



Submit by Friday 20 February 2009

APPLICATION FOR DARWIN FELLOWSHIP PROGRAMME ROUND 16

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 UK Host organisation (NB: Notification of results will be by post and addressed to the main UK Expert listed in Section 5)

Name: Dr Mark Watson	Address: Royal Botanic Garden Edinburgh, 20a Inverleith Row, Edinburgh, EH3 5LR www.rbge.org.uk
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2. Name and official address of proposed Darwin Fellow (including contact details where available)

Lokesh Ratna Shakya Department of Botany, Amrit Campus, Tribhuvan University Thamel, Kathmandu, Nepal

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

Proposed start date: 1/9/2009	Duration of project: One year		End date: 31/8/2010
Darwin funding requested	2009/10 £10110	2010/11 £6430	Total £16540

4. Summary of proposed Fellowship (no more than 100 words)

<p>Almost all of the 388 orchid species in Nepal are threatened. Conservation activities are severely hampered by lack of reliable information on their taxonomy, ecology and distribution: both within protected areas and outside. Much of these data can be discovered in herbaria in the UK and Nepal which hold the collections of past botanical expeditions. Dr Lokesh Shakya, expert on Nepalese orchids, will augment his study of specimens in Nepal by working on those housed in Britain. He will study alongside UK orchid experts, and finalise the much needed account of orchid for the Flora of Nepal: filling a critical gap in the knowledge of the Indo-Burmese Global Biodiversity Hotspot.</p>
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5. Principals in the Project. Please give the details of the individuals from the UK host organisations (and other institutions if relevant) who would be directly involved in supervising/working with the Darwin Fellow. 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	Main UK expert	Other UK expert	Other UK expert	Other UK expert
Surname	Watson	Pendry		
Forename(s)	Mark	Colin		
Post held	Flora of Nepal Coordinator	Flora of Nepal Reseracher		
Institution (if different to UK Host)				
Department	Science	Science		
Telephone				
Email				

6. Describe briefly the aims, activities and achievements of the UK Host organisation. (Large institutions please note that this should describe your unit or department) (150 words)

RBGE's mission statement is 'to explore and explain the world of plants'. It has an international reputation as a centre for excellence in plant taxonomy, molecular systematics and biodiversity science based on its rich herbarium, living collections, library and archives. RBGE has wide-ranging education activities which include PhD, MSc, BSc, HND courses as well diverse public education programmes.

RBGE contributes to many Flora projects worldwide, and coordinated the recently completed European Garden Flora (2000), Flora of Bhutan (2002) and Ethnoflora of the Socotra Archipelago (2004). The Floras Group manages the Flora of Nepal in collaboration with the University of Tokyo and Tribhuvan University and the Department of Plant Resources in Kathmandu. The Group is developing innovative biodiversity informatics tools to aid compilation of Floras and has an active fieldwork schedule. In addition to the Nepal project RBGE has successfully undertaken Darwin projects in Bhutan, Vietnam, Turkey, Laos, Peru and Chile.

7. Describe briefly the aims, activities and achievements of the proposed Darwin Fellow's employing organisation. (Large institutions please note that this should describe your unit or department) (150 words)

The Amrit Campus of Tribhuvan University, Kathmandu, Nepal, specialises in undergraduate teaching. The Botany course run by the Botany Department includes plant taxonomy, ecology and other related fields. The Botany Department also runs an active Research Laboratory which is working on orchid systematics and conservation in Nepal. The ongoing programme of exploration is focussed towards different parts of the country and involves both *in-situ* and *ex-situ* conservation techniques. From the result of these explorations department has been successful in projects aimed at conserving orchids of Raja Rani in the east, Kathmandu Valley in the centre and Annapurna Conservation Area in the west. An Orchidarium has been established in the campus for cultivation of wild origin orchids from Nepal and used for *ex-situ* conservation as well as further scientific study.

8. Describe briefly the proposed Fellow's current role within their organisation and their link to a Darwin project, including the project reference number, his/her role in that project and any ongoing involvement. (200 words)

Dr Lokesh Shakya's primary role in Department of Botany, Amrit Campus, is undergraduate teaching. He has been actively teaching botany (Plant Systematic) for the last twenty years. Besides teaching he is actively involved in several research projects concerned with the taxonomy and conservation of orchids of Nepal. Specifically he has worked as Principal Investigator for the following projects:

"Status of Orchids in Ilam district" funded by Tribhuvan University, 1992

"Conserving the Threatened Orchids of Kathmandu Valley" funded by WWF Nepal Program 1994

"Study of Orchid Flora of Raja Rani (Morang District) and adjoining areas and their conservation" funded by Sandigo Orchid Society, USA, 2003

"Conserving Threatened Orchids of Southern Part of Annapurna Range" funded by Chicago Zoological Society, USA, 2005.

