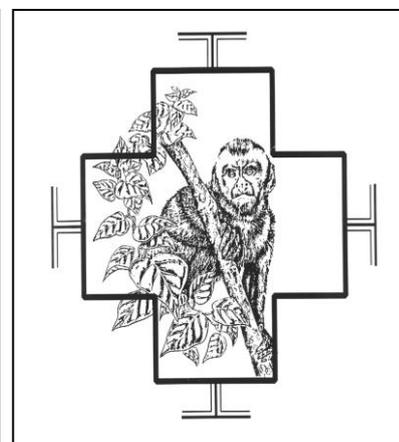


TReeS News No.69

March 2011



UN International Year of Forests – 2011

& 25th Anniversary of TReeS

This edition of the TReeS Newsletter looks at some of the threats and issues currently impacting on the Madre de Dios region of south-east Peru.

It features new data and research with respect to Mining activity; Fires; and the impact of the 2010 drought across Amazonia which has received relatively little international publicity compared to the less extensive but still very serious 2005 drought.

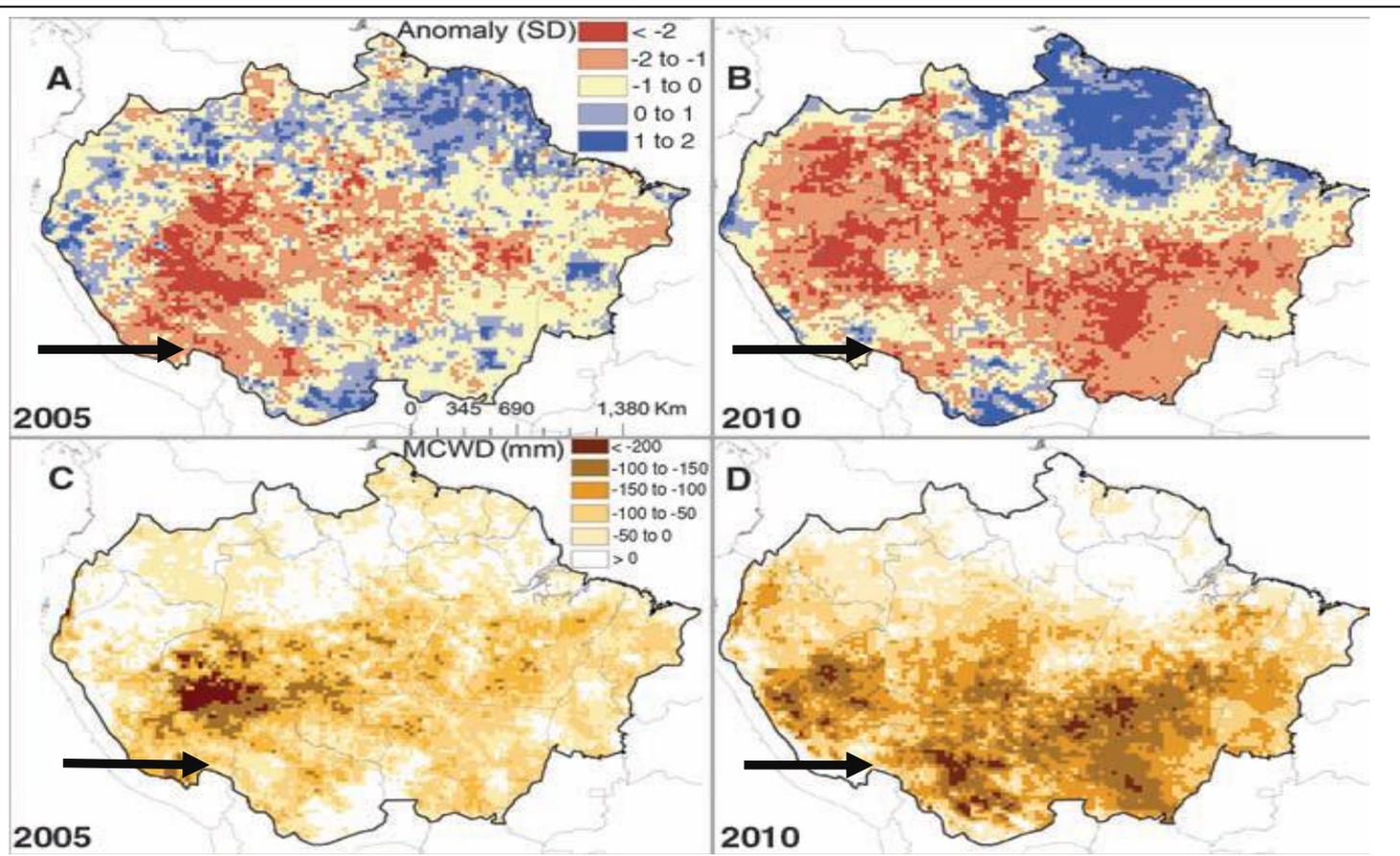
The mining activity and incidences of fire are likely to increase once the Inter-Oceanic highway linking Peru and Brazil through Madre de Dios becomes fully operational – a full update will be the main feature in the next TReeS Newsletter.

