



17-003

Submit by Monday 1 December 2008

DARWIN INITIATIVE APPLICATION FOR GRANT FOR ROUND 16: STAGE 2

Please read the Guidance Notes before completing this form. Where no word limits are given, the size of the box is a guide to the amount of information required. Information to be extracted to the database is highlighted blue.

1. Name and address of organisation (NB: Notification of results will be by post)

Name: Dr Jane K. Hill	Address: Department of Biology (Area 18), University of York. York YO10 5YW
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2. Project title (not exceeding 10 words)

Developing tools for reducing biodiversity losses in tropical agricultural landscapes

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

Proposed start date: 1 June 2009		Duration of project: 3 years		End date: 31 May 2012	
Darwin funding requested	2009/10 £61,537	2010/11 £70,635	2011/2012 £65,840	2012/13 £20,426	Total £218,438

4. Define the purpose of the project (extracted from logframe)

Capacity building, training and research to enable conservationists, land managers, and policy makers to assess the ecological benefits of promoting biodiversity within agricultural landscapes, and to provide clear practical advice on the consequences for biodiversity and ecosystem function of incorporating natural forest remnants within oil palm plantations. In this way, to enable stakeholders in Sabah to promote responsible economic growth whilst maximising the conservation of biodiversity. We shall achieve these objectives by: (1) collecting new field data on species richness of key target taxa and ecosystem functioning in natural rainforest remnants and adjacent areas of oil palm, (2) quantifying forest 'spill-over' effects and the contribution of forest remnants to biodiversity and ecosystem functioning of surrounding agricultural areas in relation to remnant size and location, and (3) using computer models to integrate these data and determine the effectiveness of natural forest remnants for promoting landscape connectivity and thus conservation of biodiversity and ecosystem function. We will focus on ants and butterflies, which are highly diverse with many endemic species on Borneo, are high-profile sensitive indicators of environmental changes, and comprise species with different ecological functions (herbivores, detritivores, predators etc) thus making it possible to examine changes in ecosystem functioning as well as diversity *per se*. The methods developed by the project will also be applicable to other taxa and we shall leave a lasting legacy of personnel trained in their application.

5. Principals in project. Please provide a one page CV for each of these named individuals. You may copy and paste this table if you need to provide details of more than one overseas project partner.

Details	Project Leader	Other UK personnel (working more than 50% of their time on project)	Main project partner and co-ordinator in host country/ies
Surname	Hill		Benedick
Forename (s)	Jane		Suzan
Post held	Senior lecturer		Lecturer
Institution (if different to above)			Universiti Malaysia Sabah
Department	Biology		Sustainable Agriculture
Telephone			
Email			

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

Reference No	Project Leader	Title
14-022	JK Hill	Predictive tools for targeting conservation effort
EIDPS012	JK Hill	Darwin Fellowship – Noel Tawatao
10-025	KC Hamer	Molecular tools for promoting biodiversity

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 UK/collaborative (where there are partners in addition to the applicant organisation) and host country partners that will be involved, and explain their roles and responsibilities in the project. Describe the extent of their involvement at all stages, including project development. This section should illustrate the capacity of host country partners to be involved in the project. Please provide written evidence of partnerships. Please copy/delete boxes for more or fewer partnerships.

