



ECOFOR scientists voice their concerns over planned mining activities in Renca in high-impact media *By Jolana Hanusova*

The recent decision of the Brazilian government to open the vast area known as Renca (Reserva Nacional do Cobre e Associados) has provoked a reaction from environmental experts, including several ECOFOR researchers who have voiced their concerns in some of the most influential online information servers including BBC Brasil.

Joice Ferreira was quoted in the article which appeared in the Brazilian newspaper O Estadão which reported on the response to the government's initiative from Brazilian celebrities such as the model Gisele Bündchen or the singer Ivete Sangalo. Joice described the government's decision as 'catastrophic' as she believes that the mining will occur not only within the 30% of Renca as defined by the government, but it will also impact the surrounding protected areas.

BBC Brasil published a report on the situation entitled "A polêmica decisão de Temer de abrir uma área gigante da Amazônia à mineração" (Temer's polemical decision to open a vast area in the Amazon to mining). The article quotes several experts with knowledge and experience of working in the Amazon including Jos Barlow and Erika Berenguer. Erika expressed her belief that the impact of the deforestation caused by logging and fires resulting from the influx of people in the area will be even greater than the pollution caused by the mining. Jos points out that despite the government's guarantee that the mining will occur only in the designated areas, the decision will boost illegal mining, already happening in the area.

Following these two newspaper articles, the highly popular and influential blog The Conversation published a post authored by Jos, Erika, Joice, Alexander Lees and James Fraser. The article, entitled "Only local Amazonians can bring true sustainable development to their forest" puts the dispute around Renca into a broader political and socio-economic context and argues that despite the government's promises that the mining will boost the local economy, this is very unlikely to happen – just like it did not happen in Carajás, another mining site in the Amazon which remains one of the poorest regions not only in Brazil but on the whole planet.

The reasons why mining does not bring local development are several: the mining companies are either international or based in the Southeast of Brazil and most profits going to wealthy landowners, not reaching the lower social classes. Given this situation, what are the alternatives for local development? According to the article, the real value of the Amazonian forest goes beyond immediate financial profit and includes the diversity of animal and plant species and the capacity to mitigate climate change. It is this new perspective that needs to be adopted, whilst empowering the local communities to deliver sustainable development.

Links

O Estadão: Famosos se mobilizam nas redes contra decreto que extingue reserva na Amazônia <http://sustentabilidade.estadao.com.br/noticias/geral.famosos-se-mobilizam-nas-redes-contra-decreto-que-extingue-reserva-na-amazonia,70001950756>

BBC Brasil: A polêmica decisão de Temer de abrir uma área gigante da Amazônia à mineração <http://www.bbc.com/portuguese/brasil-41043853>

The Conversation: Only local Amazonians can bring true sustainable development to their forest <https://theconversation.com/only-local-amazonians-can-bring-true-sustainable-development-to-their-forest-83326>

From the field – Amazon

By Erika Berenguer

The dry season has come again and with it came the general concerns of more fires. Our burned plots experienced a spike in recruitment of pioneer species during the wet season, with the understory becoming extremely dense. However, tree mortality is still high in burned plots, creating large gaps like the one in the photo.



Our findings on air temperature patterns in the Santarem area

By Cleiton Silva de Sousa (Master Student from PPGRNA, UFOPA – PA) and Helber C Freitas (Department of Physics of Faculty of Science – UNESP, SP and Laboratory of Climate and Biosphere - IAG/USP, SP)

