Submit by 21 January 2005

DARWIN INITIATIVE APPLICATION FOR GRANT ROUND 13 COMPETITION:STAGE 2

Please read the Guidance Notes before completing this form. Applications will be considered on the basis of information submitted on this form and you should give a full answer to each question. Please do not cross-refer to information in separate documents except where invited on this form. The space provided indicates the level of detail required. Please do not reduce the font size below 11pt or alter the paragraph spacing. Keep within word limits.

1. Name and address of organisation

Name: Dr. Rogier de Kok	**Address:** Royal Botanic Gardens, Kew Richmond, Surrey, TW9 3AB, UK

2. Project title (not exceeding 10 words)

Assessing and conserving plant diversity in commercially managed tropical rainforests

3. Project dates, duration and total Darwin Initiative Grant requested

Proposed start date: May 2005				**Duration of project: 4 years**	
Darwin funding Requested	**Total**	**2005/6**	**2006/7**	**2007/8**	**2008/9**
	(£) 173,100	**(£)** 64,500	**(£)** 41,800	**(£)** 41,800	**(£)** 25,000

4. Define the purpose of the project in line with the logical framework

Much of the plant diversity of the lowland rainforests of Sabah (Malaysian Borneo) resides in the timber concessions of forestry companies. As a key ecosystem component in supporting and maintaining general biodiversity, it is critically important that plant diversity in managed forests is assessed and high conservation value forests are protected. This could ideally be done through the framework of Forest Stewardship Council certification (FSC), which endorses timber from forest which are sustainably managed. Part of this certification is the recognition and protection of areas with high conservation values. However there is a lack in plant identification and habitat assessment skills in Sabah. This project aims to address this knowledge hiatus through a programme of training, research and institutional capacity building within the Sabah Forest Department (SFD), Yayasan Sabah (YS) and other major Malaysian forest management companies in the following areas:

- Plant identification through staff training, use of herbarium specimens, targeted collecting and the production of printed and web-based checklists, inventories and interactive keys
- Habitat assessment and vegetation mapping using ground surveys and interpretation of satellite imagery and aerial photographs
- Identification of High Conservation Value Forests based on plant diversity and vegetation type
- Implementation of FSC certification principles relating to habitat and biodiversity conservation

5. Principals in project. Please provide a one page CV for each of these named individuals

Details	**Project Leader**	**Other UK personnel (working more than 50% of their time on project)**	**Main project partner or co-ordinator in host country**
Surname	de Kok		Tampokong
Forename (s)	Rogier P.J.		Mohd Daud
Post held	Head of South-East Asian regional team		Group manager
Institution	Royal Botanic Gardens, Kew		Yayasan Sabah Group
Department	Herbarium		Forestry, Processing & Marketing division
Telephone			
Fax			
Email			

6. Has your organisation received funding under the Darwin Initiative before? If so, give details

The Royal Botanic Gardens, Kew has received fifteen grants from the Darwin Initiative since 1992.

7. IF YOU ANSWERED NO TO QUESTION 6 describe briefly the aims, activities and achievements of your organisation. (Large institutions please note that this should describe your unit or department)

Aims (50 words)
Activities (50 words)
Achievements (50 words)

8. Please list the overseas partners that will be involved in their project and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. What steps have been taken to ensure the benefits of the project will continue despite any staff changes in these organisations? Please provide written evidence of partnerships.

Yayasan Sabah (YS): A state-owned charitable foundation dedicated to the provision of welfare, education and other services. Profits mostly derived from a ±1 million ha forest concession, which includes commercial forest reserves of over 750,000 ha and three major primary forest conservation areas - Danum Valley, Maliau Basin and Imbak Canyon. YS highlighted the need for this project and it has been discussed in detail with the Group Managers of their forestry and research divisions. YS are extremely willing collaborators, and are prepared to commit substantial logistic, staffing and technical support (*please note attached letters from the Group Managers of their forestry and research divisions*).

