TRIN Interactive Field Day Program

Taxonomy Research & Information Network
building australian capacity

Tuesday 31 August 2010, 10am till 4pm

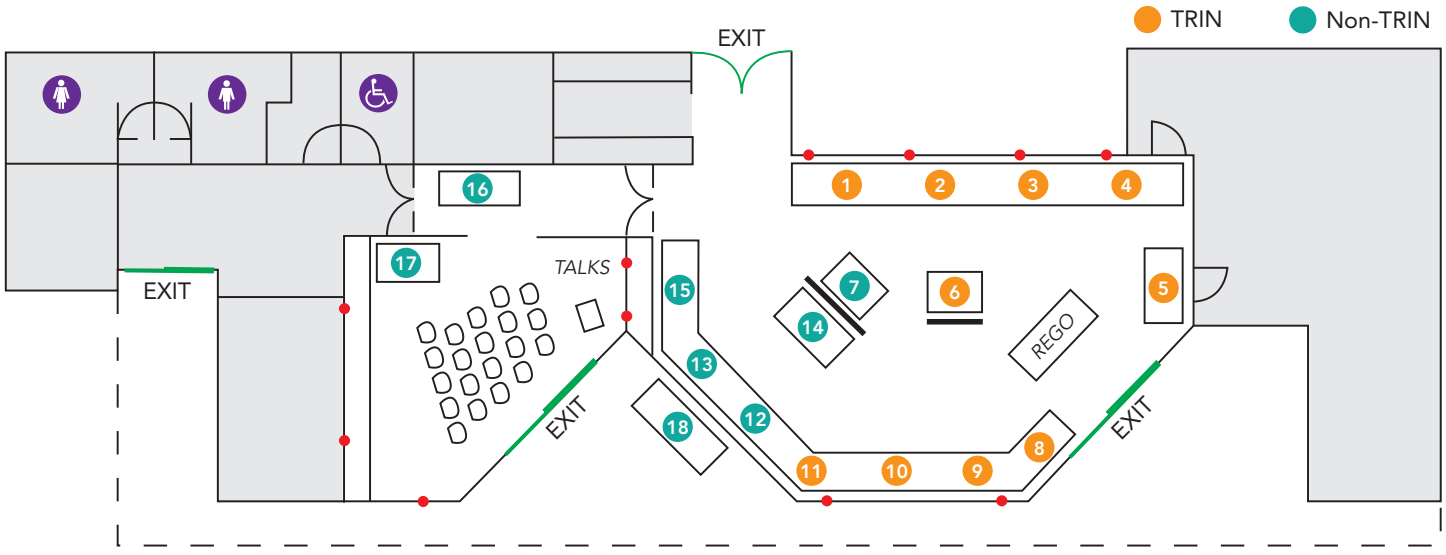
Crosbie Morrison Room at the Australian National Botanic Gardens, Canberra

PROGRAM AT A GLANCE

BOOTH NO	WHAT
1	Australian Mangrove and Saltmarsh Species Resource and Mangrove Identification Key
2	What Bug Is That? Insect Identification Keys
3	Australian Ants: a hyperdiverse fauna
4	Aquatic Mayflies Identification Keys
5	Small Terrestrial Vertebrates – microCT scanner and Rodent Identification Key
6	Environmental Weeds: the systematics of control strategies
7	Atlas of Living Australia (ALA)
8	TRIN Wiki
9	Taxon Profiles
10	PDA and the capture and delivery of biodiversity information
11	Virtual Taxonomy Laboratory
12	Australian Plant Name Index (APNI), Australian Plant Census (APC), Australian Cultivar Registration Authority (ACRA)
13	Australian Biological Resources Study (ABRS) – Australian Faunal Directory (AFD), Flora of Australia (FoA)
14	Identification Keys – EUCLID, Australian Orchid Genera, WATTLE, Families of Flowering Plants
15	Mapping and spatial analysis capabilities of the Centre for Plant Biodiversity Research (CPBR) and the Australian Virtual Herbarium (AVH)
16	Australian Plant Photo Index (APII)
17	Social Media – The Australian National Botanic Gardens [Two sessions at 10.00am-11.00am and 2.30pm-3.30pm]
18	*Acacia* Tree of Trees [Two sessions starting at 12:00pm and 3:00 pm]