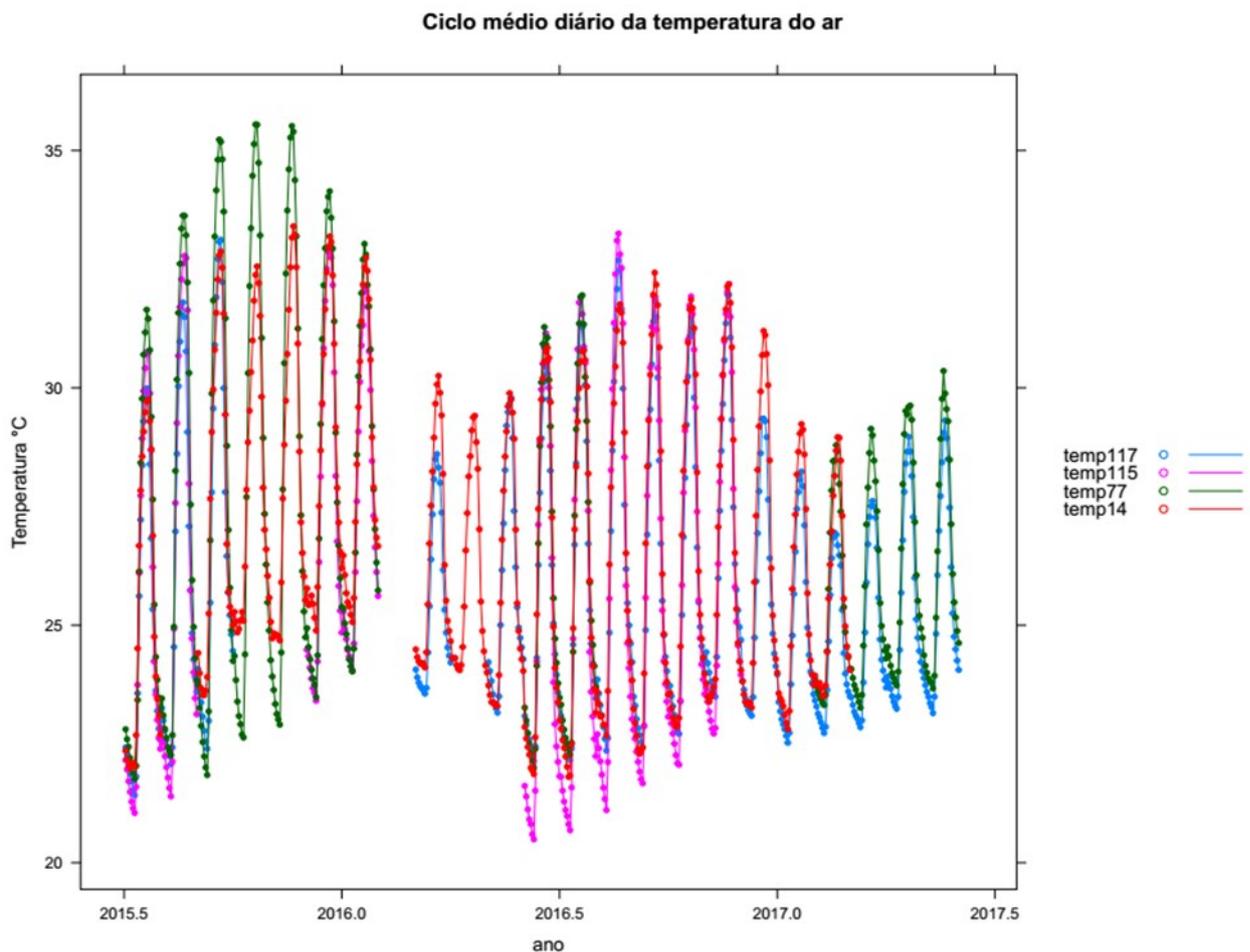
Getting fieldwork data can be problematic. Sometimes, fire occurs and the equipment is burnt. At other times the equipment can be vandalized or it can mal-function, which can lead to gaps in the datasets. Despite these unlucky occurrences, it is still possible to identify patterns and behaviors about for example air temperature evolution, with some efforts.

The figure below shows the seasonality of monthly average daily cycles of air temperature from four different places, each with a different land use. As explained in the figure legend, 117 (blue line) refers to the air temperature in the Tapajos National Forest, 115 (purple line) is air temperature over a harvested area which became a pasture, 77 (green line) is air temperature over an agricultural plantation and 14 (red line) is air temperature over a mixed matrix of vegetation, composed by regenerating forest, pasture and some small area with culture. The numbers also refer to the distances in kilometers, from Santarém, in direction to Cuiabá, via the BR 163 road.

