Canopy

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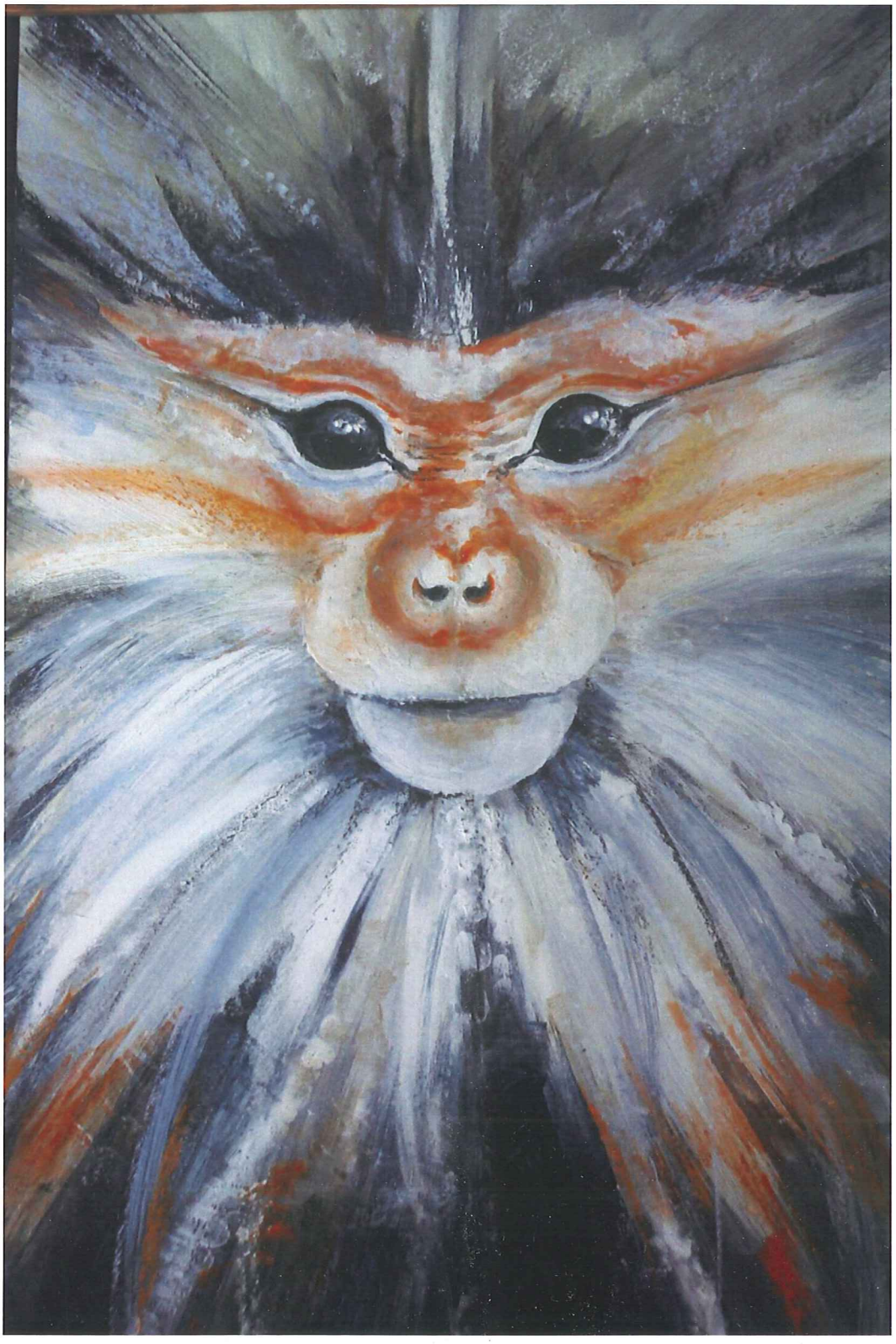

Journal of the MSc in Primate Conservation

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Journal of the Primate Conservation MSc Programme
Oxford Brookes University

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Front cover illustration by

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Letter from the editors

Dear all,

Welcome to a very special spring edition of Canopy! The MSc in Primate Conservation at Oxford Brookes University is celebrating its 10th Anniversary, and is proud to mark the occasion with a conference to celebrate the many success stories of past and present students, and to discuss the future challenges and issues facing primate conservation.

This years cohort is almost ready to leave the UK and travel to do field work in many of the worlds primate habitat countries, such as Ecuador, Brazil, Cameroon, Republic of Congo, Madagascar, Sri Lanka and South East Asia including, Cambodia, Malaysian Borneo, Thailand, China, Hong Kong and Macau. Primates must remain in their habitats homes to be protected and studied there. Although field work is critical in times of significant habitat depletion, desk studies and reviews of current and past literature also provide essential tools for understanding and building up knowledge for the protection of wild and captive primates. A selection of students are basing themselves in the UK in order to conduct research on captive management, the effects of pet trade, and to expand and implement taxonomy reviews, GIS, and environmental education.

This edition of Canopy includes examples of past research, interviews with a prominent primatologist and past students and reports on recent events in the field of conservation.

We wish everyone the best in their conservation endeavours and hope you all enjoy the conference. We hope you continue to support the work of this course, staff and students in providing conservation to primates and their habitats, allowing them to be appreciated and protected by all.

Best wishes,

The Editors

Jean Troughton

Alice Martin

Olivia Brown

Flavia Borrelli Bannister

Natasha Wallis

Aoife Healy

Helen Smith

The past and future of biodiversity conservation

By MSc Course Tutor, Dr KAI Nekaris and Chair of Planning Committee, Prof SK Bearder

Looking back over the last ten years since the start of the MSc in Primate Conservation it is clear that it owes its existence to the energy and enthusiasm of generations of undergraduates at Oxford Brookes where we have been teaching primatology classes since 1976. At one point, a survey in *Primate Eye* by Robin Dunbar showed that we were responsible for the lions share of all primatology taught in Great Britain and these students provided the rationale and encouragement needed to take on new ventures. But why has the MSc been so successful, culminating in the Queen's Anniversary Prize for Excellence, given that a qualification in primate conservation is not the best passport to job security? One reason is that the course picks up on a deep concern for the natural environment and a fear about the seemingly relentless pressures that threaten its future. The statistics are depressing in themselves, but our staff and students have generally witnessed their favourite species disappearing almost before their eyes, in some of the most remote parts of the world, and this shocking reality has motivated them to take action.

A realisation that there was a very widespread passion for wildlife conservation stemmed from experience of the annual Conservation Summer Schools run by the Durrell Wildlife Conservation Trust in Jersey, since 1981. At that time there was tension and in-fighting between zoos, universities and field biologists about how conservation could be promoted, but they shared the fact that they were all deeply concerned about the decimation of biodiversity. Conflict has changed to collaboration over the years, with a realisation that the true enemies of wildlife conservation are the many people who deny the destruction, or cannot see why it is of concern. But the general public are becoming increasingly aware that the more we demand that natural ecosystems are transformed into monocultures and cash crops, or accept that forests and oceans should be exploited for all that can be eaten or sold to the pet trade, then the more we devalue the long term ecological services that they provide for future generations.

The enormity of human impact on the planet is becoming hard to ignore, even by those who bury their heads in the sand, and the issues raised are best addressed as a group. The MSc students have provided a remarkable forum for sharing ideas and worries about what can be done and how to do it. This is the theme of our tenth anniversary conference, which also marks the International Year of Biodiversity – what have we achieved so far, and what must be done if wildlife resources are to be

protected for the future? These questions are extremely difficult, but they are so important for the survival of our children that we are prepared to shout about them and do everything in our power to make a difference.

We are delighted to take this opportunity to thank everyone who has contributed to our success over the years and in anticipation of your continuing input. Particularly all the full time and part time staff – administrators, managers and teachers; specialist visiting lecturers and resident PhD students; innumerable zoos, wildlife parks, sanctuaries and museums who have given freely of their facilities; all the individuals, societies and grant-giving bodies who have supported students with their project work; all our visiting speakers to the weekly seminar series on primate conservation; our increasing body of Honorary research Associates and, of course, the ten cohorts of MSc students ranging from 20 to 45 people each year who have given inspiration through their commitment.

