

INSIGHTS AND KNOWLEDGE GAINED FROM THE INTERNATIONAL SYMPOSIUM ON THE BIOLOGY AND ECOLOGY OF GALL INDUCING ARTHROPODS AND RELATED ENDOPHYTES

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The 6th International Symposium on the biology and ecology of gall inducing arthropods and related endophytes was held at O'Reilley's Rainforest Retreat and Conference Venue from 4-8 August 2013. This venue, located south west of Brisbane, Queensland, Australia, was ideal for biologists with the ancient rainforests and upland forests exhibiting extraordinary flora and fauna. Approximately 60 participants, from more than 12 countries, attended the meeting. The symposium was filled to the brim with interesting talks and opportunities for engaging with the speakers and authors of posters.

Talks presented during the symposium covered topics including taxonomy, diversity and distribution of gall-formers, chemical defences of galls, gall evolution theories, diversity studies, molecular studies and biological control. I presented two talks from work towards my PhD. The one talk was entitled 'Route of invasion and diversity of global *Leptocybe invasa* populations' and the other, 'Biology and observed host preference of *Selitrichodes neseri*: a potential biological control agent of the Eucalyptus gall wasp, *Leptocybe invasa*'.

From a forestry perspective, the work of two research groups was of particular interest. A recent outbreak of *Ophelimus maskelli* in the French Riviera led to field surveys, conducted by the French National Institute for Agricultural Research (INRA), which indicated the presence of *Closterocerus chamaeleon*, the parasitoid of *O. masekelli*, as well as another *Ophelimus* sp. The *Ophelimus* species can be distinguished based on molecular, morphological and bio-ecological data. *Ophelimus maskelli* is a gall-former on *Eucalyptus camaldulensis* whereas the other *Ophelimus* sp. is a gall-former on *E. cinerea*, *E. globulus*, *E. gunnii* and *E. parvula*. The gall morphology and morphological characteristics of the insects, relating to the number of submarginal setae, are different. No parasitoids were recorded from the newly discovered *Ophelimus* sp. Use of molecular sequence data generated from the cytochrome oxidase 1 region of the mtDNA has placed these specimens in two distinct groups. Further work, including a species description and global survey of their distribution, is currently being conducted.



FROM LEFT TO RIGHT, TOP TO BOTTOM: The conference venue; Sunset at Moonlight Crag; Hoop pine *Araucaria cunninghamii*; The symposium delegates; Lunch in the rainforest during a guided walk; A Regent Bowerbird *Sericulus chrysocephalus*; Research collaborative visit at the Queensland Department of Agriculture, Fisheries & Forestry, Ecosciences Precinct in Brisbane -Simon Lawson, Menon Griffeths, Nicolas Borowiec & Gudrun Dittrich-Schröder

Researchers from the USDA-ARS in Brisbane conducted another study that I want to highlight. This study focuses on the biological control of *Casuarina* spp., which have become a serious weed in southern Florida, USA. These species are problematic because they grow rapidly and then alter habitats, leading to exclusion of native plants and their associated herbivores from those areas. Surveys of galled *Casuarina* spp. have been undertaken in Australia in the hope of finding a biological control agent. A *Selitrichodes* sp.

emerged in large numbers from galls on *Casuarina glauca*. This *Selitrichodes* sp. forms galls on the ends of branchlets thereby causing significant damage. Although the preferred host of the wasp is *C. glauca*, it is equally able to develop on *C. equisetifolia* and *C. cunninghamiana*. The life cycle of this wasp is approximately 35 days with galling becoming visible 7 days after oviposition. A congener, *Selitrichodes casuarinae* is known to cause galling on *Casuarina equisetifolia* in Guam. Currently this wasp is being described by John La Salle and Nicole Fisher.

Apart from the stimulating discussions amongst researchers, conference delegates were treated to, amongst other things, canapes at Moonlight crag, a wildlife encounter, didgeridoo demonstration, a guided walk in the rainforest and a superb conference dinner.

After the symposium a collaborative research visit to the Department of Agriculture, Fisheries and Forestry, which is based at the Ecosciences Precinct in Brisbane, allowed discussion on *Leptocybe invasa* research in Australia and South Africa.

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