Population dynamics of bronze bug, red gum lerp psyllid and its parasitoid in Eucalyptus plantations in three regions of São Paulo, Brazil

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Introduction and Aims

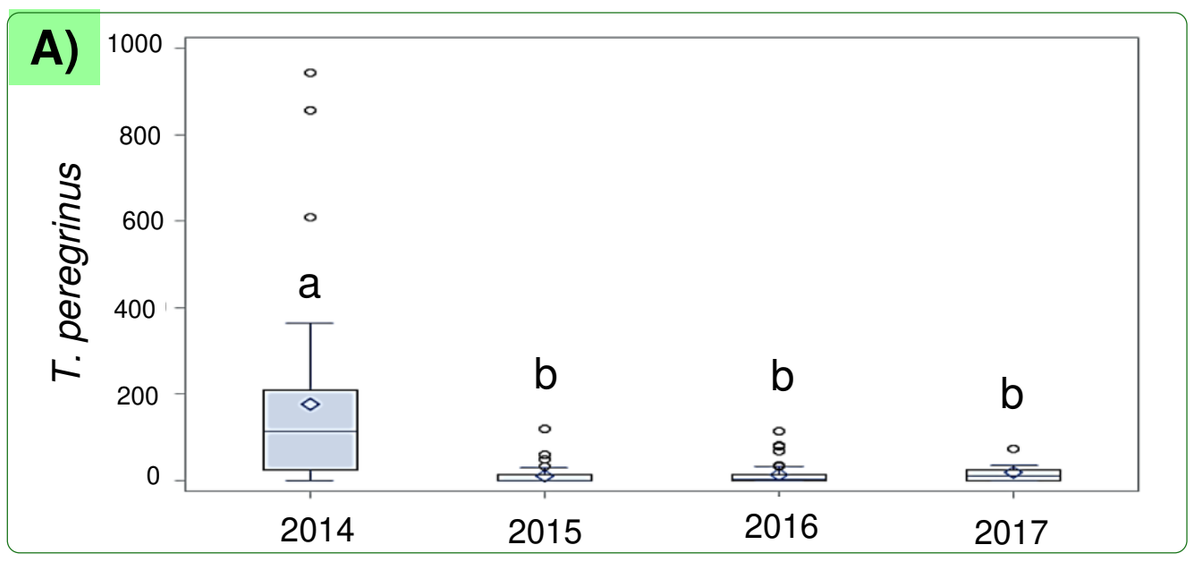
Brazil has a promising paper and pulp industry based on eucalyptus forest plantations. The exotic pests of *Eucalyptus* spp. are the ones that have most affected wood production in Brazil. Our goal was to determine population fluctuation of *Thaumastocoris peregrinus* (Hemiptera: Thaumastocoridae), *Glycaspis brimblecombei* (Hemiptera: Apharalidae) and its parasitoid *Psyllaephagus bliteus* (Hymenoptera: Encyrtidae) in clonal forests of Eucalyptus Simu and Mucuão. Altinópolis, SP, from 2014 to 2017, correlating it with climate data.