Currently he is involved in the project entitled "Conserving Threatened Orchids of Shivapuri National Park" funded by University Grants Commission.

Dr Shyakya was one of sixteen Darwin Scholars during Project 162/12/030 'Building Capacity for Plant Biodiversity, Inventory and Conservation in Nepal'. He participated fully in all the activities of the Project and was one of the top performers. After the Darwin project, Dr Shakya has regularly been involved in the study and collection of orchids for the Flora of Nepal Project.

9. Provide a concept note on the Darwin Fellowship (maximum 1,000 words). This should include:

- a clear outline of the aim and objectives of the Fellowship
- the role of the UK Host organisation, and others where relevant (including contacts)
- where appropriate, how the Fellowship will contribute towards sustainable development or sustainable livelihoods

Nepal is a small country spread along the southern slopes of the central Himalayas. It is located between the latitudes 26° 22' and 30° 27' N and the longitudes 80° 40' and 88° 12' E. Nepal is a biodiversity rich country with over 2% of the world's plant species contained within a country extending over barely 0.1% of the Earth's land surface. Nepal is part of the Indo-Burmese Biodiversity Hotspot, and a major part of its Himalayan component. The Orchidaceae mirror this rich biodiversity and almost 400 species have so far been recorded within Nepal and botanical exploration continues to add new records or new species every year. Many of these orchid species are under threat, and some are at verge of extinction. Despite CITES protection, almost all the orchids of Nepal are threatened due to deforestation and over collection. Government and NGO's involved in conservation in Nepal want to address these issues, but effective conservation planning is severely restricted by the general lack of reliable data on the taxonomy, nomenclature, ecology and distribution of the orchids in Nepal. It is even difficult to get accurate inventories for protected areas in Nepal let alone the more threatened areas outside. Much of the fundamental baseline data needed by conservation agencies and other bioscientists is currently buried away in herbaria and the specimen collections they contain. These specimens need to be critically consulted and the information synthesised into documentation that others can use: the Flora of Nepal and spin off field guides.

This fellowship is aimed at providing this baseline information for the orchids of Nepal. Dr Lokesh Shakya has studied the orchids of Nepal for many years, both in the field and in the herbarium collections in Nepal. He will build on this by extending his study to the herbarium and literature collections held in the UK and finalise the draft account of the Orchidaceae for Flora of Nepal. This will be distributed in electronic format via the Flora of Nepal website (www.floraofnepal.org) and printed publication. The website will enable access to the specimen level information and geo-located specimen records, hence filling a requirement for electronic occurrence data to feed into GIS and other analysis programmes.

The first floristic publication on the Flora of Nepal, David Don's *Prodromus Florae Nepalensis* (1825), included some 51 species of orchids. The early specimens collected from Nepal in the 19th century are housed at Natural History Museum, London (BM) and Royal Botanic Gardens, Kew (K), and so unavailable to botanists working in Nepal. Nepal opened its borders to foreign botanists late 1940's and since then there have been extensive collection of orchids of Nepal by British, Japanese, Nepalese, French, Indian and Swiss scientists

from different parts of the country. The UK remains an important centre for Nepalese collections and originals and duplicate specimens from these collections are housed at Royal Botanic Garden Edinburgh (E), BM and K. The UK is also a centre of excellence in the study of Himalayan orchids, with specialists at Kew (N.R.Pearce, P.J.Cribb) taking the lead in the production of the Orchidaceae volume of RBG Edinburgh's Flora of Bhutan. This fellowship will enable Dr Shakya to complete his research on the Orchids of Nepal by consulting the collections at E, BM and K, and working alongside Orchid specialists and other Himalayan floristic experts.

Dr Shakya has completed the first draft of the following genera based on herbarium specimens and living specimens available in Nepal: Oberonia (16 species), Eria (22 species), Habenaria (20 species), Peristylus (10 species), Platanthera (8 species), Pecteilis (2 species), Acampe (2 species) Aerides (2 species), Chilochista (2 species), Cleisostoma (2 species), Cryptochilus (2 species), Epigenium (2 species), lone (2 species), Nervilia (2 species), Agrostophyllum (1 species), Anthogonium (1 species), Arundina (1 species), Ascocentrum (1 species), Brachycorythis (1 species), Cheirostylis (1 species), Cephalanthera (1 species), Chamaegastrodia (1 species), Dactylorhiza (1 species), Diplomeris (1 species), Doritis (1 species), Esmeralda (1 species), Epipactis (3 species), Geodorum (1 species), Eulophia (5 species), Gastrochilus (5 species), Goodyera (4 species), Herminium (4 species), Liparis (7 species), Malaxis (4 species), Otochilus (2 species), Pholidota (2 species), Pleione (2 species), Rhyncostylis (1 species) Satyrum (1 species), Smitinandia (1 species), Spiranthis (1 species), Taeniophyllum (1 species), Thunia (1 species), Uncifera (1 species), Vanda (2 species), Zeuxine (1 species), Calanthe (5 species), Bulbophyllum (8 species), Coelogyne (6 species), Dendrobium (8 species). So about 172 species (approx 45%) have already been examined and described. Illustrations of more than 125 species also have been prepared.

