms and forest concessions to find and sample monkey groups. All research followed Peruvian legal requirements and complied with CITES. Samples were collected non-invasively with Boston University IACUC approval (PROTO201900027), SERFOR permits 107-2017 and D000022-2023, and verbal permission from each community leaders after presenting to them the project's goals.

I took the samples to the *in situ* Wildlife Conservation Lab at Los Amigos Biological Station in the southern Peruvian Amazon of Madre de Dios. Here, I extracted DNA using stool extraction kits with extended cell lysis to maximize host genetic output, then amplified the 9.5 kb of the mitogenome. I sequenced successfully amplified samples on an Oxford Nanopore Technologies (ONT) MinION Mk1b sequencer and took the data back to Boston for analysis while fecal samples remained in Peru. Upon returning to Boston, I trained an undergraduate researcher, Sofia Weaver, in wet lab methods and she went to Peru and conducted another round of DNA extraction from the same samples. With CDC permission, she brought the extract back to Boston so that I could increase my sample size and the fecal DNA could be used for other projects and training, such as for microbiome and diet metabarcoding. The fecal samples remain with permit-holding collaborators in Peru. After removing duplicates, we retained 125 samples from 2019–2022. Following the two rounds of extraction (2023 by me; 2024 by S. Weaver), I successfully amplified mtDNA from 45 samples across eight localities (Figure 1a). The reduced sample size reflects the limited quality and quantity of some fecal material.

Using a pipeline established to obtain mtDNA from ONT reads (5), I aligned each sample to a reference mitogenome that I recently assembled for *L. flavicauda* (6). Phylogenetic inference and estimation of divergence times among populations were conducted under a Bayesian framework in BEAST2. I measured genetic diversity through nucleotide diversity (π) and used a Bayesian Skyline Plot analysis (BSP) to infer changes in effective population size through time. To quantify genetic differentiation, I used a haplotype network analysis, genetic structure quantified using an

AMOVA (producing Φ_{ST}), and pairwise F_{ST} calculated across hierarchical levels (sampling site, region, and north/south populations). I also assessed IBD with a Mantel test comparing genetic and geographic distances. I further modeled landscape resistance to gene flow by deriving resistance layers from various environmental variables. From these resistance surfaces, I calculated least-cost distances between sampling sites—which account for potential dispersal resistance—and correlated these distances with genetic differentiation using maximum-likelihood population effects regression models.

4. RESULTS AND OUTCOMES

Genetic diversity is low in both northern and southern populations (π = 0.00095 and 0.00112, respectively). Diversity was lowest in individuals from Uchiza, which was included in the northern population due to the known range connectivity, despite its near-equal distance from both Amazonas and Junín sites. I found no bottleneck signals in the northern or overall population to explain the low diversity, though data were insufficient to test this for the south. In contrast, the BSP estimated a gradual increase in the global population over from 10,000 to 2,000 years ago, then a slightly exponential expansion over the next 1,400 years that then leveled off in the last 600 years.

