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## CURRICULUM VITAE

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Born 3 March 1954, Johannesburg, South Africa. I'm married and have two children, a daughter named Nicola Jane (22), and a son named Matthew Peter (18). I speak English as well as Afrikaans.

## EDUCATION

- 1972-Matriculation. T.E.D. Damelin College, Johannesburg.
- 1976-BSc degree. University of Natal, Pietermaritzburg. (Entomology and Botany)
- 1977-BSc(Hons) degree. University of Natal, Pietermaritzburg. (Entomology)
- 1982-MSc degree cum laude. University of the Orange Free State, Bloemfontein. (Entomology)  
Thesis title: A taxonomic revision of the genus *Xylocopa* Latreille (Hymenoptera: Anthophoridae) in southern Africa.
- 1995-PhD degree. University of Natal, Pietermaritzburg, (Entomology)  
Thesis title: Phylogeny of the Ammobatini and Revision of the Afrotropical Genera (Hymenoptera: Anthophoridae: Nomadinae).
- 1997-Hons. BCompt degree. University of South Africa (UNISA). Pretoria. (Accounting, auditing and financial management)

## ADDITIONAL QUALIFICATIONS

1972-2004	Drivers License	South African International, without any major offences
1997	Programme in Project	Graduate School of Business, Management. University of Stellenbosch, Stellenbosch.
1996	LOGFRAME	Offered by the Agricultural Research Council. Presented by Prof. LUC d'Haese.
1981	Non-degree purposes	Statistics I, UNISA, Pretoria.
1991-1994	Non-degree purposes	Accounting I, II & III, Auditing I & II (2 year major), Commercial Law I & II (2 year major), Taxation and Business Economics I, UNISA.

1998	Short course MS Access	Agricultural Research Council, Pretoria. Internal Training.
2002	Bee Course	American Museum Natural History, USA.

A complete record of in-service computer and management training was not kept.

## PROFESSIONAL EXPERIENCE

1977-1982	Research Scientist	PPRI, Biosystematics Division, Pretoria.
1982-2006	Senior Researcher	PPRI, Biosystematics Division, Pretoria.
1997-2006	Project Manager/Co-ordinator	SAFRINET, an official SADC project, southern African network of BioNET-INTERNATIONAL, headquarters in UK. Operational and financial management.
1980-2006	Referee/review	Scientific articles and books for many journals and publishing companies. Record not kept.
1980-2006	Referee/review	For scientific staff: external review for promotion and funding. Records not kept.
1998-2006	Specialist Scientist	PPRI, bee taxonomist.
1978	Deputy Treasurer	Entomological Society of Southern Africa
1979-1991	Secretary	Entomological Society of Southern Africa.
1991-1992	Secretary	Biosystematics Interest Group of the Entomological Society of Southern Africa.
1997-2006	Author/editor	SAFRINET and Pollinator articles, reports and documents, records not kept.
1998-2006	Member	BioNET-INTERNATIONAL Action Group
1998-2003	Member	Steering Committee for the implementation of the Sao Paulo Declaration

1999-2006	Associate Editor	Journal Insect Science and its Application later became Journal of Tropical Insect Science.
2000	Co-ordinator, International Pollinator Initiative (IPI) Technical Co-ordination Committee	UN Food and Agriculture Organization (FAO).
2002-2006	Chair person	African Pollinator Initiative (API)
2002-	Host, Taxonomy Workshop	International Third BioNET-International Global Workshop.
2003	Organizer, Workshop	International Pollinator policy development
2003	Design & presentation of International course	First African Bee Course.
2004	National & Regional representative	South Africa & Africa representative to the International Pollinator Initiative's GEF Project - the proposal will be submitted to GEF in March 2006.
2006	Congress organizer	6th Hymenopterist's Congress.
2006	Workshop organizer	CBOL's (Consortium for the Barcode of Life) South Africa Workshop

In summary,

SAFRINET, API and IPI are knowledge networks. I co-ordinated SAFRINET from its inception, created and co-ordinated API, and was party to the decision to create IPI. They are all highly successful programmes, having become role-models around the world. This success resulted in me being invited to numerous congresses and workshops per annum (since 1997, sometimes over twelve per annum, mostly in Africa, South America, North America and Europe, and many others that were not attended) and taking maximum opportunity in these workshops and meetings to discuss/promote ideas with key persons to further develop these projects. A full record of these was not kept. My participation in virtually all these meetings was paid for by the organizers or raised by myself. ARC has not paid for any of my travel abroad, or any other activities in the development of these projects. They paid for my bee taxonomy. Collectively these three networks have been successful in raising several million Rand, and proposals for much more are in the pipeline. As a bee taxonomist, I range among the best known in the world. I do bee identification for a number of pollination projects in several different African countries. The availability of my skills being instrumental in such project being undertaken. One of API's successes is that an additional three young African scientists are studying to become bee taxonomists; one each in South Africa, Kenya and Ghana. This is the first time ever that there has been a bee taxonomist in

another African country, and more than two in South Africa. I have been the major instigator behind this development. I believe that my success has been due to me being creative in the development of projects and an ability to work with and encourage people from many different countries and backgrounds.

## SPECIALIST FIELDS

### 1. MANAGEMENT, PLANNING, POLICY AND PROJECT DEVELOPMENT

- Co-ordinator of SAFRINET, a multi-national and multi-disciplinary project
  1. SAFRINET is a network for capacity building in biosystematics (taxonomy), an official SADC (Southern African Development Community) project and the southern African network of BioNET-International. It was instituted by a decision of the SADC heads of state, and is a network of people and organizations that are providers and/or users of biosystematic services. As the SAFRINET co-ordinator I:
    - Lead the SAFRINET executive office, and report to the SADC Directorate for Food, Agriculture and Natural Resources (FANR) and to the Director of BioNET.
    - Control all facets of the project, fund raising, operational and financial management, project development, budgeting and reporting.
    - Write or edit SAFRINET documentation.
    - Developed and maintained the SAFRINET website, which is currently dormant, awaiting the development of a new website, as a page on the proposed ARC website.
    - Developed alliances and Memoranda of Understanding with partner organisations: Gondwana Alive Society, United Nations Environment Programme (UNEP), BIOTA, FAO, EcoPort, EAFRINET, WAFRINET, Global Invasive Species Programme (GISP), IPI, API, Polistes Foundation, Global Biodiversity Information Facility (GBIF), US Geological Survey (USGS), Species2000, Expert Centre for Taxonomic Information (ETI), Millennium Assessment (MA), DIVERSITAS, Global Taxonomy Initiative (GTI), International Plant Protection Convention (IPPC), CBOL and others. Many of these are part of, or linked to, the Convention on Biological Diversity's (CBD) activities.
  2. Although BioNET-International is a highly acclaimed network (the founder, Prof. Tecwyn Jones, received an acknowledgement for BioNET from the queen of England), in my opinion it has under-achieved because little new scientific and technical capacity in taxonomy has been developed. SAFRINET was the third network of BioNET to be established, but it has always been the more active network. As a result it has raised more money (over R 4 000 000) and developed more capacity than the other BioNET networks. It also tested and questioned BioNET's modus operandi, to enable it to establish a better operational strategy. As SAFRINET is unlikely to develop and sustain dedicated taxonomic organizations, for many reasons, it is focussing on the development

of electronic tools to enable users to provide their own taxonomic services; and is creating a new paradigm for capacity building in taxonomy.

