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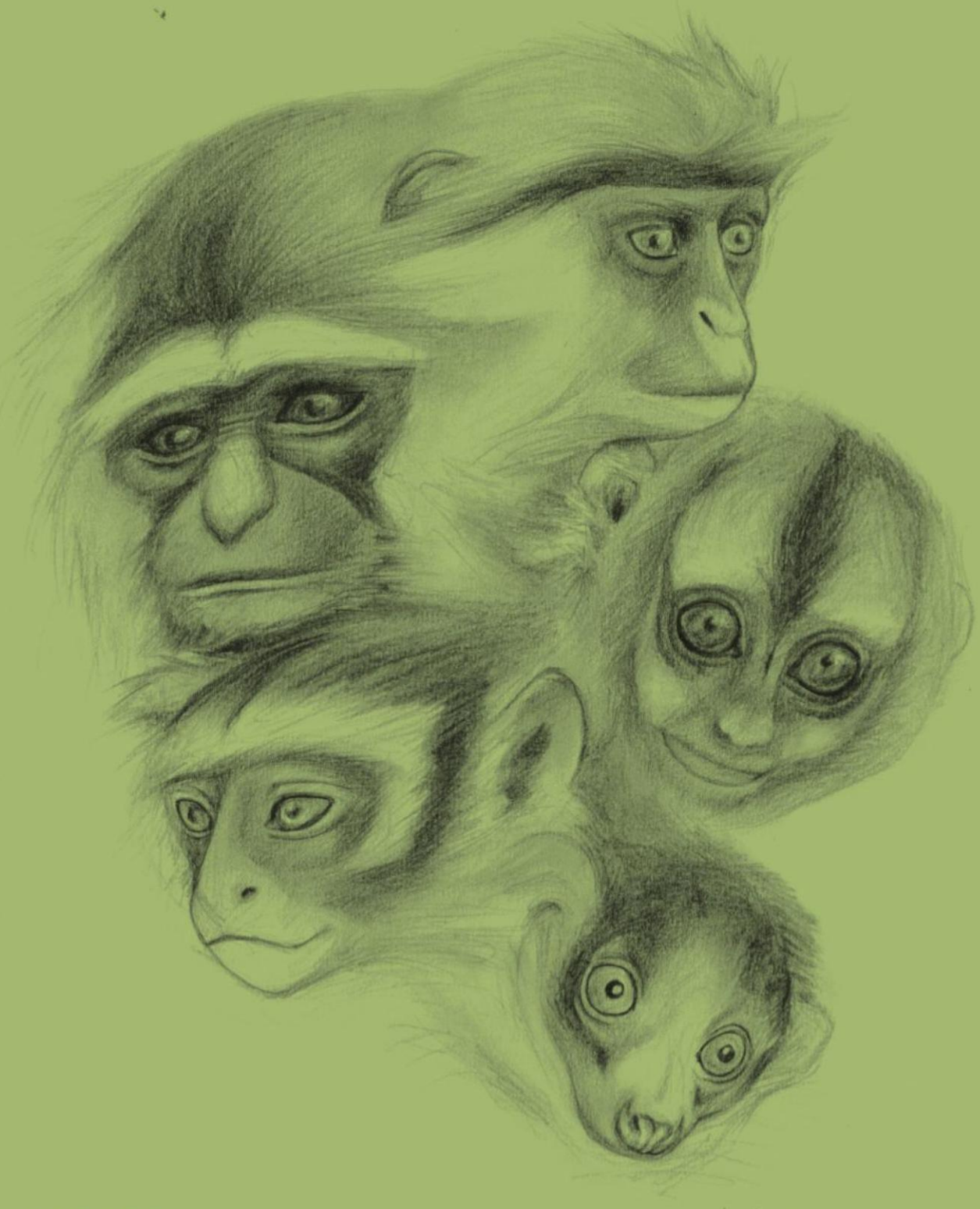

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MSc Programme
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Address
Canopy c/o Vincent Nijman
Faculty of Humanities and Social Sciences
Oxford Brookes University
Oxford
OX3 0BP
UK

Website
MSc Primate Conservation:
www.brookes.ac.uk/primates

Front Cover Design
Hellen Bersacola (Switzerland)
hellenbers@gmail.com

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Letter from the editors

We are pleased to present the first bilingual edition of Canopy—Oxford Brookes University´s in house journal of primate conservation—in honour of this year´s International Primatological Society´s Congress XXIV in Cancun, Mexico.

