THE PRIMATE SOCIETY OF GREAT BRITAIN
Registered Charity No. 290185

Officers:
President: Prof. Kim Bard  (10)
(Centre for the Study of Emotion, Department of Psychology, University of Portsmouth, King Henry Building, King Henry I Street, Portsmouth, Hampshire, PO1 2DY)
Hon. Secretary: Dr Sarah Elton  (10)
(Functional Morphology and Evolution Unit, Hull York Medical School, The University of York, Heslington, York, YO10 5DD)
Hon. Treasurer Dr Clare Cunningham (Department of Psychology, School of Social and Health Sciences, University of Abertay, Kydd Building (Level 5), Bell Street, Dundee, DD1 1HG)

Council Members:
Mr G. Banes (Cambridge) – Student Representative (11)
Dr S. Cheyne (Oxford University) (11)
Dr D. Custance (Goldsmiths) (11)
Dr G. Donati (Oxford Brookes) (12)
Dr G. Forrester (Westminster) (12)
Dr T. Hurte (Kent) (12)
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Dr S. O'Hara (Salford) (12)
Dr C. Schwitzer (Bristol Zoo) (10)
Dr S. Shultz (Oxford University) (11)
Dr A. Smith Anglia Ruskin – Meetings Officer (08)
Dr S. Thorpe (Birmingham) (10)

Convenors of Working Parties:
Dr C. Harcourt (Dept of Veterinary Clinical Science, Leahurst, Chester High Road, Neston, Wirral, CH64 7TF, UK) - Convener, Conservation Working Party
Dr S. Hill (North of England Zoological Society, Chester Zoo, Caughall Road, Upton-by-Chester, Chester, CH2 1LH) - Convener, Captive Care Working Party

Assistant Members of Council:
Dr M. Blanchard (Liverpool) - official Society archivist
Dr S. Evans (Du Mond Conservancy, c/o Monkey Jungle Inc., PO Box 246, Miami, Florida 33170, USA) - for US membership
Dr T.C. Rae (Roehampton) - Editor, Primate Eye
Mr C. Rosen MBE (IPPL) - Financial Advisor

Honorary Auditors: Messrs Morris & Co., Chester

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EDITORIAL

By the time February rolls around, the New Year celebrations are a ways in the past for most of us – we’ve moved on, got on with our lives, allowed all those well-meaning resolutions to go the way of those of years past, forgotten in the day-to-day. But not us here at P.E. Towers; we’ve got hellos, goodbyes, thanks and congratulations that must wait for the first issue of the new year to be distributed. So let’s dive right in.

We’ll begin with the hellos. The first hardly counts, as our long-serving Membership Secretary Claire Cunningham was elected Hon. Treasurer – not so much a hello as a take-off-your-coat-and-stay-awhile. We are delighted that she has decided to stick with us and take over this demanding post: the inaugural official PSGB archivist is Mary Blanchard. We wish her well as she delves into the secret life of the Society. In addition, four new members have joined council. More people volunteered to serve the Society than we had places; we actually had to hold a contested election for the first time since I’ve been involved (or perhaps ever – if you know differently, let Mary Blanchard know). We are thrilled to welcome, for three year terms starting in January 2012, the following new council members: Giuseppe Donati, Gilly Forrester, Tanya Humle and Sean O’Hara.

Making way for the newcomers are our departing council members Katharine Balolia, Helen Chatterjee, Robin Dunbar, Alison Fletcher, and Vincent Nijman, all of which have done us proud for the past three years. And, of course, we owe a huge amount of gratitude to Gillian Brown, who performed above and beyond the call of duty as our Society’s Hon. Treasurer since 2009. She kept us not only afloat, but positively buoyant. We are, truly, not worthy.

But that’s not all, folks. In true Olympic style, we awarded not one, not two, but a full three (count ’em!) medals at the Winter 2011 meeting. David Windmill received the PSGB Occasional Medal for Contributions to Primatology, David Chivers accepted the Osman Hill Memorial Medal, and the Napier Memorial Medal for outstanding primatological Ph.D. thesis was awarded to Lauren Brent. It was like having our own mini-Oscars ceremony (sans the red carpet, sadly); a lot to miss for those who were not able to attend our second sold-out Winter Meeting. It only serves to highlight the truth of that old adage, “Book early to avoid disappointment.” Our upcoming Meetings promise to be just as exciting and just as popular – don’t get left out.

Finally, we would also like to congratulate a former council member. Anna Nekaris did a fantastic job on BBC2’s series *Natural World* in January. Her episode, “Jungle Gremlins of Java,” highlighted the plight of slow lorises
(Nycticebus coucang), the pet trade of which received an unwelcome boost from a viral YouTube video of a loris being ‘tickled’. Taking in the difficulties of finding, tracking and observing nocturnal primates, as well as some experimentation with the venomous saliva + brachial gland secretions combination that lorises inflict with their bite, it was a tour de force in natural history broadcasting. If you missed it, you can still catch it on the BBC iPlayer; it is highly recommended. And not a bad way to start 2012.

The articles and abstracts included in Primate Eye are not for citation or quotation without permission of the authors. The deadline for the next issue of Primate Eye is 15th May 2012. Items (manuscript or electronic in any standard format) for future issues should be sent to:

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PSGB correspondence unrelated to Primate Eye should be addressed to the Hon. Secretary. Notification of change of address should be sent to the Membership Secretary.

The PSGB WebSite can be found at <www.psgb.org>
MINUTES OF THE ANNUAL GENERAL MEETING OF THE PRIMATE SOCIETY OF GREAT BRITAIN

12.45 – 13.45 hrs on 1 December 2011
Pavilion Building, Bristol Zoo Gardens, off College Road, Bristol BS8 3HA

1a) Present
Graham Banes (Student Representative), Kim Bard (President), Hilary Box, Gillian Brown (Treasurer), Susan Cheyne, David Chivers, Giuseppe Donati, Sarah Elton (General Secretary), Ben Garrod, Caroline Harcourt (Conservation Working Party Convenor), Ray Heaton, Rachel Hevesi, Alison Jolly, Amanda Korstjens, Anna Nekaris, Vincent Nijman, Todd C. Rae, Ian Redmond, Liz Rogers, Christoph Schwitzer, Andrew Smith.

1b) Apologies for absence
Filippo Aureli, Hannah Buchanan-Smith, Clare Cunningham, Robin Dunbar, Sonya Hill (Captive Care Working Party Convenor), Tatyana Humle, Rachel Kendal (Research Working Party Convenor), Bill McGrew, Pia Nystrom, Colleen Schaffner, Stuart Semple, Susannah Thorpe.

2) Minutes of the last meeting (8th December 2010)
Accepted as a correct record, subject to the correction of some typographical errors, the addition of Ray Heaton to the attendance list and more detailed information on Ian Redmond’s AOB item.

3) Matters arising from the minutes
i) Website
The General Secretary reported that progress on the new website was good and that it should be launched in the very near future. Members asked for downloadable resources such as the PSGB logo to be included on the site.

ii) Meetings Officer
On behalf of the Society and Council, the President thanked the outgoing Meetings Officer Andrew Smith, and updated members on the new duties of the incoming Meetings Officer, Susanne Shultz, who will have more direct input into PSGB meetings, including a more logistical role for the Winter Meeting, allowing organisers to focus on the scientific programme.

4) Election of Council Members
On behalf of the Society and Council, the President thanked the retiring Council members, Katharine Balolia, Helen Chatterjee, Robin Dunbar, Alison Fletcher and Vincent Nijman, for their service.

Five people were nominated for the four places available on Council: Giuseppe Donati, Oxford Brookes University (nominated by Anna Nekaris and seconded by Vincent Nijman)
Gillian Forrester, University of Westminster (nominated by Kim Bard and seconded by Debbie Custance)
Tatyana Humle, University of Kent (nominated by Sarah Elton and seconded by Kim Bard)
Emma Nelson, University of Liverpool (nominated by Sean O’Hara and seconded by Susanne Shultz)
Sean O’Hara, Salford University (nominated by Todd C. Rae and seconded by Kim Bard).

A ballot was therefore held, with Todd C. Rae appointed as scrutineer. The following were elected and will serve three year terms on Council from January 2012:

Giuseppe Donati, Oxford Brookes University
Gillian Forrester, University of Westminster
Tatyana Humle, University of Kent
Sean O’Hara, Salford University.

5) President’s report
The President reported that PSGB continues to thrive, with a growing membership and secure finances. The 2010 Winter Meeting on ‘Gombe 50’, organised by Sonya Hill and held at the Zoological Society of London, was an enormous success, as was the Spring Meeting ‘Evolution of the Modern Primatologist’, held at the University of Liverpool and organised by Sean O’Hara, Emma Nelson and Mary Blanchard. The President thanked the organisers of these meetings. The President also reported that she had represented PSGB at meetings of both the International Primatological Society (IPS) and the European Federation for Primatology (EFP). The President informed members that the next EFP meeting will be in Belgium. Alongside EFP, PSGB has written to IPS to express concern over the high registration fees and has received a response, which will be circulated to PSGB members. The President asked members whether they thought the IPS reserves were too high (with figures supplied previously by IPS circulated to members via the JISCmail list) and should be used to reduce registration fees for the Mexico meeting. She suggested that PSGB should ask IPS Council to discuss the issue electronically prior to its next meeting and the Mexico conference. It was also suggested strongly that excess reserves should be used proactively for primate conservation, and that IPS should give meeting organisers more support.