Amazon Maps Key

***Images A & B – Rainfall variation across Amazonia** (Red shading = below average rainfall / Blue shading = above average)

***Images C & D – Water deficit across Amazonia** (Darker shading = a greater water deficit compared to the average) (Difference in the 12-month [October to September] maximum climatological water deficit (MCWD) from the decadal mean [excluding 2005 & 2010], a measure of drought intensity that correlates with tree mortality).

***Madre de Dios =**



The 2010 Amazon drought

In 2010, dry-season rainfall was low across Amazonia, with apparent similarities to the major 2005 drought. A decade of satellite-derived rainfall data has been analysed to compare both events. Standardized anomalies of dry-season rainfall showed that 57% of Amazonia had low rainfall in 2010 as compared with 37% in 2005. By using relationships between drying and forest biomass responses measured for 2005, the impact of the 2010 drought is predicted as 2.2×10^{15} grams of carbon (95% confidence intervals), largely longer-term committed emissions from drought-induced tree deaths, compared with 1.6×10^{15} grams of carbon for the 2005 event.

Madre de Dios –

Madre de Dios and south-east Peru again received below average rainfall in 2010 but to a lesser extent than in 2005. However, the water deficit was slightly greater in 2010 in northern Madre de Dios than in 2005.

Mining threat in Madre de Dios

Mining is at the forefront of economic growth in Latin America, especially in Peru. Latin America has seen a major increase in global mining investment since the 1990s. In 1990 it accounted for only 12% of investment but by 2010 it had risen to 26%. The current economic recession has had little impact. The investment to profits ratio in the sector is 1:37, and 1:48 in gold mining, making it the most lucrative industrial sector.

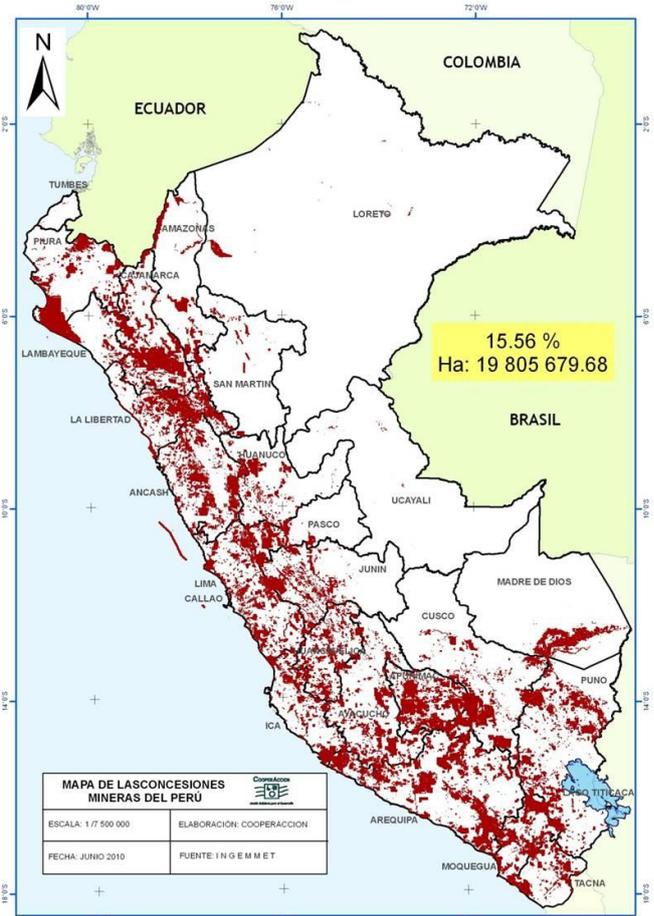
Peru currently receives 7% of all global mining investment placing it at No.3 in the world (USA = No.4). Since 2009 Peru has received the most new investment in Latin America - 25% of all mining investment. Latin America is now the second largest destination of Chinese investment and China is now the second largest investor in mining in Peru behind UK registered companies – not necessarily UK companies.

Peru is the No.1 global silver producer, No.2 in zinc, and No.6 in gold but the largest Latin American producer of all three minerals. In copper production it is No.2 in the world behind Chile.

Mining concessions cover 2 million hectares – 15.5% of Peru but most of this activity is concentrated along the coast and in the *sierra*.

