



EIDPS039

Submit by Monday 3 February 2014

**APPLICATION FOR DARWIN FELLOWSHIP PROGRAMME ROUND 20**

Please read the Guidance Notes before completing this form. Where no word limits are given, the size of the box is a guide to the amount of information required. Information to be extracted to the database is highlighted blue.

**1. Name and address of UK Host organisation** (NB: Notification of results will be by email and addressed to the main UK Expert listed in Section 5)

<b>Name:</b> Dr Luke Parry	<b>Address:</b> Lancaster Environment Centre, Lancaster University, Lancaster, LA1 4YQ
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**2. Name and official address of proposed Darwin Fellow** (include email and telephone details where available)

Thiago Fonseca Morello Ramalho da Silva  
Universidade Federal do ABC, Centro de Engenharia, Modelagem e Ciências Sociais Aplicadas (CECS)  
Rua Arcturus (Jd Antares) Anchieta  
Postal code: 09606070 - São Bernardo do Campo, SP - Brasil

**3. Project dates, duration and total Darwin Initiative Grant requested**

<b>Proposed start date: 02 July 2014 Duration of project:13 months End date:31 July 2015</b>			
<b>Darwin funding requested £6,100</b>	<b>2014/15 £4,900</b>	<b>2015/16 £1,100</b>	<b>Total £6,000</b>

**4. Summary of proposed Fellowship** i.e. Outcome and expected outputs and impact

(Max 100 words)

The fellowship acknowledges that fires are among the main threats to the conservation of Brazilian Amazon (herein "Amazon") biodiversity and regional sustainable development. It will assist Amazon, and, therefore, Brazil, in achieving CBD objectives by (i) identifying effective routes for reducing fires and (ii) influencing policy makers and private decision makers to pursue them (the impact envisaged).

Main outcomes/outputs are:

- Elaborate a high impact paper on fire policy;
- Expand scientific exchange between (Brazilian) south-eastern (UFABC) and Amazon Universities (UFPA and UEPA) and their influence on fire policy and on public awareness of Amazon fires and their consequences.

**5. Principals in the Project.** Please give the details of the individuals from the UK host organisations (and other institutions if relevant) who would be directly involved in supervising/working with the Darwin Fellow. Please provide a one page CV for each of these named individuals. You may copy and paste this table if you need to provide details of more than one overseas project partner.

Details	Main UK expert	Other expert	Other expert	Other expert
<b>Surname</b>	Parry	Barlow	Markusson	Weinhold
<b>Forename(s)</b>	Luke	Jos	Nils	Diana
<b>Post held</b>	Lecturer	Senior Lecturer	Lecturer	Associate Professor of Development Economics
<b>Institution (if different)</b>				London School of Economics
<b>Department</b>	Lancaster Environment Centre	Lancaster Environment Centre	Lancaster Environment Centre	Department of International Development
<b>Telephone/Skype</b>				
<b>Email</b>				

**6.** Describe briefly the aims, activities and achievements of the UK Host organisation. (Large institutions please note this should describe your unit or department)

The Lancaster Environment Centre (LEC) addresses the world's pressing environmental issues with an explicit commitment to research excellence, inter-disciplinarity and genuine international partnerships. Our disciplinary strengths in Atmospheric Sciences, Biodiversity & Conservation, Earth Sciences, Plant & Crop Sciences, Society & Environment, and Soil & Water Sciences connect through our interdisciplinary "research actions" in i) Understanding a Changing Planet (ii) Improving Global Stewardship and (iii) Innovation for a Better Environment. LEC has 155 PhD students. We are ranked 32nd globally for citations in environment/ecology (Thomson). Our dedicated Enterprise and Business Partnership (EBP) team works with LEC researchers to develop research through innovation in to impact, with 26 resident companies. LEC's research income averages £5.5M per annum. In Brazil we have a dual PhD scheme with the Federal University of Lavras. We also have formal research partnerships with the British Geological Survey, Centre of Ecology and Hydrology, and Chinese Academy of Sciences.

