Darwin Initiative Annual Report

Important note:

To be completed with reference to the Reporting Guidance Notes for Project Leaders: it is expected that this report will be about 10 pages in length, excluding annexes

Submission Deadline: 30 April 2011

1. Darwin Project Information

Project Reference	17-029
Project Title	Berbak to the Future; Harnessing carbon to conserve biodiversity
Host Country/ies	Indonesia
UK contract holder institution	Zoological Society of London (ZSL)
Host country partner institutions	Indonesian Department of Forestry (PHKA); Indonesian Institute of Sciences (LIPI); Berbak National Park (TN Berbak); the local government forestry department (Jambi BKSDA); provincial government (Dinas Kehutenan); local NGOS Walestra, Gita Buana and Pinse
Other partner institutions	Environmental Resource Management (ERM)
Darwin Grant Value	£298,068
Start/end dates of project	1 April 2009 – 31 March 2012
Reporting period (eg Apr 2010 – Mar 2011) and number (eg Annual Report 1, 2, 3)	1 April 2010 – 31 March 2011 Annual Report no. 2
Project Leader name	Laura D'Arcy
Project website	http://www.zsl.org/conservation/regions/asia/indonesia/ Pictures hosted at http://picasaweb.google.com/zslindonesia
Report authors, main contributors and date	Laura D'Arcy, Dr Agus Suratno and Sarah Christie, 22 April 2011

2. Project Background

The Berbak ecosystem in eastern Sumatra, Indonesia, comprises about 240,000 hectares of predominantly peat swamp forest. It is listed as a Ramsar site and is important habitat for a range of critically endangered wildlife species, including the Sumatran tiger, false gharial and a range of migratory and sedentary bird species. About two-thirds of the area is classified as conservation forest and protection forest, and one-third is allocated to production forest. The production forest is divided into two concessions; the first concession is controlled by logging company PT Putra Duta while the second is currently vacant. A range of local communities rely both officially and unofficially on forest resources.

Over the past twenty years the Berbak ecosystem has experienced massive forest loss, threatening wildlife and local livelihoods as well as releasing huge volumes of carbon. This project aims to conserve the Berbak ecosystem by creating financial incentives – through emerging carbon markets – to stop forest clearance and degradation. If successful, we hope this project will provide a model for how conservation areas can access carbon markets to finance their survival. The Darwin grant forms the core of the project, but supplementary funding also comes from smaller donors interested in tiger conservation and in integrating social values into the larger project. (See Appendix 1 for a map of the area)

3. Project Partnerships

The Zoological Society of London (ZSL) remains the UK lead institution and activities in Indonesia are implemented by ZSL's Indonesia Programme, which is registered with the Indonesian government as a conservation NGO. ZSL's head office in London provides oversight through the East and South East Asia Programme and contributes the salary of the principal Country Coordinator for ZSL Indonesia. This position is currently held by Laura D'Arcy as Dr Thomas Maddox is studying for an MBA to prepare for the final year of the project. This change has been approved by Darwin. Daily management of the project is carried out by ZSL Indonesia staff, in particular Laura D'Arcy and Dolly Priatna (ZSL Indonesia Coordinators), and Dr Agus Suratno (Berbak Project Manager), with support from Mulya Shakti (Field Manager). To meet the demand of the community aspects of the project which have proven to increase over Year 2 a full time community liaison officer has been appointed to coordinate between community based NGOs, community stakeholders and government bodies.

Governmental Project Partnerships:

Relationships with the national government, primarily various Ministry of Forestry (MoF) Directorates, are extremely well maintained by Dr Suratno with support from Dolly Priatna. Contact is particularly good with the Secretary General of MoF and the Director Generals of Forest Conservation (PHKA), Production Forest Development (BUK) and the Department of Forest Research (FORDA). The partnership between Berbak National Park head Pak Francisco Moga and ZSL has also gone from strength to strength; an MoU is ready to be signed as soon as the overarching national MoU is finalized. Joint activities have included regular training, press releases and field operations with ZSL maintaining an office within the National Park building.

Partnership with the Department of Natural Resources Conservation (BKSDA) Jambi office has been strengthened by the inception of the wildlife crime unit (UPKKL) in January 2010. The UPKKL comprises of staff seconded from local forestry policing forces; BKSDA Jambi (local forestry dept), Berbak NP and DINAS Kehutenan (provincial forestry) and coordinated by Nurazman, a BKSDA officer. The unit deals with illegal activities and human/wildlife conflict in the Berbak region promoting the protection and conservation of endangered species regionally.

Although relations are yet to be formalised with regional government, we have maintained good relationships with the provincial government, DINAS Kehutanan and county-level forestry services (DINAS Kabupaten). The REDD introductory training workshop was attend by regional government staff and conducted in the provincial governor's office.

Other collaborations: Socio-cultural NGOs

Gita Buana: A Jambi-based NGO specializing in community development. A MoU between ZSL and Gita Buana was signed in Year One of the project (See Appendix 2). The relationship has been well maintained via meetings to provide updates and request input on project developments, especially regarding community assessments and consultation. These meetings are also attended by other local partners specialising in socio-community work including WALESTRA and PINSE (see below).

WALESTRA: A Jambi-based social NGO commissioned to conduct baseline assessments to define the communities surrounding Berbak NP. Following the completion of the contract, periodic meetings were held to discuss the results and the direction of future community activities at a grassroots-level both in the field and in Jambi.

PINSE: Another local NGO in Jambi specializing in community development. PINSE provides essential advice on the RENSA (strategic planning) training coordinated by ZSL for representatives from four villages conducted in Jambi. RENSA/PNPM (Program Nasional Pemberdayaan Masyarakat Mandiri a government community empowerment program) is being

explored as a possible framework for revenue dispersal in the community for REDD+ derived funds.

