
World Land Trust Restoration Ecology Annual Report 2008



1. Introduction

Despite the economic doom and gloom that overshadowed the latter half of 2008, the last year has proved successful for the World Land Trust's Restoration Ecology Team. Like many UK businesses the charity's Carbon Balanced programme experienced a decline in its annual income of around 18%. However, unlike most of these companies who due to the onset of the recession experienced the income decrease from October 2008 onwards, WLT's income held strong in the last two quarters of the year. This demonstrates that existing WLT supporters remained loyal, despite the likely pressures on their own operations, and that new organisations are continuing to look to the World Land Trust to help address their environmental impacts.

The Carbon Balanced programme has continued to benefit from the 2007 re-design of the website and personal carbon calculator, and the Trust is proud to report that it was highly rated by Which? Magazine's April article entitled "Is carbon offsetting worth the money?". Carbon Balanced was awarded 5 out of 5 for the ease of use of the website and for the level of information available on how offset funds are used.

During summer, REDD (Reduced Emissions from Deforestation and forest Degradation) became the buzz word as stakeholders prepared for the United Nations Climate Change Conference to be held in Poznań at the end of the year. WLT was not able to attend the talks, but made sure it remained informed on the debate and worked further to develop its own pilot REDD projects. In November, WLT and its Chairman of the Trustees, Prof. Renton Righelato, organised a day long conference at the Linnean Society, London, inviting representatives from conservation NGO's and the business sector to discuss the role of restoration ecology in mitigation of climate change and loss of biodiversity. WLT believes it is important to closely follow the policy and debate surrounding forests and their role in climate change, and this, coupled with an ever increasing work load, prompted WLT to advertise for a third Restoration Ecology Team member. Hannah Doyle was the successful applicant and was appointed as the new Carbon Programme Officer due to start work at the Trust at the beginning of January 2009.

The year culminated with WLT signing an agreement with Swire Pacific Offshore Operations Pte Ltd, a leading service provider to the offshore oil and gas industry, for the design of a verified, voluntary offset project to deliver 1,000,000 tonnes of carbon dioxide equivalent over the next 20 years. So, despite the onset of the credit crunch, WLT's Restoration Ecology programme has managed to hold its own during 2008, and continues to compliment the World Land Trust's core objective of protecting critically threatened habitat for the conservation of some of the world's most endangered wildlife.

2. Project Reports

The Restoration Ecology Team works to rehabilitate and protect threatened tropical forest using funds raised through carbon offsetting and tree planting programmes. Whilst the work on the ground is actually very similar, WLT separates its projects into two categories, carbon and tree planting, as the final product and subsequent monitoring technique required are different.

2.1 WLT Carbon Projects

The idea behind offsetting is that carbon dioxide emissions can be compensated for by an equivalent carbon dioxide saving. WLT delivers offsets through restoration ecology projects that either protect or enhance forests which act as terrestrial carbon sinks. Half the mass of a tree is carbon, because, as a tree grows it takes in carbon dioxide from the atmosphere during photosynthesis and stores it within its woody biomass. If that tree was then cut down and burnt the stored carbon would be released back into the atmosphere as carbon dioxide. Based on these two principles WLT delivers offsets through;

- Avoided deforestation – the protection of mature standing forest under the imminent threat of clearance therefore preventing the release of its stored carbon;
- Rehabilitation of degraded forest – protection of forest, usually from grazing livestock and wood-cutting, to allow the vegetation to recover;
- Assisted natural regeneration – allowing regeneration by natural succession, usually by excluding grazing livestock and controlling fire. The process may be accelerated by enrichment planting to accelerate re-colonisation by high forest species;
- Reforestation – native trees on cleared land usually in buffer areas which join up or extend tracts of standing forest important for endangered species.

2.1.1 Fundación Jocotoco – Buenaventura Reserve, Ecuador

The Buenaventura Reserve is located at 450-1100 m asl in the foothills of the west slope of the Andes. It is one of Ecuador's few protected areas supporting sub-tropical cloud forest and is considered to be one of the country's richest bird spots, home to many species, including 12 which are globally threatened. The endangered El Oro Parakeet, *Aratinga orcesi*, is the flagship species for Buenaventura and is almost unknown outside the reserve boundaries.