TALKS

TIME	TOPIC	SPEAKER
11:00	Evolution of field data capture in the electronic epoch	Margaret Cawsey, CSIRO Ecosystem Sciences
11:30	Understanding evolutionary history through spatial analysis of biodiversity	Dr Carlos Gonzalez Orozco, CSIRO Plant Industry
13:00	The life history and classification of the Australian Mayfly	Dr Phil Suter, La Trobe University
13:30	Environmental Weeds – protocols for future management	Dr Richard Watts, CSIRO Plant Industry
14:00	DNA Barcoding	Dr Joe Miller, CSIRO Plant Industry



BOOTHS - ALL DAY

BOOTH NO	WHAT	DESCRIPTION
1	**Australian Mangrove and Saltmarsh Species Resource and Mangrove Identification Key**	**Australian Mangrove and Saltmarsh Resource** Emma Clifton will be demonstrating the Australian Mangrove and Saltmarsh Resource. The resource is an exemplar of an ecosystem based, freely available, online resource for biodiversity information collation and delivery. The Resource collates information on the plant and animal species found in Australian mangroves and saltmarshes including taxonomy, appearance, identification, biology, distribution and ecology. The project aims to link with researchers, experts and collections, to further populate the resource, and further contribution from the mangrove community is encouraged. The Resource includes: » species lists of animals and plants » detailed profiles of plants and birds which include nomenclature and taxonomy, description, distribution, ecology, biology and images » a Resource Directory providing a compendium of government legislation, regulations, policies and programs, and international and national research and educational institutions and projects relating to Australian mangroves and saltmarshes. **Mangrove Identification Key** The resource also features an online interactive key to Mangrove plant species. Emma will demonstrate the key that focuses on 45 obligate trees, shrubs, palms and ground ferns in Australian mangrove ecosystems.
2	**What Bug Is That? Insect Identification Keys**	**What Bug Is That?** provides identification keys and information to the 600+ insect families of Australia. Insects are a challenge to identify so come along and take advantage of this modern identification tool and the team of technicians who will be offering their assistance. For more information visit: http://anic.ento.csiro.au/insectfamilies/
3	**Australian Ants: a hyperdiverse fauna**	Dr Steve Shattuck will be demonstrating a wealth of information on the ant genus *Iridomyrmex*. The display includes taxon images as well as specimen details for about 30,000 of the 80 species within *Iridomyrmex*. Dr Shattuck will provide an overview of the diversity of the species and show where this data is held on the web. He will also be bringing along specimens for closer viewing.
4	**Aquatic Mayflies Identification Keys**	Participants can to attempt to key out specimens using either paper or on-line tools. Dr Phil Suter and Dr Jeff Webb, two of the identification key developers and researchers, will assist and provide expert feedback on the following tools that will be at the Field Day: 1. Published dichotomous identification keys: » Key to the mature nymphs of *Coloburiscoides* (Lestage) (Ephemeroptera: Coloburiscidae), Phillip Suter, Jeff Webb and Darryl Rowe. » Tools for identifying selected Australian aquatic Oligochaetes (Clitellata: Annelida), Adrian Pinder. » Key to genera of larvae of Australian Chironomidae (Diptera), Chris P. Madden. » Identification of Larvae of Australian Baetidae, Jeff Webb and Phillip Suter. » Key to the Genera of Male Adult Mayflies of Australia, Phillip Suter and Jeff Webb. 2. Online LUCID keys: » Identification of Larvae of Australian Baetidae, Jeff Webb and Phillip Suter. » Key to the Genera of Male Adult Mayflies of Australia, Phillip Suter and Jeff Webb.
5	**Small Terrestrial Vertebrates – microCT scanner and Rodent Identification Key**	A portable **micro-CT scanner** has been the cornerstone of the small vertebrate project's morphological investigations. The equipment has enabled researchers to modernise their approach and provide globally accessible morphometric taxonomy and legacy data sets. The micro-CT scanner will not be present at the Field Day as it will be in transit to the Natural History Museum in London as part of a trip to gather 3D digital imaging of the many Australian mammal type specimens held overseas. However, Dr Fred Ford, will be at the Field Day to demonstrate its power and efficiency by showing 3D surface analyses and 3D skulls that the audience can rotate, view and measure on screen. Dr Ford will also highlight how the equipment was used and why it was the only way to achieve certain valuable outcomes. **The Rodent Identification Key** at the Field Day will be focussing on species found in the Queensland region. Dr Fred Ford, developer of the Rodent Key, will assist participants with the key and example identification tutorials.
6	**Environmental Weeds: the systematics of control strategies**	The TRIN weeds project focused on Weeds of National Significance (WONS) and addressed areas where the lack of taxonomic knowledge made it harder to control these weeds, particularly with biocontrol methods. Dr Richard Watts will provide participants with an insight into the genetic relationships of select weeds and what they reveal. This includes the systematics and diversity studies conducted on Lantana and Willow and how the methods were successfully expanded and applied to other WONS, namely bitou bush, boneseed and mesquite. The results from the weed project provide a scientific basis for decision making and Dr Watts has translated these into protocols that can assist land managers and other users.
7	**Atlas of Living Australia (ALA)**	The Atlas of Living Australia project enables free access to Australian biodiversity information online.
8	**TRIN Wiki**	The TRIN Wiki is a collaborative platform for members of TRIN and the broader taxonomic community, e.g. taxonomists, systematists and collection managers. The TRIN Wiki welcomes anyone wishing to participate or initiate new collaborative taxonomy research projects and to use TRIN's on-line collaboration and communcation tools (website, wiki, email lists, etc.). Paul Harvey, the TRIN Wiki developer, will be in hand to highlight the main features and benefits of the TRIN Wiki.