Other collaborations: Technical

GIZ (formally GTZ) Merang (MMRP). This is a REDD demonstration project in the neighbouring province of South Sumatra (SumSel) with complementary expertise to ZSL; they are further along in developing an institutional framework but lack certain biodiversity skills. GIZ and ZSL Indonesia signed a MoU in Year One (See Appendix 3). Technical staff from each of the projects regularly communicate via emails and meetings to discuss the developments of carbon and community surveys. GIZ are ahead of ZSL in the development of carbon MRV (Measurable, Reportable and Verifiable) REDD methods, and as such were able to provide several technical training sessions to ZSL staff. These included ABG (above ground) and BG (below ground) biomass field data collection training, which resulted in the refinement of local allometric equations allowing for a much more accurate Tier 3 level quality of data assessment in the field. ZSL and MRPP collaborated most recently on bird survey methodology in peat swamp conditions, with training sessions conducted in Berbak NP for staff from both projects. Both ZSL and MRPP continue to foster knowledge sharing and regularly attended provincial, national and academic meetings together to represent Jambi and SumSel provinces and innovative developments in peat swamp forest MRV methods.

ERM (Environmental Resource Management): ERM Indonesia has continued to assist the project, especially in connecting with potential investors and drafting proposals. This includes due diligence and technical advice in the run up to the preparations of the project development documents and has been particularly relevant given the most recent changes in VCS (Verified Carbon Standards) and CCBA (Climate Community Biodiversity Alliance). (see Appendix 4).

LIPI (Indonesian Institute of Sciences): ZSL has a general MoU with LIPI covering biodiversity research (See Appendix 5). LIPI have agreed to provide a counterpart and adviser for a UK PhD student from ZSL's Institute of Zoology and the London School of Economics to conduct biodiversity surveys in the project area, including an assessment of certain fishes as potential indicator species. Regular up date meetings are held with the Head of Zoology.

CIFOR (Centre for International Forestry Research): CIFOR is a leading international research organisation based in Indonesia. Formal collaoboration with CIFOR includes facilitating four CIFOR PhD students will be conducting carbon sequestration research in Berbak National Park, which will provide additional information about carbon sequestration to the project and lead to joint publications.

Bogor Agriculture University (IPB): IPB is one of the most well-known agriculture universities in Indonesia and been a pioneer in many tropical agricultural and forestry fields. The Berbak project has currently supported and hosted three Indonesian MSc students from the university.

University of Jambi: The University of Jambi participates in meetings to discuss carbon assessment and community capacity building. It provided a keynote speaker and instructors for the project's strategic planning training for local communities.

Further collaborations to address areas where ZSL has gaps in expertise are currently being explored, including a new CIFOR/USFS/USAID cross country national carbon stock assessment programme. In addition, further collaborations are being explored regarding peatland hydrology and subsidence.

4. Project Progress

4.1 Progress in carrying out project activities

Output 1: Establishment of an institutional framework

Activity 1.3 – Provide introductory training on REDD to stakeholders.

A REDD socialization workshop conducted in October 2010 was officially opened by the senior assistant to the Governor of Jambi. It provided stakeholders with current information about climate change and REDD+ at national and international levels and fostered further understanding of the project and the REDD mechanism in general. The ultimate goal was to gain stakeholder support and commitment. Participants included the heads of DINAS Kehutanan, the Environmental Agency (Lingkungan Hidup), the Planning and Development Agency (BAPPEDA), and Plantation Management Agency (Perkebunan) as well as key personnel from several districts around the Berbak ecosystem. Feedback was very supportive and included requests for further REDD training. Since the workshop, ZSL has been requested by the provincial and district offices to attend all climate change and conservation related events to present their work and provide technical advice when requested.

Activity 1.4 – Establish independent management entity:

At this stage, an independent management entity has not been established as is not yet clear if the government's recommendations for REDD revenue generation will include this requirement. A great deal of preparatory work has been done however, including preliminary paperwork and discussions with well-known Indonesian conservationists and retired senior forestry officers suitable for board membership. ZSL in London has been approached by a very large philanthropic investor who has shown interest in purchasing the concession rights to PT Putra Duta for inclusion in the project; if these negotiations bear fruit then the project would not need its own "Yayasan" or registered company. This activity is currently on hold, but can easily be restarted as it is not far from completion.

Activities 1.5 - 1.8 – Sign MOUs with forest stakeholders:

This covers MoUs with Berbak NP, regional and national government and the adjacent logging concessions. MoUs with the park and the regional government and the district forestry offices are ready, but cannot be signed before the overarching MoU with the national government is signed. This document, which covers all aspects of ZSL Indonesia's work, has been in preparation for some time now along with MoUs for three other NGOS. All parties met formally with each government party involved on April 20th 2011 and each document has been finalised and approved. The signing date by the respective institution Directors has been set provisionally for late May. In the meantime Letters of Intent and Terms of Reference have been created to facilitate and cement the working relationships of ZSL with these key governmental stakeholders.

Discussions are under way with two adjacent logging concessions, but it is not yet clear what form agreements with these might take; options include purchasing the rights and or working in partnership with the current owners.

Output 3: Quantification of co-benefit baseline values

Activity 3.2 – Development of biodiversity assessment protocol

The biodiversity assessment protocol is being developed in conjunction with another ZSL project in Indonesia and other REDD pilot projects with the ultimate goal of meeting the CCBA 'Gold standards for biodiversity assessments'. In March 2009 ZSL and LIPI worked together to survey a number of taxa at sites in Sumatra and plans are being made to extend the collaboration to Berbak and other sites.

However, efforts to date in Berbak have made it abundantly clear that established survey methods are unsuitable for peat swamps as it is impossible to walk a transect line even in the "dry" season and difficult to lay out camera-traps in standard grids. A La Niña event in 2010 brought exceptionally high rainfall, which in turn made moving around in the park other than by boat virtually impossible. Camera trap surveys of tigers and other large mammals were completed, however, and work is now under way to identify taxa that are amenable to surveying in these conditions as well as identify suitable indicator species.

Potential indicator taxa being explored include gibbons – surveyed from their songs, for example – as well as birds, bats and fish. The desirability of assessing the habitat's sensitivity and potential for climate change adaptation is now also being borne in mind when considering suitable indicator species; e.g. short-lived species with small ranges that react rapidly to changes, therefore mostly likely the use of insects will be explored.

