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Front Cover Illustration
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Letter from the Editors

The time has come for the Spring edition of *Canopy*, the in-house journal of the MSc Primate Conservation at Oxford Brookes University. We invite you to engage in this issue, as many exciting events have occurred over the last few months, and past and present students have prepared some excellent articles demonstrating our continued dedication to primate conservation and public discourse.

We are most proud to share with you our most recent achievement, the 2007 Queen's Anniversary Award (*page 16*). Several students from habitat countries, and our esteemed professors, were invited to Buckingham Palace to receive the award and meet the Queen. In addition to this, we present to you the project titles and countries of research for this year's cohort. Students will be participating in projects all over the world ranging in topic from conservation education to CITES identification training to population censusing, and everything in between (*page 24*). Here we also interview Dr Vincent Nijman, who recently joined the Oxford Brookes Primate Conservation MSc team (*page 28*). Dr Nijman is a brilliant professor and researcher, and we extend a sincere welcome and thank you to him. Included in this article also is a free drawing produced by Shenaz Khimji, which is yours to keep and display.

This second semester we were intrigued by many fantastic guest lecturers that not only lent advice and gave us much to think about, but also encouraged us to continue to fight the conservation battle we face (*page 31*). We sincerely hope that you enjoy this issue and that the information presented here works as a piece of inspiration for you as well. The Primate Conservation MSc team and the editors of this journal thank you very much and promise to continue to work hard to preserve the primates we all love so much!

Cheers,
The Editors

L-R: Megan Shrum, Suzanne Turnock, James Thorn, Corrin La Combe and Michelle Jachimowicz

Letter from the course tutor

This eighth year of the MSc in Primate Conservation at Oxford Brookes University has brought a new and inspiring cohort to Oxford. We welcomed 35 new students from fourteen different countries, four of whom received habitat country scholarships: Panut Hadisiswoyo (Indonesia), Pedro Mendez (Panama), Felix Ndagijimana (Rwanda), and Alex Tumukunde (Uganda). In addition, Rachel Munds (USA) and Josia Razafindramanana (Madagascar) joined us as MPhil students in Primate Conservation. The second semester has been highlighted by visits to the Cotswolds Wildlife Park, the Monkey Sanctuary, and a trip to Apenheul in Holland. We also welcomed for the first time Dominic Hall and his team from Fieldskills Ltd. for a two-day workshop on first aid and safety in the tropical rainforest. The students have also been engaged in an innovative film project, working in cooperative groups to highlight different primate conservation issues.

No event can be matched, however, by the receipt of the Queen's Anniversary Prize for Excellence in Higher Education, formally awarded to the course tutors, the Vice-Chancellor of Oxford Brookes, Dean of the School of Social Sciences and Law and the head of the Department of Anthropology and Geography on the 14th and 15th of February. On the 14th, course staff, including Iris Geens, Dr Kate Hill, Professor Simon Bearder and myself attended a banquet at the Guild Hall in London. This was followed by a reception at Buckingham Palace on the 15th, where Brookes MSc students Panut Hadisiswoyo, Felix Ndagijimana, and Marie Hamard and PhD students (graduates of the MSc) Lilia Bernede and Graham Wallace, along with myself and Professor Bearder, had the great honour of meeting Her Majesty the Queen and His Royal Highness Prince Phillip. The details of the award are described elsewhere in this issue, yet we reiterate again here how honoured we feel to have been selected for this competitive award.

Staff have been busy in regards to their primate-related research this year as well. Amanda Webber and Kate Hill published a new article on human wildlife conflict mitigation in *Oryx*. Corri Waitt's work on macaques appeared in *Primates* and *International Journal of Primatology*. Giuseppe Donati continued to write up his work on lemurs, with articles featured in *Behavioral Ecology and Sociobiology* and *Journal of Anthropological Sciences*. Vincent Nijman published a number of conservation-related papers in *Biodiversity and Conservation*, *Biological Conservation*, *Endangered Species Research* and *Contributions to Zoology*, and a TRAFFIC report on turtle trade in Indonesia. In working towards their transferral to CITES I, Vincent Nijman and I published two papers on slow lorises in *Folia Primatologica* and *Biodiversity and Conservation;* the latter paper also featured the work of MSc alumnus Grace Blackham. I also published work with my former students Brooke Aldrich, Caitlin Eschmann and Sarah Jaffe in three articles in *Contributions to Zoology*.

As this issue is being produced, the students prepare to mobilise themselves around the globe in order to conduct their important primate-conservation related research. You may be seeing this issue of *Canopy* at the IPS, where a number of our students will be presenting their findings. We hope you enjoy reading about the work of this and previous year's students in this issue, and that we may welcome you to Oxford Brookes University in the near future to present a seminar at our Monday night lecture series, to attend this series, or as a student to the course itself.

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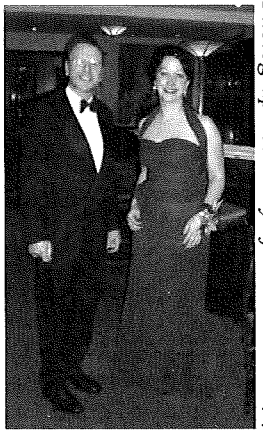
Reader in Biological Anthropology, Course Leader, MSc in Primate Conservation April 2008



Photograph courtesy of Anna Nekaris

"Give Us More Spirit"

by Suzanne Turnock
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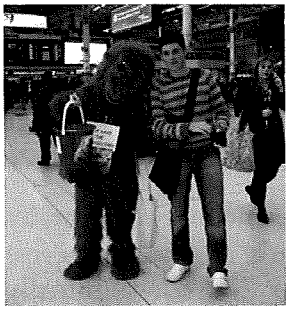
Every year the MSc Primate Conservation programme continues to grow and prosper. Students on the course come from different backgrounds and cultures all over the world, yet we share a similar goal - to preserve and protect primate species in their natural habitats. I believe we are all here to make a difference and to excel in a career of which we can be proud.

Each student brings something special and unique to the course. We all have a variety of valuable experiences to share, whether it is in the wild, captivity, a laboratory or in a classroom. Students from habitat countries especially, have a vast amount of experience, which can encourage and inspire fellow students. Scholarships are available each year to habitat country students, giving them the opportunity to come to Oxford Brookes to study for an MSc in Primate Conservation. This year there are four habitat country students: two from Africa, one from Indonesia and one from Central America.

Panut Hadisiswoyo from Sumatra, Indonesia, received the scholarship and is currently studying on the MSc programme. Panut is the founding director of the Sumatran Orangutan Society - Orangutan Information Centre (SOS-OIC), which was established in 2001. He is dedicated to the long-term conservation of the Sumatran orangutan, *Pongo abelii*, and he stresses the importance of community involvement in conservation projects. He has helped to set up volunteer projects, conservation clubs, university scholarships and community training programmes to encourage Indonesian people to help save their native species. After meeting previous MSc students Panut decided that the masters programme would provide him with an ideal opportunity to further his education and expand his perspectives. Panut will be able to return to Indonesia with the skills and knowledge he develops whilst at Oxford Brookes, therefore making what he believes will be a greater contribution to the current conservation activities in his country.

In the short time that Panut has been in the UK he has already encouraged the current cohort to participate in events to increase the awareness of orangutan conservation in both Oxford and London. He has helped to organise presentations to students, academic staff and the general public as well as street stalls and fundraising events. This has given students the opportunity to be proactive and to pass on our knowledge and concerns for the survival of primates.



Photographs by Corrin La Combe

MSc student, Corrin La Combe, fundraising for the Sumatran Orangutan Society

"One of the most important things that this programme has taught me is primate conservation can only be effective if we work together; locally, nationally and internationally, and share our ideas, skills, knowledge and strengths. We have to put aside our differences, egos and arrogance, for these can only hinder our chances of success. We all share a goal, which can sometimes feel hard to achieve. By working together we can encourage, support and inspire each other to reach that goal. Working together can *give us more spirit*"- Panut Hadisiswoyo.