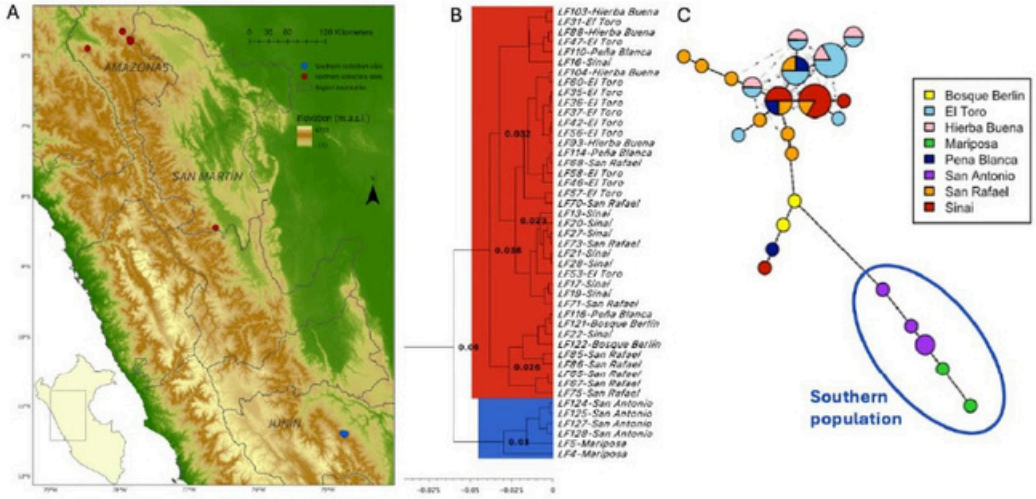

Figure 1. A map of the eight sites from which fecal samples were collected from yellow-tailed woolly monkey (*L. flavicauda*) groups and successfully amplified for a 9.5 kb fragment of the mitogenome (A) and the Bayesian phylogenetic inference of these sequences aligned (B). The haplotype network (C) illustrates shared haplotypes among individuals sampled, where circles represent haplotypes, circle size represents how many individuals share that haplotype, and ticks on branches represents mutational differences between haplotypes.

Phylogenetic analyses revealed a monophyletic clade for all Junín individuals (Figure 1b), indicating separation between northern and southern populations. Divergence dating estimated this split at ~60 ka. The AMOVA revealed that most sequence variation (Φ_{ST} = 79.3%) was explained by the difference between populations. The haplotype network showed shared haplotypes with a relatively high number of mutational steps separating them from the northern haplotypes (Figure 1c). According to the pairwise F_{ST} calculations, there is high differentiation in allele frequencies between sampling sites from the north vs. south populations, but low or insignificant pairwise differentiation among sites within the northern population. The Mantel test showed that genetic differentiation was not driven by isolation by distance, and landscape models indicated that rivers, human settlement, and elevation are the primary impediments to genetic connectivity, while agriculture is not.

Community engagement was an important part of the collection period supported by this grant. Discussions with community members revealed enthusiasm for new conservation policies; for example, residents of Ajospampa, Junín expressed interest in creating a community-managed conservation area. In the communities surrounding the forest concession in Uchiza, we held school workshops and installed signs on a popular trail promoting wildlife and forest protection. This work succeeded thanks to my field assistant's extensive experience in Peruvian community-based research.

5. DISCUSSION AND PROJECT IMPLICATIONS

Our mitogenetic analyses of *L. flavicauda* revealed strong genetic isolation between northern and southern populations across Peru, suggesting a long-standing geographic or ecological barrier to gene flow. Phylogenetic and divergence-time estimates indicate that these populations separated during the late Pleistocene (~60 ka), likely driven by climatic and landscape shifts associated with glacial cycles rather than human influence. This timing coincides with the Marine Isotope Stage 4 glacial phase and the expansion of Andean glaciers and open, high-elevation habitats that may have fragmented suitable forest, paralleling biogeographic breaks found in other Andean taxa (7). Further, the resulting genetic split is relatively recent within *Lagothrix*, confirming intra-specific divergence rather than subspecies formation.

L. flavicauda remains the most range-restricted woolly monkey species, with low genetic diversity, high genetic differentiation between populations, and no evidence of IBD, implying ongoing barriers to gene flow. Northern populations show some internal connectivity, while the southern population is highly distinct. Although translocation between populations could theoretically boost genetic variation, independent evolutionary trajectories and the potential for local adaptations argue for managing the two populations as separate conservation units (8). Future work should incorporate behavioral and movement data, additional environmental predictors, and finer-scale genomic analyses to identify functional corridors between protected habitats. While human-settlement, elevation, and rivers present barriers to gene flow, agricultural areas may not be playing a role in limiting *L. flavicauda* dispersal, though this model should be strengthened with the optimization of resistance surfaces and the inclusion of more sampling sites and landscape variables. While these results are telling for the conservation of the species, I hope to increase the sample size by furthering fecal sample collection with ongoing field work in Peru.

6. ACKNOWLEDGEMENTS

I first thank the local communities and guides who helped us search for monkeys on their land. The exchange of knowledge between scientists and residents is vital to this project, and I deeply appreciate what these communities taught me about their land, livelihoods, and wildlife. I also thank our partner organizations—Yunkawasi, Neotropical Primate Conservation, and Field Projects International—and the funding bodies that supported sample collection and lab work: the International Primatological Society, Primate Action Fund, Boston University, and the National Science Foundation.