Activities 3.3 - 3.4 – Calculation of species richness and habitat use across different forest classes

Sampling effort in between the habitat subtypes of primary and secondary forest were spread equally, (see Appendix 6 Table 1) with the least sampling time carried out in the burnt area. Camera trap results were used to calculate species encounter rates for each forest subtype (see Appendix 6 Table 2). As mentioned, there were issues with accessibility and equipment reliability due to high rainfall resulting in very high water tables (up to 1.5m ASL). Subsequent high levels of humidity drastically affected the operation of recently purchased Deer Cameras. Failure rate was over 70% and cameras had to be returned to the USA for repairs, a costly and time consuming process that resulted in cameras being out of the field for up to four months.

GIS has been used to generate maps to illustrate the distribution of wildlife (Appendix 7 Map 1). It is clear from Map 3 that capture frequency increases with the distance from the forest edge, whether from the park boundary or from the burnt area in the centre of the park.

Activity 3.5 – Tiger density assessment

The tiger density assessment was conducted using a grid system with each grid covering an area of 22,500 ha – a standard method across Sumatra. Cameras were placed 2.5km apart and left for maximum of two months. Despite the difficulties with movement and equipment failures, the field team managed to complete two grid surveys. Grid 1 effort totalled 2,361 survey days over 38 separate survey points, and Grid 2 effort totalled 1,134 survey days over 33 survey points. Results identified and mapped seven individuals (two male, five female) with two possible further individuals (one male and one female) identified (see Appendix 8 Map 2), the distribution of prey species was also mapped (Appendix 8 Map 3).

Table 1 Encounter rates for tigers can be refined more to highlight the tiger and prey species

Encounter rates	Independent records	Rate
Tiger	53	0.015099715
Long-tailed Macaque	16	0.004558405
Pig-tailed Macaque	75	0.021367521
Tapir	17	0.004843305
Wild Pig	23	0.006552707
Mouse Deer	152	0.043304843

The encounter rates for tigers proved similar to those from the initial tiger survey in 2007 (0.017). High encounter rates of certain prey species, mainly wild pig, indicated that Berbak NP maintains a good carrying capacity for tigers as well as meeting habitat preference requirements such as close proximity water, pen areas for hunting, low elevations and more dense forest for cover.

Activity 3.7 – Assess basic social and demographic variables

ZSL commissioned local NGO WALESTRA to undertake the baseline social and demographic variables of the 34 villages surrounding Berbak NP. However, work was slowed by the exceptionally heavy rains. Access to the villages became much more difficult than usual for most of the year, resulting in escalated travel costs and time.

Once all the relevant communities were mapped, four principal communities were identified to work with, using the following ranking criteria: (1) closest to the national park boundary, (2) high levels of dependency level on the forest for income, (3) socio–economic data (ethnicity and household income) and (4) prior support received in the past from government agencies.

With the agreement of the villages, a Bahasa language web database will be made available to all of the communities, NGOs, government agencies and other stakeholders by mid-2011. The website will include a map (See appendix 9 Map 4) that allows users to obtain comprehensive information on the economic and social needs of each of the communities for future REDD revenue requirements and planning.

Participatory Rural Appraisal techniques used by WALESTRA included focus group discussions, in-depth interviews, village histories; Venn diagrams; time allocation diagrams; and village mapping.

Age structure of villages: Age structure varies little between villages (Appendix 10 Figure 1) with Pematang Raman having the largest young population. Overall, there appears to be approximately 30% villagers under the age of 11, 59% between 11 and 59, and 11% aged 60 and over.

Occupations of villagers: While diverse, the dominant occupations of household heads were farming and fishing with only a handful of civil servants present in villages. Labour and non-farming occupations are predominant in Pematang Raman (Appendix 10 Fig. 2)

The key livelihoods can be summarised as follows:

- Coconuts, mostly used to make cooking oil, are one of the main commodities (cash crops) grown intensively all year long by villagers in Sungai Cemara, Sungai Rambut, and Telago Limo.
- The coconut plantations are planted with cocoa, banana, and sugar palm. Unlike other areas in Sumatra, cocoa is not well maintained due to the infestation of the fungus *phythoptora palmivora*.
- Fishing from the beach is a dominant activity at Sungai Cemara village. The other three villages rely on fresh-water fishing as a secondary livelihood.
- The villagers are also developing rubber plantations for use year-round.

Nature Resource Management: The four main villages still have forested area, classed by the Government as National Park, mangrove preservation, forest park and limited production forest. People who are in charge of managing the forest follow the prevailing regulations but traditional of forest use remains. All four villages use timber and non-timber forest products (including honey and “jelutung” sap).

In Sungai Cemara village, residents use wood for construction, charcoal and to create 'belat' nets for fishing (which come from mangrove stalks – approximately 400 per year per belat) resulting in wood resources decreasing over the past five years.

Historically conflict has arisen regarding land ownership with the Forestry Department claiming land which the villagers believe belongs to the village.

Residents from Sungai Rambut and Telago Limo villages sell logs to sawmills at Jebus or Sungai Aur village and lumber to Rantau Rasau and Nipah Panjang district. From the summary of focus group discussions, they remove timber from Berbak NP at a rate of approximately 40m3 in a month. In Pematang Raman village, the quantity of logs sold reaches a much higher figure of 500m3, through trade to Jambi city via small trucks.

Several resource management issues were also discussed in the focus groups:

- Coastal erosion is a problem for Sungai Cemara village with an estimated 45 m of reduction in the coastal mainland per year resulting in approx. 1-1.6 km of land reduction since 1970.
- Sungai Cemara village is subject to various disputes over coastal land for fishing, also perhaps as a result of coastal erosion.
- Sungai Cemara, Sungai Rambut and Telago Limo villages, natural resource management conflicts arising from claims that Berbak NP boundaries have expanded and taking over land cleared for cultivation. There has been efforts to resolve the conflict through the Pinang Sebatang Foundation (for Sungai Rambut and Telago Limo villages) and Conflict Resolution Forum of East Tanjung Jabung (for Sungai Cemara village), but no agreement has been made.
- Pematang Raman village has a dispute with one of the largest oil palm plantation concession holders.

Activity 3.8 – Conduct needs assessment for communities

The community needs assessment baseline data is currently being under taken, but has also delayed due to the heavy rains.

Data collected from the demographic survey conducted by WALESTRA is being used in combination with current information gathered during the RENSTRA (Rencana Strategis Pembangunan Desa/Strategic Planning on Community Development) training to assist with planning further assessments for using schemes such as PNPM to disperse funds where needed.

