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Back Cover Illustration
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Letter from the Editors

Welcome to this spring edition of *Canopy*, the second published by the MSc in Primate Conservation cohort of 2008-2009. The winter just past was the most probably the coldest and snowiest for a long time, and while snowball fights and impromptu snowmen galleries were fun, the experience serves to remind us of the importance of the conservation of natural habitats of our primate cousins in the face of the anthropogenic climate change.

Semester two of the 2008/2009 academic year marks the first time that students are able to pick their preferred choice of modules to suit their academic or professional needs. The introduction of a new module based on social anthropology taught by Dr. Peter Wynn Kirby gives students four choices to choose from to fulfill their three-module requirement for the semester.

Skills Training has become an important of this course, especially as a great proportion of students will be out in the field for their dissertation research. Carrying on from the First Aid training course last year, students attended a field skills and expedition planning course, which would no doubt be very helpful to those among us who will have to plan for field research in sites where we have not been to previously.

2009 will see two great meetings for primatology. "Form and Function" will be the theme for the spring meeting of the PSGB on the 16th and 17th of April at Bournemouth University. From the 12th to 15th of August, the 3rd Congress of the European Federation for Primatology will be held in Zürich, and the deadline for abstract submission is the 15th of April.

We hope that you will enjoy this issue of *Canopy* as much as we have enjoyed the past issues. On behalf of the cohort we would like to thank the speakers of the Monday seminar series, for their generosity with their time, knowledge and experiences.

The editors of this issue of *Canopy* would also like to thank Dr. Nancy Priston for kickstarting this issue, and Dr. Corri Waitt, and all the contributors of letters, articles, interviews, artwork and photographs. We would also like to wish luck to our coursemates for the dissertations and abstract submissions for the Zürich meeting.

Best Wishes,
The Editors.

Andy Arnell (United Kingdom)
Jermaine Clark (Guyana)
Camille Coudrat (Guadeloupe)
Iris Dröscher (Austria)
Fam Shun Deng (Singapore)
John Matkin (United Kingdom)
Fiona Rowe (Canada)
Carrie Stengel (USA)
Clare Vaughn (USA)

By Clare Vaughn

Letter on behalf of the MSc in Primate Conservation staff

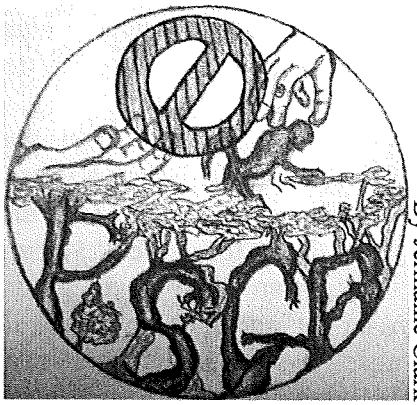
This is the second issue of *Canopy* prepared by the 2008-2009 cohort – congratulations to the editorial team and I hope you enjoy the results of their work. Some of the papers you read are the results of last year's MSc projects and this gives us an opportunity to get to know what it really was that these students were up to. For the authors perspective *Canopy* allows them to bring the hard-earned results into the public domain. The adage that research which is not published may just as well not have been conducted is true for professional researchers and students alike. Here I would like to emphasise the great importance of publicising your work.

It is vital for all of us to make sure that the fruits of our research are spread to the widest possible audience. The least we can do is report back to those that supported us in the first place. At a minimum this should include our co-workers, research assistants, funding agencies, government bodies that issued the permits and the institutes we work with. Many of us go to far-flung places and it may be highly appropriate to make the results available to local communities in the place of study. In some instances this may mean translating it into the local language and perhaps even making it less scientific.

Another way useful way forward is to present your work at a scientific meeting. Many of our previous students have presented their research at primatological conferences (such as the International Primatological Society conference held in Edinburgh last year or the European Federation of Primatology meeting in Prague in 2007), anthropological conferences (such as the one organised by the American Association of Physical Antropologists in Chicago, April 2009), or meetings of national or regional zoo associations (e.g. the British and Irish Association of Zoos and Aquariums meeting in Blackpool, May 2009). Preparing a poster or preparing a talk, and actually presenting it in front of hundreds if not thousands of peers (including some of the biggest names in the business) or even leading sessions, can be a demanding, nerve-racking and at times frightening thing to do. At least until you have done it, as then it nearly always turns out to be a joyful experience.

Finally, perhaps the ultimate way of exposing your work to a wider audience is by getting it published in a 'real' peer-reviewed scientific journal. Not everyone's cup of tea but increasingly we have MSc students (and even the odd BSc student) that manage to pull it off. In 2008 alone we have had student publications in a diversity of journals such as *Endangered Species Research, Contributions to Zoology, Biodiversity and Conservation, American Journal of Primatology* and *Diversity and Distributions* and more papers are soon to be published in primatological, zoological, biodiversity conservation and captive management journals. So no pressure there then. I hope you enjoy this issue of *Canopy* and for the current students – good luck with your project and enjoy the remaining period on the MSc.

Vincent Nijman
(Course Tutor)



By Jermaine Clark

An Interview With Dr. Peter Kirby

By Carrie Stengel and Jermaine Clark

Primate Conservation at Brookes draws its strength from the collaborative effort of its dedicated module leaders that have brought to it a wide range of skills and experiences. It has been intellectually stimulating studying with the guidance of our course leaders, save to say quite a prestigious honour. Many of our lecturers have been masters in their fields of research and have shown great merit in passing on skills to us, the fortunate students. It is no surprise that they have recruited another well rounded individual to add to the award winning standard of the MSc. Since there are few of us who have experienced the presence of the course's new blood we have endeavoured to bring you insight into his life. I join in welcoming Dr. Peter Kirby, Social Anthropologist to the realm of Primate Conservation and for introducing himself so amicably to everyone.

Can you tell us a little bit about your background and about how you come to be here at Brookes?

I suppose I have a pretty varied background, probably more so than most academics—perhaps it has something to do with being a social anthropologist, or being the kind of oddball who would *want* become a social anthropologist, right? But, for example, I studied English literature at university but then almost went to architecture school after graduation and actually worked (ineptly) in a design firm in Manhattan for a little while. I worked my way around the world and was a teacher in Japan for about a year. And then I went back to New York City and worked in journalism for a few years. When I decided I wanted to go to grad school, I went in for anthropology, probably partly because it was the only discipline that could hope to encompass all my diverse interests! I remember I got interested in environmental problems from very early on but I went about it in a very roundabout way. Initially I was looking at city life and hyper-construction in Tokyo and comparing that to the abundant rhetoric that circulates in Japan with regard to the idea of Japanese harmony with nature. But once I was in Tokyo I became focused on environmental pollution and a broad analysis of waste and culture there. And then somehow I got into primates!

How do you see your work as relating to primate conservation?

Environmental anthropologists usually focus on specific places, or combinations of places, but they are also concerned about environmentalism on a transnational or global scale. Even though I'm not really a typical 'environmental anthropologist', I still care deeply about environmental issues. And once you start thinking about those parts of the world that are enmired in development quandaries and you hear about the systemic sorts of industrial calamities and mundane developmental problems that seem to occur in and around human settlements, you begin to realise that, one way or another, we've got to make a serious attempt at conservation. I was beginning to get interested in conservation issues even before I arrived here [at Oxford Brookes] and then of course it seemed like a natural fit for me to work with the primate conservation people. Though you'll have to interview them about that to see whether they agree... I think my research experience can help students in primate conservation think more three-dimensionally about all the sociocultural elements that impinge on conservation fieldwork and environmental issues broadly speaking.

Was your interest in conservation triggered by your time in Tokyo?

Not in a linear sense. In studying

anthropology, I became much more sensitive to the idea that when people talk about 'nature', or when they talk about heavy themes like the family or the nation, that kind of discourse is very loaded. There are lots of different discursive layers, lots of diverse associations linked up with such notions, despite the fact that —or, indeed, because of the fact that— many people use them or accept them with little scrutiny. So I was already sceptical of the idea of 'nature'—which is not a simple way of describing surroundings but, instead, deeply implicated in sociocultural biases and political questions—and ideas about 'environment'. Also, I suppose it's significant that I do a lot of hiking, backcountry skiing, and so on—I'm from Vermont, after all—and so I suppose I've become exposed to conservation issues in more predictable ways, as well.

What do you think are the most important aspects to consider for successful conservation?

I think you really have to find some way to get local people *invested* in conservation, though I know there are plenty of times when this has gone completely haywire. And I recognize that simply having people around will often leave scars on an ecosystem, some less temporary than others. (Let's remember, though, that small-scale societies have dwelled in parts of the world that are troves of biodiversity for many, many years, and you have to give them credit for that.) But anyway, if you don't get the local people invested it's not really going to work. Let's face it—no one's going to allocate the financial or legal resources right now to create some open-air Fort Knox of biodiversity in a Third World nation, whether or not that's even deemed desirable. You need cooperation on the ground and often the people living in proximity to these biodiversity hotspots know more about their surroundings and respect them more than we give them credit for. But, obviously, so-called indigenous peoples and conservationists frequently have divergent aims. Indigenous groups often want to gain legal rights to the land, and political recognition, and they can hold grievances, all of which can complicate matters if they're not committed to conservation in the long term. More broadly, instead of just throwing money at problems, which seems to be all too common these days, I suppose we need to cultivate a greater sense of the importance of smart, informed, engaged conservation among NGOs, governments, and other partners. You need people to decide it is something worth sacrificing for. And you need young, active, committed people like yourselves to make sure it happens.

What skills do you hope your primate conservation students will develop by taking your course?

I think the most important thing is to develop critical skills. To be able to cut through the rhetoric that usually gets tossed around in discourse surrounding important conservation issues. You'll have different stakeholders—corporations who want to make it seem like they're environmentally sensitive, conservation NGOs and other groups, many of whom are actually developing traits and institutional cultures that make them less able to attain their stated aims, and then you've got people on the ground who may have very different goals than what you have. Being more or less the 'commandos' of conservation, to borrow a rather less pacifist metaphor than is probably appropriate, you're going to be deep in the field and have all these layers of discourse and different kinds of competing perspectives circulating around you and you'll have to be able to find a way to slice through it all and select what you can to further your mission. On the most basic level, furthermore, you will need to frame your project in terms that are going to make sense to certain factions and if you want the support of those factions

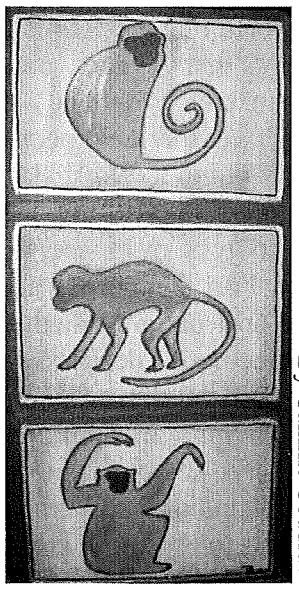
then you need to do it in the most effective way. I hope my teaching can help you get part of the way there.

