

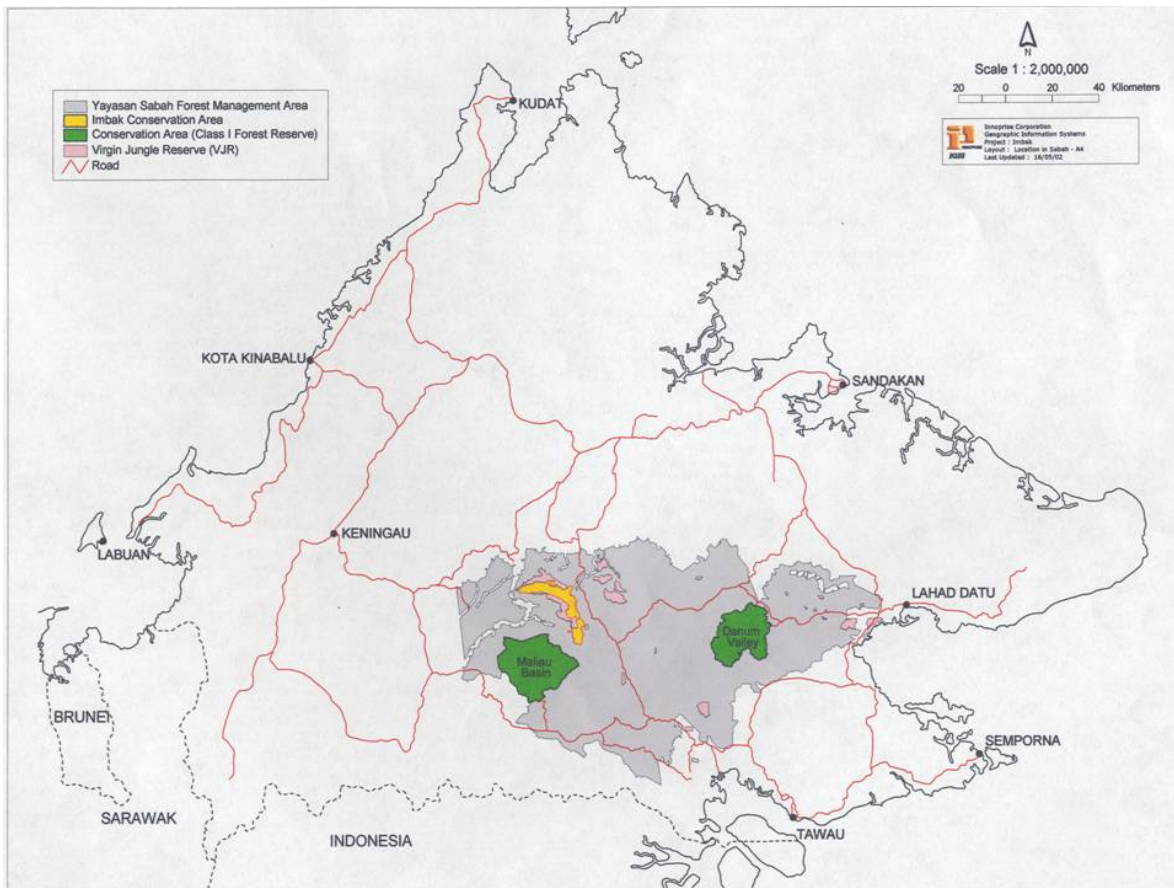
Darwin Initiative – Final Report

Darwin project information

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|-------------------------------------|---|
| Project Reference | 14-016 |
| Project Title | Assessing and conserving plant diversity in commercially managed tropical rainforests |
| Host country(ies) | Malaysia |
| UK Contract Holder Institution | Royal Botanic Gardens, Kew |
| UK Partner Institution(s) | Royal Society, South East Asian Program |
| Host Country Partner Institution(s) | Yayasan Sabah Group & Sabah Forest Department |
| Darwin Grant Value | £ 173,100 |
| Start/End dates of Project | Start:1 May 2005; End: 1 May 2009 |
| Project Leader Name | Dr. Rogier de Kok |
| Project Website | http://lion.rbgkew.org.uk/science/directory/projects/DiversityForestsSabahtml |
| Report Author(s) and date | Dr. Rogier de Kok, 1 June 2009 |

1 Project Background

Much of the plant and animal diversity of the lowland rainforests of Sabah (Malaysian Borneo) resides in timber concessions. The plant biodiversity of these forests need to be assessed and high conservation value forests protected. This could ideally be done through the framework of Forest Stewardship Council certification. An important part of this is the recognition and protection of areas with high conservation values. However, there is a lack in plant identification in non-timber trees and habitat assessment skills in Sabah. This project aims to address this through a programme of training and capacity building within the Sabah. The project concentrates on three conservation areas (Danum, Maliau and Imbak, see map1).