Please join us if you can. We meet every Monday during the semesters in the Lloyd Boardroom and afterwards in the Britannia Inn!

April 2010

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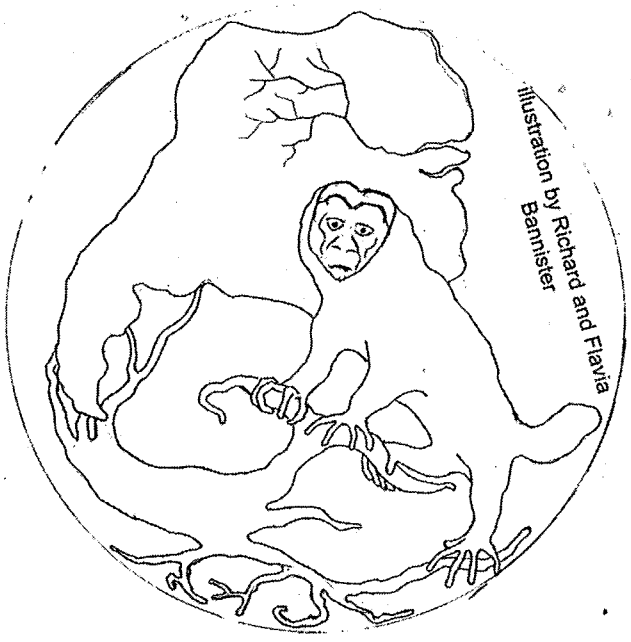


The 'Top 25 Most Endangered Primates': How the Primate MSc helps their conservation

By Johanna Rode

On February 18, 2010, a list of the 25 most endangered primates was launched at Bristol Zoo Gardens, England. Although England is not a primate habitat country, Bristol was chosen as a location to stress the role zoos play in species conservation.

Dr. Russell Mittermeier explained that almost half (48%) of the world's 634 primate species are threatened with extinction, according to the IUCN Red List of Threatened Species. Main threats include habitat destruction, hunting for subsistence and illegal wildlife trade.

The Top 25 list's purpose is to highlight the most endangered primates, to increase public and governmental awareness about the fate of primates and to raise funds for urgently needed conservation measures. Five primate species from Madagascar, six from Africa, 11 from Asia, and three from Central and South America were given the dubious honour to make it on the list.

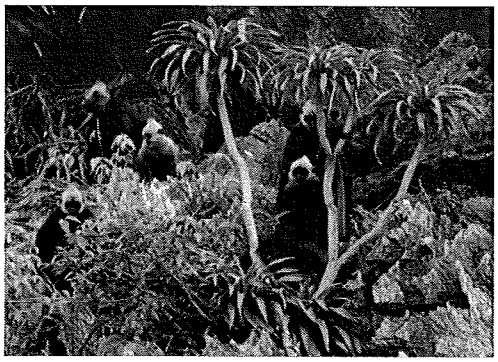


Figure 1: Cat Ba Langur, *Trachypithecus p. Poliocephalus*, Vietnam.
Photo: Johanna Rode

Despite the worrying situation, there are some success stories in primate conservation. The Red List status of the black lion tamarin in Brazil was downgraded from Critically Endangered to Endangered due to the long term commitment of many organisations and zoos. Their population numbers are still small, making restoration measures vital for their recovery. The Hainan gibbon, with only 20 remaining individuals, was removed from the list because the launch of the Top 25 List 2006-2008 in Hainan in drew great attention and funding. This made space for another species to be highlighted.

Figure 2: Yellow-tailed Woolly Monkey, *Oreonax flavicauda,* Peru.
Photo: Noga Shanee, Neotropical Primate Conservation

Both, Oxford Brookes University's MSc Primate Conservation course and the Top 25 list have their 10th anniversary this year. Since 2000, 26% of students from the course have studied more than 30 of the 54 species that have been listed. Examples include the Cat Ba Langur (fig. 1) and the Yellow-tailed Woolly Monkey (fig. 2). Researchers still discover many new primate species. Eighty-six species (20% known) have been described since 1990. The report of the Top 25 list states that many of these new primates are restricted to very small areas and, unfortunately could be candidates for future Top 25 lists. The Primate

Conservation course contributes much to their conservation, as many students study species listed as Data Deficient on the IUCN Red List. Increasing the knowledge about these species helps to better protect them and make their future outlook brighter.

The world's 25 most endangered primates 2008-2010

AFRICA

Rondo dwarf galago	*Galagoides rondoensis*	Tanzania
Roloway guenon	*Cercopithecus diana roloway*	Ghana, Côte d'Ivoire
Tana river red colobus	*Procolobus rufomitratus*	Kenya
Niger delta red colobus monkey	*Procolobus epieni*	Niger Delta, Nigeria
Kipunji	*Rungwecebus kipunji*	Tanzania
Cross River gorilla	*Gorilla gorilla diehli*	Cameroon, Nigeria

ASIA

Javan slow loris	*Nycticebus javanicus*	Java
Siau Island tarsier	*Tarsius tumpara*	Siau Island
Simakobu	*Simias concolor*	Mentawi Islands
Delacour's langur	*Trachypithecus delacouri*	Vietnam
Cat Ba langur	*Trachypithecus poliocephalus*	China, Vietnam
Western purple-faced langur	*Semnopithecus vetulus nestor*	Sri Lanka
Grey-shanked douc	*Pygathrix cinerea*	Vietnam
Tonkin snub-nosed monkey	*Rhinopithecus avunculus*	Vietnam
Eastern black crested gibbon	*Nomascus nasutus*	Hainan Island
Western hoolock gibbon	*Hoolock hoolock*	Bangladesh, India
Sumatran orangutan	*Pongo abelii*	Sumatra

MADAGASCAR

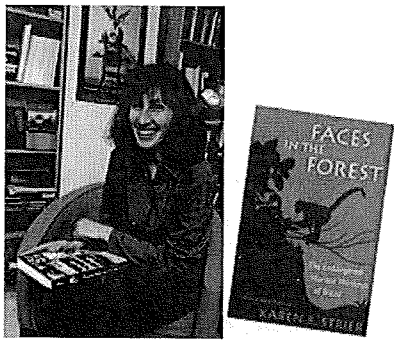
Greater bamboo lemur	*Prolemur simus*	Madagascar
Gray-headed lemur	*Eulemur cinereiceps*	Madagascar
Sclater's lemur	*Eulemur flavifrons*	Madagascar
Northern sportive lemur	*Lepilemur septentrionalis*	Madagascar
Silky sifaka	*Propithecus candidus*	Madagascar

NEOTROPICS

Cotton-top tamarin	*Saguinus oedipus*	Colombia
Brown spider monkey	*Ateles hybridus*	Colombia
Yellow-tailed woolly monkey	*Oreonax flavicauda*	Peru

10th Anniversary interview with Prof. Karen B. Strier

By Flavia Borrelli Bannister



Professor Karen B. Strier is a leader in primatology. She has not only collected prestigious awards and qualifications in Science but she has also inspired people from different back grounds and cultures to care of the future for primates and their natural habitats. Almost 30 years ago she went, as a young PhD student, to the Atlantic forests of Minas Gerais in Brazil to meet a truly singular primate, the muriqui. She contradicted the old theories of the 'typical' primate behaviour and established one of the most important long term research projects in primatology, thereby safeguarding the future of the Brazilian muriquis. She is currently a professor of anthropology at the University of Madison Wisconsin and she is the author of *Faces in the Forest: The Endangered Muriqui Monkeys of Brazil* and the textbook *Primate Behaviour Ecology*.

From your experience in Brazil, do you think it is important that western primatologists get involved with the scientists, the people and the cultures of habitat countries?

I think these kinds of international collaborations are incredibly important, and mutually beneficial. I've learned a lot from my Brazilian colleagues and students, and from the local people who live near the Reserve in which I work. We can all accomplish much more by working together than we can if we are working alone, and we all bring different perspectives and priorities to the work. These diverse perspectives are especially important for conservation efforts, which require participation at all levels.