Do you have any words of advice for current and future students?

It's really important to work with and stay in touch with people in your programme. You wouldn't believe how helpful this can be. If you have a question, or if you need a partner, you have a network of people to ask who can help you out. Not to mention looking for employment, which can go easier if you a wide circle of acquaintances, colleagues, and friends. But I hasten to qualify this by adding that I wouldn't recommend that anyone get to know people just to make 'contacts'. By all means, if you want to introduce yourself to someone and have a conversation, then why not? But I wouldn't create some kind of artificial network. Live your lives, work hard, have fun, and expand your knowledge. You'll become friends with some people and you definitely won't with others. If you try to force things, they usually don't go your way anyway, I'm afraid. And it's not like you're going to want to go through life trying to grease people all the time...

It's probably worth mentioning that many condemn the notorious 'old boy network'—myself included, if put in such crude terms—but you also have to look at things from the perspective of the people doing the hiring. Many directors, CEOs, and other executives—and I've gotten to know more than a few over the years, usually informally—get deluged with c.v.'s and letters and so on, and what they really want to know is whether someone is reliable, has been trustworthy, and can do what they say they can do. So a recommendation from someone they know can carry a lot of weight. New hires screw up all the time and are a drain on resources. And so we probably can't blame captains of industry and NGO heads and other such people for acting on all the information they have available.

But it's not like you have to go to some special elite school like Eton and then doors miraculously open for you. It's best to create your own network. Take conferences, for example. It kind of sounds like a cliché now that I say it, but many of the important contacts I made in my career came from a few early conferences I went to. One of the first jobs I got involved someone who liked the first paper I ever gave. He sought me out a year later at another conference to hear my next paper, and then later argued on my behalf on a hiring committee. At yet another conference, one rather senior scholar with whom I got on well over dinner one night in another country helped me get affiliation at a foreign university for an important research project I wanted to start. And this was over a year later, and we'd only met that once. But it's not like I was out there trying to launch some grand scheme. I was just getting to know people, more or less at random, and trying to have a good time. And notice that I haven't gone into all the people I alienated along the way! Okay, so maybe it's not always such a good thing to be out there in public... Anyway, I wish you all the best of luck with your projects and with your careers. Think big and make a difference. And send me lots of presents and stuff.



By Camille Coudrat

Current Students: Final Projects and Research Locations

Name	Project Title	Location
Martina Victoria S.P. Anandam	Assessment of a Short Primate Conservation Education Program on Students aged 15-17 in Schools in Tamil Nadu, India	Tamil Nadu, India
Andy Arnell	Ecological Niche Modelling of Sri Lankan Primates and the Exploration of the Idea of Flagship Species	United Kingdom
Catherine Brewis	Role of HELP Congo Project in Protecting the Biodiversity (Species Diversity) of the Conkouati-Douli National Park	Conkouati-Douli National Park, Brazzaville, Republic of Congo
Alice Brindle	Activity Budgets of Western Hoolock Gibbons	Lawachara National Park, Bangladesh
Liv Caillabet	Parasitological Survey of Drills to be Re-introduced into the Wild	Cross River State, Nigeria
Julian Cheshire	Black and Yellow Howler Monkey Study	Argentina
Jermaine Clark	Study of Yellow Woolly Monkey Habitats	La Esperanza, Peru
Ryan Convey	Comparison of Methods for Calculating Population Densities	Tai Forest, Côte d'Ivoire
Camille Coudrat	Preliminary Survey of Diurnal Mammals and Vegetation Sampling with Focus on Primates	Cardamom Mountains, Cambodia
Dan Drew	Comparative Feeding Ecology of the Cercopithecines	Cross River State, Nigeria
Iris Dröscher	Population Management of Captive Javan Langurs	United Kingdom
Fam Shun Deng	Presence, Spatial and Ecological Mapping and Morphometrics of Slow Lorises and Malayan Colugos from Islands around Peninsula Malaysia	Pulau Tioman, Malaysia, and Singapore
Kaitlyn Foley	Behavioural Persistence and Stereotypy in Ex-pets	United Kingdom
Camilla Møller Holm	Stress in Captivity - Pied Tamarins	United Kingdom
Amal Joseph	Documentary of South Indian Primates and Conservation Education	Coimbatore City, Tamil Nadu, India

Name	Project Title	Location
Leslie Kadane	Examining Monkey-Tourist Interactions at Gede National Monument, Kenya	Gede National Monument, Kenya
Diana Marsilio	Influence of Captive Diets on Regurgitation and Reingestion Behaviours	United Kingdom
John Matkin	King Colobus Behavioural Responses to Artificial Social Structures	United Kingdom and Germany
Heather Maxwell	Captive Management - Enclosure Design for Sanctuaries	United Kingdom
Kate Moise	Social and Play Behaviour in Infant, Juvenile and Sub-adult *Hylobates albibarbis* (Bornean White-Bearded Gibbons)	Borneo
Amy Perry	Comparison of Behaviours of Lemurs under Different Conditions, Including Differences in Enclosures. (Ring-tailed, Black and White Ruffed and Red Ruffed Lemurs)	United Kingdom
Hajarimanitra Rambeloarivony	Energy Budget and Obesity in Captive *Hapalemur alaotrensis* (Rumpler, 1975)	United Kingdom
Jean Robert Ononanga	Spatial Distribution and Density Estimation of Apes	Brazzaville, Republic of Congo
Lara Rogers	Preliminary Survey of Nocturnal Mammals, in the Cardamom Mountains, with Focus on Slow Lorises	Cardamom Mountains, Cambodia
Fiona Rowe	Post-translocational Study Examining the Cause of Decline in the Population of the Collared Lemurs (*Eulemur collaris*) in the Littoral Forests of South-eastern Madagascar	Madagascar
Danica Stark	Population Viability Analysis and Census of Proboscis Monkeys and Oil Palm Forest Mapping	Malaysian Borneo
Carrie Stengel	Ecological Niche Modelling Study Using GIS, MAXTENT and GARP for the Sri Lankan Primates	United Kingdom
Matthew Todd	Primate Trade along the Cambodian/Thai Border	Cambodia/Thailand
Clare Vaughn	Visitor Impacts on Owl Monkey Behaviour in Two Zoos in England (Bristol and Marwell Zoos)	United Kingdom

By Camille Coudrat

Port Lympne and Howletts Wild Animal Parks

Iris Dröscher
Population Management of Captive Javan Langurs

Kaitlyn Foley
Behavioural Persistence and Stereotypy in Ex-pets

Diana Marsilio
Influence of Captive Diets on Regurgitation and Reingestion Behaviours

Amy Perry
Captive Behaviours and Conditions of Lemurs

Bristol and Marwell Zoos and Cotswold Wildlife Park

Hajarimanitra Rambeloarivony
Energy Budget and Obesity in Captive Lac Alaotra Gentle Lemurs

Clare Vaughn
Visitor Impacts on Monkey Behaviour

Oxford

Andy Arnell
GIS Modelling and Flagship Species

Heather Maxwell
Enclosure Design for Sanctuaries

Carrie Stengel
GIS Niche Modelling of Sri Lankan Primates

UK and Germany

John Matkin
King Colobus Behavioural Responses to Artificial Social Structures

Cambodian/ Thai Border

Matthew Todd
Primate Trade along the Cambodian/Thai Border

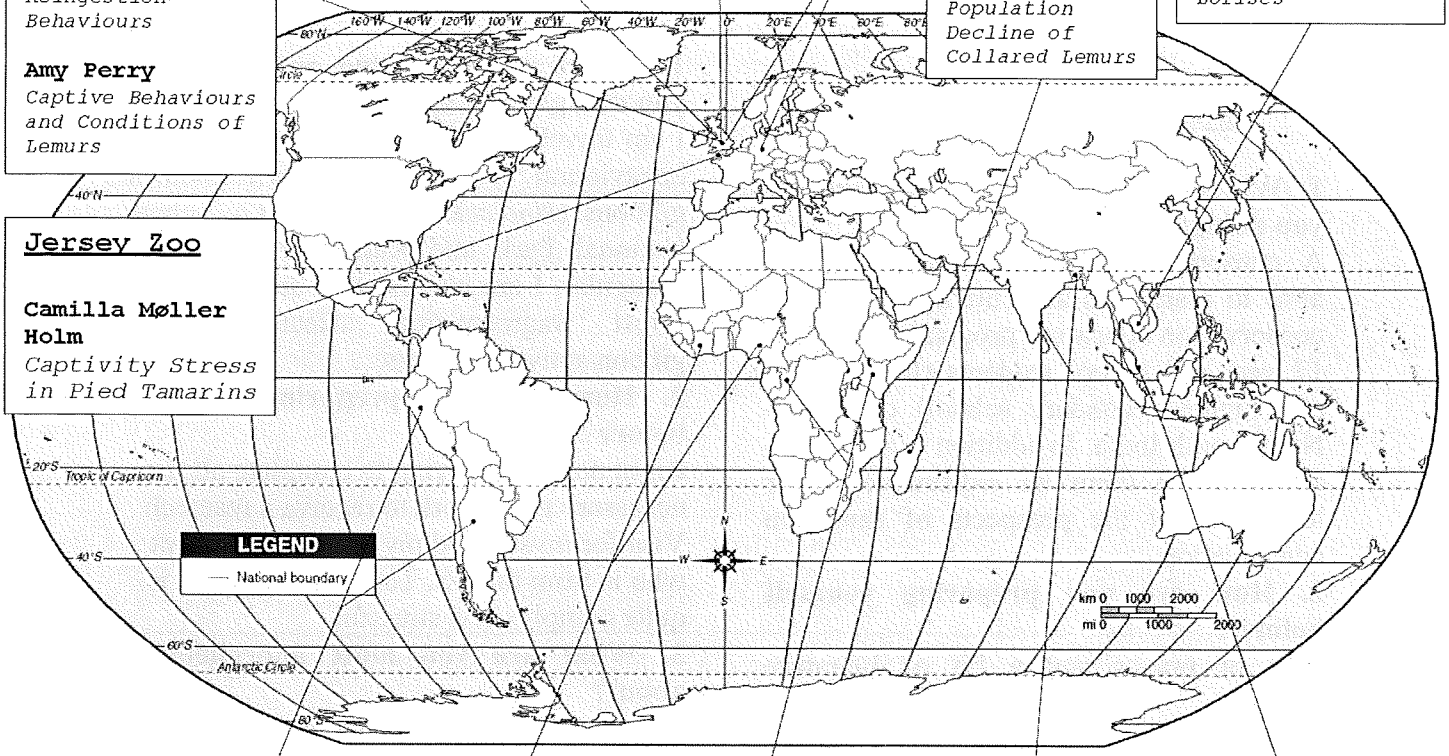
Cambodia

Camille Coudrat
Preliminary Survey of Diurnal Mammals and Primates

Lara Rogers
Preliminary Survey of Nocturnal Mammals and Slow Lorises

Madagascar

Fiona Rowe
Post-translocation Population Decline of Collared Lemurs



Jersey Zoo

Camilla Møller Holm
Captivity Stress in Pied Tamarins

Kenya

Leslie Kadane
Primate-Tourist Interactions

Bangladesh

Alice Brindle
Western Hoolock Gibbon Activity Budgets

Peninsular Malaysia

Fam Shun Deng
Island Ecology of Slow Lorises and Colugos and their Morphometrics

Côte d'Ivoire

Ryan Convey
Comparison of Population Density Methods

Republic of Congo

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India

Martina Victoria S.P. Anandam
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Amal Joseph
Documentaries and their Conservation Value