**7.** Describe briefly the aims, activities and achievements of the proposed Darwin Fellow's employing organisation. (Large institutions please note this should describe your unit or department)

The main foundation of the research and higher education activities developed by the Federal University of ABC in Sao Paulo is inter-disciplinarity. Following this model, the Centre for Engineering, Modeling and Applied Social Sciences (CECS) provides an environment of close-contact and cooperation among researchers and students from multiple fields such as engineering, demography, geography, economics and public policy. The diversity of approaches and world-views brought together matches the multiple dimensions of the social and environmental issues facing Brazilian society. Therefore the UFABC aims to enable its researchers and students to design and develop relevant solutions to these socio-environmental challenges. More than 60 research projects that involve researchers of CECS have being approved by Brazilian national research funding institutions since 2005, the year where the University was created. UFABC is the top Brazilian higher education institution for 'internationalization' (measured by co-authoring of papers and citation of papers by foreign researchers).

**8.** Describe briefly the proposed Fellow's current role within their organisation and their link to a Darwin project (if applicable), including the project reference number, his/her role in that project and any ongoing involvement.

(max 200 words)

The Fellow was recently hired as researcher and lecturer by CECS-UFABC. He is interested in advising students of economics, public policy and geography, on the topic of sustainable development of Amazon with emphasis on the fire issue. He has been, since his PhD, joining interdisciplinary and interregional/international collaborative research on the topic.

He participated in the DI project "Linking research and environmental education to reduce Amazonian wildfires (17-023)" as a key contributor to the design and implementation of the socioeconomic farm survey, including planning of experimental design, methods development, data quality control, database development and data analysis (499 farmers interviewed from three Pará state municipalities). This effort has set the basis for the Fellow's PhD dissertation and for four papers currently under co-elaboration with Luke Parry, Jos Barlow and Toby Gardner, among others members of the Sustainable Amazon Network (RAS, the acronym in Portuguese). Two papers, originally part of the PhD dissertation, have slash-and-burn and accidental fires as their subjects. The other two papers, the transition to fire-free agriculture and the conservation-development trade-offs in Amazon. An additional paper is being prepared with Amanda Estefania Ferreira, lecturer at UEPA (Altamira, state of Pará), whose Masters was supported by DI project #17-023.

**9. Provide a concept note on the Darwin Fellowship. This should include:**

9a. A clear outline of the aim and objectives of the Fellowship

(Max 300 words)

Accidental fires occur in Amazonia as unintended consequences of escaped agricultural fires. These fires can spread rapidly, menacing forest ecosystems, including threatened biodiversity, and man-made assets. The threat of fire is growing due to the increasing severity and frequency of Amazonian drought events and to forests made more vulnerable to burning by logging. Massive fire events in 1998 and 2005 burned, respectively, 39,000 and 3,000 km<sup>2</sup> of Amazonian forest. In 1998, an El Niño year, around 4 million hectares of farms caught fire in the state of Roraima alone, a loss of 80% of the state's staple crops. Small accidental fires with localized damages are part of the daily life of Amazon farmers.

This is the background of the research to be supported by the fellowship, which will address the following questions:

1. Which land management alternatives have higher probability of causing accidental fires?
2. Among alternatives identified in 1, which impose the largest probable losses of biodiversity and farm assets?
3. Which are the socioeconomic factors that favor the choice of alternatives identified in 2?
4. Which of the factors identified in 3 are responsive (4.a) to government intervention and (4.b) to the awareness of fires' consequences?
5. Considering 1-4, which new policies and awareness actions would be most effective in disfavoring the choice of alternatives identified in 2?