<p>Partner Name:</p> <p>Dr Suzan Benedick Lecturer, Department of Sustainable Agriculture, Universiti Malaysia Sabah (UMS).</p>	<p>Details (including roles and responsibilities and capacity to engage with the project):</p> <ul style="list-style-type: none"> • Local co-ordination of project, and assisting with recruiting staff • Providing training and skills in experimental design and field sampling • Providing expertise in insect identification • Assisting in the selection of field work sites • Providing training in data collection and analysis • Assisting in producing scientific papers and reports, and in disseminating information among local stakeholders <p>Dr Benedick has been a Darwin scholar and collaborated on our previous Darwin Initiative projects. She has now been appointed as a lecturer at UMS. Our on-going collaborations have highlighted an urgent need to collect biodiversity information from oil palm areas. She has worked with many of the partners on previous projects and so will ensure continuing successful interactions within the group, and further a field.</p>
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Partner Name: Dr Colin McClean Senior Lecturer, Environment Department, University of York. YO10 5DD	Details (including roles and responsibilities and capacity to engage with the project): <ul style="list-style-type: none"> • Providing training and skills in GIS and spatial analysis for DRFs • Providing training and expertise in developing computer models for examining landscape design • Assisting in the spatial analysis of research data • Assisting in writing up research findings for publication, and the development of policy briefing documents • Providing supervision for one DRF to complete a MSc by research <p>Dr McClean carries out interdisciplinary work with ecologists, economists and hydrologists dealing with socio-economic and environmental spatial data to examine the environmental impacts of land use change. Dr McClean has collaborated with project partners on a previous Darwin Initiative project.</p>
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Partner Name: Dr Keith C. Hamer Head – Genetics, Ecology & Evolution Group, Integrative & Comparative Biology, University of Leeds. LS2 9JT	Details (including roles and responsibilities and capacity to engage with the project): <ul style="list-style-type: none"> • Providing training and skills in experimental design, assessment of ecosystem function and analytical methods for DRFs • Assisting in the development of policy briefing documents • Assisting in the analysis of data from research • Assisting in the production of scientific papers for publication in peer-reviewed journals <p>Dr Hamer is currently collaborating with Universiti Malaysia Sabah and the Forest Research Centre, Sepilok (both partners in proposed project) to examine impacts of forest management on the trophic organisation of bird and ant assemblages, and has collaborated with project personnel on four previous Darwin Projects.</p>
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Partner Name: Assoc Prof Dr Abdul Hamid Ahmad Director, Institute of Tropical Biology & Conservation (ITBC), Universiti Malaysia Sabah (UMS)	Details (including roles and responsibilities and capacity to engage with the project): <ul style="list-style-type: none"> • Assisting with recruiting staff • Former and current Darwin scholars at ITBC will contribute to the training of research assistants and field staff • Two of our previous Darwin scholars now have permanent lectureships within UMS and are in excellent positions to train others <p>ITBC have been involved with many Darwin Initiative projects and have a long-standing collaborative relationship with the Royal Society SEARRP of > 15 years. ITBC have been extremely supportive of this and previous projects, recognising that they help fill major skills gaps within ITBC, e.g. in experimental design and statistical analysis.</p>
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<p>Partner Name:</p> <p>Dr Chey Vun Khen Senior Forest Entomologist Forest Research Centre, Sabah Forestry Department (SFD) PO Box 1407, 90715 Sandakan, Sabah</p>	<p>Details (including roles and responsibilities and capacity to engage with the project):</p> <ul style="list-style-type: none"> • Providing permission to export invertebrate material to the UK for identification • Providing permission to sample in Protected Area forest fragments • Assisting in recruiting staff • As a department of the Sabah State Government, SFD will be a key partner in the development of policy statements and briefings • Providing expertise in invertebrate taxonomy <p>On-going collaborations with SFD revealed a lack of knowledge of the conservation value of forest remnants within agricultural areas, if remnants deserved higher priority protection, and whether or not ecosystem function was maintained in remnants; this project arises directly from these discussions.</p>
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<p>Partner Name:</p> <p>Dr Siti Ramlah Head of Entomology, Malaysian Palm Oil Board (MPOB), Bandar Baru Bangi, 43000 Kajang, Selangor, Malaysia</p>	<p>Details (including roles and responsibilities and capacity to engage with the project):</p> <ul style="list-style-type: none"> • Providing information on oil palm production in Malaysia • As a department of the Federal Government, MPOB will be a key partner in the development of policy statements and briefings throughout Malaysia • Assisting in disseminating results at International Palm Oil Congresses (e.g. PIPOC) • Facilitating access to field sites in Sabah <p>Dr Siti's attendance at a recent DI workshop we organised resulted in discussions that revealed an urgent research and training need of staff in assessing biodiversity in oil palm plantations, and in designing agricultural landscapes for promotion of biodiversity.</p>
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<p>Partner Name:</p> <p>Calley Beamish Biodiversity & Conservation Manager, PPB Oil Palm Bhd., Sandakan 90009, Sabah</p>	<p>Details (including roles and responsibilities and capacity to engage with the project):</p> <ul style="list-style-type: none"> • Providing knowledge of current agricultural practices, particularly in relation to sustainable oil palm production and HCV forest • Facilitating access to field sites • Development of policy statements and briefings • Assisting in feeding back project findings to RSPO members <p>Calley Beamish reports on RSPO responsibilities and CSR for PPB, part of a large multinational palm oil company in SE Asia. She is responsible for developing ideas of protecting natural forest areas in order to promote biodiversity in oil palm.</p>
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Partner Name: Dato' Henry S. Barlow Environmental PO Box 10139, 50704 Kuala Lumpur	Details (including roles and responsibilities and capacity to engage with the project): <ul style="list-style-type: none"> • Assisting in promoting knowledge exchange mechanisms for translating outputs from the project's findings into RSPO policy • Assisting in the development of policy briefing documents • Assisting in the selection of field work sites and facilitating access to sites • Providing knowledge of current agricultural practices in oil palm plantations <p>Henry Barlow is an environmentalist in Malaysia with an interest in Lepidoptera. He is on the board of multinational Sime Darby Bhd. (assets include >100 oil palm estates covering ~1.5 million ha). He is also a prominent member of the 'Roundtable for Sustainable Palm Oil' (RSPO), and has strong involvement with the Malaysian Nature Society (including publishing their journals and books).</p>
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Partner Name: Dr Glen Reynolds Royal Society SE Asian Rainforest Research Programme (SEARRP) Manager, Danum Valley, Sabah	Details (including roles and responsibilities and capacity to engage with the project): <ul style="list-style-type: none"> • Providing access to facilities, equipment and personnel for field work including field assistants and vehicles • Organising the workshop and facilitating interactions among stakeholder groups • Providing practical assistance in gaining permission and access to field sites <p>Dr Reynolds is science manager of SEARRP, based at Danum Valley Field Station, Sabah. He facilitates research collaboration amongst local and international researchers, conservationists and policy makers. Our discussions with him confirmed the timeliness of the project and facilitated selection of potential fieldwork sites. Potential linkages with Dr Reynolds current DI project will enhance the skills and training components of both projects.</p>
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9a. Have you consulted stakeholders not already mentioned above?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If yes, please give details: The British High Commissioner to Malaysia and Environmental staff from the High Commission have been informed of our previous research projects in Sabah, will be invited to attend our Darwin workshop in year 3 of the project and will be circulated into policy briefings developed as part of the project.	
9b. Do you intend to consult other stakeholders?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
yes, please give details: Participation at the workshop disseminating research findings in year 3 will be sought from various research institutes and conservation organisations throughout Malaysia (e.g. the ASEAN Centre for Biodiversity, Global Diversity Foundation, WWF-Malaysia, Department of Agriculture) and through contacts with our partners at MPOB, PPB Oil Palm Bhd., Sime Darby Bhd., and RSPO.	
9c. Have you had any (other) contact with the government not already stated?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
If yes, please give details: The Director of the Malaysian Government's Economic Planning Unit (Sabah office) will be invited to attend the workshop. They will also be circulated into policy statements and briefings developed as part of the project	