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RESEARCH GRANTS AWARDEE

R. Gustav Steinhardrt

Space Use and Social Influence in Cooperatively Breeding Primates

R. Gustav Steinhardt, Department of Anthropology, UC-Berkeley

IPS Research Grant

Background

Animal-mounted GPS tracking is a cost-effective way to obtain data on animal movement with minimal interference from human observers. Whereas traditional methods using handheld GPS devices can only provide group-level information at a coarse spatial resolution, animal-mounted tracking can generate individual-level information and resolve questions about collective decision-making and sociospatial dynamics.[1] In addition, animal-mounted tracking ensures that human observers are not affecting the animals' movement decisions either directly or indirectly, as through a "human shield" effect.[2]

Project Aims

This project aimed to study collective ranging decisions in two species of cooperatively-breeding primates: emperor tamarins (*Saguinus imperator*) and saddleback tamarins (*Leontocebus weddelli*) using animal-mounted GPS micro-collars. In 2019, we designed a GPS micro-collar that could record one point per minute over a period of 1-2 hours. Our goal was to deploy these prototypes on a larger population and analyze ranging decisions at the individual level. Building on the 2019 prototypes, we designed a customized printed circuit board (PCBs), which would be lighter and could therefore carry a heavier battery and record more data.

During the time that we were preparing this project, another team published the first animal-mounted GPS data for tamarins.[3] This project used a backpack-style attachment, which has the advantage of allowing for heavier weight and

therefore greater battery life, but the disadvantage of being more cumbersome for the animal. In particular, since infant tamarins use dorsal riding to stay with their parents, a backpack-style GPS unit is unusable at any time when infants may be present (roughly Dec-May). We therefore decided to test whether we could achieve a similar result with a lighter, more compact collar-style attachment.

Study Location and Methods

Research was conducted at the Los Amigos Biological Station (12.5690° S, 70.1001° W), known by its Spanish acronym EBLA (Estacion Biologica Los Amigos). The station is part of the Los Amigos Conservation Concession, which protects 145,000 hectares of lowland forest along the Río Madre de Dios in southeastern Peru. A mark-recapture program has operated at this site since 2009, annually recapturing a population of ~60 saddleback tamarins and a similar number of emperor tamarins. In this population, one individual per group (usually the primary breeding female) carries a VHF tracking collar of 17-20g, which is designed to last several months. These females have been observed to breed successfully and maintain their dominance status while carrying collars of that size, and we have observed no difference in breeding success between collared and uncollared females. We therefore see a collar of <20g as a reasonable weight for an animal to carry even over an extended period of time, and this was set as the maximum weight for our GPS collars.

Tamarin groups were captured and tagged following the protocol of Watsa et al. (2015). We captured each group in its entirety using a multicompartment trap baited with banana slices. Animals were then anesthetized with ketamine hydrochloride at a dosage of 10-20mg/kg, large individuals were fitted with GPS collars. After a short recovery period, the group was released at the trap site.

This research was conducted under UC-Berkeley IACUC Protocol ID #AUP-2020-12-13920, and with permission of the Peruvian National Forest and Wildlife Service (SERFOR), permit #245-2018-SERFOR/DGGSPFFS.

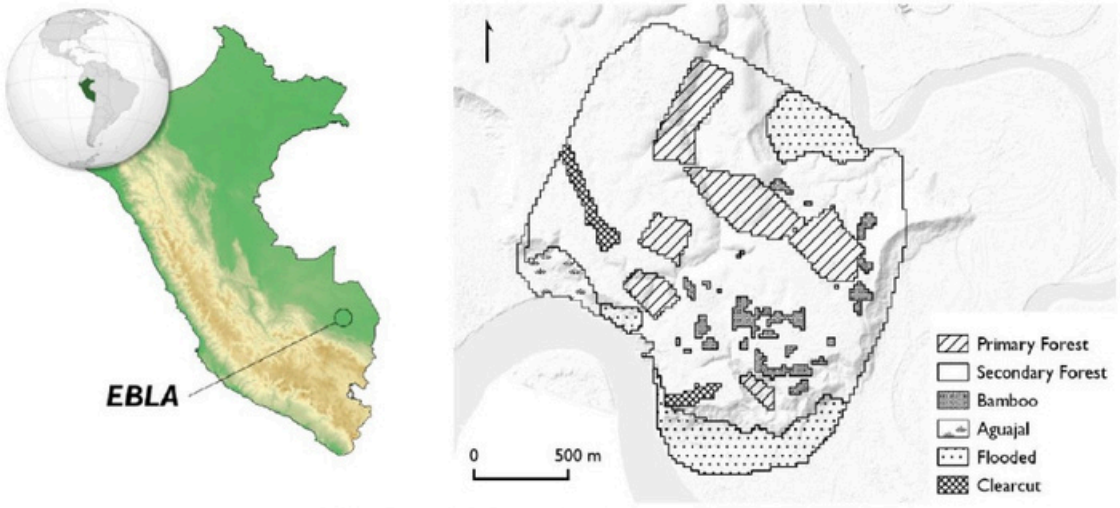

Fig. 1 Map of EBLA and its location within Peru.