This issue exclusively features articles pertaining to Neotropical primates, with topics spanning from conservation to captive care to ecology. We hope that this issue will reach an audience previously inaccessible to Canopy, and contribute to the wealth of knowledge disseminated at the IPS conference.

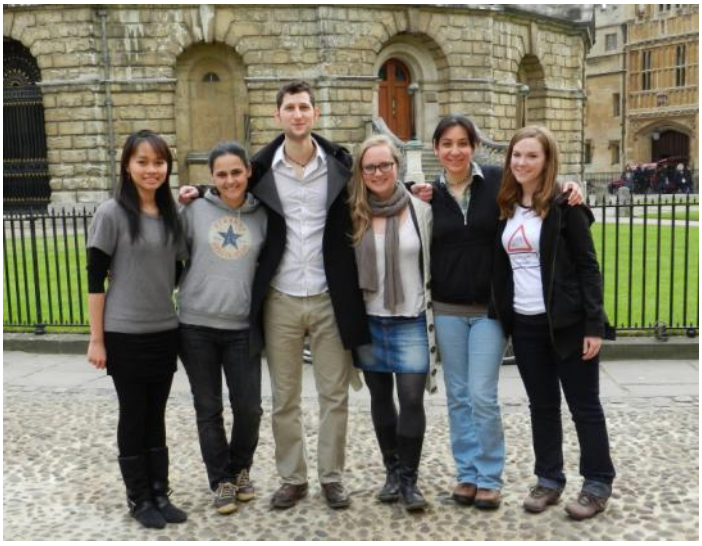
This edition aspires to highlight this important region and brings forward the issues and opportunities available for conservation and research there. We are excited to profile a growing interest amongst students to conduct their fieldwork in this ecologically significant zone; more than 20% of this year´s field research projects will be conducted in Central and South America. The rich diversity of primates coupled with current conservation challenges underscore a need for increased research in the Neotropics. The featured up-and-coming primatologists in this issue have written inspiring articles that we trust will draw future research by both emerging and veteran primatologists.

We offer our warm thanks to Laura, Alejandra, and Simon who generously donated their time for translations. Hope to see you in Cancun August 12-17, 2012!

Sincerely,

The Editors

Amanda Gray (US)
Laura Ginn (US)
Magdalena Svensson (Sweden)
Simon Breen (US)
Trang Nguyen (Vietnam)



Trang, Laura C, Simon, Magdalena, Alejandra & Amanda

Letter from the course lecturer

Welcome to the new issue of Canopy, the in-house journal of the MSc in Primate Conservation at Oxford Brookes University. With the 24th conference of the International Primatological Society being held in Cancun, Mexico we felt it was not more than appropriate to have a special Neotropical issue. Coincidentally I write this foreword sitting in the sun at the Wild Future Monkey Sanctuary in Looe, Cornwall, surrounded by woolly monkeys and various species of capuchins. The MSc students are here on a weekend fieldtrip, full of workshops and lectures on the primate pet trade and captive management of primates.

The MSc and the associated PhD programme in Primate Conservation always had a strong Neotropical angle. Over the years habitat country students from Mexico, El Salvador, Panama, Colombia, Guana and Brazil amongst other countries have successfully completed the course and we have had numerous students conducting their fieldwork in Neotropical countries such as Costa Rica, Panama, Colombia, Ecuador and Argentina.

One could even say that if not for the Neotropical primate conservation the MSc in its current form, and hence the journal you are reading now, would not have existed. After having worked in Africa for over 30 years it was a visit to the little remaining forest on Brazil's Atlantic coast that made Professor Simon Bearder decide to initiate the MSc at Oxford Brookes University back in 2000. The large-scale destruction of the forest and the dedicated efforts of a few to protect the remaining primates showed both the worst and the best in man, and highlighted the need for an increased focus on primate conservation.

In this issue you can read about the conservation and ecology of Peru's endemic primates, the work of Inti Wara Yassi in Bolivia and studies on captive Neotropical primates among other research conducted by students on the Primate Conservation MSc.