Peru

Jermaine Clark
Yellow Woolly Monkey Habitat Study

Nigeria

Liv Caillabet
Pre-release Parasitology of Drills

Dan Drew
Comparative Feeding Ecology of Cercopithecines

Borneo

Kate Moise
Social and Play Behaviour in Non-adult Bornean White-Bearded Gibbons

Danica Stark
Proboscis Monkey Population Ecology and Forest Mapping

Argentina

Julian Chesire
Black and Golden Howler Monkey Project

Student interviews – behind the scenes on their final projects

Every year a new set of Primate Conservation MSc students gets the opportunity to conduct novel research towards their final projects. It is sometimes hard to appreciate how much planning and organisation is necessary, from both staff and students, in order for this research to take place at all. This year Canopy gets the chance to pose a few questions to some of this year's cohort before they head out into the field.

Martina Victoria Anandam

1. Where are you going and what are you doing/studying?
A conservation education project which aims to assess the authenticity of a 'short' conservation education program on the 15-17 year old school students (high school and higher secondary school) of Tamil-Nadu, south India. In addition to that I also aim to give them an exhaustive career lecture about the prospects of career in conservation.

2. How are you preparing yourself before ?
Lots of prayer and a bit of literature research.

3. What are you most apprehensive about?
Time- it is not easy to gain access into schools- public or private, as the students are usually involved in rigorous tuition for their final examinations. So the Principals are quite reluctant to donate one full working day.

4. What are you most excited about?
The excitement and awe on the students face after the program- when I was of their age (not long ago) and was given an opportunity to participate in a similar event - I jumped for joy and that one day gave the necessary push to break the stereo-typical IT career choice and come into conservation.

5. What would you like to be involved with after you complete your project/course?
My first job as soon as I complete the course would be find out what I am really interested in- all aspects of conservation are exciting and interesting so I have to look for that specific area where my interest lies. Then, I would love to work in that area to gain experience.

Alice Brindle

1. Where are you going and what are you doing/studying?
I am travelling to Bangladesh to study the behavioural ecology of western hoolock gibbons (*Hoolock hoolock*) in Lawachara National Park and Kalachara Forest. In particular, I am interested in studying how forest fragmentation affects hoolock gibbon activity budgets.

2. How are you preparing yourself before ?
Right now, I am trying to complete all the necessary paperwork to receive a research Visa for myself and my research assistant who is from the US. The whole process is quite complex and stressful.

3. What are you most apprehensive about?
At this moment, I am actually most apprehensive about returning from Bangladesh to write up my dissertation.

4. What are you most excited about?
I'm really looking forward to all the adventures I will have in Bangladesh. I love the challenges associated with rainforest fieldwork and full immersion within unfamiliar cultures.

5. What would you like to be involved with after you complete your project/ course?
Right now, I am in the midst of applying to the Peace Corps. I would like to work as an environmental volunteer and/or an educational volunteer in order to pass on my passion for environmental conservation to others.

Liv Caillabet

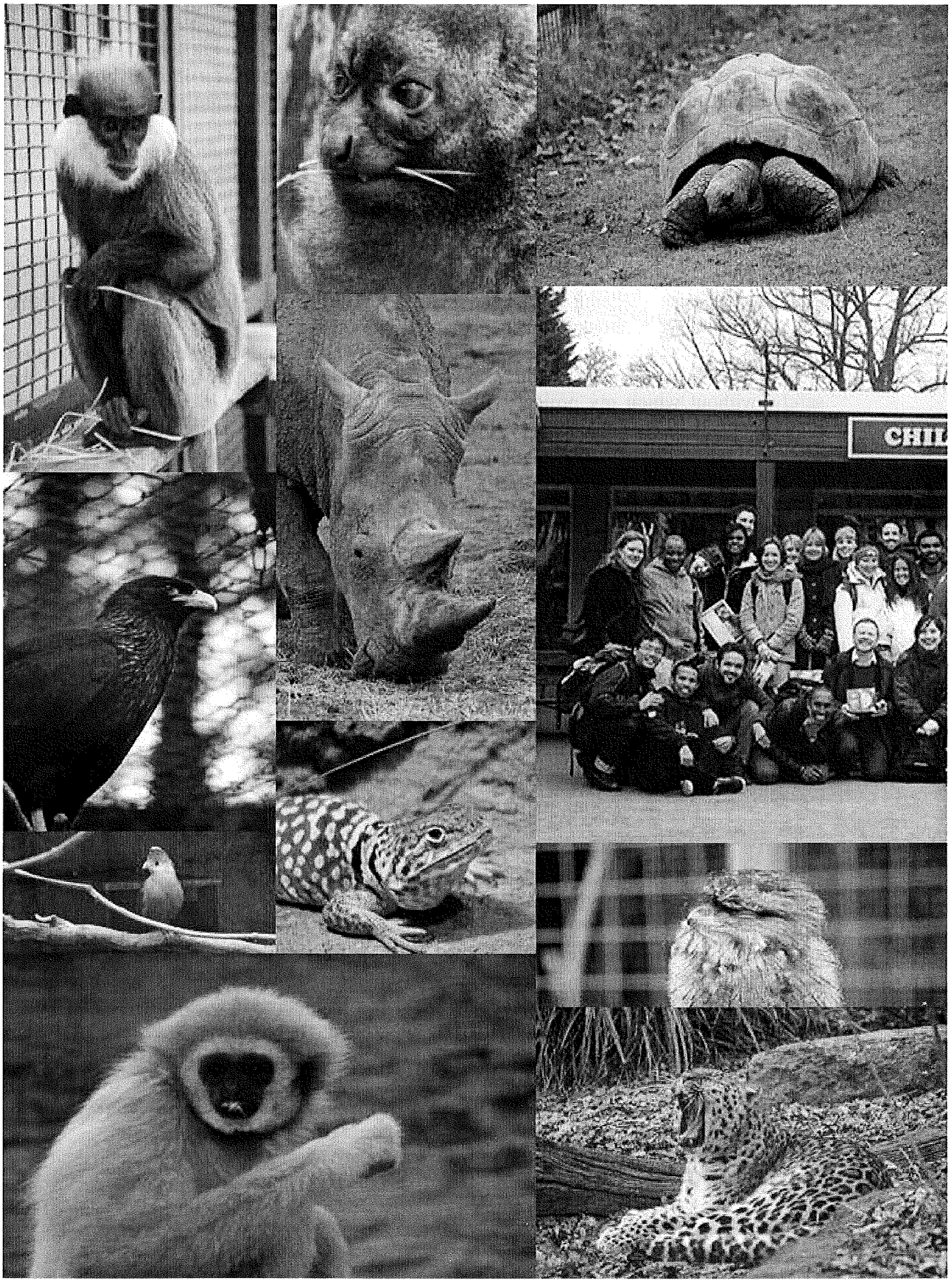
1. Where are you going and what are you doing/studying?
Nigeria, Cross River State. Parasitological survey on a group of 100 drills that are to be reintroduced.
2. How are you preparing yourself before ?
Getting all my vaccinations, medications, visa, chemicals, grants, ethics/risk assessment forms & keeping fit.
3. What are you most apprehensive about?
Getting all my chemicals and stuff across safely, without which my project will be pretty screwed. There are also issues of my safety, so I'm a little worried about being robbed, especially since Ill have me camera, video camera and laptop with me
4. What are you most excited about?
Working in the field with a very cool highly endangered primate. They also have chimps which will be cool. The fact that no studies like this have been done before. Seeing what primate conservation actually is like in practice. Seeing a new country.
5. What would you like to be involved with after you complete your project/ course?
Raising funds for a GAFI roadtrip across UK & central Africa, working for traffic.

