The Rufford Small Grants Foundation

Final Report

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.

Thank you for your help.

Josh Cole, Grants Director

Grant Recipient Details	
Your name	Campbell Plowden
Project title	Sustainable harvest and marketing of non-timber forest products (NTPFs) with indigenous communities in the northern Peruvian Amazon (Peru)
RSG reference	9840-2
Reporting period	09/01/2011 – 8/31/2012
Amount of grant	£6000
Your email address	cplowden@amazonecology.org
Date of this report	09/17/2012

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
Continue copal surveys			XXX	Completed initial inventories of copal and other select aromatic species in forests around the village of Brillo Nuevo, and upriver sections of Sabalo and Sumon.
Monitor copal recovery		XXX		Completed monitoring recovery of copal lumps in 44 of 48 inventory plots near Brillo Nuevo and Sabalo. Unable to return to Sumon due to low water and unavailability of land owner due to family tragedy.
Continue resin distillation trials			XXX	Completed distillation trials of resin from 5 species of copal collected during inventories. Have also done initial distillation of leaves from two species of copal and two species of Lauraceae family trees.
Develop copal management and enterprise plan		XXX		Based on inventory and monitoring activities, we now have sufficient information to formulate a preliminary management plan for copal resin harvest. Evaluation of the essential oils derived from our distillation trials, however, indicates that only one species in the Ampiyacu area which is relatively uncommon there offers strong potential as a high-value fragrance. We are, therefore, exploring essential oils derived from other aromatic species and other distillation methods to find a commercially viable option before developing a plan with the community to market these oils.
Continue development of new handicrafts			XXX	The project has grown from working with artisans in one to four native villages. Creativity and quality is steadily improving in belts, guitar straps and trivets. New crafts including dog collars and leashes, holiday tree ornaments, coin purses, cell-phone holders and doll-sized hammocks are now being test-marketed or developed.
Strengthen Ampiyacu native handicraft associations		XXX		These native artisans previously worked alone or with one or two relatives. Encouraging them to share their skills and feedback with each other has had mixed success. Artisans in Brillo Nuevo have recently revised the structure of their 3-person quality control committee to improve its accessibility to fellow artisans. Despite an uneven initial reception, they have

				encouraged CACE to continue its trial awarding of certificates to participating artisans and yearly prizes to a few in various categories as incentives for improving quality and productivity. Huitoto artisans from Puca Urquillo cooperate fairly well while their Bora counterparts continue to work more independently. Ocaina artisans from one large extended family in Nueva Esperanza usually operate in a harmonious fashion.
Enrich supply of chambira palm		XXX		We have completed initial border surveys of a purma (secondary forest) for 16 of 22 artisans in Brillo Nuevo. The six unfinished plots belong to artisans who have been absent from the community or have recently joined the project. This summer we finalised our design for conducting inventories of chambira palms in these areas and have since completed three. Preliminary results indicate the importance of preserving at least one seed tree in each area to maintain high palm density. Artisans in Brillo Nuevo have welcomed our introduction of pole saws to harvest chambira as a way to reduce damage to non-target leaves common to harvest with a machete.
Document other key craft plants		XXX		We have documented the use of nine plants in dying chambira palm fibre and six types of seeds or fruit pods used to make or decorate crafts. Videos are being edited to present some of these methods. While most of these plants are well-known to within a village, we have not yet facilitated exchange of this knowledge between artisans.
Discuss craft rebate with communities			XXX	We have regularly updated the full community of Brillo Nuevo about the funds available in their Social Rebate account from CACE sales of crafts made by their artisans. The community used some of these funds to purchase some pole saws, medicines and materials to build a community pharmacy. Construction of this building has begun, but there are social issues that have stalled its completion.