Sabah Forest Department (SFD): The overall custodian of all forest reserves in Sabah (commercial and protected). The project has been discussed with the SFD Deputy Director and Head of the SFD herbarium. The SFD has expressed its enthusiasm to be involved with the project, especially the production of plant checklists/interactive keys and in training their staff in the identification of non-commercial plant species (*please note attached letter*).

9. What other consultation or co-operation will take place or has taken place already with other stakeholders such as local communities? Please include details of any contact with the government not already provided.

YS manages the Danum Valley and Maliau Basin Conservation Areas on behalf of their respective committees. The Danum Valley and Maliau Basin Management Committees comprise a number of Malaysian research institutes, government departments and ministries (the Royal Society SEARRP also holds a seat on the Danum Valley Management Committee) and are responsible for approving all research projects within these conservation areas. Necessary research permission will be sought through the Danum Valley and Maliau Basin Management Committees through our partners in the RS-SEARRP, YS and SFD.
The YS concession is home to only relatively few local communities, which are mostly concentrated in the northern borders of the concession. There are no fixed or transient communities in either the Danum, Maliau or Imbak conservation areas. Communities in the other project areas will be consulted throughout via existing frameworks provided by the YS community forestry programme.

PROJECT DETAILS

10. Is this a new initiative or a development of existing work (funded through any source?) Are you aware of any other individuals/organisations carrying out similar work, or of any completed or existing Darwin Initiative projects relevant to your work? If so, please give details explaining similarities and differences and showing how results of your work will be additional to any similar work and what attempts have/will be made to co-operate with and learn lessons from such work for mutual benefits.

This is a new initiative, but builds on many years of collaborative plant collecting by the botanists of the SFD, the RBG Kew, the Royal Society South East Asia Rainforest Research Program (RS-SEARRP) and others. We are capturing existing data through a databasing phase in the first part of the project. The only relevant project we are aware of is a project by the National Herbarium, The Netherlands in Leiden, which is databasing all their collections from Borneo (European Community funded). The database of this project and the database resulting from our initiative would be entirely compatible, complimentary and relevant agreements have already been made for data transfer. This new initiative will build on the interactive key to South-East Asian Seed Plants which was developed at Kew and Leiden, as part of the Darwin funded Papuan Plant Diversity Project. We are unaware of any completed or existing Darwin Initiative projects relevant to this initiative.

11. How will the project assist the host country in its implementation of the Convention on Biological Diversity? Please make reference to the relevant article(s) of the CBD thematic programmes and/or cross-cutting themes (see Annex C for list and worked example) and rank the relevance of the project to these by indicating percentages. Is any liaison proposed with the CBD national focal point in the host country? Further information about the CBD can be found on the Darwin website or CBD website.

This project addresses in particular the following CBD Articles: 7 Identification and Monitoring (15%), 8 In-Situ Conservation (10%), 10 Sustainable Use of Components of Biological Diversity (15%), 12 Research and Training (15%), 14 Impact Assessment and Minimizing Adverse Impacts (5%), 16 Access to and Transfer of Technology (5%), 18 Technical and Scientific cooperation (5%). There is an emphasis in this project on the themes of Forest Biodiversity (10%) and Sustainable Use (10%). Mutually agreed terms of use, transfer and benefit-sharing for duplicate reference specimens sent to RBG Kew will be documented in a written agreement (Article 15, 5%) with SFD. The project also addresses several of the targets of the Global Strategy for Plant Conservation (10%), particularly Targets 6 (production lands managed consistent with the conservation of plant diversity), 12 (plant products from sustainably managed sources), and 15 (capacity building).

12. How does the work meet a clearly identifiable biodiversity need or priority defined by the host country? Please indicate how this work will fit in with National Biodiversity Strategies or Environmental Action Plans, if applicable.