The activities to be developed by the Fellow are:

- (1) Build an evidence basis for questions 1-5 (9c);
- (2) Carry research visits at Lancaster and at Pará state (9b, 10);
- (3) Receive GIS training (item 9b);
- (4) Learn about fire impacts on Amazon biodiversity (9b);
- (5) Learn alternatives to make research influential on policy and private decisions (9b);
- (6) Write, as first author, a high-impact paper on fire policy;
- (7) Attend conferences (10);
- (8) Host meetings with stakeholders (10).

9b. The role of the UK Host organisation, and others where relevant (including contacts)

(Max 300 words)

Lancaster Environment Centre (LEC) will provide scientific and technical support and an environment of interdisciplinary scientific interaction, through:

1. UK experts inputs:
  - a. Luke Parry: support on survey data compilation, geo-referencing and analysis, including data from project 17-023. Tasks to be conducted with the support of Gemma Davies (GIS officer) and Ben Taylor (statistician), both part-funded by Dr. Parry's Future Research Leader Fellowship (ESRC). Instruction on climate and human drivers of fires and implications to Amazon biodiversity. Co-authoring a high-impact paper on fire policy (herein "co-authoring");
  - b. Jos Barlow: support on integration of biodiversity and socioeconomic data collected by Sustainable Amazon Network and other surveys conducted by Dr. Barlow and colleagues. Instruction on short-to-long term biodiversity impacts of fire in Amazon. Co-authoring;
  - c. Nils Markusson: support on qualitative analysis, specifically on identifying the policy levers for the transition to fire-free and low-carbon agricultural technologies. Instruction on novel approaches for making research influential on policy and farmers' technological decisions. Co-authoring;
2. The technical support to be provided by Gemma Davies, will considerably improve Fellow's GIS skills and generate a geo-referenced socioeconomic database to be shared with Amazonian researchers (item 10);
3. The opportunity to:
  - a. Present Fellow's research and preliminary results in a departmental seminar;
  - b. Present a draft of the high-impact paper to the Society and Environment cluster writing group (led by Nils)
  - c. Take part in the weekly Tropical Biodiversity and Conservation debates around recently published papers;
  - d. Attend LEC seminars;
  - e. Attend short courses on research methodology and GIS, provided by Lancaster University;

Additionally, Dr. Weinhold (LSE) will provide (i) support on data analysis (econometrics) and on the economics of land management in Amazon; (ii) guidance in making research influential on policy and on farmers' decisions. Two meetings in Dr. Weinhold's office (London, UK) will be scheduled.

9c. Where appropriate, how the Fellowship will contribute towards biodiversity conservation and, where relevant, poverty alleviation i.e. what the expected outcome of the Fellowship will be, with regard to the higher goals of the Darwin Initiative.

The fellowship addresses the following fire-poverty/degradation feedback:

1. Agricultural fires are one of the few land management options poor farmers can afford. This perpetuates accidental fires;
2. Accidental fires, over time, cause more fires (via feedbacks) by changing microclimate, promoting droughts and increasing forests-proneness to burning. During this process, forest ecosystems services, a huge number of plant and animal species and farm assets are threatened.

Therefore, fires reduce options for promoting sustainable development in rural Amazonia. Additionally, they prevent investment in:

1. Sustainable fire-sensitive land management alternatives, such as agroforestry, non-timber forest products and low-impact timber extraction;
2. REDD+ and Payment for Environmental Services provided for forest conservation.

Only effective public policy and public awareness actions can break the fire-feedback loop - thus helping Brazil to comply with CBD and also promote sustainable development – by identifying the socioeconomic factors that promote and discourage agricultural fires. The Fellow will develop the evidence basis for identifying these factors and the required interventions by assembling data from three independent farm-level surveys conducted in Amazonia by:

- (a) Darwin project 17-023, which contributed to the Sustainable Amazon Network (RAS, see item 12 below), during 2010/2011 on the state of Pará;
- (b) EMBRAPA Belém (Pará state) researchers (involved in Tipitamba fire-free project), during 1992-2012 also in Pará;
- (c) EMBRAPA São Paulo researchers during 1986-2008 in the state of Rondônia.