The assessments will target six villages in total, which are at different stages of development and are representative of the different community types typical of the villages bordering the park. This includes the four villages identified during the training and two further villages, which represent communities that have had less support in the past from either government programmes or NGOs. This activity will use methods recommended in the CCBA 'Gold' standard and provide clear information on how the drivers of deforestation are directly linked to the needs of each community.

Output 4: An assessment of strategies to mitigate environmental change

Activity 4.1 Conduct a needs assessment for improving protection

An assessment has been conducted from meetings with Berbak NP, Jambi conservation agency (BKSDA) and local NGOs such a WALESTRA regarding current protection practices and the attitudes and perceptions of those practices. Currently, Berbak NP has annual operation budget of less than US 500,000 to manage 140,000 ha and little capacity to deal directly with illegal logging. Meanwhile, BKSDA estimated that the cost of a three-month illegal logging campaign in the entire province of Jambi, which included several national parks, would be in the range of an additional US 70,000.

Information regarding protection issues faced by governmental stakeholders was collected during the REDD socialization workshop ZSL held in Jambi. Delegations from Provincial forestry environmental agencies (DK and BKSDA) of Jambi and Districts of Muaro Jambi and Tanjung Jabung Timur discussed the need for better forestry management and the processes by which this could be achieved. The next step was to initiate further intensive discussions with each of these stakeholders to discuss on how they could use and manage their annual natural conservation budgets to estimate the ultimate cost for forest protections and to improve practices of each agency involved.

Activity 4.2 Conduct a needs assessment for improving community livelihoods

The community livelihood assessment will be undertaken in conjunction with Activity 3.8; these assessments will highlight suitable sustainable forms of alternative livelihoods tailored to meet the needs of the each community whilst conserving the Berbak ecosystem.

4.2 Progress towards project outputs

Output 1: Establishment of an institutional framework

ZSL, in particular Dr Suratno, remains politically active. This has been particularly key in the last six months as Indonesia moved towards developing a formal, institutionalised framework for the establishment, implementation and governance of REDD. The current developments on a national institutional framework have been driven by a Letter of Intent (LoI) between the Indonesian and Norwegian governments.

The Indonesia REDD Task Force, consisting of senior officials from different departments or ministries including the MoF, is in charge of designing the framework that will eventually influence the administration of REDD activities at local and provincial levels. The MoF has drafted laws that will simplify the current financial mechanism, allowing project proponents to deal directly with investors for any project development in a conservation forest, another promising development.

Output 2: Quantification of emission baseline values

The quantification of emission baseline values were completed last year (Desktop Analysis) to the minimum ('Tier 1') level required. Currently, the field teams have been conducting biomass data collection for validating the carbon values described in the analysis as required for certification and potential investors. The field data collection uses the GIZ-MRPP project methodology recognized and recommended by the MoF as Tier 3 level data. To achieve this, stratified random sampling was used to establish plots and the forest classification was incorporated to locate their locations. A total of 71 plots are distributed within the project area and 37 of them are located in the national park. (Appendix 10 Map 5)

To date, data of vegetation structure and peat depth were collected from 30 plots in Berbak NP and protected forest. Based on the carbon analysis, it was estimated that the Berbak ecosystem contains more than 130 ton/ha of carbon, which is within the range value described in the Desktop Analysis. Meanwhile, the peat depth ranges from 0.5 cm to 10.50 cm, and it is

expected to reach up to 12 meters. Data of illegal logging are still being collected and will be incorporated in the threat analysis for deforestation rate modelling. A fire risk map was developed showing the distribution of fire threat and spread. Both illegal logging and fire data will be integrated for predicting the deforestation in the future.

Output 3: Quantification of co-benefit baseline values

Due to the adverse field conditions, biodiversity surveying had been limited to camera trapping, however we are now expanding this work as the field conditions have become more favourable. Species now being surveyed beyond camera trapping include gibbon (triangulation through song), bats (Harp traps) birds (point count method). We also plan to add aquatic surveys, primarily for false gharials, to follow up on surveys conducted in the late 1990s and early 2002. We are also arranging with LIPI to send experts in new taxa to the field site – currently a fish identification expedition is being planned.

For community values WALESTRA defined the 'Berbak community', few of which live within the project boundary. Following on from their baseline work we now need to understand better who the community is, using sampled questionnaire studies to check official statistics and also to look at economic status, reliance on the forest, attitudes towards the environment and other aspects not obtainable from official statistics. Assessments on community attitudes towards the project and forest management are ready to be carried out in the field. These will provide information regarding people view on the project and their dependency on the ecosystem.

Output 4: An assessment of strategies to mitigate environmental change

Recommendations from the desk top analysis carried out in Year 1

Controlling peat management, primarily through closing canals and peatland re-wetting: Two initial canal surveys have been conducted to collect general data on canal's status. These assessments were community-based and intended to identify the current canal's function and management/responsibility. It will be followed with more detail investigations that meet the international standards, including general statistical data such as depth, width, current movement and other hydrological information. This we intend to undertake as part of future collaborations, which will also feed into carbon emission measurements. The results for all these studies will be used to design a strategy for damming the canal and in turn facilitate peat rewetting.

Working with logging companies: discussions have been held with PT Putra Duta Indah Wood (PIW) as they expressed interest in further collaboration in conserving the area and securing funds via REDD to do so.

Fire prevention: We are currently exploring the potential for getting methods created by ZSL approved for predicting the impacts of fire. Community-based fire management and awareness campaigns will also be explored by the community team in Year 3 as a way to prevent fire in the project area, especially targeting villages located on the western boundaries of the park, which have been identified as most vulnerable to fires by GIS analysis.

