

Darwin Initiative: Half Year Report

(due 31 October 2009)

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	27 th October 2009
Report No. (HYR 1/2/3/4)	HYR 4
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 2009

Training staff:

- Scale Insect Taxonomy Workshop held from the 13th-15th July, 2009 at USP, Fiji by UK expert Dr. Chris Hodgson of Cardiff Museum, Wales. A total of 18 participants attended the 3 day workshop, including USP postgraduates studying entomology and scientists from the Forestry Department, Agriculture Department and Quarantine Department. The workshop included laboratory-based training in identification and training in field collection techniques using a farm in Wainibuku and a Forest Reserve in Savura, Viti Levu. Participants were presented with training certificates at the end of the workshop by the Director of IAS, Prof. Bill Aalbersberg. Following the workshop, further training in field collecting and taxonomy of scale insects was provided during visits to two islands: Taveuni and Kadavu.
- Mr Maxwell Barclay, an expert coleopterist in the Entomology Department at the Natural History Museum in London, has agreed to run a beetle training course in Fiji for this project in early 2009.
- Hilda Waqa continues her research for a PhD on the *Taxonomy, biogeography and host-specificity of Fijian long-horned beetles*.
- Visheshni Chandra continues her research for an MSc on *A study of the habitat, distribution and behaviour of Papilio shmeltzi (a butterfly endemic to Fiji)*.

Insect surveys:

Entomological surveys have been completed at the following locations:

- Taveuni and Kadavu islands for scale insects;
- Namosi on Viti Levu, Koro Island, Cicia Island (Lau Group) and Vatoa Island for full entomological surveys;
- Navosa, Viti Levu for collection of *Raiateana knowlesi*, an endemic Fijian Cicada (38 adult individuals collected).

All specimens collected have been identified to order level; Coleoptera (the most diverse order) are identified to family level and butterflies to species level. A single last full entomological survey is planned on Rotuma Island in January 2010.

The total number of specimens for different taxa collected in the above surveys were:

Taxa	Cicia Island, Lau Group	Waisoi, Namosi, Viti Levu	Koro island	Vatoa Island, Lau
Coleoptera	131	111	433	70
Diptera	232	63	70	
Hemiptera	260	170	170	1
Hymenoptera	146	40	115	1
Orthoptera		23	4	
Phasmida		3		
Isoptera				
Dermaptera				
Lepidoptera		7	22	12
Odonata		8		
TOTAL	769	425	814	84

Significant discoveries:

- A new record for a very rare and endemic butterfly to Fiji, *Hypolimnas inopinata*, in Waisoi, Namosi. This species had been recorded previously only from Navai, Viti Levu.
- Record of *Xixuthrus heros*, the endemic Fijian giant long-horned beetle (the 2nd largest beetle in the world with a length of 14-15cm and possibly endangered) from Waisoi, Namosi.
- Collections of an endemic cicada *Raiateana knowlesi* from Navosa highlands, Sigatoka. Adult *R.knowlesi* emerge every 8 years and adults survive for approximately three weeks.

Twenty-one full entomological surveys have now been completed across the following islands or island groups: Viti Levu, Vanua Levu, Kadavu, Ovalau, Vanua Balavu, Northern Lau group, Taveuni, Southern Lau group, Central Lau group. 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 for most groups, and genus or morphospecies in the case of certain groups) and labelling using standardized format locality labels.

Host specificity of wood-boring beetles:

The timber-bait experiments within the lowland Savura forest reserve in collaboration with the Forestry Department is due to end by 30 November, 2009. Four replicate sets of timber baits for 12 native tree species have been exposed in the forest, with catches removed fortnightly to study seasonality. The Coleoptera have been identified to family level, with particular focus on the Family Cerambycidae (long-horned beetles) which are identified to genus level and then to morphospecies. The most diverse beetle families include Scolytidae (bark and ambrosia beetles) and Curculionidae (weevils). Analysis of this experiment will be done in collaboration with workers at the University of South Bohemia, Czech Republic who carried out a similar research project in PNG under Darwin projects 162/10/030 and EIDP09/10-030 led by Alan Stewart.

Fiji National Insect Collection (FNIC)

Work on the FNIC is progressing well. We are currently focusing on accessioning all specimens in the collections and entering data into a specimen database, developed for the purpose on

Microsoft Access with the assistance of Posa Skelton (PACINET co-ordinator, FIJI). So far, a total of 431 specimens have been entered into the database and accessioned starting with the order Coleoptera.

We have sent shipments of insects for taxonomic identification/verification to overseas experts, as follows: approximately 1300 Auchenorrhyncha specimens sent in February 2009 to Dr. Mike Wilson (Cardiff Museum, Wales); shipment of Coccidae in July 2009 to Dr. Chris Hodgson (Cardiff Museum, Wales); 300 specimens of Coleoptera currently being prepared for shipment to Mr. Max Barclay (Natural History Museum, London).

New Darwin Natural History Gallery at Fiji Museum, Suva

Quotations for display units for the Natural History gallery in the Fiji Museum have been received. The units will soon be ordered and made.

Outreach and Awareness Activities

- Presentation by Hilda Waqa on the 7th August, 2009 at the Fiji Islands Conservation Science Forum Conference (FISCF) held in Suva, Fiji entitled: *Diversity and distributions of canopy Coleoptera along an elevational gradient on eastern Viti Levu, Fiji*.
- Presentation by Visheshni Chandra on the 7th August, 2009 at the FISCF Conference held in Suva, Fiji entitled: *Study on habitat, distribution and behavior of Papilio shmeltzi (a butterfly endemic to Fiji)*.
- Presentation by Hilda Waqa on the 18th September, 2009 at a Darwin Initiative project launch with BirdLife International, Fiji entitled: *Focus for Fiji: Insect Inventories and Biodiversity Assessments*.
- Lecture to undergraduate Biology students at USP by Hilda Waqa on *Biodiversity of Insects in Fiji*, 20th April 2009.
- USP Open Day exhibition, 25th September, 2009.
- Scale Insect Taxonomy Workshop in Fiji posted on USP's news webpage and IAS news webpage ([http://ias.fste.usp.ac.fj/index.php?id=6380&tx_ttnews\[tt_news\]=841&tx_ttnews\[backPid\]=5228&cHash=afe44dd52e](http://ias.fste.usp.ac.fj/index.php?id=6380&tx_ttnews[tt_news]=841&tx_ttnews[backPid]=5228&cHash=afe44dd52e)).
- Press release on the periodic emergence after a period of 8 years of the endemic cicada *Raiateana knowlesi* from the Navosa province, on *Fiji TV 6pm News* on 15th September, 2009.
- TV feature on the periodic emergence after 8 years of the endemic cicada *Raiateana knowlesi* and its cultural significance to the people of Navosa province in the TV Fijian language programme *Noda Gauna* on 12th October, 2009 at 8pm.

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.

None

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**

Annex 1: Photo gallery



Figure 1: Hilda Waqa talking to students during USP Open Day, 2009.



Figure 2: Students learn about the second largest beetle species in the world, *Xixuthrus heros*, endemic to Fiji.



Figure 3: Scale insect taxonomy workshop participants at Laucala Campus.



Figure 4: Scale insect taxonomy workshop, led by Dr Chris Hodgson.



Figure 5: *Hypolimnias opinata* - rare Fiji endemic butterfly.



Figure 6: *Raiateana knowlesi* – a Fijian endemic cicada.