9d. Is any liaison proposed with the CBD/CMS/CITES focal point in the host country? Yes No
If yes, please give details:

The CBD focal point for Malaysia (Ministry of Natural Resources and the Environment) will be invited to the workshop and circulated into policy-related material arising from the project.

PROJECT DETAILS

10. Please provide a Concept note (Max 1,000 words) (repeat from Stage 1, with changes highlighted)

In the face of continued loss of tropical rainforests and the conversion of land for agricultural use, conservationists, land managers and policy makers need to develop strategies for balancing the reduction of biodiversity losses following land-use changes with maintenance of economic development. One potential strategy is to have patches of forest within agricultural areas. For example, recent evidence from temperate regions indicates that biodiversity is less likely to be lost from degraded landscapes which contain patches of natural habitats (so called 'stepping stone' habitats and 'corridors for life'), but information is lacking for tropical regions even though such regions are exceptionally diverse and face considerable threats from land-use changes. Thus, there is a knowledge-gap in tropical regions due to: (1) a lack of information on the biodiversity benefits of natural forest habitats within agricultural areas; (2) a lack of data to inform evidence-based decisions on the design of rural landscapes and the optimum size and placement of forest areas; and (3) a lack of trained personnel able to analyse and model biodiversity data to determine the ecosystem consequences of different conservation strategies. In addition, rainforests are known to provide key ecosystem services and functions (e.g. watershed protection, carbon storage, pollination) but it is unclear whether small forest remnants within agricultural areas would provide similar benefits. In view of the high rate at which forests are being converted into agriculture, empirical data are urgently required to address this issue.

The Malaysian State of Sabah in northern Borneo is biologically very rich yet financially poor. Oil palm *Elaeis guineensis* Jacq., is a major global commodity and >50% of Sabah's GDP is dependent on oil palm, exceeding timber as the most important State commodity. Malaysia plans to increase oil palm production by up to 50% by 2015, and in the light of international concern about the impact of oil palm plantations on the natural environment in such a highly biodiverse region, Sabah plantation managers and local communities are keen to develop more environmentally sustainable methods of oil palm production that reduce biodiversity losses. There have been recommendations that plantations should contain natural forest remnants, but there currently are no data on the effectiveness of such an approach and no clear guidelines on best-practice in terms of the size, number and placement of forest remnants within plantations. Moreover, most consideration to date has been simply on reducing biodiversity losses following land-use changes and there has been no consideration of the potential benefits of forest remnants in terms of ecosystem functioning. For example, forest remnants may be sources of beneficial insects such as predators and detritivores that can make a vital contribution to biological functioning within agricultural areas. Thus forest remnants may not only promote biodiversity in surrounding areas but also improve agricultural productivity, although data currently are lacking.