I hope you enjoy,

Vincent Nijman
Reader in Primate Conservation

The yellow-tailed woolly monkey, *Oreonax flavicauda* and the Peruvian night monkey, *Aotus miconax*: A comparison of occupancy in Cabeza del Toro and Cordillera de Colán, Peru

Nicola Campbell & Sophia Daoudi
nicolacampbell222@hotmail.co.uk
sophiadaoudi@hotmail.co.uk

One of the principal goals of ecology is to document predictions and estimates of species abundance. Therefore, a change in the abundance of rare and/or endangered species is particularly important for conservation biologists (Strayer, 1999; Sutherland, 2000; Pollock, 2006). The yellow-tailed woolly monkey, *Oreonax flavicauda*, and the Peruvian night monkey, *Aotus miconax*, are endemic to the tropical montane cloud forests of north eastern Peru, part of the Tropical Andean biodiversity hotspot. The hotspot is "an area of exceptional concentration of endemic species and experiencing exceptional loss of habitat." To qualify as a biodiversity hotspot, an area must contain over 1500 of the world's 30,000 endemic plant species and have lost over 70% of its original habitat. The Tropical Andes has over 15,000 plant species and has lost over 75% of habitat (Conservation International, 2007) and hosts 6.7% and 5.7% of the global endemic plant and vertebrate totals respectively (Myers *et al*., 2000, Brehm *et al*., 2005).

Both primate species are currently listed by the IUCN as Critically Endangered (A4c) and Vulnerable (A2c) respectively with decreasing population trends (IUCN, 2010). The distribution, abundance and habitat preference of both species remains understudied throughout their habitat range and the paucity of data increases the importance and necessity of census surveys to aid current and future conservation planning (Shanee *et al*., 2011).

The aim of the study was to assess the use of occupancy (Mackenzie *et al*., 2002) with fixed-point sampling as a tool for monitoring two species that are extremely difficult to detect by means of repeated detection/non-detection surveys, and to model occupancy and detectability as functions of human disturbance and several habitat characteristics. Presence/absence surveys provide a more practical alternative for monitoring species, especially those that are difficult to detect (Singh *et al*., 1999; Ross & Reeve, 2003). However, individuals may still remain undetected even though they are present in the survey area. This critical issue is often disregarded in data analyses and can result in biased estimations and incorrect conclusions (Mackenzie *et al*., 2006; Guillera-Arroita *et al*., 2010). Occupancy is a state variable that evaluates the proportion of an area occupied by a species using detection/non-detection surveys and accounts for detection errors (Mackenzie *et al*., 2002).

Surveys were carried out in two different areas of cloud forest in the north eastern Peruvian Andes: Cabeza del Toro (05°39'22.6" S 077° 54'50.2" W), an unprotected area of forest and Cordillera de Colán (05°38'18.1" S 078°16'48.0" W), a natural sanctuary that is protected by the Peruvian government (Ministerio del Ambiente, 2009; Navarro, 2010). Due to the dense nature of the vegetation and the steepness of the terrain, points were selected along existing trails. Twenty fixed-points (with 200 m distance between points) were marked in each of the survey areas and each point was surveyed 5 times for a maximum of 20 minutes. Habitat covariates were collected and included canopy cover, tree diversity, altitude, moon phase and weather.

Using the program PRESENCE, data from the two areas were modelled using predefined

parameterisations, where ψ (the probability of occupancy) and p (the probability of detection) remained constant (i.e. not forced to be functions of covariate data) (Donovan & Hines, 2007). Then, all points were combined to create one data set; first, the simplest model was evaluated, both ψ and p were assumed to be constant, followed by the addition of site-specific covariates to the model.

The results indicate that the detectability of *O. flavicauda* was extremely low (≤10%) in both study areas. Modelling demonstrated that elevation and weather (rain and wind) were important covariates for predicting the probability of detection of *O. flavicauda*. The evaluation of factors affecting occupancy indicated strong support for models that incorporated elevation, however in the top-ranked model canopy cover yielded the highest probability estimate of occupancy.

Table 1.