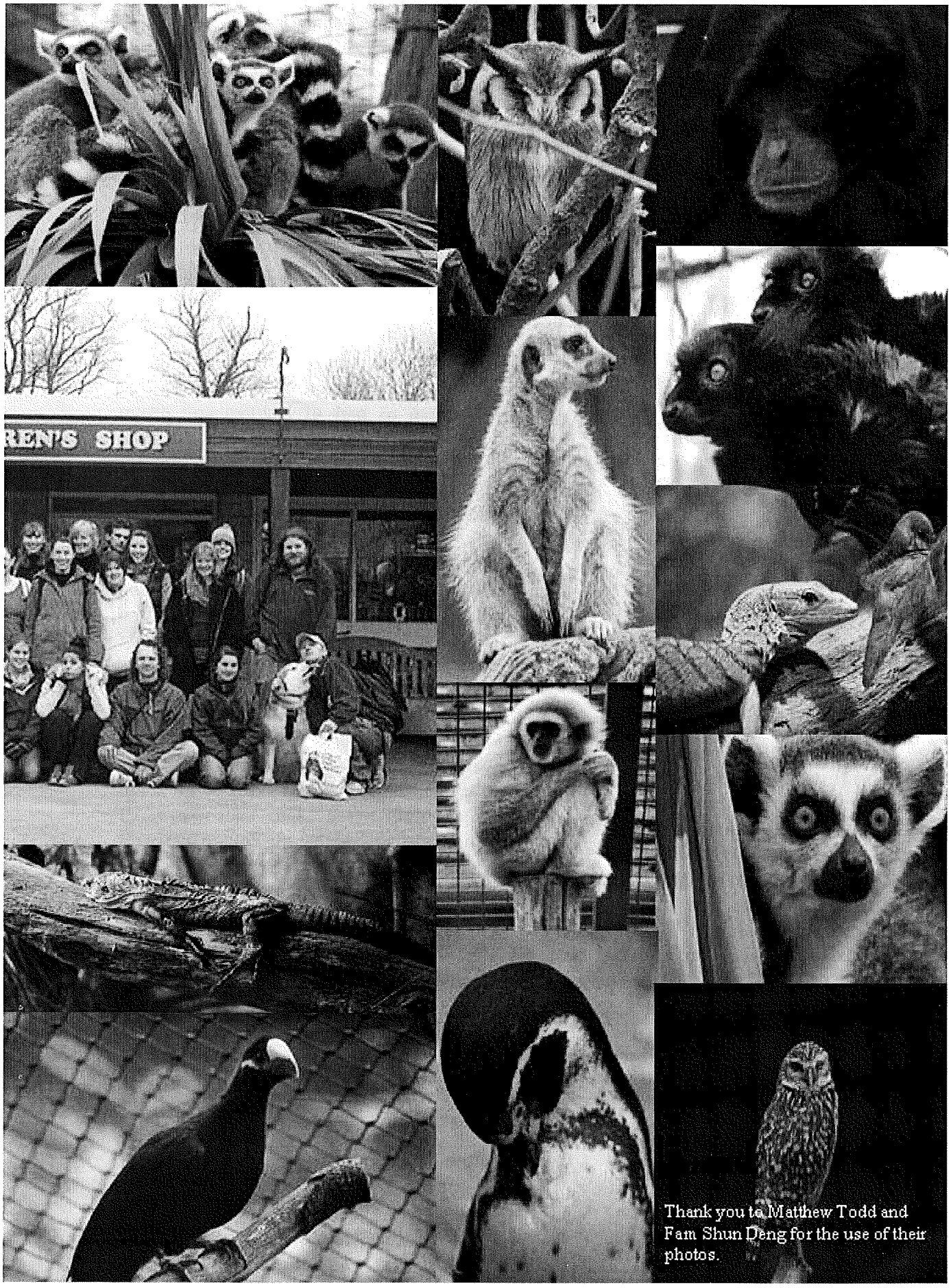
Kate Moise

1. Where are you going and what are you doing/studying?
Sebangau National Park Borneo, to study social and play interactions of white bearded gibbons, *Hylobates albibarbis*.
2. How are you preparing yourself before?
Organising visas and permits, finding out as much as possible about Borneo and the field site, doing the field studies course, getting vaccinations and trying to finish my coursework!
3. What are you most apprehensive about?
Snakes
4. What are you most excited about?
Seeing primates in the wild!
5. What would you like to be involved with after you complete your project/ course?
Get involved with an animal conservation charity either abroad or in the UK, hopefully both.

Fiona Rowe

1. Where are you going and what are you doing/studying?
I will be conducting a post-translocation study examining the cause of the population decline of a translocated group of *Eulemur collaris* in the Mandena Littoral Forests, Southeastern Madagascar.
2. How are you preparing yourself before ?
I have been having frequent meetings with my supervisor, organizing visas and research permits, studying and keeping up to date with the political situation in Madagascar, which currently has a Foreign Office advisory against travel to this country. As well, I have been applying for grants and acquiring the necessary day-to-day survival supplies needed.
3. What are you most apprehensive about?
Being the sole student travelling to Madagascar from Brookes this year, lack of everyday contact with my peers and being in a country where my first language is not the native language.
4. What are you most excited about?
I am excited for the experience of working in the field for 3 months as I have only ever had month long experiences. I am also excited about seeing a variety of lemur species outside of a captive setting.
5. What would you like to be involved with after you complete your project/ course?
As a new graduate from the course and in today's economic climate I would welcome being involved in any field research.





Thank you to Matthew Todd and Fam Shun Deng for the use of their photos.

Field Skills Training

By Jermaine Clark

There is a necessity for wilderness experience in primate conservation and it is paramount to success, because it is a great experience to study one's focal species in the wild. The field skills' training (5-6th March, 2009) was conducted by Dominic Hall assisted by Claire and Nigel. The training proved ideal for the development of skills to effectively plan and carry out necessary arrangements for safe and efficient field work.

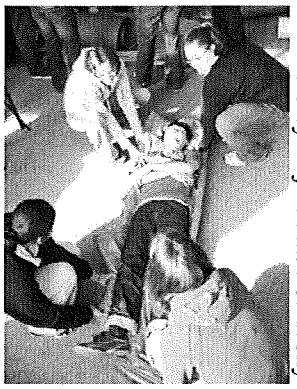


Photo by Haja Rambeloarivony

Training exercises comprised of compass use for finding locations, pacing and averaging distances using individual pace lengths over a predetermined distance. Testing of observational skills in the 'jungle' environment was done with the use of planted dangers – example rubber snakes and scorpions, and hidden tools such as rope, whistles and lighters. This test worked very well and guided the students to realising new and innovative ways of working in forests that are both effective and safe. The course was well planned and students felt that they gained a lot from the experiences of compass use, machete handling, jungle observation techniques and emergency evacuation procedure practice.

Photo by Haja Rambeloarivony

Photo by Haja Rambeloarivony

Theoretical training was discussed in the class room and plans for the field exercise were developed based on information that was given as part of lectures and group discussions. However, even with this plan it was soon demonstrated by several examples how difficult it is to function as a group when dealing with problems that may arise in the field. Students were made to think of all the information they needed when travelling to remote locations and once there how this information would be useful in the event of an emergency situation. When confronted with worse case scenarios it was demonstrated how much needed information was neglected, for instance - help numbers, locations of health services, the remote location of the group and basic first aid skills, were some things not taken into account. All participants agreed that the course was well structured and implemented by the facilitators and was exciting and helpful to them.

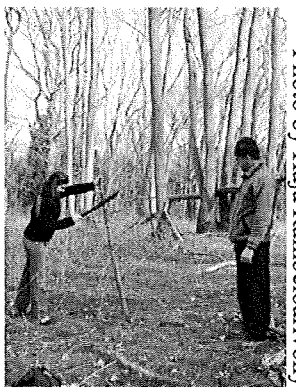
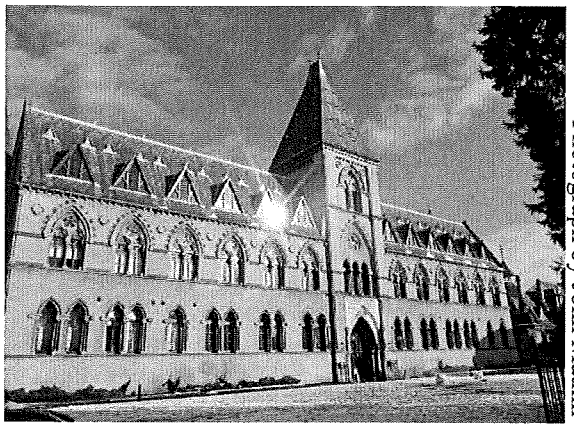


Photo by Haja Rambeloarivony

Students Volunteer at the Museum of Natural History

By John Matkin

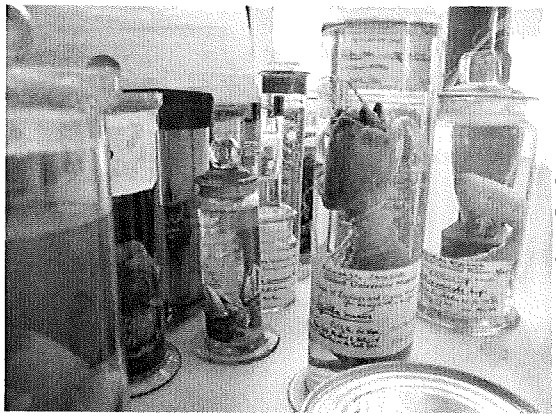
The Oxford University Museum of Natural History is a fascinating place- notable for its scientific collections and made famous by its dinosaurs, dodo and the swifts in the neo-gothic tower- but for MSc students the museum holds a greater interest.



Photograph by John Matkin

The Oxford University Natural History Museum

For many years the Primate Conservation MSc and the museum have collaborated to allow students the chance to work hands-on in the laboratory with the primate collection where skulls are unboxed to enable us to understand the principles of primate dentition and whole specimens and skins. This allows many students their first attempts at recording biological measurements.



Photograph by John Matkin

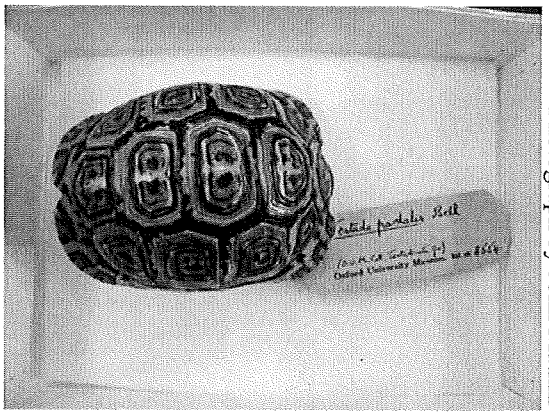
Volunteers have the chance to explore the museums vast scientific collection

Every year the museum also offers the chance for MSc students to undertake volunteer work within its collections and for those students who take placements there is much more to be experienced and many new skills to be gained.

Photograph by John Matkin

Current volunteers; Camille Coudrat, Camilla Møller Holm, Haja Rambeloarivony, Fiona Rowe and Iris Dröscher

In total twelve of this year's MSc students have undertaken voluntary placements at the museum taking part in a variety of work which has included cataloguing and reorganising collections, updating the museum database, cleaning and repackaging specimens and the chemical testing of preserved items- all organised by the museum's curator of zoological specimens Malgosia Nowak-Kemp.



Photograph by John Matkin

Cleaned, catalogued and re-boxed- a tortoise specimen awaits storage

Volunteers to the museum may find themselves working with a variety of species and the skills acquired from this

experience are invaluable; for example the work of cross-checking and cataloguing collections allows students to use taxonomic data in a practical way, whilst reorganising and researching specimens gives us the opportunity to observe the effects of evolution and morphology.