4.3 Standard Measures

Table 1 Project Standard Output Measures

Code No.	Description	Year 1 Total	Year 2 Total	Year 3 Total	Year 4 Total	Total to date	Number planned for reporting period	Total planned during the project
2	Number of people to attain Masters	1	2					Yes

4A	No. undergraduates receiving training	1	1					No
4B	No. weeks training	4	13					No
4C	No. postgrads trained	0	2					Yes
4D	No. weeks trained	0	10					Yes
5	No. people to receive 1+yrs training	3	2					Yes
6A	No. people receiving other training	1	34					Yes
6B	No. weeks	3	1					Yes
7	Number training materials produced	0	1					Yes
8	No. weeks spent by UK staff in country	49	49					Yes
9	No. species action plans	0	0					Yes
10	No. field guides	0	0					Yes
11A	No. papers submitted	0	0					Yes
11B	No. papers published	0	0					Yes
12A	No. databases	1	1					Yes
14A	No. conferences organised	0	1					Yes
14B	No. conferences attended	4	7					Yes
15A	No. national press releases	1	3					Yes
15B	No. local press releases	1	2					Yes
15C	No. national UK press releases	0	0					Yes
15D	No. local UK press releases	0	0					Yes
16A	No. newsletters	0	0					Yes
16C	Newsletter circulation in UK	0	0					Yes

Table 2 Publications

Type (eg journals, manual, CDs)	Detail (title, author, year)	Publishers (name, city)	Available from (eg contact address, website)	Cost £
Manual	Agus Suratno – Panduan Pelatihan ArcGIS Tingkat Dasar, 2011	Berbak project	Dr. Agus Suratno,	0

4.4 Progress towards the project purpose and outcomes

Since its inception the project has rapidly gained momentum, becoming one of the first REDD projects in Indonesia to be set in a protected area and encompass a species conservation programme. It was formally recognised as an Indonesian government supported official REDD pilot project in late 2010 and has hosted several visits by the UN-REDD Indonesian task-force delegation. The project has been promoted in country by Dr Nur Masripatin (Director of the Centre for Standardization and Environment at the Forestry Ministry) as an example of a research-based REDD project that also merits the newly coined term 'wildlife premium' (World Bank 2010). It has able been promoted at numerous international carbon and biodiversity events by the MoF – including at the Conservation of Biological Diversity COP10 in Nagoya.

4.5 Progress towards impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

After discussions with the head of Berbak NP, it was decided that regular training, rather than workshops, may be the most suitable way of conveying REDD and MRV criteria to Berbak staff. Therefore training has been provided in collaboration with other REDD projects working in the region, such as GIS-Merang, on numerous survey techniques including carbon above ground (ABG) and BG (below ground) biomass carbon stock calculations. Further collaborations are on going, with in country and international experts carrying out training with ZSL and NP staff on determining suitable sampling methods for other key taxa for wetlands, thus ensuring the projects baseline reference levels can withstand scrutiny under schemes such as VCS (Verified Carbon Standard) and Climate, Community and Biodiversity Alliance's (CCBA) Gold standard.

To date a total of 34 national park and forestry staff have accompanied the teams for training on GPS/GIS techniques, carbon assessments methods, forest stand measurements and various biodiversity surveys including gibbon triangulation, bird point counts and camera trap placement, monitoring and analysis. Future plans are to expand surveys and training to include aquatic taxa surveys such as fish and false gharials. The development of ZSL staff skills and experience has especially benefitted Citra Panjaitan, the tiger field survey co-coordinator, who obtained a grant to attend the Durrell Endangered Species Management Graduate Certificate course held at Jersey Zoo.

ZSL maintains an office within the National Park office where we provide the Berbak NP Team with facilities such as internet access. The space is also used for carrying out activity reviews and dissemination of field results to NP staff and management.

A small percentage of funding was re-allocated to enable Berbak NP staff to accompany the project's UPKKL team on patrols and socializations aimed at reducing conflicts and wildlife crime and rebuilding connections between the park and surrounding communities. A total of nine Berbak and BKSDA staff (70%) have regularly taken part in the training, which we hope to further expand with the remaining staff and to widen the training to include further BKSDA and DINAS Kehutan staff. The training included carrying out anti-poaching patrols in the park, human/wildlife conflict mitigation activities in villages around the park and basic wildlife crime detection techniques again with an anti-poaching focus. It is hoped that further funding may be secured so that MIST training can be provided for both the UPKKL team and National Park staff to synergise the patrols being undertaken in and around Berbak.

Once the surveys have been completed, workshops with stakeholders will be held to disseminated the results and how they relate to REDD and potential revenue gains and ultimately how the baseline reference levels needed to be set for voluntary (REDD credit) markets such as VCS and or CCBA.

5. Monitoring, evaluation and lessons

Overall we have been successful in raising awareness of carbon finance mechanisms, REDD principles and tiger conservation throughout the Berbak buffer region to all stakeholders. This has allowed ZSL to strengthen ties with the communities and build levels of transparency, communication and trust – all essential to future successful REDD-focused community work. As mentioned previously, one of the core goals of the project is to ensure that it demonstrates a system that not only reduces carbon emissions, but also has the co-benefits soundly embedded for both communities and biodiversity.

The project has faced a number of difficulties in the year mainly as a result poor weather restricting access the park and slowing down the implementation of activities. The team however has worked valiantly to complete as much as possible to the high standards set out in CCBA guidelines regarding methods and best practices. Embedded within these guidelines are the indicators for carbon emissions, community and biodiversity, which the BCI project follows in order to demonstrate best practice for when the project will be submitted to VCS and CCBA for approval. Regular project cycling reviews are undertaken using the outputs and indicators listed in the CCBA handbook as guidelines for verifying and evaluating the projects progress.

6. Actions taken in response to previous reviews (if applicable)

In response to the reviews comments not addressed in the previous report, numerous in country workshops and meetings have been attended by the team to disseminated further the work that is being carried out in Berbak; these meetings have been under taken at local, provincial, sub-national and national level. Dr Suratno is a member of the working group set up by the UN-REDD to represent the interests of NGOs as a national REDD framework is defined.