There is growing interest among forestry companies to implement sustainable management through the Forest Stewardship Council (FSC) certification scheme. However, while FSC provides a policy framework for sustainability, there is a critical lack of capacity in its implementation. This is particularly acute in the key areas of habitat assessment (based on high biodiversity values) and identification of High Conservation Value Forests (HCVFs).The need for this project was identified after discussion with 1) SFD, who recognise their relative lack of capacity in the identification of non-timber/commercial plant species and, in particular, 2) YS, who are currently in the process of certifying two large forest management units within their concession to FSC standards.

This project is consistent with Malaysia's National Policy on Biodiversity, particularly the following objectives:
(i) To optimise economic benefits from sustainable utilisation of the components of biodiversity;
(iii) To maintain and improve environmental stability for proper functioning of ecological systems;
(iv) To ensure preservation of the unique biological heritage…..benefit of present and future generations
(v) To enhance scientific and technical knowledge…….of biological diversity

And strategies:
I. *Improve the scientific knowledge base*: Survey the biological diversity in Malaysia….identify threats to biological diversity and how they may be countered
II. *Enhance the sustainable utilisation of the components of biodiversity*
VI. *Integrate biological diversity considerations into sectoral planning strategies*
VII. *Enhance skill, capabilities and competence*: Produce a pool of trained, informed and committed manpower in the field of biological diversity
X. *Minimise impacts of human activities on biological diversity*
XIII. *Promote international cooperation and collaboration*:…..in order to enhance national efforts biological diversity conservation and management
XIV. *Exchange of information*:….promote exchange of information on biological diversity at local and international levels

Malaysia is a member of the International Tropical Timber Organisation and a signatory to its guidelines on the sustainable management of tropical forests.

13. If relevant, please explain how the work will contribute to sustainable livelihoods in the host country.

The plant diversity of Sabah's natural forests is extremely rich and these forests are a key ecosystem component in maintaining overall biodiversity. They cover an area of approximately 4 million ha of which almost 3 million ha are commercial reserves under management for timber production – representing 75% of forest cover. The commercial forest reserves therefore represent a crucially important and yet highly threatened biodiversity resource. Since the 1960's these forests have been highly degraded through over-exploitation for timber and extensively cleared in favour of monoculture plantations. This has led to extreme environmental and biodiversity impacts. It is essential that the remaining commercial forest reserves are managed sustainably, through the FSC system, in order to avoid further

biodiversity loss, to guarantee the survival of these forests and the long term benefits to local communities which they provide.

14. What will be the impact of the work, and how will this be achieved? Please include details of how the results of the project will be disseminated and put into effect to achieve this impact.

The main purpose of the project is to build capacity within YS and the SFD (and, by extension, in other Malaysian forestry companies/departments) to identify High Conservation Value Forests and to successfully certify commercial forest to FSC standards. This will be achieved through a practical training course using real examples. The training and research will involve from field to mid-level and senior staff of SFD and YS staff, some of who will also act as trainers on project workshops.
The results of the project will be published on the web in the form of an illustrated checklist, which will help further identification work. Maps and reports with habitat assessments and identified HCVF's will be published and distributed to all relevant agencies and this will result in a submission for certification of a series of forest within the YS concession.

15. How will the work leave a lasting legacy in the host country or region?

Five core and ± 20 other Malaysian forest botanists will be trained in plant identification, herbarium techniques & databasing, and these people will return to their parent organisations with these skills. Three core and ± 10 other Malaysian conservation & management staff will be trained in habitat assessment and again these people will return to their parent organisations with these skills. The plant checklist with its identification tools will be widely disseminated in printed and on-line form (RS-SEARRP has agreed to host this website), and this will greatly assist other biodiversity workers in Sabah and the island of Borneo. Through training and project activities, capacity will be built in certain forest management companies to make habitat assessments based on plant diversity and to address FSC certification principles. This will result not only in building a reputation for excellence in forest management practices, but also in that more areas will be put forward for FSC certification and by doing so more HCVF's within commercially managed lowland forests will be identified and protected.