	Oreonax flavicauda	*Aotus miconax*
Naïve occupancy	0.08 (8%)	0.24 (24%)
Probability of detection (p)	0.39 (39%)	0.30 (30%)
Probability of occupancy (ψ)	0.51 (51%)	0.51 (51%)
Factors affecting detectability	Altitude and weather	Moon phase
Factors affecting occupancy	Canopy cover	Altitude and tree diversity
Number of site visits needed to ensure	6	9

Detectability of *A. miconax* was also lower than predicted (24%) with tree diversity and altitude being important factors in occupancy and moon phase affecting the detectability of the species.

Occupancy modelling with fixed-point sampling proved to be an effective method of sampling for the type of terrain and for the species. It is an easy method to implement in the field requiring few resources and minimal labour input. It is also a rapid method of survey that allows large areas to be assessed in a short time (Neilson 2010). These are important considerations for future monitoring programs as conservation effort is often constrained by financial support.

One of the main limitations to the study was that sampling was confined to existing trails in both survey areas (except for one trail), but due to the difficulty of the terrain and the relatively short time of the study, this was the only option. Therefore, it can be argued that these surveys only inform us about populations around the trails, and limited information for populations beyond the trails. Recommendations for further study are longer survey periods that will include multiple seasons, an increase in the number of survey repeats to ensure 95% confidence intervals for occupancy data and to expand the study to infer abundance and home range size for both species.

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Space utilisation and activity budgets for white-faced sakis (*Pithecia pithecia*) and common squirrel monkeys (*Saimiri sciureus*) in a mixed-species exhibit

Jason Kromer Rogers
jasonkromer2003@yahoo.co.uk

Historically zoos, animal parks, and private collectors have combined multiple species in one enclosure. In particular, mixed bird exhibits (Griffin *et al*., 2005) and various mixed reptile exhibits have proved highly successful (Thomas & Maruska, 1996). Successes have also been achieved when combining certain primates. Dalton and Buchanan-Smith (2005) report on a successful exhibit containing Goeldi's monkeys and Pygmy marmosets, and Wojciechowski (2004) describes a successful exhibit including four species of Old World monkey (red-capped mangabeys, black and white colobus, mandrills, and sooty mangabeys). Mixed-species exhibits provide an efficient and cost-effective use of resources, are stimulating for the species involved, make for an interesting viewing experience for the visiting public, and can facilitate education.

For my study, I observed a mixed-species exhibit containing white-faced sakis (*Pithecia pithecia*) and common squirrel monkeys (*Saimiri sciureus*) at Cotswold Wildlife Park and Gardens (Figure 1). The purpose of my study was to analyse how the two species utilised the enclosure space, to compare the activity budgets for both species, and to see how the two species interacted with each other, if at all.

There were clear species differences in space utilisation. The squirrel monkeys visited the upper level 12.01% of the time compared with 4.24% for the sakis. This can be explained by the differences in the primary methods of locomotion between the species and the availability of suitable substrates. The sakis utilised the inner quarters more often (20% of the time) than the squirrel monkeys (11%). The shy, nervous nature of this species would help to explain this (Shoemaker, 1982).

There were also significant differences in behaviour. Sakis self groomed more frequently (10.43%) than the squirrel monkeys (1.82%). Allogrooming was non-existent for the squirrel monkeys whereas it occupied 6.11% of the sakis' time. Murdock (1978) found a stress reduction function to the performance of grooming, which could explain why the more nervous sakis engaged in more frequent grooming bouts. Locomotion was another category where there were differences, with the squirrel monkeys spending 16.70% of their time locomoting compared with 6.58% for the sakis. Some behaviours were limited to one or other of the two species. For example, mating only took place in the sakis and urine washing was only witnessed for the squirrel monkeys.

Interspecies interactions were limited to a few agonistic incidents. Thomas and Maruska (1996) found that aggression in mixed-species exhibits was mainly caused by competition for available resources. In this example, the resource in question was a favoured perching spot. Neveu and Deputte (1996), when investigating captive grey-cheeked mangabeys *Cercocebus albigena albigena*, found that reducing the number of perching locations significantly increased the amount of aggression in the group. Visitors and their dogs also had an effect on the stress levels of the primates and their subsequent behaviours.