The President informed members of a new EU Directive (2010/63/EU) on the protection of animals used for scientific purposes. It covers the use of non-human primates, describing which primate species can be used, for which purposes, and provides requirements for establishments and for the care and accommodation of animals. Augusto Vitale played an integral role in representing EFP in the consultation, and Hannah Buchanan-Smith
played an integral role through her work on the Animals Procedures Committee at the Home Office. Details of implementation continue to be discussed. The Directive will take full effect from 1st January 2013, and member states are currently transposing the Directive into their own legislation. The pdf of the Directive can be found at <eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:276:0033:0079:En:PDF>

The President thanked Council, Working Parties, volunteers and the *Primate Eye* editor for their work over the past year.

6) Secretary’s report
The General Secretary reported that Bill McGrew had generously offered copies of *Primate Eye* volumes that are currently missing from the PSGB archive. She asked members to advise her on what archived paperwork to retain for Society records, and it was agreed she should consult the Linnean Society, which has experience of this. Members also suggested that a volunteer PSGB archivist should be sought.

7) Treasurer’s report
The Treasurer presented the accounts and reported that the financial status of PSGB was good. The end of year assets total around £30500, and income currently exceeded expenditure slightly, although as this fluctuated from year to year, this underspend should not cause concern. Most income comes from membership subscriptions (around £8000 per year) and meetings (the Winter Meeting 2010 and Spring Meeting 2011 made a £2800 and a £900 profit respectively). The Treasurer stressed that meeting organisers were asked only to cover costs, and over time meetings generally break even, with some making a small profit and some a slight loss. The Society has established a new general research grants scheme, which will use some of the reserves. The new website will also use some reserves, costing £4200. The Treasurer thanked the General Secretary for her work on the website redesign. Given the need to keep £15000 in reserve to cover the Society’s commitments (£10k to cover exceptional circumstances that might result in complete cancellation of a conference, plus £5k to cover day-to-day running costs), PSGB could spend up to £10000 from its savings. The Treasurer and Treasurer Elect will present some options for doing this, which may include increasing the amount pledged to student travel bursaries and increasing the number of research grants. Members were asked to contribute to the discussion about PSGB expenditure by emailing ideas to the Treasurer. Increasing membership fees (discussed under Item 9 below) would be one way in which to maintain longer term support for projects and activities. The Treasurer also suggested that additional revenue for the Society could come from selling advertising in *Primate Eye* and the editor was asked to explore this. At the end of her three-year term, the Treasurer thanked past and present Council members, Presidents and Secretaries for their support.
and wished the Society continued future success. In turn, the President, on behalf of Council and PSGB, expressed immense gratitude to the Treasurer for her hard work for and service to the Society.

**End of year accounts 2010-11**

<table>
<thead>
<tr>
<th>PSGB Totals</th>
<th>Income £</th>
<th>Expenditure £</th>
</tr>
</thead>
<tbody>
<tr>
<td>Membership Fees (up 5%)</td>
<td>7919.06</td>
<td>Primate Eye 2357.42</td>
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<tr>
<td>Winter Meeting Income</td>
<td>12768.58</td>
<td>Winter Meeting Expenses 9936.22</td>
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<tr>
<td>Easter Meeting Income</td>
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<td>Easter Meeting Expenses 3006.64</td>
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<td>Other Income</td>
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<td>Council Expenses 999.18</td>
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<td>Interest</td>
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<td>General Donations</td>
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<td>Research grants 1500.00</td>
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<td></td>
<td></td>
<td>Bank fees 6.00</td>
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<td></td>
<td></td>
<td>Other charges (incl. EFP) 1051.30</td>
</tr>
<tr>
<td>Totals</td>
<td><strong>29910.63</strong></td>
<td><strong>25274.65</strong></td>
</tr>
</tbody>
</table>

End of year assets = £30572.66
8) Election / Re-election of Officers
Following Council’s recommendation, Clare Cunningham, University of Abertay, was elected as Treasurer. The other existing PSGB officers were re-elected:
Kim Bard, University of Portsmouth (President)
Sarah Elton, Hull York Medical School (General Secretary)

9) Membership subscriptions: (i) review; (ii) adoption of *Folia Primatologica*
A paper was presented outlining some potential scenarios for membership subscription increases and, related to this, the adoption of *Folia Primatologica*. Concerns were raised about the potential to lose members, particularly students, if subscription fees were increased, although it was recognised that due to inflation, the general running costs of the Society are rising. It was suggested that Council should investigate options for spreading membership subscription payments throughout the year and also looking into the ‘Big Give’ scheme. It was decided that membership subscriptions should be raised to £30 per annum for full and associate members and leave the student rate unchanged at £15. The Treasurer/Membership Secretary was asked to investigate the possibility of an unwaged / low waged rate. Members who may be eligible for ‘retired’ status should be reminded of that category of membership. Members were in favour of adopting *Folia Primatologica*, with an optional subscription to the journal.

10) Forthcoming meetings
The Spring Meeting 2012 will be held at Port Lympne, Kent, co-organised by the University of Kent and the Aspinall Foundation, on Tuesday 17th and Wednesday 18th April.

The Winter Meeting 2012 will be held in London, on the theme of Primate Biogeography, co-organised by UCL, HYMS and Durham University, on 5th December (date to be confirmed).

The Spring Meeting 2013 will be held in Lincoln, organised by the University of Lincoln.

Proposals are being sought for the Winter Meeting 2013: those interested should contact Meetings Officer Susanne Shultz.

11) Meeting Registration costs
Members were asked whether they would prefer meetings to be run to make a profit that might support other areas of PSGB activity or whether they should continue to be organised on a ‘break even’ basis. Members decided that the ‘break even’ strategy was preferable, to help keep meeting registration costs as affordable as possible.
12) Working party reports

a) Conservation Working Party

The Conservation Working Party (CWP) Convenor gave the following report:

As last year, the members of the Conservation Working Party met only once, to consider the fourteen applications submitted in February. With only five applications in August, these were considered via email. For several years now, there have not been many applications in August, so it has been decided that, as for the other working parties, there will be only one deadline in future and that will be February 28th. The instructions on the website have been altered to reflect this.

PSGB money was substantially increased by Cyril Rosen donating, through IPPL, a total of £1645 to go to three different applicants. In addition, the Born Free Foundation gave £1000 (£500 each to two applicants) and Knowsley Safari Park provided £750 to one applicant, with the promise of the same amount for the following two years for different studies. We are extremely grateful for this extra funding.

In total, eight projects had been awarded between £500 and £750 each, but one of these has had to be withdrawn due to a change in the field site and a consequent perceived lower conservation impact. The seven funded projects are:

<table>
<thead>
<tr>
<th>Month</th>
<th>Name</th>
<th>Project Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb 2011</td>
<td>Ganga Ram Regni</td>
<td>Estimating Group Density of Assamese macaque <em>Macaca assamensis</em> using Multiple Covariate Distance Sampling (MCDS) in Lower Kanchenjungha Area (LKA), Eastern Nepal.</td>
<td>£750</td>
</tr>
<tr>
<td>Feb 2011</td>
<td>Tatiana Iseborn</td>
<td>Field survey of pygmy slow loris (<em>Nycticebus pygmaeus</em>) and Bengal slow loris (<em>Nycticebus bengalensis</em>); assessment of hunting pressure and local attitudes towards the two species in Veun Sai Forests, Cambodia</td>
<td>£500</td>
</tr>
<tr>
<td>Feb 2011</td>
<td>Bolhan Bodeng</td>
<td>Habitat Modelling and Management Strategy for Proboscis Monkey in Sarawak, Malaysia (Borneo)</td>
<td>£750</td>
</tr>
</tbody>
</table>
Feb 2011  Rebecca Wyper  Ecological drivers of macaque (Macaca ochreata brunnescens) crop raiding in Buton, Indonesia: Human responses & implications for conservation  £500

Aug 2011  Blake Morton  Does habituation affect the long-term dietary and nutritional health status of western lowland gorillas (Gorilla gorilla gorilla)?  £500

Aug 2011  Eva Johanna Rode  Conservation of the only poisonous primates – the Javan slow loris (Nycticebus javanicus), on West-Java, Indonesia  £645

Aug 2011  Tim Eppley  Ecological flexibility of the southern gentle lemur Hapalemur meridionalis in south-east Madagascar: Implications for conservation in a fragmented and seasonal landscape.  £750

In addition, jointly with the Captive Care Working Party, £400 was awarded to John and Margaret Cooper to assist with running two short workshops concerned with providing training to local Kenyan and Ugandan veterinarians and wildlife biologists. They were trained in techniques that will promote the health and welfare of primates in the wild and in captivity.

A conservation project for 2012-2013 has not yet been selected as the timing for collection of funds has changed to fit in with PSGB’s financial year. This means that any money collected at this Winter meeting will go towards Neotropical Primate Conservation and a new organisation will be picked by the Spring meeting.

As ever, many thanks to all members of the Working Party for their support throughout the year and to Christoph Soligo for finding us rooms in UCL.

b) Captive Care Working Party

On behalf of the Captive Care Working Party (CCWP) Convenor, the General Secretary reported that CCWP activity had been fairly quiet, with none of the grant applications received for the 2011 grant round deemed suitable for funding. After serving for several years as CCWP Convenor, Sonya Hill hoped to step down from the role, and a new Convenor was thus being sought.
c) **Marketing Working Party**
No written report was received; due to meeting time constraints no verbal report was made.

*Post meeting note:* The Marketing Working Party reported that sales had been reasonable in 2011, but not as good as previous years, and that all proceeds had gone to the conservation cause.

d) **Research Working Party**
On behalf of the Research Working Party (RWP) Convenor, the General Secretary reported that the RWP had awarded research grants and convened the Napier Medal panel in 2011.

The RWP were very pleased to see a high number of applicants in the first year of the research grants. A total of 12 applications were received (two from postdoctoral researchers, two from MSc students and eight from PhD students), which were generally of a very high standard and covered a broad range of areas within primatology, including work with wild and captive species as well as museum-based studies.