How do you see the contribution of short-term studies to primatology?

All long-term studies began as short-term studies, so short-term studies are absolutely essential to primatology. Short-term studies, such as censuses, tell us where primates live and help us to identify the most feasible places to observe them and the most urgent populations for conservation attention. Behavioural and ecological studies conducted for Masters and PhD research often provide the first systematic data about a species' natural history, and these new insights are what shape our understanding of the breadth of primate behavioural diversity and our comparative perspectives.

How do you keep motivated to continue studying such endangered species?

The prospects for the muriqui are probably better today than they were 30 years because of the conservation attention they have received within Brazil and internationally. I find it immensely satisfying to participate in this process of discovery about them, and in applying our discoveries to help in their conservation. The muriquis would be fascinating primates even if they were not so endangered because of their unusual behaviour patterns. But, knowing that each new discovery might help us to protect them better is a powerful motivating force.

What do you consider to be the best steps for new primatologists to make a real difference for the survival of primates?

There are lots of different ways to make a difference, and the specific approaches depend a lot on specific local conditions as well as what each person is interested in and able to do. Conducting field studies on endangered species to help expand our understanding about them and participating in local training and conservation education programs are among the most obvious ways to make a difference. But I think there can be other equally important ways, such as establishing one's credentials and authority so as to have a say in policy decisions that affect primates or in funding decisions that affect support for primate research and conservation efforts.

Do you see wild primates and habitats being more under pressure today than decades ago, or has the protection and interest for their survival improved/increased?

Again, I think this depends a lot on what region of the world is involved. In southeastern Brazil, conditions have greatly improved over the past three decades, but I know that this is not true in other parts of the world where other primates live. Maybe it is because the Brazilian Atlantic forest underwent such tremendous disruptions some 50-100 years ago, when more than 94% of it was destroyed. What we are seeing here today are the beginnings of its recovery now that what remains has been increasingly well protected. Although the muriquis appear to be increasing in numbers, we still don't know whether they will make a full recovery. We can learn a lot from this example, but we also need to be sensitive to the many other problems that face primates elsewhere in the world. Places that were previously more remote, and therefore relatively undisturbed, may be facing more pressure today and that makes things worse for the primates. I think we also have to pay close attention to how climate change is going to affect primate habitats directly and indirectly as a result of changes in human land use patterns in response to climate change.

What do you consider to be the key elements to make primate conservation effective?

Education can go a long way in shaping public opinion and policy but it is not enough when there are also real economic needs underlying the hunting of primates or encroachment on primate habitats. In these cases, finding economic alternatives for local human populations to reduce these need-driven pressures is a critical step. I consider both an understanding of local human conditions and improved education to be key elements in effective conservation, and primatologists can contribute important insights into both through the research we conduct and our presence in the field.

Pedalling for primates – fundraising event

By Felicity Oram

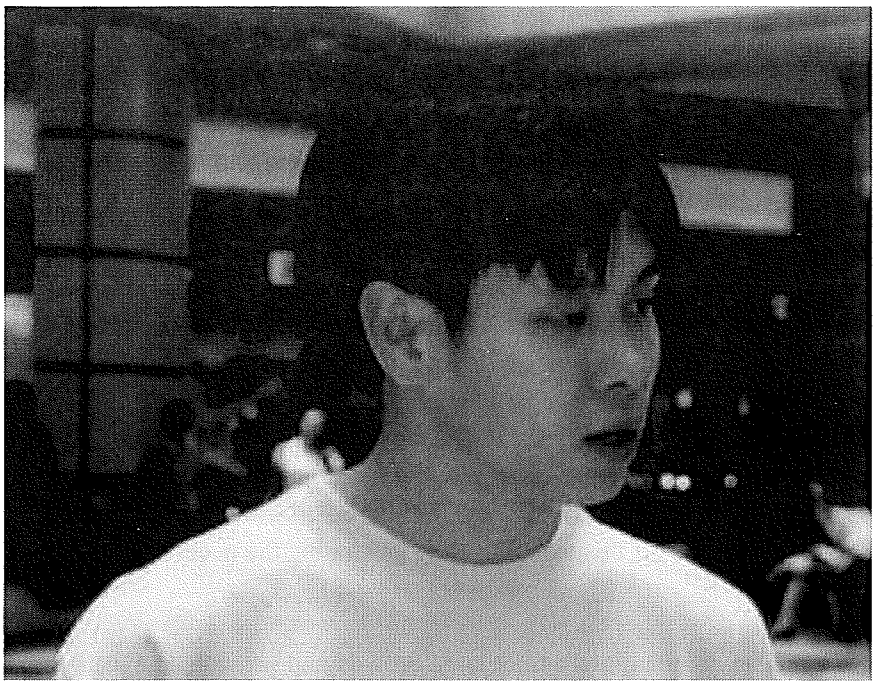
On March 10th, orangutans on bicycles visited Oxford Brookes University's Headington Campus! Well actually they were people in orangutan suits, promoting the third UK pedal power cinema benefit. Nevertheless, from an MSc Primate Conservation perspective it was quite a noteworthy evening! Suzanne Turnock, MSc cohort 2007-2008, spearheaded the event after winning the "Vodafone – World of Difference" competition, which provides 500 individuals with a chance to work, all wages paid, for a charity of their choice for two months. All proceeds of this event went to the Sumatran Orangutan Society (SOS) education programme for which Helen Buckland, MSc cohort 2003-2004, is the UK director. Another MSc alumnus, Mark Chappell, cohort 2002-2003, was at the collection desk and many present and past MSc students offered up their support as audience members. Ian Redmond OBE, of Ape Alliance and Madelaine Westwood of the Great Apes Film Initiative (GAFI), hosted the evenings' activities. While GAFI volunteer and GB Olympic rowing team member David Smith lead off the pedalling, ably generating the necessary power to run the main feature film.

Film screenings in remote communities attract large crowds and provide an excellent opportunity to raise awareness of conservation issues. They also provide a forum to empower local people to help find effective mutually beneficial solutions to preserve their community and environment. The specific goal of this benefit was to raise funds for a pedal power cinema unit to serve the remote villages bordering the Gunung Leuser National Park in Sumatra. The Leuser Ecosystem is the last remaining range where the endemic Sumatran orangutan, tiger, rhinoceros and elephant coexist. Although it is an Indonesian National Park, it is under continued pressure from illegal logging and conversion to agriculture that threatens the integrity of this last remaining unique Sumatran forest ecosystem.

Using the pedal power cinema prototype, volunteers "pedal-powered" as we all watched Patrick Rouxel's poetic experiential film "Losing Tomorrow" which showcases the impact of logging on the Indonesian rainforest. The second film was a short entitled "Dear Mr President". This GAFI film project recorded villagers asking the Indonesian president what they would like him to do in aid of conservation and their community. As an example of a successful collaboration between an NGO and a locality, GAFI then edited the film and Madelaine Westwood worked tirelessly to get this video letter to their president.

The reward came, at the UN Climate Change conference in Bali in 2007, when Indonesian President Susilo Bambang opened with this film and proceeded to answer the villagers' questions in the international forum. This conference ended with a breakthrough agreement and commitment to cooperative action. Though the more recent Copenhagen Climate conference in 2009 may have been a bit of a step back, these films continue to serve as a reminder of the power of cinema, the power of individuals working cooperatively, and that the path to progress is often a case of two steps forward and one back. So the take home message for all of us remains - keep pedalling!

Where are they now?



Interview with Louis Ng, MSc 2005
Executive Director and Director of Campaigns for Animal Concerns Research and Education Society (ACRES)

What originally attracted you to the course?

I have been fascinated with primates since I was 14 years old. The fascination really started after I watched the movie Gorillas in the Mist, featuring the life story of Diane Fossey. I remember I turned to my mum halfway through the movie and told her I wanted to be just like Diane once I grew up. My mum of course almost lost it when at the end of movie, Diane was murdered. She thought her only son was going to help animals and get killed. I remember telling her that this was my passion and what I wanted to do for the rest of my life, help protect animals. While pursuing my degree in Biology, I found out about the Masters in Primate Conservation course, which was a perfect opportunity for me to learn more about primates and most importantly to arm me with the knowledge needed to protect them. I remember feeling really excited about it and applied immediately!