7. Other comments on progress not covered elsewhere

Tigers and REDD – the wildlife premium: The latest development in this environmental market mechanism is the aptly named REDD+, which refers to the biodiversity co-benefits of REDD and is directly relevant to the ZSL's key objective of conserving Sumatran tigers. This enhanced or value added REDD has been taken a step further in a recent publication by the World Bank (2010), coining the term 'wildlife premium', whereby the presence of charismatic endangered species increases both the 'salebility' and the market price of REDD credits from that area. Dinerstein *et al* used tigers as the case study 'umbrella' species to typify a species suitable for this premium and laid out potential methods by which the premium could be allocated and maintained. As the Berbak project meets all the suggested criteria to become a REDD+ project, a logical next step is clearly to extend the worth of Berbak as a REDD+ pilot project by testing feasibility of the criteria by which this premium's baseline is intended to be set and monitored. For tigers this would involve data on tigers, tiger prey and suitable habitat. The work would include trialing the surveys and monitoring methods proposed in the World Bank report alongside various other tiger and prey survey methods (such as those described in O'Brien et al 2003) to determine the best practical options for linking 'Wildlife premiums' to field data which fall under the MRV standards listed under REDD.

Tiger conservation and conflict in Berbak: With funding secured from USFWS and 21st Century Tiger, the ZSL UPKKL team has begun to address the needs of the community and wildlife in mitigating human and wildlife conflict. The UPKKL team was established in February 2010, based upon the highly successful format of the Kerinci Seblat Sumatran Tiger Protection and Conservation Team (PHSKS). Since receiving training from the PHSKS, the team has applied two strategies to deal with the wildlife crimes and conflicts in Jambi. Firstly, it has conducted prevention activities, which include communicating with related institutions, such as provincial police (POLDA), military (KOREM), the attorney general (Kejaksaan), conservation and forestry agencies and local communities. The UPKKL team has also established networks within local communities in areas with a high frequency of known wildlife conflicts and produced a poster campaign advertising the 24-hotline for people to call in cases of wildlife-human conflict (Fig 1).

Figure 1. Images from the first year of operation from the UKPPL

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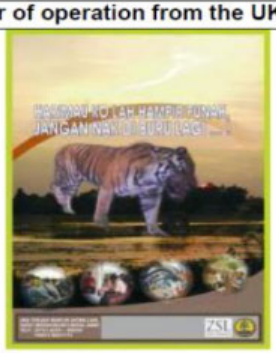
a. Tiger scaring devices being put in place



©ZSL

b. UKPPL poster campaign advertising 24hour conflict hotline (please note this is a draft copy, funders details were included in the blank space at the bottom of the poster)

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c. UKPPL patrol pulling down a known tiger poachers hide in Berbak National Park

To date the UPKKL has responded to two separate tiger conflicts that involved the severe wounding of one local villager and the death of another. The UPKKL held workshops in the villages where the attacks occurred to demonstrate humane tiger scaring devices (Figure 1a) and reinforce the role of the team as the first point of contact should a tiger be seen in the area, reducing the risk of vigilante action by villagers against the tigers. The second main activity of the UPKKL is regular patrolling of Berbak National Park, removing snares and, in one instance, dismantling a known tiger poachers' hide. The patrols are ongoing but unusually adverse field conditions due to unseasonably high rainfall have limited the areas of access for the team. However, these conditions will have also impacted on the poachers, as the flooded conditions favour tigers much more than humans.

8. Sustainability

Stakeholder commitment is key to the sustainability of this project, through capacity building and future financial incentives resulting from the sale of REDD credits, the drivers of deforestation and degredation will be addressed with long term sustainable solutions. National Park staff training is now a integral part of the project, informed management practices using criteria and indicator based mechanisms are beginning to be explored based on results gained from the field surveys, which when tied in with regularly monitoring will result in a proactive, ecosystem approach to sustainable forest management for the park and the surrounds.

9. Dissemination

The project has been covered extensively since its inception. A range of media articles have been gathered in the 'Media' Dropbox folder including a National Geographic segment featuring the project that aired in late 2010.

List media records:

Pertahankan Populasi Harimau yang Semakin Kritis. Jambi express (http://www.jambiekspres.co.id/), Wednesday 28 April 2010.

Pemprov Jambi Minta REDD Transfaran Sebagai Mitigasi Perubahan Iklim dan Penjualan Emisi Carbon, Senin, 01 November 2010

ZSL Pantau Populasi Harimau. Jambi express (http://www.jambiekspres.co.id/), Thursday 30 December 2010.

Elusive Clouded Leopard Captured on Film - a First Recently identified species spotted in Indonesia forest. National Geographic News. Published March 2, 2011

ZSL Terus Pantau Kandungan Karbon. Jambi express (http://www.jambiekspres.co.id/), Thursday, 8 March 2011.

List of presentations:

Pemanfaatan karbon untuk melestarikan keanekaragaman hayati dan pengembangan masyarakat, RENSTRA Training, Jambi. 15 June 2010.

Harnessing REDD to Conserve the Sumatran Tiger: An Update of REDD Implementation at the Project Level. ATBC Meeting, in Bali http://atbc2010.org/ 21-23 July, 2010

Berbak Carbon Initiative Project (Inisiatif Karbon Berbak). REDD Socialization, Jambi. 28 October 2010.

Overview of BCI Project. UKP4 REDD Task Force, Jakarta, 8 December, 2010.

Overview of BCI. The Ministry of Forestry, Jakarta, 21 December, 2010.

Assessing peatland distribution and vegetations characteristics of Berbak ecosystem. Workshop on Tropical Wetlands Ecosystems of Indonesia: Science Needs to Address Climate Change Adaptation and Mitigation 11-14 April 2011 Bali. Indonesia

Posters:

Sumatran Tigers: A flagship species approach to biodiversity conservation utilising REDD. 18-29 October, 2010. Nagoya Japan.

REDD+ and the wildlife premium route to mitigating the threats to wetlands. Presented at the Workshop on Tropical Wetlands Ecosystems of Indonesia: Science Needs to Address Climate Change Adaptation and Mitigation 11-14 April 2011 Bali. Indonesia

10. Project Expenditure

Table 3 project expenditure during the reporting period (1 April 2010 – 31 March 2011)

Item	Budget	Expenditure	Variance/ Comments
Staff costs specified by individual			
Overhead costs			
Travel and subsistence			

Operating costs	
Capital items/equipment (specify)	
Others: Consultancy	
Others Training	
TOTAL	

11. OPTIONAL: Outstanding achievements of your project during the reporting period

During the second year of operation the ZSL Berbak Carbon Initiative first REDD project in Indonesia focussed on biodiversity benefits has gone from strength to strength towards the final goal of establishing financial mechanisms which will conserve tiger and biodiversity whilst maintaining the ecosystem services the Berbak. The project has been held as an example of a research based REDD project combined with the newly termed 'wildlife premium' (World Bank 2010) by the senior members of the Indonesia Government.