Map 1. Malaysia, Sabah. The grey area is the Yayasan Sabah (YS) concession area, with the two protected areas Danum Valley and Maliau Basin in green and the protected area Imbak canyon in yellow. The pink areas are protected virgin jungle reserves or water catchment areas.

2 Project support to the Convention on Biological Diversity (CBD)

This project has in particular addressed the following CBD Articles: 7 Identification and Monitoring (a total 81 people trained during plant identification courses in Sabah and four people from Sabah were trained at Kew during a more indebt plant identification course). Article 8, In-Situ Conservation (this project has played a major role in the campaign to give Imbak Canyon a protected status similar to Maliau Basin and Danum Valley. It has played a similar role in the campaign to get the area around Danum Valley declared a no logging area by the prime minister of Sabah, see annex 10). Article 10, Sustainable Use of Components of Biological Diversity (the main aim of the project was to preserve and sustainable manage the plant diversity of the lowland rainforests of Sabah which resides in the timber concessions of forestry companies, through the framework of Forest Stewardship Council certification (FSC). Article 12, Research and Training; Article 14 Impact Assessment and Minimizing Adverse Impacts (A habitat assessment & identification of HCVF's was done for the Forest Management Unit (FMU) 15 & 16 of the Yayasan Logging concession); Article 16, Access to and Transfer of Technology (in

total 85 people were trained) and Article 18, Technical and Scientific cooperation

The better trained staff and the various products of the project (the increased in the herbarium database at the Sabah Forest Department, more well named herbarium specimens from a key area of biodiversity and a checklist) will help the Sabah Forest Department to monitor any biodiversity changes in Sabah more effectively (CBD articles 6, 7, 8, 10, 12 & 14).

3 Project Partnerships

This project aims to address the lack in plant identification (in particular non-timber species) and habitat assessment skills in Sabah, through a programme of training, research and institutional capacity building within the Sabah Forest Department and Yayasan Sabah. The project aims to reach these goals through a series of training courses.

Yayasan Sabah:

During this project, three plant collecting and plant identification courses were given in Sabah. 37 staff members from the various departments within Yayasan Sabah were trained during these courses (see annex 7). Two training courses took place at Yayasan Sabah Facilities, either at Danum Valley research station or at Maliau Basin and which we could use free of charge. A MOU has been setup between RBG Kew and Yayasan Sabah in order to facilitate this and future projects (annex 8).

A major part of this project was the training in and the setting up of an industry wide standard for the identification of High Conservation Value Forests in Sabah. This was done through a series of workshops in Sabah and a habitat assessment of a part of Yayasan Sabah logging concessions. This part of the project was originally planned to last three years with a report based on the analysis on series of plots. However, the Yayasan Sabah board was so impressed with this part of the project that it contacted ProForest to speed up the project. A habitat assessment of FMU 15 & 16 was done in March 2006. This resulted in a final report to the Yayasan Sabah Board in September 2006, two years before the original deadline and not supported by any plot data. (Annex 9, ProForest). ProForest staff has held meetings with senior Yayasan Sabah and Sabah Forest Department staff, in order to discuss the findings of the assessment and to discuss appropriate management implications. Furthermore, ProForest has assessed and discussed possible next steps, including strategies for Yayasan Sabah to proceed with further concession-level HCVF assessments. The Yayasan Sabah board has now committed itself to work with the Smartwood organisation of the Rainforest alliance to submit the FMU's 15 & 16 for FSC certification.

In addition an increasing awareness of biodiversity issues in Sabah, within Yayasan Sabah in particular, most of the land around Danum Valley has now been declared a no logging area by the prime minister of Sabah (Annex 10, Daily Express 16 March 2006). This was possible partly because of the training and workshops given by ProForest in the first year of the project, which advised staff of both Yayasan and Sabah Forest Department in new developments in suitable forestry practise. WWF-Sabah is currently looking for funding for a reforestation project in this area. The products from our project (habitat assessments, databases, and checklist) and the staff trained during the project (WWF, Yayasan Sabah and Forestry department) will play a major part in the further development of this area.

Sabah Forest Department:

During this project, three plant collecting and plant identification courses were given in Sabah. The collaboration of the Herbarium of the Sabah Forest Herbarium was crucial for this. For the plant identification courses, we able to use the facilities of the Herbarium in Sandakan or we were loaned specimens for use during this course, free of charge. 29 staff members from the various research groups within the Sabah Forest Department attended these courses (see annex 7). One person (Miss Rosalia Eson) has been employed for three years in order to database the existing collections from the target area (grey area on the map above) held at the herbarium of the Sabah Forest Department. This has resulted in the addition of 3743 records to the permanent herbarium database of the Sabah Forest Department. This employment contract has now ended and the management of the herbarium has expressed a wish to continue her employment in order not to lose the experience she has gained during the project and are now actively looking for funds.

