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## Darwin Scholarship - Final Report

(Submit within 2 months of Scholarship completion, max 6 pages.)

Darwin Project Ref No.	DEFRA Grant Offer letter – 21 <sup>st</sup> August 2003
Darwin Project Title	Darwin Scholarship training for Mr Anthony Mitchell, Colombia
Name of Darwin Scholar	Leslie Anthony Mitchell Chui
UK Organisation	Heriot-Watt University, Edinburgh
Your Organisation	Corporation for the sustainable development of the Archipelago of San Andres, Old Providence and Santa Catalina (CORALINA)
Your role in your Organisation	GIS specialist
Start/end date of Scholarship	February 1 to November 30, 2004 (in UK) plus visit to Panama with Supervisor (Dr J Mair) in May 2005 (end)
Location	Edinburgh, Scotland (main component). Smithsonian Tropical Research Institute, Panama (short visit, May 2005)
Darwin Scholarship funding (£)	£15,952
Type of work (e.g. research, training, other, please specify)	Research and training
Main contact in UK Organisation	Dr James Mair (j.m.mair@hw.ac.uk)
Author(s), date	Mr L Anthony Mitchell and Dr J Mair (16 <sup>th</sup> June, 2005)

### Background

I was for 3 years (1998-2001) a Darwin Fellow on the Darwin Project (162/07/147) run jointly by my organisation, CORALINA in San Andres Archipelago, Colombia and Heriot-Watt University, Edinburgh UK. That project was entitled “Marine Habitat Mapping Development in San Andres Archipelago, Colombia”. I worked on the satellite and sonar imagery aspect of this mapping project and also collated all the other information (biological survey data) into a major GIS held by CORALINA.

- Describe aim and objectives of the Scholarship, and programme of work

The main aim of the Scholarship was to enable me (as one of CORALINA's key staff) to obtain work and research experience at relevant organisations in the UK (and Panama) which would broaden my experience and enable knowledge obtained and new techniques learned to be utilised and disseminated on my return to Colombia. Important objectives were for me and UK staff to be given enough time together in order to share experiences in marine biodiversity conservation work and to investigate how good practice in this area could be developed (see article in Darwin Newsletter, Issue 3, May 2005). During this Scholarship, I was also able to assist in substantially advancing the establishment of an "Information and Experience Exchange" network, in which CORALINA is keen to be involved, as part of Dr Mair's Darwin Initiative project in Panama (162/12/021). Some adaptations to the proposed programme of work occurred during my visit. I had slightly less involvement than planned with the Forth Estuary Forum but correspondingly more involvement with other organisations such as the National Museums of Scotland, Scottish Natural Heritage (SNH) – the UK equivalent government agency to CORALINA in Colombia – Edinburgh University's Geography Department and the Scottish Association for Marine Science (Dunstaffnage Laboratory). The main contact for placement in STRI, Panama ([www.stri.org](http://www.stri.org)) was Dr Hector Guzman (GUZMANH@si.edu) who is the Panama co-ordinator for the current Darwin Initiative project in collaboration with Heriot-Watt University (162/12/021).

- Briefly describe the roles of the UK and Scholar's institutions

Staff at the main UK institution (Dr James Mair, Dr Jimmy Young and Dr Colin Moore, Heriot-Watt University) managed the programme of work experience for me, both for my time based at Heriot-Watt University (office and computing facilities) and for meetings and placements at other UK institutions and at the STRI in Panama.

One of the main functions of CORALINA is to work towards sustainable development and sustainable livelihoods for the San Andres archipelago and its inhabitants. The work experience, therefore, gained during this Darwin Scholarship has greatly assisted me and CORALINA to meet this function. CORALINA fully supported my leaves of absence and I am now working again in CORALINA on the final stages of a large GEF funded project.

## **Achievements**

- Summarise the work undertaken during your scholarship. What were the main activities undertaken. Highlight any work undertaken but not originally planned and explain why this happened. Highlight any problems encountered and how they were overcome.

Learning new skills related to the application of Geographic Information System as a tool for environmental planning in biodiversity protection at Heriot-Watt University's Geomatics Unit.