Mining concessions directly impact on over 1,500 communities, more than half those registered in the country, including native communities. In 2009, 68% of all community conflicts recorded related to mining.

(Continued on next page)



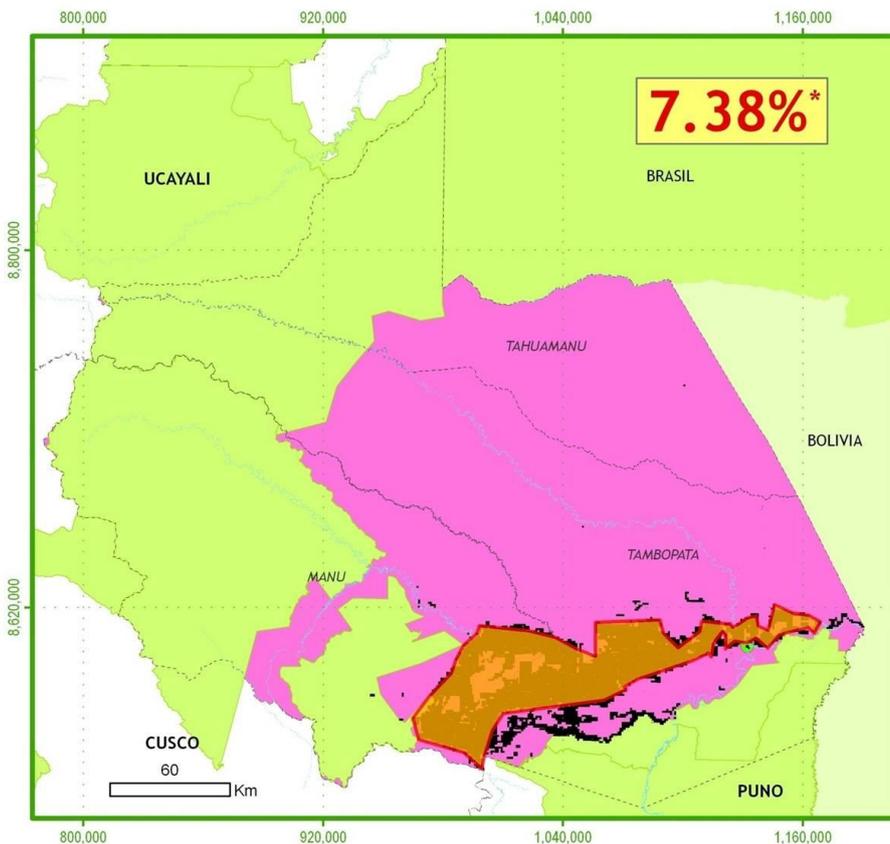
Mining activity in Peru

Mining activity in Madre de Dios

BLACK = Mining concessions

ORANGE = Areas of informal mining

PINK = Areas where informal mining is prohibited



Concesiones Mineras

Departamento de MADRE DE DIOS



* Área obtenida según las coordenadas del Anexo 1: Memoria descriptiva del Decreto de Urgencia N° 012- 2010

Escala: 1:2,260,000
Proyección UTM Z18
Fuente: INGEMMET
Noviembre 2009

CooperAcción
Acción solidaria para el desarrollo

2010 Peru Fires Report

The latest annual report detailing outbreaks of fire across Peru in 2010 shows a worrying pattern in the Amazon region.

Fires along the coast mainly reflect the burning of cane off cuts on sugar cane plantations. Oil flares at the wells on the far north coast are also recognised. In the Andes seasonal burnings of grasses to encourage new growth is common.

However, in the Amazon most fires reflect the burning of primary and secondary forest. The patterns in the north clearly follow major rivers.

