(TGGE) approach using general invertebrate primers, or conserved primers that amplified groups of prey, such as all aphids or all earthworm species. Small difference between sequences of as little as a single base pair could be clearly separated by TGGE. Although we could run prey standards to confirm species identity, all species within groups would be detected, even those for which we had no sequence information. Prey diversity within the guts of predators can be compared with diversity in the field, revealing predator responses to diversity amongst prey resources.

SESSION 9: ROLE OF GENERALIST PREDATORS IN BIOLOGICAL CONTROL

A TALE OF TWO ENEMIES: WILL THE INTRODUCTION OF A GENERALIST PREDATOR IMPROVE OR DISRUPT BIOLOGICAL CONTROL?

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Generalist predators may act as either an additional source of pest mortality and therefore increase pest suppression or they may suppress more specialised control agents, thus releasing the pest from control. In New Zealand, the recent decision to mass rear and release a predatory ladybird against the eucalyptus tortoise beetle, Paropsis charybdis Stål (Coleoptera: Chrysomelidae), has provided an opportunity to examine the effect of a generalist predator on a pest and its specialist parasitoid.

P. charybdis was accidentally introduced into New Zealand from Australia in the early 1900s. Adults and larvae feed on eucalypt foliage and this species is a serious pest of eucalyptus plantations in New Zealand. A coccinellid predator, Cleobora mellyi Mulsant (Coleoptera: Coccinellidae), was introduced from Tasmania on several occasions from 1979 to 1987. C. mellyi became established at only one release site in the South Island (Maori Bay, Marlborough Sounds) and the species persists there today. While C. mellyi feeds readily on P. charybdis eggs it is not specific to this pest, requiring additional prey, particularly psyllids, to mate and
reproduce successfully. Only one psyllid species was present in New Zealand at the time of introduction so there may have been insufficient prey for \textit{C. mellyi} to establish more widely. Several new eucalyptus psyllid species have established in New Zealand since the original release of \textit{C. mellyi}. A more specific control agent, \textit{Enoggera nassaui} (Girault) (Hymenoptera: Pteromalidae), which is a solitary egg parasitoid of \textit{P. charybdis}, was first introduced to New Zealand from Western Australia in 1987 and 1988. An additional release of a cool-adapted strain from Tasmania took place in 2000. This parasitoid is well established in New Zealand and attacks a high proportion of \textit{P. charybdis} eggs.

The possibility that \textit{C. mellyi} will establish more readily now that prey sources on eucalypts have increased will be tested following additional releases. Adults and larvae were collected from the Maori Bay population and mass reared over summer for field releases in the North Island in 2005. We will use this opportunity to examine intraguild interactions between the two agents. Parasitised eggs of \textit{P. charybdis} are exposed to predation longer than unparasitised eggs, because \textit{E. nassaui} takes longer to hatch than \textit{P. charybdis}. Feeding preferences of \textit{C. mellyi} for parasitised and unparasitised eggs of \textit{P. charybdis} were measured in comparison with psyllid prey, under laboratory and semi-field conditions. The possible repercussions of widespread establishment of this predator on the biological control of \textit{P. charybdis} is discussed.

**GENERALIST PREDATORS – SPECIES COMPOSITION, MIGRATION, AND MOLECULAR DETECTION OF APHID PREDATION IN SWEDISH SPRING SOWN CEREALS**

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Spiders and carabid beetles are generalist predators and consume a large number of different arthropods including major agricultural pests. An important pest in cereals in Sweden is the bird cherry-oat aphid, \textit{Rhopalosiphum padi} L. (Homoptera: Aphididae). If generalist predators are to prevent the population of \textit{R. padi} from growing beyond economic thresholds, the predators have to find and consume aphids as soon as the pest starts colonizing the field. Thus, it is important that the predators occur in the fields early in the season. Knowledge about the abundance and distribution of generalist predators at the time of aphid establishment together with quantification of insect predation by these predators will contribute to our understanding of the role of generalist predators for pest control.