3. I've developed SAFRINET according to community needs and what aid agencies are interested in funding, according to their calls for proposals, and avoided things they will not fund, such as buildings, and vehicles. The pilot project for implementing this new approach is phytosanitary services in SADC countries, and involves international partners. The project focuses on developing new tools and training quarantine officers to identify invasive species at ports of importation and exportation. The technology for creating these electronic tools exist and SAFRINET could be the first organization to apply it systematically for a specific purpose. SAFRINET could also become involved in improving the technology. USGS is now adopting these ideas, after being introduced to them by SAFRINET. CBOL has the most promising tools for this purpose and SAFRINET's participation in their South African Workshop is to develop a strategy and project proposal for its implementation in SADC phytosanitary services.
- Development of the International Pollinator Initiative (IPI) and the African Pollinator Initiative (API)
    1. The International Pollinator Initiative (IPI) was approved by the Fifth Conference of the Parties (COP5) to the Convention on Biological Diversity (CBD) (Decision V/5, 2000). The United National Food and Agriculture Organization (FAO) was asked to develop the IPI Plan of Action, by the CBD Secretary General, and employed me to write it in 2000. It was accepted by COP6 (Decision VI/5, 2002), and was expanded to include natural areas. I have been involved in all the workshops, meetings of the Subsidiary Body for Scientific, Technical and Technological Advice (SBSTTA) and COPs in the development of IPI, which received project development funds from the Global Environment Facility (GEF) in 2004. To enable Africa to fully participate in IPI I established the African Pollinator Initiative (API) in 1999, and today more African countries are involved in the IPI-GEF project than any other region, and we're more organized. This project has been passed onto the South African National Biodiversity Institute (SANBI).
    2. I have played a large role in creating awareness that organisms that provide essential ecosystem services, such as pollinators, have a unique role in biodiversity conservation. Conservation strategies are needed to maintain abundance of common species, because minimum population densities are needed to maintain ecosystem services. The dedication of a day to pollinators and soil organisms (ecosystem services) in a recent UN University's agrobiodiversity symposium demonstrated increased awareness for pollinator conservation in the CBD. I prepared pollinator conservation documents and found distribution mechanisms for these at the World Summit for Sustainable Development (WSSD). From this I had several positive responses. DIVERSITAS held a symposium on sustainable agriculture in October 2005, in Mexico, and I helped

organise the pollination section.

3. In 2003 I raised US\$ 100 000 for a Workshop at Mabula to develop a document and associated strategy to help implement IPI, i.e., to enable conservationists at policy levels below CBD focal points. This document will be published in February 2006 and I was the principal editor.

○ Research projects

1. I'm primarily a bee systematist, but approach the subject holistically to make systematics an integral part of understanding how ecosystems function and maintain themselves, i.e., the role of taxonomy in the ecosystem approach to the conservation of biodiversity conservation through protection the essential ecosystem goods and services, such as pollination, and for sustainable agriculture.
2. I have become globally a "consultant" for pollinator conservation, and this without any formal training in this field. I often find I'm placed as a speaker on the agenda of international meetings at the time when the meeting is being planned, and before I am even aware of the proposed Meeting. Thus I'm seen as a key figure in pollinator conservation. I'm asked regularly to study the North American Pollinator Protection Campaign (NAPPC) documentation to give it an international perspective. I'm also consulted on international policy development.
3. In my specialist research, Afrotropical bee systematics, and to a lesser extent pollination biology, I:
  - Control all aspects of research I initiate, including experimental design, execution and preparation of results for publication (see research).
  - Have been invited to participate in projects initiated by others, and where appropriate I lead these projects, e.g., CD Michener (USA) suggested that I write a book on African bee genera when he was asked to do so. This has been done (but not published) and is now being developed into the world's first electronic key to bee genera. B. Danforth (USA) invited me to join a National Geographic Society (NGS) project, which he lead. Simon Potts (UK) invited me to join a pollination project in the Congo as the bee taxonomist.
  - Supervise projects of junior staff to ensure their successful completion, this includes inter alia a specimen database of African bees (all South African collections), a catalogue and full literature inventory of Afrotropical bees and taxonomic projects in ARC-PPRI. These two project will be published on the Internet soon. I've also approached scientists who have done good research but neglected to publish the results, like Dr Vincent Whitehead (Iziko Museum, SA), who worked on the Fideliidae, and Prof. Howell Daly (Univerity of California, USA), wrote up and published this research.
  - Stimulate new ideas for research by colleagues, such as use of bee databases for Geographic Information Systems (GIS),

automated identification systems, publication on CD-ROM etc. These are all still under construction.

- Networking

1. Networking between people and organizations requires skill, certain desirable personality traits and a desire to work with people and continually discover and implement new pathways and mechanisms. I presumably have these talents considering my involvement in SAFRINET, API and IPI are highly appraised, and I enjoy networking. I believe that I have the intuition to understand the hidden agendas of people and organizations, including UN organizations, and the aspirations of other people and organizations, and am able to respond appropriately.

- Human relations

1. Human relations is closely linked to networking and leadership. IPI, API and SAFRINET are highly appraised initiatives. I therefore consider myself to have good leadership and networking qualities, with fellow South Africans and people from many other nationalities.
2. I'm experienced in developing and leading multinational co-operative projects. I enjoy raised funds and helping people to achieve their goals. I've found finance and candidates, suggested subject matter for young scientists to undertake fellowships and have had some outstanding results, such as Ms R. Sithole from the Bulawayo Museum, Zimbabwe, who is developing a carrier in parasitic wasps (Family Ichneumonidae). I suggested that the BioNET fellowship candidate curate the ARC-PPRI ichneumonoid collection. This enabled him to receive training and ARC-PPRI benefited from his labour.

I enjoy working with people, learning their strengths and weaknesses and building these into development projects.

- Policy development

1. I've been involved directly in policy development in the:
  - Development of the IPI plan of work, which is a UN document.
  - Contribution to the publication "Policy development in Agrobiodiversity, a guide to best practices" (in press) for Environmental Liason Centre International (ELCI) and the United Nations Environment Programme (UNEP).
  - Contribution to the API strategy and plan of action.
  - Review of the North American Pollinator Protection Campaign (NAPPC) documentation.
  - Contribution to the Millennium Assessment.
  - Editing of the Mabula Workshop document.