For more information about SOS-OIC contact Panut at panut_hadisiswoyo@yahoo.com or visit www.orangutancentre.org or www.orangutans-sos.org

Tricks are for Magicians

by Rebecca M. Bearman
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The words "animal training" continue to bring to mind negative images of lion tamers with whips, and chimpanzee tea parties. Today, however, animal training is used in constructive ways that increase the welfare of animals living in captive environments. No longer are animals forced to cooperate through coercion and fear, as was once common practice with performing animals. Today, training involves the cooperation of both animal and trainer working together towards a goal that will benefit both.

Photograph by Rebecca Bearman

Kinkajou learning a recall at Six Flags Wild Safari in Jackson, New Jersey

Operant conditioning has been studied in the laboratory since the mid 20th century. Researchers such as B.F. Skinner, Ivan Pavlov, and C.B. Frestner all played an early role in demonstrating how humans can manipulate the behaviour of animals through operant conditioning and positive reinforcement training (PRT) (Skinner, 1959; Frestner, 1975; Gray, 1979; Nye 1979). It was not until 1965 that Bob Baily used operant conditioning to manage the behaviour of animals in captivity in a truly innovative way. Mr Baily began the US Naval dolphin training programme and utilised operant conditioning to train bottlenose dolphins to assist naval officers at sea. He also trained courier pigeons to relay massages in times of war. Once Mr Baily proved the reliability and ease of using PRT to manage captive dolphins, the principles were adopted by marine mammal exhibitors such as Sea World and Miami Seaquarium (Baily, Pers. Comm. Jan 2007).

While marine parks were using operant conditioning to train animals for public display, laboratories were using the same methods to ease research that required live primate participation. Using PRT, primates were trained to shift from cage to cage, extend an arm for frequent blood draws or urinate on cue (Levison *et al.,* 1964; Rhienhart *et al.*, 1995; Laule *et al.*, 1996; Laule *et al.*, 2003). More recently, zoos housing land animals have begun to use operant conditioning as a means of behavioural management and enrichment (Laule and Whittaker, 2007; pers. obs.). Most zoos began to train only elephants, but today many zoos use positive reinforcement to train a wide variety of animals in their charge, including primates.

Training brings many benefits to routine husbandry procedures, as described above. Animals can be trained to enter a kennel for anesthesia, rather than be darted with a tranquilizer. They can learn to walk onto a scale for weekly body weight monitoring, which can tell much about their health status, and be trained to allow for blood draws so blood sugar levels can be non-invasively monitored in animals with diabetes. They can also learn to sit still and present all parts of their body for visual inspection. Additionally, training can be used to increase the activity level of animals by training behaviours that require large amounts of energy. Training can assist in cognitive and health research as well as act as a great source of psychological enrichment. An animal must think in order to learn and perform appropriate behaviours, and this will decrease boredom. Due to widespread uses of PRT, care-givers are able to practice preventative medicine, which increases the well-being and life span of animals in their care (Mellen and Ellis, 1997; Colahan and Breder, 2003;

Swaisgood, 2007). Any behaviour an animal is physically capable of performing can be trained with a little bit of creativity and some patience. Happy Training!

Following are a list of suggested sources for anyone who would like to learn more about the training process or how to start a training programme at their facility.

Books:

Whale Done! The Power of Positive Relationships by Kenneth Blanchard, Thad Lacinak, Chuck Tompkins, Jim Ballard of Sea World and Busch Gardens, USA (2002)
Don't Shoot the Dog by Karen Pryor (1999)
Animal Training: Successful Animal Management Through Positive Reinforcement by Ken Ramirez (1999)

Websites:

www.clickertraining.com (Karen Pryor's website)
www.animaltraining.org (Disney's Animal Kingdom)
www.theabma.org (The animal behaviour management alliance)
www.animalbehavior.org

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Notes on a visit to West African National Parks

by Richard Moore
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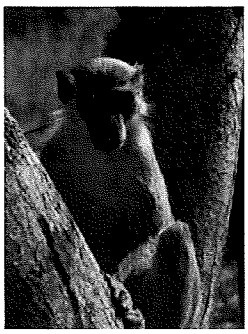
The flickering light from the early morning sun, which had started to penetrate the canopy layer above, caused me to regain an awareness of my surroundings. I hadn't been sleeping as such, just lulled into a comatose state from the incessant bumping and rocking back-and-forth, hour after hour. We were packed in like sardines, all eleven of us, severely cramped and now numb from the pain. The heavily overloaded Peugeot bush taxi navigated its way through the snaking uneven dusty tracks of the Guinea rainforest, dodging the often crater-sized pot holes. I sat

listening to the lively African conversation of my fellow travelers and attempted to guess the topics being discussed. The numerous languages I had come across since arriving in Africa a few weeks previously, were too confusing to keep up with and so I was forced to sit and listen in relative ignorance. It had been 17 hours since we had left Guinea-Bissau and there were still another 10 hours to go to our destination, adding to my amazing African adventure. "This is *Africa.*"

My traveling companion, Nick, and I were heading towards *Mount Nimba Nature Reserve*, in the southeast corner of Guinea to get a glimpse of the chimpanzees living in the forests surrounding Bossou Village. Our overland route from England had started back in December 2007, and on arrival in West Africa we had visited a number of other National Parks including *Niokolo-koba* and *Parc National de la Langue de Barbarie* in Senegal and *Kiang West* and *River Gambia* in The Gambia. Although we hadn't specifically embarked on this trip solely to observe primates, it was definitely a factor that had influenced our choice of route.



Photograph by Richard Moore

Green Monkey at Niokolo-koba

Each national park we entered was uniquely different in flora, fauna and topography depending on its location, altitude and climate. In all of the parks visited we observed a high percentage of the animals and birds noted as being present in the guide books and brochures, effectively justifying the relatively high entrance fees. Primates in Senegal and Gambia include the Guinea baboon *(Papio papio),* green monkey *(Cercopithecus aethiops sabaeus)*, patas monkey *(Erythrocebus patas)* and bay colobus *(Colobus badius temmincki).* In Guinea, the Guinea baboon, green monkey and chimpanzees *(Pan troglodytes)* were observed.

Photograph by Richard Moore

***Pirogue* on the Gambia River**

Mode of travel within the parks depended on the general terrain. For example, the rough dry-forest landscape of Niokolo-koba meant four-wheel drives were necessary for expeditions into the park, whereas the mangrove swamps of Kiang West could only be accessed by *pirogue* or other such small boats. This made travel in each park a distinct and interesting experience in itself.

All the parks, in my opinion, were generally well set up for tourism, with knowledgeable guides, interesting programmes and reasonable facilities, although the access to and from them was not always easy. The majority of other foreigners encountered within the parks, however, were from organised package tours. This was somewhat surprising, as we expected to see many more back-packers and single travellers on the way, like ourselves. In terms of economic benefit, however, the large organised groups of tourists clearly provide much needed income for the parks.

It was evident from the large hotels situated in or near the parks, together with the touting tour guides and numerous restaurants, that some people were capitalising on the tourism created by the parks. It was also apparent, however, that many local people were not benefiting equally, judging by the conditions in which they were living. A couple of smaller tour operators mentioned in conversation that it was impossible to

compete with the larger companies and that they foresaw an uncertain future. In addition, a local guide for 15 years who lived just outside the Niokolo-koba Park informed me that in the last few years the visitors who come to the park already have pre-arranged guides through larger tour companies, and therefore rarely require his services. Whilst this evidence is anecdotal, it appears to suggest that a sustainable eco-tourism benefiting local communities has yet to be implemented in this area.