Material collected during this project has now been processed by the Sabah Forest Department and the first set has being deposited in its herbarium, leaving an important legacy. The second has been named and is incorporated in the Herbarium at Kew and the information concerning the identifications has been sent back to Sabah. This information exchange has been in place for the last 40 years, but this project has played an important role in the enhancement both in quantity and most important in quality of the specimens sent. This is partly due to the courses taught during this project, but mainly due to the increases contact between Kew staff and collecting/curation staff in Sabah. For instance, Sabah herbarium has discontinuing the use of the highly toxic chemical naphthalene as an insect repellent in shipments to Kew. The use of naphthalene is now illegal in the UK and the lack of it in shipments means that at Kew we can now very quickly deal with specimens from Sabah, without the need of first going through time consuming and expensive detoxification processes.

Other Collaboration:

Staff working on this project has been in contact with several related projects in the area, in particular the proposed setting up of permanent plots in Danum and Imbak by Dr David Burslem, The University of Aberdeen, Scotland, UK. Funding for this project has now been secured and this new project will build on the expertise that has been generated during this Darwin project, in particular the database, habitat assessments skill and the staff trained in plant identification. The proposed reforestation project of the area around the Danum Valley by WWF (Annex 10, Daily Express 16 March 2006), will build on the products (databases, field guide and staff trained in plant identification) made trained this project. In addition, four staff members of WWF were trained in the 2006 and 2007 Plant Identification Courses.

4 Project Achievements

4.1 Impact: achievement of positive impact on biodiversity, sustainable use or equitable sharing of biodiversity benefits

This project has had a very positive impact on the biodiversity conservation in Sabah. The project has played a major role in the campaign to get Imbak Canyon a protected status similar to Maliau Basin and Danum Valley. This campaign started five years ago, before this project was even conceived, but the interest the project has displayed in the area by its collecting efforts has played a very positive role in getting a research station built in the area (although too late to be of use for this project). The habitat assessment of FMU's 15 & 16 for FSC certification made a very strong recommendation that Imbak valley should be regarded as the most important HCVF elements in these FMU's (Annex 9, ProForest). Imbak Valley has been gazetted last year as a Protected Forest Reserve at the same level of protection as Danum and Maliau.

The Habitat assessment of FMU's 15 & 16 also highlighted the need for more protection of lowland rainforest in Sabah. This has been taken up by WWF (who were part of the HCVF discussions) and the Sabah government, leading to the protection of 300.000 hectares in the Ulu Segama and Malua Forest (near Danum Valley) and in expanding the sustainable use of the forest between Danum, Maliau and Imbak (Annex 10, Daily Express 16 March 2006).

4.2 Outcomes: achievement of the project purpose and outcomes

The main aim of the project was to preserve the plant diversity of the lowland rainforests of Sabah residing in the timber concessions. The way to do this was through the framework of Forest Stewardship Council certification, which endorses timber from forest which is sustainably managed. In order to achieve this two key obstacle were recognised, first, the lack of training in the identification of High Conservation Value Forests

and the implementation of FSC certification principles. Second, the lack of plant identification skills in non-timber trees.

The FSC certification process was enthusiastically taken up by Yayasan Sabah. At the beginning of the project they not only reserved about one million Malaysian Ringgit (= about. £170.000) from their own resources for FSC certification. They also hired ProForest (the same company we hired to do the training of the identification of HCVF's part of FSC certification) to help to prepare a FSC certification proposal. This is a major shift in the thinking within Yayasan Sabah about the value of biodiversity, and if successfully implemented it would be the best way to safeguard the remaining forest in the logging concession from conversion to oil palm or other types of plantations. The report of ProForest done for this project is now seen as setting the standards for defining HCVF in Malaysian Borneo and various interested parties from both Sabah and Sarawak have requested copies of the report for their own FSC certification applications. Yayasan Sabah is proceeding towards certification working with the Smartwood organisation of the Rainforest alliance.

The second main aim was to address the lack of plant identification skills in non-timber trees in Sabah. Three training courses of one week (Annex 11-course timetables) were given to staff from other Malaysia forest management companies, like Yayasan Sabah and staff of the Forestry Department of Sabah (Annex 7 - Course Participants; Annex 12-certificate). Four people were selected for more in-depth training at Kew in for plant identification. This training has created as pool of trained staff at Danum Valley, Maliau Basin and Sabah Forest Department, which is used and actively sought by other related projects in the area, in particular the proposed permanent plots in Danum and Imbak by Dr David Burslem and the WWF project in the sustainable use of the forest in the Danum area (Annex 10, Daily Express 16 March 2006).

4.3 Outputs (and activities)

This project only partially achieved its outputs as laid out in the logical framework. Furthermore some of its outputs were achieved early and some late, and some out of sync with the rest of the project.

