Darwin Fellowship - Interim Report

Darwin Main Project Ref No	17-023
Darwin Project Title	EIDPS039
Name of Darwin Fellow	Thiago Fonseca Morello Ramalho da Silva
UK Organisation	Lancaster Environment Centre, Lancaster University
Your Organisation(s)	Universidade Federal do ABC, Centro de Engenharia, Modelagem e Ciências Sociais Aplicadas
Your role within your Organisation	Assistant professor
Start/end date of Fellowship	02 July 2014/ 31 July 2015
Location	Lancaster, UK (02 July-27 Sept 2014), São Paulo (Oct -14 March 2015), Pará state, Amazon (16 March-30 April 2015), São Paulo (May-July 2015)
Darwin fellowship funding (£)	£6,000
Type of work (eg research, training, other, please specify)	The activities being developed are: (1) Build a dataset from multiple sources with the aim of addressing the scientific questions of the project; (2) Carry research visits at LEC and at Pará state; (3) Receive GIS training; (4) Learn about fire impacts on Amazon biodiversity; (5) Learn alternatives to make research influential on policy and private decisions; (6) Write, as first author, a high-impact paper on fire policy; (7) Attend conferences; (8) Host meetings with stakeholders.
Main contact in UK Organisation	Luke Parry
Author(s), date	Thiago Fonseca MR Silva, 12 January 2015.

1. Background

Before the start of the fellowship, the Fellow was involved with research on the socioeconomics of fires in the Amazon since my PhD in which I had the scientific support of Dr Parry and Dr Barlow (principals of the current project) and took part on the Sustainable Amazon initiative they were leading as part of DI project #17-023.

The aim of the current project is to build scientific capacity for assisting Brazilian Amazon 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). The main objectives are: Main objectives are (i) elaborate a high impact paper on fire policy and (ii) expand scientific exchange between (Brazilian) south-eastern (UFABC) and Amazon Universities (UFPA and UFOPA) and their influence on fire policy and on public awareness of Amazon fires and their consequences.

The programme of work unfolds into (i) research visit at Lancaster Environment Centre, at Lancaster, UK, during July to September 2014, (ii) research visit at universities at the state of Pará, Brazilian Amazon, during March and April 2015, (iii) restitution seminaries at July 2015 in Pará state and São Paulo.

The role of UK scientific institutions, particularly Lancaster Environment Centre, is to provide scientific and technical support through the inputs of UK experts on biodiversity and socioeconomics which are being supplied through meetings and co-authoring.

Fellow's institution authorized the fellow to concentrate exclusively on the fellowship during eight months (supressing his lecturing duties in the period) and is also providing support for partnerships with Amazon universities where the fellow will stay in March and April 2015. The institution, additionally, through its interdisciplinary approach, has being providing a fruitful environment to get in touch with researchers and potential partnerships on the subject of the fellowship have already being identified. Fellow's institution will also provide the resources and facilities for the restitution seminary to be held in São Paulo state at July 2015.

2. Progress, achievements and outcomes

2.1 Papers produced and conferences

Considerable progress was made on two papers co-authored by researchers from Lancaster Environment Centre (hereinafter referred to as "LEC") as a direct result of personal meetings held during fellow's period at Lancaster.

The first paper, named "Accidental fires and land use in the Brazilian Amazon", was presented, on December 9th, 2014, at the Brazilian Annual Post-Graduate Conference on Economics (whose acronym in Portuguese is "ANPEC"). This paper was also presented at LEC's Tropical Science Research Group meeting (coordinated by the principals of Darwin project), on August 14, where contributions were received from researchers and PhD students of the institution. The paper will be submitted to the annual meeting of the European Association of Environmental Economics and Natural Resources (EAERE) at 15 January 2015. The submission for a journal (probably Ecological Economics) is scheduled for the second half of 2015.

The second paper, entitled "Fertilizer adoption in the Brazilian Amazon: farm-level evidence" was completely re-written during Fellow's stay in Lancaster and several rounds of exchange with co-authors (including Dr. Parry and Dr. Barlow) have occurred since then. The result will be submitted to Agricultural Economics at 14 January 2015 at latest.

2.2 Paper on fire policy

In May 2014 the Fellow visited the Brazilian institution responsible for fire prevention and control policies, PREVFOGO, a bureau of the Federal Government's Institute for Environment and Resources (IBAMA). It was possible to start a partnership on technical support with two members of PREVFOGO who take part on the decision making process of national fire policy. The persons contacted agreed to take part, as co-authors, in the main output of fellowship, the fire policy paper are have being contributing since then.

During the stay in the UK, July-September 2014, several meeting were held with the goal of gathering contributions for the fire policy paper. The contributions of Nils Markusson, LEC lecturer, have to be highlighted. He has introduced the Fellow to the Technological Transitions Theory which is promising framework for interdisciplinary research on the alternatives to fire-based land management by Amazonian landholders.