All herbarium specimens present at E, BM, K will be thoroughly examined and revised using macro morphological methods. Detail study of flowers will be made to understand systematics of the group. Line drawing of main groups of orchid species will be prepared. The libraries of all three institutions will be used in searching information of orchids of Nepal and Himalaya. Collaborations with orchid experts in these three institutions will be made so as to update orchid flora of Nepal.

RBGE will provide necessary facilities to work on herbarium specimens available at E, BM, K, and expert guidance to accomplish the work. Some of the specimens from BM and K will be sent on loan to E for study there, but study visits to both BM and K will be necessary.

This fellowship will result in the provision of base-line information desperately needed by conservation bodies in Nepal to engage in effective conservation action and instigating the sustainable use programmes for plant resources. The illegal wild collection of orchid for trade is a major problem. Information on identification and rarity will enable more effective controls in this area and benefit those engaged in horticultural cultivation to alleviate pressures on wild populations. The account of the orchids will contribute directly to completion of the Flora of Nepal which has been identified as a priority in the Government of Nepal's 10th Five-Year Plan (2002) and the National Biodiversity Strategy (2002).

10. Legacy. Provide information on how the Darwin Fellow will utilise, promote and disseminate the benefits of the Fellowship on return to his/her home country. Will a strategy be developed during the Fellowship to ensure this is achieved? (200 words)

The legacy of this fellowship will primarily be the written documentation and mobilisation of specimen level data on the orchids of Nepal. This will be distributed via the internet as described above, printed publication (Flora of Nepal) and papers in scientific journals. This legacy will contribute to further research on the orchids of Nepal by highlighting areas in need of field study or for further taxonomic work. Knowledge gained during project will help further work on orchid conservation of Nepal. It is anticipated that orchid hotspots within Nepal will be designated, and if outside present protected areas, they will be highlighted for special protection by the Government of Nepal as and Orchid Sanctuary.

After completing the fellowship Dr Shakya will return back to Nepal and resume his job at Tribhuvan University. He will initiate collaboration with national and international orchid experts and encourage young botanist to work in the field of orchid biology and conservation. Further research projects will be initiated involving fellow colleagues and students in exploration, documentation and conservation of orchids.

11. How will the Fellowship assist the Fellow's organisation and/or local communities and/or home country in working towards the objectives (or implementation) of the CBD/CITES/CMS? Please refer to specific Articles or cross cutting themes as appropriate. (200 words)

The main objective of the Fellowship is to prepare and publish the much needed orchid flora of Nepal. The Orchidaceae is protected by placement in Appendix II of CITES. This fellowship will thus directly contribute towards CITES and will help to check on the illegal trade of orchids. It will bring awareness among orchid exporters, government authorities and orchid lovers of Nepal and abroad. The results of this fellowship will help the Government of Nepal Authority and Scientific community to formulate monitoring programmes for orchid export permit following **Article IV** (Regulation of Trade in Specimens of Species Included in Appendix II) of the Convention. This study will also highlight if certain orchid species should be eligible for inclusion in CITES Appendix I.

12. What collaboration has there been with the Darwin Fellow to date in developing the proposal, and what collaboration is planned for the duration of the Fellowship? Where relevant, describe any consultation or collaboration by the proposed Fellow within his/her own country. (200 words)

Dr Shakya was identified during the Darwin Project as one of the Scholars who would benefit greatly from an extended study period in the UK. This is partly because of the large volume of orchid specimens in the UK that he needs to work on, but also so that he can work alongside and collaborate with UK orchid specialists and Himalayan floristic experts. This proposal has been developed in active collaboration with the Darwin Fellow which has been ongoing since the completion of the project. Dr Shakya has also collaborated with taxonomists in the Central Department of Botany, Tribhuvan University, and the national Herbarium. Attached is a letter of support from Tribhuvan University.

Whilst at RBGE Dr Shakya will work closely with the Floras group, and develop his skills in using database, imaging and geo-referencing. During his visits to BM and K, Dr Shakya will collaborate with the orchid and other Himalayan experts.