This project will help the State of Sabah meet its obligations to the CBD by developing new methods for reducing biodiversity losses in agricultural landscapes. It will also help reduce future threats to tropical forests by examining how biodiversity contributes towards increasing productivity on existing plantations, thus helping to avoid deforestation and conversion of land to new plantations. In achieving these goals, we shall increase knowledge, awareness and capacity by providing data, analytical tools and trained personnel. This will assist conservationists, land managers and policy makers in Sabah to achieve an optimal balance between reducing biodiversity losses and economic development.

This project will bring together a wide range of partners. Two Darwin Research Fellows (DRFs) will be recruited from our host organisations to collect and analyse data on biodiversity and ecosystem functioning in forest remnants comprising a range of sizes and degrees of isolation, and in surrounding agricultural areas. They will also receive training both locally and in the UK. Jane Hill (York) will oversee the project and train DRFs in quantitative invertebrate census methods, identification and taxonomy. Keith Hamer (Leeds) will provide training in experimental design,

assessment of ecosystem function and analytical methods. Colin McClean (York) will provide training in spatial modelling techniques and GIS. The DRFs will also receive training in data analysis, conservation ecology and environmental management at York and Leeds through their Masters graduate taught degree programmes. Suzan Benedick (School of Sustainable Agriculture, UMS) and Hamid Ahmad (Institute of Tropical Biology & Conservation, UMS) and will co-ordinate the project locally and assist in recruiting the DRFs. (*Since our Stage 1 application, project partner at UMS Prof Maryati Mohamed has retired and Assoc Prof Dr Hamid is now Head of ITBC*). Chey Yun Khen (Chief Entomologist, FRC) will provide permits to sample in forest remnants, and permission to export invertebrate material to the UK for identification. Dr Siti Ramlah (Head of Entomology, MPOB) and Calley Beamish (Biodiversity & Conservation Manager, PPB Oil Palm Bhd.) will facilitate access to field sites in oil palm. Henry Barlow (RSPO) will comment on project results and policy recommendations and provide direct links to RSPO as well as to one of the largest oil palm producing companies in SE Asia (Sime Darby Bhd.), thus ensuring that our results are given full attention by high-level policy makers and land managers. Glen Reynolds (RS SEARRP) will provide practical support locally for field work through provision of trained field assistants, and access to all research facilities at Danum Valley Field Centre, Sabah.

Project partners (York, Leeds, UMS, FRC, SEARRP) have collaborated successfully together on several previous Darwin Initiative projects. One of the DRFs employed on this project will be Noel Tawatao who has previously received a Darwin Fellowship (EIDPS012) and thus is ideally placed to train the other DRF (e.g. in ant ID and taxonomy, experimental design, statistical analysis), as well as receiving further training in new skills. In addition, Dr Suzan Benedick was involved in three of our previous Darwin projects and is now a Lecturer in Sustainable Agriculture at UMS, making her ideally placed to be a trainer herself. The project will leave a lasting legacy of increased knowledge, awareness and two fully-trained DRFs equipped with the tools and expertise to further promote biodiversity and ecosystem functioning in mosaic agricultural landscapes.

**11a. Is this a new initiative or a development of existing work (funded through any source)?
Please give details:**

This is a new initiative although it builds strongly on previous DI projects in Sabah.

11b. Are you aware of any other individuals/organisations/Darwin Initiative projects carrying out similar work? Yes No
If yes, please give details explaining similarities and differences, and explaining how your work will be additional to this work and what attempts have been/will be made to co-operate with and learn lessons from such work for mutual benefits:

12. Please indicate which of the following biodiversity conventions your project will contribute to: -

At least one must be selected.

- Only indicate the conventions that your project is directly contributing to.

- No additional significance will be ascribed for projects that report contributions to more than one convention

Convention on Biological Diversity (CBD)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
CITES	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Convention on Migratory Species (CMS)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

What will change as a result of this project? (150 words)

This project will provide clear evidence-based recommendations of best-practice for designing sustainable agricultural landscapes. In doing so, it will provide new data on the conservation value of forest remnants within agricultural landscapes and their contribution to agro-ecosystem functioning and productivity, which will be published in peer-reviewed scientific papers. In addition, we will build capacity and leave a lasting legacy of fully trained staff able to carry out fundamental ecological research and equipped with the tools and expertise to promote biodiversity and ecosystem functioning in mosaic agricultural landscapes, and thus capable of training others. The

project will also develop policy documents and hold a stakeholder workshop to disseminate research findings and thus ensure that project outputs are made available to forest and land managers and likely to be incorporated in future forestry and agricultural land management plans and strategy.

