

Annual Report 2014



Biodiversity Research
Consortium Brazil-Norway

Contents

1. Introduction and background
2. First meetings of the BRC board and scientific committee, March 2014
3. Visit to Paragominas and the Hydro mining site, March 2014
4. The BRC secretariat
5. BRC meetings in Belém, June 2014
6. Four pilot projects initiated
7. Workshop in Mosqueiro, August 2014
8. Second meeting of the BRC scientific committee, August 2014
9. BRC logotype decided
10. Promoting student exchange in Brazil and Norway
11. BRC presentation at EU meeting in Belém, September 2014
12. Kick-off workshop in Paragominas, November 2014
13. Networking and fundraising
14. Internal and external communication
15. Results

All photos in this report can be used freely. Please state photographer and institution.

1. Introduction and background

In November 2013, the Biodiversity Research Consortium Brazil-Norway (BRC) was established. The consortium carries out research on biodiversity and climate change issues in the Brazilian Amazon, and comprises the Federal University of Pará (UFPA), the Emilio Goeldi Museum of Pará (MPEG), the Federal Rural University of the Amazon (UFRA), the University of Oslo (UiO) and the Norwegian mining and aluminium company Norsk Hydro (Hydro).



BRC researchers during a field visit at the Paragominas mining site in November 2014. Photo: Victor Barbosa, Hydro.

The BRC is the result of a Hydro initiative. In 2012, not long after taking over Vale's aluminium operations in Pará, Hydro approached the Natural History Museum (NHM) at the University of Oslo. NHM was given the responsibility to facilitate the creation of a research cooperation based on the recommendations in the Hydro technical report "Reforestation and Wildlife Program - HYDRO Paragominas, Pará, Brazil" by Salomão et al. (2012).

In the Cooperation Agreement, signed in November 2013, the main aim of the cooperation is defined as "to develop research activities both applied and basic, and build a strong base of outputs in biodiversity and climate knowledge" among the partners. The consortium shall also contribute to "increased university – industry partnership". In addition to research projects and joint publications, "graduate education (master and PhD) will be important elements of the consortium activity."

2014 was the consortium's start-up year. The main tasks were to establish a functional structure and to obtain funding for specific research projects. By the end of the year, the BRC was fully operational with the consortium architecture in place and three projects initiating.

This report is prepared by the BRC secretariat. In chronological order, it presents the consortium's activities carried out in 2014. In the final sections it summarizes the networking, fundraising and communication activities, as well as achieved results. All the major BRC activities are mentioned, but we refer to the specific BRC event reports for further details.

2. First meetings of the BRC board and scientific committee, March 2014

According to the Consortium Agreement, the board consists of one representative from each member institution. In 2014, the board members have been: researcher Gracialda Ferreira (UFRA), research director Marluca Martins (MPEG), professor Hudson Silva (UFPA), head of HSE Domingos Campos (Hydro B&A) and research director Fridtjof Mehlum (UiO). In March, the board met for the first time at the UFPA campus in Belém.

At its first meeting the board constituted itself and elected Gracialda Ferreira as chair. It decided the name of the consortium: Biodiversity Research Consortium Brazil-Norway (BRC). It further discussed several questions regarding mandate, organization and communication. The board also decided to delegate the scientific and financial decisions to the BRC scientific committee.



UiO professor Øystein Wiig preparing one of the 30 camera traps used to monitor ground-living mammals at the Paragominas mining site, including tapir and jaguar. This camera is deployed in an area that was replanted in 2009. Photo: Ana C. Ribeiro, Haztec.

The scientific committee consists of two representatives from each of BRC's member institutions. In 2014, the members of the committee have been: Researchers Tamara Thais and Norberto Noronha (UFRA), researchers Lourdes Ruivo and Rogerio Silva (MPEG), professors Leonardo Sena and Hudson Silva (UFPA), environmental manager Bernt Malme (Hydro corporate), head of HSE Domingos Campos (Hydro B&A), and professor Karl-Henrik Larsson and research director Fridtjof Mehlum (UiO).

In March 2014, the committee met for the first time at the UFPA campus in Belém. After constituting itself, the committee discussed the mandate and the organization before entering issues as project priorities and funding, internal as well as external. Fridtjof Mehlum (UiO) was elected head of the committee.



Researcher Fernando C. Filho (MPEG) collecting insects from a yellow tray trap in one of the remaining forests at the Hydro mining site in Paragominas, March 2014. Photo: Torkjell Leira, UiO.