Two grants of £750 each were awarded:
- Gill Vale for the project “Towards an understanding of cumulative culture: A developmental and Comparative Perspective.”
- Sally McDonald for the project “The structure and function of female social relationships in wild Assamese macaques (*Macaca assamensis*)”

13) **IPS Council**
On behalf of Hannah Buchanan-Smith, the President drew attention to upcoming vacancies on the IPS Council. Those interested should contact Hannah Buchanan-Smith for more information. Formal nominations must be received by IPS by 1st January 2012.

14) **Any other business**
There was no other business.
ABSTRACTS

PSGB Winter Meeting 2011
Gardeners of the Forest: Primate Ecology and Forest Conservation
Organised by:
Dr Christoph Schwitzer, Dr Sue Dow and Charlotte Bryant
(Bristol Conservation and Science Foundation)

ABSTRACTS FOR PODIUM PRESENTATIONS

The Implications of Seed Dispersal by Lemurs in Madagascar’s rainforest
Patricia C. Wright1,3 and Onja H. Razafindratsima2,3
1Stony Brook University
2Department of Ecology and Evolutionary Biology, Rice University, Houston Texas
3Centre ValBio, Ranomafana Ifanadiana, Madagascar

Given the rapid increase in habitat loss and fragmentation, we need a deeper understanding of the effects of dispersers on forest restoration and regeneration. Seed dispersal effectiveness encompasses the overall effects of disperser assemblages on the reproductive success, survival and community structure of plant communities. In Madagascar, lemurs accounts for the greatest biomass and species richness among frugivore assemblages. Seven of the 13 sympatric lemur species in Madagascar’s eastern rainforests are highly frugivorous. Because of this, we suggested that some tree species may rely heavily on particular lemur taxa for the dispersal of their seeds, recruitment of new individuals and colonization of new habitat. We report on the effects of four species of diurnal frugivorous lemur on the structure, distribution and dynamics of plants in Ranomafana National Park. Their diets, which have been documented during annual cycles over a five-year period, reveal an overlap in a number of fruit taxa exploited, but 46% (16/35) of families and 56% (29/52) of genera are eaten exclusively by only one lemur species. Seeds are randomly dispersed up to 2,000m away from the parent crown, perhaps enabling genetic heterogeneity of future trees and escaping competition, pathogens and high risk of predation associated with their parent. Lemurs also carry seeds into suitable microhabitats which will increase plant fitness. Seeds passed through the lemur’s digestive system sprout faster and have less mortality than non-ingested seeds. We therefore predict local changes in seedling distribution and forest composition and structure if certain of these lemur species are eliminated from the forest. We also suggest that this result may be of global significance because carbon sequestration by the tropical forests in Madagascar may be reduced as a result of this predicted change in forest composition.
ABSTRACTS FOR POSTER PRESENTATIONS

The nature and scale of the trade in primates as pets in England, Scotland and Wales
Brooke Catherine Aldrich
Wild Futures, Murrayton House, Looe, UK
<brooke_aldrich@wildfutures.org>

Wild Futures is a primate welfare and conservation charity with a particular focus on the trade in primates as pets in the UK. To help monitor this trade, research is conducted annually into the numbers and species of primates licensed under the Dangerous Wild Animals Act (DWAA) 1976, and the conditions in which they are kept, to the extent which is possible within the existing framework of legislation. For the years 2005 to 2011, requests for information about licensing for primates under the DWAA were sent to each of the 400+ local authorities responsible for administering the Act. A 100% rate of response was obtained in 2009, 2010 and 2011. Due to shortcomings in existing legislation, it is impossible to accurately census their numbers, but in 2009 Wild Futures and RSPCA estimated that there were between 2,485 and 7,454 individual primates in private hands. This number appears to be on the increase; between 2009 and 2011 the minimum number of primates licensed under the DWAA rose by 17.50%. There is evidence that, amongst responsible authorities, the relevant legislation is poorly understood and poorly enforced, and that many lack the resources and specialist knowledge to do so effectively.

Ecological constraints on the distribution and sociality of the orangutan: A time budget model
Charlotte Carne, Stuart Semple and Julia Lehmann
Centre for Research in Evolutionary and Environmental Anthropology, University of Roehampton, London, UK
<charlotte.carne@roehampton.ac.uk>

The design and implementation of effective conservation strategies depend on a clear understanding of the relationship between a species and its environment, particularly as habitats become more degraded and fragmented under anthropogenic pressures. Here, we use a time budget modeling approach to investigate how the environment, through its effects on behaviour, shapes the social organisation and biogeographical distribution of the orangutan (Pongo). Time budget models are based on the assumption that time is a key constraint affecting both an animal’s ability to survive and the social group size that it can adopt in a given environment. Time budget, demographic, climatic and environmental data were compiled for 13 orangutan study sites and used to build a time budget model. The model uses relationships between these variables to predict the maximum ecologically tolerable group sizes (and from this the biogeographical
distribution) of the orangutan across Borneo and Sumatra. Human population density and land cover data were also incorporated into the model to account for anthropogenic effects on the distribution of the orangutan. The model correctly predicted the presence or absence of the orangutan in 77% of locations. The model identifies regions in which the maximum ecologically tolerable group size approaches one, and therefore where the orangutan may be most vulnerable to further environmental degradation. Maximum group sizes across the overall range of the orangutan were relatively low, suggesting that the orangutan has limited social flexibility. The results indicate that resting time restricts both orangutan distribution patterns and sociality. This may be related to increased digestion times as a result of a greater reliance on fallback foods in degraded habitats, leading to excessively high resting time demands. These results emphasise the vulnerability of the orangutan to further habitat modification and provide useful insights into the factors that determine both habitat suitability and sociality in the orangutan.

Nest building orangutans demonstrate engineering know-how to produce safe, comfortable beds

A. van Casteren, W. Sellers, S. Thorpe, S. Coward, R.H. Crompton and A.R. Ennos
Faculty of Life Sciences, University of Manchester, Manchester, UK
<adam.vancasteren@postgrad.manchester.ac.uk>

Orangutans build nests on an almost daily basis. Nest building is not an innate behaviour and therefore requires learning and innovation. This study investigated the structural complexity of Sumatran orangutan (Pongo abelii) nests. The study was part of a field season at Ketambe Research Centre in the Gunung Leuser National Park, Indonesia. Of 14 nests we measured the whole nest compliance, the dimensions of the main elements and recorded the size and type of fractures within the structures. Samples were also collected in order to measure the mechanical properties of the wood material. We demonstrated that the centre of the nest is more compliant than the edges; this may add extra comfort and safety to the structure. During construction orangutans use the fact that branches break in “greenstick” fracture to weave the structure. They then break off thinner, more flexible branches for the mattress. These results suggest that orangutans exhibit a degree of technical knowledge and choice in the construction of nests.

A PES case study in Rwanda: Reconciling biodiversity and development through direct payments for conservation

Nicole D. Gross-Camp1, A. Martin1, J. Munyarukaza1, E. Ndayishimiye1, L. Rugerinyange2, S. McGuire1 and B. Kebede3
1. International Development Group, University of East Anglia, Norwich Research Park, Norwich, UK
2. Rwanda Development Board, Tourism and Conservation, Kigali, Rwanda
Conservation and development goals are often depicted as difficult to achieve in synchrony, and yet such an achievement could exponentially advance efforts to secure sustainable livelihoods and the future of the earth’s biological wealth. In developing countries, such goals are frequently the most challenging at the interface of protected areas and the communities living adjacent to them. Such areas hold great potential to explore how to reconcile conservation and development objectives and may further help to extend conservation efforts beyond strictly protected landscapes. Payments for ecosystem services (PES) is one approach that may help to merge conservation and development goals. Our poster provides a case study from the Nyungwe National Park, Rwanda where we have introduced an experimental PES. The design differs from most other PES schemes in that (1) the service providers are not individuals but communities, (2) the performance is monitored collectively though part of the payment is awarded at the household level, and (3) the service provided (biodiversity) pertains to management of public rather than private lands. Our PES scheme incentivises communities to reduce their impact on the park as well as to establish alternatives to resources previously collected in the park. We present the results from combined socio-ecological research methods, including evidence of human activity in the park pre- and post-PES implementation, communities’ efforts to establish alternatives, peoples’ understanding of the services provided by the park, and justice issues pertaining to the scheme (i.e., payment distribution and decision-making). We discuss our findings in light of the potential for PES to assist in biodiversity protection beyond parks.

The use of artificial bridges to link fragmented populations of orang-utan in Lower Kinabatangan, Sabah, Malaysia.
Catherine Barton and Nick Davis
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< C.Barton@chesterzoo.org>

The fragmentation of forest habitat presents serious problems to the long term sustainability of populations of primates, with the restriction of animal movement between suitable habitats in effect reducing the genetic gene flow and creating small, isolated sub-populations. In the lower Kinabatangan region in Sabah, past logging activities have disrupted the canopy, thus making even the smaller river tributaries an impassable barrier for the non-swimming orang-utans (Pongo pygmaeus). More recently the formation of drainage channels from new palm oil plantations has also confounded the problem. While significant areas of the remaining secondary forest are now being protected, and further logging activities are no longer practised, the restoration of the canopy will take many years. In the meantime, to assist these remaining endangered orang-utans the creation of artificial bridges has been proposed as a means of connecting sub-populations.
In 2003 HUTAN-Kinabatangan Orang-utan Conservation Programme (KOCP) initiated the orang-utan bridge project and, after identifying appropriate sites, the first bridges were built using fire hose and chains. Although the success of these first bridges has proved difficult to assess, photographic evidence and local observations has shown some success. Following discussion with HUTAN-KOCP, a long-time conservation partner with Chester Zoo, the Sabah Wildlife Department and Ropeskills Rigging, a joint collaborative expedition was organised to build more bridges. Several sites were identified in two separate locations, in Sukau and in Danau Girang Field Centre. Using knowledge gained from working with orang-utans within a zoo environment, lightweight webbing was identified as a more suitable material. The team included two Chester Zoo keepers, who had the knowledge to design appropriate but simple constructions that could be built quickly. This knowledge allowed seven new bridges to be built in nine days, in previously identified locations, significantly increasing the opportunities for the orang-utans to cross these previously impassable river barriers. In order to assess their effectiveness it is now proposed that their usage is monitored, through behavioural observations and the installation of camera traps, to establish what features of these bridges prove to be the most attractive and effective for these wild orang-utans to use. This would then help in the design of further bridges. If proved successful this simple and low cost technique could provide a vital lifeline to the estimated 20 sub-populations of orang-utans in lower Kinabatangan, and could also be used for other populations and species in similar situations.