Key Results

The COVID-19 pandemic severely disrupted our supply chains and increased prices, so we were unable to tag an entire group as originally planned. Nonetheless, In July 2021, we deployed five GPS micro-collars: four on adult saddleback tamarins (Fig. 2), and one on an emperor tamarin. The collars weighed 19.6 grams on average, roughly 5% of an adult saddleback tamarin's body weight. This places them well within the margin deemed acceptable by the American Society of Mammalogists,[4] and our own more stringent goal of <20g. The collars were programmed to deliver a point every 15 seconds and lasted, on average, 1 hour, 14 minutes, and 34 seconds. At roughly 310 points per collar, this is comparable to the lifespan of backpacks used by Sánchez-Giraldo et al., but in a more compact and much lighter form (20g collar vs. 36g backpack). It represents roughly four times the data collection capacity of or original prototype. Animals were recaptured over the following days to remove the collars.

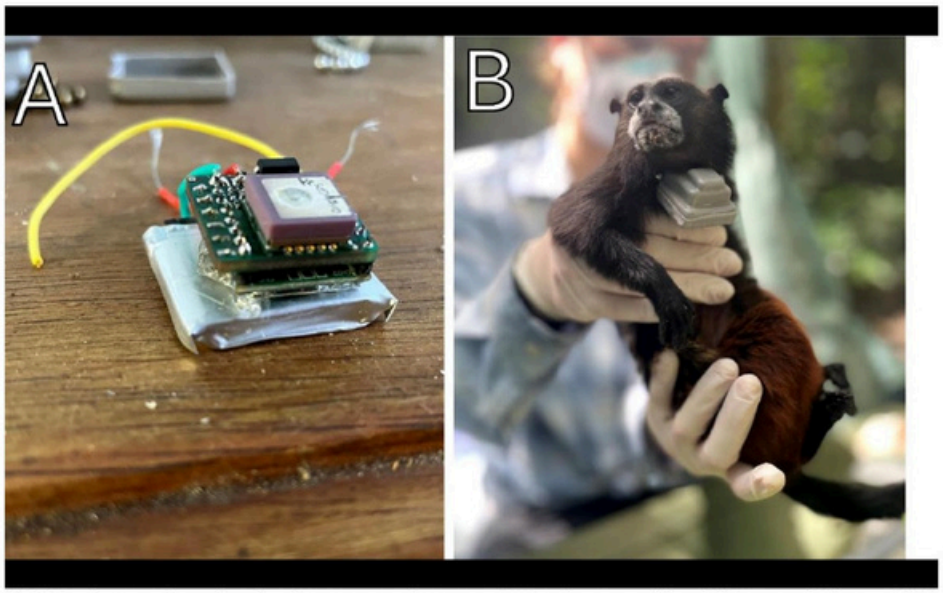

Fig. 2 (A) Components of GPS micro-collar, showing from top to bottom: GPS unit; control board; battery. (B) assembled collar, with 3D printed animal-safe housing, mounted on a saddleback tamarin. Photos by RG Steinhardt.

The GPS collars demonstrated the viability of compact animal-mounted GPS tracking for tamarins. It was decided, however, that a more cost-effective and less invasive technology would be preferable for wide-scale deployment. To that end, we have begun testing Cellular Tracking Technology (CTT) at the site. CTT tags can be extremely lightweight because they communicate with a local network of towers rather than with a satellite network, and therefore require less energy per transmission. However, the technology relies on signal strength as an indicator of the tag's position, and is therefore difficult to use in a structurally heterogeneous rainforest environment where interference by vegetation complicates the relationship between signal strength and distance. We are currently testing whether CTT tags can be used in a rainforest environment, using the performance of our micro-GPS collars as a benchmark for performance.