Firstly the high quality work that has been undertaken by the project to date has been officially recognised as a Government of Indonesia official REDD project a remarkable milestone for a small project operating without bilateral or multinational funding and in spite of the delay in signing the ZSL/PHKA MoU

Secondly one of the BCI key strengths is the collaborations that it has built both with government stakeholder, communities and other organisations working in this field which has for example resulted in work from the project feeding into refining allometric equations for peatlands to ensure accurate carbon stock assessments.

Thirdly, Project Manager Dr. Agus Suratno worked within the REDD new emerging market has been further recognised by his advisory positions on the government REDD UN-Task force and climate change committees. He continues to maintain strong link with central and local government providing technical advice and training.

Year two culminated by the inclusion of the team in a special workshop hosted by CIFOR and USFS, to address the pressing need for scientific guidance from wetlands scientist to address the destruction of wetlands in Indonesia and globally. The workshop aim was to provide working documents on how financial mechanisms such as REDD can provide a long–term, sustainable way. One of the core goals of the BCI project is to conserve the endangered Sumatran Tiger, through directly linking Tiger conservation to Carbon emission, this goal was highlighted in the CBD COP 10 when a poster displaying the BCI project work to date was displayed, identifying how tigers, carbon and REDD are intrinsically interlinked promoting long term sustainable community focused conservation measures.

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Annex 1: Report of progress and achievements against Logical Framework for Financial Year 2010-2011

Project summary	Measurable Indicators	Progress and Achievements April 2010 - March 2011	Actions required/planned for next period
⇒ Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Purpose To conserve the biodiversity, carbon potential and associated ecosystem functions of the peat swamp forests of eastern Sumatra and To create a financial incentive to landscape stakeholders in eastern Sumatra to conserve peat swamp habitat and thus the biodiversity, carbon potential and other services it contains.	1. Deforestation rates significantly reduced 2. Key species populations stable or increasing 3. Local communities show increased support for conservation 4. Proven availability of an economically viable volume of carbon emission reductions 5. Measurable positive impacts on co-benefits (biodiversity and local communities) if interventions implemented	Endangered species such as Tigers, Clouded leopards, and false gharials have been indentified in the park with encounter rates. Respective ICUN working groups have been informed and consulted. Local communities through actions of wildlife crime unit, WALESTRA and ZSL are showing an increased level of support for conservation. Measured through community surveys, calls to the wildlife crime unit and awareness poster campaigns Identification of suitable indicator species to allow for the measurements of biodiversity co-benefits re on going and is identifying indicators for communities in the park boundaries.	*Deforestation rates will continue to be monitored on a fine scale to identify any areas where the rate of deforestation may be increasing so that these areas could be targeted by the BKSDA illegal logging task force and for further community work by ZSL* *Bench mark population figures for Tigers are near completing in Year 3, though allowance will need to be made for Year 2 not being a typical year in environmental conditions.* *Capacity building for communities to obtained funds from an already established government scheme (PNPM) will be reviewed and communities consulted further in needs assessment and other suitable transparent dispersement schemes to be reviewed.* *Criteria and indicators for targeted stragetic monitoring and validation will be defined to establish an effective monitoring approach to the community and biodiversity co-benefits of REDD*
Output 1 Establishment of the institutional framework required to	6. % key stakeholders represented on management body	Lack of current government guidelines regarding credit rights , sale and revenue dispersement for National Parks has had an immediate effect on completing this output however guidelines should be published in the next 6 months meanwhile	

operate a carbon revenue-based project	7. No. agreements signed	appropriate stakeholders are being consulted on the structure of the future management board Agreements with government stakeholders are prepared and ready just waiting on the over arching PHKA MoU to be signed in we hope May 2011.
1.1 Define boundaries for zones: a) project area b) reference region c) leakage belt		Completed on Year 1
1.2 Establishment of independent management entity 1.3 Sign working agreements with key stakeholders		Framework established in Year 2 Letter of intent has been signed as an interim measure to cover the period until May when ZSL MoU with PHKA will be completed. MoUs have been prepared revised and agreed so that they are in place and ready to sign once the ZSL PHKA MoU has been signed
.4 Obtain recognised Forestry Carbon Standard certification		TBC Year 3
Output 2. Quantification of emission baseline values and likely rates of change in a 'business as usual' scenario.	8. Forest cover across project area assessed for at least ten historical points 9. Carbon calculations calibrated by at least 100 field sample plots	Forest cover has been assessed in 37 different points allocated using stratified random sampling points as part of the AGB measurements. This data will provide baseline data to allow for more refined forest cover classifications so that permanent plots can be established to measure forest health, providing simple measures of the impact of current park management. ABG and BG biomass and therefore Carbon stock has been calculated in 37 areas, the minimum number required by allometric equations refined to a local level by GTZ Merang project from Winrock International
2.1 Calculate historical land-use and land cover change across zones		Completed in Year 1
2.2 Identify agents, drivers and underlying causes of deforestation		Baseline information has now been collected from communities and government stakeholders to augment the work of the desk top analysis completed in Year 1. Further community assessments will now be under taken.
2.3 Project future deforestation rates and locations across zones		Complete in Year 1 and refined in Year 2 using latest satellite imagery.
2.4 Calculate baseline carbon stocks above and below ground		Completed for 37 plots potential to expand this data further in areas of deep peat identified by this survey
2.6 Calculate carbon stock changes if intervention is taken		Completed year 1 desk top analysis ground truthed in Year 2 calculations are currently being revised.
2.7 Calculate carbon stock changes through leakage		Completed year 1 desk top analysis ground truthed in Year 2 calculations are currently being revised.