What is your greatest accomplishment since graduating?

The MSc course laid the foundation for my work in Singapore, as the Executive Director of ACRES, a local animal protection charity. Last year, we opened Singapore's first dedicated wildlife rescue centre to provide sanctuary for animals confiscated from the illegal wildlife trade as well as injured

native animals. Since graduation, I have also been surveying zoos as part of the ACRES Zoo Animal Welfare Programme and our efforts have led to vast improvements in the lives of captive animals in Asia.

What is your fondest memory of the course?
The fondest memory would have to be the project or thesis work. I really enjoyed the field work and applying all the things we have learnt in the classroom, in the field.

How do you think the course promotes the importance of conservation and primatology?
I think it arms us with vital knowledge and lays the foundation for any work in primate conservation and protection. The fact that there is a Masters course in this field shows the public and governments that it is an important field and one that requires more public and governmental support.

Have you any advice for present or potential students?
I think the most important thing is to have fun and enjoy what you are doing. Primate conservation work is really depressing at times and the first lesson I learnt was to never take this work too seriously, otherwise you will get burnt out very quickly.

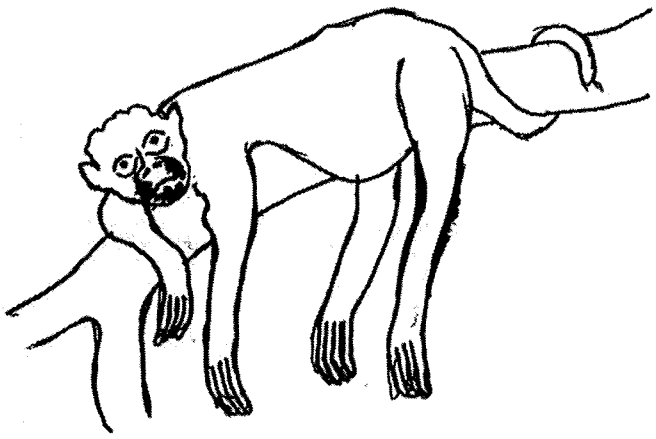
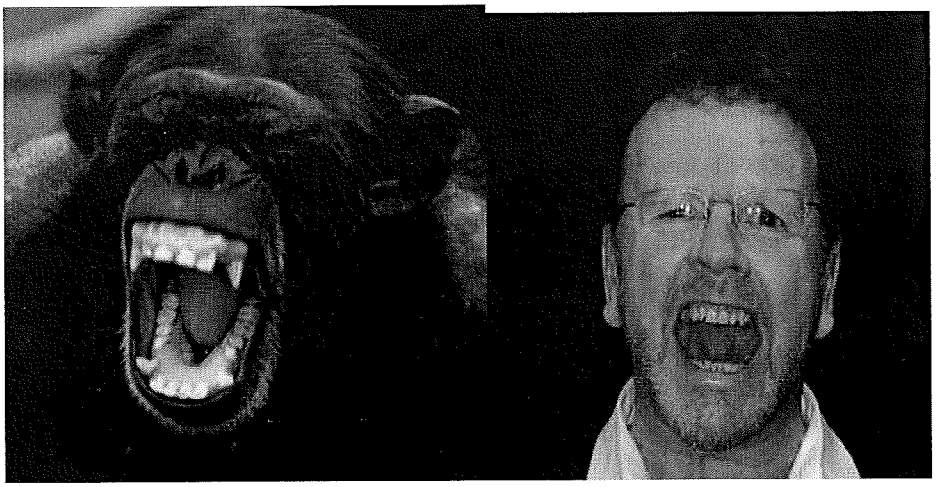


Illustration by Richard and Flavia Bannister

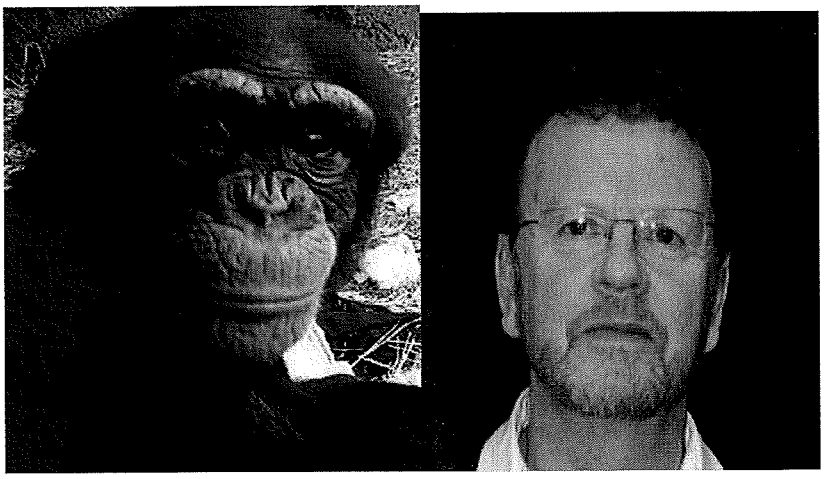
"Chatting with chimps"

By Olivia Brown and Natasha Wallis

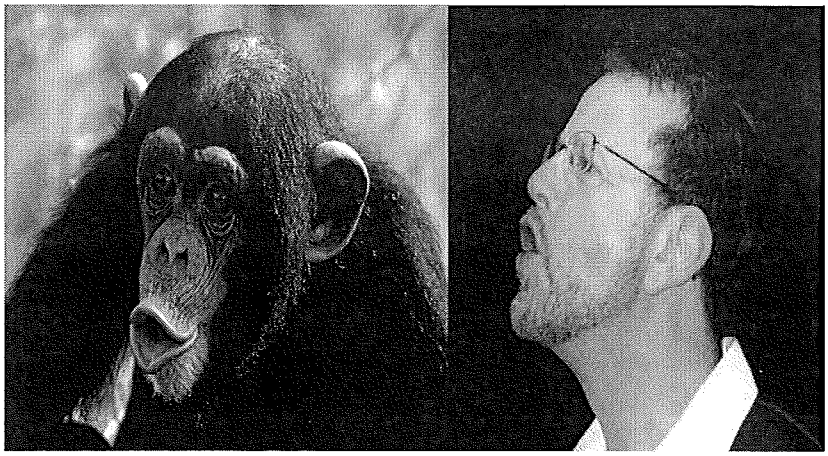
Have you ever felt your ears burning when you're amongst a troop of chimps, and you've looked over and saw them all pulling funny faces, without a clue as to what they mean? Or do you detest those long weeks of isolation in the forest, and just want to make a friend to share your troubles and your strife? What about a new career move as a Dr Dolittle? Whatever your reasons, chatting with chimps is providing you with four chimp facial expressions with the human equivalent to help recognise those 'hairy' moments, or just provide a chimp with a smile if he's having a bad day. Enjoy!



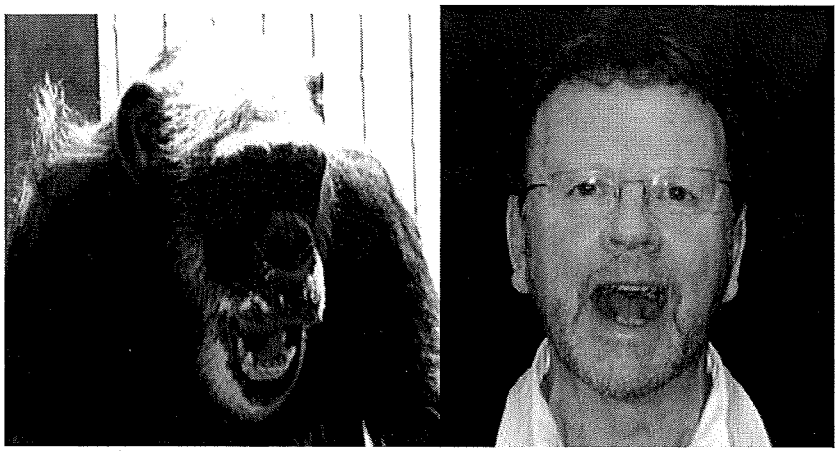
[1] **Open fear grimace face** – Primarily used during instances of perceived threat and fear. Yet, can also be used to threaten others, and induce fear. Frequently displayed on a Saturday night outside the local.