The training of staff from Malaysia forest management companies, Sabah Forest Department and some other organisation (WWF) has been particularly successful. Through the various courses 81 staff members (some staff went on several courses) were trained in plant collecting and plant identification. Four selected people directly working for the project were further trained at Kew. This is more than double the targeted number and many more applicants for training had to be turned down during the course of the project. The habitat assessment & identification of HCVF's part of the training was done by ProForest. In total the staff of 12 organisations, of which seven were local Sabah organisations were trained and/or were part of the HCVF definition workshop for Sabah (Annex 9

table 1). A part of the Yayasan Sabah logging concession (FMU 15 & 16, Annex 9 Fig. 2) has been through a habitat assessment. This part of the program was a complete success and it has exceeded its original targets.

As part of their contribution to the project, Yayasan Sabah was supposed to make a series of vegetation maps of the study area using their GIS department. Apart from the maps made for the HCVF assessment this seems not to have happened. Despite reassures made during the course of the project.

The collecting part of the project produced in total about 3000 specimens. This is well below the target of c. 10,000 specimens, which was, with hindsight, a far too ambitious target. However, we could have done much better was it not for some managerial problems. Within Sabah, people who were paid by the project were often prevented from serious collecting by being asked to work on other projects. This is proven to be a problem which could not be over come within the projects time frame. We have tried to overcome this problem, by sending Kew staff to make collections with the project staff (one month in 2007; two periods of two weeks in 2007 and one in 2008). This extra cost of this was absorbed by RBG Kew. Apart from the opportunistic collecting done in Danum Valley and to a lesser extent Maliau Basin, two targeted expeditions were made by all Sabah members of the project to Maliau Basin and two targeted expeditions to Imbak Canyon. These expeditions to Imbak were necessary as due to accommodation problems (no living quarters were built within the period of the project), no member of the team could be stationed there. In the case of Maliau Basin, it proved to be very difficult for the two resident project staff members to make collections, due to the management problems mentioned above. All collections have now been sent to Kew.

The planned scientific papers will not be published, as the research on which it was going to be based was never done. The main reason is that the habitat assessment part of the project was speeded up in the first year, at the behest of Yayasan Sabah. The research was originally supposed to support these assessments. As the assessments were now done in the first year, the work on plot data gathering lost most if its usefulness. Given the problems with the collecting programme, it was decided to concentrate on the latter.

The Checklist/Field guide of plant diversity is largely based on the database of the collections housed in the herbarium of the Sabah Forest Department (see annex 15) and on photos taken as part of this project by the collectors (see annexes 16-19). This part of the work has resulted in the addition of 3,743 records to its permanent herbarium database. In addition, various literature sources were consulted, in particular the plant list in Webb, 2001, Botanical work in Maliau Basin Conservation Area. The new collections made during this project has also resulted in many new records for the area, suggesting that this checklist is very much a preliminary one and that new discoveries can be expected in the future.

We have compiled a list of about 2500 plant occurring in the target area. This is between 20 - 25 % of the projected flora of Borneo (Soepadmo 1995, Tree Flora of Sabah and Sarawak). Due to problems with the publisher the Checklist/Field guide could not be published within the project time, we have been given an extension for this part of the project for one year and we are well on track to publish the Checklist/Field guide this year.

4.4 Project standard measures and publications

See Annex 4 & 5.

4.5 Technical and Scientific achievements and co-operation

The technical and scientific cooperation (CBD Art.18) part of this project mainly came in two forms:

- 1) The setting up of an industry wide standard for the identification of High Conservation Value Forests in Sabah. This was achieved through a series of workshops in Sabah and through a habitat assessment of a part of Yayasan Sabah logging concessions. These workshops were attended by staff of 12 different organisations, of which seven were local (Annex 9, table 1). The assessment was done in February - March 2006 by 11 people of seven different organisations (Annex 9, table 3). This resulted in a final report to the Yayasan Sabah Board in September 2006 (Annex 9). This process has now been taken up Yayasan Sabah and they are progressing towards certification for part of their concession. Furthermore, the Forestry department of Sarawak has requested and received a copy of the report, as they have been instructed by the Sarawak government to prepare FSC certification for a number of logging concessions. WWF-Sabah has also started to explore the possibilities of certification of the area around Danum valley and have employed a Sabah company to do a feasibility study. They are also using the standard for the identification of High Conservation Value Forests set through the work done by this project.
- 2) Three training courses of one week (Annex 11) were given to staff from several forest management companies (like Yayasan Sabah) and scientific institutions (Forestry Department of Sabah) and conservation organisations (WWF) (see Annex 7).

4.6 Capacity building

The aim of this project was to address the lack in plant identification of non-timber trees and the identification of HCVF in Sabah.

- 1) Training in the identification of High Conservation Value Forests as part of the FSC certification process. ProForest organists a set of workshops to set standards for HCVF identification in Sabah. These workshops were attended by staff 12 different organisations, of which seven were local (Annex 9, table 1). The result of this work is that the initial lack of

identification skills dealing with HCVF has now been removed and that this knowledge's is now used both by Yayasan Sabah as they are progressing towards certification for part of their concession and by other organisation which were involved in the course (WWF) or who are using the standards for HCVF for Sabah as a example for their own area.