Low encounter rates and high hunting pressure highlight the importance of protection of Cambodian forests and the threatened status of Cambodia’s slow lorises (Nycticebus pygmaeus and N. bengalensis)

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Trade in Bengal slow and pygmy lorises in Cambodia for use in traditional medicines, a practice with deeply historical roots, is widespread. Indeed, large numbers of these two species have been reported from markets since the 1990s; sometimes these volumes have been used as an indicator that loris numbers in the wild must be healthy to maintain trade. Here we present recent data from 2007-2009 and 2011 on the status of Bengal and pygmy slow lorises in seven protected areas and one unprotected forest in Cambodia: Bokor National Park, Central Cardamoms Protected Forest, Samkos Wildlife Sanctuary, Phnom Kulen National Park, Seima Biodiversity Conservation Area, Phnom Prich Wildlife Sanctuary,
Mondulkiri Protected Forest, and Veun Sai Forests. We also present comparison of hunting habits and use of slow lorises in traditional medicine between Kavet and Lao ethnic groups inhabiting Veun Sai Forests. Using line transect surveys, one or two observers searched for slow lorises using red lights on transects ranging from 1-5 km to measure abundance. We present data on detectability from one site. Anthropogenic pressure and loris use was assessed in Veun Sai forest via 62 structured interviews in 5 villages. In general, loris abundance was low, with no pygmy lorises found at one of four sites within their range; encounter rates ranged from 0.00-1.00 animals per km (average 0.45). We found no Bengal slow lorises east of the Mekong River, despite this being an area of occupancy used to determine their conservation status, and only at two of the sites, with abundance of 0.46-0.50 animals per km. Local informants reported the great importance of lorises in traditional medicines, and also described hunting techniques that put these populations under great threat. There were significant differences between hunting habits of two ethnic groups and hunting pressure in the area was assessed as high. Based on area of occupancy and local threat due to hunting, the Cambodian populations of Bengal and pygmy slow lorises should be considered Endangered.

Reproduction in forest baboons: the influence of stress and food availability

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Elevated progesterone levels are required during the luteal phase of the mammalian oestrous cycle for successful implantation of the fertilized egg and retention throughout pregnancy. Positive correlations between progesterone levels and conception success have been found in several human and non-human primate studies. Reduced progesterone levels have been documented amongst animals experiencing energetic or psychosocial stress. But others have found contrasting results with unfavourable energetic conditions triggering elevated progesterone levels, possibly due to adrenal progesterone production during stress.

The relationship between stress, progesterone and reproductive function is unclear and few studies have attempted to investigate this in wild non-human primates, despite the availability of non-invasive methods to measure individual progesterone and glucocorticoid levels. Our study focused on the energetics and hormone levels of female forest-living baboons (Papio hamadryas anubis) from two troops in Eastern Nigeria. One troop lives within the Gashaka-Gumti National Park and is entirely wild-feeding; the other lives close to human habitation, just outside the National Park, and supplements its diet by crop-raiding from farms. The
crop-raiding troop shows signs of enhanced reproductive success, relative to the wild-feeding troop, which has been attributed to access to the energy rich, abundant food source. Previous researchers have suggested that the crop-raiding behaviour of this troop may expose its members to extra stressors including being chased by humans and dogs and increased risk of poisoning, snaring or trapping and increased disease risks. The progesterone and glucocorticoid levels of the two troops’ adult females (n=15) were assessed by measuring hormone metabolites in faecal samples (n=211) collected over a 9-month period. The energy intake of individual animals was assessed by combining detailed feeding observations with nutritional analysis of food samples.

Progesterone and glucocorticoid levels were significantly, positively correlated within both troops and amongst cycling, pregnant and lactating animals. Members of the crop-raiding troop exhibited significantly higher energy intake than the entirely wild-feeding troop, alongside significantly lower glucocorticoid and progesterone levels. These results are consistent with studies demonstrating elevated progesterone levels amongst energetically, or otherwise, stressed animals. The results also support the idea that crop-raiding provides energetic benefits, which outweigh any increase in psychosocial stress associated with this behaviour. The relative suppression of the wild-feeding troop’s reproductive success may be related to their increased stress levels, of which elevated progesterone levels are a symptom, which in turn may reflect their less favourable energetic circumstances.

Staff training at Great Ape habituation sites: is there a need for universal guidelines?
Thirza Loffeld¹, Vincent Nijman¹ and Susan Cheyne²
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2. Wildlife Conservation Research Unit, University of Oxford, Oxford, UK

Present-day training of staff working in Protected Areas is recognised as a vital component of efficient protected area management. To conserve great apes and their habitat, long-term continuous field research projects are needed. At these projects data are collected, such as health, habituation level and behavioural ecology to ensure the long-term well-being of the great apes. As a result of daily group follows, employees are uniquely placed to continuously monitor the great apes as well as enforce tracking rules. It is thus of utmost importance to monitor and evaluate staff members’ performance regularly through training to ensure adherence to protocols and revise and improve data collection standards.

Currently requirements of staff working at great ape sites are identified, yet no evaluation of the implementation of staff training at such sites has been
made. The aim of this work was to review staff training at great ape habituation sites and to disseminate relevant information. Of 44 great ape habituation programmes identified, 23 took part in this study. We used an online questionnaire to assess the need for universal guidelines for staff training, comparing sites through 18 questions, including the programme’s profile, training protocols, training content, and the frequency and evaluation of training. Results show that 70% of the sites have written training protocols. Funding and limited time of trainers were identified as constraints affecting staff training by 41% and 36% of participants respectively. Training is currently evaluated after implementation at 83% of the sites. High data quality was identified as a key indicator of a successful training programme by 22% of the participants.

There appears to be a need for continuous professional development for staff at ape habituation programmes and we stress the need for disseminating good practice. Appropriate training and evaluation of work is vital for staff to develop confidence and skill in their job, and enhances their employability. Ninety-five per cent of the participants were willing to implement universal guidelines on staff training protocols if provided by the IUCN. We recommend that evaluation of staff training becomes a permanent policy for all great ape habituation programmes to ensure accurate long-term monitoring of habituated apes, continued animal wellbeing, and hence the sustainability of such programmes. Universal guidelines developed by a panel of expertise such as the IUCN Primate Specialist Group, are therefore highly recommended.

Primate pollination and the origins of the prehensile hand
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3. LIPI, Indonesian Institute of Sciences, Bogor, Indonesia

Non-flying mammals as potential pollinators of angiosperm plants, which occur during non-destructive feeding bouts on floral nectar, is a notion championed by accumulating evidence across various species, including some within the Order Primates. Grasping hands and stereoscopic vision are two features purported to distinguish primates from other eutherian mammals. Amongst the major theories of primate origins, two in particular indicate arboreality, specifically within the fine branch niche, and foraging on angiosperm products as a driver for the manifestation of these key features. Here we investigate the potential of non-flying mammals as pollinators with reference to the nocturnal, cryptic Javan slow loris (*Nycticebus javanicus*), and consider the role that terminal branch feeding on angiosperm products may have shaped primate evolution. We conducted the study over 11 months, following six reintroduced Javan slow lorises on Mount Salak in the Halimun-Salak National Park, Java, Indonesia, and...
examined their feeding behaviour. Of the 897 feeding observations noted during five-minute focal animal scan sampling, floral nectar of Calliandra calothyrsus comprised 90% of the total. Feeding occurred predominantly in terminal branches whilst in suspensory positions, where flowers were located visually, slowly lured in for feeding manually and subsequently released without damage. A combination of excessive flower visitation, non-destructive feeding and pollen observed on the faces of lorises suggest potential pollination of this species. Whilst C. calothyrsus is non-native to Indonesia, theories of Angiosperm Co-evolution with primates can be disregarded between these two species; co-evolution with other more archaic native species in other areas is possible. Strepsirhines are renowned for their often 'stereotypically' performed power-grip, however, less so for precise and delicate manipulation of objects. In the three-dimensional world of the fine branch milieu where scent is overwhelming and audition is irrelevant stereoscopy and grasping may have developed in response to swaying floral food.