UiO had suggested the following set of criteria for evaluating and prioritizing the projects in the consortium's first year, and they were adopted by the committee:

1. Projects should fall into one of the following three categories: a) biodiversity surveys and monitoring, b) greenhouse gas fluxes and carbon footprint related to bauxite mining operations, c) restoration of tropical forests, including restoration of biodiversity and forest soils.
2. Projects should be based on joint research including two or more consortium partners.
3. Projects should mainly be carried out in the municipality of Paragominas.
4. Projects should have a high academic impact, both in terms of scientific publications and increased qualification of students and researchers.

Six project proposals and three pilot projects were presented to the committee. On the Hydro representatives' recommendation, three out of the six project proposals were selected for further elaboration, and later submitted to Hydro for potential funding.

3. Visit to Paragominas and the Hydro mining site, March 2014

After the board and committee meetings, 15 BRC researchers went to Paragominas for an in-depth two day visit to the Hydro mine. Six of the researchers stayed for another three days to carry out initial studies and start up pilot projects.

During the stay, BRC coordinator Torkjell Leira and Hydro public relations officer Mrs. Themis Solange met with Paragominas mayor Mr. Paulo Tocantins and Paragominas environmental secretary Mr. Felipe Zagalo in order to present BRC and suggest future cooperation.

4. The BRC secretariat

The Hydro – UiO agreement establishes that the BRC secretariat is hosted by the Natural History Museum. The secretariat is responsible for organizing the consortium’s activities and for preparing the meetings of the board and the scientific committee. It is also responsible for coordinating internal application processes, external funding initiatives as well as internal and external communication. In 2014 the secretariat has been staffed by human geographer Torkjell Leira.



Meeting with Paragominas mayor and environmental secretary in March. From left: Paragominas environmental secretary, Mr. Felipe Zagalo, Hydro analyst of institutional relations, Ms Themis Solange, Hydro Mayor, Mr. Paulo Tocantins and BRC coordinator, Mr. Torkjell Leira.

5. BRC meetings in Belem, June 2014

In June, the BRC secretariat organized a series of meetings in Belém to discuss the three project proposals selected by the committee. In a joint BRC meeting at MPEG, Hydro explained that the projects responded well to the company’s core interests, and the discussions clarified questions regarding time frame and HSE requirements. The question of funding was postponed.

6. Four pilot projects initiated

During the first semester of 2014, four BRC pilot projects started on the Hydro mining site in Paragominas. The first aimed at surveying the existence of lichens in the Hydro area and was coordinated by Dr. Einar Timdal (UiO). The second pilot project, mapping the diversity of wood-decaying fungi, was coordinated by professor Karl-Henrik Larsson (UiO). Connected to this pilot, two PhD students from MPEG and UiO, carried out fieldwork at the Hydro Paragominas site in Paragominas in November 2014.



Four pictures from the camera trap pilot project. Clockwise from upper left: Giant anteater, tapir, jaguar and ocelot.

The third pilot project, camera trap monitoring of large ground-living mammals, was coordinated by Professor Øystein Wiig (UiO) with significant Hydro support. It deployed 30 camera traps in a grid throughout the Hydro property in order to map the occurrence of large, red-listed mammals as tapir, giant anteater, ocelot and jaguar.

The fourth pilot project was a cooperation between MPEG and UiO and consisted of surveying insects in different areas on the Hydro property. The pilot's point of departure was the lack of information about insects in the original environmental studies carried out by Vale and in the ongoing monitoring efforts by Hydro.

7. Workshop in Mosqueiro, August 2014

In August, 32 BRC researchers, professionals, students and invited guests met for a two day workshop in Mosqueiro, Pará. The event had two pillars: 1) Consolidation of the consortium and the BRC project proposals. 2) New scientific and political input.

The first pillar saw the presentation of the three proposals selected by Hydro in the March 2014 scientific committee meeting, other project proposals as well as progress reports from ongoing pilot projects. In addition, several masters and PhD projects related to the BRC activities were presented.



The BRC scientific committee and invited researchers in Mosqueiro, Pará, during the second meeting of the scientific committee in August 2014. Photo: Torkjell Leira, UiO.

The second pillar included speeches by Paragominas environmental secretary Felipe Zagalo, reforestation expert Dr. Wilson Marcelo Silva (LERF/USP) and soil and vegetation researcher Dr. Carlos Schaefer (UFV).