BOOTH NO	WHAT	DESCRIPTION
9	**Taxon Profiles**	The TRIN Taxon Profile Toolkit provides a generic model to deliver, compile and translate taxonomic information. The Taxon Profile Toolkit is a streamlined system for semantically enabled structured documents and will allow the mapping of the terminology of any existing taxon profile into a generic terminology. Paul Alexander will show users a taxon profile and how it was built using a taxon profile template. Web-based taxon profiles can be rapidly produced as descriptive data need only be entered once and then is reusable for a multitude of purposes.
10	**PDA and the capture and delivery of biodiversity information**	Margaret Cawsey from the Australian National Wildlife Collection (ANWC) will demonstrate electronic approaches to accelerate the capture and delivery of biodiversity information and reduce the error rate associated with transcription, using PDA and 'travelling' Access database technologies.
11	**Virtual Taxonomy Laboratory**	A Virtual Taxonomy Laboratory (VTL), or remote microscopy facility, enables accelerated taxonomic collaboration and productivity via web-based activities. Using web-based communication and collaboration tools, researchers from different locations are able to work together on diagnoses and descriptions. The facility can also be used to undertake: » real-time remote diagnostics to support biosecurity and sustainable agriculture » teaching and training » virtual curation Come along to view the remote microscope set up.
12	**Australian Plant Name Index (APNI), Australian Plant Census (APC), Australian Cultivar Registration Authority (ACRA)**	The Australian botanical community has online access to a range of databases to assist them in decisions relating to the names used for our flora. **The Australian Plant Name Index (APNI)** is a listing of all scientific plant names ever used in the Australian botanical literature, including natives and weeds. However, APNI does not tell users the "correct" name for any given plant. This information can be found in the **Australian Plant Census (APC)**, an ambitious collaborative project to construct an agreed list of names for all Australian plants, supported by the Council of Heads of Australasian Herbaria (CHAH). The list is provided in electronic form and updated as new scientific information is published. These resources are invaluable in providing reliable, up-to-date information on Australian plant names, with full reference to the underlying scientific literature, and are accessed by a range of users. It is impossible to catalogue and thus protect Australia's botanical diversity if the plants do not have names that are agreed and consistently applied. To date these projects have focused on native and naturalised plants in Australia. A new component of this work is now dealing with Australian native plant cultivars, in collaboration with the **Australian Cultivar Registration Authority (ACRA)**. This will collate widely-dispersed information on these cultivated plants into a central reference point.
13	**Australian Biological Resources Study (ABRS) – Australian Faunal Directory (AFD), Flora of Australia (FoA)**	The **Australian Faunal Directory** is a free online public enquiry database that provides taxonomic and biological information. The database is constantly being updated and expanded with addition of new data sets. At present about 55 per cent of described species are listed in the directory. The **Flora of Australia** online is a free online public enquiry database that provides taxonomic and biological information. The database is derived from the published volumes of the *Flora of Australia*, of which 11 volumes are currently online, with more in preparation.
14	**Identification Keys**	Electronic identifcation keys: *EUCLID Eucalypts of Australia*, *The Interactive Key to Australian Orchid Genera*, *WATTLE: Acacias of Australia* and *The Families of Flowering Plants of Australia*, will be on show for users to key out some of their favourite plants.
15	**Mapping and spatial analysis capabilities of the Centre for Plant Biodiversity Research (CPBR) and the Australian Virtual Herbarium (AVH)**	GIS technician from the **Centre for Plant Biodiversity Research (CPBR)**, Nunzio Knerr, will demonstrate how we are a step closer to identifying biodiversity hotspots to aid the development of management and conservation plans. Data for this project has been taken from **Australia's Virtual Herbarium (AVH).** The project is building on AVH data to increase its application to biodiversity issues. The AVH provides the most complete picture of the distribution of Australia's flora to date and will also be demonstrated at the Field Day.
16	**Australian Plant Photo Index (APII) photo board**	The Australian National Botanic Gardens, jointly with the Australian National Herbarium, manages a large collection of photographs and other illustrations of its activities and Australian botany. The bulk of the collection consists of identified Australian plant species, but there is also a large number of environmental and conservation images. The most significant aspect of the Index, that separates it from many other photo libraries, is the emphasis on accurate botanical naming of the plants.
17	**Social Media** Two sessions at 10.00-11.00am and 2:30-3:30pm	The Australian National Botanic Gardens are using Facebook, Twitter and Flickr to communicate items of interest to a wide audience. Tanya Davies will demonstrate how the three applications compliment each other in keeping their fans informed.
18	***Acacia* Tree of Trees** Two sessions starting at 12:00pm and 3:00pm	The Tree of Trees is a living display of the evolutionary relationships among Australian wattles (*Acacia*) called a phylogenetic tree. Plants are clustered according to how closely related they are to each other. Plants (species) close together are closely related – like siblings – while plants that are far apart are more like distant cousins. Join Dr Joe Miller for a walk through the Australian National Botanic Gardens to the giant Tree of Trees display, where he will tell you how the tree helps us to understand the evolutionary relationships of all 1000 wattle species. Meet at 12pm or 3pm at booth 18 to depart for the walk.