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

A. Limited access to upriver forest sites

After the initial round of forest inventories within several hours of the village of Brillo Nuevo revealed that the oil distilled from resin from the common species of copal in this region appeared to have limited commercial potential, we hoped to find a variety of other species by searching forest sites farther up river. We confronted numerous logistical and other challenges, however, attempting to conduct these inventories and successive post-resin harvest monitoring. The biggest obstacle was reaching the Sumon and Sabalo areas since the level of water in these tributaries of the Ampiyacu was chronically low. We made three trips to these areas in the past 2 years, but motor-canoes could travel far this far upstream during no more than a few months each year, and passage was not even assured in the peak of the rainy season. The other challenge to making many visits to these sites was their considerable expense. The price of gasoline around Iquitos has almost doubled in the past few years (to about £3.3/gallon), and it often costs an extra 10-20% more to buy in the town closest to the communities. The third factor that impeded return to one site for monitoring was the lack of someone from the owner's family to accompany the forest team. This circumstance was caused by a tragic accident (a tree that fell on a family camping by the river) that killed one of the artisans, her husband, baby, and severely wounded her mother-in-law.

There is a huge additional extent of forest farther north in the Ampiyacu-Apayacu Regional Conservation Area that appears to have some different soil and forest types that would likely have a greater variety of copal species to explore. Conducting inventories in this protected could be done with special permission from the regional government but we would need to figure out a more cost-effective and reliable way to reach and return to this area before extending the scope of our search.

B. Impact of the extreme rainy season on mobility, craft plants and health

This past spring brought record high rains and flooding to the northern Peruvian Amazon. Riverside villages that were well-adapted to seasonal flooding that usually last no more than weeks were inundated for several months. In areas where the water only rose modestly, people could only leave their homes on stilts by canoe. In many areas, homes were submerged forcing people to abandon their villages entirely. The prolonged flooding destroyed so much cassava that many people went hungry and still need food aid from the government to survive. In several of our partner villages, the ability to make a full range of handicrafts was curtailed since numerous plants grown in backyard gardens to dye the chambira died in the floods and will take 4 months for their replacements to grow back. While our partner villages have had a few cases of malaria, this year's flooding left large areas of stagnant water accompanied by abundant mosquitoes and devastating outbreaks of malaria. In one of our partner villages, more than 90% of its residents suffered from malaria this rainy season. These conditions clearly left its artisans hard-pressed to make many crafts for CACE. It was a sobering demonstration of some impacts of climate change at a local level.

Apart from trying to reduce deforestation in this part of the world, it's beyond the scope of our project to reverse global warming. We do hope to work with artisans to establish alternate sources for key plants in areas that will be less vulnerable to future floods.

C. Disappointing results from initial rounds of resin distillation

We launched the essential oil component of this project knowing that copal resin had been used as incense for thousands of years and more recently in some perfumes. It seemed likely that at least some copal species in the Ampiyacu region would yield a high-value essential oil for its native people. Our inventories, post-harvest monitoring, distillations and oil evaluations have so far produced mixed results. Copal trees as a whole have reasonable abundance compared to the norm for any given tree in highly diverse tropical forests. The percentage of these trees with large resin

lumps, however, was rather low, as was the yield of essential oil from these lumps. Our fragrance company partner felt that the oil from the aged resin of one species had strong potential as a perfume ingredient, but it was one of the rarer species in this region.

In view of these results we have taken several steps to explore other options for producing high-quality essential oils. One has been to conduct test distillations of leaves and branches from trees of four aromatic species: two species of copal and two from the family Lauraceae. One of these was a lone "palo de rosa" (rosewood) tree brought to the area 65 years ago by the father of our project Local Coordinator at Brillo Nuevo. The other was a "canela moena" (cinnamon) tree found during one inventory near the village. The oil distilled from the rosewood parts had a very pleasing aroma which is now being evaluated. We are now partnering with the NGO Camino Verde that has extensive experience with reforestation projects in southern Peru to produce and plant about 1000 rosewood seedlings at Brillo Nuevo in early 2013. These should reach sufficient size in three to four years to sustain a modest leaf and branch harvest for making rosewood oil. We are also consulting with a few people from the town of Tamshiyacu (on a different river south of Iquitos) to improve our distillation methods to increase our yield of essential oil.