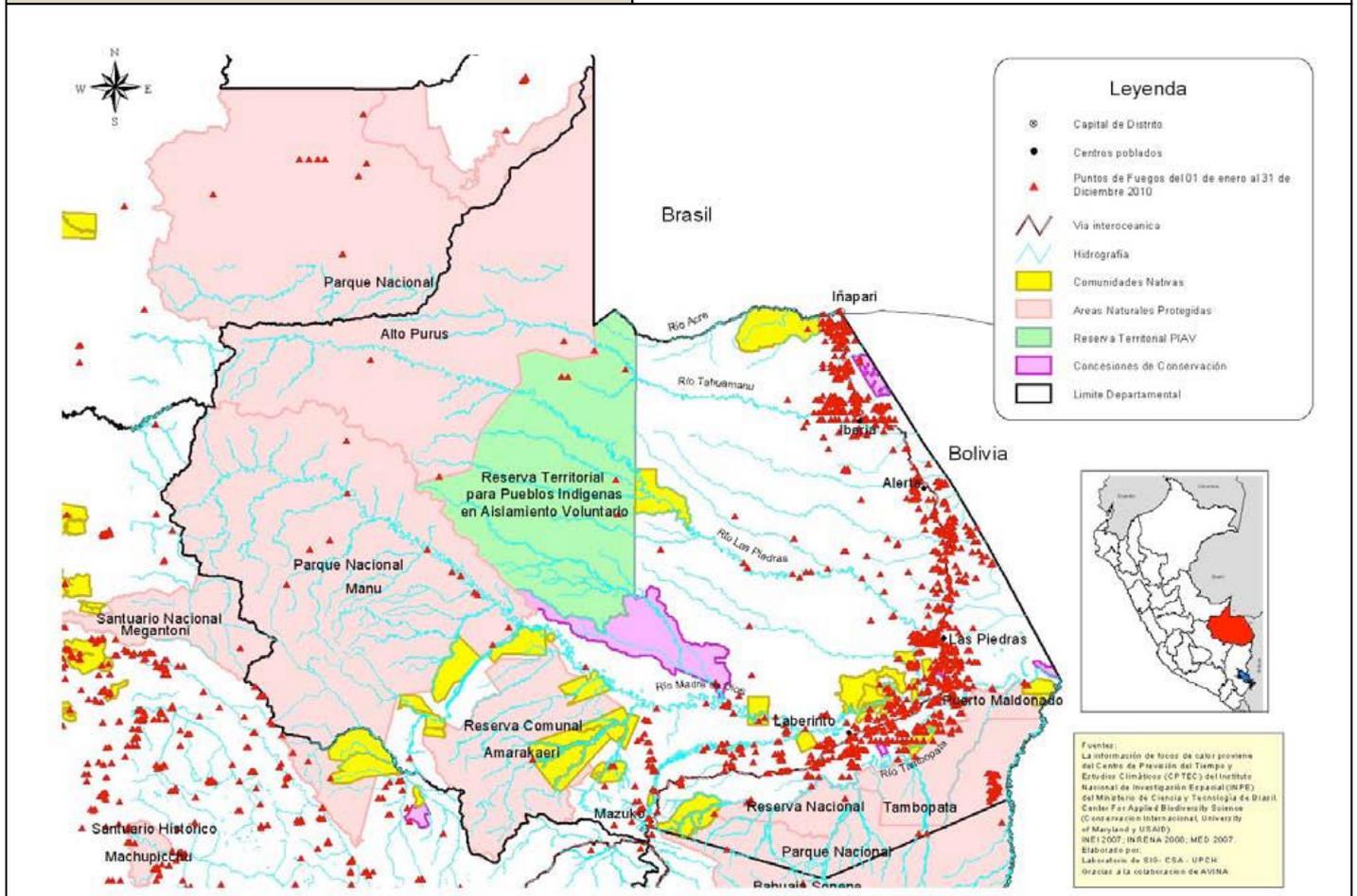
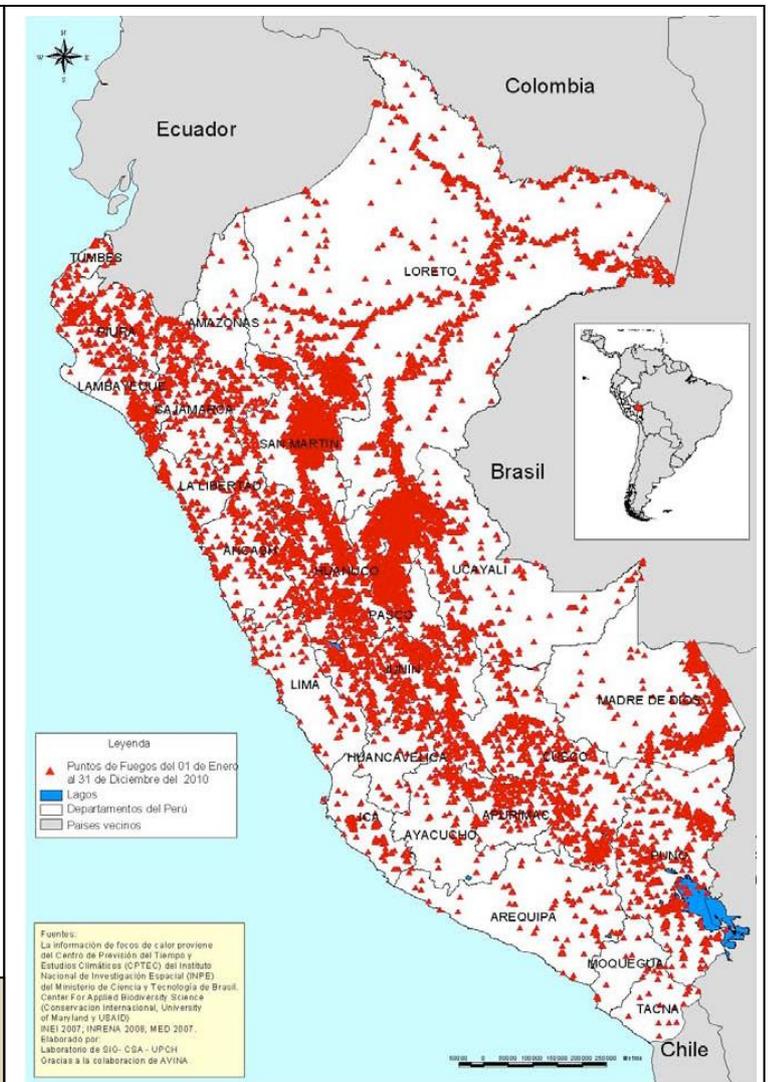
Madre de Dios -