2) To address the lack of plant identification skills in non-timber trees in Sabah. Three training courses of one week were given. This has formed a group of people who can identify specimens to family level and some of the more intensity trained people to species level. The collecting part of the project has enhanced both in quantity and in quality of the specimens in Sandakan Herbarium and Kew. It has also given a major boost to the small research herbarium at Danum. This herbarium is mainly used by the researches working on the site. A local herbarium with well named specimens of local plants means that then need less time in identified their plants or need to spend less time at the herbarium in Sandakan, saving time and money.

4.7 Sustainability and Legacy

The campaign to make Imbak Canyon (see map 1) a protected area (Class 1 Protection Forest similar to Danum Valley and Maliau Basin), was greatly enhanced by our key recommendations to protected it under its HCVF criteria HCV 2 Large landscape level forests (Annex 9, page 25). The Yayasan Sabah Board accepted this and they asked the Sabah Parliament to raise the protection level of the forest from Production forest to Protection Forest.

All staff members working on this project were seconded from a permanent job either at the Royal Society, S.E. Asian program, the Sabah Forest Department or Yayasan Sabah. Given the biodiversity projects proposed by WWF and The University of Aberdeen and the many other small research projects running each year at Danum Research station, further employment using and further enhance the skills acquired during this project seem to be secure.

The specimens deposited at the herbarium of the Sabah Forest Department and RBG Kew and the database housed at the Sabah Forest Department will be curate by the staff of the either institution. All institutions involved in this project have been working together, sometimes for more than 40 years, and given the concurrent institutional interests and the many current and planned joined projects, it is very likely that we can build on the benefits generated by this project.

5 Lessons learned, dissemination and communication

Three major problems arose during the life time of the project.

The habitat assessment part of the project was speeded up in the first year, at the behest of and paid for by Yayasan Sabah. The company,

which we had hired to do the HCVF training, ProForest, was also hired by Yayasan Sabah to prepare a FSC certification proposal and some other unrelated work. In the original proposals, the assessments were supposed to be done in the last year and supported by plot data. As the assessments were now done in the first year, the plots lost most of their usefulness. It was therefore decided to concentrate on the collecting programme, as it was not progressing as secluded. This also means that the planned scientific work based on the plots data could not be done.

The collecting part of the project did not produce the number of collections we had hoped for. Not only was the original target was far too ambitious, flowering and fruiting during the project period was minimal. We also encountered some managerial problems; staff members were working on several other projects and could not always find time to collecting specimens. Consequently, we send some Kew staff to Sabah in order to make collections with the project staff.

As part of the project, we are writing a checklist/field guide to the Plants of East Sabah. This work is progressing very well, but the publishers were unable to do all the work which needs to be done before the end of the last financial year (March 2009) of this project. In particular the printing is causing a particular problem. The cost for the printing is not usually paid until the book is printed and the books are accepted as of good enough quality by the publishers. Therefore, I have requested to carry the money for the printing over to the next financial year (2009-2010) (see Annex 14) and this was approved.

5.1 Darwin identity

The Darwin initiative is well known within the Sabah scientific community as many successful projects have been carried out in the last 10 years, in particular at Danum Valley. This particular project has built and enhanced this reputation. The project has been advertised in Kew Science magazine, which is distributed to all RBG Kew worldwide partners (2000 copies are sent of each issue). At ever one of the three courses run in Sabah, in the introduction lecture the Darwin Initiative was mentioned and at the certificate ceremony of the last course, Lord Selborne KBE FRS (Chairman of the Board of Trustees, RBG Kew; Chair of the House of Lords Sub Committee D) spoke on the success of the Darwin Initiative project. The checklist, certificates (Annex 12) and the herbarium specimens (Annex 13 Label) clearly display the Darwin logo, these collections will be distributed and permanently stored in several herbaria in South-East Asia and Europe. In the introduction of the Checklist/Field Guide the role of the Darwin initiative project will be clearly explained and the Darwin Logo will be on the cover of the book.

6 Monitoring and evaluation

The only major change to the project design was the decision not to proceed with the plots. This decision was mainly based on the fact that the purpose of work was to support the habitat assessments. Given that these were now done in the first year and not the last, the plots lost their usefulness for the project and given the problems in getting the specimen collecting part up to speeded up it was decided that concentrate on the latter.

A minor change in the project was in requesting the delay of the publication of the checklist/field guide to the Plants of East Sabah. The main reason for this delay is mainly related to the way publishers work with printers.