The parks appear to be offering the wildlife much needed protection from poachers and destruction of habitat. In some parks security measures are very conspicuous, with entrance gates, high fences and many wardens. In others a general respect for the park philosophy pervades. Nevertheless there were still some possible areas of concern regarding planning and management. In the case of Niokolo-koba, the owner of the Simenti Hotel, situated within the park itself informed me of the displacement of many people who were living in the now protected area when the park was established. Without farming to maintain the vegetation balance, the landscape has reverted often to scrub with many invasive species. According to our guide, another suspected problem created by the upheaval is that the people now living on the outskirts of the park are thought to act as guides into the park for poachers, in order to supplement their meagre income.

The long and arduous journey took us from Guinea-Bissau through the interior of Guinea to its border with Liberia and The Ivory Coast. Here the forests surrounding Bossou Village, in the Mount Nimba Nature Reserve, where Japanese primatologists have been studying a troop of chimpanzees for over 30 years, also attracts a reasonable amount of tourists. People are drawn to the prospect of seeing wild chimpanzees, which have been habituated to humans through the prolonged presence of the researchers. No fee is required to enter the reserve as such, just a small donation that helps towards the upkeep of the station and the conservation efforts. The Japanese researchers are in fact currently working on a programme to provide a forest corridor which will enable migration between the Bossou chimpanzees, which have become isolated in recent years, with the wider ranging chimpanzee communities of the Nimba mountain forests.

Photograph by Richard Moore

Chimpanzee at Mount Nimba Nature Reserve

Unfortunately, it appears that Mount Nimba Reserve has its own problems. French scientists measuring biodiversity on the mountain informed me of plans by the Guinea government to mine the site for iron ore, which would certainly result in much forest clearance. They are trying to raise awareness of the high biodiversity found in the region, and convince the government of the potential economic benefits that eco-tourism could bring. The struggle continues.

In general, my African experience of primate conservation has parallels with other countries I have visited and other projects I have researched, namely that much eco-tourism income derives from, and most likely goes directly to, the larger tourist operators and/or governments. Ideally, greater distribution of this income to the people living in the vicinity of the parks and reserves is necessary. Strategies which involve and provide jobs for the local people would help to encourage them to participate in and gain from the various conservation initiatives, thus benefiting the local communities, the wider economy and the wildlife together as one.

Living Fences: a farmer's strategy that keeps the Azuero primates surviving in fragmented habitats

by Pedro G. Méndez-Carvajal
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Photograph by Ivelisse Ruiz-Bernard

Azuero Howler Monkey (*Alouatta coibensis trabeata*) A male traveling between living fences in Las Tablas, Los Santos, Panama.

The Azuero Peninsula, southwest Panama, is a biodiversity hotspot which incorporates a number of protected zones. It is one of the oldest regions of Panama and served as an early connector between North and South America (Cortes-Ortiz, et al. 2003). The shape of the land has been influenced gradually by volcanic activity, and by climatic changes due to the proximity to the sea on both sites of the peninsula (Suárez 1981). Two endemic primate species are found on the peninsula: the Azuero howler monkey (*Alouatta coibensis trabeata*) and the Azuero spider monkey (*Ateles geffroyi azuerensis*), both sharing their habitat with the capuchin monkey (*Cebus capucinus imitator*) (Méndez-Carvajal et al. 2004). Surrounding the forest habitat is land used for agriculture and cattle ranching, with an ever expanding human population. The flat lands have been utilized since pre-Columbian times by indigenous people to cultivate crops (Torres de Araúz, 1980; Heackadon-Moreno 2001). With the colonization by the Spanish came high levels of deforestation in order to clear land for cattle ranches and commercial agriculture (Heckadon-Moreno 2001).

The indigenous people and Spanish colonizers shared a number of techniques to improve their knowledge of native fauna and flora, natural medicines and protein resources. This interaction with the environment improved the lifestyles of the Azuerenese (people native to the Azuero Peninsula), who are known today as exceptional hunters, farmers and cowboys. Traditional farming practices involve conserving native forest patches or "Chapas", which serve as a resource for medicines, fruits and firewood, and also natural fencing which is used to delimit their own land (Brandaris 1983). These "Living Fences" consist of specific trees that the "campesino" need to support their quotidian life, such as strong wood for construction, fruits, and resting sites for cattle (Reyes 2001). Furthermore, the living fences have created effective corridors for wild species to disperse between the "Chapas of forest".

Living fences connect private land with gallery forest, National Parks and Forest Reserves on the Azuero Peninsula. This creates a highly effective system for wildlife dispersal in deforested areas that would otherwise be impassable by terrestrial species. Due to the ability of howler monkeys to survive in secondary and regenerative forest, *A.*

c. trabeata still remains in some villages in the northern part of the peninsula, the Herrera Province (Méndez-Carvajal 2005). The living fences have been effective habitat resources for *A. g. azuerensis* and *C. capucinus*, which are able to cross between forest patches and have also survived in private lands in the eastern part of Las Tablas and the western part of Quebro (Méndez-Carvajal and Ruiz-Bernard, in press). Species also benefit from resources provided by the living fences themselves. Personal observations of *A. c. trabeata* show that in some cases individuals not only travel between patches of forest using the living fences, but also spend a considerable time in the trees resting, eating or in social interaction.

Tree species that both farmers and monkeys benefit from include *Spondias mombin* (Jobo), used by farmers for wood fire and carving material, and by monkeys for their fruits (Terborgh 1983, Oppenheimer 1992, Milton 1992 and 1998); *Enterolobium cyclocarpum* (Corotú), used by farmers, cattle and monkeys for shelter and rest; *Cecropia spp.* (Guarúmo), used by farmers as pipes to irrigate water, and by monkeys for their flowers and leaves; *Bursera simaruba* (Cholo pelao), the bark of which is used by local people as a cure for renal diseases, but monkeys eat their flowers and leaves, and also use the branches as support; and *Ficus yoponensis* (Higuerón), used as a home made glue, but by monkeys for their fruits and leaves.

New studies continue in these fragmented zones to understand better the influence living fences have as a modified habitat for the primate population of the Azuero peninsula. The region has lost approximately 81% of its forest to cattle ranching, agriculture, and an expanding human population (Gonzalez 2002). Deforestation continues as a result of increasing tourism, and investment in resorts and private beaches. A growing population is putting pressure on rural villages with the expansion of urban areas, and as a consequence is impacting on more forested areas.

Photograph by Ivelisse Ruiz-Bernard

Growing living fences, El Toro, Azuero Peninsula, Panama.

It is hoped that the traditional practice of living fences will not be affected by the rapid changes in land use within an already fragmented landscape. As a minimum, living fences will at least allow the continued dispersal of monkeys between their protected forest patches. Living fences cannot replace intact forest, but in a highly deforested region they have proven to be effective in the conservation, survival, and maintenance of genetic diversity of primates and other local fauna.

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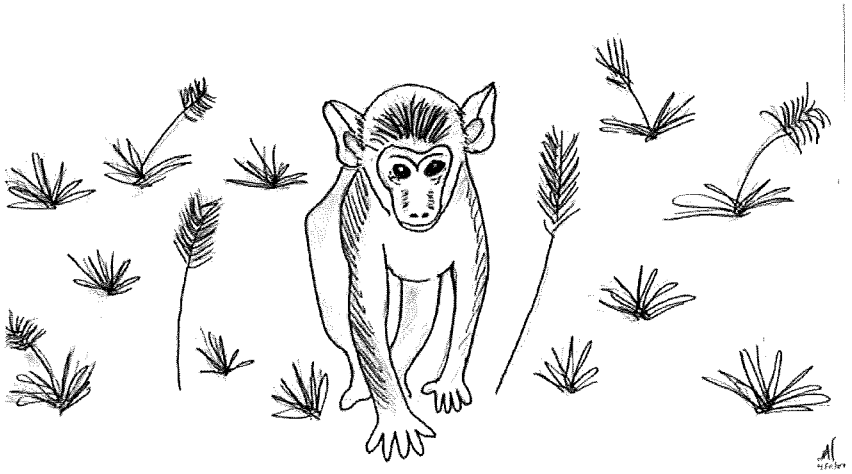

Young baboon by Michelle Jachimowicz

Developing entrepreneurial conservation solutions: the Lebialem Hunters' Beekeeping Initiative

by Juliet Wright
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The sheer number of individuals involved in commercial hunting across western and central Africa has transformed wildlife into a finite resource. Large-scale hunting is not only having detrimental effects on wildlife populations; as wildlife stocks deplete, hunters in some areas are struggling to return with adequate catches to support their families financially, leading to increased poverty and hardship.