In Madre de Dios, the majority of fires follow the new Inter-Oceanic highway. The greatest number of fires were recorded along the northern section from Puerto Maldonado to the Brazilian border which was completed in 2009. Fewer fires were recorded on the southern section running from P.Maldonado to Cusco which was only fully opened in 2010. This land is being cleared for farming and ranching.

The cluster of fires within the Tambopata National Reserve along the Brazilian border lie within the Pampas del Heath grasslands. They were set by indigenous people maintaining the unique grassland ecosystem.

<https://firealerts.conservation.org/fas/resources.do>

Key: Red triangle = an individual fire (non-size specific) identifiable on a satellite image.
Yellow shading = native communities.



TReeS Becas - Appeal for Reviewers

A couple more TReeS members with appropriate backgrounds are required to assist with the review of applications (in Spanish) from Peruvian students to receive a TReeS 'beca' (small grant) in 2011.

Reviews follow a set format and need to be undertaken over a 3-4 week period in the Spring. Applications are not lengthy and a review can, probably, be undertaken within an hour. There are usually about 10-12 applications per year but you could choose to review only those that relate to your specialism/field. Most of the applications are from undergraduate students and concern basic taxonomic investigations.

If you are interested, please e-mail details of your relevant experience to: treesuk1@gmail.com

TReeS Library - forthcoming deposits will include the following reports (those in Spanish are untranslated):

- '*The 2010 Amazon Drought*', article in Science, Vol.331, 3rd February 2011, by S.Lewis, P.Brande, O.Philips, G.van der Heijden & D.Nepstad.

- '*Focos de calor a nivel nacional, 2010*', Bulletin No.13, published by the Centro para la Sostenibilidad Ambiental (CSA) at the UPCH.

- **Orchid Digest**, Vol.74-3, July-Sept 2010, containing an article entitled '*An orchid hunting journey over the Peruvian Andes*' written by the Oxford University expedition that TReeS supported in 2008.

- '*Diagnóstico de la transmisión actual del conocimiento ecológico tradicional en el uso de palmeras por dos comunidades Ese'ejas, en Madre de Dios*', written by Matías Pérez a recipient of a TReeS beca in 2010.

TReeS Merchandise -

+ The Lost City of Z - TReeS has a limited number of copies of the new paperback edition available at £8.99 (RRP: £8.99), including free postage and packing, plus a copy of a review of the book from the Times Literary Supplement by Dr John Hemming (ex-Director of the Royal Geographical Society). Cheques payable to 'TReeS'.

+ Details of other items of TReeS merchandise can be found at the TReeS website - www.tambopata.org.uk

TReeS 25th anniversary lecture to the Anglo-Peruvian Society

To celebrate 25 years of TReeS, the Anglo-Peruvian Society has kindly invited us to address its members.

TReeS members are also welcome.

18th May, 6-9pm - The Peruvian Embassy, 52 Sloane St., London SW1

(Nearest tube station – Knightsbridge: Piccadilly line)

Tickets: £8 (£5 students) (Including refreshments - state that you are a 'TReeS' member).

Available from: The Secretary, The Anglo-Peruvian Society, P.O.Box 494, Wembley, Middx HA9 8ZB

(Cheques payable to: 'The Anglo-Peruvian Society') (Please include a SAE)

TReeS Membership

Members are reminded that the basic TReeS membership rate is now £15 / annum.

Membership is due on the **1st of January** each year.

We would be most grateful if members could amend their bank orders, if still necessary.

All cheques are payable to – 'TReeS'.