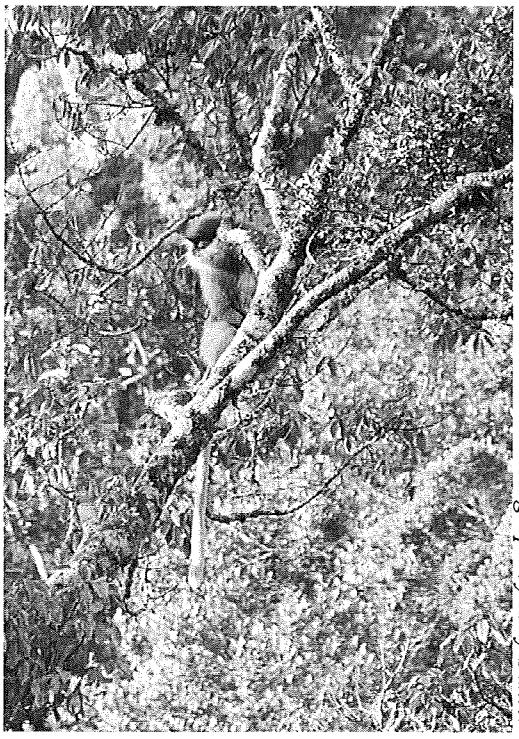
The skills learnt and experiences gained at the museum- whilst useful for the MSc, can also be taken further. Some students have gone on to volunteer their time and skills in other museums; others have conducted research with the museum's vast scientific collections and a few ex-volunteers have gone on to seek employment and work placements within museums.

By John Matkin

Loud Calls as a Tool in Identifying Purple-faced Langur (*Trachypithecus vetulus*) Subspecies

By Amy Baxter

The purple-faced langurs (*Trachypithecus vetulus spp.*) are a highly arboreal, Asian colobine endemic to Sri Lanka who emits loud calls at dawn and periodically throughout the day. They are endemic to Sri Lanka and four subspecies are currently recognised with a fifth proposed living in the north-west of the country. All four accepted subspecies are recognised to be declining in population trend, with *T. v. nestor* currently listed as Critically Endangered by the IUCN and the remaining as Endangered.



Photograph by Amy Baxter

Although density estimations for certain subspecies have occurred in recent years, population numbers may be rapidly changing due to habitat loss and fragmentation. Some populations have been displaced from their natural environments suggesting distribution boundaries are altering and require regular updated surveys. Both density estimations and boundary detection are confounded by difficulties in easily distinguishing between subspecies, since morphological features are similar and subspecies boundaries can be adjacent.

Vocalisation analysis has increasingly been used as a form of determining between primate species, subspecies and individuals. Loud calls in particular have been used in vocal comparisons to discriminate between populations. This is particularly useful for unhabituated populations as it is non-invasive procedure. Additionally, loud recurrent morning calls are often used in triangulation to estimate species population densities. The main function of loud calls is generally accepted to be territorial inter-group spacing.

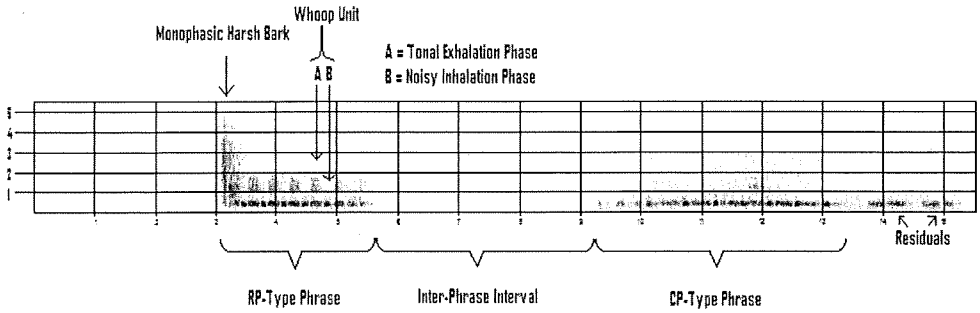
Photograph by Amy Baxter

The aim of this research was to build on data collected from previous students to discover if distinguishing loud calls existed between the subspecies which could be used as a non-invasive subspecies identification tool. Opportunistic sound recordings were collected for two subspecies during May to July 2008 in the

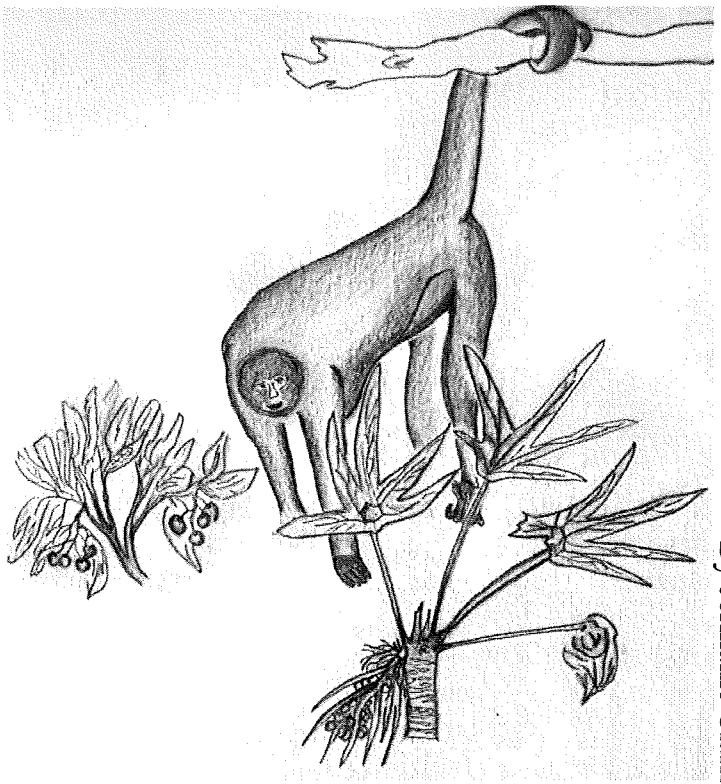
areas surrounding Sigiriya and Nuwara Eliya, Sri Lanka. Call parameters were taken from spectrograms created on Avisoft-SASLab Pro, version 4.40 similar to figure one.

Analysis indicated call data extractable from the first phrase of the loud call successfully classified three subspecies with a high level of success. Call parameters included call duration, number of phrases and residuals, number of units within phrase one, phrase one length and maximum, formant and fundamental frequencies.

Discriminant function analyses indicated frequency data is particularly important in subspecies identification success. Frequency data was absent for one subspecies and needs to be collected to determine if this identification technique will be suitable for all recognised subspecies. If successful this may have conservation monitoring applications and help validate the controversial existence of a fifth postulated subspecies.



Spectogram of purple-faced leaf monkey loud call



By Jermaine Clark

Habitat correlates of group density in two subspecies of an endangered primate; *Trachypithecus vetulus monticola* and *T. v. philbricki*

By Elizabeth Bohun

Understanding the relationships between animals' abundance and their environment is a key factor in conserving endangered species. The purple-faced leaf monkey (*Trachypithecus <Semnopithecus> vetulus*) is an endangered primate of the family *Colobinae*, endemic to the island of Sri Lanka, yet little research has examined the influence of habitat disturbance on its abundance.

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Figure 1. *Trachypithecus vetulus monticola* displaying the thick, dark pelage which distinguishes it from other *T. vetulus* subspecies.

Sri Lanka's forests are extremely rich in biodiversity – estimates of plant species present on the island range from 3400 (Kumar *et al.,* 1999) to 7000 (Gunatilleke & Gunatilleke, 1990). This floristic richness contributed to Sri Lanka and the severity of the threats to Sri Lanka's biodiversity led to Sri Lanka being named one of the world's 'hottest' hotspots (Kumar *et al.*, 1999).

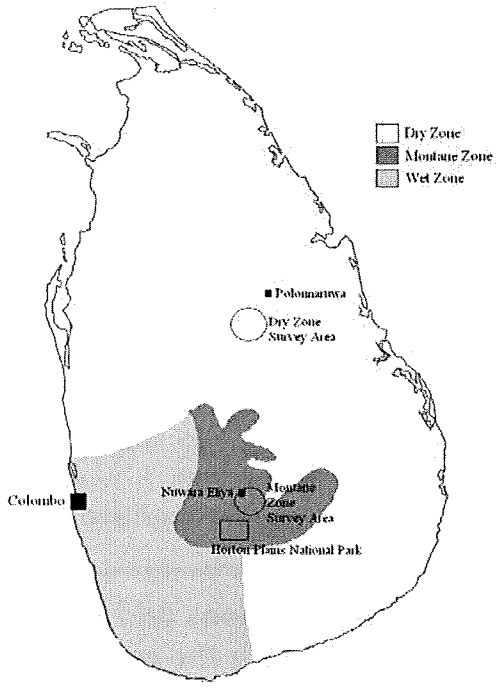


Figure 2. Location of study sites within Sri Lanka. Animal survey results were compared with earlier surveys at Polonnaruwa and Nuwara Eliya (Rudran 1973).

I used plotless vegetation sampling to survey habitat within the ranges of two subspecies of *T. vetulus*; *T. v. philbricki* and *T. v. monticola* in the Matale and Nuwara Eliya districts of Sri Lanka. Vegetation surveys collected information on tree species, density, CBH, height, canopy continuity, understory vegetation density and the presence of human disturbance. The CBH of felled tree stumps was measured as an indication of the potential biomass lost. Auditory sampling (using the triangulation method commonly used in gibbon surveys) was employed to estimate density of *T. vetulus* groups within the two study areas.

Vegetation surveys indicated that forest areas around Sigiriya and Nuwara Eliya were suffering from chronic low-

level disturbance arising from timber extraction and land clearance practised by local residents.

Trachypithecus v. philbricki density varied between 0 groups per km² and 7.33 groups per km². *T. v. monticola* density varied between 3.62 groups per km² and 8.20 groups per km². Density of both *T. v. monticola* and *T. v. philbricki* was found to be significantly negatively correlated with the percentage of survey points displaying any form of disturbance, and also with the individual disturbance categories: land clearance, tree felling and the total basal area of trees lost through tree felling. Negative correlations between extent of land clearance, tree felling and biomass of trees lost indicate that both *T. v. philbricki* and *T. v. monticola* are sensitive to these practices. Continued timber extraction and land clearance at the survey sites will negatively impact already reduced populations of this already endangered species.

References

Kumar, A., Konstant, W. R. & Mittermeier, R. A. (1999) Western Ghats and Sri Lanka. In *Hotspots: Earth's biologically richest and most endangered terrestrial ecoregions:* pp 353-363.