From the graph it is possible to observe that the biggest air temperature amplitude (difference between the max and min temperatures) happened in 77 (plantation), which shows the highest values of temperature, up to 35,5 °C during the dry season (September) of 2015. On the other hand, 117 (forest) showed the smallest temperature amplitude, during the wet season (February) of 2017. There was no mean air temperature lower than 21 °C for all the places.

The graph shows a general reduction of maximum temperatures in 2016, probably because of more rain compared to the year 2015, which was a dryer year due to El Niño. In general, January, February and March are the coldest months in Santarém.

Despite the lack of data and with some effort, the daily cycles suggest that 77 (agricultural plantation) and 115 (harvested area turned into a pasture) have a closer behaviour and, in the same way, both “forested” areas develop the same yearly pattern of air temperature.



Legend: Monthly average daily cycles of air temperature for different places in Santarém, PA, Brazil. Each color represents a different land use: 117 refers to the Tapajos National Forest, 115 is over a harvested area which became a pasture, 77 is over an agricultural plantation and 14 is over a mixed matrix of vegetation, composed by regenerating forest, pasture and some small culture area. Data are from 2015, July to 2017, May. X axis represents 2 years of data in decimal partitioning.

El Niño fire-mediated changes in Amazonian biodiversity

By Filipe França

Using dung beetle and bird data sampled in 2010 and 2016 (six years before and six months after El Niño fires burned nearly half of our Amazonian plots), we assessed the impacts from El Niño ground fires on Amazonian biodiversity. Our preliminary analyses show large losses in dung beetle richness and biomass and substantial differences in the post-fire species composition of birds and beetle communities in forests burnt during El Niño.

The species composition of the bird communities sampled in forests burnt by the fires was different from the composition in the forests before the fire across all classes of the human disturbance range (undisturbed, logged and logged-and-burned).

The situation was different for the dung-beetle communities: the communities were significantly different only in undisturbed forests, whilst there were no major changes when comparing the species in the burnt forests with those from logged and logged-and-burned forests. This could be caused by the fact that specific beetle species which were present only in undisturbed forests were lost after fires. The logged and logged-and-burned forests probably had specific beetle species filtered by previous degradation and were inhabited by much more generalist species. Such generalist species probably did not change too much after fires in previously human-disturbed forests. The same processes would explain why bird species composition changed significantly between burnt and unburnt forests for all classes of disturbance.