[2] **Relaxed face** – Used during period of low or moderate arousal, and whilst soaking in the sun.



[3] **Panthoot face** – A method of communication. Similar to a coffee date with your best mate sharing a new bit of gossip.



[4] **Play face** – A smile used to signify friendly interaction with conspecifics, and during bouts of laughter. A chimp's version of 'cheery wave, happy smile'.

Sources

[1] Open Fear Grimace face source - *http://www.physicianhealthyself.com/LFS/_Media/screaming-chimp.jpeg*

[2] Relaxed face source - *http://www.honoluluzoo.org/images/chimp_closeup_bridgit_small.jpg*

[3] Panthoot face source - *http://scrapetv.com/News/News%20Pages/Health/Images/chimpanzee-1.jpg*

[4] Play face source - *http://www.chimpsanctuarynw.org/blog/wp-content/uploads/2009/08/web-missy-playface-outside_mg_2237.jpg*

Illustration by Aoife Healy

Illustration by Aoife Healy

Student research locations 2009-2010

An exploration of Sykes monkeys (*Cercopithecus mitis albogularis*) - human interactions in Gede National Monument, Kenya

By Leslie Kadane

Introduction

The lives of humans and non-human primates overlap to such an extent that interactions are increasingly common in areas where the two live in close proximity (Wheatley and Putra, 1984). Sites of religious or historical significance often harbour large primate communities as forests typically remains intact in these areas. Consequently, monkeys are often fed by a combination of individuals, including site workers, pilgrims, locals, tourists, and tour guides (Fuentes et al., 2007).

As monkeys learn to associate humans with food the likelihood of physical contact and aggression is increased (O'Leary and Fa, 1993). Close contact and increased aggression may compromise the health, safety, and well being of both monkeys and humans. Reports documenting interactions are increasingly important for conservation efforts as they provide ways to assess the degree of human influence on various primate populations, and provide information about the potential risks of interacting with non-human primates such as injury and disease transmission.

Monkeys living in Gede Ruins have been provisioned mainly by guides since the 1990s. Guides at the ruins typically rely on tips generated from visiting tourist groups. The majority of international visitors are Italian, and many come to see the moneys first and the ruins second. Consequently, entertaining visitors by feeding the monkeys is a daily event during peak tourist season, and ensures the guide the probability of a good tip. In an effort to identify human-monkey related issues that arise within the context of provisioning, this study explored interactions between humans and Sykes monkeys, *Cercopithecus mitis albogularis*, and conflict between monkeys during provisioning events.

Methods

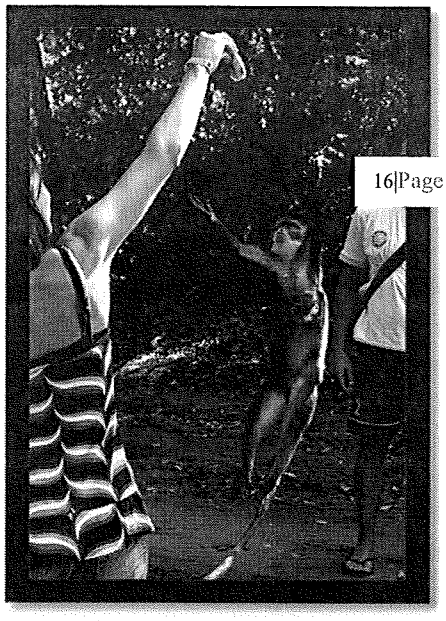
This study was conducted from June, 2009 to September, 2009 during peak tourist season at Gede National Monument. The ruins cover approximately forty-five acres, and constitute the remains of an abandoned 13th-17th century Swahili town constructed of coral rag, red earth, and coral lime (Kirkman, 1975). The site is surrounded by farmland on all sides.

The study animals were a habituated group of approximately 45 Sykes monkeys, including nineteen adult females, sixteen juveniles, nine infants, and one adult male. To collect that data, two observers simultaneously recorded all occurrences of hand feeding, physical contact, and agonistic or aggressive interactions between monkeys, and between monkeys and humans during provisioning events. 1160 interactions were recorded.

Results/Discussion

Who interacts?

Tour guides initiated interactions with monkeys more frequently (34%) than either male (31%) or female tourists (22%) and interacted most frequently with juveniles. Frequencies of guide interactions compare with frequencies found among tour guides on Gibraltar (Fuentes, 2006). Furthermore, tour guides facilitated and encouraged interactions between monkeys and tourists by demonstrating ways to feed them prior to giving tourists bananas. Locals interacted infrequently with the monkeys, which is not unreasonable to expect as feeding the monkeys is against the law in Kenya.



Female tourist feeding female Skyes monkey with infant

Types of interactions

Feeding: Hand feeding monkeys was the most frequently (83.5%) observed behaviour. This is not surprising as all interactions occurred within the context of provisioning. However, provisioning opened a window of opportunity for many other types of interactions to occur.

Contact: Interactions involving physical contact were observed on 7.3% of interactions. Trying to touch the monkeys was the most frequently observed contact behaviour. Male and female tourists were equally likely to engage in contact interactions with monkeys, however, female tourists were more likely to touch the monkeys than other humans, which agree with past reports (Fuentes et al., 2007). Juveniles engaged in the majority of contact interactions with humans while adult female monkeys participated infrequently.

Agonism: The overall rate of agonism was low (8.1%). "Avoiding" behaviour was the most frequently observed agonistic behaviour observed for both humans and monkeys, however monkeys avoided humans more frequently than the reverse.

Tourist-directed aggression: More severe types of aggression (threats) directed toward humans were rare (n = 23) and the most severe type of aggression (bite, attack) only happened once during the study. Frequencies of tourist directed aggression in this study were quite a bit lower than past reports documenting tourist directed aggression between humans and macaques at other sites (Fuentes and Gamerl, 2005; Fa,1992).

Monkey-directed aggression: Male tourists were observed to initiate more aggressive interactions (n=36) towards monkeys than other humans. These interactions typically involved a male tourist trying to scare or move a monkey away from himself or another, either through gestures or using a physical object. Conversely, monkeys avoided male tourists more than other human categories.

Conclusion

As tourist destinations where monkeys and humans interact increasingly become the last refuge for primate communities, studies examining monkey-human interactions can facilitate practical solutions

that address the increasingly problematic topic of human-monkey relations. Gede Ruins is no exception. As the majority of interactions between monkeys and humans involved close physical contact, site information for visitors and staff is strongly advised. Tourist directed aggression in Gede Ruins is low, however escalation could occur if there are changes in human behaviour such as rewarding aggression.

Furthermore, the instigation of aggressive interactions by male tourists may in turn provoke aggressive responses from monkeys, leading to increased tourist directed aggression. Posted information about the monkeys and the risks associated with interacting with them would be beneficial to tourists, guides, and monkeys. Firstly, it would provide visitors with background information about the monkeys and allow them to make an informed choice about interacting with them. Secondly, it would provide the guides with new information, enabling them to be more effective ambassadors of the ruins. Lastly, increased human awareness would benefit the monkeys as visitors and guides would be more aware of the effects their actions. In an effort to identify and mitigate potential conflict issues arising within the context of provisioning, I hope the recommendations resulting from this study will be of practical use to the staff of Gede National Monument, and facilitate future research questions into the nature of interactions between humans and Sykes monkeys in Gede Ruins.

