

Darwin Initiative: Half Year Report

(due 31 October 2008)

Project Ref. No.	15/007
Project Title	Focus for Fiji: Insect Inventories for Biodiversity Assessment
Country(ies)	Fiji
UK Organisation	University of Sussex
Collaborator(s)	Prof W. Aalbersberg, University of the South Pacific
Project Leader	Dr A.J.A. Stewart
Report date	30 th October 2008
Report No. (HYR 1/2/3/4)	HYR 3
Project website	http://www.usp.ac.fj/index.php?id=7040

1. Outline progress over the last 6 months (April – September) against the agreed baseline timetable for the project (if your project has started less than 6 months ago, please report on the period since start up).

Achievements, April – September 2008

Training staff:

- Senior Curator Hilda Waqa visited the Smithsonian Institute in Washington DC for training in the taxonomy of long-horn beetles (Cerambycidae) (the focus of her PhD studies) under the supervision of Dr Steve Lingafelter.
- Ongoing weekly training in entomological techniques and basic insect taxonomy has been provided by Hilda Waqa for technicians in the Department of Forestry & Agriculture. This training ran for a period of six months (February – July, 2008)
- Training by Hilda Waqa has been provided to Presly Dovo (Dept of Forestry, Vanuatu; now registered for MSc at USP and trainee curator) and Tokasaya Cakacaka (parataxonomist).
- Hilda Waqa continues her research for PhD on the taxonomy, systematics and biogeography of longhorn beetles.

Insect surveys:

The main emphasis in this reporting period has been on continuing the entomological surveys and processing the material collected. The latter involves initial sorting to Order level for all groups and to Family level for the Coleoptera (beetles) which are the most diverse group. All butterflies are identified to species level. Particular interest is taken in the distribution of the Fijian swallowtail, *Papilio smeltzi*, an endangered butterfly species that is endemic to Fiji; this species has been recorded on five of the islands surveyed so far.

Full entomological surveys (with number of sites in parentheses) have now been completed for the following islands or island groups: Viti Levu (4), Vanua Levu (3), Kadavu (2), Ovalau (2), Vanua Balavu, Northern Lau group (2), Taveuni (1), Southern Lau group (2), Central Lau group (1). In each case, a survey comprises sampling using up to three light traps, up to four Malaise traps, butterfly collections and plant surveys. Malaise traps are left *in situ* for up to two months, with material collected and the trap reset every week by local trained field assistants. They generate considerable amounts of material which take time to sort through. The laboratory curation stage includes mounting of all specimens, identification to standard level (order or

family) and labelling using standardized format locality labels.

A major timber-bait experiment has been set up in Savura Forest Reserve with the permission of the Department of Forestry. This involves hoisting timber baits (constructed from logs of standard number, width and length, tied together) into the canopy using ropes and leaving them for one month to be colonised by dead-wood boring insects (principally beetles in the families Scolytidae, Platypodidae, Cerambycidae). The experiment is testing colonisation of twelve tree species that are typical of lowland forest. After one month of exposure, the baits are removed from the canopy and held for at least 6 months in individual net cages to allow emergence of insects from the logs. This experiment has the dual purpose of (i) testing the host-specificity of dead-wood species and characterising the structure of the dead-wood insect community, and (ii) adding species to the general entomological surveys that would otherwise be difficult to sample. The experimental protocol follows that used by our collaborators working in Papua New Guinea (previously funded by Darwin projects 10/030 and 15/054 and both lead by Alan Stewart) and viewed first-hand by Hilda Waqa when she visited the Czech Republic as part of her visit to Europe.

