

## Peru research questions

Each of the students will be expected to research one of the questions below during their spare time on board the ships. There will be copies of the literature listed and additional reading but it would be very useful for the students to do some initial reading.

The following research questions and accompanying reading lists are provided to give everyone a chance to think about the scientific work and research areas that they might encounter in Peru. The list is a starting point for those doing CoPE and other extended project work and you may wish to alter the question or go in a slightly different direction but do consult your tutor/Opwall before deciding in your final topic: make sure it is practical and you are really interested in it.

The reading lists are only 'starters' and NOT meant to be a definitive list for your research. You will get many leads from these and we have chosen a good range of sources from academic papers to video clips. We have checked all of the internet links but these constantly change with time so expect some not to work (cut and paste into your web browser address bar if you have an electronic version of this booklet). We have tried to direct you to the summary abstracts of many of the papers cited as they are not easily available unless you have access to a University library or a journal 'on-line'.

Research questions	Suggested reading list - Peru
Can ecotourism provide a viable alternative income for Pacaya-Samira National Reserve?	<p><b>Academic paper:</b> Sound the stressor: how Hoatzins (<i>Opisthocomus hoazin</i>) react to ecotourist conversation - Daniel S. Karp and Terry L. Root - Biodiversity and Conservation, 2009, Volume 18, Number 14, Pages 3733-3742  <a href="http://www.springerlink.com/content/10.1007/s10841-009-9374-2">http://www.springerlink.com/content/10.1007/s10841-009-9374-2</a></p> <p><b>Article</b> - Eco-tourism: A sustainable trade? James Mair - DEC 2006 -  <a href="http://news.bbc.co.uk/1/hi/sci/tech/6179901.stm">http://news.bbc.co.uk/1/hi/sci/tech/6179901.stm</a></p>
Has deforestation in South America slowed?	<p><b>Other (website)</b> - World deforestation rates and forest cover statistics, 2000-2005 Rhett A. Butler, mongabay.com November 16, 2005  <a href="http://news.mongabay.com/2005/1115-forests.html">http://news.mongabay.com/2005/1115-forests.html</a></p> <p><b>Article</b> - What are the underlying causes of deforestation? The World Guide 1999/2000 by the Third World Institute. -  <a href="http://www.wrm.org.uy/deforestation/indirect.html">http://www.wrm.org.uy/deforestation/indirect.html</a></p> <p><b>Book</b> - P. W. Richards, University of Wales, Bangor - The Tropical Rain Forest An Ecological Study 2nd Edition - 1996 ISBN: 9780521421942  <a href="http://www.gbv.de/dms/bs/toc/183314441.pdf">www.gbv.de/dms/bs/toc/183314441.pdf</a></p> <p><b>Article</b> – World news –Deforestation rates fell -  <a href="http://article.wn.com/view/2010/12/01/Brazil_Amazon_deforestation_lowest_rate_on_record/">http://article.wn.com/view/2010/12/01/Brazil_Amazon_deforestation_lowest_rate_on_record/</a></p>
Has global climate change had any impact on South American Rainforests?	<p><b>Article</b> - Rainforests and Climate Change  <a href="http://www.rainforestfoundationuk.org/Rainforests_and_Climate_Change">www.rainforestfoundationuk.org/Rainforests_and_Climate_Change</a></p> <p><b>Article</b> - Fate of the rainforest is 'irreversible' The Independent March 2009 -  <a href="http://www.independent.co.uk/environment/climate-change/fate-of-the-rainforest-is-irreversible-1643083.html">http://www.independent.co.uk/environment/climate-change/fate-of-the-rainforest-is-irreversible-1643083.html</a></p> <p><b>Academic paper</b> -Thomas C.D., Cameron A., Green R.E, Bakkenes M., Beaumont L.J., Collingham Y.C., Barend F. N. Erasmus B.F.N., de Siqueira M.F., Grainger A., Hannah L., Hughes L., Huntley B., van Jaarsveld A.S., Midgley G.F., Miles L., Ortega-Huerta M.A.,</p>