- Other management and planning

## 1. In bodies created by others I:

- Participated in numerous meetings and workshops on general management, networking, strategic development and implementation, from policy development to information technology inter alia for ARC, ARC-PPRI, the Entomological Society of Southern Africa (ESSA), and specialised professional bodies, e.g., IUCN (in South Africa), GTI (South Africa), ICIPE (Kenya), FAO (Italy), Cartagena Protocol (Kenya), Co-evolution Institute (USA), University of Sao Paulo (in Brazil), BIOTA (Germany) and others.
- Organised training, including course curricula and implementation (lecturers), for local and international meetings and seminars; for SAFRINET, ARC-PPRI, API, SAFRINET and BioNET.
- Organized meetings and workshops, including a session of APIMONDIA, IPI's First Co-ordinating Committee Meeting, the Third Global Taxonomy Workshop (3GTW), which had over 300 delegates from six continents and representatives of many international programmes, the Pollinator Workshop in Africa, the Mabula Workshop and the 6th Hymenopterist's Congress..
- Was Secretary of ESSA for 13 years and Deputy Treasurer for one year. Secretary for the ESSA Biosystematics Interest Group (BIG) for two years, participated on a committee for advising the government on legislation concerning the exportation of invertebrates etc.
- Was an Official South African government representative to SBSTTA3, COP5, the Third Global Biodiversity Forum (3GBF), the Consultative Group on International Agricultural Research (CGIAR), the First IPI International Steering Committee (ISC) and others.
- Invited myself to many meeting where I feel ARC-PPRI and/or SAFRINET need to be represented, i.e., I use aggressive marketing techniques when necessary.

## 2. In bodies I created/helped initiate:

- I created API. After three years it had developed into a network of 84 people from 14 African countries, and held its first workshop (for which I raised the finance). All this was achieved with an informal "steering committee" of "self-appointed" people. In 2002 I was elected as the first Chairperson of API. I've now been elected the API representative to the IPI-ISC.
- In the late 1980s Brian Huntley recommended that insect taxonomists group themselves to enable them to qualify for financial support. This resulted in the formation of BIG, of which I was the first secretary. Initially it was an active group, but since I resigned as Secretary it has more or less died.
- I helped create the BioNET-International Advisory Group, but it was managed by the BioNET Secretariat and has achieved little.



## 2. RESEARCH

- My interests in science lie in:
  1. Academic research (taxonomy and phylogenetic studies).
  2. Making science of benefit to people to improve their livelihoods (SAFRINET).
  3. Conservation of biodiversity (API).
  4. Helping young scientists develop their careers (API & SAFRINET).

Building SAFRINET and API resulted in most of my time during the past eight years being spent in networking, management and policy development. If I dedicate my time to bee systematics I could revise the Afrotropical Apoidea within 10-15 years, and this I began in 2005. This decision resulted in six scientific revisions being published/ submitted during 2005. I'm also now training a Kenya woman and a Ghanaian woman to become bee taxonomists. Towards this end I'm completing a catalogue of the Afrotropical bees (over 4 000 species names, 2 700 of which are valid, and ten of thousands of references) and I've scanned all the literature as pdf file. This is being prepared for publication on the Internet.

Bees are the most important group of pollinators and vitally important for agriculture and the conservation of biodiversity. My proficiency in bee systematics is demonstrated by my status as a scientist; for example C.D. Michener's suggestion that I develop the course material for an African Bee Course - this has been done.

Most of my research has been published. Unpublished work is either incomplete or resulted from contract research that could not be developed to give a high quality scientific result. All published results have been placed in suitable, high quality, international journals or, by invitation, in books. None of my articles have been rejected nor required major revision. Each project on which I have embarked has been concluded within the required time-frame and budget. I was recently invited to contribute to a special issue of the Journal of the Kansas Entomological Society to commemorate Jeromy Rozen's 70 birthday, and given 10 free pages (US\$ 400).

- Biosystematics and biodiversity
  1. My principal study group is Afrotropical bees, in which I am regarded as a world authority. During the 1990's most other solitary Afrotropical bee specialists retired or passed away. For a time I was the only professional Afrotropical bee systematist, but recently there has been a small renewed interest in the systematics of Afrotropical bees, with Alain Pauly and Denis Michez, Belgium, and Michael Kuhlmann and Kim Timmermann, Germany, joining the field. Other specializations are:
    - Specialist taxa are sawflies, ants, stinging wasps and parasitic wasps.
    - Contributions to systematic philosophy and methodology, include cladistics, using computer software and contributing

to cladistic theory.

- Statistical analysis; primarily principal component analysis.
- Related fields included in biosystematics: zoogeography, behaviour, field surveys, assessments and biodiversity, and I'm moving into molecular systematics and GIS.
- Data basing the collections of Afrotropical bees. Those in Africa have been databased, and I'm now focussing on the Afrotropical material in North American and European Museums, as part of GBIF. This is a venture to move biosystematists from data provision to information provision to improve the relevance of taxonomists.
- A catalogue of Afrotropical bees is being developed and will be published on the Internet soon.

2. SAFRINET was commissioned to develop an information hub for the detection and rapid elimination of invasive alien species. I acquired seed finance for this project from the United States Geological Survey (USGS), but felt that to use this finance to place information on the Web would not produce a sustainable information hub. I, therefore, developed the idea of computer automated identification, with links to information on species, and involved phytosanitary services, as the user in a pilot project. This has become the model for the USGS information hub, and simultaneously is developing far beyond invasive alien species. In the development of the Hub I have the written support of the heads of phytosanitary services in SADC countries, the approval of the director of the SADC Directorate for Food, Agriculture and Natural Resources (FANR); the support of international organizations like the International Plant Protection Convention (IPPC) and the United National Food and Agriculture Organization (FAO) and many software developers (Discoverlife, DAISY, LUCID, ETI and ABIS). This project has investigated many semi-automated and fully automated organism identification techniques but found them, for different reasons, unsuitable. CBOL is the latest attempt, and appears promising. The development of an alien invasive species early warning website in collaboration with the South African Department of Agriculture (DoA) is under discussion.

#### ○ Applied

1. Working for an agricultural research organization I'm often asked to give advice on applied entomological problems or refer people to the correct specialist. Activities in applied entomology include:
  - Impact assessment of beneficial insects and pest. I have published on the introduction of a new saw fly into South Africa and on pollinators.
  - Control methods and their suitability. Mostly general knowledge, frequently asked for advice on carpenter bee damage and studied the prospects for biocontrol of introduced saw flies.
  - Biology of beneficial insects and pests/potential pests; e.g., bee behaviour and introduced saw fly biology.

