

## The Rufford Small Grants Foundation

### Final Report

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Congratulations on the completion of your project that was supported by The Rufford Small Grants Foundation.

We ask all grant recipients to complete a Final Report Form that helps us to gauge the success of our grant giving. We understand that projects often do not follow the predicted course but knowledge of your experiences is valuable to us and others who may be undertaking similar work. Please be as honest as you can in answering the questions – remember that negative experiences are just as valuable as positive ones if they help others to learn from them.

Please complete the form in English and be as clear and concise as you can. We will ask for further information if required. If you have any other materials produced by the project, particularly a few relevant photographs, please send these to us separately.

Please submit your final report to [jane@rufford.org](mailto:jane@rufford.org).

Thank you for your help.

**Josh Cole, Grants Director**

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<b>Your name</b>	Nigel Pitman
<b>Project title</b>	Monitoring faunal recovery in a former illegal logging hotspot in Amazonian Peru
<b>RSG reference</b>	28.11.06
<b>Reporting period</b>	22 February 2007 - 21 February 2008
<b>Amount of grant</b>	£1,772
<b>Your email address</b>	npitman@amazonconservation.org
<b>Date of this report</b>	30 May 2008

**1. Please indicate the level of achievement of the project's original objectives and include any relevant comments on factors affecting this.**

Objective	Not achieved	Partially achieved	Fully achieved	Comments
Carry out intensive monitoring of Amazonian wildlife			x	In April 2008, the park guards of the Los Amigos Conservation Concession celebrated their 36th consecutive month of large-vertebrate monitoring on forest transects and their 48th consecutive month of large-vertebrate monitoring on riparian transects. We know of no other program in Amazonia that is monitoring such a wide range of wildlife so intensively.
Improve the equipment of the Los Amigos park guards			x	During the project park guards were equipped with new headlamps, rechargeable batteries and battery chargers, torches, and waterproof field books.
Analyse and publish data from the Los Amigos monitoring program		x		Analysis of the first 48 months of riparian data is nearing completion; a manuscript is in draft and will be submitted to J. Animal Ecology in 2008. Colleagues at U. East Anglia are comparing the forest transect data to similar data collected 100 km to the west in Manu National Park. I expect to submit at least one manuscript on forest transect data to a scientific journal in 2008. Before the end of the year, both datasets will be publicly available via the website <a href="http://www.acca.org.pe">www.acca.org.pe</a>

**2. Please explain any unforeseen difficulties that arose during the project and how these were tackled (if relevant).**

The only significant difficulty that arose during the project was a longer-than-expected delay in transferring the grant moneys from the Amazon Conservation Association (ACA), the US- based conservation NGO that received the grant, to the Asociación para la Conservación de la Cuenca Amazónica (ACCA), ACA's sister organization in Peru. This was our organizations' fault and easily remedied, because as we were waiting for the moneys to arrive we were able to pay for some of the items in the Rufford budget with funds from an in- house grant to the Los Amigos monitoring program.

**3. Briefly describe the three most important outcomes of your project.**

The three most important outcomes of the project are 1) the confirmation that sighting rates of many target species in the Los Amigos Conservation Concession have increased significantly since the start of monitoring in 2004-5, together with the finding that only one has decreased; 2) the consolidation of the two best datasets ever assembled to quantify long-term population trends of large vertebrates in western Amazonia; and 3) the equipping of the concession park guards (and wildlife monitors) with field gear to ensure high-quality monitoring for years to come.

Important outcome 1. Analysis of the riparian monitoring data confirms that we are seeing many more animals today than when monitoring began. Of the 11 species common enough to model in the four-year dataset, most showed an increase over time in both the number of individuals recorded per trip and the probability of sighting one individual on a trip. This positive trend is seen for reptiles, birds, and mammals (Fig. 1); see Figure 2 for one of the most prominent examples. Do these increases reflect some non-biological effect like increasing observer skill over time, or instead a true increase in wildlife populations? To answer this question, we compared trends of species that were commonly hunted before 2001 (and whose populations are thus expected to rebound following the establishment of the conservation concession) with those of species that were not hunted (and whose populations are not expected to rebound). The result suggests that wildlife populations really are rebounding: all five hunted species have become more common since the start of monitoring, while the six never-hunted species show mixed trends (three increasing, three not increasing).