For further details, see the Mosqueiro workshop programme and list of participants as annexes to this report.

8. Second meeting of the BRC scientific committee, August 2014

The scientific committee gathered for its second meeting in Mosqueiro, Pará in August. Among the important outcomes was Hydro approving funding to three projects selected by the committee:

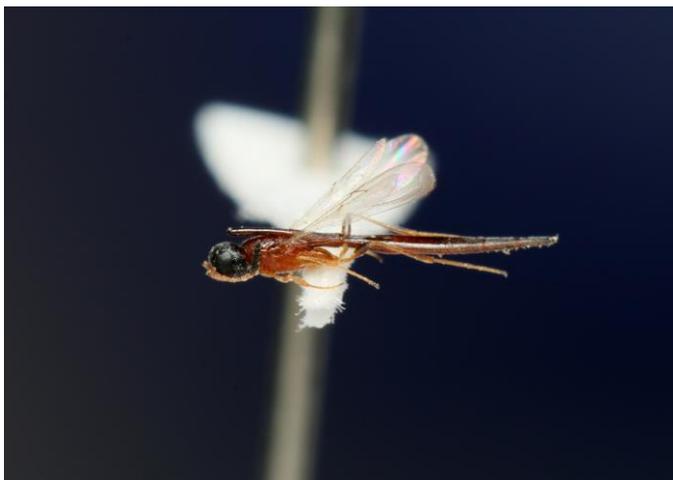
- BRC 01/14 Arbuscular mycorrhizal fungi in natural areas and areas in restoration after bauxite mining in Pará, coordinated by UFPA.
- BRC 03/14 Biodiversity, propagation of plant species and restoration of degraded areas from bauxite mining in the southeast region of Pará, coordinated by UFRA.
- BRC 04/14 Entomology Survey and Bioindicators for Biodiversity Monitoring at Mineração Paragominas SA, Pará, Brazil, coordinated by MPEG.

The project BRC 02/14 Emissions, originally one of the three indicated by Hydro, was postponed due to the project coordinator resigning from BRC activities. Project 04/14 Entomology came in as a substitution.

At the committee meeting, Hydro also supported the proposal to elaborate a synthesis report in English of all previous biodiversity reports commissioned by Vale and Hydro related to the mining activity in Paragominas. The committee further decided to seek external funding for a common project and discussed the functioning of the secretariat and the information flow between consortium partners. The committee also adopted the proposal for a homepage, to be elaborated by the Goeldi Museum's ICT department.

9. BRC logotype decided

In September, the BRC board and scientific committee elected the BRC logotype by e-mail voting. The logotype was designed by the same team that developed the BRC homepage. The BRC symbol - the figure over the letters BRC - was inspired by a tiny wasp (approx. 3 mm) found at the Paragominas mining site in March 2014 by researchers from MPEG and UiO. Note the peculiar outgrowth on top of its neck. The first examinations suggest that the wasp is a new species, still not known to science, belonging to the genus *Probarryconus*.



The tiny wasp that served as inspiration for the BRC logotype. Photo: César Favacho, MPEG.

10. Promoting student exchange in Brazil and Norway

BRC has on several occasions prepared for and promoted student exchange. In February, the secretariat participated in a visit to Hydro's rolling products plant in Holmestrand, close to Oslo, with three Brazilian exchange students from Pará. One of them, a graduate student from UFRA, is now connected to the BRC research project BRC 03/14 on restoration, coordinated by UFRA, and has on several occasions assisted the BRC secretariat during events in Brazil.



UFRA student André Carvalho, former Science without Borders student in Oslo, joined the UiO / BRC presentation at UFPA in September. Approximately 80 students and staff members showed up. Photo: Torkjell Leira, UiO.

In September, BRC coordinator Torkjell Leira presented exchange opportunities with UiO and Norway at specific meetings for more than 120 students and staff at MPEG, UFPA and UFRA. In Norway the same month, he presented the BRC cooperation and research for the 40 Brazilian students in Oslo through the Science without Borders program.