TReeS Membership:

£15 per annum

TReeS contact details –

**P.O.Box 33153,
London NW3 4DR**

www.tambopata.org.uk

treesuk1@gmail.com

TReeS USA –

P.O.Box 842, Shasta Lake,
CA96019-0842, USA.

TReeS USA is run by Bud and Margaret Widdowson.

All members in Canada and the USA are requested to pay their annual membership via TReeS USA.

TReeS committee 2010-2011

Sally Edwards

John Forrest

Dr Helen Newing

Huma Pearce

Elizabeth Raine

Daniel Turner

Rebecca Warren



Habitat of C. ulei © Wikipedia

Madre de Dios –

Madre de Dios is the main Amazon department affected, with concessions covering 60,000 hectares, 7.38% of the Department all focused on gold extraction. Two techniques are employed – suction dredging or alluvial washing. In the former, rafts of varying sizes with industrial pumps on board suck up, filter and wash river bed and bank deposits. In the latter, the forest is cleared and then the deposits are sucked up by stationary pumps, filtered and washed.

In 2010 the Ministry of the Environment issued *Decreto de Urgencia No.12* to look in to operations of the mining sector in Madre de Dios (pop.120,000). They reported that 12-20,000 miners work informally in the sector almost exclusively in gold mining and mainly along the river Madre de Dios. Despite mining being prohibited in some areas along the river the ban is not enforced.

In September 2010. attempts were made by miners to reopen a trail from the Inter-Oceanic highway to the river Manani, a tributary of the river Malinowski, in turn a tributary of the river Tambopata. The *Servicio Nacional de Areas Naturales Protegidas* (SERNAMP) and *Direccion Forestal y de Fauna Silvestre* (DGFF) attempted to close off the trail again but other authorities claim that it is a long established path. The Malinowski river acts as the northern boundary of the Tambopata National Reserve (TNR).

New sightings of uncontacted indigenous peoples on the Peru / Brazilian border

New images have emerged from FUNAI - Brazil's Indian Affairs Department of an 'uncontacted' group of indigenous people living close to the Peruvian border. They appear to be healthy with extensive gardens around their homes. They were featured in the 'Jungles' episode of the recent BBC series 'Human Planet'.

However, illegal loggers in northern Madre de Dios threaten the group by pushing different 'uncontacted' groups in to closer proximity with each other. As a consequence of the international publicity received the Peruvian government announced greater contact with FUNAI '... to preserve these peoples and avoid the incursion of illegal loggers and the depredation of the Amazon.'

This is one of the most positive responses from the Peruvian government with respect to such issues in recent years.

More details at: www.uncontactedtribes.org



Peru News

Peru is celebrating two centenaries this year – the birth of the Peruvian author Jose Maria Arguedas and of the American explorer Hiram Bingham's first visit to Machu Picchu. Arguedas, an anthropologist and writer, is most renowned for his books, with a strong anthropological sense, exploring typical Peruvian life – *Yawar Fiesta*, *Los Rios Profundos* and *Todos las Sangres*. Bingham was the first westerner to scale the ruins of Machu Picchu and bring them to worldwide attention. The US government has recently announced that various Inca artefacts, including many from Machu Picchu, held in US museums will be transferred to a new museum to be built in Cusco.

Peru recorded economic growth of 8.5% in 2010 but the latest UN data shows that 36% still live 'in poverty' and 12% 'in extreme poverty'. This is reflected in President Garcia's popularity rating with 62% currently opposed to his Presidency. Garcia's party - APRA - performed best of all the parties in Autumn municipal elections but now controls only one (La Libertad) of the 20 regions.

Susanna Villarán, the candidate of a centre left coalition, was elected as the new mayor of Lima last Autumn – the first woman to hold the post. This may indicate a shift to the left in the forthcoming Presidential elections to be held in mid-April. At present, former President Alejandro Toledo leads the polls (28%), followed by Keiko Fujimori (daughter of the imprisoned ex-President)(21%), Luis Casteñada (17%), an ex-Mayor of Lima, and Ollanta Humala (14%), the most left-wing candidate and the only one of the candidates to be invited to attend the inauguration of the new Brazilian President. There is now no APRA candidate. US politicians have expressed concern about a shift to the left in Peru that would see their influence marginalised if Peru forged closer energy, resource, etc links with Brazil and Venezuela.

The new UK government has indicated that it wants to have closer ties with Latin America, especially in the areas of climate change, drug control and sustainable development. The MP with special interest in Latin America at the FCO is Jeremy Brown (Lib Dem). Last Autumn, the UK government's Climate Change representative, John Ashton, visited Peru to meet government officials and climatologists prior to the Cancun summit. (See: <http://ukinperu.fco.gov.uk/en/news/?view=News&id=22940327>)

TReeS Supported Projects

* Programa de Becas (Small Grants program) 2011 –

Ten applications have been received this year from Peruvian biologists planning to undertake research in the southern Peruvian Amazon.