The collecting part of the project needed the most monitoring as the projected numbers of specimens were not coming in. This was mainly due to our over estimation of the possible numbers that could be collected, the lack of flower/fruited during the project period and limited staff time for collecting. We have tried to overcome this problem, by sending Kew staff to make collections with the project staff and by helping to organise specific collecting trips to Maliau Basin and Imbak Canyon by Sabah staff members. The feedback received from our Sabah counterparts was very effective and I feel that within the stricture of the project not more could be done

6.1 Actions taken in response to annual report reviews

The only serious problem that was mentioned in the annual report reviews was the apparent lack of detail in the reports. We have tried over time to provide more details.

7 Finance and administration

Project expenditure

| <i>Current Year's Costs</i> | Grant | Claimed |
|--|--------------|----------------|
| Staff costs | | |
| Rent, rates, heating, lighting, cleaning | | |
| Postage, telephone, stationery | | |
| Travel and subsistence | | |
| Printing | | |
| Conferences, seminars etc | | |
| Capital items | | |
| Others (please specify) | | |
| TOTAL | | |

Under spends

- 1) Rent ect. This was put into the original proposal to some cover Danum Valley Field Centre cost. However, DVFC was unable to prove that it had spent money on this.
- 2) Postage, telephone, stationery and Travel and subsistence. Due the smaller number of specimens collected we needed less postage and travel money.
- 3) Printing This part of the project has been postponed to the 2009-10 financial.
- 4) Conferences, seminars etc because we were able to use free of charge of the facilities at Maliau, Danum and Sandakan for the courses, we have under spend on this item.

7.1 Additional funds or in-kind contributions secured

The FSC certification process was enthusiastically taken up by Yayasan Sabah and at the beginning of the project they reserved about one million Malaysian Ringgit (= about. £170.000) from their own resources for FSC certification. This money was in addition to the money the project had allocated for FSC and it is now used to cover the expenses of the Smartwood organisation helping Yayasan Sabah to proceeding towards certification.

The collecting part of the project did not produced the number of collections we had hoped for and in order to try to overcome this problem, we have send Kew staff to Sabah in order to make collections with the project staff. In total, one person for one month in 2007; 2 periods of two weeks by two people in 2007 and two persons for one week in 2008. The total extra cost of this (£XXXX) was absorbed by core funds of the RBG Kew.

7.2 Value of DI funding

This grant has enable us to influence Yayasan Sabah into starting the FSC certification of its concession and thereby helping to safeguarded a major part of its concession from conversion in to oil palm plantation. It has played a major role in the campaign to upgrade the protected level of Imbak Valley and in making the area around Danum Valley a no logging zone.

It has helped in the Sabah Forest department in pursuing one of its goals by databasing a major part of its herbarium.

It has provided training for 84 people in Sabah in plant recognition and has helped us in writing a Checklist/Field Guide to the plants of east Sabah.

Annex 1 Report of progress and achievements against final project logframe for the life of the project

| Project summary | Measurable Indicators | Progress and Achievements April 2007 - March 2008 | Actions required/planned for next period |
|--|--|---|---|
| <p>Goal: To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but constrained in resources to achieve</p> <ul style="list-style-type: none"> • The conservation of biological diversity, • The sustainable use of its components, and • The fair and equitable sharing of the benefits arising out of the utilisation of genetic resources | | <p>The project has played a major role in the campaign to get Imbak Canyon a protected status.</p> <p>The report on defining HCVF's is becoming the standards in Malaysian Borneo</p> | (do not fill not applicable) |
| <p>Purpose</p> <p>To build capacity in forest management companies to assess the plant diversity of commercial forest reserves & protect HCVF's through FSC certification</p> | <p>Forest management companies have the capacity to assess plant diversity, use this as a basis to identify HCVF's</p> | <p>The Yayasan Sabah board has now committed itself to proceed with FSC certification for part of their concession.</p> | not applicable |
| <p>Output 1.</p> <p>Plant collections made and deposited at SFD & RBG Kew herbaria</p> | <p>Collections accessioned in SFD & RBG Kew herbaria</p> | <p>The indicator of accession into herbarium is demanding but does work well.</p> | |
| <p>Activity 1.1</p> <p>- Targeted collection of new specimens</p> | | <p>The collecting part of the project has finished with a total of about 3000 specimens well below the far too ambitious target of c.10,000.</p> | |
| <p>Output 2.</p> <p>Checklist of plant diversity/ Field Guide</p> | <p>Published as a field guide</p> | <p>The Checklist/Field Guide is written and will be publish in this financial year. This indicator works really well</p> | |
| <p>Activity 2.1.</p> <p>Writ and printed Checklist/Field Guide</p> | | <p>The Checklist/Field Guide is written, however not yet published</p> | |