My recommendations discussed the future of the remaining squirrel monkeys in both social and specifically reproductive terms. I also suggested the provision of an additional perching

Figure 1. Photos (*left to right*): male saki, female saki (*Pithecia pithecia*), squirrel monkeys (*Saimiri sciureus*) at Cotswold Wildlife Park. Photo by author.

platform on the front of the inner quarters building to accommodate the sakis and the strategic placement of camouflage netting to minimise the stress imposed on the primates.

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A comparison of two habitats used by the Critically Endangered yellow-tailed woolly monkeys (*Oreonax flavicauda*)

Jermaine B. Clark
jermainebclark@gmail.com

The yellow-tailed woolly monkeys (*Oreonax flavicauda*) are in dire need of habitat protection and management programs to ensure their survival (DeLuycker, 2007). However, there have been limited studies conducted with this species and its cloud forest habitat; very little is known about their community structure, behavioural and diet ecology, and habitat preferences (Shanee *et al*., 2007). The monkeys utilize the Peruvian Cloud forests as their only habitat and as a consequence are faced with pressures of habitat loss and hunting for the pet trade (Luna ,1980).

This project was conducted as the first habitat study of the species in the district of Amazonas in the Peruvian Andes, over a three month period – May to July, 2009. Using the point-quarter sampling technique (Schwitzer *et al*., 2007), two areas known to be inhabited by *O. flavicauda* were sampled and it was found that they were significantly different based on their density as it is related to basal cover, which was derived from the diameter at breast height (DBH) of the trees.

Figure 2. *O. flavicauda* foraging in moss for insects. Photo by J. Clark.

Figure 1. View from study site 2 – Hierba Buena. Photo by J. Clark.

In each area 100 sample points were taken, 404 trees measured, and 153 trees specimens collected for taxonomic identification. These data were then used to describe the habitats and link tree species utilisation by the monkeys to the size of the trees, since DBH is proportional to fruit yield (Chapman *et al*., 1992). It was found that the disturbed site, Peroles, had more fruit trees, by genus and plants per hectare, than the healthier site Hierba Buena (Figure 1), despite its degraded state. It was also found that all trees identified as utilised by *O. flavicauda* were significantly larger in DBH than those not selected.

An important observation was recorded; the monkeys spent a significant amount of time eating fruits from vines growing on the tall trees and searching in the tree moss for insects (Figure 2). This information gives an indication of other means of foraging employed by *O. flavicauda.*

As a major output of the project all the feeding trees used by the monkeys were identified scientifically and by local names. Of seven total plant genera identified as feeding trees, only two were found in both sites and in large numbers. The sites were found to be very different based on their overall composition of tree genera and it was evident that Peroles was a more suitable habitat for *O. flavicauda* based on food availability. The project contributed to research being conducted by Neotropical Primate Conservation (NPC), a non-profit organisation still working to improve the circumstances and increase the likelihood for the survival of the yellow-tailed woolly monkeys.

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Improving education and research capacities at la Comunidad Inti Wara Yassi

Allison Hanes
allisonhanes@gmail.com

La Comunidad Inti Wara Yassi (CIWY) is a Bolivian nonprofit organization working to defend animals and the environment. The name translates to sun, star, and moon in the indigenous languages Quechua, Aymara, and Guaraní Chiriguano, representing the main ethnic groups in Bolivia and symbolizing cultural unity. Their mission is to educate and inspire mankind to uphold values that promote life, conservation, preservation, and the recuperation of biodiversity. CIWY is recognized nationally and internationally for their work in environmental protection, animal welfare, and animal rights, as well as their good practice in wildlife care and the importance that it bestows upon the conservation of biodiversity (CIWY, 2012).

CIWY has established and manages three wildlife refuges (Machia, Ambue Ari, and Jacj Cuisi) in Bolivia. The hundreds of animals it provides refuge to are mostly confiscated from the wildlife trade, or are ex-pets from Bolivian homes. World commerce in exotic wildlife is a complex and lucrative business worth billions of U.S. dollars annually and comprises 40,000 primates each year (Fuller *et al*., 1985), with Bolivia acting as one of the largest trading centres globally (ibid). CIWY-rescued animals include white-faced capuchin monkeys, tufted capuchin monkeys, spider monkeys, howler monkeys, squirrel monkeys, night monkeys, pumas, ocelots, jaguars, spectacled bears, coatis, tayras, and numerous reptile and bird species. Many of these species have reached Endangered status on the International Union for Conservation of Nature (IUCN) Red List (IUCN, 2012).