After assembling, geo-referencing and analyzing the databases, a fire policy paper will be prepared and submitted, emphasizing the drivers of the fire-poverty/degradation feedback. This paper aims to impact public debate on the subject, influencing policy and private decisions towards the reduction of fires in the Amazon. It is also, in itself, an awareness action, to be complemented by actions aimed to reach stakeholders (item 10).

**10. Legacy.** Provide information on how the Darwin Fellow will utilise, promote and disseminate the benefits of the Fellowship on return to his/her home country. Will a strategy be developed during the Fellowship to ensure this is achieved?

There is a large research funding and expertise gap between Amazon and (Brazilian) south-eastern states: the latter invests thrice as much on scholarships and research per capita and publishes 14 times more papers. To help overcome the gap, the fellowship aims at creating enduring exchange channels between south-eastern (the Fellow's case) and Amazonian researchers, on the specific subject of fires in Amazon. Mainly through co-advising south-eastern and Amazonian students and co-authoring in partnership with Amazonian researchers, specifically:

1. Sérgio Rivero, Federal University of Pará (UFPA), Belém,
2. Amanda Estefania Ferreira, State University of Pará (UEPA). Amanda, now a lecturer, was supported by DI project #17-023 for her MSc.

Additional partnerships, including researchers of Fellow's organization, will be also sought.

Other actions:

1. Attend conferences, (e.g. Resilience 2014, Association for Tropical Biology and Conservation, and the Brazilian conference on rural economics);
2. Host meetings with stakeholders for discussing Fellowship results:
  - a. policy makers: federal government program for fire control (Prevfogo) and Para state environmental agencies;
  - b. farmers' associations and unions;
  - c. Think tanks on Amazon sustainability, e.g. IMAZON and IPAM, in Belém.

A strategy to transfer knowledge on econometrics with GIS data will be developed, targeting south-eastern and Amazonian students.

11. How will the Fellowship assist the Fellow's organisation and/or local communities and/or home country in working towards the objectives (or implementation) of the CBD/CITES/CMS? Please refer to specific Articles or cross cutting themes as appropriate.

(max 200 words)

Wildfires are highly relevant to biodiversity commitments under the CBD. Even low intensity understorey fires kill 40-50% of mature trees, and extirpate disturbance-sensitive birds for up to 15 years. Recurrent fires kill up to 80% of remaining trees and may favour domination by fire-prone vegetation (e.g. grasses). Fires menace endemic Amazonian bird species (such as *Psophia obscura*), among which there are species only recently discovered and yet to be discovered. Many are highly fire-sensitive, as the terrestrial foraging birds (e.g. *Hylopezus paraensis*). Forest frugivore communities are also impacted through fire's impact over fruit availability. Effective fire management is essential for protecting biodiversity and, consequently, to guarantee a future abundant on ecosystem services for Amazonian population (CBD, A.8 and A.10). To assist Brazil in achieving such goal, the fellowship will implement the following actions:

- (1) Provide socioeconomic and GIS data to Amazon researchers (CBD A.7);
- (2) Qualify Amazonian researchers to influence public policy and private decision-making (CBD A.12);
- (3) High impact paper on fire policy (CBD A.12 and A.13)
- (4) Improve scientific exchange between south-eastern and Amazonian universities (CBD A.5, A.12, A.17 and A.18)
- (5) And, ultimately, influence policy and private decisions towards the reduction of fires (CBD A.10 and A.11).

12. What collaboration has there been with the Darwin Fellow to date in developing the proposal, and what collaboration is planned for the duration of the Fellowship? Where relevant, describe any consultation or collaboration by the proposed Fellow within his or her own country.