16. Please give details of a clear exit strategy and state what steps have been taken to identify and address potential problems in achieving impact and legacy.

This project deals with a number of particular needs identified by both SFD and YS, which are essential for these organisations if they would like to achieve their commitments to certification and their and Malaysia's national and international agreements. Both YS and SFD are well established organisation with a core of permanently employed, highly trained and dedicated staff. The funding and statutory position of both organisations is secure and long term. RBG Kew has an excellent and long term (> 40 years) relationship with SFD. The Royal Society, SEARRP has been based in Sabah for over 20 years and has close working relationship with SFD, and particularly YS. We expect these relationships to continue after the end of this project and we are confident that we will be involved in further collaborative projects.

17. How will the project be advertised as a Darwin project and in what ways would the Darwin name and logo be used?

The project will be advertised via the YS corporate communications unit through its publications and website and through the SFD newsletter and website. The RBG Kew and RS-SEARRP will also place project details, including logos, on their websites. The checklist, field guide, website, vegetation maps & habitat assessments will clearly display the Darwin logo and in the introduction the contribution of the Darwin initiative will be clearly explained. In the scientific papers the contribution of the Darwin initiative will be clearly acknowledged. All plant collections labels will carry the Darwin logo and a statement on the label will clearly state that this specimen was collected during a collecting program funded by Darwin. These collections will be distributed and permanently stored in several herbaria in South-East Asia and Europe.

18. Will the project include training and development? Please indicate who the trainees will be and criteria for selection and that the level and content of training will be. How many will be involved, and from which countries? How will you measure the effectiveness of the training and will those trained then be able to train others? Where appropriate give the length and dates (if known) of any training course. How will trainee outcomes be monitored after the end of the training?

The project will train staff of YS and the SFD and, by extension, staff of other Malaysian forestry companies/departments through publications, web-based materials and workshops. The training and research will involve field to mid-level and senior staff of both SFD and YS, some who will also act as *trainers* on project workshops covering subjects in their own expertise. These staff (named in section 23, table A) have been selected in close collaboration with YS, SFD and the RS-SEARRP – all are permanent staff and most have been employed with their respective organisations for over 10

years. Workshop participants will be selected in collaboration with the organisations/companies involved . Capacity to conduct habitat assessments and identify HCVF's, based on plant diversity, will be built through a progressive programme of basic and advanced training (in Sabah and the UK) which will include taxonomy, plant identification, diversity monitoring and vegetation classification and assessment through interpretation of satellite imagery. Logistic and scientific support will be provided by RS- SEARRP at their Danum valley field station (Sabah). This project will comprise two training components:

1. Plant identification and assessing plant diversity
A series of training workshops for field and herbarium staff (one for each year of the project) in plant identification will be held in Sabah for up to 20 participants per year. Trainees will include project staff and other regional biodiversity workers. Kew is at the forefront of modern plant identification and will be responsible for implementing the training programme, while personnel of the Sabah Forestry Department will provide training for certain groups. Each course will end with an identification test in order to monitor the progress of the participants. Furthermore, the four botanists employed by the project will receive advanced and specialist plant identification training during their stay at Kew.

2. Habitat assessment and identification of HCVF
A series of training workshops for mid-level and senior staff of SFD and YS staff in habitat assessment and in the identification of HCVF's & other aspects of FSC certification. The habitat assessment and identification of the HCVF's will be mainly based on plant diversity and vegetation type. This training will be done by ProForest (Oxford, UK) during a 5 day course in Sabah in the first year of the project and in two shorter follow-up courses in Sabah. ProForest will provide support to the project via e-mail contact and during the last course the submission reports (dealing with a total area of 2,000 sq km, to perhaps as much 7,000 sq km) for forest certification will be prepared

LOGICAL FRAMEWORK

19. Please enter the details of your project onto the matrix using the note at Annex B of the Guidance Note. This should not have substantially changed from the Logical Framework submitted with your Stage 1 application. Please highlight any changes.