Primary seed dispersal by the black-and-white ruffed lemur (Varecia variegata) in the Manombo forest, southeast Madagascar
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Seed dispersal is one of the most important ecological processes on Earth, but remains poorly understood on Madagascar. Preliminary data and a suite of behavioural and ecological attributes often associated with effective seed dispersal suggest that black-and-white ruffed lemurs (Varecia variegata) may be effective seed dispersers, but no studies have investigated this species dispersal effectiveness. This three-month study investigated primary seed dispersal by two V. variegata groups in Manombo forest, southeastern Madagascar, by describing feeding and ranging behaviour and aspects of dispersal effectiveness using direct feeding observation, faecal analysis and germination trials. The lemurs dispersed seeds of 40 species, most of which were large (>10 mm). The two study groups dispersed an estimated average of 984 seeds/ha/yr within their home range; the Manombo population dispersed as many as 55,115 seeds/km2/yr. Passage through the lemurs' gut was rapid (4h 26 mins) and generally had beneficial effects on seeds, increasing germination success and reducing latency period, compared to controls. The vast majority of seeds were dispersed away from their parent plant (mean/maximum distance 180 m/506 m respectively). Dispersal distance is relatively low compared to many anthropoid primates; lemurs in general are predicted to disperse seeds over relatively short distances. Overall, these preliminary results suggest V. variegata may be an effective seed disperser in terms of both quality and quantity, and may be critical for
dispersal of large-seeded species. Loss of such large-bodied dispersers may
have potentially far-reaching ecological consequences including impacts on
tropical forest structure, dynamics and carbon storage capacity.

**Is seed dispersal by lemurs characterized by relatively short dispersal
distances? The case for Madagascar’s ‘spatially restricted seed
dispersal’**

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Seed dispersal is a pivotal ecological process, underpinning the ecology of
terrestrial ecosystems and having a significant impact on forest structure
and dynamics. In the tropics, up to 90% of seeds are dispersed by fruit-
eating animals, whose behaviour greatly influences seed distribution; for
example, dispersal distance depends upon ranging behaviour and activity
patterns. Primates are particularly important seed dispersers throughout the
tropics, but are particularly crucial on Madagascar, where lemurs have the
greatest biomass and species richness of frugivores on the island, and many
other seed-dispersing taxa are absent. A previous study on lemur seed
dispersal (Moses and Semple, 2011) had noted relatively low seed dispersal
distances by lemurs. This study aimed to test the hypothesis that seed
dispersal by lemurs occurs over relatively shorter distances in comparison to
other primates elsewhere in the tropics. Though only limited dispersal
distance data are available (for two lemur species, six New World primate
species and three Old World primate species), statistical analysis indicates
that seed dispersal by lemurs occurs over significantly shorter distances than
seed dispersal by other primate species. This finding supports the
hypothesis that seed dispersal on Madagascar is ‘spatially restricted’.

Possible explanations are that, just as the present-day lemur assemblage
represents the vestiges of a once-broader diversity, seed dispersal may also
have become restricted with the extinction of the largest-bodied lemurs. An
alternative explanation is that prevalent lemur energy conservation
strategies, hypothesised to have evolved in response to the low fruit
productivity and high unpredictability of resources that characterise
Madagascar’s forests, are incompatible with long dispersal distances. Two
scenarios are presented for how limited seed dispersal by lemurs and
fruiting phenology on Madagascar may be related. Furthermore, restricted
dispersal processes may be one of the many driving mechanisms
influencing the development of local endemism in Madagascar.
Densities, distribution and detectability of a small nocturnal primate (Javan slow loris *Nycticebus javanicus*) in a montane rainforest
Anna Nekaris and Vincent Nijman
Department of Anthropology and Geography, Oxford Brookes University, Oxford, UK

Nocturnal mammals can be challenging to survey and especially so for many species that live in dense forest habitats limited information is available on densities and distributions. We surveyed the endemic Javan slow loris in the montane forests of Mt Pangrango, West Java, Indonesia. Surveys were conducted on 23 transects (260 hours covering some 93 km) using variable speeds between 200-600 m/hr. Densities on individual transects varied from 0 to 52 individuals / km\(^2\), with an overall density of 15.6 individuals / km\(^2\) \([95\% \text{ CI } 9.7-25.2 \text{ individuals } / \text{ km}^2]\). Encounter rates per km were strongly influenced by the speed at which transects were walked with fewer lorises detected at higher speeds. This effect was absent when considering encounter rates per hour. Detectability of Javan slow lorises was not affected by the amount of lunar light and we found no obvious differences in slow loris behaviour and moonlight. Our study shows that slow lorises are not homogeneously distributed in their montane habitat and occur at relatively low densities. Unlike some of their congeners we found no evidence for lunaphobia or lunaphila.

Role of Western lowland gorillas (*Gorilla gorilla gorilla*) in dispersal and regeneration of commercial trees in South-East Cameroon
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2. Royal Belgian Institute of Natural Sciences, Conservation Biology Section, Brussels, Belgium
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Plant diversity and the dynamics of tropical forest ecosystems are strongly influenced by animals through seed dispersal. However, populations of many dispersers, such as the Western lowland gorilla (WLG) are declining. In order to preserve ecosystem services effective agents of natural regeneration should be identified and conserved. This is especially relevant to logging, where it is in the commercial interests to maintain long lasting productivity of their lands. Gorilla-friendly logging practices would also play a significant role in the conservation of these critically endangered animals especially where their range falls within logging concessions.
Seed dispersal by gorillas was studied between October 2009 and September 2011 in South-East Cameroon, through faeces content analysis (N = 446), characterisation of seed deposition sites (N = 391), gut retention time (N = 1211) and germination trials. Of 41 tree species seeds identified in faeces, 7 are exploited for their wood, including *Erythrophleum suaveolens* (Tali) which was previously thought to be autochorous, suggesting that gorillas are valuable dispersal agent for this species. *Chrysophyllum lacourtianum* (*Longhi abam*) may also be dependent on gorillas for dispersal and subsequent regeneration, due to the size of its seeds. Ingested seeds can remain in the digestive tract for up to 8 days (mean RT = 54.7h ± 28.9). Gorillas walk 1.9 km per day (498 – 2904 m) so potentially disperse the seeds long distances from the parent trees. Seeds receive high quality treatment in the mouth and gut (only 0.78% show damage) and maintain or even gain enhanced germination success (4 of 8 species tested; Chi-squared, p<0.05). Although WLG use every kind of habitat type in the study site, 85% of nest sites are found in tree-fall gaps and secondary forest in early stages of succession, and half of all faeces are produced near nest, resulting in seeds being dispersed to areas of open canopy. Thus seed dispersal by WLG may strongly benefit heliophilous species, a common trait of tropical trees and typical of commercial species. Conservation of WLG is therefore highly relevant to ensure ecological and commercial function of the forest ecosystems; a consideration which should encourage forest managers to strengthen WLG conservation in their concessions.

**Ectoparasites of primates: Low scientific interest but high importance for conservation and ecology**

Eva Johanna Rode and K. Anne-Isola Nekaris  
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Parasites can cause a loss in fitness. Physiological health assessments are important in conservation to assess impacts of habitat modification, interactions between primates, humans and domestic animals and the health status for reintroductions and translocations. Parasites may trigger or accelerate species and population declines in small and isolated populations which are also more vulnerable to environmental stress or random stochastic events. Parasites species go extinct long before their host species. The loss of ectoparasites deprives the host of behavioural, physical and immune defences that may be important in responding to future ecological changes. Both endo- and ectoparasites can carry infectious and sometimes lethal diseases. Ectoparasites may remove blood or damage the skin causing the host to spend valuable time on grooming which may lead to decreased reproduction success.
The aim of this study was to compile a data set with ectoparasite prevalence and intensity across all primates. The results allow comparison of phylogeny and other biological and ecological factors (body size, life history, social contacts, population density, habitat diversity, substrate use and rainfall). We used the Global Mammal Parasite Database (available online, Nunn & Altizer 2005), PrimateLit database and Google Scholar to compile a dataset about ectoparasites in primates. Only wild and healthy animals were included. We were able to collect fewer than 50 data points for 15 primate genera; many of the datapoints had a low sample size and did not include both prevalence and intensity. No statistical tests could be performed due to the low sample size.

We found a surprising lack of data about ectoparasites in primate species, despite the huge scientific interest in grooming behaviour and parasites in general. Handling of primates for research poses risks to both animals and researcher. Therefore we would strongly recommend collection of data on ectoparasite prevalence and intensity at all opportunities. The prevalence and intensity of ectoparasite infestation in Lorisidae seemed to be extremely low compared to other primate species. The slow lorises of Southeast Asia (Nycticebus spp.) and possibly other lorisids are some of the few mammals reported to produce toxic exudates from the brachial gland. Our results suggest such exudates may be a defence against ectoparasites in slow lorises and other Lorisidae.

Nest use and its implications for social organisation and conservation of the northern giant mouse lemur Mirza zaza, in Sahamalaza, northwestern Madagascar
Eva Johanna Roöe1*, K. Anne-Isola Nekaris2, Mathias Markolf3, Susanne Schliehe-Diecks3, Melanie Seiler1,4, Ute Radespiel1, and Christoph Schwitzer1
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Shelters such as leaf nests, tree holes or dense vegetation tangles play a crucial role in the life of many nocturnal strepsirhines, for instance they offer thermoregulatory advantages or protection against predators. Information about the availability, quality and the use of these important resources is essential for conservation planning and nest group composition may point to the social organisation of the species. The northern giant
Mouse lemur (*Mirza zaza*) was described in 2005 and is Red-Listed as Vulnerable due to habitat loss within its restricted range. In contrast to the solitary *M. coquereli* in the south of Madagascar, *M. zaza* appears to sleep in nest groups. Nest use and preferences and sleeping group composition were examined and relatedness of animals determined in order to investigate their social organisation. In the Ankarafana Forest in Sahamalaza National Park, northwestern Madagascar, we captured 12 *M. zaza* and recorded morphometric data and took small ear biopsies from the outer pinna and 5 microsatellite loci were used to investigate relatedness. Eight of these animals were radio-tagged and their nesting behaviour observed for 2.5 months during the dry, cold season. Nest trees were identified and animals observed during evening emergence and morning return. Nest trees and microhabitat around nest sites were compared with trees and microhabitat used during nightly activity and with random sites.