11. BRC presentation at EU seminar in Belém, September 2013

On invitation from the Royal Norwegian Embassy, BRC held a 60 minute presentation on an EU seminar hosted by UFPA in September. The event, named “Amazon Forest: Environment and Climate Change – Research Cooperation and Social Corporate Responsibility”, was part of the EU Tour of Brazil promoting research and innovation cooperation between Europe and Brazil. (See: www.b-bice-plus.eu/event/tour-of-brazil-amazon-forest/)

BRC coordinator Torkjell Leira presented the consortium and the University of Oslo, and Selma Ohashi (UFRA), Marluca Martins (MPEG) and Leonardo Sena (UFPA) presented their respective institutions. At the same event, Hydro Paragominas director Silvio Porto presented the company’s CSR and environmental programs. The event was an excellent opportunity to meet relevant actors and institutions in Pará and Brazil. Of particular interest were the Amazon Fund director, Juliana Santiago, and the director of the Pará state Green Municipalities Program, Justiniano de Queiroz Netto.

12. Kick-off workshop in Paragominas, November 2014

In November, BRC held a two-day kick-off seminar for 39 BRC researchers, professionals and students at the UFRA campus in Paragominas. The main objective was to achieve a good start for the BRC projects and necessary coordination between them. In addition, BRC offered special lectures for staff and students at UFRA. During the workshop we organized a visit to the mining site, and several BRC researchers stayed behind after the workshop to continue their fieldwork.



Taking soil samples. Danielle Karla Silva (UFPE) and Ulisses Albino (UFPA), researchers from the project BRC 01/14 Mycorrhizal fungi, during fieldwork at the kick-off workshop in Paragominas. The preliminary report on bacteria shows consistent differences between soils in areas subject to different restoration methodologies. Photo: Torkjell Leira, UiO.

The workshop also served the purpose of maturing new project proposals. A series of presentations were made by researchers and PhD students from the academic members of BRC. After the presentations and discussions, the secretariat recommended all interested researchers to prepare specific project proposals for the scientific committee in March 2015.

The synthesis report, mentioned in point 6, was also presented and discussed. It was decided that the synthesis report should be presented for the scientific committee in March 2015.

For further information, see the Paragominas workshop programme and list of participants as annexes to this report.

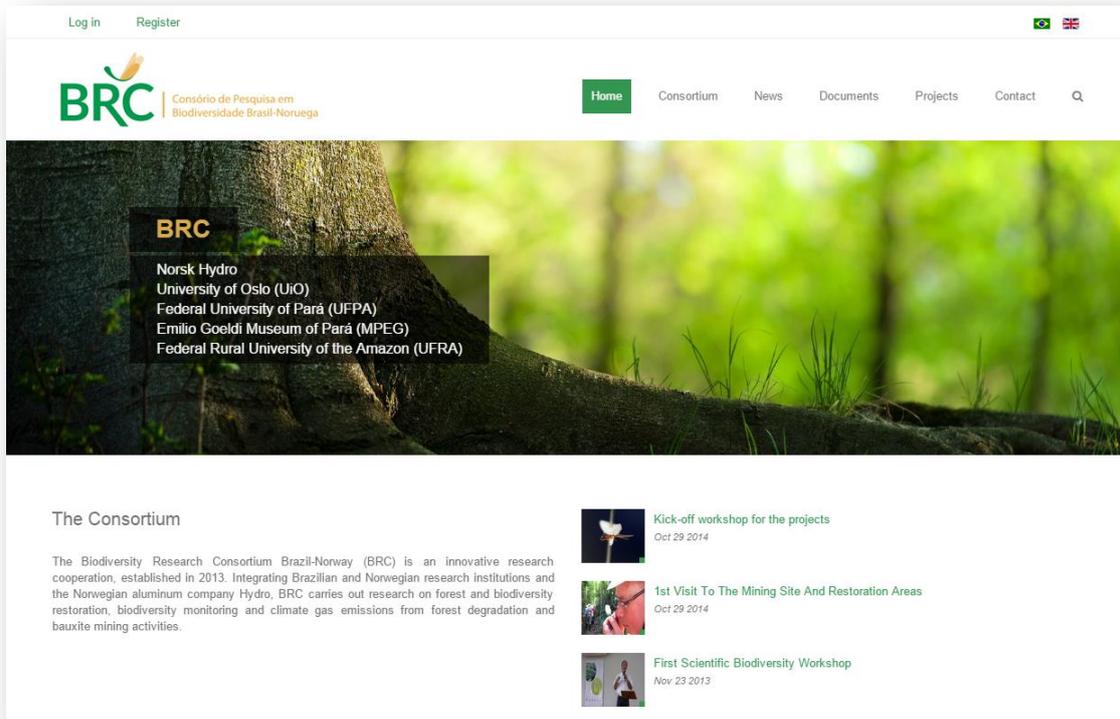
13. Networking and fundraising

BRC has systematically used networking opportunities in Brazil and Norway to promote the BRC and the Brazil-Norway cooperation. The single most important event in 2014 was the EU seminar in Belém in September, mentioned in point 11.