	Townsend Peterson A., Phillips O.L. and Williams S.E. (2004). Extinction risk from climate change. <i>Nature</i> . <b>427</b> . <a href="http://eprints.whiterose.ac.uk/83/1/thomascd1.pdf">http://eprints.whiterose.ac.uk/83/1/thomascd1.pdf</a>
<b>Why are primate communities important to Pacaya-Samiria.</b>	<b>Academic paper</b> - Chapman C.A & Onderdonk D.A, (1998) Forests without Primates: Primate/plant codependency. <i>American Journal of Primatology</i> <b>45</b> : 127-141 <a href="http://chapmanresearch.mcgill.ca/Pdf/90_SeedConservAJP.pdf">http://chapmanresearch.mcgill.ca/Pdf/90_SeedConservAJP.pdf</a> <b>Academic paper</b> - Sellers, Bill Primate Behaviour University of Leeds - <a href="http://www.leeds.ac.uk/chb/lectures/anthl_11.html">http://www.leeds.ac.uk/chb/lectures/anthl_11.html</a> Other – website – Primate info net <a href="http://pin.primate.wisc.edu/factsheets/">http://pin.primate.wisc.edu/factsheets/</a>
<b>Describe the social structure of a named primate in Pacaya Samiria National Reserve.</b>	<b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a> <b>Academic paper</b> - Sellers, Bill Primate Behaviour University of Leeds - <a href="http://www.leeds.ac.uk/chb/lectures/anthl_11.html">http://www.leeds.ac.uk/chb/lectures/anthl_11.html</a> Other – website – Primate info net <a href="http://pin.primate.wisc.edu/factsheets/">http://pin.primate.wisc.edu/factsheets/</a>
<b>What is the benefit of protecting Amazonian Rainforest?</b>	<b>Book</b> - P. W. Richards, University of Wales, Bangor - The Tropical Rain Forest An Ecological Study 2nd Edition 1996 ISBN: 9780521421942 Article – Are rainforest worth saving? <a href="http://news.mongabay.com/2005/0420-rhett_butler.html">http://news.mongabay.com/2005/0420-rhett_butler.html</a> Academic paper - Prance, G. T. (1990). Future of the Amazonian rainforest. <i>Futures</i> , <b>22</b> (9), 891-903. Retrieved from <a href="http://www.scopus.com/scopus/inward/record.url?eid=2-s2.0-0025625347&amp;partnerID=40&amp;rel=R7.0">http://www.scopus.com/scopus/inward/record.url?eid=2-s2.0-0025625347&amp;partnerID=40&amp;rel=R7.0</a> . Website – Welcome to the rainforest – Pharmacy of the world. <a href="http://www.rain-tree.com/">http://www.rain-tree.com/</a>
<b>What are the main species groupings of amphibians and reptiles in Pacaya-Samiria National Reserve?</b>	<b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a> <b>Website</b> – Reptiles in Pacaya Samiria National Park - <a href="http://www.go2peru.com/iqt_foto46.htm">http://www.go2peru.com/iqt_foto46.htm</a> Other – Pacaya-Samiria National Reserve – Official website <a href="http://pacayasamiria.org/">http://pacayasamiria.org/</a> Other – Pacaya-Samiria National Reserve – <a href="http://en.wikipedia.org/wiki/Pacaya-Samiria_National_Reservation">http://en.wikipedia.org/wiki/Pacaya-Samiria_National_Reservation</a>
<b>How can you estimate the diversity and population levels of reptiles and amphibians?</b>	<b>Book</b> - Blomberg S & Shine R (2006) Reptiles. In WJ Sutherland (Ed.) Ecological Census Techniques: A Handbook Cambridge: Cambridge University Press pp 297-307 <a href="http://assets.cambridge.org/97805218/44628/frontmatter/9780521844628_frontmatter.pdf">http://assets.cambridge.org/97805218/44628/frontmatter/9780521844628_frontmatter.pdf</a> <b>Book</b> - Halliday T (2006) Amphibians. In WJ Sutherland (Ed.) Ecological Census Techniques: A Handbook Cambridge: Cambridge University Press pp 278-296 <a href="http://assets.cambridge.org/97805218/44628/frontmatter/9780521844628_frontmatter.pdf">http://assets.cambridge.org/97805218/44628/frontmatter/9780521844628_frontmatter.pdf</a> <b>Book</b> - Gent T and Gibson S (2003). Herpetofauna Workers Manual. JNCC, Peterborough. <a href="http://www.rgs.org/NR/rdonlyres/9E3CF152-C817-470C-AC0C-C8FE82A8CBAD/0/Reptilesupdated.pdf">http://www.rgs.org/NR/rdonlyres/9E3CF152-C817-470C-AC0C-C8FE82A8CBAD/0/Reptilesupdated.pdf</a> <b>Book</b> - Bennett D (1999). Expedition Field Techniques: Reptiles and Amphibians. Expedition Advisory Centre, Royal Geographical Society, London. - <a href="http://www.rgs.org/NR/rdonlyres/9E3CF152-C817-470C-AC0C-C8FE82A8CBAD/0/Reptilesupdated.pdf">http://www.rgs.org/NR/rdonlyres/9E3CF152-C817-470C-AC0C-C8FE82A8CBAD/0/Reptilesupdated.pdf</a> <b>Academic paper</b> - Which Methods are Most Effective for Surveying Rain Forest Herpetofauna? <a href="http://www.jstor.org/pss/1565833">http://www.jstor.org/pss/1565833</a>
<b>How can you examine the impact of hunting for bush meat in Pacaya-Samiria?</b>	<b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a> <b>Academic paper</b> - Esther, D. (In Press). <i>Wildlife and Society: The Science of Human Dimensions</i> . Island Press, Washington, DC. Co-managing Wildlife in the Amazon and the Salvation of the Pacaya-Samiria National Reserve in Peru <a href="http://www.earthwatch.org/images/pdfs/expeditions/pi_articles/bodmer_bushmeatrade.pdf">http://www.earthwatch.org/images/pdfs/expeditions/pi_articles/bodmer_bushmeatrade.pdf</a>