(Max 200 words)

This proposal has been elaborated following collaborative research, started in early 2011 (initially through DI project 17-023) and still in progress. The socioeconomic survey of Sustainable Amazon Network (RAS) was the point of departure and since then the Fellow has been working together with Luke Parry, Jos Barlow and Toby Gardner, on the subject of Amazon fires, including the work done on his PhD dissertation. The fellowship aims at strengthening this collaboration and making it more efficient by providing three months of direct interaction in Lancaster/UK where a high impact paper on fire policy will be prepared. Plus the development of further collaboration with Amazonian researchers (item 10) during proposed visits to Amazonia, including with Estefania (UFPA) and Ferreira from EMBRABA Belem, a RAS coordinator.

The Fellow also collaborates, and will increase collaboration during the Fellowship, with the following researchers on the subject of fires in Amazon:

1. Marie-Gabrielle Piketty, CIRAD, France;
2. Emilie Couedel, CIRAD, France;
3. José Féres, Institute for Applied Economic Research (state of Rio de Janeiro), Brazil;
4. Ricardo Abramovay, University of São Paulo, Brazil;
5. Rachael Garret, Stanford University, USA.

**13.** Where will the Darwin Fellow be based? Please be specific with organisational details and dates (where more than one location).

(max 200 words)

02 July 2014-27 September 2014:

Lancaster Environment Centre (Host Institution), Lancaster, UK.

29 September 2014-31 December 2014:

CECS-UFABC, São Paulo, Brazil.

10 January 2015-27 March 2015:

UFPA, EMBRAPA and IMAZON (Belém), UEPA (Altamira), Brazil.

28 March-31 July 2015:

CECS-UFABC, São Paulo, Brazil.

Note: During three months per year, Dr. Morello has no lecturing duties. This time window will be scheduled in 2014 for July to September and for 2015, from January to March for (i) a three month research visit to the UK Host institution and (ii) a three month research visit to Amazon universities (UFPA and UEPA) and to the Brazilian Agriculture Research Corporation unit at Pará state, Brazil (EMBRAPA).

**14. Provide a programme of work, including key milestones, through the duration of the Fellowship**

Activity	Duration	2014/15									2015/2015					
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
Research visit to LEC, UK	3 months	X	X	X												
Survey databases assembling and processing	2 months	X	X													
First data analysis and elaboration of a draft of the high-impact paper	3 months		X	X	X											
Second data analysis	2 months				X	X										
Elaboration of the final draft of the high-impact paper	9 months					X	X	X	X	X	X	X	X	X		
Research visit at UFPA and UEPA, Pará state, Brazil	3 months							X	X	X						
GIS training at IMAZON (Pará state, Brazil)	1 month									X						
Co-advising UFPA and UEPA students	13 months	X	X	X	X	X	X	X	X	X	X	X	X	X		
Co-authoring papers on fire in Amazon with Amazonian researchers	13 months	X	X	X	X	X	X	X	X	X	X	X	X	X		



**15. Costs. Using UK Government Financial Years ie April 2014 – March 2015 etc), please set out your budget for the Fellowship**

	Unit cost	No of months		Total	
		2014/15	2015/16	2014/15	2015/16
<b>Fellow's Subsistence contribution</b>					
Arrival allowance	£300	NA	NA	0	0
London based	£1,200 pcm			0	0
UK (outside London)	£1,000 pcm	3 months		£3,000	
Overseas	£tbc*			0	0
<b>Host organisation's costs</b>					
UK	£300 pcm				
Overseas	£tbc*				
<b>Total Fellow and Host costs</b>				<b>£3,000</b>	
<b>Travel costs to Fellowship location (up to £2,000)</b>					
Return airfare	Details: Plane tickets for research visit to Lancaster			£1500	
Travel to/from airports	Details: São Paulo International (GRU)/ Manchester airport				
Visas, insurance, medical cover etc	Details: VISA, insurance and medical cover			£400	
<b>Additional travel costs (up to £500 local travel OR £1,500 for international travel)</b>					
Purpose of additional travel	Details: Research visit to Amazon			0	0
Airfares/train fares	Details: airfare			0	£500
Travel to/from airports/stations	Details: São Paulo International (GRU)/ Belém airport (VAL)			0	0
Subsistence costs (inc number of days and rates)*	Details: not requested			0	
Visas etc	Details: not requested				
<b>Total travel costs</b>				<b>£1,900</b>	<b>£500</b>
<b>Fees and training costs</b>					
Academic fees	Details: GIS training (theoretical and practical course) at IMAZON, Pará state				£600
English language training costs**	Details: not necessary				
<b>Total fees</b>				<b>0</b>	<b>£600</b>
<b>TOTAL REQUEST FROM DARWIN £</b>				<b>£4900</b>	<b>£1100</b>