Whilst studying for my MSc in Primate Conservation at Oxford Brookes, I conducted research in the Lebialem Highlands of Cameroon to gain a greater understanding of the hunters' perspective on what has become known as the 'bushmeat crisis' (Wright, 2007; Wright & Priston 2008). During my three month research period, I interviewed 90 bushmeat harvesters and conducted participatory appraisal sessions in six rural communities. My research found that bushmeat was predominantly of economic rather than nutritional importance in this area. I concluded that the development of alternative income generating activities should be given priority and beekeeping was identified as a feasible and culturally acceptable option.

What has evolved out of this research is a locally-led, multi-stakeholder partnership with the following aims: 1) train prominent hunters in beekeeping and supply them with equipment and technical support; 2) establish a beekeepers cooperative to form an organised network of producers, processors and distributors that can collectively market honey and beeswax products to obtain a fair price, thus eventually creating a self-financing initiative; 3) implement a complementary education programme to explain to communities why emphasis is being placed on reducing reliance on bushmeat and why the harvesting of vulnerable species is being discouraged; and 4) assess how effective beekeeping can be used as a bushmeat mitigation strategy through continuous monitoring and evaluation.

Photograph by Forlefac Dominic

Family and friends turned out in support during the first workshop held on the 10th December 2007

I have worked collaboratively with two Cameroonian organisations, the Environment and Rural Development Foundation (ERuDeF) and Menji Beekeeping and Environmental Education Consortium (MEBEEC), to develop the Lebialem Hunters' Beekeeping Initiative. The pilot phase of the project was initiated in November 2007 when two hunters from the community of Menji began six months of training. The partnership base has now increased to incorporate a number of international organisations, including Bees Abroad UK and the Great Apes Film Initiative (GAFI), which are each bringing specific elements to the project.

Following the completion of a business plan and economic review, and once start-up funds have been secured, the full project is due to be launched towards the end of 2008.

There are still many conservation challenges to overcome because the bushmeat trade generates vast amounts of money for impoverished communities with few economic alternatives. If the scale of this unsustainable trade is to be diminished we cannot rely on legislation and education alone. It is becoming ever more crucial to think outside the conservation box, don a business jacket and make market forces benefit rather than jeopardise the environment. Establishing profitable yet sustainable trades move conservation away from grant dependency towards financial self-sustainability. Encouraging and facilitating trade in an ecologically sensitive product like honey, which has strong market potential both nationally, and in the future internationally, should reduce rural dependence on bushmeat and foster a positive attitude towards conservation due to the associated poverty alleviation benefits. The goodwill of communities is not enough when this is being undermined by economics; more initiatives such as this need to be developed to provide communities with financially viable alternatives.

For further information about the Lebialem Hunters' Beekeeping Initiative and how you could become involved please visit www.bee4bushmeat.org

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Calling Patterns of Western purple-faced leaf monkeys (*Trachypithecus vetulus nestor*) in Sri Lanka's Wet Zone

by Caitlin Eschmann
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Sri Lanka, an island lying off the southern tip of India, is ranked as one of the hottest biodiversity hotspots in the world. Much of the island's biodiversity is concentrated in the Wet Zone, which comprises only 23% of the total land area. The current trend in human population growth has led to forest loss and fragmentation, which poses a great threat to wildlife.

Among the species affected by forest fragmentation in Sri Lanka are the purple-faced leaf monkeys, as they are arboreal and folivorous. Currently, only two small and fragmented areas in which the Western purple-faced leaf monkey (*Trachypithecus vetulus nestor*) is found are protected in Sri Lanka; the monkeys have therefore been forced to range in suburban home gardens. As a result, purple-faced leaf monkeys are in direct conflict with humans, with whom they are now forced to share their land. A population decline of nearly 80% is expected within three generations. This has led the Western purple-faced leaf monkey to be classified as Critically Endangered under the IUCN's Red List, as well as one of the top 25 Most Endangered Primates.

As part of my Masters project, I decided to focus on the vocalizations of Western purple-faced leaf monkeys. For six weeks I followed six different troops, attempting to record loud calls. Adult male purple-faced leaf monkeys, which are among the most vocal of all age classes and sexes, are known to give characteristic loud 'whoop' calls. Morning whoop calls are given by males before or shortly after sunrise and function to alert neighbors of group presence. In comparison, whoop calls later in the day aid in territory defense and are often accompanied by intense locomotive displays.

The analysis of the loud calls revealed a common structure between all of the males. All calls contained harsh barks, whoop units and residual units. The length of the calls, the number of phrases and the length of the phrases were calculated. In addition, measurements were taken from the maximum frequency, the fundamental frequency and the formant frequency. A preliminary comparison of these call parameters to those of the three other acknowledged races of purple-faced leaf monkeys (*T. v. vetulus*, *T. v. philbricki* and *T. v. monticola*) suggests that vocalizations can be used as a means of subspecies identification. This is of great importance as it will provide an alternative means to non-invasively determining the existence of the postulated fifth subspecies, *T. v. harti*.

In addition, factors such as call times, weather conditions, reasons for calling and number of calls per day were recorded. As to be expected, morning loud calls were extremely common. What was unexpected was the relatively few numbers of loud calls heard in the evening. This may be the result of living in such a highly disturbed and human-modified environment. By comparing these factors between different subspecies as well as troops ranging in areas of different degrees of forest fragmentation and human population levels, it may be possible to assess the impacts and the potential threat that human activity is having on purple-faced leaf monkeys.

In the future, research needs to focus on the conservation of *T. v. nestor*, as well as the other subspecies. Vocalization analysis can be used as a non-invasive tool that requires minimum habituation of monkeys to researchers. Once the call parameters of each subspecies have been defined, it may finally be possible to determine whether the postulated fifth subspecies actually exists.

Vocalizations can also be used to determine the effects of deforestation on the monkeys. Additionally, both the degree of behavioural change associated with living in an urban environment, as well as what this change means for *T. v. nestor* must be assessed. If current trends in urbanisation and deforestation continue, Western purple-faced leaf monkeys will have no environment to live in and will most likely become extinct in the wild.

Queen's Anniversary Award

On February 14 2008, representatives from Oxford Brookes University and the MSc Primate Conservation programme were invited to Buckingham Palace to receive the Queen's Anniversary Prize Award for Higher and Further Education from her Majesty the Queen.

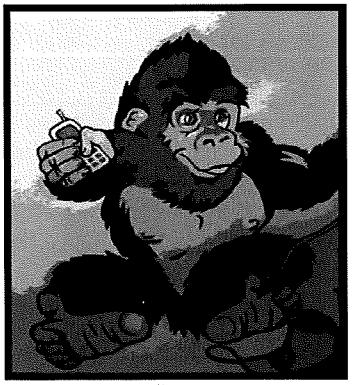
"It was an amazing experience and I was honoured to represent the course"
-Marie Hammond

The staff and students of the MSc course were invited to have tea with Vice Chancellor Janet Beer to celebrate the Queen's Anniversary Prize Award.

"It was a beautiful day and a wonderful personal experience. It was great to see such support for the course. "
- Felix Ndagijimana

Assessing Awareness in 11-14 Year Old Students: Orang-utans in Your Shopping Cart and Gorillas in your Cellular Phone.