<p><b>How can river dolphins be used as indicator species for aquatic systems?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a>  <b>Article</b> – INFOYU Dolphins are indicator of healthy freshwater ecosystems – WWF expert <a href="http://www.infoyu.net/NewsCenter/General/10-9-9-85.html">http://www.infoyu.net/NewsCenter/General/10-9-9-85.html</a></p>
<p><b>How are macaws used as general indicators of terrestrial systems?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a>  <b>Report</b> – Avifaunal survey of the Lago Preto concession <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a></p>
<p><b>How can primate populations be monitored to determine the impact of hunting on arboreal mammals?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a>  <b>Book</b> -Blomberg S &amp; Shine R (2006) In WJ Sutherland (Ed.) Ecological Census Techniques: A Handbook Cambridge: Cambridge University Press pp 297-307 <a href="http://assets.cambridge.org/97805218/44628/frontmatter/9780521844628_frontmatter.pdf">http://assets.cambridge.org/97805218/44628/frontmatter/9780521844628_frontmatter.pdf</a></p>
<p><b>How would you determine the conservation status and impact of hunting on game birds found in Pacaya-Samiria?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a>  <b>Report–2008</b> Monitoring Indicator Species in the Samiria River, Pacaya-Samiria National Reserve R. Bodmer, P. Puertas, M. Antúnez, &amp; Tula Fang <a href="http://www.bses.org.uk/content/fieldwork/monitoring-indicator-species-in-the-samiria-river.pdf">http://www.bses.org.uk/content/fieldwork/monitoring-indicator-species-in-the-samiria-river.pdf</a></p>
<p><b>How would you monitor the populations of caimans in Pacaya-Samiria?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a>  <b>Report–2008</b> Monitoring Indicator Species in the Samiria River, Pacaya-Samiria National Reserve R. Bodmer, P. Puertas, M. Antúnez, &amp; Tula Fang <a href="http://www.bses.org.uk/content/fieldwork/monitoring-indicator-species-in-the-samiria-river.pdf">http://www.bses.org.uk/content/fieldwork/monitoring-indicator-species-in-the-samiria-river.pdf</a></p>
<p><b>How successful is 'head-starting' in increasing the populations of river turtles?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a>  <b>Report–2008</b> Monitoring Indicator Species in the Samiria River, Pacaya-Samiria National Reserve R. Bodmer, P. Puertas, M. Antúnez, &amp; Tula Fang <a href="http://www.bses.org.uk/content/fieldwork/monitoring-indicator-species-in-the-samiria-river.pdf">http://www.bses.org.uk/content/fieldwork/monitoring-indicator-species-in-the-samiria-river.pdf</a>  Electronic media – UTube Head start programme Cute Baby Turtles released into wild. <a href="http://www.youtube.com/watch?v=onMjKfKuMw">http://www.youtube.com/watch?v=onMjKfKuMw</a></p>
<p><b>How can camera traps be used to monitor the populations of large cats?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a>  <b>Article</b> – BBC Earth news- Jaguar mums give up baby secrets <a href="http://news.bbc.co.uk/earth/hi/earth_news/newsid_8074000/8074124.stm">http://news.bbc.co.uk/earth/hi/earth_news/newsid_8074000/8074124.stm</a>  <b>Article</b> - Could camera traps save wildlife worldwide <a href="http://news.mongabay.com/2010/0831-hance_cameratraps.html">http://news.mongabay.com/2010/0831-hance_cameratraps.html</a>  Website – camera Traps - <a href="http://www.predatorconservation.com/cameratraps.htm">http://www.predatorconservation.com/cameratraps.htm</a></p>
<p><b>How do you determine the impact of local fisheries?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a>  <b>Academic paper</b> -Martelo, J., Lorenzen, K., Crossa, M. &amp; Mcgrath, D.G. 2008. Habitat associations of exploited fish species in the Lower Amazon river–floodplain system. Freshwater Biology 53: 2455-2464. <a href="http://www.aquaticresources.org/pubs/Martelo_etal_2008(Amazon-fish-habitat).pdf">http://www.aquaticresources.org/pubs/Martelo_etal_2008(Amazon-fish-habitat).pdf</a>  Academic paper – Minimum Conflict: Guidelines for Planning the Use of American Humid Tropic Environments Chapter 12 Fisheries <a href="http://www.oas.org/dsd/publications/unit/oea37e/ch15.htm">http://www.oas.org/dsd/publications/unit/oea37e/ch15.htm</a></p>
<p><b>What is community-based conservation and how effective is it?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a>  <b>Academic paper</b> - Bodmer, R.E., Puertas, P.E. and Fang, T.G. 2008. Co-managing wildlife in the Amazon and the salvation of the Pacaya-Samiria National Reserve in Peru. In: M. Manfredo, J. Vaske, P. Brown, D. Decker and E. Duke (eds), Wildlife and</p>