Now turning to the paper itself, it aims to (1) identify the mechanisms (processes) that generate fires in rural areas of Brazilian Amazon, focusing on agricultural sources and (2) identify the best entry points to be explored by public policy with the aim of reducing frequency and extent of fires. Besides the goal of content just described, the production of the paper has two additional objectives related to the process through which it will be conducted. First, the process will be interdisciplinary, gathering social and environmental scientists. Second, not only scientific knowledge will be shared among co-authors and added to the paper, but also "policy knowledge" coming from the experience of PREVFOGO partners in a try to create a communication channel between the institution and the researchers.

Currently, the policy paper is in a preliminary phase of data analysis and development of a computational (agent-based) model to simulate fire-generating mechanisms and entry points for policy.

Project principals, as well as Toby Gardner (Stockholm Research Institute) and Paul Young, (LEC) helped to build diagrams picturing the main explanatory variables behind the mechanisms perpetuating fires in Amazon. Expert opinion was collected in form of diagram sketches drawn by partners.

A sketch of the paper's scope and objectives was present in the seminar on Conservation and Development of the School of Geography and the Environment, University of Oxford, on September 23, 2014.

At early October, it was circulated to co-authors a 4 page proposal with the main topics of the meetings held with PREVFOGO and the principals of the project.

2.3 Meetings with researchers

Multiple meetings were conducted while in the UK and also in Brazil. To save space, meetings with the project principals Luke Parry, Jos Barlow and Nils Markusson, which were most frequent and followed the plans of the fellowship proposal, are suppressed.

- Diana Weinhold, project principal, London School of Economics. The three papers mentioned above were discussed in two meetings at July and September 2014. The wide array of inputs supplied can be condensed in three topics: (i) theoretical and econometric treatment of the fire-use decision by Amazonian landholders, (ii) support on the analysis of empirical results, (iii) objectives, methodology and structure of the fire policy paper;
- Tahia Devisscher, Stockholm Environment Institute at Oxford, PhD student on the ecology and socioeconomics of fire in Bolivia at the School of Geography and the Environment, Oxford University. Results achieved on fire research were shared and inputs to the fire policy paper supplied embraced (i) choice of explanatory variables, (ii) scientific question and structure of the paper;
- Paul Young, LEC. Brainstorming on how to link socioeconomic modelling of anthropic fire with large scale climate models was pursued in two meetings, with the participation of Jos Barlow (project principal). A partnership on co-modelling of anthropic fires was started;
- Toby Gardner, Stockholm Environment Institute. The three papers mentioned above were discussed with emphasis on the mechanisms behind the perpetuation of fires in Amazon.
- Helena França, Fellow's institution (UFABC), at São Bernardo, São Paulo state. Helena is an expert of remote sensing detection of fires and opportunities for co-authoring students, in the subject of the fellowship, were identified and will be tackled soon.
- A meeting at the Fellow's institution, UFABC, was held with the participation of David Tyfield, LEC researcher, Brian Garvey, researcher of Strathclyde University, UK and Leonardo Freire de Mello and Jeroen Klink from UFABC. Collaborative research opportunities were found and exchanges aimed at producing joint research projects are being conducted.

2.4 Data assembling

It was possible to access two databases from surveys with Amazonian landholders. The first, from SHIFT project, refers to the year of 2002 and captures 271 smallholders of Bragantina region, Pará state. The second was supplied by Petterson Valle, PhD student at the London School of Economics (supervised by Dr. Weinhold, principal of the project). It comprises 384 cattle ranchers of Rondônia state at 2013 and is has in-depth information on fire-free pasture management practices. On the papers mentioned above, the dataset still mainly used is the one collected as part of DI project # 17-023.

The only problem faced in the execution of the project is related with one of the datasets mentioned in the proposal, whose source is EMBRAPA São Paulo and comprehends the municipality of Machadinho D'oeste, Rondônia from 1986 to 2008. A subset of the data was examined and questions regarding fire use could not be found what makes the data not useful for the fire policy paper.

2.5 Planning of scientific visits to Amazon universities

A workplan for the research visit at the city of Santarém, Pará state, was approved by the University of West Pará (UFOPA, the acronym in Portuguese). This visit will be held in partnership with Amanda Estefânia (supported by DI project # 17-023), recently-hired as lecturer of UFOPA (previously at UEPA) and the objectives are (i) co-authoring, (ii) co-supervising of UFOPA's students, (iii) small field survey with Santarém smallholders and meetings with fire policy stakeholders, (iv) offer a short course on applied econometrics for the analysis of current socioenvironmental issues at rural Amazon.

Partners at the Federal University of Pará (UFPA), located at Belém, were also contacted and the visit at such institution was also planned.

3. Next Steps

- Conduct research visits at Belém and Santarém in Pará state, from 15th March to 30th April 2015;
- Conduct field work with smallholders and meetings with fire policy stakeholders at Santarém;
- Produce the fire policy paper, strengthening the links between co-authors and policy makers;
- Produce a paper in Portuguese, gathering the main results of the fellowship and submit it to a Brazilian review at July at latest;
- Organize restitution seminaries to diffuse the main outcomes of the fellowship (especially those related with fire policy) at Belém and São Paulo in July 2015;