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RESEARCH GRANTS AWARDEE

Sara Lucci

The Relative Effects of Environmental Conditions and Parental Identities on Coat Color Development in *Colobus vellerosus*

Sara Lucci, University of Texas at San Antonio

Research Grant 2020

1. BACKGROUND/INTRODUCTION

Early adverse conditions are understood to have important impacts on an infant's development[1]. In primates, previous research has shown that developmental timing is associated with both ecological (food availability) and social environment (parental rank)[2]. It may therefore be beneficial to develop quickly when environmental conditions lead to high mortality risk[3]. However, not all individuals may have the propensity to change their developmental timing during adverse conditions. The within-population variation in infant development in relation to adverse conditions has only been assessed in a few primate species[2,4].

When *Colobus vellerosus* (white-thighed black-and-white colobus) infants are born, they have a white natal coat which transitions to gray and then to black-and-white over approximately three months[3]. Young infants with the natal white coat and males are particularly likely to be the targets of infanticidal attacks[5]. Infants in multi-male groups are also more likely than infants in uni-male groups to be killed via infanticide due to the greater risk of these groups undergoing takeovers from invading males[6]. Male infants and infants in multi-male groups (that may be at higher risk of infanticide) develop the adult black-and-white coat color more quickly than female infants or infants in uni-male groups, potentially to minimize the time that they are in their more vulnerable white coat color during these conditions associated with higher infanticide risk[3]. However, no study has investigated how coat color transition is related to more direct measures of infanticide risk, and whether some mothers and sires are better able to facilitate a faster transition time. Although it is possible that this accelerated development allows infants to more quickly escape the stage when they are most vulnerable to infanticide, there may be other longer-term negative effects.

2. PROJECT OBJECTIVES/AIMS

Aim 1: To investigate the hypothesis that coat color development in *C. vellerosus* speeds up during conditions associated with high infanticide risk (i.e., alpha male takeover attempts).

Aim 2: To investigate the hypothesis that coat color development in *C. vellerosus* is associated with parental characteristics (i.e., identity and age).

3. BRIEF OVERVIEW OF STUDY LOCATION AND METHODS IF/AS RELEVANT

This study took place in the forest by the Boabeng and Fiema communities in central Ghana (7° 43'N and 1° 42'W)[7]. I used data from four *C. vellerosus* (white-thighed black-and-white colobus) groups from 2007-2021: Redtail, Splinter, Wawa, and Winter (Winter formed in 2012 after a group fission in Splinter group). These groups are made up of one adult alpha male with or without subordinate adult or subadult males, multiple adult and subadult females, juveniles, and infants[6,8]. Researchers have recorded demographic data on these four study groups including births and mother identity, immigration/emigration, alpha male takeovers, deaths, male attacks on infants, and infant coat color changes from white to gray and from gray to black-and-white (Fig. 1). I defined an alpha male takeover attempt as any challenge by a subordinate or outside male for the alpha position, whether or not it was successful.

Figure 1. *Colobus vellerosus* infants are born with white coats (left) and develop the black-and-white coats (right) when they are three to four months old. Photo credit: Sara Lucci.

While in the field, researchers collected two to five fecal samples for each offspring, mother, and candidate sires immediately after defecation using gloves and sterile sticks and stored them in vials with about 5-6 ml RNALater[8]. Researchers extracted host DNA using the QIAamp DNA Stool Mini kit with a modified protocol or using the QIAamp Fast DNA Stool Mini kit with a double extraction protocol developed in Dr. Nelson Ting's lab[8]. DNA was then amplified at 8-17 short-tandem repeat loci using the Qiagen Multiplex Polymerase Chain Reaction Kit[8]. Amplified products were electrophoresed in an ABI 3730 DNA analyzer and assigned sizes compared to a size standard using PeakScanner. I utilized the software CERVUS (version 3.0.7) to determine paternity using genotypes of offspring, known mothers, and candidate sires. Paternity was determined with 95% confidence, and these cases are included in the results below[8].