	<p>Society: The Science of Human Dimensions. Island Press, Washington DC, pp104-116. Lots of useful references. <a href="http://www.earthwatch.org/images/pdfs/expeditions/pi_articles/bodmer_bushmeattrade.pdf">http://www.earthwatch.org/images/pdfs/expeditions/pi_articles/bodmer_bushmeattrade.pdf</a></p>
<p><b>What is the importance of Pacaya-Samiria National Reserve for water birds?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a></p> <p><b>Report</b> – Avifaunal survey of the Lago Preto concession <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a></p> <p><b>Academic papers</b> – OpWall reading list Peru - PP204 The importance of the Pacaya Samiria National Park for water bird <a href="http://www.opwall.com/Library/Dissertation%20reading%20lists.shtml">http://www.opwall.com/Library/Dissertation%20reading%20lists.shtml</a></p>
<p><b>What are the differences between pink and grey river dolphins?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a></p> <p><b>Academic papers</b> – Opwall research library PP208 Habitat selection and ecology of Pink and Grey River Dolphins <a href="http://www.opwall.com/Library/Dissertation%20reading%20lists.shtml">http://www.opwall.com/Library/Dissertation%20reading%20lists.shtml</a></p>
<p><b>What is the niche separation in caiman species?</b></p>	<p><b>Report</b> - Wildlife Populations in the Pacaya-Samiria National Reserve and Lago Preto, Peru, 2008 <a href="http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml">http://www.opwall.com/Library/Research%20Reports%20-%20Peru.shtml</a></p> <p><b>Academic papers</b> – Opwall research library PP207 Niche separation in caiman species <a href="http://www.opwall.com/Library/Dissertation%20reading%20lists.shtml">http://www.opwall.com/Library/Dissertation%20reading%20lists.shtml</a></p> <p><b>Report–2008</b> Monitoring Indicator Species in the Samiria River, Pacaya-Samiria National Reserve. Bodmer, P. Puertas, M. Antúnez, &amp; Tula Fang <a href="http://www.bses.org.uk/content/fieldwork/monitoring-indicator-species-in-the-samiria-river.pdf">http://www.bses.org.uk/content/fieldwork/monitoring-indicator-species-in-the-samiria-river.pdf</a></p>