References

Fa, J.E. (1992)Visitor-directed aggression among the Gibraltar macaques. *Zoo Biology*, 11, 43-52

Fuentes, A. (2006) Human culture and monkey behavior: assessing the contexts of potential pathogen transmission between macaques and humans. *American Journal of Primatology*, 68, 880-896

Fuentes, A., Shaw, E. and Cortes, J. (2007) Qualitative assessment of macaque tourist sites in Padangtegal, Bali, Indonesia, and the Upper Rock Nature Reserve, Gibraltar. *International Journal of Primatology*, 28, 1143-1158

Fuentes, A. and Gamerl, S. (2005) Disproportionate participation by age/sex classes in aggressive interaction between long-tailed macaques (*Macaca fascicularis*) and human tourists at Padangtegal Monkey Forest, Bali, Indonesia. *American Journal of Primatology*, 66, 197-204

O'Leary, H. and Fa, J. E. (1993) Effects of tourists on Barbary macaques at Gibraltar. *Folia Primatologica*, 61, 77-91

Wheatley, B. and Harya Putra, D. K. (1994) Biting the hand that feeds you: monkeys and tourists in Balinese monkey forests. *Tropical Biodiversity*, 2 (2), 317-3

Local Extinctions: A Population Viability Analysis of proboscis monkeys (*Nasalis larvatus*)

By Danica Stark

The vulnerability of a species towards extinction was modelled using a population viability analysis (PVA), which follows individuals in a population through the course of their life and records demographic and environmental changes. Human activities often play a role in changing the environment in which animals live; factors which can also be utilized in the model. Using the PVA model, VORTEX, the status of proboscis monkeys, an endemic primate to Borneo, was reassessed due to their threatened habitat.

Borneo is comprised of a number of unique and valuable forest types, resulting in an overexploitation both legally and illegally. Riverine, mangrove and freshwater and peat swamp forests, the habitat of proboscis monkeys, tend to be areas first colonised, farmed, industrialised and least protected by man (Meijaard and Nijman, 2000; Rautner et al., 2005). Although the movement and dispersal of proboscis monkeys is not restricted by water, populations are becoming isolated due to the increasing loss of habitat by logging and agriculture, as they will not enter areas where forest cover has been completely removed (Salter and MacKenzie, 1985; Boonratana, 2000). As proboscis monkeys are endemic to Borneo, the extinction of this species would also mean the global extinction at the genus level. By using population viability analysis models, areas in Borneo requiring immediate attention could be highlighted, and develop management plans to improve the reproductive success and survival of proboscis monkeys could be designed.Small scale models examined populations in Lower Kinabatangan Wildlife Sanctuary (LKWS), Balikpapan Bay and Danau Sentarum National Park (DSNP). In a boat survey in LKWS, there was an estimated 3,270 proboscis monkeys based on an encounter rate calculated to be 6.54 individuals/km^2. In VORTEX, an extinction prediction was absent for the LKWS population, and a positive trend was forecast in the next 50 years. Balikpapan Bay population had an extinction predicted within the next 15 years, but by reducing deforestation, the population could survive. The DSNP population goes extinct when fragmented, so connectivity between populations is essential to their survival. The entire Borneo population were not predicted to go extinct in the next 150 years, however, 14 of the 19 sub-populations do, many within 15 years (Fig. 1). Deforestation plays the largest role in Bornean mass extinction prevention. However, there is a shortage of information on proboscis monkeys needed for this program. More research about mortality and hunting rates are necessary as the accuracy of these data are sensitive and can change the final results.

Balikpapan Bay population had an extinction predicted within the next 15 years, but by reducing deforestation, the population could survive. The DSNP population goes extinct when fragmented, so connectivity between populations is essential to their survival. The entire Borneo population were not predicted to go extinct in the next 150 years, however, 14 of the 19 sub-populations do, many within 15 years (Fig 1.). Deforestation plays the largest role in Bornean mass extinction prevention. However, there is a shortage of information on proboscis monkeys needed for this program. More research about mortality and hunting rates are necessary as the accuracy of these data are sensitive and can change the final results.

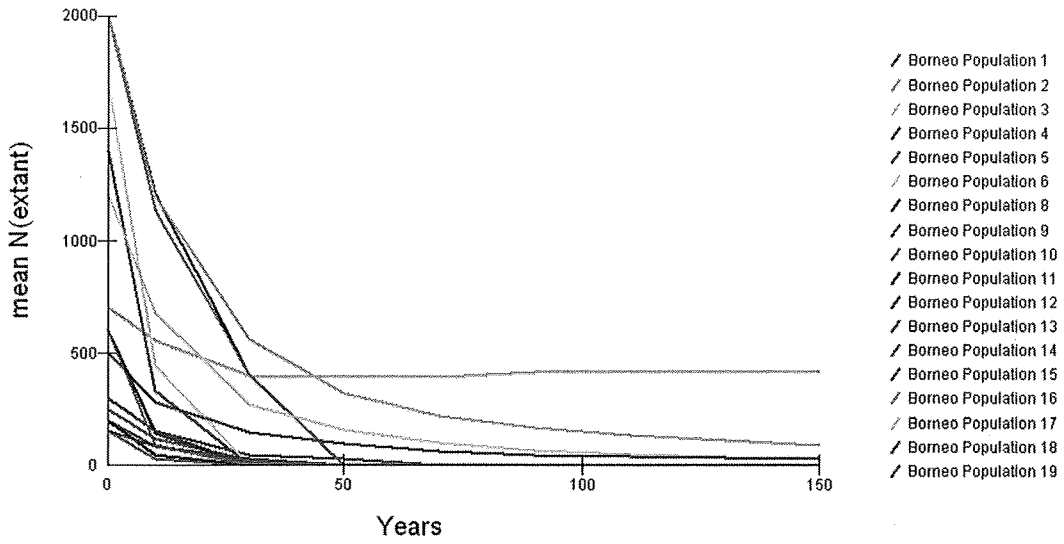


Fig 1. Trend of the 19 isolated populations throughout Borneo, over a 150 year period and 2000 iterations. 14 of these populations are predicted to go excinct in the next 150 years, most of the extinctions occurring in the next 25 years. Reducing deforestation and decreasing the frequency fires occur has a positive effect on the overall population.

References

Boonratana, R. (2000) Ranging behaviour of proboscis monkeys (*Nasalis larvatus*) in the Lower Kinabatangan, Northern Boneo. *International Journal of Primatology*, 21 (3), 497-518

Meijaard, E. and Nijman, V. (2000). Distribution and conservation of the proboscis monkey (*Nasalis larvatus*) in Kalimantan, Indonesia. *Biological Conservation,* 92 (1), 15–24

Rautner, M. Hardiono, M. & Alfred, R.J. (2005) Borneo: Treasure island at risk. Status of forest, wildlife & related threats on the island of Borneo. A report produced for WWF Germany, Frankfurt

Salter, R.E., MacKenzie, N.A., Aken, K.M. & Chai, P.P.K. (1985). Habitat use, ranging behaviour, and food habits of the proboscis monkey, *Nasalis larvatus* (van Wurmb), in Sarawak. *Primates*, 26, 436-451

The behavioural ecology of western hoolock gibbons in a teak plantation

By Alice A. Brindle

Rice Paddy and Forest

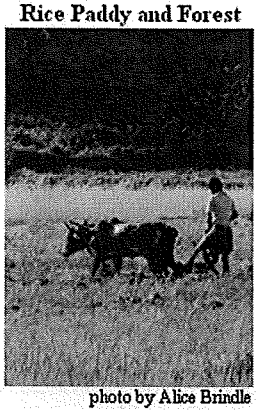


photo by Alice Brindle

The western hoolock gibbons (*Hoolock hoolock*) of Bangladesh are in trouble. This strictly arboreal species have been reduced to approximately 300 individuals in 22 isolated forest pockets, containing populations ranging in size from two to 84 individuals. Forest clearance due to logging and agricultural expansion has led to this situation. Some of the remaining populations no longer live in natural forest, but instead in agroforests (forests under cultivation) of exotic tree species used for timber, such as teak (*Tectona grandis*) and ironwood (*Xylia kerrii*)

I studied a group of gibbons living inside a teak plantation surrounded by tea estates, rice paddy fields, and houses in Sylhet Division of north eastern Bangladesh. My goal were to compare the group's feeding ecology and activity patterns to those reported for gibbons living inside protected areas of natural and regenerating forest. I also studied the group's microhabitat use patterns to identify what habitat attributes they preferred during different activities. This allowed me to examine how western hoolock gibbons modify their behaviours to survive in plantations and to recommend possible conservation measures to protect populations living in such habitats.