Output 3. Quantification of co-benefit (biodiversity, community) baseline values and relationship to carbon baselines	10. Biodiversity analysis based on at least 100 field samples 11. At least 30% of villages sampled	Focus has shifted to a more taxa based sampling rather than count of sample points. Plots are chosen using random plots stratified within habitats. 4/32 villages surveys intensively, baseline data all villages collected. More detailed community work is to be undertaken this year.
3.1 Calculation of species richness across different forest classes		On going with almost 70% of the park now surveyed using camera trapping, various other sampling methods and taxa are currently being tested across the park for suitability not only for MRV criteria and as a indicator of management success, climate change, cost effectiveness, skills base of NP team, cost effectiveness and suitability for monitoring in wetlands.
3.2 Calculation of habitat use by key species (tigers, birds)		On going with almost 70% of the park now surveyed using camera trapping
3.3 Calculation of tiger densities across the project area		On going with almost 70% of the park now surveyed using camera trapping
3.4 Inventory of all communities within the project area		Completed in Year 2 as part of WALESTRA community baseline studies
3.5 Survey of current sources of income and relationship with the forest		Completed in Year 2 as part of WALESTRA community baseline studies for 4 villages, this is to be expanded to a further 2 villages to ensure full representation of 32 villages around the Berbak ecosystem
3.6 Quantify relationships between biodiversity values, deforestation and carbon emissions		On going with results from all of the various aspects of the project feeding into this
4. An assessment of the viability of available strategies to mitigate environmental change	12. At least 5 potential interventions assessed	On going
4.2 Quantifiably assess impact of forest protection improvement across project area		Year 1 Desk top analysis addressed this but current field activities are refining and improving this as we work closely with the BKSDA and NP staff on how this may be achieved
4.3 Quantifiably assess impact of community support intervention within the project area		Year 1 Desk top analysis addressed this but current field activities are refining and improving this as further community outreach and surveys are being undertaken
4.4 Quantifiably assess impact of reduced impact logging in active production forest		Year 1 Desk top analysis addressed this but current field activities are refining and improving this with meetings being held with the current owner
4.5 Quantifiably assess potential of avoiding all deforestation in unallocated production forest		Year 1 Desk top analysis addressed this but current field activities are refining and improving this

4.6 Quantifiably assess impact of reforestation options	To be completed in Year 3 as reforestation projects in REDD demonstration projects have all been effected by high rainfall levels in 2010-2011

Annex 2 Project's full current logframe

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: Effective contribution in support of the implementation of the objectives of the Convention on Biological Diversity (CBD), the Convention on Trade in Endangered Species (CITES), and the Convention on the Conservation of Migratory Species (CMS), as well as related targets set by countries rich in biodiversity but constrained in resources.			
Sub-Goal: [1] To conserve the biodiversity, carbon potential and associated ecosystem functions of the peat swamp forests of eastern Sumatra	1. Deforestation rates significantly reduced 2. Key species populations stable or increasing 3. Local communities show increased support for conservation	Satellite imagery based monitoring system Annual biodiversity assessment Community surveys at project start and end	
Purpose: To create a financial incentive to landscape stakeholders in eastern Sumatra to conserve peat swamp habitat and thus the biodiversity, carbon potential and other services it contains.	4. Proven availability of an economically viable volume of carbon emission reductions 5. Measurable positive impacts on co-benefits (biodiversity and local communities) if interventions implemented	Economic feasibility study completed by third party Recognised Forestry Carbon Standard certification obtained Assessments of relationships between carbon and co-benefits	Indonesian legislation does not prohibit activities Carbon sequestration retains a market value Carbon and biodiversity values overlap Permission to operate in Indonesia continued
Outputs: 1. Establishment of the institutional framework required to operate a carbon revenue-based project	6. % key stakeholders represented on management body 7. No. agreements signed	Signed agreements Legal documents	Support is obtained by the key landscape stakeholders Clarity on 'ownership' of national forest is obtained.

[1] Changes made to log frame: Original output assessing deforestation drivers incorporated into output 2 and output assessing carbon and co-benefit baselines separated. This was to match the methodology structure for assessing emissions from avoided deforestation recommended by the World Bank BioCarbon Fund (2008). Indicator and verification information improved

2. Quantification of emission baseline values and likely rates of change in a 'business as usual' scenario.	8. Forest cover across project area assessed for at least ten historical points 9. Carbon calculations calibrated by at least 100 field sample plots	Project reports	Weather conditions permit fieldwork Sufficient historical data can be obtained.
3. Quantification of co-benefit (biodiversity, community) baseline values and relationship to carbon baselines	10. Biodiversity analysis based on at least 100 field samples 11. At least 30% of villages sampled	Project reports	Weather conditions permit fieldwork Communities are willing to cooperate.
4. An assessment of the viability of available strategies to mitigate environmental change	12. At least 5 potential interventions assessed	Project reports	Deforestation continues Mitigation options are on a scale that is manageable by local action Landscape managers are open to trialling new techniques

Main activities (details in work plan)

1.1 Define boundaries for zones: a) project area b) reference region c) leakage belt

1.2 Establishment of independent management entity

1.3 Sign working agreements with key stakeholders

1.4 Obtain recognised Forestry Carbon Standard certification

2.1 Calculate historical land-use and land cover change across zones

2.2 Identify agents, drivers and underlying causes of deforestation

2.3 Project future deforestation rates and locations across zones

2.4 Calculate baseline carbon stocks above and below ground

2.6 Calculate carbon stock changes if intervention is taken

2.7 Calculate carbon stock changes through leakage

2.8 Calculate overall predicted project carbon emission reductions

3.1 Calculation of species richness across different forest classes

3.2 Calculation of habitat use by key species (tigers, birds)

3.3 Calculation of tiger densities across the project area

3.4	Inventory of all communities within the project area
3.5	Survey of current sources of income and relationship with the forest
3.6	Quantify relationships between biodiversity values, deforestation and carbon emissions
4.2	Quantifiably assess impact of forest protection improvement across project area
4.3	Quantifiably assess impact of community support intervention within the project area
4.4	Quantifiably assess impact of reduced impact logging in active production forest
4.5	Quantifiably assess potential of avoiding all deforestation in unallocated production forest
4.6	Quantifiably assess impact of reforestation options

Monitoring activities:

Indicator 1 – Annual remote sensing assessment of deforestation and carbon emissions across project area compared to reference zone and leakage belt zone

Indicator 2 – Annual ground-based biodiversity indicator and threat assessments across project area compared to reference zone and leakage belt zone

Indicator 3 – Community surveys at project start and end to assess attitudes towards, and relationships with, the forests and species within them.