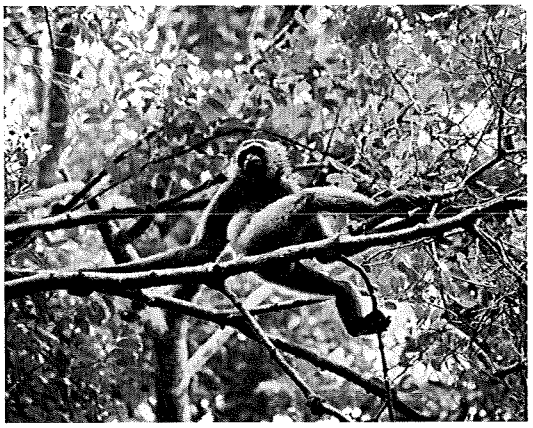
Gunatilleke, I. A. U. N & Guantilleke, C. V. S. (1990) Distribution of floristic richness and its conservation in Sri Lanka. *Conservation Biology,* 4, 21-31.

Rudran, R. (1973b). Adult male replacement in one-male troops of purple-faced langurs (*Presbytis senex senex*) and its effect on population structure. *Folia Primatologica.* **19**, 166-192.

Gibbon populations and forests: understanding the complex relationship between habitat and primate density in Indonesia.

By Marie C. Hamard

The peat-swamp forests of Southeast Asia are poorly understood, despite covering large areas of lowland forest. Recent studies are showing that the Sebangau National Park (Kalimantan, Indonesian Borneo) in particular is of vital importance to the conservation of gibbons (Cheyne et al. 2007) and orang-utans (Morrogh-Bernard et al. 2003). However, little is understood about the complex relationship between the primate populations and the characteristics of their habitat which is essential for their conservation. Following recent re-assessments of the conservation status of the Bornean agile gibbon (*Hylobates albibarbis*), the need to conserve the peat-swamp forests of Kalimantan, one of its main habitats, is more pressing than ever. Little information is available on gibbons in peat-swamp forest. The aim of my Master's project was to investigate the relationship between vegetation characteristics and gibbon density in a newly protected, secondary peat-swamp forest in the Sebangau National Park.



Photograph by S. Cheyne

Adult male gibbon (*Hylobates albibarbis*)

The study was conducted from 1st May to 28th July 2008, using auditory sampling methods and speed plotting. Gibbon densities and vegetation characteristics were recorded at 13 sites within the Natural Laboratory for the Study of Peat-swamp Forest operated by CIMTROP (the Centre for the International Management and Cooperation in Tropical

Peatlands based at the University of Palangka Raya). The gibbon population in the area is likely to have suffered some impact from intense disturbance and detailed studies of populations and densities such as this can help to tease out any population trends.

Field work involved early starts, normally leaving camp about 04;30h each morning and walking in the dark until the research teams reached the designated listening posts. I also went on five camping expeditions into the forest to survey in more remote areas. I also used a method called "speedplotting" to allow me to collect detailed habitat data without setting up large, time-consuming habitat plots. This method proved very effective.

Gibbon densities were calculated after the number of groups in each area was determined by plotting all recorded calls on a map. Calls were recorded by three teams of researchers to triangulate the groups heard. Gibbon densities ranged from 1.39 to 3.92 groups/km^2, and were found to be correlated with canopy cover at 20m, median tree height, density and biomass of large trees and food availability. Interestingly, there was no correlation between gibbon density and the biomass of the top 10 gibbon food species. Also, the gibbon density varied between the three distinct forest types present in the Sebangau, highlighting the importance of surveying over a large area and not extrapolating from a small study. These results highlight the importance of large, tall trees and good canopy cover for the gibbon population in the Sebangau forest; they indicate that conservation efforts should be directed to the preservation of those large trees and the prevention of selective logging, which targets them. It is hoped that the results of this survey will contribute to the preservation of both Indonesia's peat-swamp forests and the gibbons that inhabit them.

References

Cheyne SM, CJH Thompson, AC Phillips, RMC Hill and SH Limin (2007). Density and Population Estimate of Gibbons (*Hylobates albibarbis*) in the Sabangau Catchment, Central Kalimantan, Indonesia. *Primates* **49(1)** 50-56

Morrogh-Bernard H, S Husson, SE Page and JO Rieley (2003). Population status of the Bornean orang-utan (*Pongo pygmaeus*) in the Sebangau peat swamp forest, Central Kalimantan, Indonesia. *Biological Conservation* **110**: 141-52.

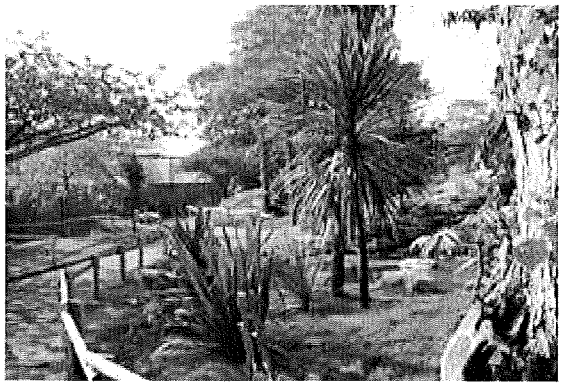
By Camille Coudrat

Lemur Conservation in Captivity: The Effect of Exhibit Design on Visitor and Lemur Behaviour

By Helen Hitchman

Introduction

In the UK zoos are investing in multi-million pound primate exhibits and free-ranging, walk-through enclosures are increasing in popularity. The aim of this research is to evaluate the newly developed 'Madagascar exhibit', a semi-free-ranging walk through lemur enclosure at the Cotswold Wildlife Park (CWP) to identify the effects of cage design on two species of lemur (*Lemur catta* and *Eulemur macaco macaco*) and their human audience.



The walk-through Madagascar exhibit

Enclosure design is one of the most critical elements to determine the quality of a captive primate's life. Normal, species-typical behaviours are facilitated by increasing the size and complexity of enclosures, making the animals appear more eye-catching and subsequently enhancing the visitor experience.

Research Aim

It is increasingly important to identify the impact of exhibit design on public education and behaviour - whilst simultaneously assessing the response of primates to the close proximity of visitors. The research addressed this important issue by comparing the behaviour of visitors and lemurs in a traditional style enclosure with a newly constructed semi-free-ranging walk-through.

Results and Discussion

Behaviour

The larger more naturalistic Madagascar exhibit had a significant effect on resting behaviour being lower in the traditional exhibit for both species. Significant difference in resting behaviour of the two species of lemur was identified in Madagascar with black lemurs spending longer periods inactive. In the wild, black lemurs are cathemeral and activity budgets may be severely distorted by only observing their behaviour during the day. The cathemeral activity of the black lemur may account for the significantly higher frequency of resting behaviour in both exhibits compared with the ring-tailed lemurs. Species specific differences in foraging were identified here as the frequency in ring-tailed lemurs was significantly higher in both exhibits compared to the black lemurs.

Ring-tailed lemur (*Lemur catta*)

Social Interactions

A significantly higher frequency of inter-species antagonistic behaviour between ring-tailed and black lemurs occurred in the traditional exhibit compared to the Madagascar exhibit. This may be attributable to the size of the new exhibit and furnishings, which allow individuals to avoid conflict, utilise suitable forage and find rest sites.

Exhibit Use

The location of resources may result in species preferences and patterns in space utilisation. A combination of scatter feeding on the ground and lack of predators may affect ground use in captive primates. Height use in ring-tailed and black lemurs was significantly affected by the new enclosure. Black and ring-tailed lemurs were observed using the ground and lower level structures in Madagascar more than in the traditional exhibit. Ring-tailed and black lemurs had significantly preferred sites in the traditional exhibit. The black lemurs spent more time in the lemur house or in the zones next to the house. The ring-tailed lemurs preferred the middle section of the exhibit, particularly a swinging platform. Preferences in exhibit sites were observed in both species in Madagascar, although between species preferences were not significant.

Black lemur (*Eulemur macaco macaco*)

Lemur-visitor Interaction

Interest in, and behaviour directed at the visitor is undesirable in a free-ranging environment, it is therefore important to anticipate whether it is likely to develop. The lemurs in Madagascar became friendly towards the public very quickly. The black lemurs were observed to interact considerably more with visitors in Madagascar than the ring-tailed lemurs, highlighting the effect of prior experience of interaction with visitors.

Conclusion

Evidence suggests that visitors can have detrimental effects on primate behaviour in many different manifestations. However, this research refutes the negative effects of visitors on lemurs, as the increased locomotion and activity observed in Madagascar is more likely the consequence of increased opportunities to forage. To prove this, simultaneous behaviour and physiological measures should be conducted to negate the effect of stress. Inter-species interactions were also reduced as a result of the large exhibit allowing species to avoid confrontation and develop conflict resolution, although the effect of exhibit design on intra-species interactions appears to be species specific.

It is questionable, how suitable an environment that promotes human-primate interaction is for conservation? The individuals housed in the exhibit would require substantial training if they were to be released, as captive lemurs use of the ground is much higher than observed in wild individuals and would increase the risk of predation. In addition, the habituation of lemurs to humans, could seriously affect their suitability as reintroduction candidates.

Photographs: www.cotswoldwildlifepark.co.uk

By Camille Coudrat

Secrets of the Swamp Gorillas *(Gorilla gorilla gorilla)*

By Ammie Kalan

As I headed out to Africa for the first time in my life, all the way to the Republic of Congo no less, and alone, I never thought I would be lucky enough to find something that had not been previously recorded by researchers. Fulfilling my dream of one day studying western lowland gorillas in the wild, I was well aware of the numerous amounts of data amassed for this species in the last 20 years. However, this did not deter me, as I was heading to a new location, the Lac Télé Community Reserve in the Likouala swamps of northern Congo. Aside from reserve-wide ape surveys (Poulsen and Clark, 2004), no data had been collected for this population of gorillas.

When I first got to Lac Télé and tackled the swamp forest for the first time, I couldn't believe what I had gotten myself into. The swamp forest was like no other forest I had ever been in. Every step was a plunge into an abyss of mud and water with solid footing never to be found. Your best bet was to balance precariously on a root and then jump from trunk to trunk or roots to roots. Eventually I learned to walk the swamp forest as my Congolese field assistant would. The fact that I was sharing the forest with wild gorillas was enough to keep me going through two months of camping in the forest. Although my greatest privilege was to be able to observe the gorillas without them immediately fleeing, I was also rewarded with two new discoveries.