4. KEY RESULTS/MAIN FINDINGS OR OUTCOMES

On average infants transitioned from their white to gray coat over 46.18 days (N = 72 infants) and from gray to black-and-white coat over 52.04 days (N = 56 infants). I used a series of Cox Proportional Hazards Models in R to determine relationships between coat color transition time, conditions associated with elevated infanticide risk, and parental characteristics. Transition time from white to gray was significantly faster after experiencing an alpha male takeover attempt during gestation ($p=0.037$), but it was not significantly related to mother age, or mother ID ($p>0.05$). For gray to black-and-white coat color, there was not a significant difference when experiencing an alpha male takeover ($p>0.05$), but transition time was significantly related to mother age ($p=0.040$) and mother ID ($p=0.035$). For the 21 infants for whom sire identity could be confidently determined, the alpha male sired approximately 57% of infants. There was a significant relationship between sire ID and gray to black-and-white coat color transition ($p=0.033$) but not white to gray coat transition ($p>0.05$).

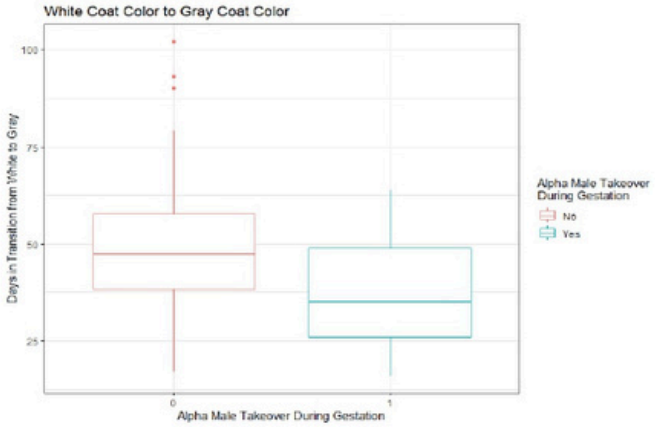

Figure 2. Number of days it takes for infant *C. vellerosus* to transition from the natal white coat to the intermediate gray coat in relation to whether or not the infant experienced an alpha male takeover during gestation.

5. IMPLICATIONS OF PROJECT/DISCUSSION OF RESULTS

The purpose of this study was to understand how the time to transition from the natal coat to the adult coat of *C. vellerosus* is associated with infanticidal conditions and parental characteristics. There was a small effect of alpha male takeover attempts during gestation on white to gray coat color transition time, which provides further support for the idea that accelerated coat color development occurs when infants are most vulnerable to infanticide[3,5]. My results suggest that gestation may contain a "critical window" for coat color development during the first weeks to months after birth. The "critical window" is part of the Developmental Programming Hypothesis, which argues that during development, certain time periods exist where adverse conditions will have a greater and longer-lasting effect on an individual than if they occurred outside of that window[9,10]. However, my results may also be due to a lag after occurrence of the event, as the actual change from one coat color to the next takes a few weeks.

Although accelerated coat color change is an infant-centered infanticidal counterstrategy, it may still be parent-mediated. Therefore, I investigated whether some mothers or sires are more likely to produce quickly developing infants. The relationships between gray to black-and-white transition time and mother and sire ID suggest that some mothers and sires tend to produce faster or slower developing infants, possibly due to their genetic makeup or energetic status. My findings also show that older mothers produce infants with faster transition times from the gray to black-and-white coat. This is similar to findings from other primates that older mothers may be better able to invest in offspring development than younger mothers, as young mothers may still be developing themselves and are less experienced[2]. A caveat in this study is that there are several mothers that are still alive and giving birth, so I do not have the complete story of females' reproductive life history and the potential for reproductive senescence[11]. Thus, it is still possible that very old mothers at the end of their reproductive life span are no longer able to support accelerated infant development, and continued data collection from these mothers are needed to investigate this hypothesis.

6. ACKNOWLEDGEMENTS

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In memory of

Dr. Jane Goodall

It is with deep sorrow that we share the news of Dr. Jane Goodall's passing at 91 years of age of natural causes while on a speaking tour in California, USA. Jane was a tireless advocate for great apes and their habitat, and the people living alongside our closest living relatives. She was also a beacon of hope with her unwavering optimism and commitment to the next generations. Jane galvanized public interest in chimpanzees and other primates and inspired many of us to pursue a career in primatology; she was also a friend and mentor to many within our community. We lost an icon, a role model and a beautiful human being.

Jane's pioneering research on the chimpanzees of Gombe in Tanzania started in the 1960's; it critically contributed to dispelling some key notions of human uniqueness. Her patience, humility and careful observation revealed that chimpanzees use and manufacture tools, exhibit culture and have complex dynamic social organizations. Her work was ground-breaking with rippling effects on modern-day primatology, research and conservation practice. She also dedicated much of her life to Jane Goodall Institute's Roots and Shoots' mission to '*foster respect and compassion for all living things, to promote understanding of all cultures and beliefs and to inspire each individual to take action to make the world a better place for animals, people, and the environment*'. She inspired young people globally to have more empathy for the world around us and to realize that everyone in their own way can effect positive change.