We found that nests were well covered by canopy, even during the dry season, located near the tree trunk a few meters below the tree top. Nest sites were characterised by large and tall trees with many lianas. The 4 sleeping groups consisted of 2 - 4 animals including several males with fully developed testes and used 1 - 3 group-exclusive nests. Genetic analysis indicated that related and unrelated adult males shared nests. Stable nest groups of several adult males in one nest are unusual among nocturnal stepsirhines. Nest-sharing individuals may form so-called social groups to gain protection against environmental challenges and/or predation. This gregarious nesting behaviour may also be a result of the extreme forest fragmentation and degradation and low number of nests used per group might indicate a scarcity of suitable nest sites. We recommend collecting more genetic data to validate kinship analyses and to investigate if the unusual formation of social nest groups is an artefact of degradation or reflects a normal behavioural pattern in this species as well as protecting suitable nest trees and discouraging selective logging of large trees.

**Factors influencing nesting site selection of bonobos (*Pan paniscus*) in the forest savannah mosaic of Nkala (DRC)**

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In 2005, a large population of bonobos (*Pan paniscus*) was discovered to live in the forest savannah mosaic of the south of the Lake Tumba landscape, in a region almost entirely within cattle ranches and logging concessions. While logging companies working in the areas are willing to shift toward more sustainable practices, little is known about the behavioural ecology of the bonobos population inhabiting in forest savannah mosaic habitat.
Preliminary research on nesting site selection was carried out on a bonobo group under habituation process in Nkala forest from May to July 2011 to provide information for making further recommendation on logging. Factors potentially influencing nest sites include the availability of nesting material, food resources, and distance from human settlements.

As no diet data were available, the diet composition of the bonobos group was established from the habituation trackers knowledge gained via questionnaires and was confirmed from faecal collection and analysis. Twenty-eight nesting sites representing 692 nests and 481 nesting trees have been characterised. The Nkala bonobos community has at least 34 members of nest building age. The group expressed selectivity towards habitat and tree types (DBH, height, species), nesting preferentially in forest having a marantaceae understory in trees of 20-30cm and 10-20m height, building most of their nest in the middle canopy.

Nest site selection does not appear to directly depend on the availability of nesting material as composition did not just reflect the abundance of different materials. The use of areas for nesting was more directly influenced by their feeding resource availability, the nest group size varying indirectly with the food availability of the sites. Investigations about the geographical distribution of the nesting in the forest have been inconclusive regarding the avoidance of human disturbance. However, it may still be hypothesised that the high nesting site reuse rate observed in the forest comes from spatial limitations which can be influenced by human presence.
**Primate Society of Great Britain Spring Meeting 2012**

17th and 18th of April 2012

Howletts and Port Lympne Wild Animal Parks, Kent

Held in conjunction with the University of Kent, School of Anthropology and Conservation.

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<tr>
<th>Organisers:</th>
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<td>Mark Kingston Jones, Howletts and Port Lympne Wild Animal Parks</td>
<td>On Monday the 16th of April, we will be hosting an afternoon dedicated to primate rehabilitation and reintroduction. A series of short talks from a panel of experts in their fields will be followed by an open discussion to generate debate and identify areas of future research.</td>
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<td>Dr. Tatjana Humle, School of Anthropology and Conservation, University of Kent</td>
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**Guest Speakers on Primate Rehabilitation and Reintroduction:**

- **Dr Benjamin Beck:** Director of Conservation - Great Apes Trust Iowa.
- **Steve Unwin:** Veterinary Director - PASA, Veterinary Officer – Chester Zoo, member of the Orangutan Veterinary Advisory Group.
- **Made Wedana:** Country Director - The Aspinall Foundation, Indonesia.

Our parks currently hold one of the biggest primate collections in the UK, with 31 different species, including the largest captive population of Western lowland gorillas in the world, currently numbering over 70 individuals. The Aspinall Foundation also runs two gorilla reintroduction programs in Central Africa (Congo and Gabon) and primate conservation and rehabilitation projects in Java and Madagascar.

This meeting will take place over two half day sessions on the afternoon of the 17th and morning of the 18th of April. This will allow for optional tours of both parks on the morning of the 17th at Port Lympne and the afternoon of the 18th at Howletts.

**Evening Safari and Dinner**

All delegates are invited to a private evening safari, followed by the conference dinner in the Port Lympne Mansion on the evening of the 17th. Tickets are £10 per person and include the safari and a 2-course meal (cash bar available at 20% discount).

For further information please visit [www.psgb.org/Meetings/Spring2012](http://www.psgb.org/Meetings/Spring2012) or contact Christine on [ccw@aspinallfoundation.org](mailto:ccw@aspinallfoundation.org).
PSGB Winter Meeting 2012

Primate Biogeography
date tbc
ZSL, London

Organisers:
Sarah Elton, Hull-York Medical School and Helen Chatterjee, University College, London

PSGB Spring Meeting 2013
date tbc
University of Lincoln

Organiser:
Bonaventura Majolo, University of Lincoln

CORRECTION

Last issue, the work of Tatiana Iseborn was wrongly presented as a Ph.D. abstract. Her work on *Nycticebus* should have been listed under Conservation Grant Reports. Apologies to all concerned.
OBITUARY: PROFESSOR TOSHISADA NISHIDA 1941-2011

One of the giants of field primatology, Toshisada Nishida, died on 7 June, 2011, after a long battle with cancer. He leaves behind a record unrivalled in studies of the ethology and ecology of chimpanzees in nature. His field site, Mahale (earlier called Kasoje), founded in 1965, was second only to Gombe in its duration. He maintained a constant and active research effort over the decades, spending part of almost every year in the field, through 2009. He leaves behind an ongoing team who are continuing the work that he began.

His publication record speaks for itself, in terms of quality and quantity, for example, he was the first to unravel the social organisation of *Pan troglodytes*, and he was the first to recognise the importance of coalitions in male-male social relations in that species. His book, *Chimpanzee Behavior in the Wild: An Audio-Visual Encyclopedia* (Springer, 2010) [reviewed below: Ed.] is the most complete ethogram of the species ever published. (It also contains sly examples of his humour; if you look up the video clip for the category, Fart, you will see how it is represented visually, without recourse to either the acoustic or olfactory senses!) His last efforts were to complete his scientific memoirs, *Chimpanzees of the Lakeshore: Natural History and Culture at Mahale*, soon to be published by Cambridge University Press.

Prof. Nishida was arguably the most internationally-minded of the Japanese primatological community. He took the lead in welcoming Western researchers to his field site, starting with Richard Wrangham (other British colleagues who worked at Mahale were Richard Byrne, Anthony Collins, Caroline Tutin, and myself). He was the first to co-author an article in behavioural primatology with a Western colleague, on medicinal plant use in 1983. He was the first Japanese primatologist to go beyond *Primates*, into one of the other Big Four primatology journals, when he published on bark-eating in *Folia Primatologica* in 1976. In 1973, he was the first behavioral primatologist OF ANY NATIONALITY to publish findings in the *Journal of Human Evolution*, in 1973, on ant-fishing. He was a genuine pioneer, on a global scale.

He was honoured accordingly, being elected to the presidency of the International Primatological Society. That body also awarded him its Lifetime Achievement Award. He received the Leakey Prize of the LSB Leakey Foundation in 2008. After retiring from his academic post at Kyoto University, he became the Director of the Japan Monkey Center, and served as the Editor-in-Chief of *Primates*. 
If there is one thing that sums up Toshi Nishida, it is his boundless enthusiasm for his subjects, as captured in one of his most notable quotes, “Chimpanzees are always new to me.”

W.C. McGrew
Cambridge

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**OBITUARY: ALAN RICHARD MOOTNICK, 1951-2011**

Alan Richard Mootnick – one of the world's foremost specialists and conservationists of gibbons – passed away on Friday, November 4, 2011, from complications following heart surgery. He was 60 years old.

Mootnick founded the non-profit Gibbon Conservation Center (GCC) in Santa Clarita, CA, in 1976, with the purpose to prevent the extinction of gibbons – small Southeast Asian apes – and to advance the study, propagation, and conservation of the species.

What started as a childhood fascination with gibbons developed into an important sanctuary, housing the largest gathering of endangered apes in the Western Hemisphere. Completely self-taught in primatology, Mootnick was one of a team responsible for the identification and naming of the highly endangered hoolock gibbon.

He published more than 30 articles in peer-reviewed journals and offered advice to zoos, government agencies, veterinary universities, and gibbon rescue centres throughout the world. He was the studbook keeper for five species and Husbandry Advisor for the Gibbon Species Survival Plan.

Mootnick and his work touched countless individuals and institutions. Hundreds of school children and students visit the Gibbon Conservation Center yearly, and the general public enjoys the annual "Breakfast With the Gibbons" fundraiser. Known for an eccentric gray-spotted beard, constant braces, and dry sense of humour – Mootnick was a person not easily forgotten. Strangers would approach him on the street, recognizing him from a long-ago school trip to the Gibbon Conservation Center.

A Los Angeles native, Mootnick is survived by his sister Ronnie Weinberger, nephews Paul and Steve Weinberger, aunt Jean Galanti, cousins Geri-Ann Galanti, and William and Kenneth Benbassat, and 44 gibbons currently residing at the Gibbon Conservation Center.

Elliott Haimoff
This book is one of the last contributions by Prof. Toshisada Nishida (1941–2011), one of the first researchers to embark on long-term study of chimpanzee behaviour in the wild. Nishida began his studies 46 years ago in the Mahale Mountains, Tanzania, and throughout his career had an enormous impact on how we understand chimpanzee and primate sociality today.

