



**Australian Government**

**Department of the Environment, Water, Heritage and the Arts**

2007/14867

Mr D. Hobern  
Director  
Atlas of Living Australia  
CSIRO Entomology  
GPO Box 1700  
Canberra  
ACT 2601  
3 June 2008

Dear Donald

As discussed, we are submitting a funding proposal for your consideration. The proposal relates to developing the functionality to deliver species data from the *Australian Faunal Directory* and the *Australian Plant Census*, enabling their use in the *Atlas of Living Australia*.

We look forward to your response to this proposal.

A handwritten signature in black ink, appearing to read 'G. Whitbread'.

Greg Whitbread  
Manager, Integrated Biodiversity Information Systems

A handwritten signature in black ink, appearing to read 'C. Slatyer'.

Cameron Slatyer  
Director, Australian Biological Resources Study

## **Development of unified web service interfaces for Taxon Names and Taxon Concepts for the *Atlas of Living Australia* from the *Australian Faunal Directory* and the *Australian Plant Census***

### **Introduction**

The *Australian Faunal Directory* (AFD) and the *Australian Plant Census* (APC) are the national repositories for concept level taxon data about Australian plants and animals. The Australian Plant Name Index (APNI) is the national nomenclator for Australian plant taxa and the information base for APC. The databases are housed within the Department of the Environment, Water, Heritage and the Arts (DEWHA). They are maintained by the Australian Biological Resources Study (ABRS) and the Australian National Botanic Gardens/Centre for Plant Biodiversity Research (ANBG/CPBR). APC operates under the auspices of CHAH (Council of Heads of Australian Herbaria). APNI is one of three global datasets aggregated to the International Plant Name Index (IPNI).

Ongoing support for AFD comes from DEWHA through ABRS and for APC from DEWHA and CSIRO Plant Industry through CPBR. These data sets have been developed and supported over many years and there is an ongoing long term commitment to content development and data management.

At a national level these databases are the most complete resources available online delivering information on the nomenclatural and taxonomy of Australian plants and animals. They are of high quality, authoritative and widely accepted as the single point of truth for Australian taxa.

Exposure has increased demand and it has been difficult to keep pace with requirements for content evolution using existing application systems. In response the AFD editor and public interface has been completely re-written using an enterprise quality lightweight java framework and a flexible, loosely coupled architecture. The aim has been to reduce the cost of ongoing development and maintenance, improve data management and delivery, increase usability and achieve interoperability with external clients. Development effort is currently focussed on bringing AFD into production and the initial work to develop prototype web services over the Taxon Concept Schema (TCS) and to support the TAPIR protocol for data discovery and content delivery.

Our immediate goals are now to keep the development team together and over the next 12 months: consolidate the AFD code; deliver new public interfaces for AFD and APC; implement AFD work flow and concept persistence; formalize the LSID implementation; integrate AFD and APC/APNI at the data level; and complete the web services layer required to deliver the aggregated dataset to external clients using standard forms, protocols and services. The years work plan is designed to position the application architecture to better provide generic taxon and nomenclatural services over the existing dataset and create a platform for a collaborative infrastructure supporting all aspects of taxon profile development and delivery.

### **Proposal**

We propose a partnership between ABRS, the ANBG/CPBR and the ALA to continue development of a standards based, web services layer over content integrated from

APC/APNI and AFD to provide open access to these taxonomic and nomenclatural data using generic interfaces.

The resulting project would continue to employ the existing java programmers and would begin in July 2008. The work required would deliver the following outcomes for the AFD, APC and ALA.

1. APNI and AFD enhancements to support TCS.
2. Implementation of LSID's within both systems.
3. Implementation of a TCS data store.
4. Development of a java TAPIR provider with TCS capabilities.
5. Unified web service interfaces allowing users to submit a request and retrieve TaxonName and/or TaxonConcept data from AFD and APC/APNI.
6. TaxonName and TaxonConcept records to reference Publication records wherever applicable.
7. Alternative interfaces based on TAPIR, SOAP and REST.
8. LSID resolution.
9. Support for response documents using TDWG TCS or TDWG TaxonName/TaxonConcept/Publication RDF vocabularies.
10. All TaxonName, TaxonConcept and Publication records to have LSIDs.
11. Interfaces to include:
  - a. Find TaxonConcept(s) by scientific name  
Parameters including at least:
    - scientific name OR partial scientific name ("starting with")
    - (Optional) higher taxon to limit results (specified by LSID or name)
    - (Optional) flag to use only AFD or APC/APNI
    - (Optional) scientific name author and/or year
  - b. Find TaxonName(s) by scientific name  
Parameters including at least:
    - scientific name OR partial scientific name ("starting with")
    - (Optional) flag to use only AFD or APC/APNI
    - (Optional) scientific name author and/or year
  - c. Get TaxonConcept by LSID
  - d. Get TaxonName by LSID
  - e. Find child TaxonConcepts for TaxonConcept  
Parameters including at least:
    - LSID for parent TaxonConcept
    - (Optional) partial scientific name ("staram Services 08 09\_letterhead.docting with")
  - f. Get parent TaxonConcept for TaxonConcept (not strictly necessary since TaxonConcept documents presumably contain this)  
Parameters including at least:
    - LSID for child TaxonConcept
  - g. Get Publication by LSID
12. Develop a foundation for future additional web service interfaces (TAPIR, SOAP, REST) to return SPM documents for any taxon identified by its TaxonConcept LSID.

## **Budget**

Two java programmers:

- B.Douglas 1 July 2008–17 Feb 2009 full time equivalent at \$88/hour excl. gst
- M.Hand 1 Oct. 2008–18 Feb. 2009 full time equivalent at \$90/hour excl. gst.

Total funding sought **\$179,737.50** excl. gst

## **Intellectual Property**

- All code and related IT developments under this contract relating to the development of code for the ALA will be Open Source so that any potential contributor will have access to the code.
- Any developments to the code by a contributor will be added to the open source code base.
- Any contributor to the ALA code will retain the right to use their contribution to the code base outside the project, but this will not imply any restrictions to the continued use of the code in the ALA project.