D. Challenges improving the quality of handicrafts

The project has had a lot of success working with artisans to produce a broader range of crafts with chambira palm fiber and other local plants. Encouraging artisans to use their creativity to make new designs of existing products and create brand new products has been a joyful process. It has proven much harder to assist dozens of artisans to achieve and maintain a consistent high level of quality for several reasons. Many artisans are very good at making the products they have always made (like hammocks and/or woven bags), but there is a wide range in the speed with which they learn to make new kinds of products. The most skilled artisans are quite willing to teach their sisters, daughters and sometimes sons their advanced techniques, but many are still reluctant to share such tips with artisans from other families.

Overall quality has improved primarily through regular feedback from the Project Manager. Initial attempts to foster a Quality Control committee in Brillo Nuevo, however, did not work because some artisans believed that the accomplished artisans on it were being overly critical of their craftsmanship. The artisans recognise the importance of getting constructive feedback, though, so they are now giving the concept another try by encouraging artisans to show their work to any member of the committee they feel comfortable with.

In Puca Urquillo, it has been encouraging to see that more women are learning to etch wildlife designs on small calabash pods in this very popular new type of holiday tree ornament. This was previously a skill demonstrated only by a few male artisans. We are still confronted by disgruntled artisans, however, who are jealous of their peers who have developed these skills faster than they. We are striving harder to provide detailed feedback to assist artisans who are dedicated to learn these new skills.

The other major challenge to improving the quality of crafts is that the quantity of items we have been able to purchase is still modest in comparison to the amount that these artisans could produce. Dividing up relatively small orders among many women leave most with only a few items of any given type of product to make. We are hoping that completing our online Amazon Forest Store and expanding our outreach to more progressive sales outlets will increase our sales and ability to purchase even more crafts.

E. Discontent regarding access to field assistant work in the forest surveys and inventories
One common challenge in the project has been finding a balance between training a group of people to effectively conduct the forest surveys and inventories and maximising access to these part-time positions for interested people in the village. In the first year of the project, our Local Coordinator tended to recruit from the same rather small group of men. This built a solid core of reliable field assistants and generated considerable resentment. In the past year we responded to this concern by encouraging the Local Coordinator to include many more men in these teams. This approach, however, reduced the effectiveness of the work for some months, though, because many of these men did not know the areas where the surveys were being conducted and could not participate long enough to learn some of the more technical skills such as navigating with a compass, recording positions with a GPS, and accurately recording data. We discussed this problem with the community and reached an accord that these teams could always include a blend of both experienced people and new people who could learn the needed skills to contribute to these efforts beyond wielding a machete.

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

A. Encouraging native artisans to stimulate their creativity and dedication to making quality handicrafts can increase their family income without cutting and burning primary forest. Our project began working with a dozen artisans in the Bora village of Brillo Nuevo in 2010. We now work in four villages representing all four native groups (Bora, Huitoto, Ocaina and Yagua) in the Ampiyacu area and have purchased over 1,400 handicrafts from 93 different artisans (almost all women). Creativity and quality is steadily improving in belts, guitar straps and trivets. New crafts including dog collars and leashes, holiday tree ornaments, coin purses, cell-phone holders and doll-sized hammocks are now being test-marketed or developed. Artisans that previously only made hammocks and bags have applied their traditional weaving techniques to also make dozen of models of belts, guitar straps, trivets, dog collars and leashes, holiday tree ornaments, and coin purses. Ideas and feedback from project leaders, artisans, and craft buyers provides a steady stream of input to improve (and sometimes phase out) current models and create prototypes of new ones to be tested. Artisans who invest in making quality crafts have been better able to finance their children's education and buy basic necessities for their families through sustainable use of local forest resources.