Firstly, as part of my feeding data collection I recorded data on fresh feeding remains encountered along trails. My field assistant told me that gorillas at Lac Télé ate ants, but I had not found anything to corroborate this. Thus far I had only found termites (*Cubitermes sp.*) in their fecal samples. Then we found a tree that had clearly been visited by gorillas as prints and droppings were present. This tree was *Barteria fistulosa*, a species that had been included in *G. g. gorilla* diet for its fruits at Mondika Research Station in the Central African Republic (Doran *et al.*, 2004). This time however, a furious army of ants were crawling in and out of the tree, furious at having been disturbed. We observed broken branches whose hollow cavities are home to species of the ant genus *Tetraponera*. The gorillas were foraging for these ants, ants that deliver a horrible sting to any human that disturbs them. They live in a symbiotic relationship with the myrmecophyte *Barteria fistulosa* and thus protect the tree. We found pieces and whole specimens of this ant in *G. g. gorilla* feces. The gorillas of Lac Télé were indeed feeding on ants of the *Tetraponera* genus.

Photograph by Ammie Kalan

Figure 1. *Barteria fistulosa* tree after *G. g. gorilla* foraged on *Tetraponera* sp. ants.

The new discoveries were not to stop there. I was honoured to observe multiple instances of hand-clapping behaviour elicited from female western lowland gorillas at this site. The behaviour has only previously been described in 1989 by Dr. Michael Fay in the Central African

Republic. He wrote that the gorillas would hand-clap in response to humans which were perceived as a threat; however, during the course of my study I was able to observe two novel contexts where this behaviour occurred. Once it occurred as a form of long distance communication whereby a group of three mothers attempted to contact their silverback who was nowhere to be seen or heard. The

Photograph by Ammie Kalan

Figure 2. Female gorilla standing in a tree after hand-clapping to her silverback.

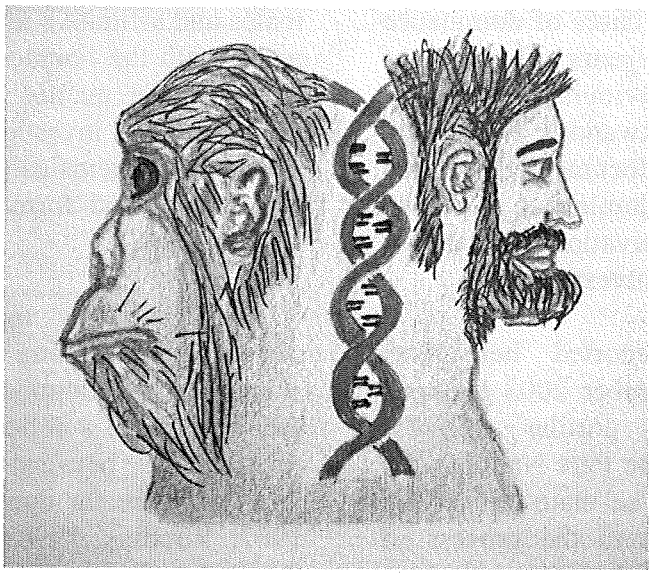
clapping occurred only after we were out of visual contact with these gorillas. Another novel context is where a female mother hand-clapped less than 10 meters away from me in order to capture the attention of her group and her infant (who had been playing in a nearby tree). Immediately upon hearing the gesture, the group gave their undivided attention to this female, including the young silverback. The female was suspicious of a lurking danger, her human observers of course, but neither she nor the group could clearly detect our motionless bodies in the rain. Other instances of the behaviour were similar to Fay's descriptions where females would elicit the behaviour to alert a nearby silverback to the pertinent danger of humans.

This field work clearly demonstrated to me that there is still so much more to discover about these magnificent apes and that through these discoveries we might be enlightened in our own evolutionary development. My experience has motivated me to further explore the secrets of the swamp gorillas as I believe there is still much more to be revealed.

References

Fay, J. M. (1989). Hand-clapping in western lowland gorillas (*Gorilla gorilla gorilla*). *Mammalia.* **53**, 457-458.

Poulsen, J. & Clark, C. (2004) Densities, distributions, and seasonal movements of gorillas and chimpanzees in swamp forest in northern Congo. *International Journal of. Primatology.* **25**, 285-306.



By Jermaine Clark

Dominance change and related group dynamics in a mountain gorilla (*Gorilla beringei beringei*) group, Volcanoes National Park, Rwanda.

By Felix Ndagijimana

In group-living animals access to limited resources is influenced by established dominance hierarchies. Benefits to high-ranking individuals include access to better food and/or high reproductive success. These benefits are seen as the reason that subordinate males challenge stronger high-ranking individuals. Even though temporal stability in dominance hierarchy exists, relationships between individuals in a social group are a dynamic process as individuals change in age, strength and competitive abilities. Dominant individuals can be challenged and replaced either by subordinate group members or individuals outside the group. Social groups of mountain gorillas (*Gorilla beringei beringei*) can contain more than one mature male. In such groups, linear dominance hierarchies are established between males, and only one male is dominant over the rest. Changes in dominance between mountain gorilla males are rarely observed events. There have been only five known cases of dominance change in the last 40 years of studies of mountain gorilla behaviours at Karisoke research Center, in Rwanda. Those five cases were not well documented and the impacts the change in dominance may have on the long-term conservation of mountain gorillas have not been investigated.

The study reported here was conducted from September 2003 to April 2007 on mountain gorillas (*Gorilla beringei beringei*) in the Parc National des Volcans in Rwanda. The main aim of the project was to document the process of dominance change and the related changes in social interactions between individuals in a group of mountain gorillas. To investigate the process of dominance change the following types of behaviours were considered: agonistic, affiliative, copulation, passing and subgrouping. Passing and subgrouping had not been documented prior to this study. Passing can be defined as an attempt to overtake the leader of group movement and take the lead of the group. Subgrouping is the division of the study group into two subunits each led by one of the two rivalling males for longer than an hour over a distance ranging from 60 to 250 meters.

The group of study is known as Beetsme's group and has been regularly monitored for four decades. The first behaviours related to the dominance challenge by the second-ranking male of the group (Kuryama) directed towards the alpha male of the group (Titus) were observed in 2004. Titus has led the group for over 10 years since and he has sired many offspring residing in the group, and he is the known father of the challenging male (Bradley *et al.,* 2005). The process of the dominance change led to the fission of the study in April 2007. The resulting two groups were each led by the Titus and Kuryama and they were each joined by some of the group individuals. Using data on the proximity of females to the two males and affiliative interactions of the two males with the females in the group as an index of the quality of the male-female relationships, I investigated whether during group fission females joined the male with whom they had formed strong long-term relationships.

Dominance matrices built using displacements among males confirmed a change in the dominance. Displacements are considered a reflection of established relationships between individuals and a good measure for dominance (Yamagiwa, 1987; Robbins, 1996, 1999). It was also found that the change in dominance in the

study group was a slow and gradual process. In addition, this change appeared to be characterized not so much by aggressive contests between the competing silverbacks, but rather an increase in tension and redirected aggression towards other group members.

In relation to the male-female relationships during the process of dominance change, an increase in time in proximity and affiliative interactions was observed between females and the newly dominant male Kuryama. This shows that the change in dominance may have affected the male-female relationships. In relation to the group fission, it was found that female residence decisions were based on the quality of the relationship each female had with each male prior to the fission.

An interesting behaviour observed after the first group fission in April 2007 needs further investigation. The group of study had been observed to reunited and then split after spending a few days together. From April until December 2007 the group split 11 times and reunited 10 times. The length of period the two groups spent apart varied from 1 to 100 days (average=22), while the length of period the group spent together after a reunion as a single unit ranged from 1 to 5 days (average=2.6). It is the first time that time behaviour has been observed in mountain gorillas.

References

Bradley, BJ; Robbins, MM; Williamson, EA, et al. (2005) Mountain gorilla tug-of-war: Silverbacks have limited control over reproduction in multimale groups. *Proceeding of the National Academy of Science of the United States of America*, 102: 9418-9423.

Robbins, M .M. (1996) Male-male interactions in heterosexual and all-male wild mountain gorilla groups. Ethology, 102: 942-965.

Robbins, M. M. (1999) Male mating patterns in wild multimale mountain gorilla groups. *Animal Behaviour*, 57: 1013-1020.

Yamagiwa, J. (1987) Intragroup and intergroup interactions of an all-male group of Virunga mountain gorillas (*Gorilla gorilla berengei*). *Primates*, 28: 1-30.

By Camille Coudrat

Enriching the Lives of Captive Spider Monkeys (*Ateles* spp.) in Honduras, Central America

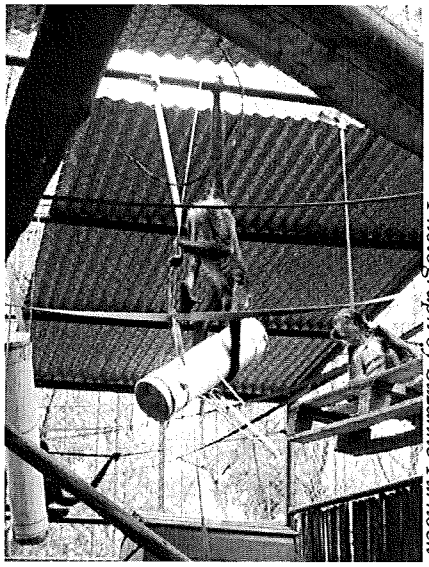
By Suzanne Turnock

Inappropriate husbandry practices can have detrimental effects on the psychological, physical and behavioural well-being of captive primates (National Research Council, 1998). Improving the standards of captive care can improve the growth, reproduction and health of animals (Boere, 2001; Primate Research Institute, 2003). High standards of care are needed to maintain healthy and behaviourally viable animals for conservation purposes and to communicate credible conservation messages to the visitors (WAZA, 2005).

Photograph by Suzanne Turnock

Me with the keepers at Rosy Walther National Zoo, Honduras

The project comprised two separate studies conducted at the Rosy Walther National Zoo in Tegucigalpa, Honduras. The zoo housed a group of black-handed spider monkeys (*Ateles geoffroyi*) in an enclosure that lacked environmental complexity. The monkeys were fed in a single designated area on the ground. A range of feeding and physical enrichment was created that aimed to encourage arboreal feeding and natural feeding postures to resemble those of wild conspecifics. Ropes, mobile sleeping platforms and three types of feeding enrichment devices were introduced. The study aimed to investigate the changes in behaviour and enclosure use following the introduction of the enrichment.