\*for advice on rates please call the Darwin Application Unit 0131 440 5181

\*\*these costs are ringfenced and should be surrendered if not used.

**16. Other sources of funding: provide details and amounts**

Fellow's own resources (salary received from his organisation) will be used to cover travel expenses of the research visit to the Amazon, a total amount of around £1,000.

## FCO NOTIFICATION

Please check the box if you think that there are sensitivities that the Foreign and Commonwealth Office will need to be aware of should they want to publicise details of the Darwin Fellowship and the resultant work in the UK or the Darwin Fellow's home country

## CERTIFICATION

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.

I enclose CVs for project principals and letters of support as requested in the Guidance Notes. Our most recent audited accounts and annual report are also enclosed.

<b>Name (block capitals)</b>	<b>LUKE THOMAS WYN PARRY</b>
<b>Position in the organisation</b>	Lecturer, Lancaster Environment Centre

**Signed**



**Date:**

03/02/2014

## Fellowship Application - Checklist for submission

	Check
Have you provided actual start and end dates for the Fellowship?	Yes
Have you provided your budget based on UK government financial years ie 1 April – 31 March?	Yes
Have you checked that your budget is complete, correctly adds up and that you have included the correct final total on the top page of the application?	Yes
Has your application been signed by a suitably authorised individual? <b>(clear electronic or scanned signatures are acceptable)</b>	Yes
Have you included a 1 page CV for the proposed Fellow and the UK experts listed in Section 5?	Yes
Have you provided the relevant letters of support?	Yes
Have you included a copy of your most recent annual report and accounts? <b>An electronic link to a website is acceptable.</b>	Yes
Have you read the Guidance Notes?	Yes
Have you checked the Darwin website immediately prior to submission to ensure there are no late updates?	Yes

Once you have answered Yes to the questions above, please submit the application, not later than 2359h GMT on **Monday 3 February 2014** to [Darwin-Applications@ltsi.co.uk](mailto:Darwin-Applications@ltsi.co.uk) using the name of the proposed Fellow as the subject of your email. If you are e-mailing supporting documentation separately please include in the subject line an indication of the number of e-mails you are sending (eg whether the e-mail is 1 of 2, 2 of 3 etc).

**DATA PROTECTION ACT 1998:** Applicants for grant funding must agree to any disclosure or exchange of information supplied on the application form (including the content of a declaration or undertaking) which the Department considers necessary for the administration, evaluation, monitoring and publicising of the Darwin Initiative. Application form data will also be held by contractors dealing with Darwin Initiative monitoring and evaluation. It is the responsibility of applicants to ensure that personal data can be supplied to the Department for the uses described in this paragraph. A completed application form will be taken as an agreement by the applicant and the grant/award recipient also to the following:- putting certain details (ie name, contact details and location of project work) on the Darwin Initiative and Defra websites(details relating to financial awards will not be put on the websites if requested in writing by the grant/award recipient); using personal data for the Darwin Initiative postal circulation list; and sending data to Foreign and Commonwealth Office posts outside the United Kingdom, including posts outside the European Economic Area. Confidential information relating to the project or its results and any personal data may be released on request, including under the Environmental Information Regulations, the code of Practice on Access to Government Information and the Freedom of Information Act 2000.