- Increasing population density of beneficial insects, such as pollinators.
  - Surveys of the insects, beneficial and pests in agricultural systems and nature reserves. I've participated in many surveys.
  - Pollination research, see below.  
My interest in applied entomology is in the conservation of beneficial organisms, such as pollinators.
- Pollination biology
    1. Pollination of subtropical fruit, vegetables, pastoral grasses and other pastoral plants. Some of this work has been published, but for other work the contract was terminated before publishable results were obtained.
    2. My current interest is in keeping stingless bees for pollination and honey production. A proposal, developed in collaboration with Kenya, Ghana, Botswana, UK and the Netherlands has been submitted to the EU. The other large proposal that will soon be submitted for funding is the IPI/GEF project.
- Ecology
    1. I'm a bee systematist. Therefore ecology has been a sideline, but an alert taxonomist gains a lot of ecological knowledge during fieldwork. This includes:
      - Nesting, foraging biology and host plant records of bees.
      - Behaviour of bees, wasps and sawflies, and less so other insect groups.
      - Ecological impact in natural vegetation and agricultural systems, such as environmental factors that affect bee abundance and diversity.
- Innovation
    1. Progress in ARC institutes during the period of change, i.e., from government to semi-government organization in a climate of political change, has been dismal. In this environment innovation has been the key to personal career development, and I think I've been one of those who've progressed in a retrogressive environment. Some examples of my innovation are:
      - I've designed and constructed my experimental and field equipment that was not readily available. Some designs were unique and have been copied by other institutions, e.g., Humboldt University Museum, Berlin, uses my malaise trap design.
      - I remoulded SAFRINET from a programme to build traditional-type taxonomic organizations in SADC to computer automated identifications undertaken by the users of taxonomic services.
      - I created API so that Africa could fulfil its role in IPI, and this resulted in API leading IPI, and I've been instrumental in the development of IPI and enabling it to fulfil both the

requirements of the user community, FAO and GEF.

- Currently I'm developing a mechanism to partly automate databasing the information associated with Afrotropical bees in European museums. My previous Director, Mr Mike Walters, on his retirement commented on the large number of new ideas I had presented to help make ARC-PPRI a financially viable organization.

I have a keen interest to develop my career in project development and management; in particular taking a problem, the existing human capacity, other resources, and outside funding to help resolve problems, build human capacity and provide scientific information.

## **SCIENTIFIC AND TECHNICAL SERVICES**

(consultancy and information transfer)

### **1. SCIENTIFIC SERVICES**

- Scientific information transfer is part of the mandate of the ARC. This includes participation in working groups such as the IUCN, GTI, FAO. In these I provide:
  1. Highly specialised advice and information on bees, wasps, ants and sawflies. Less specialized and generalized information on all groups of insects of agricultural and environmental importance. This service is usually given free on a daily basis because the clients are poor, students with small grants or because the time spent on the task is small. To make it pay we need to add value to this data and create information. This is being done in the development of a bee database. I've also helped develop scientific projects and policy with international organizations, e.g., I was invited to Brazil to help in the development of a Brazil Pollinator Initiative (BPI) and the US State Department invited me to organize the Mabula Workshop, to name but a few examples - many such invites I do not accept.
  2. Client requested research. The pollination biology on the subtropical fruit fell in this category. I revised the stingless bees at the request of ICIPE.
  3. Advice on writing scientific papers, review of scientific articles and books (some reviews are published), peer review for scientists both local and from abroad and writing report, minutes and meeting proceedings. I did not keep record of the articles I review, or those that I helped write. I'm an associate editor of the Journal for Tropical Insect Science and was Chairman and Editor for the proceeding of the solitary bee section of the 2001 APIMONDIA congress.
- I've written many project proposal, some have been successful and several are currently been appraised, and I believe that I'm now proficient at this task.
- In a recent survey of the standard of curation in the Biosystematics Division's insect collection, by Ros Urban the collection manager, my

collection proved to be the best curated. I've also been complimented by foreign bee biologists on the standard of curation in my collection.

## 2. TECHNICAL

(Insect identifications and technical information service)

- Curation. Technical services in organism identification are given daily, for conservationists, farmers, quarantine staff, industry and general public, both local and abroad. Identification of Afrotropical bees is my speciality, and I'm the most qualified specialist in the world. Identification of all other groups of insects of agricultural and environmental importance, often not to species but I know who to consult for species determinations and, by the nature of the problem whether a species name is necessary.
  1. Information is given on the biology, ecology, control etc. of all insects (more specialised on bees, wasps, ants and sawflies).
  2. I have knowledge of all aspects on the collection of insects and arachnids, and on their preparation and curation for the development of a collection or for use in research. I've lectured on this in a course on collecting and curation offered by ARC
- Consultation on the presentation of technical information and review of technical publications. This mainly is done in ARC-PPRI and SAFRINET training courses.
  1. Consultation on networking is usually more discussion with other network co-ordinators. I have experience in networks driven from top-down (SAFRINET) and IPI) and bottom-up (API).
  2. I have a broad general knowledge on agriculture that I have developed during 25 years of experience in this field.
- Information management and the availability of electronic information are fundamental to my activities in ARC and SAFRINET.
  1. I've developed a management system for literature and information retrieval for bees, ants, stinging and some parasitic wasps and sawflies. My literature collection on African bees is the most comprehensive outside the University of Kansas, USA (possibly the most comprehensive in the world). It is being used to prepare catalogues to all the Afrotropical bees (about 2 600 valid species), with several hundred-thousand records. This will be put on the Internet soon.
  2. I write scientific, semi-scientific and technical papers, requests for funding and report on all aspects of my activities, including operational and financial management (annual, progress and financial reports) for my projects.
  3. I am involved in the development of a relational database for the National Collection of Insects, and this will expand it into a global database through GBIF.
  4. SAFRINET is developing into an information network, and I'm

working towards it becoming SADC's Directorate for Food, Agriculture and Natural Resources (FANR) information mechanism.

- Computer literacy
  1. Currently I use Windows2000, on PC and Apple machines, and other every-day software like Omnipage, Photoshop, Corel, etc. I have used and/or received training on a variety of other software; scientific, statistical, accounting, auditing, data bases, word processing, illustration and management and have little difficulty in learning to use new hardware and software.
  2. I've also used Hennig86, which is a cladistics analysis programme.
- Insect rearing
  1. Rearing insects to obtain material for research, to study life cycles and general biology and to develop a quality collection by taking immature insects and rearing them to maturity has been undertaken.
- Project development
  1. SAFRINET is a neat example of project development. Initially it was a "good idea" for expanding traditional mechanisms for building taxonomic capacity, but did not materialize into a fundable project. I've therefore developed it into a project tailored for a specific need and introduced unique methodology to achieve my goal. Through this process I've learned a lot about project development.
  2. IPI has been the more successful project I contributed to because I've put more time to it and mobilized more active partners, like FAO.

### 3. TRAINING AND EDUCATION

I have been involved in training at different levels:

- Formal training
  1. Lecturing Taxonomic Techniques for Applied Entomology, an ARC course.
  2. Lecturing Plant Quarantine Organisms, Collecting Techniques and Classification.
  3. Lecturing SAFRINET course in Practical Entomology and Arachnology.
  4. Presentation of scientific and technical papers at numerous congresses and workshops; local and international. I've presented a huge number of talks and have not kept records.
- Informal
  1. Visiting or being visited by technicians, scientists, farmers etc. for the transfer of information and skills. I spend a lot of time

networking, particularly for pollinators and SAFRINET. The result is that the API is the most advanced regional network of the IPI and SAFRINET is the leading network in BioNET.