B. The project is building the capacity of a native community to evaluate the abundance and sustainably harvest its forest resources. Forest inventories that meticulously document all of the plants in small plots are well-suited for sampling the biodiversity of a region but they are almost useless for estimating the abundance of most tree species which are widely dispersed throughout a tropical forest landscape. Since its beginning, this project has carried out surveys of copal and other select aromatic species in more than 50 plots encompassing 366 ha of primary and secondary forests. All but four of these plots were revisited in the past year to monitor the recovery of resin lumps on trees where up to half of these lumps were harvested during the initial inventory. We are now following a similar model with our inventories of secondary forest sites that provide the majority of chambira palm leaves used in making woven handicrafts. Artisans have immediately appreciated the introduction and benefits of using pole saws instead of machetes to harvest the young leaf spears ("cogollos") of this palm since it reduces damage to adjacent mature leaves.

These processes have been demonstrating practical models for sustainably harvest a wide variety of forest resources. Its four elements included assessing the natural abundance of the resource, noting

which conditions favoured certain species more than others, conducting an experimental harvest with a modest intensity and returning at regular intervals to assess the impact of the harvest and rate of recovery. Such methods can prevent overexploitation of resources when their harvest shifts from modest levels of intensity for subsistence or occasional commercial purposes to heavy harvesting for regular production of goods to be sold.

C. Local enterprises based on the production of essential oils from wild-harvested plants are not easy to establish

It was clearly (and to some extent still remains) the hope of this project to establish a viable small-scale enterprise in one or more of our partner native communities to produce and sell high-quality essential oil for sale to fragrance companies. The market for such oils remains strong but the numerous challenges encountered in our quest to develop new oils from copal resin in the Ampiyacu region as a sustainable source of income (ideally as an alternative for men involved in unregulated logging) has provided many lessons worth sharing with others contemplating similar ventures. We knew that the Peruvian Amazon had a significant diversity of copal species; we did not realise until we had conducted significant inventories and distillation tests that relatively few copal trees in the Ampiyacu region had resin lumps at all and that such a small proportion of them would have resin whose oil would have commercial potential. We consulted from the start of our project with experienced essential oil makers about trying new ways to improve the quality and quantity of the oil we were getting. This included shifting from distilling mixed batches of freshly harvested resin to a painstaking process of distilling single species batches of resin at three different stages – fresh, aged for 6 months and aged for 1 year. It was only during this summer, however, that we found someone from a community in a different region who told us about a different method he used that dramatically increased the yield of his process. We have not given up, but we have had to readjust our expectations for achieving success with this project. Testing resin and leaf samples from the broad range of species in the wild will remain essential to identify which species yield the best quality. Unless a product has an extremely high value or people are willing to work for almost nothing, however, it will take too much time to collect enough resin or leaves from tall widely dispersed trees to supply a local oil-making venture. To make such an enterprise possible, communities will almost certainly need to establish higher densities of the best species through enrichment planting and/or small plantations so large volumes of raw materials can be harvested in a cost-effective way. This would clearly need to be done in ways that avoid the well-known pitfalls of many types of plantations including the concentration of pests and creation at the expense of diverse natural forests.

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

Local communities have been intimately involved with every aspect of this project. The different forms of participation and associated benefits from these activities have been:

A. Men from the Bora community of Brillo Nuevo have helped to lead and participate in inventories and monitoring of copal trees, other aromatic plant species, and chambira palm trees in primary and secondary forest sites. Some members of these forest teams have also helped to extract essential oil from resin, leaves and branches from a variety of aromatic plant species. Benefits from this involvement have been receipt of daily stipends working as field assistants and learning the skills and how to use the related tools (compass, GPS, measuring tapes) to assess local forest resources.

B. Artisans from four native communities (mostly women) have been involved in creating dozens of models of a dozen types of new handicrafts for purchase by CACE and ultimate sale to socially and environmentally conscious buyers in the U.S. These activities generated the purchase of over 1400 handicrafts from these artisans worth over £3,500 since the beginning of the project of which £1426 worth were purchased during the year of the second RSG grant. Artisans mostly use this income to support family expenses for food, clothing and education for their children (who often go to schools outside the village for upper grades).
C. CACE has a policy of returning 20% of the proceeds from the sale of crafts made by artisans from its partner communities (and the sale of other items based on photos taken there) to them to support their needs in the areas of health, education and conservation. These sales have now generated about £1000 worth of funds for the Social Rebate accounts of the four Ampiyacu native communities. Brillo Nuevo has so far decided to use about a quarter of its available funds to purchase pole saws for its artisans, medicines, and materials to build a community pharmacy.