Why is the project important for the conservation of biodiversity? (150 words)

Previously extensive tracts of tropical forest are being fragmented and now persist as remnants scattered across agricultural landscapes. This is particularly true of Borneo where many areas of forest are being replaced by oil palm plantations. Increasingly, these human-modified areas are coming to dominate tropical landscapes and so the conservation of regional biodiversity requires the development of landscape management methods to reduce biodiversity losses in these predominantly agricultural areas. This project will quantify the biodiversity in forest fragments and surrounding oil palm. It will examine the degree to which remnants contribute to regional biodiversity in agricultural landscapes as well as determining the degree to which remnants promote agro-ecosystem functioning and productivity. We will focus on ants and butterflies, whose diversity on Borneo is high, with many endemic species dependent on closed-canopy forest and whose ability to persist in agricultural landscapes is unknown. By carrying out research and building capacity of fully-trained scientists, the project will leave a lasting legacy of research and skills for conserving tropical diversity and ecosystem functioning in the long term.

How does this relate to one or more of the biodiversity conventions? (150 words)

This proposal relates specifically to the following CBD articles:

7. Identification and Monitoring. New field data for butterflies and ants will be collected from a range of forest remnants within oil palm plantations in order to quantify alpha and beta diversity and 'spill-over' effects of species into surrounding oil palm areas.

10. Sustainable use of components of Biological Diversity. New field data will be collected for ants to determine the degree to which remnants retain ecosystem functioning of continuous forest areas, and contribute to the functioning and productivity of agricultural ecosystems.

12. Research and Training. Two DRFS will be trained in experimental design, field techniques and computer modelling for assessing landscape connectivity.

The proposal also directly addresses the cross-cutting themes of 'Ecosystems approach', and 'Sustainable Use and Biodiversity'.

13. How will the results of the project be disseminated; how will the project be advertised as a Darwin project and in what ways will the Darwin name and logo be used? (max 200 words)

The University of York and collaborating Institutions will advertise the project as a Darwin project through use of the name and logo on all information, publications, databases and literature, at workshops, conferences and other meetings and in press releases and magazine articles. This will include:

- Incorporating the Darwin logo on all web-based information
- Inviting national and regional media to attend the workshop – with Darwin logos included in workshop backdrops and briefing materials
- Acknowledging Darwin funding in scientific publications, policy reports, and at conference presentations.
- Incorporating the Darwin logo on project publicity material e.g. postcards.

14. What will be the long term benefits of the project in the host country or region and have you identified any potential problems to achieving these benefits? (max 200 words)

We expect that the long term benefits of this project will be:

- Building and increasing capacity within regional research institutes to design their own research and monitoring programmes for promoting biodiversity in agricultural landscapes
- Contributing to the evidence base for policy makers and natural resource managers to make informed decisions on the conservation and management of forest fragments within landscapes dominated by agriculture
- Training of postgraduate and post-doctoral researchers (Darwin Research Fellows) from the host country in the design and establishment of biodiversity experiments, data analysis and computer simulation modelling using model datasets collected as part of the research component of the project.
- Contributing to national and regional policy development
- Contributing to the development of policy within the Round Table for Sustainable Palm Oil production
- Contributing to the Malaysian and other regional governments' implementation of the CBD
- Leaving a lasting legacy of two fully trained DRFs able to train others

15. State whether or not the project will reach a stable and sustainable end point. If the project is not discrete, but is part of a progressive approach, give details of the exit strategy and show how relevant activities will be continued to secure the benefits from the project. Where individuals receive advanced training, for example, what will happen should that individual leave? (Max 200 words)

This is a discrete project that will reach a stable and sustainable end point. Databases and fully catalogued insect collections will be housed with project partners (FRC, ITBC) and will continue to be updated for long-term monitoring of biodiversity in agricultural areas well beyond the end of the grant period. Policy documents written in the final year of the project will include recommendations for future monitoring and research. These will be written in consultation with Conservation Officers, Regional Forestry Managers, and Palm Oil managers to ensure that recommendations are implemented. Facilities for housing permanent faunal collections are already in place within partner organisations (FRC and ITBC) so that the availability of fully trained staff resulting from this project will ensure that research on biodiversity changes in agricultural areas on Borneo continues beyond the lifetime of the project. The project will train two DRFs. Our previous experience with DRFs is that they successfully complete projects, but if staff were to leave, our strong links with Universiti Malaysia Sabah and the Forest Research Centre, Sabah would help to ensure that a suitably qualified replacement candidate could be found.

16. If your project includes training and development, please indicate how you will assess the training needs in relation to the overall purpose of the project. Who are the target groups? How will the training be delivered? What skills and knowledge do you expect the beneficiaries to obtain. How will you measure training effectiveness. (max 300 words)

You should address each of these points.