Lily Dietz
ldmonkeys@hotmail.com



Picture provided by Lily Dietz

For my thesis project at Oxford Brookes University, Key Stage 3 students between the ages of 11 and 14 from the United States and United Kingdom were given a pre-questionnaire to assess sample areas of their conservation awareness, and introduced to a PowerPoint presentation covering these areas. Finally a post-questionnaire was given to the students several weeks later to evaluate any change in their knowledge and attitudes. Topics that were discussed throughout the PowerPoint presentation involved the rainforest in general, the effect of palm oil plantations on the habitat of orang-utans and the effects of mining coltan on gorillas. The workshop concluded with suggestions regarding conservation that the students would be able to apply to their daily lives.

This project focused on evaluating and increasing students' knowledge concerning Asian and African primate habitats utilizing orang-utans and gorillas as representative or flagship species. The results may provide a baseline for developing and improving environmental education programmes. The current workshop used a global approach with exotic flagship species to expand the students' perceptions beyond their own back yard. This study took the familiar faces of the orang-utan and gorilla, perhaps only thought of in the context of a zoo, and placed them in the real world and demonstrated the dangers they face.

Threats to orang-utans and gorillas originate from different sources, but the negative effects are similar. Both species face habitat destruction and restriction and are targets of the bushmeat trade and illegal pet trade. The only hope these species, as well as countless others, have is if enough concerned individuals take action. By providing knowledge of the environmental issues affecting these species, hopefully students will think more carefully about consumer choices in general and the impact these choices have on animals and the environment.

The results of this study show that the students' initial general knowledge concerning conservation issues was poor, as evidenced by their pre-questionnaire scores. The knowledge level and topic interest increased as a result of the presentation. When students from the United Kingdom and the United States were asked more specific questions in the post-questionnaire, such as what factors are destroying the rainforest, they correctly responded with deforestation, palm oil plantations, and mining. By incorporating information about flagship species throughout the presentation and explaining the detrimental effects palm oil and coltan are having on their habitat, the students seemed to understand the message.

Through completion of this project, educators may benefit from the assessment of environmental and conservation issues, may make inferences about the areas that require more attention, and have a new tool that can be adapted and expanded to add to their educational arsenal.

This project was funded by the widening participation fund of Oxford Brookes.

Determining Geographic Origins of Captive Chimpanzees from mtDNA Sequences.

by Innocent Mulenga
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Chimpanzees, *Pan troglodytes*, have a broad geographical distribution and occupy a wide range of habitats in tropical Africa (Tutin *et al.*, 2001). Chimpanzees are currently threatened due to various anthropogenic activities such as deforestation, hunting, habitat fragmentation and conversion (Di Fiore, 2003). This has resulted in overcrowded primate sanctuaries and rehabilitation centres across Africa. Identifying the regions where chimpanzees were captured and their geographic origins can help governments direct conservation efforts and law enforcement activities (Goldberg, 1997). Furthermore, it could aid in the development of management strategies. For example, assembling individuals of the same subspecies can reduce the potential for inbreeding, which may be costly to small captive populations. The aim of this study was to assign subspecies identities and geographic origins to individuals of unknown provenance by comparing their mitochondrial DNA sequences with those on GenBank (Goldberg, 1997; Wise *et al.*, 1997; Ely *et al.*, 2005)

The study was conducted at Chimfunshi Wildlife Orphanage Trust in Zambia. The sanctuary houses 70 chimpanzees from diverse, yet unknown, geographic origins. Fecal samples were collected (Nsubuga *et al.*, 2004) and DNA extracted. The DNA region chosen for the study was a hypervariable segment (HVR-1) of the mitochondrial control region, also known as d–loop (Kocher and Wilson, 1991). The HVR-1 has been used successfully to classify chimpanzees into subspecies as it mutates in 'ecological time' (Morin *et al.*, 1992) providing phylogeographically informative nucleotide sites (Gagneux *et al.*, 1999; Kocher and Wilson, 1991; Morin *et al.*, 1994). A polymerase chain reaction (PCR) was used to amplify the region of interest within the mitochondrial DNA (mtDNA). DNA fragments were run through the gel to determine band intensity. The PCR products were then purified and sent for sequencing. The generated sequences were aligned with other published sequences available on GenBank, and Phylogenetic trees (Neighbour Joining and Maximum Parsimony) were reconstructed using Mega 4.

The majority of sequences (85%) clustered with sequences from Eastern chimpanzees, distantly followed by West African chimpanzees (10%), and a single Central African chimpanzee (5%). There appears to be a profound bias towards *P. t. schweinfurthii* individuals from central and east Africa. Different subgroups in this subspecies suggest that these chimpanzees did not originate from any single localised area but from widely dispersed locations within the range of *P.*

t. schweinfurthii. However, their geographic origins could not be localised further. Within this population is another 'subspecies' of giant chimpanzee known as 'Bili chimps'. Their geographic origin is Bili town near Bondo in Democratic Republic of Congo. Morphological features (e.g. super sized bodies) of these chimpanzees clearly point to a distinct subspecies. However, more genetic studies need to be done on 'Bili chimps' to determine how distinct they are from other subspecies.

Photograph by D/ Lisensky

Hans and Bili both aged 6. Bili is named after a town from where he was confiscated.

The breeding and group housing of distantly related individuals at Chimfunshi have raised a lot of concern among both scientific and sanctuary communities. Given the limited space in sanctuaries and other protected areas, there is a need to recognise genetic differences among captive chimpanzees. A lack of informed judgment regarding the significance of chimpanzee subspecies in small captive populations could ultimately produce an adverse outcome for chimpanzee conservation efforts.

Suggestions for Further Study

Possibilities for future research include:

1) Inferring subspecies identities and geographic origins to the remaining founder members. This will form the basis for other genetic studies (2 and 3 below).
2) Assigning paternities to all captive born individuals. This study will help management in resolving the issue of suspected hybrids among the current population.
3) Investigating whether there are any signs of inbreeding resulting from mating between mothers and sons or maternally related siblings.
4) Investigating how far apart the 'Bili chimpanzees' might be from other four subspecies.

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Ecological niche modelling as a technique for assessing threats and setting conservation priorities for Asian slow lorises (*Nycticebus* spp.)

by James Thorn
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Knowledge of geographic ranges are of paramount importance when defining the conservation status of a species, and in evaluating current levels of threat and protection. Applying ecological niche modelling (ENM) can provide insights into a species' potential distribution when sufficient survey data do not exist. This technique can aid in conservation planning by highlighting unknown populations, suitable sites for reintroduction, key areas for fieldwork, and in improving assessment of risk status.

This study focussed on modelling the distribution of three threatened species of slow loris (*Nycticebus*) on Borneo (*N. menagensis*), Java (*N. javanicus*), and Sumatra (*N. coucang*) using Maximum Entropy (MaxEnt) ENM software (Phillips *et al.*, 2006). The MaxEnt predictions were then used to carry out an anthropogenic-risk assessment, by pinpointing distributional regions that are undergoing varying levels of human-induced threat. Finally, results of the anthropogenic-risk assessment were used to identify key areas for priority fieldwork, reintroduction sites, and extensions of the PA network.

MaxEnt ENM software generates probabilities of species occurrence across the entire study region based on presence-only data, and the environmental conditions in areas where the species have been observed. Presence-only distribution modelling is highly suitable for slow lorises, due to their cryptic nature, low encounter rates in the wild, and current lack of data on precise geographic ranges.

Nycticebus spp. were previously classed as non-threatened based on their presumed presence within all protected areas, but are currently classified as either Vulnerable or Endangered (IUCN, 2006). Recent studies show greater taxonomic diversity and variable ecology (Nekaris & Jaffe, 2007), and several factors require a more quantitative analysis of their distribution. In addition to habitat loss

plaguing all wildlife in southeast Asia, *Nycticebus* in particular is threatened by harvesting for the illegal wildlife trade (Nekaris & Bearder, 2007), even resulting in elevation to Appendix I of CITES (Nekaris & Nijman, 2007a). It is essential that organisations involved in the conservation of *Nycticebus* are able to identify suitable sites for reintroduction of individuals confiscated from the illegal wildlife trade (Schulze & Groves, 2004), as well as prioritise protected area extensions and study sites. ENM can play a pivotal role in achieving this.