Assisting scientists at the National Museums of Scotland in the application of Geographic Information System to organize data collected for existing and new species of the polychaete genus, *Chaetozone*, in order to produce map distributions of this species. This opportunity presented itself to me once I had held discussions with Museum staff.

**Assessing five (5) students of Heriot-Watt University's MSc Course in "Marine Resource Development and Protection" in the application of Geographic Information Systems as a tool for designing, planning and solving environmental issues.**

**Learning new skills and exchanging experience with GIS specialist and data manager at the Scottish Association for Marine Science's Dunstaffnage Marine Laboratory.**

**Helping Heriot-Watt University biologists map biogenic reefs in Lock Creran marine Special Area of Conservation.**

**Assisting Heriot-Watt University scientists in producing biotope maps for shore and sub-littoral habitats from Shetland in the Sullom Voe marine Special Area of Conservation.**

**No significant problems were encountered.**

- What have been the main achievements of your scholarship? Key documents should be annexed to this report.

**Working with scientist at the National Museums of Scotland in the application of Geographic Information System to design and organize data that has been collected for many years of existing and new species of the polychaete genus, *Chaetozone*, in the North Atlantic. Map distributions were produced, also location of species was associated to sea bottom type, depth, and temperature values. A poster of this work has been presented at a conference in Madrid and an article is now being published in a scientific journal (see attached).**

### **Outcomes, lessons and Impact**

- Do you feel that the work undertaken during your scholarship has improved skills that are relevant and important for your work in your organisation? How are you planning to apply those skills in future work?

**New skills learned during scholarship are relevant and important for my work. As Coralina GIS specialist, I am a key member of the zoning committee on which a major task is to recommend areas based on zoning criteria and data collected for the establishment of multi-use zones in a system of Marine Protected Areas of the Seaflower Biosphere Reserve. GIS skills and techniques are relevant to organize all data collected and analyse them in order to select the multi-use zones that will be implemented. Recently, as a result of all our efforts and years of hard work, the Ministry of the Environment has declared a total of 65,000 Km<sup>2</sup> as Marine Protected Areas - approximately 30% of the total area of the Archipelago of San Andres, Old Providence and Santa Catalina, western Caribbean, Colombia. A significant percentage of this includes coral reefs, sea grass beds, mangroves and all fauna associated will be protected.**

- Has the scholarship helped to improve your capacity to solve practical problems related to the sustainable use and/or conservation of biodiversity in your country?

**As a result of my experience in the UK, my knowledge of the vast application of Geographic Information System has increased widely; during the scholarship I had the opportunity to learn and apply these techniques in different areas: from mapping distributions of *Chaetozone* in the North Atlantic to mapping biotope for shore and sub-**

**littorals habitats in the Sullom Voe area. This knowledge obtained is important for applying computerized tools in solving conflicts between users of the marine area of the Archipelago. With the establishment of a system of Marine Protected Areas with multi-use zones; these conflicts are highly reduced, and a high percentage of biodiversity is conserved.**

- **Have you had the opportunity to make contacts with other UK biodiversity institutions, intergovernmental organisations, NGOs or the private sector during your scholarship? Will these contacts be useful for your future work, and how are you planning to maintain them?**

**Contacts were made with GIS experts at Scottish Environment Protection Agency (SEPA); GIS & Data Manager at the Scottish Association for Marine Science's Dunstaffnage Marine Laboratories; Scottish Natural Heritage (SNH); National Museums of Scotland; Heriot-Watt University and Smithsonian Tropical Research Institute (STRI). In a world in which knowledge and development of new skills and techniques are changing daily, it is very important to exchange and update information related to new developments of these tools. Early this year, a visit was made to the Smithsonian Tropical Research Institute in Panama, to share and exchange experience with GIS specialist of this Institute. Other contacts are maintained via email.**

- **Any other issue emerging from your experience as Darwin Scholar that you would like to raise, or suggestions for improvements to the Darwin Initiative Scholarship scheme.**

**For me, the scheme worked very well and I am very grateful for the opportunities given to me by the Darwin Initiative for my Darwin Fellowship and Darwin Scholarship. My only suggestion might be to increase the number of Scholarships available to enable longer term collaboration to take place.**

**Annex to this report:**

**PDF electronic version of Conference Poster (as described above)**