The gibbons rested more, fed less, sang on fewer days, and ranged over a smaller area than groups living in protected forests. They also preferred using the forest's interior over edge habitat. These results suggest the gibbons may have modified their behaviours in response to the human disturbances in and around the plantation, as they displayed similar behaviours to those reported for other primate species affected by logging and agricultural encroachment. Gibbons living in fragmented plantation habitats would most likely benefit from conservation efforts aimed to protect important gibbon feeding and sleeping trees from being harvested, to grow forest corridors between fragments, and to provide local people with alternatives to illegal resources collection within plantations.

Logging Elephants

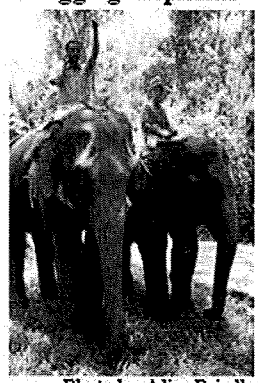


Photo by Alice Brindle

References

Ahsan, M.F. (2001) Socio-ecology of the hoolock gibbon (*Hylobates hoolock*) in two forests of Bangladesh. In: Chicago Zoological Society, (eds.) *The Apes: Challenges for the 21st Century*

Brookfield Zoo, May 10-13, 2000, Conference Proceedings. Brookfield: Chicago Zoological Society, pp. 286-299

Islam, M.A. and Feeroz, M.M. (1992) Ecology of hoolock gibbon of Bangladesh. *Primates*, 33 (4), 451-464

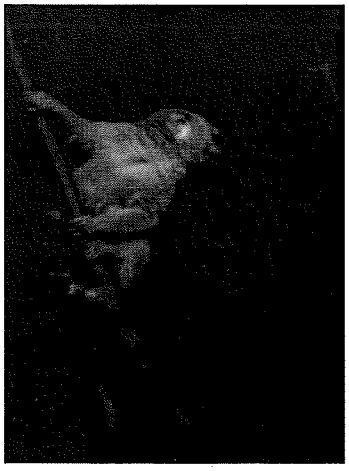
Muzaffar, S.B. et al. (2007) Habitat characteristics of the endangered hoolock gibbons of Bangladesh: the role of plant species richness. *Biotropica* 39 (4), 539-545

Zoo visitor impacts on owl monkeys (*Aotus lemurinus griseimembra*) at Bristol Zoo

By Clare Vaughn

Research in zoos is becoming more important as the status of many species in the wild becomes threatened. Zoos provide education and public awareness of threatened species, and conduct research on captive animals that can be applied to their wild counterparts. Most zoo research today focuses on animal welfare and captive living conditions. Visitor impact on zoo animals is the most common focus today. Most studies focus on primates, few on other mammals. Hosey and Druck (1986) and Chamove et al. (1988) studied effects of visitor number on multiple species of primates. Carder and Semple (2008) studied anxiety in gorillas. Visitor effects on brown bears were studied by Montaudouin and LePape, (2005). And effect of noise from construction was studied in pandas by Powell et al. (2006). There have been many visitor impact studies on diurnal primates but few on nocturnal primates.

The owl monkey (*Aotus spp.*) is a small nocturnal New World primate that lives in a diverse number of habitats in South America. It is monogamous, mating for life and families usually range from two to 6 individuals. *Aotus* are frugivores but often eat insects as well. Male owl monkeys are the primary caretakers of the infants in the wild.



Owl monkey at Bristol Zoo Gardens, United Kingdom

Owl monkeys are difficult to observe in the wild due to their nocturnal and arboreal nature. Therefore, there is not much literature on their behaviour in the wild. In captivity, most studies have focused on vision, genetics, physiological, and malaria research (Fernandez-Duque, 2007; IUCN, 2009; Kinzey, 1997; Wright, 1978; Wright, 1981).

The current study focused on visitor impacts on owl monkeys (*Aotus lemurinus griseimembra*) at Bristol Zoo Gardens, UK, from 4 June-28 July 2009. Study individuals included two adults and one juvenile. The owl monkeys were housed in Twilight World, which operated on a 12-hour reversed light cycle. The owl monkeys shared their enclosure with two adult two-toed sloth, and three six-banded armadillos. Sampling methods used were point-time focal sampling and continuous focal sampling for 5 minute periods. Visitor variables included: visitor noise level and visitor number. Animal variables included: activity budget behaviours and rare behaviours (stereotypies).

Data was analyzed using Spearman Rank Correlation to find visitor effects on state behaviours and rare behaviours. Kruskall-Wallis Test was used to compare rates of behaviours between individuals. Results indicated that there were significant differences in activity budgets and rates of behaviour between individuals. The male mostly rested, whereas the female mostly ate. The juvenile played a lot (Table 1).

The individuals differed in rates of locomotion, resting and playing. Visitor numbers were correlated with locomotion and resting. No correlations were found for rare behaviours. Two types of stereotypical behaviours were observed; pacing by the female and head-twirling by the male. Interactions between the owl monkeys and sloth/armadillo were rare. But when they did occur the interactions were mostly initiated by the juvenile. An infant was born the day before the end of the study.

Behaviour	Male	Female	Juvenile
Locomotion	16.7	26.0	30.1
Feeding/foraging	12.9	20.1	18.0
Resting	60.7	37.1	32.6
Playing	0.8	3.6	4.3
Out of sight	7.8	12.2	14.8

Table 1. Individual activity budgets

Visitor density was shown to have an effect on owl monkey behaviour, but whether visitors have a negative impact on their welfare is unknown. Resting was the most common behaviour in all individuals and this could be due to living in captivity enclosure size or mirror activity patterns in the wild. More research must be done to further understand visitor effects on the owl monkeys, taking into account other environmental or individual factors. Suggestions for future research include: long-term research, more observations when no visitors are around, and conduct a multi-zoo study. Setting up an educational project on visitor knowledge and behaviour on owl monkeys at multiple zoos would be beneficial to understanding the visitor effect.

References

Carder, G. & Semple, S. (2008) Visitor effects on anxiety in two captive groups of western lowland gorillas. *Applied Animal Behaviour Science,* 115, 211-220

Chamove, A.S., Hosey, G.R., & Schaetzel, P. (1988) Visitors excite primates in zoos. *Zoo Biology,* 7, 359-369

Fernandez-Duque, E. (2007) Aotinae: Social monogamy in the only nocturnal haplorhines. In: *Primates in Perspective.* (eds.) Campbell, C.J., Fuentes, A., MacKinnon, K.C., Panger, M. & S.K. Bearder. Oxford University Press, Oxford, pp. 139-154.

Hosey, G.R. & Druck, P.L. (1987). The influence of zoo visitors on the behaviour of captive primates. *Applied Animal Behaviour Science,* 18, 19-29.

Montaudouin, S. and LePape, G. (2005) Comparison between 28 zoological parks: Stereotypic and social behaviours of captive brown bears (*Ursus arctus*). *Applied Animal Behaviour Science*, 92, 129-141

Morris, N., and Richardson, A. (2008) Behaviour and vocal repertoire of captive owl monkeys (*Aotus lemurinus griseimembra*) in Bristol Zoo Gardens, UK. BS in Biology, University of Bristol

Powell, D.M., Carlstead, K., Tarou, L.R., Brown, J.L., and Monfort, S.L. (2006) Effects of construction noise on behaviour and cortisol levels in a pair of captive giant pandas (*Ailuropoda melanoleuca*). *Zoo Biology*, 25, 391-408

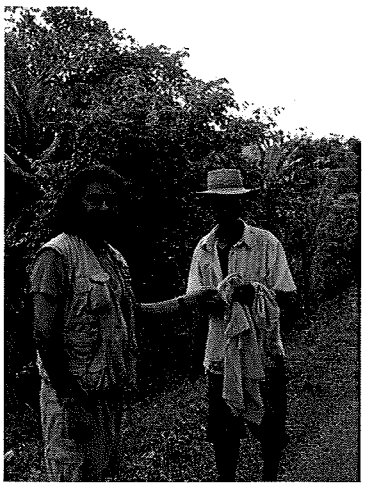
Wright, P.C. (1978) Home range, activity pattern, and agonistic encounters of a group of night monkeys (*Aotus trivergatus*) in Peru. *Folia Primatologica*, 29, 43-55