The Becas programme is an important contribution to the career development of young Peruvian scientists who will, potentially, be working in and promoting Amazonia for several decades to come. TReeS funding assists them in gaining all important field work skills that may allow them, subsequently, to join other more significant field research projects.

Appeal: £25+ donations towards the cost of the 2011 and future grants programmes.

Baltimore eco-tourism project

The project is now self-financing and has continued to receive a steady stream of independent visitors during 2010 looking for a more authentic rainforest experience. Visitors stay with families in their homes, visit their *chacras* (farms) and receive a very personal tour of the adjoining rainforest. The UK GAP year company World Challenge expeditions sent groups there and plan to do so again this year.

TReeS continues to support the project in a consultancy role, to foster international links and further develop the management of the project.

www.baltimoreperu.org.pe/paquetes.htm

Barry Nicholson (1959 - 2010)

It is with great sadness that we report the passing of TReeS committee member Barry Nicholson, last Autumn, of complications resulting from Non-Hodgkinsons and Hodgkinsons lymphoma.

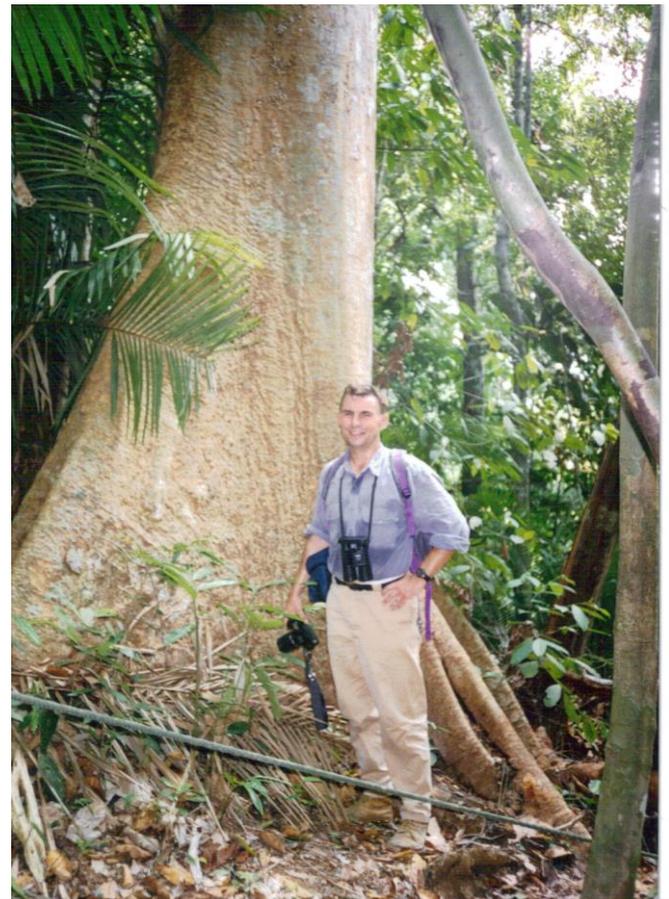
In the mid-1980s Barry completed a Masters in Ecology at Bangor University. He then worked for the London Wildlife Trust where he left a lasting legacy. In 1989, keen to widen his experience, he joined the resident naturalists (RN) programme operated by the Explorer's Inn (EI), for a six month stay. He pursued several mini-research projects between guiding groups of tourists. This led to two brief reports published in 'Reporte Tambopata' (1995)(TReeS / UNALM) - '*An investigation of the distribution and ecology of tree ferns (Cyathaceae) in the Tambopata Reserved Zone*' & '*Soils of the Tambopata Reserved Zone*'.

In the early 1990s there was much talk about the importance of the Tambopata area and whether more could be done for its long-term conservation. Consequently, in 1992, Barry led a group of ex-RNs on an expedition to the upper Tambopata. It was the first 'scientific' expedition in to this uninhabited area.

The following year Conservation International sent a rapid assessment (RAP) team to the Tavera & Candamo river basins, tributaries of the upper Tambopata. They proved that the area contained exceptional biodiversity and many endemic species.

On the basis of the data collected the Peruvian government declared the Bahauaja-Sonene area a Reserved Zone, in 1996 and a National Park, in 2000. The Park now lies at the heart of the Amoro-Vilcabamba conservation corridor running for over 1,000kms, from central northern Bolivia to central Peru, along the eastern foothills of the Andes.