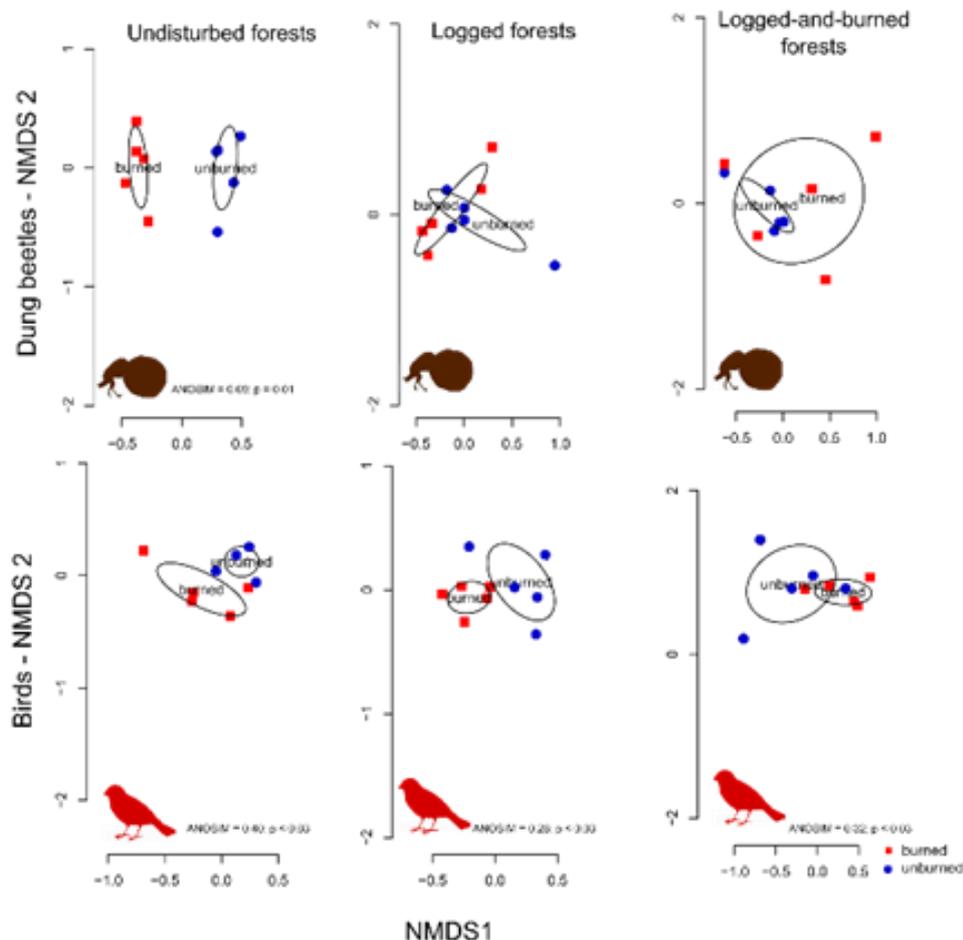


Figure 1. Differences in species composition from dung beetle and bird communities sampled at Amazonian primary forests unburned and burned during the 2015-16 El Niño fires in the Santarém region. Non-metric multidimensional scaling (NMDS) was based on Bray-Curtis index, with 1000 permutations. Ordinations were made separately for each forest class along our gradient of previous forest degradation.

Presentation of necromass stocks in IX Colombian Botanical Congress

By Luis Carlos Quimbayo Guzmán

IX Colombian Botanical Congress was held in the city of Tunja between July 31 and August 3 of 2017. I participated at the event in three different ways. I was invited by the organizers to be a reviewer of the abstracts submitted on the topic of vegetal ecology. I also attended the pre-congress course “Tropical Forests and Climate change”. As part of the course, we did a field trip to a private reserve called Rogitama,



in the Andean Montane Forest, in Arcabuco (picture). And finally, I gave an oral presentation entitled “Necromass stocks in Brazilian Atlantic Forests along a successional gradient” (picture).

Short abstract of the presentation: Necromass stores a fraction of the carbon (C) stocked by forests. In this study, necromass (dead wood + fine litter) was quantified along a successional gradient of Montane Atlantic Forest on years 2015 and 2016. Downed dead wood stocks increased with successional stage. Early successional forest presented the lowest fine litter stocks in 2015, a year with normal climatic conditions. In 2016, after a freezing period in which the temperature dropped to -5°C, early successional forest presented a 65% increase in fine litter stock. Other successional stages did not present such pattern, which suggests higher susceptibility to freeze related defoliation in the early stage. The extended abstract of my work will be published in the journal “Ciencia en Desarrollo” (ISSN: 0121-7488. Electronic-ISSN: 2462-7658).

Reporting on the ATBC conference

(Mexico, July 2017) By Erika Berenguer

Last July a number of ECOFOR members presented their work at the ATBC meeting in Mexico. It was a great venue to debate how human-driven disturbance may be interfering with ecological processes, such as carbon cycling, and biodiversity conservation. There were talks by Cristina Banks-Leite, Erika Berenguer, Filipe França, Luiz Aragão and Yadvinder Malhi.



Congratulations to Julia Barreto, who successfully defended her dissertation on how herbivory rates vary along a human-disturbance gradient. Parabéns, Julia!

I hope you've enjoyed the read; more news in 2 months' time! Any suggestions or comments welcome - please get in touch with me at j.hanusova@lancaster.ac.uk. Jolana