Two Sabahan graduate biologists (DRFs) will be trained at York and Leeds in a wide range of ecological and modelling techniques. In addition to specific training from UK personnel in data collation, GIS, computer modelling, statistical analysis and fieldwork, the DRFs will also attend taught Masters courses on topics in conservation ecology and biodiversity (through taught Masters courses at Leeds and York). The effectiveness of this training will be measured through close monitoring of the work produced throughout the project, the production of new databases and computer model output, and the publication of project findings. DRFs will be appointed on the basis of qualifications and aptitude. We have already identified the candidate for DRF1 (Noel Tawatao) who has close ties with UMS and FRC and who has previously collaborated with us through his Darwin Fellowship. DRF2 will register locally for a MSc degree and the effectiveness of their training will be assessed through their successful completion of the degree programme. Both

Fellows will obtain skills and knowledge in conservation biology and tropical ecology, knowledge exchange, sustainable agriculture, policy development and implementation. In addition, they are likely to be employed by one of the host organisations at the end of the project. This will guarantee continued use of skills learnt during the project, and thus the DRFs will be ideally placed to train others. At the end of the project, the DRFs will have attained advanced skills in computer modelling, taxonomic and experimental design for which there is a strong demand from potential employers.

LOGICAL FRAMEWORK

17. Please enter the details of your project onto the matrix using the note at Annex 3 of the Guidance Note. This should not have substantially changed from the Logical Framework submitted with your Stage 1 application. Please highlight any changes. (Use no smaller than Arial 10 pt)

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: Reducing losses of biodiversity and ecosystem functioning in tropical mosaic agricultural landscapes of Sabah (Malaysian Borneo).	Conservation of rainforest remnants reduces biodiversity losses and supports ecosystem functioning in adjacent agricultural areas.	Field data quantifying biodiversity and ecosystem functioning in forest remnants and surrounding landscapes.	
Purpose Increased capability at local and national levels used to determine ecological benefits of natural rainforest remnants for reducing biodiversity losses in oil palm plantations.	Dialogue with stakeholders indicates that project outputs have contributed to application of management policy for promoting agricultural biodiversity in Sabah within 3 years of end of project.	Public dissemination of policy for reducing biodiversity loss in agricultural areas. Surveys of local agencies confirm implementation of policy.	Local agencies are capable of implementing management methods that promote biodiversity. A mechanism to promote this capability is provided through the RSPO.
Outputs (add or delete rows as necessary) 1. Improved capacity for capturing, analysis and computer modelling of ecological data. Development of standardized protocols for research.	Two DRFs successfully trained in ant and butterfly sampling and identification techniques, in quantifying ecosystem functioning, and in spatial modelling of ecological data.	Training workshop reports evaluated by Project Leader. DRFs demonstrate competence in field sampling and data capture techniques and apply them successfully in Sabah.	Darwin Fellows remain active and fully committed to project. This will be greatly enhanced by our strong links with local agencies and project partners, two of whom were Darwin Fellows on previous projects.
2. Clear advice provided to managers and policy makers at national and regional levels and through RSPO group and ASEAN biodiversity network.	Draft recommendations for management of forest remnants and agricultural areas in Sabah by year 2, revised year 3.	Management recommendations checked and discussed with forest and plantation managers in Sabah.	Managers capable of implementing policies. Biodiversity recommendations supported by RSPO This will be greatly enhanced by our collaborators' involvement in the project from the outset.

<p>3. Research data provided on how biodiversity and ecosystem function in oil palm areas relate to size and proximity of forest remnants.</p>	<p>Databases constructed and used to produce species richness estimates for key taxa in forest remnants and surrounding agricultural areas, plus ecosystem function estimates. Data incorporated into spatially explicit computer models to quantify landscape permeability and to identify best areas for forest protection and reforestation.</p>	<p>Annual research reports, academic papers published in peer-reviewed international research journals, public media articles and presentations at seminars and conferences in Sabah and internationally.</p>	<p>Analysis of new field data provides clear interpretable findings that can be translated into management recommendations and policy.</p>
<p>4. Raising of awareness of project findings and latest research methods, and dissemination of information.</p>	<p>Workshop held at end of project. Findings made available via the web.</p>	<p>List of participants and workshop outputs.</p>	<p>Invited key participants available and willing to attend workshop. Experience from previous projects indicates this will not be a problem.</p>
<p>Activities (details in workplan)</p> <ul style="list-style-type: none"> 1.1 Training of 2 DRFs 1.2 Sabah collaborators visit UK 1.3 Production of 3 educational packages 2.1 UK staff supervise fieldwork 2.2 Production of management plan 2.3 Production of species data bases & reference collection 3.1 Submit papers for publication 3.2 Presentation of results at conferences 3.3 Dissemination of results in media 3.4 Production of annual newsletters 			
<p>Monitoring activities:</p> <ul style="list-style-type: none"> Indicator 1 Continual assessment of data collection during field work Indicator 2 Successful completion of MSc degree Indicator 3 Successful publication of findings in peer-reviewed journals 			

18. Provide a project implementation timetable that shows the key milestones in project activities. Complete the following table as appropriate to describe the intended workplan for your project.