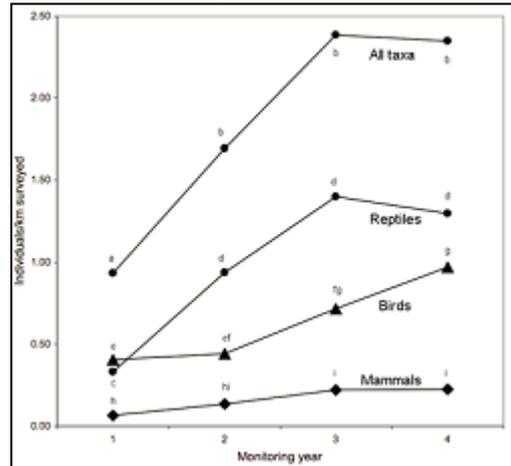


Figure 1. Changes in mean annual sighting rates of 31 species of reptiles, birds, and mammals over four years of riparian monitoring on the Los Amigos River, Peru. Within a taxonomic group, means that share a letter are not significantly different.

As far as we know, this is the first time that anyone has quantified the benefits of a new protected area for the Amazonian large-vertebrate community. The good news is that wildlife has rebounded quickly; comparisons of the forest transect data with similar data from Figure 1. Changes in mean annual sighting rates of 31 species of reptiles, birds, and mammals over four years of riparian monitoring on the Los Amigos River, Peru. Within a taxonomic group, means that share a letter are not significantly different.

Manu National Park (which has been protected for 30 years) suggest that population densities of most large mammal species in Los Amigos are now close to those observed in Manu.

Important outcome 2. Long-term datasets are prized by temperate ecologists but still very rare in the tropics. To our knowledge, the Los Amigos datasets are unique in their depiction of long-term trends in an Amazonian large vertebrate community.

The program at Los Amigos has so far documented >40,000 individual animal sightings made during ~2,000 hours of observation. Sighting information is complemented by data on environmental conditions (weather, time of day) and the geographic location of individual sightings, which opens a window on habitat preferences, seasonal patterns, and other aspects of animal behaviour. Because the forest and riparian data were gathered at the same time, we can also compare their relative efficiencies. For example, we have discovered that for two large mammal species -- tapirs and howler monkeys -- riparian surveys produced much higher sighting rates per hour effort than diurnal forest transect surveys. Both datasets will soon be publicly accessible online. And best of all, ongoing monitoring means that both datasets continue to grow richer each month.

Important outcome 3. Amazonian park guards everywhere are poorly funded and poorly equipped. Rufford's support in 2007-8 made the guards of the Los Amigos Conservation concession the exception to this rule. Equipment purchases were especially crucial for nocturnal surveys, which are impossible to do well without high-quality torches and a cost-effective battery source.

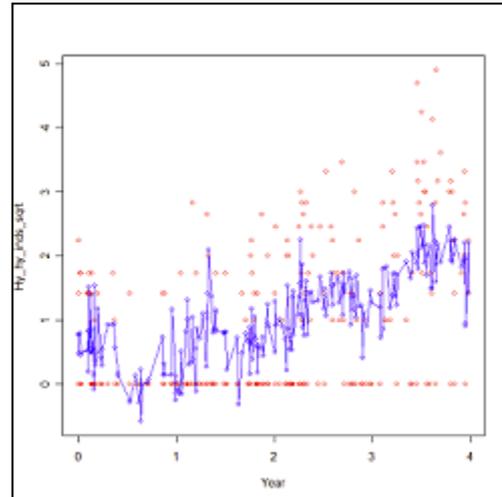


Figure 2. Increase in the sighting rate of capybaras (*Hydrochaeris hydrochaeris*) over four years of monitoring on the Los Amigos River. Both seasonal variation (peak values in dry season) and a long-term increase are apparent.

#### **4. Briefly describe the involvement of local communities and how they have benefitted from the project (if relevant).**

All of the data in the Los Amigos monitoring program are collected by eight Peruvian park guards employed by the conservation concession. The park guards are long-term residents of Madre de Dios; four live in the immediate vicinity of the Los Amigos watershed. Building this one-of-a-kind dataset on animal abundances is not only a source of pride to these men, it also helps attract the scientific attention and economic resources needed to make the conservation concession a long-term success. One clear measure of the park guards' pride in their work is the fact that all eight of the guards who will celebrate the conservation concession's seventh birthday in July 2008 were also present at its establishment in 2001.