CIWY was founded by Juan Carlos Antezana and Tania Baltazar Lugones in 1986, originally to support the needs of relocated children whose parents worked as miners. The organization provided these children with fieldtrips to Bolivian forests and national parks as part of an educational program. The children were astonished by the environmental degradation they witnessed (namely, through slash-and-burn agriculture and wildlife abuse), and CIWY channeled their outrage into action (Figure 1). Shortly thereafter, they launched public awareness campaigns to expose the devastat-

Figure 1. (*left*) Members of CIWY protesting illegal logging in Bolivia; (*right*) trade in a Bolivian market. Photos from www.intiwarayassi.org.

ing effects of deforestation, and the first CIWY wildlife refuge was created on the edge of Villa Tunari, Bolivia (CIWY, 2012).

Today, the main objectives of CIWY are to support the Bolivian environment, its wildlife, and its underprivileged children. They achieve these goals through an interdisciplinary approach. They rescue and rehabilitate wild animals that have fallen victim to trafficking and abuse, they appropriately care for all wild animals rescued from captivity, and they coordinate and implement research and education programs that will support and contribute to conservation. The organization also teaches children skills such as carpentry and tailoring,

Figure 2. CIWY Secretary for International Relations Jonathan Cassidy, Co-founder/President Nena Baltazar, and children welcome Dr. Jane Goodall to Parque Machia. Photo from www.intiwarayassi.org.

thereby increasing the children's self-esteem and their ability to support themselves and their families. Through their efforts CIWY has saved thousands of birds, reptiles, and mammals from the massive wild animal trade of Bolivia. Their campaigns helped shut down an illegal wild animal market in the Bolivian city of Sucre. They have protected 1,000 hectares of forested land and have over 5,000 supporters across the globe. Furthermore, endemic, endangered, and exotic species have found refuge in CIWY's parks (IUCN, 2012). More than 10,000 people have contributed to CIWY's work from all around the world to make these achievements possible (CIWY, 2012).

CIWY is expanding in all areas and publicity has grown a great deal, especially after Jane Goodall became a patron of CIWY's United Kingdom charity arm—Friends of Inti Wara Yassi (FIWY)—in 2007 (Figure 2). As a result, CIWY has had the privilege of facilitating the Jane Goodall Institute children's program Roots & Shoots locally in the village of Villa Tunari. International partnerships with organizations such as Wild Futures—a registered British charity promoting primate welfare and conservation—have played a vital role in the development and expansion of CIWY.

CIWY has come a long way and all aspects of the organization are improving. The MSc in Primate Conservation programme at Oxford Brookes University now offers opportunities to work with Inti Wara Yassi as a means of expanding their Neotropical primate research.

This year marks the first in which a master's student will be collaborating with Inti Wara Yassi: current 2012 MSc in Primate Conservation student Sarah Harding will spend three-months at CIWY conducting environmental enrichment fieldwork comparing the effects of browse material and food puzzles on primate behaviour between species. This study aims to reduce stereotypic and abnormal behaviours. This will hopefully be the first of many collaborations with international universities to conduct research at Inti Wara Yassi. Students interested in ecotourism, environmental education, or any other research topic are encouraged to contact them. Please visit the CIWY website www.intiwarayassi.org to read more about the organization or to make a donation. Email info@intiwarayassi.org to inquire about volunteer or research opportunities.

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An investigation into the environmental factors affecting behavioural stress in captive pied tamarins, *Saguinus bicolor*

Camilla Møller Holm, Nancy E C Priston, Eluned C Price & Dominic Wormell
camillamholm@ofir.dk

Captive populations are being kept in zoos for the reason of breeding endangered species and in order to be able to produce offspring that potentially could be reintroduced in the wild (Marriner & Drickamer, 1994). Through appropriate and informative exhibits, that stimulate species-typical behaviours and may enhance the well-being of the animals, zoos can use the animals for visitor directed education about conservation (Marriner & Drickamer, 1994; Price & Stoinski, 2007). Yet, several primate studies have revealed that visitors can have severe effects on the animals (Hosey & Druck, 1987; Hosey, 2005; Wells, 2005) and that small arboreal primates are more strongly affected by the presence of visitors than larger primates (Chamove *et al*., 1988). It is important to keep stress levels low among animals that are involved in captive breeding programs as high levels of stress are believed to impair the reproductive function (Smith, 2004). The pied tamarin, Saguinus bicolor, has been assessed as Endangered by IUCN (Mittermeier *et al*., 2008) and in order for this species to survive in the future; captive breeding is vital (Wormell *et al*., 1996).