5. Are there any plans to continue this work?

Yes. We have purchased hundreds of crafts from Ampiyacu artisans in the past year in anticipation of selling many during the end-of-year holiday season. Our ability to expand the market for crafts made by our partner artisans for purchase by CACE and other buyers will allow us to keep working with the native artisans in the Ampiyacu region. Our purchases to date have provided substantial extra income to handful of artisan families, but the scale needs to increase substantially to justify a shift in attitude that producing high-quality handicrafts (or other value-added non-timber forest products - NTFPs) can provide a more reliable and sustainable pillar for the village economy than selling cash crops produced through slash-and-burn farming and/or being labourers in unregulated logging. CACE will need to build these markets and increase the capacity of the artisans along parallel tracks since one objective cannot succeed without the other. We have unfortunately seen examples in the region where lots great artisan training was squandered; community expectations were raised and then dashed because the effort did not include sufficient support for marketing the products.

As we continue building the market for these crafts, we also plan to expand our efforts to help artisans quantify the amount of chambira palm they have in their “purmas” and consider ways to increase this density to supply more fibre for their own expanding craft making and sale of additional fibres to artisans in other communities where this critical resource is rare. We are taking steps to triple the number of pole saws available to the artisans in Brillo Nuevo so each mother-daughter or sister-sister pair of artisans can share one. When we have completed this inventory process in Brillo Nuevo, we wish to extend our work with chambira to other partner communities. In some cases, this will involve discussing ways to re-establish chambira populations that were overexploited in the past rather than spending a lot of resources counting a few remnant plants.

Our work to develop essential oils from aromatic plants will continue with a different emphasis than in recent years. We have determined that rosewood and at least one species of copal offers leaves and/or resin that may be distilled to produce a high-quality essential oil. Our next challenge is to assist interested communities to increase the density of these plants so that the raw materials can be harvested in a cost-effective way. We have begun a collaborative project with the NGO Camino Verde from southern Peru to produce 1000 rosewood seedlings at a nursery south of Iquitos that

will be transplanted to good secondary forest sites of four families in Brillo Nuevo in early 2013. With proper maintenance, it should be possible to begin a modest harvest of leaves and branches from the young rosewood trees in 3-4 years. In the meantime, we will further refine our distillation methods to improve essential oil yield and continue test distillation of other aromatic plants. A longer term plan will be to gather seeds or scions from the copal species whose resin has yielded good quality oil and plant these in areas where they may thrive for several decades.

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

I have written updates and shared photos about our work with the Ampiyacu communities on a regular basis via our website, blog, Facebook pages, Twitter, the RSG site, and CACE supporters through email. I have also written a feature article about the work for the newsletter of the Inter-Institutional Consortium on Indigenous Knowledge and have been invited to write another comprehensive piece for a popular blog geared toward eco-tourism in the Peruvian Amazon. I have also regularly discussed the highlights and challenges of the project (and its support from the RSG Foundation) in presentations to groups of students, scientists and the general public in both English and Spanish in the U.S. and Peru. Finally I will prepare several articles for academic publications that will present analysis of our copal inventories and monitoring and discuss lessons learned from the first few years of our essential oil and craft project with the Ampiyacu native communities.

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

While we began working with our pilot community on a limited basis in 2009, our project officially began with funding from our first RSG grant in 2010. Our second grant from RSG provided critical support for the project from early September 2011 through the end of August 2012. The project is currently funded through the end of 2012 with additional support from the Marjorie Grant Whiting Foundation. This foundation (along with its support) will also terminate at the end of this year, but we hope to continue the project to pursue the goals described above for at least another years.