Wright, P.C. (1981) The night monkey, genus *Aotus*. In: *Ecology and Behaviour of Neotropical Primates 1.* (eds.) Coimbra-Filno, A.F., and Mittermeier, R.A., pp. 211-240

Conservation strategies for the Azuero endemic primates, Azuero Peninsula, Panama

By Pedro G. Méndez-Carvajal

The Azuero howler monkey (*Alouatta coibensis trabeata*) and Azuero spider monkey (*Ateles geoffroyi azuerensis*) share two situations: both of them are endemic to Panama and both are reduced to three of the nine provinces that are present in Panama (regional endemism) (Méndez-Carvajal, 2005). They also are present in the three most devastated provinces (González, 2002) and they both are considered Critically Endangered (IUCN: CR B1+2abcde, C2a) (Groves, 2005). The lack of scientific information for these species and the weak determination in their taxonomy is another factor that has affected these species. From 1848 to 2003, *Alouatta coibensis trabeata* has at least five different scientific papers detailing its taxonomy changes (Méndez-Carvajal, 2002). The unstable situation of its taxonomy has affected the law that advises the Panamanian government to take care of this species. With this common misunderstanding of this monkey's taxonomy, it is difficult to explain and support any conservation plan. The changing taxonomy also affects the conservation status of the species frequently between Vulnerable, Endangered or Critically Endangered.



Pedro Mendez interviewing a person in the community of Bajo Limpio, Tonosi, Azuero Peninsula Panama. (Photo by: Ivelisse Ruiz-Bernard).

As a part of my project evaluating the total population of these two taxas, I have initiated conservation strategies trying to inform the local people about primate conservation. The activities through my project started with talks, Panamanian newspaper publications , handing out t-shirts with messages of environmental education, as well as stickers with slogans of protection and conservation of Azuero and Coiba howlers. Other activities include building some signs for protection and basic information about the Azuero primates, and locating these on the two common bridges at Oria and La Miel rivers in Las Tablas, Los Santos Province, where the monkeys are commonly visited by the people. These signs are in English and Spanish, and give readers the opportunity to understand basic information about the primates of the region, as well as to discourage feeding and promote conservation of the forest.

The next step is to obtain more cooperation from the Panama Environmental Authority (ANAM) and other NGOs that could

help support the necessary development of a long-term population study and fund an environmental education program for the schools on Azuero Peninsula. I will encourage the involvement of children and landowners in conservational projects, as recommended by Horwich (1998), as this is important for ensuring the monkeys' survival. However this project will not involve associating the conservation project with income generation for people, instead it will inform the communities, and enable them to volunteer their efforts to protect their own primates. As the local people are mostly landowners and farmers, they can take simple steps to create a positive change for conservation.

In 2008, as a part of this MSc. in Primate Conservation at Oxford Brookes University, I prepared a basic informative guide to train the students from secondary schools about the biology and conservation of the primates in Azuero Peninsula, a strategy previously adopted in Panama to protect the Harpy Eagle by Peregrine Fund Panama (Méndez-Carvajal et al., 2006), and also suggested by Jacobson et al., (2006). The project has been submitted to the Panama Educational Ministry (MEDUCA). Brief talks about monkeys have been provided to forest rangers, who can help with the monitoring of the Azuero primates. Due to the high deforestation in the area, the Panama Environmental Authority has begun a reforestation plan with native trees to assure the headwaters of the principal towns in Azuero. This is an initiative of the Panama Environmental Authority (ANAM) to conserve the gallery forest and buffer areas of the Cerro Hoya National Park and important rivers in Azuero Peninsula. This activity will increase the possibilities of survivorship of the primates in the region, but further information has to be spread around the towns to create a greater awareness about native fauna and flora.

Ivelisse Ruiz-Bernard, Glenis de León, Valeria Franco, and Tacho González, installing an information sign in the bridge of La Miel, Las Tablas, Azuero Peninsula, Panama. (Photo by: Pedro Mendez-Carvajal).

In addition to the local community level, this conservation plan offers training on primate survey techniques at the University of Panama, and involves biology students in the annual population survey in Azuero Peninsula. The main idea is to create a strong primatology group working on surveys, one of the first steps that Panama needs in order to conserve its eight endangered primates in reserves and fragmented forest. The cooperation of the communities has been a huge step, as well as the cooperation of the Panamanian newspapers publishing our information in an accessible language for the local people. Although the process of expanding out to the entire peninsula is slow due to the lack of logistical support, the strategies already being carried out in the local area have made an excellent impact through the assistance in the population surveys and by decreasing the hunting of monkeys.

References

Horwich, R.H. (1998) Effective solutions for howler conservation, *International Journal of* Primatology, 19, 579-598

González, D.E. (2002) *Estado Actual de la Información Forestal de Panamá*. Consultoría Organización de las Naciones Unidas para la Agricultura y la Alimentación (FAO), pp. 13

Groves, C. (2005) Order primates. In: *Mammal Species of the World: A Taxonomic and Geographic Reference,* (eds.) Wilson, D.E., Reeder, D.M., John Hopkins University Press, pp. 2142

Jacobson, S.K., McDuff, M.D. and Monroe (2006), M.C. *Conservation Education and Outreach Techniques.* Oxford University Press, Oxford, pp. 480

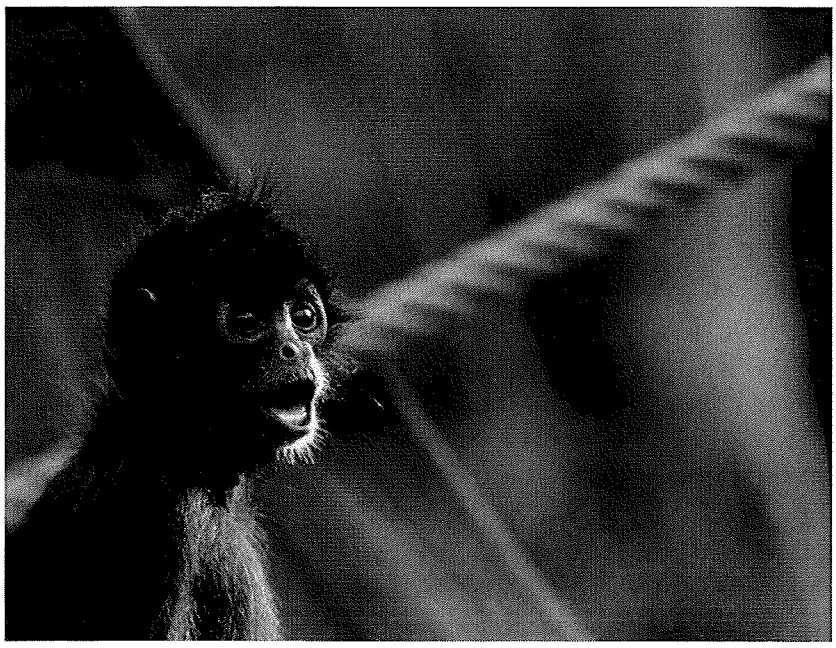
Méndez-Carvajal., P. G. (2002) El mono aullador kun-kun, un primate endémico en pelígro de extinción. *Icaro,* 7, 28–30

Méndez-Carvajal, P.G. (2005) Population study of Azuero howler monkey (*Alouatta palliata trabeata*), Herrera, Republic of Panama. *Neotropical Primates,* 13 (3), 1-6

Méndez-Carvajal, P.G., Curti, M., Herrera de Montuto, K., and Benedetti, A. (2006) *Las Aves Rapaces: Guía Didáctica de Educación Ambiental.* Fondo Peregrino Panamá, pp. 112

Apenheul photo competition winners

Congratulations to first prize winner Johanna Rode, who walks away with £100 for her photo of a spider monkey at Apenheul Primate Park! Congratulations also go to second prize winner, Livvi Rhodes for her photo of a gorilla and its reflection, and Vicky Parker, for her photo of a sunbathing ring-tailed lemur.



Spider monkey at Apenheul Primate Park.
Photo: Johanna Rode