13. Where will the Darwin Fellow be based? Please be specific with organisational details and dates (where more than one location). (200 words)

Dr Shakya will be based at Royal Botanic Garden Edinburgh for most of the period. However frequent visits will be made to The Herbarium, Natural History Museum (BM) and Royal Botanic Gardens, Kew (K).

The Darwin Fellow will work in following institutions as follows:

1. Royal Botanic Garden Edinburgh (E), Inverleith Row, Edinburgh, Scotland, UK- the main place of work for about eight months
2. The Herbarium, Natural History Museum (BM), Cromwell Road, London, UK- work at this institution for about three months
3. Royal Botanic Gardens, Kew (K), Richmond, Surrey, London, UK- work at this institution for about one month

14. Provide a programme of work, including key milestones, through the duration of the Fellowship

Activity	Duration	2009/2010									2010/2011					
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
Arrival at RBGE				√												
Consultation, planning of work					√											
Library work					√	√	√									
Examination of herbarium specimens at RBGE					√	√	√									
Visit and work at Natural History Museum (BM)								√	√	√						
Visit and work at Royal Botanic Garden, Kew (K)											√					
Further work at RBGE and writing manuscript												√	√	√	√	
Submission of report to Darwin Initiative															√	
Return to Nepal															√	

15. Financial Aspects. Please use UK Government Financial Years ie April 2009 – March 2010 etc)

Fellow payment				
	09/10	10/11	2009/10	2010/11
London: £1200/month	Number of months 3	1	£	£
UK (outside London): £1000/month	Number of months 4	4		
Overseas location £ /month*	Number of months			
Host Organisations' costs				
	09/10	10/11	2009/10	2010/11
UK: £300/month	Number of months 4	4	£	£
Overseas location: £ /month*	Number of months		£	£
A. Total Fellow & Host Organisation Costs				

Actual travel costs (Return journey to Fellowship location)		
	2009/10	2010/11
Return airfare. <i>Kathmandu - London - Edinburgh</i>	£	£0
Travel to/from airports. (<i>Kathmandu taxi, Edinburgh taxi</i>)		
Visas etc. <i>UK Visa</i>		
B. Total Fellowship Travel Costs (Actual costs up to £2000 will be paid)		

Actual travel costs 'Additional Travel'		
Specify purpose. Maximum £500 within country of Fellowship location, £1500 for international travel.		
	2009/10	2010/11
Airfares <i>Details</i> return train ticket Edinburgh to London	£	£
Subsistence <i>Details (including number of days)</i> <i>Contact the Darwin Applications Unit for rates</i>	£	£
Travel to/from airports. <i>Details</i>	£	£
Visas etc. <i>Details</i>	£	£
C. Total (Other travel) costs	£	£0
D. ACADEMIC FEES	2009/10	2010/11
<i>Details</i>	£0	£0
TOTAL FELLOWSHIP COSTS (A + B + C + D)		

* Figures available from the Darwin Applications Unit Tel: 0131 440 5180

16. Other sources of funding: provide details and amounts

None

FCO NOTIFICATION

Please check the box if you think that there are sensitivities that the Foreign and Commonwealth Office will need to be aware of should they want to publicise details of the Darwin Fellowship and the resultant work in the UK or the Darwin Fellow's home country

CERTIFICATION

I certify that, to the best of our knowledge and belief, the statements made by us in this application are true and the information provided is correct. I am aware that this application form will form the basis of the project schedule should this application be successful.

I enclose CVs for project principals and letters of support as requested in the Guidance Notes.

Name (block capitals)	Dr Mark F Watsn
Position in the organisation	Head Flora of Nepal, Major Floras Coordinator

Signed

Date:

20 Feb. 2009

Fellowship Application - Checklist for submission

	Check
Have you provided actual start and end dates for the Fellowship?	yes
Have you provided your budget based on UK government financial years ie 1 April – 31 March?	yes
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?	yes
Is the concept note within 1,000 words?	yes
Has your application been signed by a suitably authorised individual? (clear electronic or scanned signatures are acceptable)	yes
Have you included a 1 page CV for the proposed Fellow and the UK experts listed in Section 5?	yes
Have you provided the relevant letters of support?	yes
Have you included a copy of your most recent annual report and accounts? An electronic link to a website is acceptable. - see www.rbge.org.uk	yes
Have you read the Guidance Notes?	yes

Once you have answered Yes to the questions above, please submit the application, not later than 2359h GMT on **Friday 20 February 2009** to Darwin-Applications@ltsi.co.uk using the name of the proposed Fellow as the subject of your email. 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 **Monday 23 February 2009**.

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.