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.**

Accounting tracked with conversion from Peruvian Nuevo Soles to $US with exchange rate at time of expense. Table below prepared with conversion from $US to Pound Sterling with rate of $US = £ 1.6. Figures rounded to nearest £. During the period of support from RSG, the project received an additional £ 4167 of support from a grant provided by the Marjorie Grant Whiting Foundation. Remaining expenses covered by general donations from the Center for Amazon Community Ecology. One category of project related expenses not listed here are the costs for buying and marketing handicrafts and the Social Rebate to the communities. Another major category of project related expenses are funds needed to buy and market the crafts and the Social Rebate that follows craft sales. From Sept. 1, 2011 through August 31, 2012, CACE paid £1426 for crafts from Ampiyacu artisans and spend an additional £269 for marketing these crafts. During this same period, CACE sold £2675 worth of crafts made by Ampiyacu artisans and graphic materials (e.g. notecards) using photos from the Ampiyacu region. These sales generated an obligation to return £535 to the communities through the Social Rebate. Since these merchandise related expenses are recouped through the craft sales, they are not included in project expenses listed below that were funded through the RSG grant and other sources.

Item	Budget RSG	Budget other	Budget Total	Actual RSG	Actual Other	Actual Total	Difference RSG	Difference Other	Difference Total	Comments
Communication	171	0	171	168	0	168	3	0	3	
Equipment	389	820	1209	389	307	696	0	-513	-513	Purchased climbing gear cheaper in Peru than in US, tree planting expenses deferred until 2013
Fees	31	0	31	34	49	83	3	49	53	New government process for export permits increased cost.
Stipend	3865	2355	6220	3865	2212	6077	0	2212	-143	Contracted fewer field assistants during several months of bad weather.
Travel	1544	1694	3238	1544	1789	3333	0	1789	95	Higher gasoline prices made boat travel more expensive
TOTAL	6000	4868	10868	6000	4727	10727	0	4727	-141	

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

A. Continue trial distillations with aromatic species to identify most promising species and consult more with fragrance specialists to improve distillation techniques to maximise yield and quality of essential oils.

B. Further develop collaboration with Camino Verde, IIAP and native community partners to launch successful pilot reforestation efforts with rosewood seedlings and explore planting other promising species in the future.

C. Invest more energy to promote skill-sharing and build trust between artisans in our partner communities to increase productivity, quality, and cooperation – assets that will increase family income and conservation.

D. Further promote good management of chambira palm through conservative and careful harvesting methods, increased retention of seed trees, and reforestation when needed in Brillo Nuevo and expand these activities to other partner communities as resources allow.
E. Identify more marketable crafts made by Yagua native artisans in San José de Piri and explore adding Yagua community of Santa Lucia de Pro as a partner community to broaden representation of this group in our project.

F. Complete online Amazon Forest Store and establish more relationships with retail outlets to expand CACE capacity to market Ampiyacu native partner products.

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?

A. Yes, the RSGF logo was featured in a slide acknowledging major CACE donors that was shown at the end of every PowerPoint presentation about our work given in the past three years.
B. CACE posted thanks to RSGF with its logo on the CACE Facebook pages when it received notice of its grant. (See: http://tinyurl.com/9uhrszo and http://tinyurl.com/9qq9748 (text). This note was also posted on the CACE Twitter page on Aug. 25, 2011 and shared with the CACE email list of supporters.
C. RSGF and its logo are featured under the "Thank you" section on the Donor page of its main website at: http://www.amazonecology.org/support/donate.html.
D. RSGF was thanked verbally for its support of the CACE Ampiyacu project at its fundraising and outreach party Spirit of the Amazon held in May 2011.

11. Any other comments?

Thank you very much for Rufford's support for our Ampiyacu project. We very much look forward to attending a regional gathering of other RSGF grantees from Peru and Bolivia in Copacabana, Bolivia in January 2103 to share our experiences and learn lessons from others working in the region.

The Ruffords
Small Grants Foundation
www.ruffordsmallgrants.org