During this second spell at Tambopata Barry met and fell in love with a young Peruvian biologist, Liz Chacon, who was undertaking research at the EI. Subsequently, they married and travelled to Hong Kong to work before returning to the UK. They made their home in Norwich



Barry deep in the Tambopata rainforest © TReeS

until Liz's untimely death two years ago.

Since the mid-1990s Barry was an invaluable member of the TReeS committee, quick with his responses, reliable and realistic with his comments. In recent years he took responsibility for the small grants 'becas' programme which supports Peruvian students undertaking field work as part of their studies in the Madre de Dios region.

Barry was a quiet, down-to-earth, modest, dependable and knowledgeable individual who will be greatly missed by the Society and those he worked with.

Barry requested that any donations to be made in his name should go to the TReeS 'Becas programme'. Please make cheques payable to 'TReeS'.

Two severe Amazon droughts in five years alarms scientists

New research shows that the 2010 Amazon drought may have been even more devastating to the region's rainforests than the 2005 drought, which was previously billed as the worst of the century.

Analyses of rainfall in the 2010 dry season across 5.3 million square kilometres of Amazonia, published in *Science*, shows that the drought was more widespread than in 2005. The UK-Brazilian team calculate the carbon impact of the 2010 drought may exceed the 5 billion tonnes of CO₂ from the 2005 event, as severe droughts kill rainforest trees.

The authors suggest that if extreme droughts like these become more frequent, the days of the Amazon rainforest acting as a natural buffer to manmade carbon emissions may be numbered.

Lead author Dr Simon Lewis, from the University of Leeds, said: "Having two events of this magnitude in such close succession is extremely unusual, but is unfortunately consistent with those climate models that project a drier future for Amazonia."

The Amazon rainforest covers an area approximately 25 times the size of the UK. University of Leeds researchers led by Dr Oliver Phillips have already shown that in a normal year, the remaining intact forests absorb approximately 1.5 billion tonnes of CO₂, which has helped slow down climate change in recent decades.

In 2005, the region was struck by a rare drought which killed trees within the rainforest. On-the-ground monitoring showed that the net carbon sink of normal years was halted, and the dead trees, as they rotted, then released CO₂ to the atmosphere.

The drought was described by scientists at the time as a 'one-in-100-year event', but just five years later the region was struck by a second extreme drought that caused the Rio Negro tributary of the Amazon river to fall to its lowest level on record.

The new research, co-led by Dr Lewis and Brazilian scientist Dr Paulo Brando, used the known relationship between drought intensity in 2005 and tree deaths to estimate the impact of the 2010 drought. This suggests that Amazon forests will not absorb their usual 1.5 billion tonnes of CO₂ from the atmosphere in both 2010 and 2011, and that a further 5 billion tonnes of CO₂ will be released to the atmosphere over the coming years once the trees that are killed by the new drought rot. To place the magnitude of these impacts in context, the United States emitted 5.4 billion tonnes of CO₂ from fossil fuel use in 2009.

Dr Brando, from Brazil's Amazon Environmental Research Institute (IPAM), said "We do not know exactly how many trees were killed until we can



Tambopata dock, Puerto Maldonado, August 2010 © TReeS

complete forest measurements on the ground. It could be that many of the drought susceptible trees were killed off in 2005, which would reduce the number killed last year. On the other hand, the first drought may have weakened a large number of trees so increasing the number dying in the 2010 dry season. Our results should be seen as an initial estimate."

Some global climate models suggest that Amazon droughts like these will become more frequent in future as a result of greenhouse gas emissions.

"Two extreme droughts occurring in the space of a decade may largely offset the carbon absorbed by intact Amazon forests during that time. If events like this become more frequent, the Amazon rainforest would reach a point where it shifts from being a valuable carbon sink slowing climate change, to a major source of greenhouse gasses that could speed it up," said Dr Lewis.

Dr Lewis added, "Much uncertainty remains surrounding the impacts of climate change on the Amazon. This new research adds to a body of evidence suggesting that droughts will become more extensive, more intensive and more frequent during the 21st century. There is a significant risk that instead of being a significant brake on climate change, the world's largest rainforest could become a force in its acceleration. This potential for feedbacks could lower the emissions threshold for avoiding dangerous climate change."

The research was a collaboration between the Universities of Leeds, Sheffield and the Instituto de Pesquisa Ambiental da Amazonia (IPAM) in Brazil. The work was funded by the Royal Society, Gordon and Betty Moore Foundations and the US National Science Foundation.

We are grateful to Science magazine (Vol.331, 3.2.2011) and the authors - Simon L. Lewis, Paulo M. Brando, Oliver L. Phillips, Geertje M. F. van der Heijden & Daniel Nepstad - for permission to print details of their research.