

**Newsletter 6: July 2016** [p4ges](#) is a three year project involving a consortium of eleven institutions in the UK, Madagascar, the USA, the Netherlands and Switzerland. Our aim is to influence the development and implementation of international ecosystem service payment schemes in the interests of poverty alleviation. The project is focused in the eastern rainforests of Madagascar in a REDD+ pilot project known as the Corridor Ankeniheny Zahamena. p4ges is funded by [espa](#) (Ecosystem Services for Poverty Alleviation). Regular updates are also posted on our [website](#).

**Progress in research activities**

All field work for this project is now complete and data sets are being cleaned and submitted to open access archives. The 1<sup>st</sup> archived dataset is: Bidaud, C., Jones, J.P.G., Schreckenberg, K. and Rabearison, M. (2016). *Household survey investigating the social impact of biodiversity offset: a case study from Madagascar*. Colchester, Essex: UK Data Archive. [10.5255/UKDA-SN-852341](#)

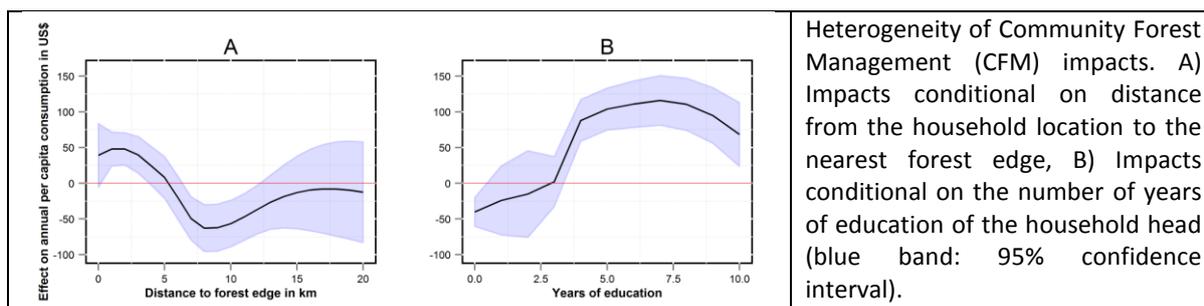
**Research results: highlights**

**Impact of Community Forest Management on human economic well-being across Madagascar.**

Rasolofoson, R.A, Ferraro, P.J., Ruta, G., Rasamoelina, M.S., Randriankolona, P.L., Larsen, H.O., & Jones, J.P.G. (2016). *Conservation Letters*. Published July 2016. For media coverage please see [here](#).



Community Forest Management (CFM) devolves forest management to local communities to achieve conservation and human well-being goals. Yet the evidence for CFM’s impacts is mixed and difficult to interpret because of inadequate attention to rival explanations for the observed empirical patterns. In a national-scale analysis in Madagascar that carefully considers these rival explanations, we estimate CFM impacts on household living standards, as measured by per capita consumption expenditures. The estimated impact is positive, but small and not statistically different from zero. However, we can statistically reject substantial negative impacts (which others have suggested may exist). The estimated impacts vary conditional on household education and proximity to forests: they are more positive and statistically significant for households closer to forest and with more education. To help improve CFM design, scholars and practitioners should anticipate heterogeneity in CFM impacts and work to better characterize them, theoretically and empirically.

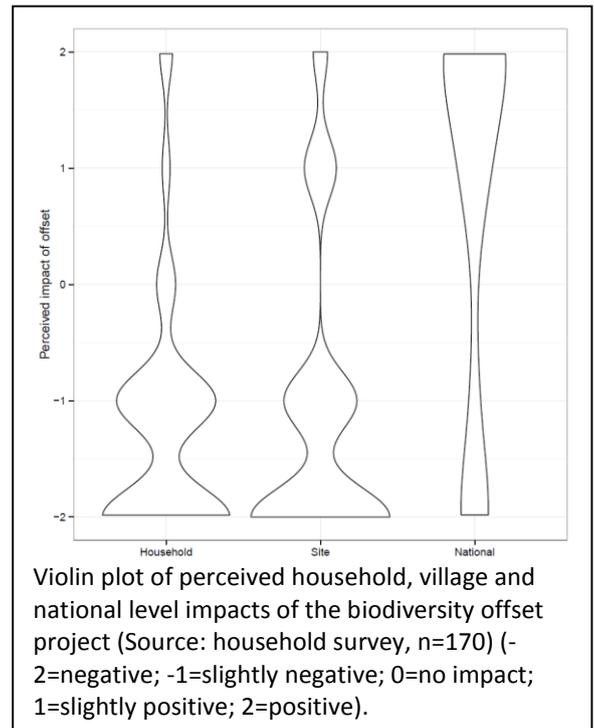


Heterogeneity of Community Forest Management (CFM) impacts. A) Impacts conditional on distance from the household location to the nearest forest edge, B) Impacts conditional on the number of years of education of the household head (blue band: 95% confidence interval).