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|---|--|--|
| Output 3. Web-based interactive identification key | Published on the web | The interactive identification key is written and will be published in this financial year. This indicator works really well |
| Activity 3.1. Write interactive identification key | | The Web-based interactive identification is written, however not yet published |
| Output 4. habitat assessments of YS concession | Reported to concession holders & incorporated into management strategies | This part of the project was delivered before the set deadline. This indicator works really well |
| Activity 4.1. Do assessment and write report | | The report has been written and was well received by YS Board |
| Output 5. SFD and YS staff trained in plant identification, habitat assessment & identification of HCVF's etc | 15 key staff trained within SFD & YS | |
| Activity 5.1. Series of workshops run by ProForest | | Workshops were done and the trained staff was used in the habitat assessments. |
| Output 6. Extension training for staff from other Malaysia forest management companies | 30 staff trained via a series of workshops at key project stages | |
| Activity 6.1. Series of workshops run by ProForest | | Workshops were done and the trained staff was used in the habitat assessments. |

Annex 2 Project's final logframe, including criteria and indicators

| Project summary | Measurable Indicators | Means of verification | Important Assumptions |
|---|--|---|---|
| <p>Goal:</p> <p>To draw on expertise relevant to biodiversity from within the United Kingdom to work with local partners in countries rich in biodiversity but poor in resources to achieve</p> <ul style="list-style-type: none"> the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising out of the utilisation of genetic resources | | | |
| <p>Purpose</p> <p>To build capacity in forest management companies to assess the plant diversity of commercial forest reserves & protect HCVF's through FSC certification</p> | <p>Forest management companies have the capacity to assess plant diversity, use this as a basis to identify HCVF's</p> | <p>Key problems in the implementation of FSC guidelines removed & more companies able to move towards certification</p> | <p>Forest management companies intend to implement the FSC certification scheme</p> |
| <p>Outputs</p> <p>Plant collections made and deposited at SFD & RBG Kew herbaria</p> | <p>Collections accessioned in SFD & RBG Kew herbaria</p> | <p>Collections accessioned in SFD & RBG Kew herbaria</p> | <p>Critically named collections required to improve botanical naming (esp. in non-commercial species)</p> |
| <p>Checklist of plant diversity</p> | <p>Published as a field guide (printed & on-line)</p> | <p>Field guide distributed & website on-line</p> | <p>Checklist is a key tool for assessing plant diversity & identifying HCVF's</p> |
| <p>habitat assessments of YS concession</p> | <p>Identification of areas of high plant diversity & used as a basis for assessing HCVF's</p> | <p>Reported to concession holders & incorporated into management strategies</p> | <p>Forest management companies incorporate findings as part of FSC certification process</p> |
| <p>SFD and YS staff trained in plant identification, habitat assessment & identification of HCVF's etc</p> | <p>15 key staff trained within SFD & YS</p> | <p>SFD and YS staff contribute directly to FSC certification process</p> | <p>Lack of capacity in SFD & YS to assess plant diversity & identify of HCVF's is removed as limiting factor in securing FSC certification for Malaysian forest</p> |
| <p>Extension training for staff from other Malaysia</p> | <p>30 staff trained via a series of workshops at</p> | <p>Wider capability in Malaysia to implement</p> | <p>General intent among forestry companies to move towards FSC certification</p> |

| | | | |
|--|--------------------|--|--|
| forest management companies | key project stages | FSC certification | |
| Activities | | Activity milestones | |
| Staff training component: - Plant identification & assessing plant diversity - Habitat assessment & identification of HCVF's | | Years 1, 2 & 3: Training workshops (held in Sabah) for up to 20 participants per year Year 1: Training in habitat assessment, identification of HCVF's & other aspects of FSC certification by ProForest (Oxford, UK) | |
| Collection/collation of plant specimens: - Collation & databasing of existing specimens held at SFD & RBG Kew herbaria - Targeted collection of new specimens | | Year 1: Training in plant collecting & identification in Sabah & RBG Kew for core collecting staff Years 1, 2 & 3: Advanced plant identification training & botanical databasing for key SFD & YS staff at RBG Kew | |
| Production of plant checklist & interactive key: - Printed checklist - Web-based checklist & interactive identification key | | Years 1, 2 & 3: Preliminary printed & web-based checklists produced each year Year 4: Final checklist published & completed web-based checklist on-line | |
| Assessment of plant diversity in YS concession: - Targeted collecting & collation of existing data from major primary forest conservation areas (Danum Valley, Maliau Basin, Imbak Valley etc.) | | Years 1, 2 & 3: Targeted collecting & collation of plant specimens | |
| Habitat assessment & identification of HCVF's: - Based on plant diversity of YS commercial forest reserves, proximity to existing conservation areas etc | | Year 1: Habitat assessment & identification of HCVF's | |