Observed locality data for the three study species were entered in to MaxEnt along with 20 environmental variables comprising temperature, precipitation and elevation (Worldclim). The resulting predicted distributions were projected into ESRI ArcGIS 9.2 and clipped to the most up to date layer of forest cover (GLC2000) and altitudinal limits of the species, to generate remnant distributions (Fig. 1). In order to carry out the anthropogenic-risk assessment, size of habitat patches along with proximity to populated areas, roads, agriculture and protected areas were used as criteria in ranking areas as Low, Medium or High Risk.

All distribution models for *Nycticebus* were significantly validated using a jackknife validation method (Pearson *et al.*, 2007). This confirmed the findings of previous studies that MaxEnt is capable of predicting accurately areas of high habitat suitability from low sample sizes. *Nycticebus javanicus* was found to be significantly more vulnerable to anthropogenic activity, with *N. menagensis* least vulnerable. The risk assessment identified potential for a number of protected area extensions for all three species. Furthermore, foundations have been laid for planning field studies in areas of low anthropogenic risk that will potentially support viable populations of *Nycticebus*.

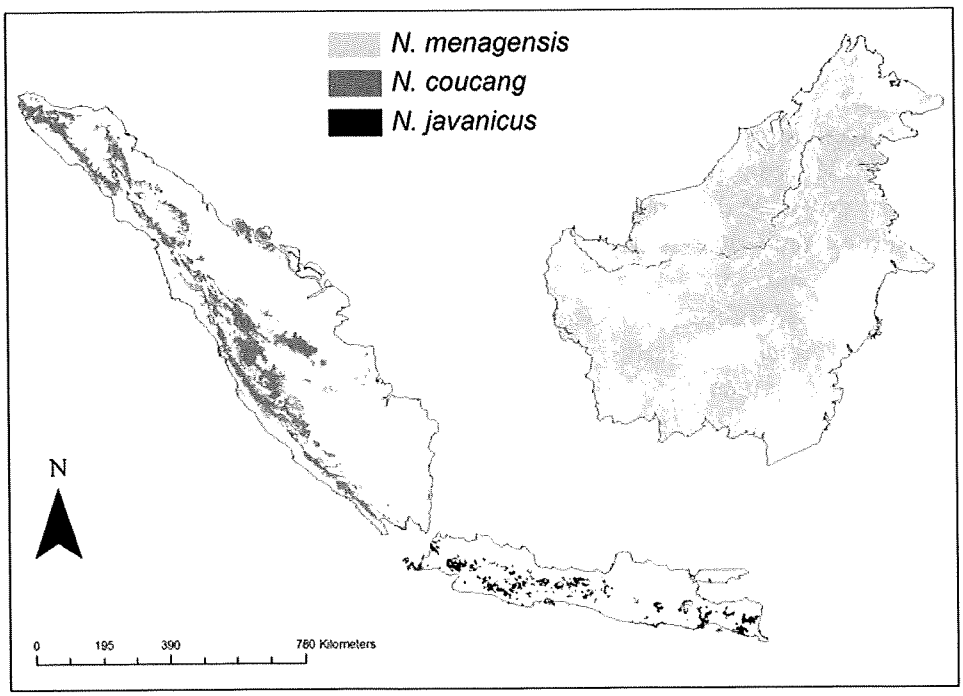

Figure 1. Map of Borneo, Sumatra, and Java showing the remnant distribution of *N. javanicus* (Java; black), *N. coucang* (Sumatra; dark grey) and *N. menagensis* (Borneo; light grey). The remnant distributions represent the MaxEnt predictions clipped to altitudinal limits and remaining forest cover.

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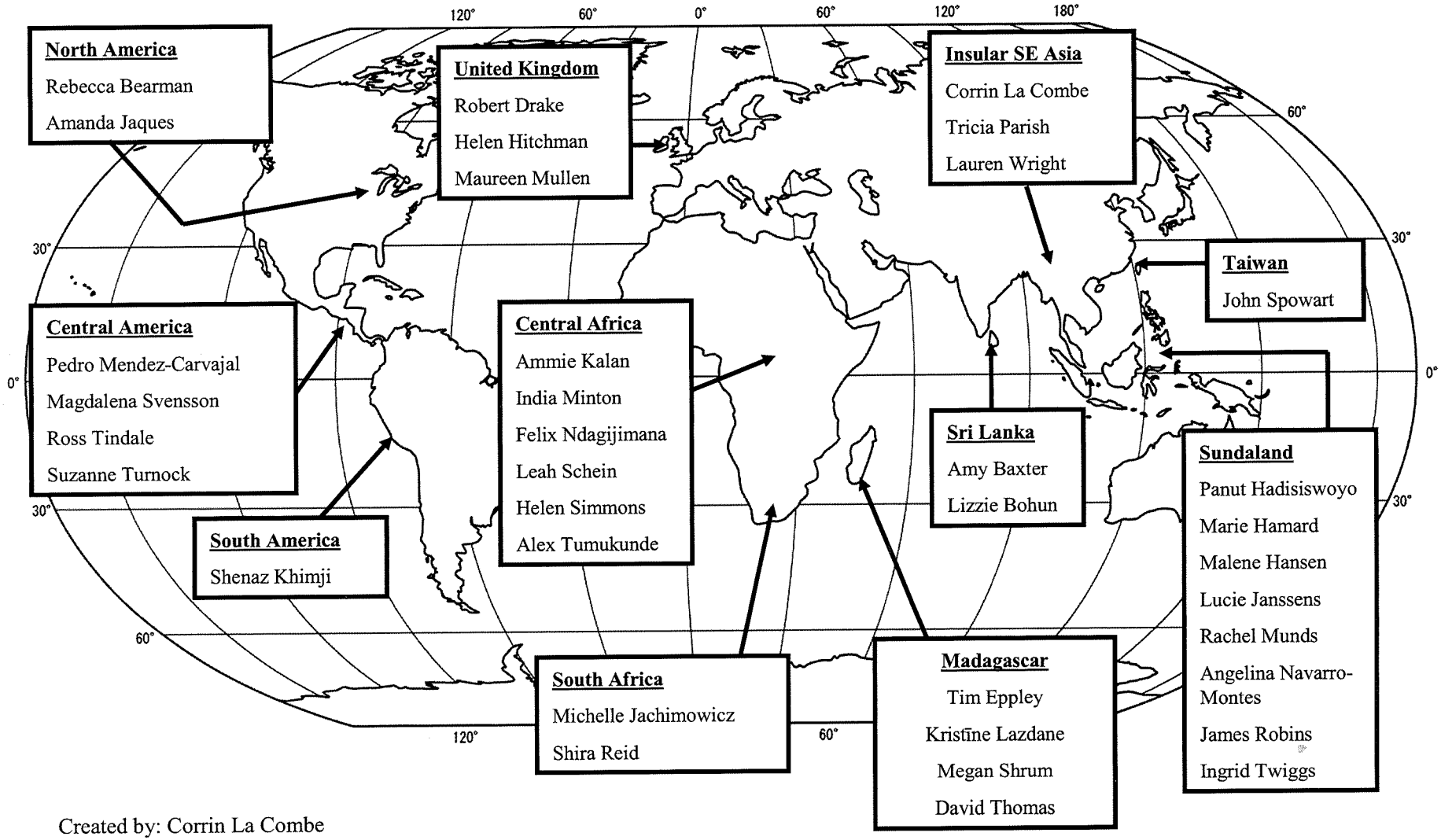
This project was funded by The Systematics Association and Linnean Society of London Research Fund.