Activity	Months	Year 1				Year 2				Year 3			
		1	2	3	4	1	2	3	4	1	2	3	4
1.1 Training of 2 Sabahan biologists (DRFs;18 months each) at York & Leeds Universities in database design, landscape connectivity modelling, field sampling and statistical techniques	36	√				√				√	√	√	√
1.2 Sabah collaborators to visit the UK to attend conferences and to gather information on teaching and insect taxonomy	3			√				√				√	
1.3 Production of 3 educational packages (pamphlet, poster, powerpoint presentation) to assist in teaching analytical and modelling techniques to local scientists and to interpret project results for local communities.	2												√
2.1 UK staff to spend a total of 8 person weeks per year in Sabah training the Darwin personnel in the field and liaising with overseas partners.	6	√				√				√			
2.2 Production of management plan for promoting biodiversity in agricultural landscapes, detailing conservation priorities of existing forest remnants (in terms of size, placement and spill-over effects) and using computer model output to predict likely changes in biodiversity distribution under various land-use change scenarios (both increasing and decreasing the number & size of remnants).	6											√	√
2.3 Production of databases of butterfly and ant species distributions and abundances (1 per site) in different forest remnants. Production of fully labelled collection of specimens arising from fieldwork. All to be housed with overseas and UK partners.	12				√				√			√	√
3.1 3 papers accepted and 3 papers submitted on describing species richness and ecosystem functioning of forest remnants, evaluating 'spill-over' effects into oil palm, quantifying landscape permeability and connectivity with computer models, and examining changes in regional biodiversity under various land-use change scenarios.	8						√				√	√	√
3.2 Presentation of results at conferences of the British Ecological	3		√				√				√		

	Society (3), Royal Entomological Society (1) the Sabah Society (1) and UMS (1), and organisation of a workshop (1) at UMS.												
3.3	Dissemination of results through Sabahan (1) and British (1) media where appropriate	1					√						√
3.4	Production of annual newsletters by DRFs disseminating information among project partners, and more widely	1				√				√			√
4.1													
4.2													
4.3													
4.4													
4.5													
5.1													
5.2													
5.3													
5.4													
6.1													
6.2													
6.3													
6.4													
6.5													

19. Please indicate which of the following Standard Measures you are likely to report against. You will not necessarily plan to cover all these Standard Measures in your project.

Standard Measure No	Description	Tick if Relevant
1A	Number of people to submit thesis for PhD qualification (in host country)	
1B	Number of people to attain PhD qualification (in host country)	
2	Number of people to attain Masters qualification (MSc, MPhil etc)	1
3	Number of people to attain other qualifications (ie. Not outputs 1 or 2 above)	
4A	Number of undergraduate students to receive training	
4B	Number of training weeks to be provided	72
4C	Number of postgraduate students to receive training	1
4D	Number of training weeks to be provided	
5	Number of people to receive at least one year of training (which does not fall into categories 1-4 above)	1
6A	Number of people to receive other forms of education/training (which does not fall into categories 1-5 above)	
6B	Number of training weeks to be provided	72
7	Number of (ie different types - not volume - of material produced) training materials to be produced for use by host country	
8	Number of weeks to be spent by UK project staff on project work in the host country	24
9	Number of species/habitat management plans (or action plans) to be produced for Governments, public authorities, or other implementing agencies in the host country	1
10	Number of individual field guides/manuals to be produced to assist work related to species identification, classification and recording	3
11A	Number of papers to be published in peer reviewed journals	3
11B	Number of papers to be submitted to peer reviewed journals	3
12A	Number of computer based databases to be established and handed over to host country	2
12B	Number of computer based databases to be enhanced and handed over to host country	1
13A	Number of species reference collections to be established and handed over to host country(ies)	
13B	Number of species reference collections to be enhanced and handed over to host country(ies)	2
14A	Number of conferences/seminars/ workshops to be organised to present/disseminate findings	1
14B	Number of conferences/seminars/ workshops attended at which findings from Darwin project work will be presented/ disseminated.	6
15A	Number of national press releases in host country(ies)	2
15B	Number of local press releases in host country(ies)	2
15C	Number of national press releases in UK	1
15D	Number of local press releases in UK	1
16A	Number of newsletters to be produced	3
16B	Estimated circulation of each newsletter in the host country(ies)	
16C	Estimated circulation of each newsletter in the UK	
17A	Number of dissemination networks to be established	
17B	Number of dissemination networks to be enhanced/ extended	
18A	Number of national TV programmes/features in host country(ies)	
18B	Number of national TV programmes/features in UK	
18C	Number of local TV programmes/features in host country(ies)	
18D	Number of local TV programmes/features in UK	
19A	Number of national radio interviews/features in host county(ies)	1
19B	Number of national radio interviews/features in UK	1
19C	Number of local radio interviews/features in host country(ies)	
19D	Number of local radio interviews/features in UK	
20	Estimated value (£'s) of physical assets to be handed over to host country(ies)	
21	Number of permanent educational/training/research facilities or organisations to be established and then continued after Darwin funding has ceased	
22	Number of permanent field plots to be established during the project and continued after Darwin funding has ceased	10
23	Value of resources raised from other sources (ie in addition to Darwin funding) for project work	