Annex 3 Project contribution to Articles under the CBD

Project Contribution to Articles under the Convention on Biological Diversity

| Article No./Title | Project % | Article Description |
|--|-----------|---|
| 7. Identification and Monitoring | 25 | Identify and monitor components of biological diversity, particularly those requiring urgent conservation; identify processes and activities that have adverse effects; maintain and organise relevant data. |
| 8. In-situ Conservation | 10 | Establish systems of protected areas with guidelines for selection and management; regulate biological resources, promote protection of habitats; manage areas adjacent to protected areas; restore degraded ecosystems and recovery of threatened species; control risks associated with organisms modified by biotechnology; control spread of alien species; ensure compatibility between sustainable use of resources and their conservation; protect traditional lifestyles and knowledge on biological resources. |
| 10. Sustainable Use of Components of Biological Diversity | 20 | Integrate conservation and sustainable use in national decisions; protect sustainable customary uses; support local populations to implement remedial actions; encourage co-operation between governments and the private sector. |
| 12. Research and Training | 25 | Establish programmes for scientific and technical education in identification, conservation and sustainable use of biodiversity components; promote research contributing to the conservation and sustainable use of biological diversity, particularly in developing countries (in accordance with SBSTTA recommendations). |
| 14. Impact Assessment and Minimizing Adverse Impacts | 5 | Introduce EIAs of appropriate projects and allow public participation; take into account environmental consequences of policies; exchange information on impacts beyond State boundaries and work to reduce hazards; promote emergency responses to hazards; examine mechanisms for re-dress of international damage. |
| 16. Access to and Transfer of Technology | 5 | Countries shall ensure access to technologies relevant to conservation and sustainable use of biodiversity under fair and most favourable terms to the source countries (subject to patents and intellectual property rights) and ensure the private sector facilitates such assess and joint development of technologies. |
| 17. Exchange of Information | 5 | Countries shall facilitate information exchange and repatriation including technical scientific and socio-economic research, information on training and surveying programmes and local knowledge |
| Other Contribution 18. Technical and Scientific cooperation | 5 | Smaller contributions (eg of 5%) or less should be summed and included here. |
| Total % | 100% | Check % = total 100 |

Annex 4 Standard Measures

| Code | Description | Totals (plus additional detail as required) |
|-------------------------------|--|--|
| Training Measures | | |
| 6a | One week plant identification course | 81 |
| 6b | 3 training weeks organised for 81 people and one month for four people. | 3 (3 x 81 + 4 x 4 = 259 persons weeks) |
| 7 | Number of types of training materials produced for use by host country(s) | 2 (Field Guide and Interactive Key) |
| Research Measures | | |
| 8 | Teaching and field work | 22 |
| 9 | ProForest document see annex 5 | 1 |
| 10 | Field Guide for East Sabah and CD | 2 |
| 12a | One database of herbarium collection established at Danum Valley, Sabah. | 1 |
| 12b | 3743 additional records to the herbarium data of the Sabah Forest department | 3743 |
| 13a | Herbarium specimens | c. 2000 |
| 13b | Number of Herbarium specimens collections handed over to host country(s) | c. 2000 |
| Dissemination Measures | | |
| 14b | Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated. | 1 |
| 16c | Estimated circulation of each newsletter in the UK | 3,000 in the UK, 2000 abroad, plus on-line access |
| Physical Measures | | |
| 20 | Digital cameras and computer and office equipment | £ 10,250 |
| 23 | Value of additional resources raised for project | £ 31,045 (Mainly extra Kew staff time spent on the collecting part of the project) |

Annex 5 Publications

| Type * | Detail | Publishers | Available from | Cost |
|----------------------------|---|----------------|---|-----------------|
| (eg journals, manual, CDs) | (title, author, year) | (name, city) | (eg contact address, website) | £ |
| Book | Field-Guide to the plants of East Sabah, Rogier P. J. de Kok & Tim A. Utteridge, 2010 | Kew Publishing | Kew Publishing, http://www.kew.org/publications/ | To be announced |
| CD | An interactive Key to Malesian Seed Plants, Malesian Key Group, 2009 | Kew Publishing | Kew Publishing, http://www.kew.org/publications/ | To be announced |

Annex 6 Darwin Contacts

| | |
|---------------------------------------|---|
| Ref No | 14-016 |
| Project Title | Assessing and conserving plant diversity in commercially managed tropical rainforests |
| | |
| UK Leader Details | |
| Name | Dr. Rogier de Kok |
| Role within Darwin Project | Project Leader |
| Address | Royal Botanic Gardens, Kew |
| Phone | |
| Fax | |
| Email | |
| Other UK Contact (if relevant) | |
| Name | Dr. Glen Reynolds |
| Role within Darwin Project | Manager of the team within Sabah |
| Address | Danum Valley, Sabah, Malaysia |
| Phone | |
| Fax | |
| Email | |
| Partner 1 | |
| Name | John B. Sugau |
| Organisation | Forest Research Centre, Sabah |
| Role within Darwin Project | Manager of Database project |
| Address | P.O. Box 1407, 90715 Sandakan, Sabah |
| Email | |
| Partner 2 (if relevant) | |
| Name | Mohd Daud Tampokong |
| Organisation | Yayasan Sabah Group |
| Role within Darwin Project | Group manager |
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