TALKS

TIME	TOPIC	SPEAKER	DESCRIPTION
11:00	**Evolution of field data capture in the electronic epoch**	**Margaret Cawsey, CSIRO Ecosystem Sciences**	Electronic methods of field data capture have been used very effectively for some years. Margaret Cawsey will illustrate these methods and address TRIN's current efforts to extend them to other mobile platforms.
11:30	**Understanding evolutionary history through spatial analysis of biodiversity**	**Dr Carlos Gonzalez Orozco, CSIRO Plant Industry**	Understanding the origin of Australian flora is a constant challenge. To build on this understanding, an attempt to identify geographic regions with significant genetic and species diversity was conducted. Dr Carlos Gonzalez Orozco and other researchers investigated the use of molecular markers for exploring the spatial distribution of biodiversity and their evolutionary history in Australia. Dr Gonzalez Orozco will present these findings using species of the genus *Glycine* (Leguminosac) to illustrate the case. The phylogenetic analysis of endemic areas employed the newly developed Phylogenetic Endemism (PE) measure, based on molecular phylogeny of histone H3D sequences, and geographic records of species occurrence in Australia. This technique could prove useful in identifying biodiversity hotspots and aid the development of management and conservation plans.
BREAK			
13:00	**The life history and classification of the Australian Mayfly**	**Dr Phil Suter, La Trobe University**	Dr Phil Suter will be speaking on the ecology, taxonomy and life cycles of Australian mayflies and how TRIN research has helped expand the knowledge of the diversity of these aquatic insects. Dr Suter's talk will also appeal to those with a special interest in fly fishing as mayflies are an important food source of trout and many of the 'flies' used by anglers are mimics of the local species. Dr Suter has addressed the fly fishing community before, who in turn provided valuable information about the mayfly's different life cycles drawn from their observations.
13:30	**Environmental Weeds- protocols for future management**	**Dr Richard Watts, CSIRO Plant Industry**	The methodologies and protocols emanating from TRIN's weeds research have proven highly transferrable to new weed problems. Dr Watts's presentation will explain how the research provides a rapid method for the genetic profiling of other weeds with complex introduction histories and the potential to apply these findings universally.
14:00	**DNA Barcoding**	**Dr Joe Miller, CSIRO Plant Industry**	The use of DNA barcoding techniques has improved the ability to identify and delimit species, discover cryptic species, and associate adult and larval stages. Dr Joe Miller will explain the benefits of DNA barcoding and its reliance on DNA sequence databases. The project is working towards providing Australia with several robust barcode libraries that will allow for accelerated identification.

TRIN PARTNERS

CSIRO

Centre for Plant Biodiversity Research

ABRS

Australian Government
Department of the Environment, Water, Heritage and the Arts

ANU
THE AUSTRALIAN NATIONAL UNIVERSITY

South Australian Museum

THE UNIVERSITY OF ADELAIDE AUSTRALIA

LA TROBE UNIVERSITY

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