PROJECT BASED MONITORING AND EVALUATION

20. 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.

- UK project leader and other UK/host staff to continually monitor data collection and analysis in forest fragments
- Papers reporting project findings submitted to refereed journals.
- Reports and policy statements circulated to all project partners for comment and review and discussed at project workshop prior to publication
- UK/Host project leaders to co-supervise DRF registered for MSc degree

FUNDING AND BUDGET

Please complete the separate Excel spreadsheet which will provide the Budget information for this application. Some of the questions below refer to the information in this spreadsheet.

NB: Please state all costs by financial year (April to March). Use current prices – and include anticipated inflation, as appropriate up to 3% per annum. The Darwin Initiative will not be able to agree increases in grants to cover inflation on UK costs once grants are awarded.

21. How is your organisation currently funded? (max 100 words)

UK University

22. Provide details of all confirmed funding sources identified in the Budget that will be put towards the costs of the project, including any income from other public bodies, private sponsorship, donations, trusts, fees or trading activity. Please include any additional unconfirmed funding the project will attract to carry out additional work during or beyond the project lifetime. Indicate those funding sources which are confirmed.

Confirmed: £164,905

Unconfirmed: n/a

Stage 2 Application - Checklist for submission

	Check
Have you provided actual start and end dates for your project?	√
Have you provided your budget based on UK government financial years ie 1 April – 31 March?	√
Have you checked that your budget is complete, correctly adds up and that you have included the correct final total on the top page of the application?	√
Is the concept note within 1,000 words?	√
Is the logframe no longer than 2 pages and have you highlighted any changes since Stage 1?	√
Has your application been signed by a suitably authorised individual? (clear electronic or scanned signatures are acceptable)	√
Have you included a 1 page CV for the Project Leader, any other UK staff working 50%+ on this project, and for a main individual in each overseas partner organisation?	√
Have you included a letter of support from the main overseas partner organisations?	√
Have you checked with the FCO in the project country/ies and have you included any evidence of this?	n/a
Have you included a copy of your most recent annual report and accounts? An electronic link to a website is acceptable.	√
Have you read the Guidance Notes ?	√

Once you have answered Yes to the questions above, please submit the application, not later than midnight GMT on **Monday 1 December 2008** to Darwin-Applications@ltsi.co.uk using the application number (from your Stage 1 feedback letter) and the first few words of the project title **as the subject of your email**. However, if you are e-mailing supporting documentation separately please include in the subject line an indication of the number of e-mails you are sending (eg whether the e-mail is 1 of 2, 2 of 3 etc). **In addition**, a hard copy of the application and any supporting documents not available electronically should be submitted to the Darwin Applications Management Unit, c/o ECTF, Pentlands Science Park, Bush Loan, Penicuik EH26 0PL **postmarked** not later than **Tuesday 2 December 2008**.

DATA PROTECTION ACT 1998: Applicants for grant funding must agree to any disclosure or exchange of information supplied on the application form (including the content of a declaration or undertaking) which the Department considers necessary for the administration, evaluation, monitoring and publicising of the Darwin Initiative. Application form data will also be held by contractors dealing with Darwin Initiative monitoring and evaluation. It is the responsibility of applicants to ensure that personal data can be supplied to the Department for the uses described in this paragraph. A completed application form will be taken as an agreement by the applicant and the grant/award recipient also to the following:- putting certain details (ie name, contact details and location of project work) on the Darwin Initiative and Defra websites (details relating to financial awards will not be put on the websites if requested in writing by the grant/award recipient); using personal data for the Darwin Initiative postal circulation list; and sending data to Foreign and Commonwealth Office posts outside the United Kingdom, including posts outside the European Economic Area. Confidential information relating to the project or its results and any personal data may be released on request, including under the Environmental Information Regulations, the code of Practice on Access to Government Information and the Freedom of Information Act 2000.