This study aimed to clarify some of the stressors that occour in captivity so that these can be reduced. Three null hypotheses were evaluated: (a) Tamarins kept in on-show enclosures (Figure 1) perform a larger amount of stress related behaviours than tamarins kept in off-show enclosures; (b) the tamarins perform different behaviours when they are in the indoor enclosures compared to when they are in the outdoor enclosures due to visitors and other callitrichids nearby; and (c) visitor densities affect the behaviour of tamarins kept in on-show enclosures.

Data were collected over six weeks (May-July 2009). Twenty min. focal point time sampling (following Tardif *et al.*, 1990; Marriner & Drickamer, 1994) with 15 sec intervals combined with one-zero sampling was used to record behaviour (Martin & Bateson, 2007). A total of 19,760 sample points were collected.

Figure 1. On-show exhibit at DWCT.

Focal animals were followed as they moved between indoor and outdoor enclosures.

Counts of visitors were carried out before each 20 minute focal sample for a period of 5 minutes in on-show areas. All visitors standing or moving within 4 m of the enclosure front were counted (following Davey, 2006).

SPSS version 17 was used for all statistical analyses. Wilcoxon tests were used for comparing behaviours performed inside vs. outside, Mann-Whitney U tests were employed to compare behaviours between on-show and off-show, and Friedman tests were used to compare behaviours performed in low, medium and high visitor conditions. All tests were two-tailed with a significance value of $p = 0.05$.

No significant differences were found (Mann-Whitney U: $p > 0.05$) between tamarins kept in on-show and off-show exhibits (Fig. 1) and no significant differences were found in behaviour performed by on-show tamarins during low, medium, and high visitor densities (Friedman: $p > 0.05$). Comparisons of behaviour performed inside and outside showed that the overall sample population spent more time resting outside (Wilcoxon, $N = 16$, $z = 2.22$, $p = 0.026$).

Surprisingly, results illustrated that visitors do not have an effect on *Saguinus bicolor* at DWCT. The explanation for this result may be that all the on-show exhibits at DWCT are very large and naturalistic (Fig. 2) and that the tamarins have free access to their indoor units away from the public. The off-show exhibits are considerably smaller with less vegetation. Hosey (2000) suggested that modern naturalistic cages can give animals the choice to comfortably move away from the public view when desired, and that large cages minimize the visitor effect. The tendency to rest more outside instead of inside may be reasoned by the many sunny and warm days during the study. The tamarins may have become accustomed to the presence of visitors as all but one of the study animals were born in captivity. It was noticeable that *S. bicolor* reacted to the vocalisations of other callitrichids and also to the presence of keepers; therefore further studies are essential to reveal the impacts of these factors on *S. bicolor.*

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Conservation and Ecology of Peru's Endemic Primate Fauna

Sam Shanee, Catherine Brewis & Noga Shanee
samshanee@gmail.com

In the northeastern cloud forests of Peru, lives Peru's three endemic primate species which are among the least studied and most endangered of all primates, the Critically Endangered yellow-tailed woolly monkey (*Oreonax flavicauda*) (Figure 1); the Vulnerable Andean night monkey (*Aotus miconax*) (Figure 2) and the Critically Endangered Andean titi monkey (*Callicebus oenanthe*). *O. flavicauda* (Figure 3) is also considered as one of the world's 25 most endangered primate species and therefore a conservation priority (IUCN/PSG, 2009). Thought extinct until its rediscovery in the mid-1970s (Mittermeier *et al*., 1975) *O. flavicauda* has been the focus few studies mainly because of its rarity and the physical and sociopolitical difficulties of working in the area.

Figure 1. *Oreonax flavicauda*. Photo courtesy of Kevin Schafer.