### The sweet and the bitter: intertwined positive and negative social impacts of a biodiversity offset.

Bidaud, C. Schreckenber, K., Rabeharison, M. Ranjatson, P. Gibbons, Jones, J.P.G. In review with Conservation & Society.

Major developments, such as mines, will often have unavoidable environmental impacts. In such cases, investors, governments, or even a company's own standards increasingly require implementation of biodiversity offsets (investment in conservation with a measurable outcome) with the aim of achieving 'no net loss' or even a 'net gain' of biodiversity. Where conservation is achieved by changing the behaviour of people directly using natural resources, the offset might be expected to have social impacts but such impacts have received very little attention. Using the case study of Ambatovy, a major nickel mine in the eastern rainforests of Madagascar and a company at the vanguard of developing biodiversity offsets, we explore local perceptions of the magnitude and distribution of impacts of the biodiversity offset project on local wellbeing. We used both qualitative (key informant interviews and focus group discussions) and quantitative (household survey) methods. We found that the biodiversity offsets, which comprise both conservation restrictions and development activities, influenced wellbeing in a mixture of positive and negative ways. However, overall, respondents felt that they had suffered a net cost from the biodiversity offset. There is concern that the benefits from the development activities do not compensate for the costs of the conservation restrictions, that those who bear the costs are not the same people as those who benefit, and that there is a mismatch in timing between the immediate restrictions and the associated development activities which take some time to deliver benefits. These issues matter both from the perspective of environmental justice, and for the long term sustainability of the biodiversity benefits the offset is supposed to deliver.

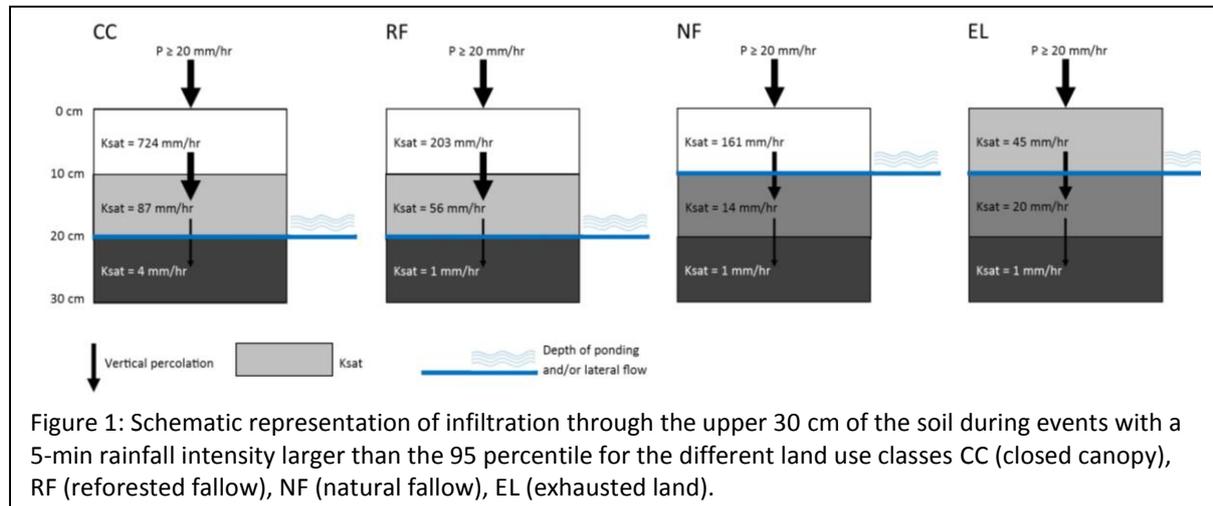


### Rebuilding ecosystem functioning after deforestation: Soil infiltration capacity and preferential flow pathways under different land uses in Eastern Madagascar.

B.W. Zwartendijk, H.J. van Meerveld, C.P. Ghimire, M. Ravelona, L.A. Bruijnzeel, J.P.G. Jones. Soon to be submitted.

Despite the importance of water for societies and ecosystems across the tropics, there is comparatively little understanding of how the hydrological functioning of soils is affected by repeated vegetation clearing and burning in the context of swidden agriculture, the extent to which this can recover following land abandonment and vegetation regrowth, and whether active restoration speeds up recovery. Interviews with local land users and indicator plant species were used to reconstruct the land use history of 19 different sites in upland eastern Madagascar representing four land-use categories (closed-canopy forest, 5–7-year-old fallows that had received active reforestation; similarly aged naturally regenerating fallows, and highly degraded fire-climax grassland). Surface- and near-surface (down to 30 cm depth) saturated soil hydraulic conductivities ( $K_{sat}$ ) as well as the dominant flow pathways for infiltration and percolation were. Surface  $K_{sat}$  in the forest was very high (median: 724 mm h<sup>-1</sup>) and infiltration was dominated by flow along roots and other preferential flow pathways (macropores), whereas  $K_{sat}$  in the degraded land was low (median: 45 mm h<sup>-1</sup>) with infiltration being dominated by near-surface matrix flow. Both surface- and near-surface  $K_{sat}$  had increased significantly after 5–7 years of forest regrowth (median values of 161 and 203 mm h<sup>-1</sup> for aided and natural regeneration, respectively) but it remains unclear from the present results whether active replanting decreases the time required to restore soil hydrological functioning or not. *Synthesis and application:* There is remarkably little evidence on the degree to which soil hydrological functioning is affected by