Project summary	Measurable Indicators	Means of verification	Important Assumptions
Goal: 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 • 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			
Purpose To build capacity in forest management companies to assess the plant diversity of commercial forest reserves & protect HCVF's through FSC certification	Forest management companies have the capacity to assess plant diversity, use this as a basis to identify HCVF's	Key problems in the implementation of FSC guidelines removed & more companies able to move towards certification	Forest management companies intend to implement the FSC certification scheme (information from personal communication with forest managers and from newspapers articles)
Outputs Plant collections made and deposited at SFD & RBG Kew herbaria	Collections accessioned in SFD & RBG Kew herbaria	Collections accessioned in SFD & RBG Kew herbaria	Critically named collections required to improve botanical naming (esp. in non-commercial species)
Checklist of plant diversity	Published as a field guide (printed & on-line)	Field guide distributed & website on-line	Checklist is a key tool for assessing plant diversity & identifying HCVF's
Vegetation maps & habitat assessments of YS concession	Identification of areas of high plant diversity & used as a basis for assessing HCVF's	Reported to concession holders & incorporated into management strategies	Forest management companies incorporate findings as part of FSC certification process
Series of scientific papers	Papers submitted to local & international	Papers accepted for publication	Forest managers incorporate results in their work.

	journals		
SFD and YS staff trained in plant identification, habitat assessment & identification of HCVF's etc	15 key staff trained within SFD & YS – & as trainers for subsequent workshops	SFD and YS staff contribute directly to FSC certification process, & training of other staff	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
Extension training for staff from other Malaysia forest management companies	30 staff trained via a series of workshops at key project stages	Wider capability in Malaysia to implement FSC certification	General intent among forestry companies to move towards 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, 2 & 3: 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.) - Non-permanent plots established within commercial forest reserves, including already logged areas		Years 1, 2 & 3: Targeted collecting & collation of plant specimens Years 2 & 3: Establishment of plots in commercial forest reserves Year 3: Data analysis	
Vegetation mapping of YS concession: - Interpretation of high-resolution of satellite images		Year 1: Basic vegetation mapping of YS concession	
Habitat assessment & identification of HCVF's: - Based on plant diversity of YS commercial forest reserves, proximity to existing conservation areas etc		Year 3: Habitat assessment & identification of HCVF's	

20. Provide a project implementation timetable that shows the key milestones in project activities.

Project implementation timetable		
Date	**Financial year**	**Key milestones**
2005/7	Apr-Mar 2005/6	Plant identification start up course given
2005/12	Apr-Mar 2005/6	First set of collections identified and deposited in Sandakan, FRIM, Singapore, Sarawak and Kew herbaria
2005/12	Apr-Mar 2005/6	Production of web based plant checklist
2006/1	Apr-Mar 2005/6	Habitat assessment & identification of HCVF's Phase 1 course
2006/6	Apr-Mar 2006/7	Databasing of existing specimens completed
2006/6	Apr-Mar 2006/7	Habitat assessment & identification of HCVF's Phase 2 course
2006/6	Apr-Mar 2006/7	Plant identification first follow-up course given
2006/6	Apr-Mar 2006/7	Second set of collections identified and deposited in Sandakan, FRIM, Singapore, Sarawak and Kew herbaria
2006/12	Apr-Mar 2006/7	Third set of collections identified and deposited in Sandakan and Kew herbaria
2006/12	Apr-Mar 2006/7	Production of web based plant checklist
2007/1	Apr-Mar 2006/7	Data gathered in 20 plots
2007/6	Apr-Mar 2007/8	Habitat assessment & identification of HCVF's Phase 3 course