Mongoose lemur logo by Bevan Clark and Megan Shrum

Research Locations for MSc Primate Conservation '07-'08 Cohort



Created by: Corrin La Combe

2007 – 2008 Cohort Dissertation Titles

by Corrin La Combe

Student Name	Country	Dissertation Title
Amy Baxter	Sri Lanka	Investigation into taxonomic status of *T. vetulus* subspecies using vocalizations.
Rebecca Bearman	USA	Behaviour and welfare implications of utilizing positive reinforcement training to manage socially housed anubis baboons (*Papio anubis*).
Lizzie Bohun	Sri Lanka	Influence of habitat variables on *T. vetulus* abundance and vocalizations.
Robert Francis Drake	UK	Does the use of prematurely weaned primates for research make for bad science?
Timothy Michael Eppley	Southeastern Madagascar	Feeding ecology of the Southern gentle lemur (*Hapalemur meridionalis*) in the Mandena Littoral Forest.
Panut Hadisiswoyo	Indonesia	Farmers and orang-utan: Perception study of human-orang-utan conflict in 15 villages.
Marie Claire Hamard	Borneo	Gibbon density in the Sabangau National Park in relation to habitat disturbance.
Malene Friis Hansen	Java	Assessment of an environmental education programme as a tool for mitigating the primate trade.
Helen Mary Hitchman	UK	The effect of walk-through lemur exhibit on lemur behaviour and visitor behaviour.
Michelle Jachimowicz	South Africa	Analysis of food comsumption and supplementation of free-ranging lemurs in a mixed species primate sanctuary: Monkeyland, South Africa.
Lucie Janssens	Central Kalimantan, Indonesia	Distribution and conservation status of the proboscis monkey (*Nasalis larvatus*) along the Lamandau River and tributaries in Central Kalimantan, Indonesia.
Amanda Jaques	Canada	A review of environmental destruction caused by primates and comparative analysis of pest species' characteristics.
Ammie Kalan	Republic of Congo	Preliminary assessment of the importance of swamp forest on feeding ecology and nest construction of western lowland gorillas (*G. g. gorilla*).

Shenaz Khimji	Peru	A study of cathemeral activities of the owl monkey (*Aotus nigriceps*) in the Manu Biosphere Reserve, Peru.
Corrin La Combe	Bangladesh	Completing the conservation circle: Modification and evaluation of hoolock gibbon (*Hoolock hoolock*) conservation education program.
Kristīne Lazdane	Madagascar	Parasite burdens and environmental conditions in collard lemurs (*Eulemur welaris*) living in three different sites of S.E. Madagascar.
Pedro Mendez-Carvajal	Panama	Distribution and conservation status of Azuero endemic primates genera *Alouatta* and *Ateles*.
India Minton	Democratic Republic of the Congo	Plant resource utilization by bonobos (*Pan paniscus*) and people in the Lomako-Yokokala Reserve.
Maureen Larissa Mullen	Southeast Asia	Primate distribution analysis of mainland southeast Asia.
Rachel Munds	Malaysia and Borneo	Population density survey of western tarsiers (*Tarsius banacanus*) and Bornean slow lorises (*Nycticebus menagernsis*) and improving slow loris trapping methods.
Angelina Navarro-Montes	Indonesia and Southeast Asia	Assessment of *Nycticebus* spp. trade in SE Asia and on the internet.
Felix Ndagijimana	Rwanda	Dominance change and related group dynamics in a mountain gorilla group (*Gorilla beringei beringei*).
Tricia Parish	South East Asia	Identifying the CITES Appendix - I listed Asian slow loris: a training programme for enforcement officials and rescue centres.
Shira Roni Reid	South Africa	Knowledge and attitude of visitors to Monkeyland Primate Sanctuary, South Africa.
Shoshana Rosenberg	UK	The effects of an increase in fibre on the 24-hr activity levels, feeding behaviour, and digestion of captive mongoose lemurs (*Eulemur mongoz*) and their implications for welfare
James Robins	Kalimantan, Indonesia	Assessing the impact of anthropogenic activity on the distribution of proboscis monkeys in Danau Sentarum National Park, West Kalimantan.

Leah Schein	Nigeria	Habitat preference and population survey of *Arctocebus calabarensis* and *Perodicticus potto*.
Megan Kay Shrum	Northwest Madagascar	The mongoose lemur (*Eulemur mongoz*): Re-assessment of conservation status and of its remaining habitat in northwest Madagascar.
Helen Mary Ann Simmons	Kenya	Ear morphology of *Galagoides cocos* and *Otolemur garnetti* and art to promote environmental conservation awareness.
John Victor Spowart	Taiwan	Effect of enclosure design and behavioural enrichment on group formation and management of captive Taiwanese macaques.
Magdalena Svensson	Panama	Assessing the distribution and abundance of night monkeys (*Aotus zonalis*) in Alto Chagres, Panama
David Huw Thomas	Southeast Madagascar	Effects of abiotic factors and resource availability on two populations of *Microcebus murinus* in two fragments of differing degradation in the littoral forest, S.E. Madagascar.
Ross Tindale	Costa Rica	A comparison of mother-infant behaviour of New World monkeys.
Alex Tumukunde	Uganda	Expectations and attitudes of local communities on ecotourism and its potential for conservation of mountain gorillas and their forest habitats.
Suzanne Emily Turnock	Honduras	The effect of feeding enrichment on social, foraging and locomotive behaviours of *Ateles geoffroyi* and the development of a captive management handbook for zookeepers.
Ingrid Charmaine Twigg	Peninsular Malaysia	An analysis of and perceptions towards the reintroduction of trade in long - tailed macaques from Malaysia.
Lauren Melissa Wright	Vietnam	Assessment of grey-shanked douc langur (*Pygathrix civereai*) population density: effects of hunting and habitat disturbance.

Aotus nigriceps **(black- headed owl monkey) by Shenaz Khimji**

Staff Interview

The following text represents an interview conducted between MSc students Michelle Jachimowicz and Corrin La Combe, and new staff member Dr Vincent Nijman

Question: How did you come to be interested in primate conservation?

Vincent: I was interested in animals and environmental conservation from a very young age, which inspired me to acquire an MSc in Biology at the University of Amsterdam. My first research expedition was in Indonesia, where I went to study Javan hawk-eagles, including a nest in the mountains of west Java. The position of the camp gave us a unique opportunity to view the adjacent forest at a height of approximately 30 meters. This vantage point into the forest allowed me to see gibbons for the first time in the wild. Extremely excited by this, I began collecting data on Javan gibbons and grizzled and ebony leaf monkeys. Back in Holland, I realized that some of the data I had collected were quite interesting, such as the presence of 'grizzled' leaf monkeys (which can be black!) and gibbons in parts of central Java. After finishing the eagle project my supervisor and I agreed that I could concentrate on primates. Shortly thereafter in 1995, I found myself back in Indonesia to formally collect data for my PhD.

Q: Over the years, how many species have you studied?

V: Well, this is a bit of a difficult question, because in reality, I have only really researched eight primate species (three in Java and five in Borneo) and even some of these only for brief periods of time or during surveys, but have written papers on many more by compiling other people's data.

Q: What species has been your favourite to study?

V: Well, gibbons always make me really happy. They are an amazing species and really fun to wake up with. A favourite species to study can also be those that are really rare, and it can be rewarding just to see them, such as the white-fronted leaf monkey. These cryptic langurs are quite unique and being able to spot them is a thrill. My first experience with primates is still engraved in my mind. The expectations you have surrounding the species or research can make it more or less important or special.

Q: What has been your scariest experience while working in the field?

V: Well this is always a good story to tell in the pub! Should I tell you the punch line first? I was once bitten by a sun bear in east Kalimantan, Borneo. Researchers at the site were working on reintroducing sun bear cubs back into the forest. One of the bears who had recently reached puberty was quite fond of me. Because these bears were becoming increasingly feral, I made a deal with the field assistants. We agreed that they would take the bears in one direction, while I went the other way well-armed with my pepper spray. One day, I heard the sound of something running towards me. Turning, I quickly realized that my

bear admirer was hot on my trail. Trying to escape I ran towards the river, crossed it over a fallen tree trunk, but was quickly followed by the bear and the field assistant. While the assistant laughed, the bear swiped at me and then bit my calf with his teeth. Clearly the bear was just playing, but I was in quite a lot of pain and later I had to cool my leg in the river to keep the swelling down.