Jane planted seeds that will grow strong and further disperse their own seeds around the world. She was a UN Messenger for Peace, and received many tributes, honors, and prestigious awards in recognition of her impact, her dedication and passion. We all have a duty more than ever to ensure that her legacy remains strong and continues to flourish. We mourn the passing of a voice for the voiceless and of a truly inspirational woman, a beloved colleague and a friend.

In memory of

Prof. Augustin Basabose

It is with a very heavy heart that we share the loss of a friend, colleague, mentor and leader in primate conservation, Prof. Augustin Basabose. We wish to extend our deepest and most sincere condolences to his family and to all who ever had the privilege and chance to know him.

His passing represents a profound loss for primate and community-based conservation in the Democratic Republic of Congo (DRC) and for Africa and beyond. Augustin obtained a PhD from Kyoto University under the supervision of Professor Juichi Yamagiwa in 2005 studying sympatric chimpanzees and Grauer's gorillas in the Kahuzi-Biega National Park. He then worked for seven years with the International Gorilla Conservation Programme focused on the conservation of mountain gorillas. In the years to follow, he dedicated much of his time to teaching at several institutions in eastern DRC where he founded Primate Expertise (PEx) in 2013. This NGO dedicated to primate conservation focuses on education, research, and outreach initiatives, working closely with local communities and cultivating a new generation of Congolese primatologists. He was also a committed member of the IPS conservation committee since 2018, reviewing conservation grants, applications to the Galante Family Winery Conservation Scholarship and helping us select globally outstanding young career primatologists to attend our Pre-congress Training Program (PCTP) and IPS congresses.

Augustin was an inspiring mentor to many, a wonderful colleague, collaborator and human being. His smile, his good energy and his commitment and passion for community-based conservation and primate research were contagious and inspiring, surely leaving behind an indelible legacy. He was awarded the national '*Prix Patriote en Or, Diplôme de Mérite*' ('Golden patriot') in 2024, a great honour and a well deserved recognition of all his efforts in promoting a culture of excellence and his imparting knowledge and passion onto others, especially in his home country of DRC.

We will miss Augustin Basabose dearly and we are extremely grateful for all that he has done for others and our fellow primates.

In memory of

Ai

Ai, a chimpanzee who contributed to research on the evolution of the mind for many years, passed away January 9, 2026, at 49 years old. She arrived at the (now) Center for the Evolutionary Origins of Human Behavior at Kyoto University in Japan, in 1977. Ai was considered a partner in research by those studying her behavior and cognitive abilities. She participated in studies which explored the evolutionary origins of language and human cognition, as well as perception, learning, and memory using lexigram boards, computer-controlled apparatus, and video displays. Ai developed numeric competence, learned to discriminate all 26 uppercase letters of the alphabet, to identify more than 100 Japanese Kanji characters, and many different colors represented by lexigrams. She learned to use personal pronouns. Her ability to use reproductive memory and to perform structured drawing guided by a human model were studied. In some of these studies her performance was directly compared to human subjects and in some it was compared to wild chimpanzees. The behavioral and cognitive development of her son, Ayumu, was also evaluated. As a whole, this research was instrumental in establishing a framework for experimentally understanding the chimpanzee mind which has been important in furthering our understanding of the evolution of the human mind.

Ai was a curious and engaged subject of these studies, so when the research project launched in 1978, was named the "Ai Project." Ai worked with many primatologists and students of primatology during her long years of service, and Professor Tetsuro Matsuzawa (former IPS President) is certainly the person who had the longest-term relationship with her. Their work led to many dozens of publications. The enclosure in which Ai lived with other chimpanzees was large and complex including an open-air outdoor compound with high climbing structures, living trees, a small stream and an interior "gazebo" which allowed a human to be contained inside the room while the chimpanzees were roaming their enclosure on the outside. Her environment inspired improvement in the housing of other apes. Ai became well known among young Japanese students, as stories about her learning and abilities were included in an elementary school textbook. She was a tremendous ambassador for her species. The English translation of her name, Ai, is love.