In 2005, Fundación Jocotoco used WLT carbon funds to purchase, protect and restore a 10 ha parcel located close to the entrance of the reserve. The land, which previously had been cleared for cattle grazing, was planted with tree saplings of 14 native species, including both fast-growing pioneers and slower-growing mature hardwoods. The seedlings were sourced from the Buenaventura on-site nursery and from five local family nurseries which collect and germinate forest seeds to be sold on to Fundación Jocotoco. A family can earn a valuable supplementary income of between US \$2,000-5,000 a year through this seedling provision.

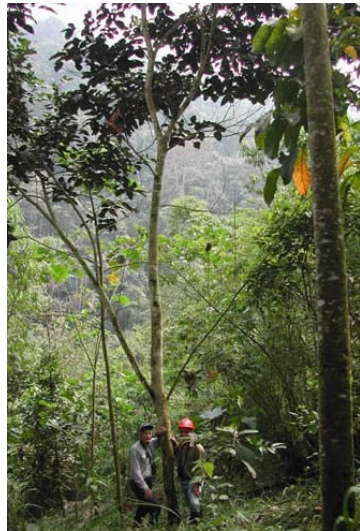
Site visit reports suggest the carbon plantings are growing well. This is testament to the hard work of Fundación Jocotoco's field staff who cleaned the young saplings every two months to make sure they were not overshadowed by fast growing invasive grass and brackens.

WLT must monitor its carbon plantings every 3-7 years to make sure initial estimates of growth rates and therefore corresponding volumes of carbon sequestered are correct. During 2009 the Restoration Ecology Team will initiate the first round of monitoring to make sure the 10 ha

Buenaventura plot is on target to deliver the 1400 tonnes of carbon dioxide equivalent estimated from initial calculations.



2006 – Inga tree, with WLT Trustee Nigel Simpson standing alongside, planted at the Buenaventura Reserve using WLT carbon funds. Inga trees are particularly good species for soil restoration, and the fruits and seeds provide important food for wildlife © Nigel Simpson



2007 – The same Inga tree, 12 months later. This shows the rapid growth rate of the pioneer Inga species in the wet and hot conditions at the Buenaventura Reserve © Nigel Simpson

In 2007 the Restoration Ecology Team transferred funds to Fundación Jocotoco for the purchase and protection of the 45 ha Rodas property. The property was secured, however later accounting checks revealed that the land was actually purchased with funds from another donor source, and therefore the carbon gains could not be attributed to WLT. The Restoration Ecology Team is now looking to re-allocate these funds to another Fundación Jocotoco reserve, most likely Rio Canandé, and once this re-allocation has been completed WLT will update the project details on the Carbon Balanced website and inform those organisations whose carbon commitments have been re-directed to a different project location.

2.1.2 Fundación Jocotoco – Reserva Tapichalaca, Ecuador

The Tapichalaca Reserve is located on the eastern slope of the Andes, at an altitude of 2000-3400 m asl. It is adjacent to the southern part of the Podocarpus National Park; a complex of reserves created to shelter three species of the tree genus *Podocarpus*, the only conifer native to the Ecuadorian Andes. This temperate-zone forest is one of the wettest places in Ecuador and home to a wide variety of flora and fauna. Over 150 globally threatened plant species have been identified at the reserve, including more than 30 species of threatened orchid. Large mammals such as Spectacled Bear and Woolly Mountain Tapir can also be found, but are more common at higher elevations. The flagship species of the reserve is the Jocotoco Antpitta, a globally threatened bird only recently discovered by WLT-US Director of Conservation Robert Ridgely in 1997. Tapichalaca is the only known area to contain a Jocotoco Antpitta population, and Fundación Jocotoco is working hard to extend the 3,800 ha reserve to safeguard habitat for this rare bird and other wildlife.

As part of the reserve extension, Fundación Jocotoco used WLT carbon funds during 2007 to purchase and protect the 43 ha Bustamante property, located close to the continental divide of the headwaters of the Rio Valladolid and the Amazon Basin. This secured parcel, which was previously under imminent threat of clearance, is delivering carbon offsets through avoided

deforestation and assisted natural regeneration, and should, after the 20 year project period, supply at least 5070 tonnes of carbon dioxide equivalent.