2. I've Participation in numerous Workshop; a careful record of which has not been kept.

## FUNDING

I finance my project running costs, and am one of two or three systematists in ARC-PPRI that manages this. It is difficult to obtain finance for taxonomy that includes scientist's salaries and overheads. This is because we're requesting "grant finance" for an organization that is not concerned with tertiary training. Nevertheless, I believe that several of my international drives for financing big projects will soon mature - this is already happening with the IPI=GEF project.

### 1. SAFRINET

Apart from in-house funding (ARC-PPRI), SAFRINET's primary finance was from the Swiss Agency for Development and Cooperation (SDC), the UK Department for International Development (DFID), USA and the BioNET Fund. Several agencies, including the Government of Finland, USA and international organisations (IUCN, ICIPE, Catagena Protocol), financed SAFRINET people to participate in meetings and workshops. This finance has exceeded US\$ 5 000 000, since 1997.

### 2. Pollinator biodiversity conservation

Since 1997 I've raised over US\$ 150 000. By the nature of taxonomic research, and the APC-PPRI embargo on employment of new staff, this has mostly been spent on my own research.

## PRODUCTIVITY

### 1. SCIENTIFIC

#### ○ Accomplishments

#### 1. Some of my more successful accomplishments are:

- Revision of 269 valid species, 71 of which were new to science, excluding 6 articles in press and preparation. These were all dealt with in monographic revisions of higher taxa.
- Completion of two theses: MSC and PhD, and did a BCompt(Hons) degree while doing my PhD.
- Completion of a cladistic analysis of the Ammobatini.
- Catalogued every reference to an Afrotropical bee, this is being prepared for electronic publication on ARC website.
- Collected copies of every article concerning Afrotropical bees.
- Developed the biggest collection on southern African bees. This collection has been professionally curated and every species is recorded on a data base. I've also databased the material in the Transvaal and Durban museums.
- Developed SAFRINET into a highly acclaimed network. Co-operation between SAFRINET and other leading

international organisations and initiatives has been sought by GISP, IPI, GTI, IUCN, FAO, GBIF, CBOL and others.

- Initiated API. Other regions of the globe are following suit in the development of regional pollinator protection networks. I was recently nominated by the API members to represent API in the IPI-GEF project.
- I lead the development of the IPI in its initial stages.
- Moulded SAFRINET into the first node (hub) for a global project to develop an invasive alien species network, phytosanitary services network and a mechanism to document life (see [www.discoverlife.org](http://www.discoverlife.org)). I moulded these initiatives into one programme.

○ Merit awards

1. 1989 Award from the government (Administration: House of Assembly) for exceptional productivity.
2. 1998 Medal from Agricultural Research Council for Excellent Performance.
3. 1985-2004 In internal ARC evaluations I always come in the top category.

○ Scientific and technical publications

1. Thirty-two scientific articles:
2. 14 of which are major systematic revisions.
3. 17 technical/semi-scientific articles.
4. 1 book.
5. seven book reviews.
6. five report
7. Over 14 meeting proceedings.
8. 1 poster.
9. three electronic publications.

I also have and am responsible for the information on bees in EcoPort ([www.ecoport.org](http://www.ecoport.org)). EcoPort is a comprehensive Internet site for biological diversity.

I've not kept careful records of semi-scientific and popular articles, meeting proceedings. A publication list is appended. Every article is of exceptional high quality, indicating that quality has never been sacrificed to achieve outstanding productivity.

Contributions to numerous newsletters, internal reports, client reports etc. of which detailed records have not been kept.

○ Presentations at scientific congresses

Numerous presentations at congresses, symposia, workshops and meetings were delivered. An accurate record of these was not kept.

## 2. TECHNICAL

I do carpentry and repair my own motor vehicles, and consider myself to be technically talented. Skills have been developed to enable me to fulfil all aspects of my position as a research scientist, net-worker and/or



manager of multinational, multidisciplinary projects, and to enable me to continue improving client services and my research, both qualitatively and quantitatively. It has been developed from formal and informal tuition, literature and my own research.

## INTERESTS

Apart from my obvious interests in research in pure science and applied agricultural science, I have always had a keen interest in business and business management and the application of science and technology. I delivered several seminars on agricultural economics, where I was expected to choose my own subject matter, for my BSc(Hons.) degree. Previously this subject had not been included in this course. I also undertook a Hons. BCompt degree (the academic qualifications needed for a Chartered Accountant, I have not written the CA Board exam) to gain professional training in business.

## ADAPTABILITY

During my career I have had to adapt from being a research scientist involved in pure science to applied science, a consultant, a project manager, involving the management of people, operations and financial accountability, a net-work co-ordinator, a project developer and a fund raiser. All these have been achieved with outstanding success (the medal for Excellent Performance was awarded after these career changes were made).

## VISITS ABROAD

I have visited most European museums with large and important collections, and all the southern Africa museums, to develop my scientific and technical knowledge, to undertake comparative study and as a networking exercise for SAFRINET. I have also visited and studied at numerous scientific and agricultural institutions in southern Africa and abroad, and spent time at the CAB-INTERNATIONAL (CABI) institutes, UK, to deal with SAFRINET and BioNET-INTERNATIONAL matters. CABI was visited to deal with SAFRINET reporting, project management, strategic planning and fund raising, and to improve my technical knowledge on insects, nematodes and micro-organisms.

I have visited the natural history museums and other scientific and agricultural institutions in Austria, Belgium, Botswana, Brazil, Canada, Denmark, France, Germany, Ghana, Holland, Hungary, Italy, Kenya, Madagascar, Malawi, Mozambique, Namibia, Tanzania, United Kingdom, USA, Zambia and Zimbabwe. This was done in varying capacities, as a consultant, research scientist, project manager and/or to participate in workshops and congresses.

I attended/participated in international meeting as the South African Government representative for Agriculture (SBSTTA, COP, GBF, CGIAR and IPI), the BioNET-INTERNATIONAL/SAFRINET representative at countless meeting in SADC and abroad and as a bee specialist at many meetings.

## RECOGNITION

### 1. Election to executive committees of learned societies

1978	Deputy Treasurer	Entomological Society of Southern Africa
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1979-91	Secretary	Entomological Society of Southern Africa
1991-92	Secretary	Biosystematics Interest Group of the Entomological Society of Southern Africa
1997-1998	Executive co-ordination	SAFRINET
1998-	Member	BioNET-INTERNATIONAL Action Group
1998-	Member	Steering Committee for the implementation of the Sao Paulo Declaration
1999-	Associate Editor	Insect Science and its Application
2001	Secretary of the IPI	The COP/FAO IPI initiative Coordinating Mechanism
2001-2004	Chairperson	API
2004	National representative	IPI-ISC

## 2. Consultations and review requests (publications and projects)

- Frequent requests to referee articles for international scientific journals, including African Entomology, the Journal of Natural History, Journal of Hymenoptera Research, Zoological Journal of the Linnean Society. Book reviews are included in the publication list (publications # 25, 27, 28 and 35).
- Member of the Sub-regional Committee for the SAFRINET Needs Assessment Exercise (this is independent of the network coordinator's duties).
- Peer reviews of South African scientists for NRF and on request by foreign institutions.