#### **5. Are there any plans to continue this work?**

Yes. Monitoring at Los Amigos began 2-3 years before Rufford funded the project in February 2007 and has continued at the same pace since Rufford funding ended in February 2008. Since the goal is to quantify long-term abundance trends, we aim to extend the current three consecutive years of forest transect data and four consecutive years of riparian data as long as possible. We are currently covering the cost of monitoring with in-house funds and actively seeking external support. A January 2008 grant proposal to the Disney Wildlife Conservation Fund was recently turned down. A longer-term source of funds may emerge from ACA's ongoing negotiations to sell carbon credits from the Los Amigos Conservation Concession; the goal is an endowment that will cover the concession's operating expenses, including the monitoring program.

## 6. How do you plan to share the results of your work with others?

We plan to share the results in three ways. First, in 2008 we will post the full riparian and the forest transect datasets on ACCA's website, where all our information will be accessible to all interested scientists. Second, I plan to submit two manuscripts based on these datasets to scientific journals this year. Third, we will convert the most visually compelling results of the programs (graphs and maps) into displays at the Los Amigos Conservation Concession's interpretative centre, which receives visits from >100 local schoolchildren each year.

## 7. Timescale: Over what period was the RSG used? How does this compare to the anticipated or actual length of the project?

The RSG was used between July 2007 and February 2008. As expected, it helped fund one year's worth of monitoring activities.

## 8. Budget: Please provide a breakdown of budgeted versus actual expenditure and the reasons for any differences. All figures should be in £ sterling, indicating the local exchange rate used.

During the project both the British pound and the US dollar dropped >10% in value against the Peruvian currency. As indicated in the table below, we were able to spend the budgeted amount in British pounds by using in-house ACA funds to cover the shortfall.

Item	Budgeted Amount	Actual Amount	Difference	Comments
Six Petzl Myo 3 headlamps for nocturnal surveys	190	189	-1	Less expensive than anticipated. Rather than buying half a dozen very expensive headlamps, I bought ca. 20 less expensive headlamps.
Six replacement bulbs for headlamps	25	0	-25	Not purchased; see above.
60 Energizer NiMH rechargeable AA batteries	40	38	-2	Less expensive than anticipated
Six Maglite torches	125	82	-43	Less expensive than anticipated
Six replacement bulbs for Maglite torches	25	12	-13	Less expensive than anticipated
24 rechargeable D batteries	70	0	-70	This is included in the next row.
AA and D rechargeable battery chargers	50	131	+81	Includes the rechargeable batteries.
Clearing of forest transect trails (every three months for one year)	1080	1092	+12	
2,000 plastic tags for permanent marking of 32 km of transect	115	0	-115	These tags had been acquired by the time the Rufford funds became available.
Six Rite in the Rain bound field books	52	45	-7	Less expensive than anticipated
Bank fee to transfer	0	18	+18	A necessary expense not included

funds from the USA to Peru				in the original budget
GPS	0	81	+81	Not contemplated in the original budget but purchased with left over funds. Hugely important for the monitoring work.
Digital camera and memory	0	84	+84	Not contemplated in the original budget but purchased with left over funds. Very useful for the monitoring work.
<b>TOTAL</b>	<b>1772</b>	<b>1772</b>	<b>0</b>	

### 9. Looking ahead, what do you feel are the important next steps?

The most important next step is to complete the endowment of the Los Amigos Conservation Concession; that will provide funds to support monitoring in perpetuity. ACA is currently in discussion with groups interested in purchasing avoided deforestation carbon credits from the concession, as well as with the Peruvian government regarding the legal terms of such a purchase. Until those negotiations bear fruit, it is important that we raise stopgap funds for the monitoring program.

We are also working to attract a master's or Ph.D. student who can dedicate their full time to analysing the data generated by the monitoring program, as well as fine-tuning field methods, running periodic quality checks, and seeking other ways to improve surveys.

### 10. Did you use the RSGF logo in any materials produced in relation to this project? Did the RSGF receive any publicity during the course of your work?

The RSGF logo will be placed on the website that will serve the datasets. An early draft of this webpage lacking the logo is online at <http://www.acca.org.pe/espanol/investigacion/programas/monitoreo.html> RSGF is acknowledged in a draft reporting results from the riparian monitoring; this should be submitted to the Journal of Animal Ecology in 2008.

### 11. Any other comments?

On behalf of the whole monitoring team at Los Amigos, I thank everyone at Rufford for your generous support. Long-term monitoring is a lonely business, and it is wonderfully encouraging when fellow conservationists lend a hand.