2007/6	Apr-Mar 2007/8	Plant identification second follow-up start up course given
2007/6	Apr-Mar 2007/8	fourth set of collections identified and deposited in Sandakan, FRIM, Singapore, Sarawak and Kew herbaria
2007/12	Apr-Mar 2007/8	Data gathered in 30 plots
	Apr-Mar 2007/8	Fifth set of collections identified and deposited in Sandakan, FRIM, Singapore, Sarawak and Kew herbaria
2007/12	Apr-Mar 2007/8	Production of final web based plant checklist & interactive key:
2008/3	Apr-Mar 2007/8	Plot data analysed and relevant articles submitted
2008/12	Apr-Mar 2008/9	Checklist printed

21. Set out the project's measurable outputs using the separate list of output measures.

PROJECT OUTPUTS		
Year/Month	**Standard output number (see standard output list)**	**Description (include numbers of people involved, publications produced, days/weeks etc.)**
2005/7	6A & 6B	Plant identification course 5 day course for 20 people
2005/7	20	Digital cameras and computer and office equipment of the total value of £ 10,250 is handed over
2005/12	13B	Fist set of specimens (c. 2000) identified and deposited in Sandakan, Sarawak, Singapore, FRIM and Kew herbaria
2005/12	12A	Production of web based plant checklist
2005/12	15C	Presentation of project process in the widely international distributed house journal: Kew Scientist
2006/1	6A & 6B	Habitat assessment & identification of HCVF's 5 day course for 30 people
2006/6	12B	Databasing of existing specimens finished
2006/6	6A & 6B	Habitat assessment & identification of HCVF's course, 5 day course for 15 people
2006/6	6A & 6B	Plant identification course 5 day course for 20 people
2006/6	13B	Second set of specimens (c. 3000) identified and deposited in Sandakan, Sarawak, Singapore, FRIM and Kew herbaria
2006/12	13B	Third set of specimens (3000) identified and deposited in Sandakan, Sarawak, Singapore, FRIM and Kew herbaria
2006/12	12A	Production of web based plant checklist
2007/1	12A	Data gathered in 20 plots
2007/6	6A & 6B	Habitat assessment & identification of HCVF's course, 5 day course for 15 people
2007/6	6A & 6B	Plant identification course 5 day course for 20 people
2007/6	13B	fourth set of collections (3000) identified and deposited in Sandakan, Sarawak, Singapore, FRIM and Kew herbaria
2007/8	14B	Presentation of project results at Flora Malesiana conference in Leiden in 2007
2007/12	12A	Data gathered in 30 plots
2007/12	13B	Fifth set of specimens (c. 3000) identified and deposited in Sandakan, Sarawak, Singapore, FRIM and Kew herbaria
2007/12	12A	Production of final web based plant checklist & interactive key:
2008/3	11b	Plot data analysed and series of papers submitted to international scientific refereed papers
2008/3	9	Habitat assessment for Danum valley, Maliau Basin, Imbak canyon and several key intermediate areas made
2008/3	23	Total contributions of salaries and other services from Kew and Royal Society SEARRP to a total of £ 71,820 Total contributions of salaries and other services from ProForest to a total of £ 5,200 Total contributions of services from Yayasan Sabah and FDS to a total of t £26,180
2008/3	17B	Kew and Sandakan Herbaria have a long term (>40 years)

	10	dissemination and specimens exchange network, which will be greatly enhanced
2008/12	17b	Checklist printed and distributed

M ONITORING AND EVALUATION

22. Describe, referring to the Indicators in the Logical Framework, how the progress of the project will be monitored and evaluated, including towards delivery of its outputs and in terms of achieving its overall purpose. This should be during the lifetime of the project and at its conclusion. Please include information on how host country partners will be included in the monitoring and evaluation.

Collections made during the project will be databased and accessioned into the SFD & RBG Kew herbaria, and this will be regularly monitored by the project leader. Papers will be submitted to international peer reviewed journals and their progress will be monitored by the project leader. The progress of the field guide will be monitored monthly by the build up of its website component. Results of the work will be reported to concession holders during the training course and proposals for new management strategies will be made. Staff of SFD and YS will be trained in the FSC certification process and its input during these courses will contribute directly to the FSC certification process of the area covered.