We have also arranged and participated in specific meetings with Brazilian and Norwegian NGOs, such as Instituto Socioambiental (ISA), Imazon and Rainforest Foundation Norway (RFN), the Pará state Green Municipalities Program (PMV), as well as with Brazilian and international scientists. These meetings have been crucial to get a better understanding of the issues and a better overview over relevant actors and potential funding sources.

14. Internal and external communication

The BRC homepage is now up and running. Developed by the Goeldi Museum's ICT department, it contains basic information about the consortium and the projects developed. The site is hosted by the Goeldi Museum and can be found here: brc.museu-goeldi.br



The new BRC website: brc.museu-goeldi.br

Internal communication in 2014 has mostly consisted of e-mail exchanges initiated by the secretariat. There is still a lack of a common information base. The BRC homepage is planned to answer to these challenges and will be expanded with more content and functions in 2015.

Both UiO and Hydro has presented the research consortium on the web. Hydro made a big feature article in July, see: www.hydro.com/en/Press-room/News/Archive/2014/Biodiversity-in-Brazils-rainforest/

UiO has permanent and updated information in English and Norwegian on their homepage, see: www.nhm.uio.no/english/research/projects/biodiversity-in-the-amazon/

In the period March-June, Norwegian broadcaster NRK, the governmental public broadcasting company, sent a series of programs on national radio about the Amazon rainforest, UiO research and Hydro mining operations in Pará.

15. Results

2014 was a productive year. The results are most evident in terms of BRC architecture and mutual trust. During the year, BRC has matured from a formal agreement into a fully operational research consortium. The board and scientific committee are constituted and consolidated, the first projects have achieved funding and are initiated, and the internal information flow is satisfactory. Also important, a high degree of mutual trust has been built between the member institutions. This is achieved through frequent events and personal encounters, and is clearly shown in the open discussions about the environmental status at the MPSA, the BRC projects and funding.



*Catching insects!
Entomologists Lars
Ove Hansen (UiO),
Rogerio Silva (MPEG)
and Geir Sølvi (UiO)
from the project BRC
04/14 Entomology
Survey and Bio-
indicators in front of a
malaise trap used to
catch flying insects.
Photo: Torkjell Leira,
UiO.*

The specific research projects are still in the initial phase, and have not yet yielded concluding results. One preliminary assessment of the bacteria environment in soils in the different restoration methods has been produced and distributed. The first progress reports will be prepared for the scientific committee meeting in March 2015.

The BRC has also become a relevant actor being noticed by other players in academia, government and civil society in Brazil and Norway. We appreciate that the Norwegian Embassy in Brazil has shown great interest in and been supportive to the consortium. The obtained status is the first step for achieving scientific collaborations with other prestigious institutions, as well as fundamental for achieving funding from external sources. The BRC architecture, trust and status, together with the researchers' expertise, are already translated into several applications for external funding.



PhD student Adriene Soares (MPEG), EcoFlorestal employee Francisco Araújo and PhD student Kadri Runnel (UiO) during research on fungi at the MPSA. Photo: Torkjell Leira, UiO.

As to the goal “increased university – industry partnership”, BRC made considerable progress in 2014. In addition to the consortium activities, the universities and museums have gained a better understanding of the operations and strategies of Hydro and other companies in the bauxite business. Hydro has come much closer to all the academic partners, and broader cooperation agreements are discussed with several.

The goal of including master and PhD students is fulfilled to a satisfactory level. Students are involved in two out of three funded research projects. However, since the projects are still in the initial phase, there are no theses concluded yet. The number of exchanges between UiO and the institutions in Pará is still low (only one in the academic year 2014/2015), but we hope efforts in 2014 will help increase the number in 2015.

The language barrier Portuguese / English is a challenge. The Norwegian researchers do not speak Portuguese, and some of the Brazilians do not speak English. The consortium is, however, managing to overcome this barrier and execute joint research. We hope our cooperation will stimulate staff and students of all Brazilian partners to improve their English skills.

In sum, BRC considers the progress in 2014 as satisfactory.

Oslo, 25 April 2015

Gracialda Ferreira
Head of the BRC board