Q: How many papers have you published?

V: Around 20 papers on primates and 40 on other species.....but the boys and girls from Web of Science keep track of this. That's very helpful.

Q: Of which paper are you most proud?

V: Always the latest. Of course, some papers are better than others.

Q: Which one do you find most significant?

V: 'Primate hotspots on Borneo: Predictive value for general biodiversity and the effects of taxonomy' published in Conservation Biology with Erik Meijaard. It was a good paper with a huge data set based on museum specimens, our own field data and some obscure or little-known Dutch, German and Indonesian literature. I am currently working with Erik on other primate-related research.

Q: What is one rule you try to live by?

V: I like to change the direction of my life a bit every 5 years if possible, because that makes life exciting. The ideal way would be after every 5 years to close a door and open a new one in a completely different direction. I think it's important to evaluate what you've been doing and see where you go from there. If you stay the same it gets too easy.

Q: How then did you end up at Oxford Brookes?

V: One reason I actually took this job is because I like teaching and that was something I could do only to a limited extent in my previous job as head of the vertebrate section of the Zoological Museum in Amsterdam. And I like it because I can still do research while teaching. Conducting research and writing papers is important to me, plus it's easier to lecture on your own work rather than someone else's so the more research you do the easier it is to teach. If you continue to do research your network is more active and widespread, which benefits the students. The best thing about teaching on this course is that the staff are enthusiastic and actually enjoy what they do.

Q: What do you like to do in your spare time?

V: I like cooking, pub quiz, and walking – if it's green it's nice. And I like extreme outdoor cooking - making apple pies at the field station. I wish I did extreme outdoor ironing, as well.

For the recipe, contact Vincent.

Q: What are your future plans?

V: Would be nice to get better at the things I am doing now, and perhaps it would be nice to build a larger research group. I am always striving to improve.

Q: What is your advice to future primate conservationists?

V: Work hard, hmmm, but keep a happy spirit. If you want to go into conservation, it's about commitment. You must be in it for the long run; it's not about instant gratification. If you're in business you can get instant gratification - nice car, good salary, supermodel girlfriend, but you're not going to get that here. We get gratification because it's the success in the end that makes it worth it. You can't achieve all that much over a short period. The most successful people in this business are the ones that have been in it for a many years.

Thanks, Vincent and welcome to the MSc! We're glad you're here!!

Photograph by James Robbins

Interview in Action

MSc Seminar Series: January to April 2008

Monday 28 January
Dr Guy Cowlishaw, Institute of Zoology, Zoological Society of London
Understanding extinction processes in primates

Monday 4 February
Dr Colin Tudge, author: 'Secret Life of Trees', 'People are Easy to Feed'
If we really want to preserve wild creatures, how deeply do we need to dig?

Monday 11February
Prof Jeremy MacClancy, Oxford Brookes University
Why primatologists also need to be social anthropologists

Monday 18 February
Dr Philip Stewart, Oxford University
Do monkeys have souls?

Monday 25 February
Dr Mark Bowler
Primate Conservation in Brazil

Monday 3 March
Dr Andrew Mitchell
Are we creating wealth that's worth having?

Monday 10 March
Dr Colleen Schaffner, Department of Psychology, University of Chester
Climate change effects on spider monkeys

Monday 31 March
Jamie Copsey, Durrell, Jersey
Fire, fields and fibata: A case study of wetland burning within a community based conservation zone, Madagascar

Monday 7April
Dr Alison Jolly, Honorary Research Fellow, Oxford Brookes & University of Sussex
Conservation education and children in Madagascar

Monday 14 April
Prof Robin Dunbar, Director of Institute of Cognitive and Evolutionary Anthropology, University of Oxford
Why are some primates more vulnerable to extinction than others?

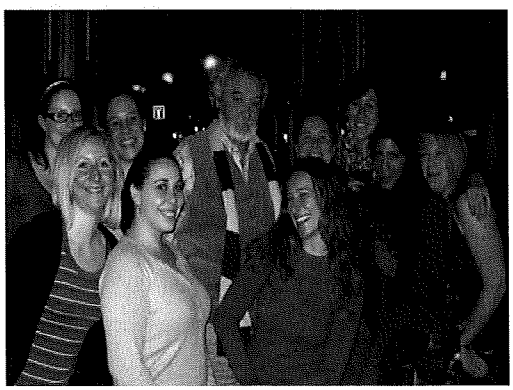
Snippets from the Seminars

Thank you so much to all of our speakers for their time and inspiration.

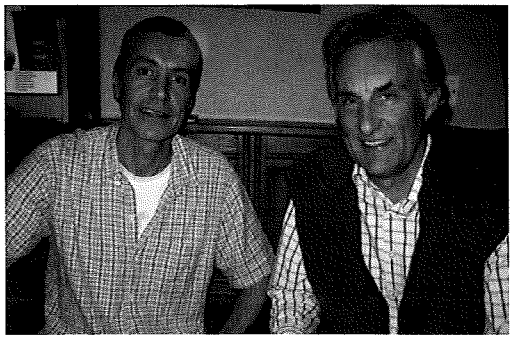
Post seminar drinks with Dr Schaffner

Dr Colleen Schaffner is a senior lecturer at the University of Chester. Her interests lie with behavioural and comparative psychology. Dr Schaffner covered the possible behavioural ways in which spider monkeys demonstrate conflict management. She also spoke about the destruction caused by Hurricane Emily in 2006 on her study area in the forest. The spider monkeys appeared to have utilised their fission-fusion social structure to their advantage, fusing less often after the storm as a means of coping with a decreased food supply.

Dr Colin Tudge, a biologist, writer and philosopher, came to Brookes to speak about different philosophical aspects of our natural world. Colin has given many lectures and seminars in recent years, largely on the philosophy and ethics of modern biological endeavours, including biotech, agriculture, conservation, and science communication in places such as Durham, Cambridge, London, Australia, and the USA. He has also made special appearances in television and radio. He has written several books including *Feeding People is Easy*, *Global Ecology*, and *Last Animals at the Zoo*.



Dr Colin Tudge with some of the current MSc cohort at the Angel and Greyhound



Andrew Mitchell with MSc student John Spowart

Dr Andrew Mitchell, founder of the Global Canopy Program, gave an informative talk on the crisis values of energy, food security, and environmental security. He stressed the need for a global market that finds more value in conserving a forest than in the products that can be harvested from cutting it down. We are becoming an ever increasing industrialized world that is quickly decimating the last remaining rain forests. There needs to be changes in market approaches to reduce emissions in order to reduce levels of deforestation.

Dr Alison Jolly gave a highly inspirational talk about her experiences with environmental education in Madagascar. She explained her challenges over several decades to incorporate Malagasy natural history and environmental education into the curriculum. She explained how there are many Western children's books about lemurs, yet there are few to none that translate well for the Malagasy culture. Dr Jolly and her colleagues have started creating a series of six children's books based on the stories of different lemurs that are found from all corners of the country. The books are being distributed through different networks and are being evaluated by teachers around the country. Dr Jolly also explained that because of the current political and environmental status of the country, "this could be Mrs Trimmer's time for Madagascar"!

Excited students crowd around Dr Jolly after her talk.

Photographs provided by Michelle Jachimowicz, Leah Schein and Shira Reid.

If you would like to share your research with us and are interested in becoming a guest speaker please feel free to contact Dr Anna Nekaris at:

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Photograph by Michelle Jachimowicz

Come visit us on the web!

http:ssl.brookes.ac.uk/primates/home.htm