Area of unprotected land facing the Tapichalaca Reserve. The forest has been cleared, highlighting the high deforestation rate in the area.



A camera trap photograph of a Woolly mountain Tapir, taken at the Tapichalaca Reserve in April 2008 © Fundacion Jocotoco

2.1.3 Fundación Jocotoco – Yanacocha Reserve, Ecuador

Yanacocha is a high altitude reserve at 3,400 - 3,800 m asl, located on the slopes of the Pichincha volcano, just an hour north-west of the Ecuadorian capital Quito. The 1,300 ha reserve protects a large area of elfin Polylepis woodland, a forest type endemic to the Andean páramos. Much of this forest has been lost due to clearance for agriculture and charcoal production, but Fundación Jocotoco is determined to protect remaining tracts to create a stronghold for the critically endangered Black-breasted Puffleg. It is thought that Yanacocha contains the entire world population of this rare hummingbird, which is the Reserve's flagship species as well as emblem for the neighbouring city of Quito.



The La Campiña property. Area 1- standing forest protected by the ravine and therefore must be discounted from carbon calculations; Area 2 – degraded forest, with cover restored through assisted natural regeneration; Area 3 – pasture which will be planted using 14 native tree species.



An established Polylepis cutting, like the ones used in the WLT carbon plantings.

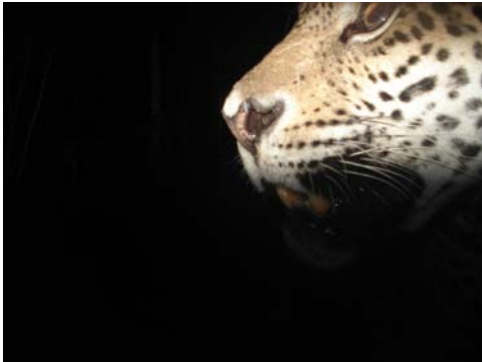
During 2007, Fundación Jocotoco used WLT carbon funds to purchase, protect and restore the 27 ha La Campiña property, located to the north of the main reserve area. Site visit reports suggest the plantings are doing well, and that Fundación Jocotoco have implemented a simple irrigation system to water the plantings during dry periods. This simple system utilises the

gravitational pull created by the steep slopes to enable the water to flow over the entire planting area.

Like all the carbon projects, WLT must soon monitor the Yanacocha carbon plantings to ensure initial estimates of growth rates and corresponding volumes of carbon sequestered are correct. Based on conservative calculations, the La Campiña property should deliver around 9,200 tonnes of carbon dioxide equivalent from the rehabilitation of degraded forest and the planting of pastures.

2.1.4 Grupo Ecológico de Sierra Gorda – Sierra Gorda Biosphere Reserve, Mexico

The Sierra Gorda Biosphere Reserve (SGBR), is located in the state of Queretaro, in central Mexico, and is thought to be the most ecologically diverse region in the country due to its position at the meeting point of the two bio-regions; the Nearctic from the north and the Neotropical from the south. This mixing pot of ecosystems is illustrated by the diverse range of vegetation types, including deciduous, cacti, oak and pine forests, and the odd groupings of fauna such as Black Bear and Jaguar.



A camera trap photograph of a Jaguar, taken by Grupo Ecológico de Sierra Gorda at the Sierra Gorda Reserve, March 2008 © Grupo Ecológico de Sierra Gorda



Ongoing restoration on the destabilized and eroding slopes of the Sierra Gorda Reserve to help restore and protect the watershed.

The reserve spans an altitude of 300 – 3,100 m asl and is important for the protection of the watershed, as land which is cleared for agriculture and grazing can become eroded and the water courses subsequently muddied. Grupo Ecológico de Sierra Gorda works to protect standing forest tracts and reforest de-stabilised slopes through its reforestation programme which was initiated in 2005. In 2007, WLT purchased the rights to 3523 tonnes of carbon dioxide offsets from its Mexican partner. These will be delivered over a 30 year project period, rather than the standard 20 year timeframe associated with all WLT's Ecuadorian carbon projects.

