



Australian Systematic Botany Society



Australian Entomological Society



GSA
Genetics Society of Australasia Inc.

αεδα
Applied Environmental Decision Analysis
A Commonwealth Environmental Research Facility
Smart science for wise decisions

20 March 2008

The Hon. Peter Garrett MP
Minister for Environment, Water, Heritage and the Arts
Parliament House
Canberra ACT 2600

Dear Minister

Re: Australian Biological Resources Study

The task of identifying, naming and understanding the Australian biota is an immense and important one that is currently suffering from a significant skills shortage. This shortage is now becoming serious to the point where there are insufficient young scientists to meet the demand for positions in Australian research institutions, and this will jeopardise the conservation of Australia's biological diversity and key areas of several natural resource industries. We strongly believe that the solution to this impending crisis is best tackled through an enhanced training program and additional research funding to the **Australian Biological Resources Study (ABRS)** that will expedite the next generation of scientific expertise in this area and the delivery of critical taxonomic and associated biological information. Unfortunately, although the ABRS grants scheme has received minimal CPI funding increases in recent years, the current level of funding is significantly less (more than \$500,000) than 15 years ago (1993), even though the cost of doing this research has increased on average by 70%.

The science of taxonomy and systematics are interrelated biological disciplines. Taxonomy is the process of naming and describing new species. Systematics is the science of determining how these species are related to each other, where they occur in the landscape (i.e. their distribution) and, to some extent, their ecology. It is a modern science, informed by molecular analyses, sophisticated computer databases, and careful study of organisms in the field and in museum and herbarium collections. Thereby it enables rapid and predictive biological diagnostic work to be undertaken when needed by industry, public health, water resource organisations, quarantine, Landcare, marine science and conservation.

Australia's Biodiversity

Nearly 500,000 species are thought to exist in Australia, of which only a small fraction are currently named. The following table outlines our current estimates of the extent of most of the biota.

	<u>% Described</u>	<u>% Undescribed</u>	<u>Estimated # Spp.</u>
Terrestrial Vertebrates	98	2	2,500
Vascular Plants	70	30	25,000
Marine Invertebrates	30	70	80,000
Terrestrial Arthropods	25	75	255,000
Other Terrestrial Invertebrates	15	85	60,000
Fungi	15	85	50,000
TOTAL			472,500

Importance of Taxonomic/Systematic Research

There are numerous examples of enormous increases in previously unknown species that represent significant biological challenges. The discovery of 300 new species of Australian gum trees (eucalypts) in the last 20 years shows that even large organisms are still being found. The discovery of large numbers of insects and other invertebrate animals living in underground caverns and water bodies in arid central Australia has astounded the biological community. This so-called 'stygo fauna' (organisms living in underground water) includes whole groups of blind beetles and small crustaceans that were completely unknown only a few years ago. Many of these species have very small natural distributions. The discovery of stygo fauna in areas of resource exploration and mining development has triggered a response from State and Federal agencies to ensure that no species is likely to become extinct as a result of any mining or related activity. In a similar way, the documentation of the Australian biota and the development of a sound taxonomic knowledge-base are of critical importance to identifying insect pests in agriculture, species that can contaminate food exports, identifying our marine resources, and recognising biosecurity threats to our continent. Taxonomic information is also crucial in understanding the processes that govern the sustainable use of Australia's water resources, and the effects of climate change on Australia's unique biota.

Essentially, all these areas form key components of the Australian Government's National Research Priority area - *An Environmentally Sustainable Australia*.

We believe that the increasing skills shortage and diminished research capacity in taxonomy can be solved at relatively modest cost by implementing or enhancing three critical programs.


1. New ABRS Postdoctoral and Senior Fellowship Scheme. This would be a new initiative modelled on the Australian Research Council fellowship scheme. It would fund four 3-year early-career postdoctoral fellows, selected on the basis of excellence. Each would be awarded approximately \$100,000 pa (salary, on-costs and research funding) to pursue taxonomic research in critical areas within a university or government research laboratory. These early career researchers would represent the next wave of systematist scientists ready to fill the skills shortage. In addition, two 5-year Senior Fellowships (\$200,00 pa) would be awarded to distinguished taxonomic scientists who would undertake cutting edge research, as well as provide leadership and mentoring within the discipline.
TOTAL COST: \$2.2 million per annum.
2. Expanded ABRS PhD Scholarship program. The ABRS currently funds only one new PhD scholarship per year, each of which runs for three years, at a total cost of approximately \$85,000 per year. This program should be immediately expanded to fund four additional PhD students per year. These students would be based at universities around the country and sometimes affiliated with other key research organisations (e.g. State herbaria, museums, CSIRO).
TOTAL COST: \$500,000 per annum.
3. Enhanced ABRS Research Grants Scheme. The ABRS Research Grants Scheme currently distributes about \$1.8 million pa towards the study of the systematics of the Australian biota. Some 30 new projects are funded each year on the basis of excellence and relevance to ABRS and National Research Priorities. An enhanced scheme should see a 2.5 times increase in available funds, most of which would restore funding to a level comparable the early 1990s.
TOTAL COST: \$4.5 million per annum.

The provision of the above training opportunities for postgraduates and early career researchers would significantly address the skills shortage that is so clearly evident in this area of biology. The requested additional funds are, in reality, modest, but would have an enormous effect on the capacity of the nation to deliver on government policy and national need. However, without such increases, it is clear that the current limited administered funds for ABRS will soon start to fail in delivering on its core role as the provider of high-quality knowledge on the taxonomy of the Australian biota.

We thank you for your interest in this matter, and request that you meet with a small group of us to discuss this matter further as soon as possible. The point of contact for this group is Professor Andrew Austin at The University of Adelaide.

On behalf of the 2,600 members of our scientific societies/organisations,

Yours faithfully



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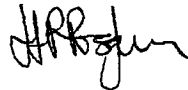
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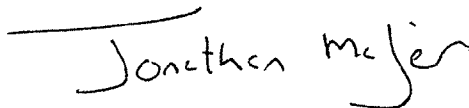
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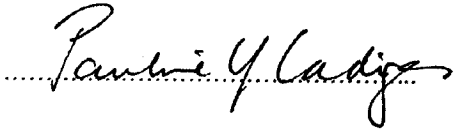
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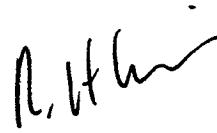
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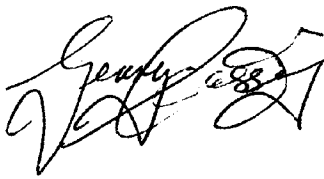
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