## 3. Other examples to illustrate scientific status

- Researchers abroad studying Afrotropical bees consult with me regarding future research, placing me in a position to determine priorities for bee research in Africa. Recent examples are Mr M. Schwarz, from Linz, Austria and Dr M. Kuhlmann in Ahlen, Germany.
- Complementary correspondence from leading bee systematists. Some of these are as follows: Dr L. Packer (the most recent), stated on 30 October 1997, when requesting me to do a peer review, that my "papers are probably the most attractively produced works I see". Dr J. Rozen, currently the worlds leading bee scientist, stated that "I continue to be

impressed by the progress that you've made in sorting out the bees of Africa". The reports from the external examiners of my theses are also highly favourable. For example, the external examiner of my MSc, Prof. H. Daly, of the University of California, stated that "In comparison to other Master' theses that I have judged critically during the last 22 years, I find Mr Eardley's thesis to be among the best". These plus many other letters of this nature are available on request.

- Invitation to contribute to scientific and technical books, included in publication list. The most recent is a monograph on the bees of Madagascar. I am the only employed bee systematists in the Afrotropical Region. Another resides in Europe and I'm beginning to train a Kenya scientist to become a bee taxonomist. A few amateurs reside in Europe (there are a few amateurs in Europe). As most of the American bee systematists with expertise on African bees approach retirement my expertise become increasingly important for pollinator biodiversity research in Africa. Mentoring is also vital, as I get older.

## LEARNED SOCIETIES

South Africa Council for Natural Scientific Professionals, since its inception.

Entomological Society of Southern Africa.

International Society of Hymenopterists.

The National Geographic Society.

## REFEREES

### 1. Learned scientists abroad

- Dr B. Gemmill, Environmental Liaison Centre International (ELCI), P.O. Box 72461, Nairobi, Kenya. E-mail [bg11 @mac.com](mailto:bg11@mac.com) (Director of ELCI).
- Prof. C.D. Michener, c/o Snow Entomological Museum, Snow Hall, University of Kansas, Lawrence Kansas 66045, USA. E-mail [ksem@kuhub.cc.ukans.edu](mailto:ksem@kuhub.cc.ukans.edu) (the worlds leading bee expert, retired, does not know me personally).
- Dr W.J. Pulawski, Department of Entomology, California Academy of Sciences, Golden Gate Park, San Francisco, CA 94118, U.S.A. E-mail [wpulawski @ casmail.calacademy.org](mailto:wpulawski@casmil.calacademy.org). (leading wasp scientist, visited me for study purposes several times).
- Dr Rolf Oberprieler, CSIRO - Entomology, GPO Box 1700, Canberra, ACT 2601, AUSTRALIA. E-mail [Rolf.Oberprieler @ ento.csiro.au](mailto:Rolf.Oberprieler@ento.csiro.au). (ex-colleague).

### 2. Local colleagues

- Dr M.W. Mansell, PPRI, Private Bag x134, Pretoria, 0001. South Africa. E-mail [vrehmwm@plant5.agric.za](mailto:vrehmwm@plant5.agric.za).
- Dr A. Dippenaar, PPRI, Private Bag x134, Pretoria, 0001. South Africa. E-mail [rietasd@plant2.agric.za](mailto:rietasd@plant2.agric.za).
- Dr M. Hamer, Department of Zoology & Entomology, University of Natal, Private Bag X01, Scottsville, 3209. E-mail [HamerM@ukzn.ac.za](mailto:HamerM@ukzn.ac.za).

## DECLARATION

I declare that the particulars furnished are true and correct.

## APPENDIX

### Publication list for C.D. Eardley

An asterisk indicates semi-scientific and technical publications and published reports.

1. EARDLEY, C.D., 1983. A taxonomic revision of the genus *Xylocopa* Latreille (Hymenoptera: Anthophoridae) in southern Africa. Entomology Memoir, Department of Agriculture, Republic of South Africa No. 58, 67pp.
2. EARDLEY, C.D., 1983. Systematic research on South African bees. Agricultural News 4 February 1983 p.2.
3. PRINSLOO, G.L. & C.D. EARDLEY, 1985. Order Hymenoptera (Sawflies, wasps, bees, ants). [In] Scholtz, C.H. & E. Holm [Eds]. Insects of Southern Africa, Butterworths, Durban p.393-395.
4. PRINSLOO, G.L. & C.D. EARDLEY, 1985. Suborder Apocrita. [In] Scholtz, C.H. & E. Holm [Eds]. Insects of Southern Africa, Butterworths, Durban p.399-429.
5. C.D. EARDLEY, 1985. Vespoidea. [In] Scholtz, C.H. & E. Holm [Eds]. Insects of Southern Africa, Butterworths, Durban p.429-430.
6. C.D. EARDLEY, 1985. Sphecoidea. [In] Scholtz, C.H. & E. Holm [Eds]. Insects of Southern Africa, Butterworths, Durban. p.430-436.
7. C.D. EARDLEY, 1985. Apoidea. [In] Scholtz, C.H. & E. Holm [Eds]. Insects of Southern Africa, Butterworths, Durban. p.436-443.
8. EARDLEY, C.D., 1987. Catalogue of Apoidea (Hymenoptera) in Africa south of the Sahara. Part I. The genus *Xylocopa* Latreille (Anthophoridae). Entomology Memoir, Department of Agriculture and Water Supply, Republic of South Africa No. 70. 20pp.
9. EARDLEY, C.D., 1988. A revision of the genus *Lithurge* Latreille (Hymenoptera: Megachilidae) of sub-Saharan Africa. Journal of the Entomological Society of Southern Africa 15(2): 251-263.
10. EARDLEY, C.D., 1989. Diversity and endemism of southern African bees. Plant Protection News 18: 1-2.
11. EARDLEY, C.D., (1990). The Afrotropical species of *Eucara* Friese, *Tetralonia* Spinola and *Tetraloniella* Ashmead (Hymenoptera: Anthophoridae). Entomology Memoir, Department of Agricultural Development, Republic of South Africa No. 75, 62pp.
12. EARDLEY, C.D. AND R.W. BROOKS, (1990). The genus *Anthophora* Latreille in southern Africa (Hymenoptera: Anthophoridae). Entomology Memoir, Department of Agricultural Development, Republic of South Africa No. 76, 55pp.
13. EARDLEY, C.D., (1991). The Melectini in subsaharan Africa (Hymenoptera: Anthophoridae). Entomology Memoir, Department of Agricultural Development, Republic of South Africa No. 82, 49pp.
14. EARDLEY, C.D. AND M. SCHWARZ, 1991. The Afrotropical species of *Nomada* Scopoli (Hymenoptera: Anthophoridae). Phytophylactica 23(1): 17-27.
15. EARDLEY, C.D., (1991). The genus *Epeolus* Latreille from subsaharan Africa (Hymenoptera: Anthophoridae). Journal of Natural History 25: 711-731.
16. EARDLEY, C.D., (1991). The southern African Panurginae (Andrenidae:

- Hymenoptera). *Phytophylactica* 23(2): 115-136.
17. EARDLEY, C.D., 1993. Complementary descriptions and new synonyms of some Afrotropical Anthophoridae (Hymenoptera). *African Entomology* 1(2): 145-150.
  18. EARDLEY, C.D. & M.W. MANSELL, 1993. Preliminary report on the natural occurrence of insect pollinators in an avocado orchard. *South African Avocado Grower's Association Yearbook* 16: 127-128.
  19. EARDLEY, C.D. & M.W. MANSELL, 1993. Preliminary report on the natural occurrence of insect pollinators in a mango orchard. *South African Mango Grower's Association Yearbook* 13: 127-128.
  20. EARDLEY, C.D., 1993. The African species of *Pachymelus* Smith (Hymenoptera: Anthophoridae). *Phytophylactica* 25: 217-229.
  21. EARDLEY, C.D., 1993. Book review: Ecology and Natural History of Tropical Bees (Cambridge Tropical Biology Series) by David W. Roubik. Cambridge University Press. [In]: *African Entomology* 1:130-131.
  22. EARDLEY, C.D. & M.W. MANSELL, 1994. Report on the natural occurrence of insect pollinators in an avocado orchard: second report. *South African Avocado Grower's Association Yearbook* 17: 117-118.
  23. EARDLEY, C.D. & M.W. MANSELL, 1994. Report on the natural occurrence of insect pollinators in a mango orchard. *South African Mango Grower's Association Yearbook* 14: 65-66.
  24. EARDLEY, C.D. & M.W. MANSELL, 1994. Preliminary report on the natural occurrence of insect pollinators in a litchi orchard. *South African Litchi Grower's Association Yearbook* 6: 13-14.
  25. EARDLEY, C.D., 1994. Book review: Zoological Catalogue of Australia. Vol. 10. Hymenoptera: Apoidea by J.C. Cardale. [In]: *African Entomology* 2:77.
  26. EARDLEY, C.D., 1994. The genus *Amegilla* Friese (Hymenoptera: Anthophoridae) in southern Africa. Republic of southern Africa, Department of Agriculture, Entomology Memoir 91: 1-68.
  27. EARDLEY, C.D., 1994. Book review: Bees of the World by C.O'Toole & A. Raw. [In]: *African Entomology* 2:189.
  28. EARDLEY, C.D., 1994. Book review: Hymenoptera and Biodiversity by J. LaSalle & I.D. Gauld Eds. [In]: *African Entomology* 2:189-190.
  29. URBAN, A.J. & C.D. EARDLEY, 1995. A recently introduced sawfly, *Nematus oligospilus* Förster (Hymenoptera: Tenthredinidae), that defoliates willows in southern Africa. *African Entomology* 3:23-27.
  30. EARDLEY, C.D. & M.W. MANSELL, 1995. Report on the natural occurrence of insect pollinators in a litchi orchard. *South African Litchi Grower's Association Yearbook* 7:33-34.
  31. EARDLEY, C.D. & M.W. MANSELL, 1995. The natural occurrence of insect pollinators in a Mango orchard: Final Report. *South African Mango Grower's Association Yearbook* 15: 89-91.
  32. EARDLEY, C.D., 1996. The genus *Scapter* Lepeletier & Serville (Hymenoptera: Colletidae). *African Entomology* 4: 37-92.
  33. EARDLEY, C.D. & A.S. DIPPENAAR, 1996. Collecting and Preparation of Material. [In] Uys V.M. & R.P. Urban [Eds]. How to Collect and preserve Insects and Arachnids, Plant Protection Research Institute Handbook No. 7, Biosystematics Division, Plant Protection Research Institute p. 23-35.
  34. EARDLEY, C.D. & M.W. MANSELL, 1996. The natural occurrence of insect pollinators in an avocado orchard. *South African Avocado Grower's Association Yearbook* 19:36-38.
  35. EARDLEY, C.D., 1996. Book Review: The Pollen Wasps. by S.Gess

- [In]: African Entomology 4(2): 291.
36. EARDLEY, C.D., 1997. SAFRINET - a new regional network for biosystematic co-operation. *Rostrum* 46:1.
  37. URBAN, A. & C.D. EARDLEY, 1997. Willow sawfly: a contentious issue. *Plant Protection News* 47:20-24.
  38. EARDLEY, C.D. & R.G. OBERPRIELER, 1997 [compiled by]. A directory of insect and arachnid taxonomists in southern Africa. A separate publication of the Entomological Society of Southern Africa. 12pp.
  39. EARDLEY, C.D. & A.S. DIPPENAAR-SCHOEMAN, 1997. Collecting methods. [In] MILLAR, I.M. *Collecting and Preserving Insects and Arachnids*. Plant Protection Research Institute, Biosystematics Division, Plant Protection Research Institute p. 34-55.
  40. EARDLEY, C.D. & M.W. MANSELL, 1997. The natural occurrence of insect pollinators in a litchi orchard. *South African Litchi Grower's Association Yearbook* 8:27-29.
  41. EARDLEY, C.D. & D.J. BROTHERS, 1997. Phylogeny of the Ammobatini and revision of the Afrotropical genera (Hymenoptera: Anthophoridae: Nomadinae). *Journal of Hymenoptera Research*.
  42. EARDLEY, C.D., 1997. Proceedings of First LOOP Co-ordinating Committee Meeting of SAFRINET. SAFRINET Document 4. pp 56.
  43. JONES, T. & C.D. EARDLEY 1998. SAFRINET Manifesto & Portfolio. SAFRINET Document 5. pp.63.
  44. EARDLEY, C.D., 1998. Biosystematic Resources in the SADC Sub-region: Towards a Strategic Plan. SAFRINET Document 6. pp 57.
  45. EARDLEY, C.D., 1998. Proceedings of Second LOOP Co-ordinating Committee Meeting of SAFRINET. SAFRINET Document 7. pp 36.
  46. EARDLEY, C.D. & P. CANNON, 1998. Annual Report 1997. SAFRINET Document 8. pp 49.
  47. EARDLEY, C.D. & M.W. MANSELL, 1998. Natural Occurrence of Insect Pollinators. [In] E.A. de Villiers [Ed.] *The Cultivation of Mangoes*. Institute for Tropical and Subtropical Crops, p. 118-124.
  48. EARDLEY, C.D. 1998. Where bees buss plants flourish. *Plantlife* 19: 26-27.
  49. IMMELMAN, K. & C.D. EARDLEY., 2000. Gathering of grass pollen by solitary bees (Halictidae: Lipotriches) in South Africa. *Mitt. Mus. Nat.kd. Berl., Zool. Reihe* 76 (2): 263-268.
  50. EARDLEY, C.D., 2000. Daures-biodiversity of the Brandberg Massif, Namibia, Apoidea (Hymenoptera). *Cimbebasia Memoir* 9: 365-370.
  51. EARDLEY, C.D., 2000. Afrotropical Bees Now: what next. [http://www.ecoport.org/EP.exe\\$PassCheckStart?ID=4](http://www.ecoport.org/EP.exe$PassCheckStart?ID=4).
  52. EARDLEY, C.D., 2001. Pollinators: a conservation priority. *Science in Africa* issue 2. <http://scienceinafrica.co.za/pollinator.htm>.
  53. EARDLEY, C.D., 2001. Book Review: *Hymenoptera Evolution, Biodiversity and Biological Control*. by A.D. Austin and M. Dowton [Eds] [In]: *African Entomology*.Johannsmeier, M.F [Ed.]. 2001. (Contributing author). *Beekeeping in South Africa*. Third edition, revised. Plant Protection Research Institute Handbook No 14. 288pp.
  54. PAULY, A., R. BROOKS, A. NILSSON, Y. PSENKO, C. EARDLEY, M. TERZO, T. GRISWOLD, M. SCHWARZ., S. PATINY, J. MUNZINGER AND Y. BARBIER., 2001. Hymenoptera Apoidea de Madagascar et des iles voisines. *Annales Sciences Zoologiques* 286: 1-390. 16 pls.
  55. GEMMILL, B., C.D. EARDLEY et. al. (in press). *Agrobiodiversity Policy Development Guidelines*. UNEP.