In-country insect collection:

The main insect collection now stands at well over 5000 specimens across 11 major orders and from six major islands, as shown in the following table:

	Taveuni	Vanua Balavu	Kadavu	Ovalau	Vanua Levu	Viti Levu	TOTAL
Coleoptera	258	0	1122	385	429	190	2384
Diptera	919	83	Abundant	111	Abundant	216	1329
Hemiptera	230	30	14	216	108	228	826
Hymenoptera	187	76	17	86	32	35	433
Orthoptera	63	20	139	141	122	62	547
Phasmida	7					0	7
Isoptera	6					1	7
Dermaptera	3			2	2	0	7
Lepidoptera	30	30	39	5	0	13	117
TOTAL	1703	239	1331	946	693	745	5657

The collection is housed at USP and forms the first stage in developing the Fiji national insect collection.

Considerable discussion has taken place on how best to get the survey material identified to the finest taxonomic level possible. A list of taxonomists who are known to be experts on each focal insect group has been drawn up and approaches are being made to establish their willingness to collaborate on identifying the material. Given the sensitivity of issues surrounding allowing material out of the country and its eventual repatriation, we will use MoUs with each taxonomist collaborator to set the terms of the arrangement with regard to timescales, retention of duplicate specimens, co-authorship of resultant scientific papers etc.

Database of insects within collections:

All information relating to curated insect material is being properly stored electronically, including information on sampling site, habitat, date, weather, method, recorder, determiner, specimen location within the collection and provisional taxonomic determination. This information is currently being held in simple Excel spreadsheets, but nevertheless in a format that could be migrated to a fully relational database (such as Access or FileMaker) as the collection grows. UK collaborators have considerable experience of using databases that are currently available for storing information on collections and constructing bespoke databases for particular purposes and have been advising the Fiji team accordingly.

Outreach activities:

- Entomological surveys are accompanied by education and conservation awareness activities as part of the initial 'Sevusevu' ceremonies that are carried out when gaining

permission to work on land owned by village communities.

- *Butterflies of the Fiji Islands* by Sunil Prasad and Hilda Waqa (2007) is being sold through the Fiji Museum in Suva. As a result of this collaborative project with the Museum, we are developing plans for a 'Darwin Initiative Biodiversity Gallery' within the museum. This would replace a temporary Darwin Initiative exhibit that was set up in the main gallery of the museum as part of the book launch and would be an excellent way of promoting awareness of biodiversity (not just insects) and the Darwin Initiative.
- Lecture by Hilda Waqa (March, 2008) to USP Biology undergraduates on *Insect Biodiversity* in general and their significance to ecosystem function and the work that we are involved with in the Darwin Initiative project.
- Presentation on the biodiversity of insects in the Northern Lau group of islands (June, 2008) by Mr. Naikatini (Senior Technician, USP) to the Lau Provincial Council Representatives.

2. Give details of any notable problems or unexpected developments that the project has encountered over the last 6 months. Explain what impact these could have on the project and whether the changes will affect the budget and timetable of project activities.

Some field surveys have either been delayed or have produced very few specimens due to bad weather. In such cases, the survey has been rescheduled for a later date. We do not envisage that this will impact on the final output of the project or the budget.

Having focused on successfully making up lost ground with the field surveys due to early problems, the project is now somewhat behind schedule on training visits to the UK and running training courses in Fiji. However, now that a considerable body of material has been collected, we have plans in place to push ahead with the rest of the training programme in the next six months.

Have any of these issues been discussed with the Darwin Secretariat and if so, have changes been made to the original agreement?

No.

Discussed with the DI Secretariat: ~~no~~/**yes**, in..... (month/yr)

Changes to the project schedule/workplan: ~~no~~/**yes**, in.....(month/yr)

3. Are there any other issues you wish to raise relating to the project or to Darwin's management, monitoring, or financial procedures?

No.

If you were asked to provide a response to this year's annual report review with your next half year report, please attach your response to this document.

Please note: Any planned modifications to your project schedule/workplan or budget should not be discussed in this report but raised with the Darwin Secretariat directly.

Please send your **completed form email** to Eilidh Young, Darwin Initiative M&E Programme at Darwin-Projects@ectf-ed.org.uk . The report should be between 1-2 pages maximum. **Please state your project reference number in the header of your email message eg Subject: 14-075 Darwin Half Year Report**