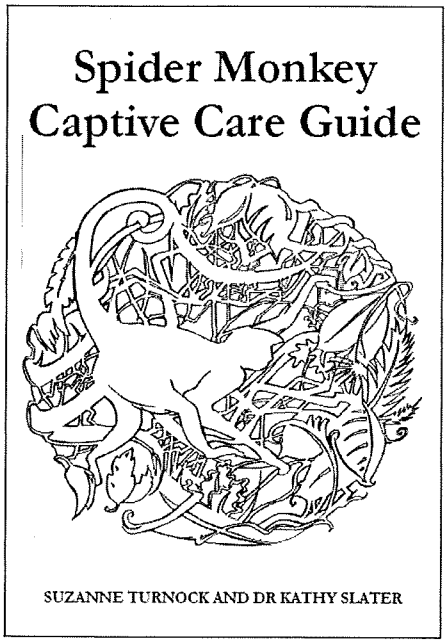


Photograph by Suzanne Turnock

Adult spider monkey engaging in suspensory postures whilst using the feeding enrichment.

The spider monkeys predominantly fed in arboreal areas of the enclosure during the experimental condition. There was also a significant increase in suspensory feeding postures to 12.4% of all foraging behaviour however this is still considerably less than wild spider monkeys as suspensory postures accounts for over 50% of feeding bouts in the wild (Cant, 1986). Spider monkeys can be encouraged to engage in more natural suspensory postures given the appropriate environmental stimuli (Britt, 1998). Due to the short length of the experimental condition it may have not been a sufficient amount of time to see a complete shift to the frequencies of suspensory postures observed in the wild (Kerridge, 2005). Increased exposure and experience with a feeding device can increase the effectiveness of the enrichment (Lloyd *et al.* 2005). The feeding devices were a competitive resource as aggression in the context of feeding increased. Individuals can respond differently to enrichment as some primates show preference for more complex devices (Taylor *et al.*, 1994). Foraging behaviours needed to obtain food

transformed from simple (picking food up off floor) to complex (manipulating enrichment device). Three or four spider monkeys were often observed around one feeding device although food was freely available in other devices. Individuals may have followed conspecifics to a feeding device rather than dispersing to other devices in order to obtain important information about foraging through behavioural contagion (Nicol, 1995). Crowding around clumped food can incite aggression as dominant individuals may attempt to monopolise the food (Chamove *et al.*, 1982). Recommendations were given to the zoo to address this issue.



Front cover of the captive care guide

A captive care guide for spider monkeys was also produced. The aim of this project was to improve the long-term welfare and husbandry standards of spider monkeys in captive facilities (zoos and private collections) in Honduras. This was achieved through two objectives: (i) to produce a captive care guide for spider monkeys (*Ateles* spp.) in collaboration with the animal care personnel at the Rosy Walther National Zoo (ii) to improve the accessibility of captive management information for spider monkeys in Honduras. A focus group was conducted with the animal care personnel during the preparation stage of the captive care guide. The aim was to design a guide from the perspective of the keepers consequently addressing the cultural, economic and social realities in Honduras (IPS, 2007). Furthermore research participants can feel empowered when given the opportunity to work with researchers (Gibbs, 1997). The animal care personnel are part of the target audience for the guide, therefore, involving keepers with the production may increase their interest and motivate individuals to utilise the guide in the future (Primate Research Institute, 2003). The captive care guide was evaluated with questionnaires, which were distributed at the IPS Congress XXII. Final editing decisions were based on the results of the questionnaires. The captive care guide will be translated into Latin American Spanish. A PDF version of the guide will be made available free of charge to all zoos and private collections.

References

Boere, V. (2001) Environmental enrichment for neotropical primates in captivity. *Ciencia Rural* 31 (3), pp. 543-551.

Britt A. (1998) Encouraging natural feeding behaviour in captive-bred black and white ruffed lemurs. *Zoo Biology* 17, pp. 379-392.

Cant, J.G.H. (1986) Locomotion and feeding postures of spider and howling monkeys: field study and evolutionary interpretation. *Folia Primatologica* 46, pp. 1-14.

Chamove, A.S., Anderson, J.R., Morgan-Jones, S.C. and Jones, S.P. (1982) Deep woodchip litter: hygiene, feeding and behavioural enhancement in eight primate species. *International Journal for the Study of Animal Problems*. 3 (4), pp. 308-318.

Gibbs, A. (1997). Focus group research. *Social Research Update* 19, pp. 1-4.

IPS. (2007) *International Guidelines for the Acquisition, Care and Breeding of Nonhuman Primates*. 2nd ed. International Primatological Society.

Kerridge, F.J. (2005) Environmental enrichment to address behavioural differences between wild and captive black and white ruffed lemurs (*Varecia variegata*). *American Journal of Primatology* 66, pp. 71-84.

Lloyd, C.R., Lee, G.H. and Crockett, C.M. (2005) Puzzle-ball foraging by laboratory mon-

keys improves with experience. *Laboratory Primate Newsletter* 44 (1), pp. 1-3.

National Research Council (1998) New World Monkeys: Cebids. In: The *Psychological Well-Being of Nonhuman Primates*. Washington, DC: National Academy Press.

Nicol, C.J. (1995) The social transmission of information and behaviour. *Applied Animal Behaviour Science* 44, pp. 79-98.

Primate Research Institute (2003) Guide for the care and use of laboratory primates. [Online]. Retrieved on 21 August 2008 from www.pri.kyoto-u.ac.jp/index.html

Taylor, R., White, B., Ferguson, S. and Binienda, Z. (1994) The use of foraging devices for environmental enrichment of individually housed monkeys in a laboratory colony. *Laboratory Animal Science* 33, pp. 71-73.

WAZA (2005) *Building a Future for Wildlife: The World Zoo and Aquarium Conservation*

By John Matkin

University Events

Primate Conservation Seminar Series

Each semester in a weekly seminar guest lecturers present talks on topics of relevance to primate conservation. The seminars are open to anyone and take place Mondays from 6pm to 7pm at Oxford Brookes University, Headington Campus in the Lloyd Boardroom.

If you would like to share your research and experiences with us and are interested in becoming a guest speaker please feel free to contact Prof. Simon Bearder at:

Email: skbearder@brookes.ac.uk
Tel : 01865 483760
Fax : 01865 483937

Below is the list of guest lectures from the spring semester 2009:

9 February 2009
Dr Sonya P. Hill, Chester Zoo
Zoo primate welfare: Lessons to be learnt from human cases?
Dr Sonya Hill spoke to us about behavioural disorders in captive gorillas and also about how they can be compared to similar disorders found in humans. She pointed out that these abnormal behaviours are often not taken as seriously as they ought to be. They indicate poor welfare and it is important to recreate activity budgets found in the wild in the captive setting by providing a stimulating environment. Moreover, these behaviours do not give a good message to the zoo visitors, so that they are not likely to be concerned about the conservation of these animals in the wild.

16 February 2009
Dr Jim Groombridge, Durrell Institute of Conservation Ecology, University of Kent
Recent recoveries of island bird populations
Dr Jim Groombridge talked about his research on the Sychelles and the Mauritius kestrel. The Mauritius kestrel has experienced a serious bottleneck due to historical habitat loss and use of DDT. Only an intense recovery program led to the recovery of the population. Similarly, the current level of genetic diversity of the Seychelles kestrel is very low as it did undergo a bottleneck like the Mauritius kestrel. However, the Seychelles population recovered unaided. Therefore, the recovery of bottlenecked populations is demonstrably possible and conservation resources should be invested recovery programs.

23 February 2009
Sian S. Waters, Durham University
Barbary macaques & people in Northern Morocco
Sian S. Waters conducted a survey of the Barbary macaque (*Macaca sylvanus*) in northern Morocco. She found that a majority of the macaques live outside of protected areas. Moreover, man-made water shortage leads to bark stripping of cedar-tree (which is a source of income for the local population) by the macaques. Villagers reported wild and Barbary macaques as crop raiders. Threats to Barbary macaques are trapping by subsistence farmers, persecution by shepherds dogs and habitat degradation by overgrazing by livestock. Education and awareness projects should help to lessen the threats to the Endangered Barbary macaques.

2 March 2009

Dr Stanislav Lhota, University of South Bohemia

Proboscis monkey conservation in Balikpapan Bay – Monkeys vs. City

Dr Stanislav Lhota conducted a survey on proboscis monkeys (*Nasalis larvatus*) in Balikpapan Bay. Mangroves, habitat of this species, grow along the bay. Shrimp ponds, charcoal production, coastal industry, land speculation, sedimentation and a planned coastal road contribute to the decline of this habitat. Moreover, key resources for proboscis monkeys are also found outside the mangroves in dry land forests that are lost to oil palm plantations. What researchers can do is to meet the local people and bring government officials and journalists to the field to expose the problems by showing the contrast between healthy and damaged ecosystems.

9 March 2009

Dr Deborah J. Curtis, University of Roehampton

Chronobiology and Conservation

Dr Deborah Curtis talked about her research on cathemeral lemurs. Temporal programs can vary with the season or the lunar cycle. While in predictable environments temporal programs are fixed (nocturnality or diurnality), in unpredictable environments direct responses to the changes are required (cathemerality). Cathemerality is an important part of the animals' biology and it might be an effective strategy dealing with habitat changes caused by humans; but only if habitat is left. There are also welfare implications associated with cathemerality as zoos usually do not use varying lighting.

16 March 2009

Dr Tessa Smith, University of Chester

Social buffering by the heterosexual partner in primates

Dr Tessa Smith spoke to us about her research on stress in captive marmosets (*Callithrix kuhlii*). Stress leads to elevated cortisol levels that can be detected for example in urine. Through experimental work she demonstrated that marmosets use social behaviour to reduce stress. Close contact with pair-mate down-regulates physical response to novelty. Moreover, the presence of a familiar social partner during relocation modulates the perceived intensity of the stressor. Therefore, social relationships minimize none-biological relevant stress and help maintain physically and mentally healthy animals.

23 March 2009

Adrian A. Barnett, University of Roehampton

Seeds, seasons and survival: the feeding ecology and conservation of the golden-backed uacari monkey in Amazonian flooded forests

Adrian Barnett talked about his research on the uacari, a highly specialized hard-fruit forager. He found that canopy-level and emergent trees are important feeding trees and that besides hard-shelled fruits also flowers, leaves, insect larvae and pith are eaten. Furthermore, the golden-backed uacari needs primary forests for viable populations. A sawmill survey indicated that over 70% of all uacari diet item trees in the Terra Firme are commercially exploited. Therefore, targeted conservation action is needed. For many taxa of pitheciines essential information is still lacking and the Pitheciine Action Group was founded to promote their conservation.

Photograph by Iris Dröscher

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