



## ENTOMOLOGICAL SOCIETY OF NEW ZEALAND INC

### **Nomination of Dr Barbara Barratt as a Fellow of the Entomological Society of New Zealand.**

Dr Barbara Barratt arrived in New Zealand from Durham University in 1978 as an NRAC Post-Doctoral Research Fellow. From that time onward, she has been making a significant contribution to CRI-type applied entomology as well as being an excellent colleague and mentor to many people. Most recently she has taken on more formal leadership roles within AgResearch which she is now discharging with typical aplomb. Coinciding with these organisational contributions, Barbara has played an important role in New Zealand curculionid systematics and taxonomy, including the provision of a common name for the now notorious white clover pest, the Clover Root Weevil (*Sitona lepidus*).

More specifically, Barbara pioneered strategic research into the environmental safety of biological control agents and it is notable that she has been able to establish and maintain international leadership in this complex and applied aspect of ecology. She is now well recognised for such work as evidenced by invitations to contribute to 13 international conferences since 1995 and to write chapters for significant books on the subject of biosafety. At the outset, this work was novel and initially, controversial. For a while the issue of biocontrol safety caused real tension amongst biocontrol researchers but Barbara handled this heroically until such time that she was able to develop the experimental and ecological techniques needed to gain the traction required to resolve such contention. She did this by pioneering analytical methods based on those biological control agents already introduced into New Zealand. The approach used was to compare control agent laboratory host-range with realised field host-range and thereby quantitatively assess the precision of the laboratory estimates. It turned out that this work was of immediate value to international regulatory agencies charged with making decisions on the field release of organisms that can only be examined in containment. As an addition to this contribution Barbara has also examined the extent to which biological control agents invade natural ecosystems and what their impacts are on non-target host populations. Using these strands of research, in close collaboration with senior ERMA New Zealand staff, Barbara led the development of a comprehensive website to guide applicants to ERMA for the importation and release of control agents.

Barbara's work on solitary wasp endoparasitoids of weevils led her to make a useful diversion into parasitoid/weevil physiology. She discovered the presence of virus-like particles in the wide host-range braconid parasitoid *Microctonus aethiopoidea*, but an absence on the oligophagous narrow host-range parasitoid *Microctonus hyperodae*. Such particles are known to be transmitted by the parasitoid to the host during oviposition and often play a role in host immunosuppression. A link between the particles and host-range was therefore hypothesised by Barbara who with colleagues from Otago University received a Marsden grant to pursue this investigation. Eventually, the

results of this research were available to inform the favourably-viewed application to release the very promising Irish biotype of *M. aethiopoidea* which in fact, does not contain the particles. In view of the calibre of Barbara's work in this area, her laboratory has often hosted visits by eminent collaborators in biosafety research including Prof. Jeff Lockwood (University of Wyoming), Prof. Bruce Webb (University of Kentucky), Prof. Takashi Okuda (National Institute of Sericultural and Entomological Science, Tsukuba, Japan) and Dr Franz Bigler (Agroscope Reckenholz-Tanikon Research Station ART, Zurich, Switzerland).

Dr Barratt's biosafety research has more recently been extended to the development of biosafety testing of transgenic plants; another area of intense interest to environmental regulatory agencies. This has led to the development of a model for the selection of high risk test species and the advancement of containment testing protocols. The approach is now being developed further and evaluated in collaboration with Plant and Food Research, Scion, CABI (Switzerland) and Agriculture and Agri-Food Canada. Additional significant international research collaborations that have strongly supported biosafety research in New Zealand have been developed with (Prof. Mohamed Mouna (Institute Scientifique, Rabat, Morocco), Dr Rolf Oberprieler (CSIRO) and Prof. Alonso Zarazaga (University of Madrid).

Barbara has also worked extensively in native grassland ecosystems resulting in much needed understanding of impacts of fire and agricultural development. This has resulted in a major report, published by DOC that now enables land managers to understand the short and medium-term implications on the invertebrate fauna of fire, both as a management tool and in decision-support for fire-fighting prioritisation. This work was successfully conducted with the assistance of students under Barbara's supervision in conjunction with colleagues from Otago University.

Barbara leads a Theme in the research group known as 'Better Border Biosecurity'. This requires the direction of over seven full time equivalent workers researchers from four agencies (AgResearch, Plant and Food Research, Scion and Lincoln University) as well as developing suitably close partnerships in the end-user agencies, MAF BNZ, ERMA and DOC. She is also a leader in the newly established AgResearch Innovative Farming Systems Group leading a team of 15 researchers working throughout New Zealand.

Given these achievements and many others, we have no doubt whatsoever that Dr Barbara Barratt should be seriously considered for the honour of being elected as a Fellow of the Entomological Society of New Zealand.

Yours sincerely

Dr S L Goldson

Dr R.M Emberson

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