2.2 Carbon Project Development

In December 2008 WLT signed a contract with Swire Pacific Offshore Operations Pte Ltd, a leading service provider to the offshore oil and gas industry based in Singapore, for the design of a fully validated and verified, voluntary carbon offset project. The project will be designed to deliver enough carbon offsets over the next 20 years to offset the proportion of Swire Pacific Offshore's carbon footprint that cannot be viably mitigated. The project will be based in the Paraguayan Paraná Atlantic forest in the south-east of the country and also in areas of the Chaco

ecosystems to the north-east. Offsets will be delivered through a combination of reforestation, assisted natural regeneration, restoration of degraded forest and avoided deforestation, and all actions will be undertaken in collaboration with WLT's in-country conservation project partners who will work together to safeguard locals' rights and biodiversity.

Whilst this contract covers the initial design phase of the project only, the intention is to proceed to the next phase which will involve the purchase of large land parcels in Paraguay. This will not only deliver offsets and help to mitigate climate change, but will also conserve some of Paraguay's most threatened habitats and wildlife.

2.3 WLT Tree Planting Projects

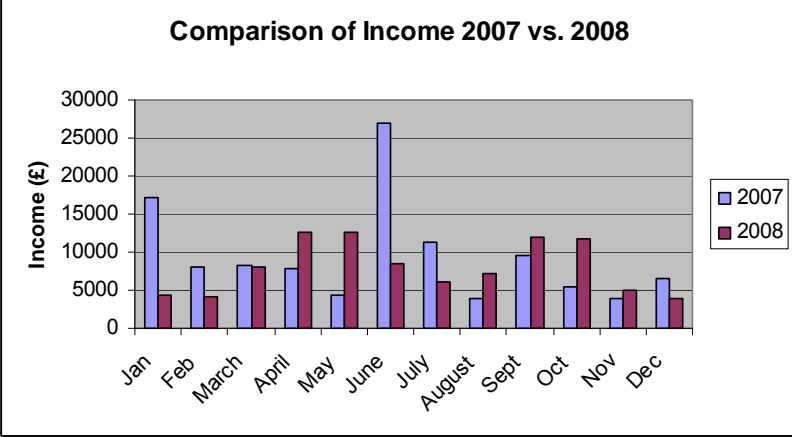
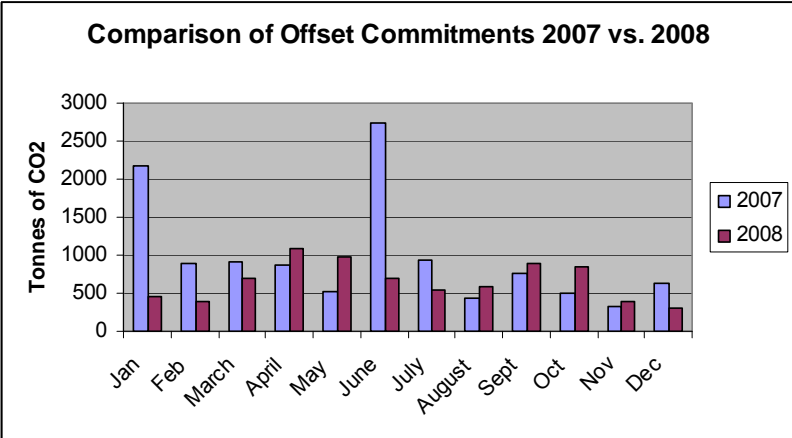
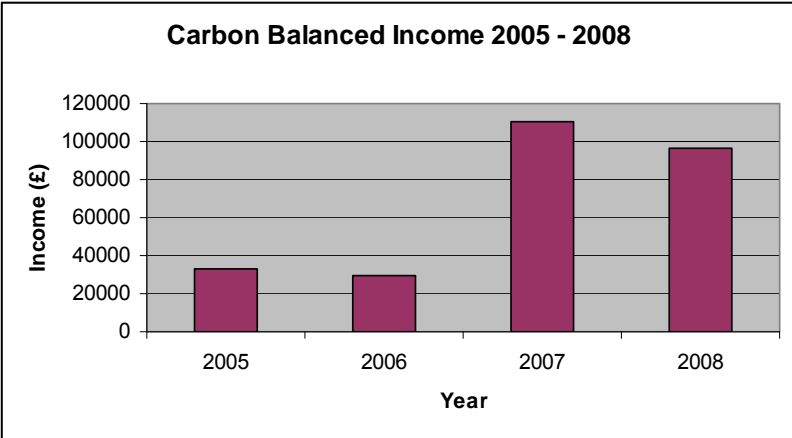
WLT has an agreement with Scottish and Southern Energy (SSE) to plant six trees a year for every customer on its Power2 tariff. The scheme has been running since 2006 and during the last 12 months WLT's project partners have planted over 410,000 trees, restoring some 410 hectares of degraded habitat. This has extended and buffered existing reserves and helped to further protect endangered species such as the Great Green Macaw and El Oro Parakeet.