Since 2007, UK charity Neotropical Primate Conservation (NPC) has been working to conserve remaining habitat for these species and up-dating knowledge on the species' ecologies.

So far we have collected data on the population densities (Shanee & Shanee, 2011a), species distribution (Shanee, 2011), behavioural patterns, activity budgets (Shanee & Shanee, 2011b), diet and ranging patterns (Shanee in-press) of *O. flavicauda*. Findings from population surveys are the first density estimates for *O. flavicauda* based on an extended study (conducted from May to September 2008 and November 2008 to March 2009). The results indicate that individual density estimates are between 8.27/km and 9.26/km², with group densities of 0.93/km2 and 1.04/km². The average group size from 44 reliable counts, including census walks and return walks, was 8.9 (min 3, max 19, SE 3.75). For *A. miconax* we have finished habitat surveys, behavioural studies (Shanee *et al.,* in press) and are currently undertaking density and distribution surveys. Also, we have made a predictive habitat analysis for *C. oenanthe* (Shanee *et al*.

Figure 2. *Aotus miconax.* Photo courtesy of Fabien Pekus.

2011) and preliminary density surveys (in Prep).

The widespread deforestation that has occurred in the northeast of Peru has, in many areas, forced these species into isolated forest patches (Shanee *et al*., 2007; Shanee, 2011; Shanee & Shanee in Press). Previous calculations of *O. Flavicauda*'s total range have been 11,240 km² (Leo Luna, 1987), 7,690 km² (Cornejo *et al*., 2009), and 7,240 km² (DeLuycker & Heymann, 2007). Our calculations (Buckingham & Shanee, 2009) show habitat loss to be even higher than expected, with

Figure 3. Baby *Oreonax flavicauda*.

only 6,302 km² of viable habitat remaining in Amazonas and San Martin. Our field surveys have allowed for the creation of the first maps covering the species total distribution and uncovered 'new' populations (Shanee, 2011). Our work showed similarly alarming rates of habitat loss, from an initial estimate of just under 20,000 km², current habitat is estimated at a little over 6,000 km² (Shanee *et al* .,2011).

Using these primate species as flagships for conservation (Dietz *et al*., 1993) we have focused our efforts on five principle areas: Investigation, Environmental Education, Reforestation, Sustainable development and Land Protection. By working closely with local communities and local and regional government we have begun the creation of a corridor of private and communal protected areas spanning the ranges of all three of Peru's endemic primates. So far we have initiated the creation of 10 locally protected areas (Totalling over 80,000 ha), have aided with a further 3 locally protected areas (Totalling approximately 210,000 ha) and are working with National Authorities in 3 reserves (Currently almost 300,000 ha with a new reserve of 36,000 ha recently created).

By adding components of environmental education and sustainable development in some of the remotest communities we hope to ensure sustainability and participation in and around all these protected areas. Indeed, we have organised workshops on Community based Conservation for endemic species in Amazonas and San Martin together with a American NGO Community Conservation and the San Martin Regional Environmental Authority. Participants included NGO's, universities, government agencies, local organizations, teachers, media, tourist agents and most importantly representatives from communities in Amazonas and San Martin. Through these workshops we aim

to create small federations of communities committed to conservation. These federations will act as support groups for their members, help communities which encounter difficulties and guide new communities interested in conservation.

In environmental education we have recently publish the first edition of a new school text book “Nuestra Selva y Su Sentir”. This 178 page book is aimed at Primary school students in Amazonas and San Martin and is the first book of its kind giving school children information about the importance of Amazonas and San Martin and its endemic species. The book has been a success and plans are already under way for a second edition, which will help to develop feelings of pride and stewardship towards the local environment.

The next step in this project is to ensure sustainability of the reserves and other areas of the project. To this end we have begun raising funds for equipment and training of local conservation promoters from each of the community groups. The aim is to provide the local people with the tools and expertise to continue to develop their reserves, including management, finance and investigative tasks. To help provide income for the reserves we are setting up a community tourism web-site and are looking at fair trade exports of locally grown organic crops such as coffee, cacao and sacha-inchi.

Our work in Peru will continue and we hope to use our experiences here as a model to develop similar projects in other countries in the neotropics where there is a need to conserve some of the rarest primate species.

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