From his body of work, of special relevance to this book is his contribution to the area of chimpanzee culture. In his research Nishida drew on a wide range of related disciplines, from ethnography and comparative analysis to ethnology and ethnobotany, to illuminate our understanding of the diversity of chimpanzee behaviour. As an ethnographer, he provided the first descriptions of a number of previously unknown chimpanzee behaviours, including leaf-clipping, bark-eating and leaf-pile pulling. He also provided the first quantitative, systematic description of chimpanzee technology, a landmark study due to the piece-meal and largely qualitative nature of previous research.

Most importantly, he published the most comprehensive repertoire of chimpanzee behaviour, which detailed over 500 behavioural variants. This extensive body of Nishida’s previous work on the chimpanzee ethogram is now made more complete with this excellent new book by Nishida and collaborators, aiming to provide a full glossary of chimpanzee behaviour with accompanying audio-visual illustrations. Such extensive audio-visual resources are lacking and this ambitious book sets new standards for ethnography research in animals by facilitating more reliable, systematic intra- and inter-specific comparisons.

The introduction to the book outlines the importance of compiling behavioural ethograms to understanding variation in behaviour and its biological and cultural antecedents. The introduction follows with a list of the study sites referred to in the glossary, including the most relevant reference sources. Classification of behaviour patterns is given according to function: social interaction; feeding and foraging; expressive behaviour; positional behaviour; object manipulation; culture; and others.
Next, the detailed glossary of all behaviours is presented alphabetically by behaviour name with descriptions of motor patterns, function and the contexts. The glossary is based on 250 individuals and the list contains over 900 behavioural patterns, and over 1,000 terms derived from 1,500 hours of video material. Each behavioural pattern has a code to describe its morphological and functional complexity (e.g., ‘Type A’ denotes a simple anatomical term, such as ‘walk bipedal’).

Helpfully, phylogenetic classifications are linked with behaviours, such as how likely the behaviour is to be of Hominoidea, *Pan*, *Homo*, chimpanzees or bonobos, subspecies, groups or individuals. All behavioural patterns are accompanied by respective video codes to enable the reader to locate behaviour on the two accompanying DVDs. Almost all of the behaviours are illustrated by at least one video clip. In the few cases where a video clip is not available, still images are provided to enhance identification and comparison. Within each video clip the name of behaviour is overlaid on the footage and in those cases when video contains complex, functional terms, or when the behaviour in question is not immediately obvious, the arrows with the name of the behaviour pointing towards respective behavioural patterns clarify the contents.

Finally, the discussion synthesises whole material to suggest the numbers of behavioural patterns within each phylogenetic category, pointing out types and numbers of likely human and chimpanzee ‘universals’ as well as strictly cultural behaviours.

This book is the first systematic attempt to comprehensively describe chimpanzee behaviour and document it by use of audio-visual material, perhaps the only such attempt for a single species of mammal. This volume is extremely important and contributes to our understanding of our behavioural ancestry as well as human evolution. It helps us to understand what kind of behavioural patterns may have been present in our common ancestor, the cognitive underpinnings of behavioural development and what we have in common with chimpanzees. By investing an enormous amount of time in recording, coding and synthesizing information, painstakingly describing the smallest behavioural patterns and providing detailed, clear and comprehensive descriptions, the authors succeed in providing the best overview of behavioural diversity in chimpanzees to date. The video clips are also extremely well presented and neat, and the descriptions provided are exhaustive and clear.

Understandably, at times some of the information is a little unwieldy, given the vast number of behaviours, terms and video footage. In particular, because categories and types assigned to behaviours within the glossary are not also listed here (for example, as a legend on the page prior to the glossary), requiring the reader to browse through both introduction and
methodology to interpret these references. Moreover, the discussion would have been enhanced by having a summary table listing all of the behavioural patterns by both functional category and their assignment to the phylogenetic category to give the reader easy reference to phylogenetic categories of behaviour. However, these are very minor points and overall this volume has to be very strongly recommended to anyone interested in chimpanzee behaviour.

This book is a landmark in documenting what we know about the chimpanzee ethogram to date, and will be of considerable use to not only chimpologists, but all primatologists, animal behaviourists, anthropologists, zoo-keepers, teachers, students, and perhaps inform those working on the next Planet of the Apes sequel, too!

Anna Roberts
University of Stirling

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<th>Primates of the World</th>
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<td>Ian Redmond (2010)</td>
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Most of us can recall our first exposure to primates in print. Perhaps it was Curious George, or Goodall’s In the Shadow of Man. After we became interested, we became captivated and eventually devoted to another (or multiple) primate species. Ian Redmond’s Primates of the World has the potential to truly expand our understanding and commitment to primates. At first glance this book strikes the reader with exquisite photography, informative maps, and extensive descriptions of both primate taxa and ecology. For the budding primatologist, the immediate benefits are apparent: learn and embrace what comprises the order Primates.

Redmond is also well-placed – as researcher and conservationist – to integrate these necessarily cooperative fields. He thus provides the reader with an even deeper motif, a shift in how we, as primatologists, do primatology. That is, that fewer and fewer studies focus solely on dominance behaviour or social relationships, for example; rather, they increasingly focus on interactions between primates and their ever-changing environment, from inter-specific relationships to local habitat destruction and global climate changes. Redmond thus strikes a delicate balance between introducing the order while simultaneously including important discussions on ecology, behavioural adaptations, and relevant threats, all whilst calling for increased human ecological responsibility.
He begins with overviews of primate traits, distribution, and their importance to ecosystems, critically as seed dispersers. He then highlights some of the features that make primates interesting as animals of study, with sections on culture, communication, and social structure, including elegant and recent examples demonstrating the behavioural diversity of the primate order. Once again, the images offer vivid demonstrations, such as gorilla swamp-crossing and capuchin nut-cracking to name just two. There is then a lengthy (three pages), but easily digestible discussion of evolutionary biology, specifically speciation and primate phylogeny. This section is critical to making clear the importance not only of humans as part of a larger taxonomic order, but also of contextualizing primates as inter-related groups that share genetic history, behaviour and morphology. Throughout, the writing avoids jargon and incorporates colourful and clear figures.

Redmond then tackles primate-human interactions. From revered to revolted, primates face a diverse set of cultural practices that guide human treatment towards them, which at times promotes their proliferation (India), whilst at others accelerates their demise (Congo). Redmond is careful here to consider the advantages and dangers of each role we can play – eco-tourist, conservationist, researcher – promoting responsible decisions and behaviour.

Next is the more traditional, yet necessary, component of any book on primates: a colourful journey through the extant species. The major subsections here are prosimians, New World monkeys, Old World monkeys, and apes, with each group receiving a small introduction on the anatomical or behavioral traits that characterize them. What distinguishes Redmond’s approach, though, is that in addition to providing updated information on life history, distribution, social structure, and anatomy, he also reveals behavioural traits that are particular to sub-groups. These range from duetting indri to supertrooping baboons to capuchin courtship. The descriptions further individualize the species, offering a beginning primatologist a more detailed perspective.

The advantages of this book are twofold. First, it is accessible: the language is clear, avoids excessive verbiage, and is complemented by splendid photographs of the most charismatic representatives of the order. Second, and more important, it is informative, complete with descriptions of behaviour, ecology, and local as well as global threats, offering a sense of what it means to be a wild primate. My reservations mostly concern content and organization. Why, for example, are some themes (communication, culture) given special attention, whilst others (cognition, aggression) neglected? Granted, not everything can be described, but it remains unclear why some were chosen over others. For a book that is in other ways unique in approach, it is unfortunate that these usual themes again attract greater focus than others in primatology.
The organization is also puzzling at times. Specifically, the discussion on evolutionary biology would be better placed earlier, establishing immediately the larger context of primate taxonomy before discussing how we study it. Also, the book ends rather abruptly with the apes, absent of any call to future work, especially in conservation. This call is made early (p. 40), but could be revisited. A brief conclusion tying the previous themes together would provide the reader with a final reminder of the conservation role we each must assume if these creatures are to survive in the wild.

In summary, Redmond’s *Primates of the World* is a splendid read for anyone seeking an initial exposure to wild primates, their habitats, and the threats they face. The photographs invite our budding primatologist to the forests, the savannas, and the swamps of Africa, Asia, and South America, whilst never allowing them to forget the fragility of the world of the wild primate.

Alex Piel
University of California, San Diego

**Primate Locomotion: Linking Field and Laboratory Research**
Kristiaan D’Aout and Evie E Vereecke (eds) (2011)
Springer

Locomotor research brings together many sub-disciplines of primatology, including ecology, behaviour, morphology, biomechanics and energetics. It is also one of the fastest moving, most holistic, and challenging fields to work in, stimulating research which, due to its synthesis of multidisciplinary evidence, presents problems of integration and interpretation. As part of Springer’s *Developments in Primatology: progress and prospects* series, this new volume amply illustrates both the complex nature of research into primate locomotion and the ways such scholarship is developing today.

Unlike many edited volumes, *Primate Locomotion* does not merely summarise the state of the art in relevant work (which it nevertheless describes effectively). It was also put together to fulfil another goal: working towards increasing integration between the two major arenas of locomotor studies, the field and the laboratory. This gives the reader the full benefits of both the detailed information about new research and findings provided in each chapter’s report, and a ‘big picture’ approach, as each case study is clearly situated within its disciplinary context. Authors have been encouraged to actively evaluate the ways their work has been or might be enhanced by shared use of data and ideas from both arenas and have taken this charge seriously, producing a collection of thoughtful comments on the limitations and potential of current and future research.
The book begins with an introduction from the editors which lays out its aims and provides an overview of the various approaches to field-laboratory integration used or advocated by the contributors. They broadly divide papers into those advocating synthesis at a distance through increased cross-arena publication and presentations, those aiming to ‘bring the laboratory into the field’ or ‘bring the field into the laboratory; and those working towards the full synthesis of once-restricted disciplines. This is a useful classification, as although many of the papers which follow actually focus on several integrative processes, it provides some insight into the current state of play.