tropical deforestation, regrowth, and reforestation efforts. A major challenge is to disentangle the influence of land management from other influences in swidden agricultural systems that typically vary at a fine spatial scale. The present results provide new evidence of the impact of forest clearing and regrowth on soil infiltration behaviour but additional observations are needed to more fully understand the rates at which soil hydrological functioning can be rebuilt through assisted or natural forest regeneration.



## Progress in impact activities

**Relationship with stakeholders at local scale:** Ours is a complex project which can be difficult to explain. The whole p4ges team came together in the 1<sup>st</sup> part of this year to agree our most important messages from the project and discuss how best to communicate our research to a general audience. The result is a 20 page booklet, illustrated by the cartoonist Eric Andriantsialonina, which we are distributing to our stakeholders. It is also available to download from our website (in [English](#) and [Malagasy](#)).



Manampy amin'ny fampihenana ny fahantrana ve ny tombon-tsoa azo avy amin'ny fiarovana ny natiora?

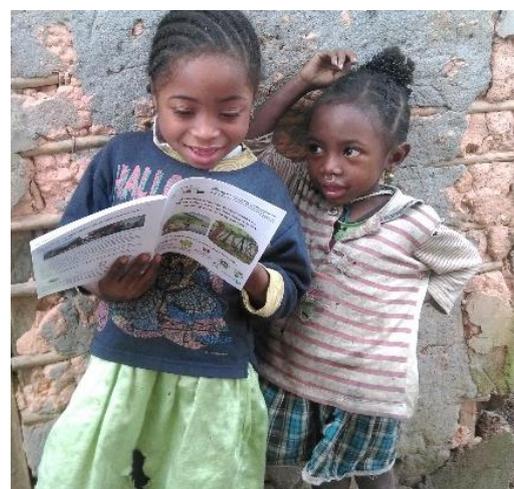


Vokatry ny tetik'asa fikarohana p4ges (2013-2017)



During the last two months our teams have been busy with the process for returning to all the communities where we worked to return our results. We have run community feedback events in seven villages in three fokontany (Ampahitra, Ambodiavohangy and Antevibe) which were attended by a total of more than 400 adults (we didn't count the children). The community feedback events include presentations, videos and demonstrations of a hydrology experiment, we also give detailed reports including village-level questionnaires data to community leaders. All households attending received a copy of the booklet. These went down really well.

To find out more about our community feedback events read this [blog](#), or watch this video in [Malagasy](#) or this one in [English](#). The community feedback will continue until September this year.



We received a request from the mayor of Andasibe asking if we may be able to donate the solar equipment used to power our hydrological experiments to the local hospital as they struggle with

power and often find their staff having to deliver babies in the dark. The team were delighted and [completed the installation](#) at the hospital in April this year. We were recently contacted by the lead doctor in the hospital to thank the project and explain what a difference this reliable source of power is having.



**Relationships with stakeholders at the national scale:**

Our partners Madagasikara Voakajy had a very well-attended stall at the national World Environment Day celebrations in Antananarivo where some of the results of p4ges were presented (see here for a [blog](#)). We continue to engage with national level processes surrounding REDD+ and protected areas in Madagascar.

**Relationship with stakeholders at the international level:**

We had a very helpful meeting with our international advisory committee in early May. We presented some of

our research results and discussed appropriate venues for sharing our results in a way which can maximize our impact.

Some of the p4ges team working on social safeguards made a formal response to the World Bank consultation on Social and Environmental safeguards. Details of our response and a link is available [here](#).

In June 2016, Julia Jones was asked to present some of the results of p4ges in a World Bank webinar discussing the planned new investment in landscape scale conservation in Madagascar and Mozambique. She was asked to present on '[The links between conservation and poverty alleviation: evidence from Madagascar](#)'. She used the opportunity to highlight p4ges research on the impact of community forest management and human well-being, the local costs of conservation, the importance of tenure in conservation in Madagascar, and emphasized the potential value of the improved [waterworld and co\\$ting nature tools](#) for helping them plan their new investment.

Please look at our bilingual [website](#) regularly for updates. If you have any questions about the project please don't hesitate to get in touch and we will ensure your enquiry goes to the most suitable person ([info@p4ges.org](mailto:info@p4ges.org))