An arid house for a xerophilic bug, *Nysius huttoni*

T.E.S. Sullivan

Plant & Food Research, Private Bag 4704, Christchurch 8140, New Zealand

Corresponding author: thomas.sullivan@plantandfood.co.nz

With sensors and microprocessors becoming more affordable all the time, it is now possible to build inexpensive environmental regulators for small insect colony boxes. We designed and built a humidity regulator for xerophilic (dry-loving) *Nysius* bugs. Poorly ventilated insect rearing boxes can have an overly elevated humidity that can promote unwanted fungal growth, especially if there is live plant material involved. Air conditioned laboratories can have very low ambient humidity, but the ideal humidity for an insect colony may be intermediate. Direct and accurate measurement and control of humidity is now possible electronically, using sensors and a fan to pump dry air into a humid space in a controlled fashion to regulate the humidity. The potential exists for different sensors to be used to monitor different environmental variables and to trigger equipment to respond when an environmental threshold is reached. Environmental control methods can be simple or elaborate, depending on the colony requirements and budget. A clock and memory card can be added to the microprocessor to record sensor data and event triggers. This method has been successfully used to rear the wheat bug, *Nysius huttoni*.

Population dynamics of four insect defoliators in a dryland South Island *Eucalyptus* plantation

H. Lin, T.J. Murray and E.G. Mason

New Zealand School of Forestry, University of Canterbury, Christchurch 8140, New Zealand

Corresponding author: huimin.lin@pg.canterbury.ac.nz

Exotic insect defoliators originally from Australia are present in New Zealand *Eucalyptus* plantations. Pest outbreaks causing significant defoliation can reduce tree growth and productivity. There is limited information on the population dynamics of major *Eucalyptus* defoliators in the South Island. Populations of four defoliators were monitored monthly from November 2015 to March 2016 in a dryland *Eucalyptus* plantation in Marlborough by assessing 3-5 shoots from each of 225 trees. Only one generation of *Paropsis charybdis* was observed. Peak adult abundance was in December/January and adults disappeared in March. This is different from North Island and Australian studies in which two generations are often observed. *Opodiphthera eucalypti* had two distinct generations with larval populations peaking in December and February/March. Most *Phylacteophaga froggatti* larvae were found after December, but populations were relatively low throughout the monitoring period. *Strepsicrates macropetana* reached peak larval abundance in February and had multiple overlapping generations. These results suggest differences in the population dynamics of eucalypt defoliators in the South Island compared to those reported in the North. Differences are likely due to local environmental conditions which were notably dry during this particular monitoring season. These data provide important information for pest management in South Island dryland *Eucalyptus* plantations.