Increasingly robust and cheaper experimental equipment are already making it possible to set up more sophisticated field studies that mimic laboratory work, and more complex ‘natural’ experimental settings are being championed in captivity. It would seem the time is right for a focus on further developing this synthesis, especially – as several of the volume’s papers show – because work is now beginning to challenge constraints imposed by necessities of data or research design.

Certain contributions – for example, Ogihara et al. on the development of a musculoskeletal model of bipedal locomotor kinematics in *Macaca fuscata* – are from authors whose work is by definition restricted to one arena and who must actively innovate to develop appropriate means for contacting the other, while others have expressly set out to integrate data from different contexts. The study by Watson et al. of the potential role of load carrying in human locomotor evolution, for instance, incorporates observations of carrying preferences in humans, laboratory tests of human gait parameters during carrying, and video recordings of apes carrying various items in zoo enclosures. All these data were collected directly for the research described, as part of a synthetic research design using ‘field’ observations of humans to steer choices for laboratory studies of more complicated biomechanical parameters.

While this categorisation does work, the chapters in this book remain diverse in other ways. This is accentuated by the fact that they have not been arranged in a given order or divided into parts. Some chapters are organised around tightly-defined problems, others on studying the locomotion of particular groups, and yet others use their study subjects primarily as exemplars to propose or develop new methodologies. Schmidt and Krause’s chapter, for example, focuses on a problem; specifically, the attempt to ‘find common principles of shoulder motion’ for quadrupedal primates (p.85) and develop links between shoulder morphology and range of motion or use. Their choices of subjects for field analyses were based on the hypothesis of primate origins that they adhered to and were designed to
identify viable species for studying a general pattern. For Guillot’s work on ateline forelimb suspension, understanding the study subjects was one aim and developing the use of video techniques in the wild was another; while for Cheyne wild gibbons were chosen as a case study to drive a review of field locomotor studies and the ways these might be enhanced by laboratory techniques like videoing and transducer/strain gauge measurements.

In other chapters, there were foci on strepsirhines, various Old and New World monkey groups and apes; on understanding behaviour and morphology; and on developing techniques in both arenas. Every chapter is unique in these characters. In fact, from this perspective the lack of categorisation in presentation order is an advantage, avoiding the risk of imposing a fixed taxonomy on contributions and enabling readers to choose how they approach the contents. For those wanting to look up a specific species/method/area, there is an index which, although short, is a useful pointer to key concepts.

In summary, this volume provides a clear, wide-ranging summary of current research into primate locomotion. For readers interested in the subject or with an interest in the future of primatology, it is an excellent resource. Individual chapters provide overviews of locomotion itself, the ways it is studied, and the different aims and perspectives used, as well as introducing a series of up to date case studies and demonstrating the current state of the field. There are extensive bibliographies at the end of each chapter which provide routes into the literature, and the variety of example species and settings used means there may well be ‘something for everyone’.

It is, unfortunately, rather expensive, which will undoubtedly deter some readers – particularly those with an interest in one specific topic. I can imagine the book spending a lot of time in the reserved section of university libraries and long student waiting lists for access. A paperback edition or perhaps a cheaper e-book version might solve this. It is certainly regrettable that a volume which seems so well suited for those with a general interest in locomotion and primatological research design and methodology is currently priced beyond the reach of the most students and early career researchers.

Isabelle Winder
University of York
A Companion to Biological Anthropology is a compendium of chapters by many respected academics in the field of biological anthropology. This expansive text is broken into five parts: History, The Present and the Living, The Past and the Dead, The Living and the Dead, and Science and Education. Each part is divided further, discussing multiple sub-topics by various authors in order to expand the reader's knowledge of biological anthropology. As this is such and long and segmented text I will address it in order to discuss all of the points, as each section has its own individual merits worth acknowledging.

History – this name-heavy introduction to the history of the field gives a good background for the uninitiated. It gives a succinct outline of who's who from the initial studies through the late 2000s and finishes with brief descriptions of current sub-fields of biological anthropology. Overall, this is a clear discussion of background, suggesting whose work a student should study further if they have an interest in a particular sub-set of the field.

The Present and The Living – by far the longest part, this addresses topics including taxonomy, phylogenetics, population genetics, DNA, aging, morphology, physiological adaptation, primate behaviour, and speech. Some very complex concepts in biological anthropology are discussed here, which will give students a good understanding of the variety of topics covered under this discipline. It may be somewhat overwhelming if not digested in small chunks, but there is an intense depth of knowledge in this section. My only minor criticism of this section would be that a student without a genetics background may struggle to understand some of the concepts. The first few chapters in particular are very heavy-handed with the use of (necessary) biological and genetic terminology which can only be briefly explained. A student will need at least a basic knowledge of biological and genetic concepts to comprehend this section.

The Past and the Dead – my favourite section of this book, discussing the evolutionary history of primates, beginning with plesiadapiforms and early euprimates through extant primates species, including Homo sapiens sapiens. After discussing the fossil history, the text discusses other methods of studying extinct primates including the use of bioarchaeology, paleopathology and paleogenetics to glean more information about our ancestors. Written in a coherent and chronological fashion, this section facilitates sound understanding for students new to the field.
The Living and the Dead – the penultimate section discusses some topics of interest which were not included in the other parts of this text. Topics include diet, bone and tooth function and morphology, and locomotion. I feel the real benefit of this section came from the discussions of interdisciplinary research in order to further understand the history of primates. Of particular interest was the first chapter in this section which discusses the use of carbon, nitrogen, hydrogen, oxygen, and strontium isotopes to assess aspects of diet in specimens.

Science and Education – the last section of this book focuses on the discussion of evolution, creationism, and young earth creationism, including a discussion of some major texts of the latter. I actually chuckled in surprise when I realised the topic that would conclude this text. The concluding essay is written more as a rebuttal to non-believers of evolution than anything else, which seemed somewhat inappropriate. The final word in this book is ‘ignorance’, a concept discussed regarding those who do not agree with evolution. A discussion such as this does not belong in a text dedicated to scientific discussion of biological anthropology, and undermines the legitimacy of the book.

As a former student of biological anthropology, my major impression of this text was that it was very encompassing, detailed, and interesting. Excluding the final section, I found this book to be appropriate, thought-provoking and extensive in its content. Even with so many topics of biological anthropology discussed, due care is given in each section by the authors to include enough information to give an adequate foundation and then expand upon it in subsequent sections. I would highly recommend this book – there is something in it for everyone. I was pleased to come away from it having learnt something myself.

Kristina Rimpley
University of Stirling

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**Planet Ape**
Desmond Morris and Steve Parker (2009)
Mitchell Beazley
ISBN-10: 1845334418 (Hardcover) £29.99

*Planet Ape* sets out to introduce us to our closest living relatives and it does just that. More than just a coffee-table book, this volume crosses the group with information on taxonomy, physical characteristics, nutrition, social systems and conservation. Inevitably when dealing with such a range of topics in one volume, some areas cannot be covered in depth. However, I was happily surprised by the quality and quantity of the information provided.
Desmond Morris has a literary pedigree of pop-science books behind him and a talent for engaging with a wide audience with his writing. This is evident from the beginning with his introductory chapter ‘Meet the Great Apes’, providing the reader with a background into ape evolution and distribution, before moving onto the second chapter ‘Family Portraits’ where more detailed information is given on each of the six species of great ape. One particular touch that I appreciated was that rather than simply concentrate on the great apes, the author also takes a little time here to go through the other primate groups, albeit very briefly. Although the majority of information in these two chapters will not be unknown to most Primates Eye readers, it nicely sets the scene for the lay person or young primatologist, helping to place the apes in correct context within the order Primates.

The author then goes on to comment on the relationship between the great apes and man, focussing on shared traits of all the great apes. The background on the evolution of the apes is briefly contrasted with an interesting aside into the cryptozoology myths surrounding this group, before moving onto the differences between man and his cousins, and then our use of apes in various industries such as the performing arts – some of which provides uncomfortable reading.

Next, the reader is drawn into the main section of the book, looking at the socio-ecology of apes. Due attention is paid to subjects such as anatomy, nutrition, communication and social life, and once more it becomes apparent that, although the depth of information cannot be provided on every subject, this volume is more than just a cursory look at these subjects. Within the chapter on nutrition detail is given on foraging strategies and tool use relating back to cognitive abilities and social contexts. Also included is a section on coprophagy, an important inclusion, as many books introducing the lay person to the behaviour of our closest relatives will ignore aspects that people may feel are less palatable.

The chapter on social life is wide-ranging, working through the various social systems displayed by the great apes, but going beyond that to describe immigration and emigration between groups as well. It also discusses the complex social hierarchies with the group, looking at social alliances and dominance behaviours as well as the function of play and the interesting, often debated, phenomena of altruism amongst apes.

Having investigated the diversity of life histories exemplified by the great apes and catalogued many of the reasons why we are so fascinated with them, the author finally turns his attention to their plight and the reasons why we may not have them living in this world for much longer. Firstly cataloguing natural threats to these species, again including the somewhat less palatable subject of infanticide, and then moving on to the threats
driven by humans that are pushing the great apes to the edge of extinction; habitat destruction, hunting and poaching, disease and war. This is followed by a description of the efforts in place to try to prevent their extinction, and a list of charities and organisations working for the survival of the great apes. My one criticism is that I felt more could have been made of the issue of Western consumerism that is fuelling the demise of so many species, including the great apes.

Although there is little new information in this book for an experienced primatologist, the style and content is very pleasing. I enjoyed reading it and would certainly recommend it to those who want to complete their collection, but especially for those with a budding primatologist, or indeed an interested lay person, in the family.

Kirsten Pullen
Paignton Zoo Environmental Park
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