Tree planting has been taking place at Fundación Jocotoco's Buenaventura, Tapichalaca and Yanacocha reserves. These activities occur alongside carbon actions, but are monitored separately as quantification is in terms of number of trees surviving, not the amount of carbon sequestered. Tree planting has also taken place at Fundación Jocotoco's Jorupe Reserve, located within Tumbesian Dry Forest in southern Ecuador, near the border with Peru and through another Ecuadorian partner Fundación Pro-Bosque, who is working to restore vegetation cover to the dry forests of its Cerro Blanco Reserve situated just outside Ecuador's largest city Guayaquil. Small scale pilots have taken place in the Atlantic Forest of San Rafael in Paraguay and REGUA in Brazil and in the Andean-Amazon transition zone in Ecuador with project partner Fundación Ecominga at the Cerro Candelaria Reserve.

WLT is happy to report that it is running 25% over the 'tree establishment' needed to meet SSE's requirements and that the scheme is to be expanded, involving the establishment of another 450,000 trees over the next three years. This second agreement allows activities to extend to new locations, partners and techniques and a range of potential initiatives have already been discussed with present and new potential partners.

3. Offset Commitments

After a slow start to the year, and a dip during the July/August holiday period, Carbon Balanced income averaged at around £10,000 a month. Total annual income is down by around 18% on 2007's figures, with corporate contributions decreasing by 20% and individuals donations by 15%. However, despite the onset of the global economic problems in October, income for the last quarter exceeded figures for the same period last year and WLT is optimistic that this level of support will continue in 2009.



4. 2009 Forecast

The primary focus for WLT's Restoration Ecology Team is to continue to develop its REDD pilot projects and to help ready its in-country project partners for the likely demand in REDD offset products following the United Nations Climate Change Conference in Copenhagen, December 2009. The Team will also design and initiate the monitoring programme to check that the WLT carbon projects are delivering offsets as estimated, and at the same time WLT intends to put these projects through an official verification process, to gain third party confirmation that the carbon savings have taken place.

World Land Trust would like to take this opportunity to thank all of its supporters for contributing to the success and development of the Carbon Balanced programme during 2008. If you have any queries or require any further information please contact the WLT Restoration Ecology team on the details below.

Carbon Balanced Companies 2008:

4 Paws Veterinary Centre	Denton Corker Marshall	On Demand Technology
Airlink Group	Eagle Intermedia Publishing	One Deep Breath
Alder Carr Farm	ecoigo	Osmond Group Ltd
Alder Tree Ltd	Euromonitor International	Plumtree Group Ltd
Aluco Ecology Ltd	Finders Genealogists Ltd	Quills Office Supplies Ltd
APH	Go-Betweens Couriers	Response Handling.Net
Aroma Foods	Impetus Consulting	RKCR/Y&R
Artillery Architecture & Design	Interrogator Ltd	RPS Planning & Development Ltd
Bambara	John Heyer Paper Ltd	Secure Airparks
Begreener Ltd	Longcroft Soap Company	Simoon Travel
Beyond The Bean	Love Honey Ltd	Stafford Railway Building Society
Birdfinders	Made in Water	Sterling Relocation
Blue Chip Vacations	Majemaförlaget AB	Tasker & Stone
Bluefin Leisure Ltd	Man Bites Dog	Team Aqua
Chapel Cleaning Machines	Method Two	Travel Nation
Chest of Drawers	Nature Picture Library	Travel Republic Customers
Clarence Medical Centre	Nearly Married Ltd	VW Heritage Parts Centre Ltd
Coreix	Nicole Solange	Webmart Ltd
Deloitte & Touche LLP	Nikwax and Paramo	Whitehead Mann

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