56. SMIT, I. & C.D. EARDLEY (in press). Analysis of the distribution of *Xylocopa senior* Vachal.
57. WHITEHEAD V.B. & EARDLEY, C.D., 2003. African Fideliini: Genus *Fidelia* Friese (Hymenoptera: Apoidea: Megachilidae: Fideliinae). *Journal of the Kansas Entomological Society* 76(2): 250-276.
58. EARDLEY, C.D., 2002. Taxonomic services: Afrotropical bees. [http://www.ecoport.org/EP.exe\\$PassCheckStart?ID=30](http://www.ecoport.org/EP.exe$PassCheckStart?ID=30).
59. EARDLEY, C.D. (in press). Afrotropical Bees now: what next? *Pollinating Bees. The Conservation Link Between Agriculture and Nature*, 105-114.
60. EARDLEY, C.D., 2004. Afrotropical Ctenoplectrini (Hymenoptera: Apidae). *African Plant Protection* 9(1): 1-18.
61. EARDLEY, C.D., 2004. Afrotropical Stingless Bees (Hymenoptera: Apidae). *African Plant Protection* 10(2): 63-96.
62. DAVIES G.B.P., EARDLEY C.D. & BROTHERS D.J., 2005. Eight new species of Scrapper (Hymenoptera: Apoidea: Colletidae) with descriptions of *S. albifumus* and *S. amplispinatus* females and a major range extension of the genus. *African Invertebrates* 46: 141-179.
63. EARDLEY, C.D. & URBAN R.P., 2006. Taxonomic name changes in Afrotropical bees (Hymenoptera: Apoidea). *African Entomology* 14(1): 161-174.
64. EARDLEY, C.D., 2006. Southern and East African *Melitta* Kirby (Apoidea: Melittidae). *African Entomology* 14(2): 293-300.
65. EARDLEY, C.D., 2006. The southern Africa species of *Andrena* Fabricius (Apoidea: Andrenidae). *African Plant Protection* 12: 51-57.
66. CORTOPASSI-LAURINO, M., Imperatriz-Fonseca V.L., Roubik, D.W., Dollin, A., Heard, T., Aguilar, I. Venturieri, G.C., Eardley, C., Nogueira-Neto, P., 2006. Global meliponiculture: Challenges and opportunities. *Apidologie* 37: 275-292.
67. MICHEZ, D., Eardley C., Kuhlmann M. & Patiny S., 2007. Revision of the bee genus *Capicola* (Hymenoptera: Apoidea: Melittidae) distributed in the Southwest of Africa. *European Journal of Entomology* 104: 311-340.
68. EARDLEY, C. & Daly H.V., 2007. Bees of the genus *Ceratina* Latreille in Southern Africa (Hymenoptera, Apoidea). *Entomofauna Supplement* 13: 1-93.
69. Eardley, C., 2007. Three new species of *Sphecodopsis* Bischoff (Hymenoptera: Apidae: Nomadinae). *African Entomology* 15(1): 193-196.

Those in press and in final stages of preparation are not included.

Publications contributed to:

1. Plan of Action of the African Pollinator Initiative, 2003.
2. *International Journal of Tropical Insect Science*, 24 (1). A special issue for African pollination ecology.
3. *Pollinators and Pollination: a resources book for policy and practice*, in press.

Presentations at scientific congresses

(presentations for which there were proceedings or printed programmes only)

1. EARDLEY, C.D., 1983. A method of associating the sexes and colour varieties of carpenter bees of the genus *Xylocopa* Latreille

- (Hymenoptera: Anthophoridae). Proceedings of the Fourth Entomological Congress organised by the Entomological Society of Southern Africa, Johannesburg. p.32.
2. EARDLEY, C.D., 1985. On the diversity in nest structure of southern African bees. Proceedings of the Fifth Entomological Congress organised by the Entomological Society of Southern Africa, Grahamstown. 12.
  3. EARDLEY, C.D., 1989. Distribution of southern African Bees (Hymenoptera: Apoidea). Proceedings of the Seventh Entomological Congress organised by the Entomological Society of Southern Africa, Pietermaritzburg. p.50.
  4. EARDLEY, C.D., 1994. Phylogeny and systematics of the Afrotropical Ammobatini (Hymenoptera: Anthophoridae). Annual Research Meeting, Department of Zoology and Entomology, University of Natal, Pietermaritzburg. p.7.
  5. EARDLEY, C.D., 1996. The natural occurrence of insect pollinators in an avocado orchard. SAAGA Research Symposium.
  6. EARDLEY, C.D., 1996. A method for grouping species for cladistic analysis. Abstracts of the 15th Meeting of the Willi Hennig Society. p.20.
  7. EARDLEY, C.D., 1998. BioNET-INTERNATIONAL Biosystematic Support services to IPM.
  8. EARDLEY, C.D., 1998. Afrotropical Bees Now: What Next.
  9. EARDLEY, C.D. 1999. Bees: A Priority Group for Biodiversity Research.
  10. EARDLEY, C.D. 1999. The Biodiversity of Pollinators in Africa.
  11. EARDLEY, C.D. 2001. Pollinator Biodiversity a Co-ordinated Global Approach. [In] Proceedings of the Eighth International Pollination Symposium. Acta Horticulturae 561: 331-332.
  12. EARDLEY, C.D. 2000. African Pollinator Initiative.
  13. EARDLEY, C.D. AND M.W. MANSELL, 2002. Pollinator survival for Human Survival. Society for Conservation Biology. 16th Annual Meeting. p A40.
  14. EARDLEY, C.D. AND V. FONSECA-IMPERATRIZ, 2002. South America / Africa Collaboration in Bee Research. V Encontro Sobre Abelhas, Ribeirao Preto, Brazil.

I've given dozens of talks at congresses and workshop, both locally and abroad. I have not kept track of these talks or the published abstracts. I've also written case studies that have been published electronically and have not kept track of these.

Updated: 30 July, 2007

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