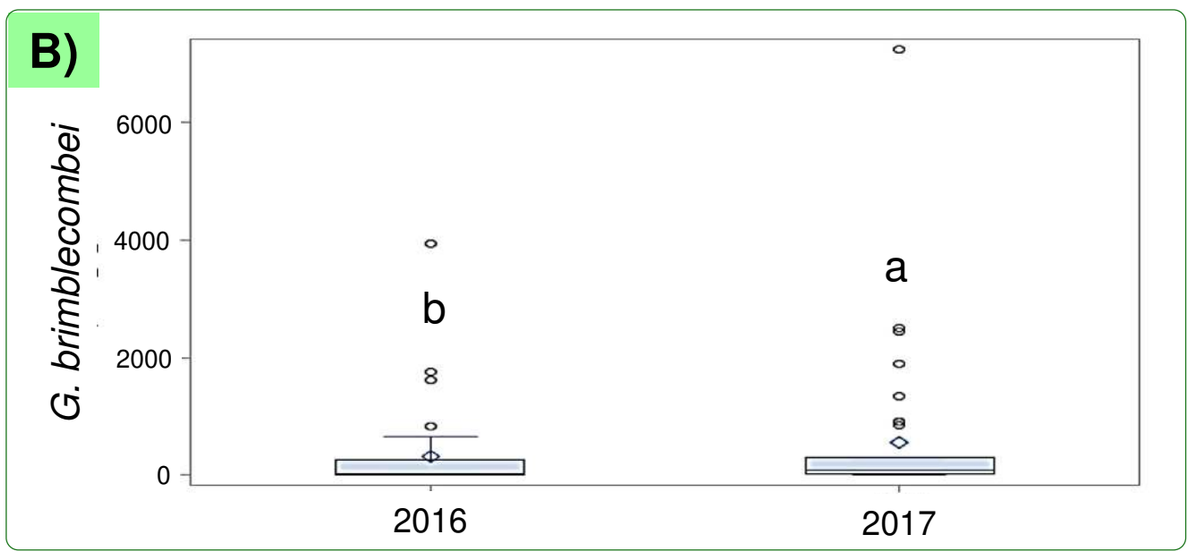
Material & Methods

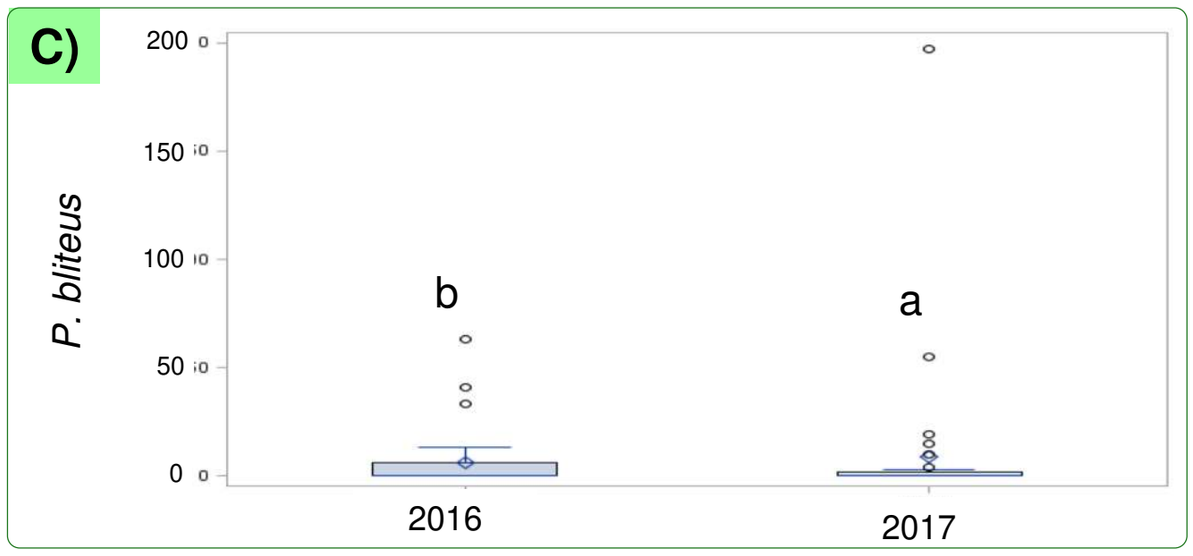
Insects were sampled monthly with yellow adhesive traps (12.5 x 10 cm) during four years at 275 sampling points, representing about 60,000 ha. Samples location was divided into different regions, where region 1 is in the municipality of Mogi-Guaçu and Brotas, region 2 in São Simão and region 3 in Altinópolis - SP, Brazil.

Results & Discussion

Figure 1. The average number of **A)** *T. peregrinuss*, **B)** *G. brimblecombei* and **C)** *P. bliteus* according to year, by Tukey-Kramer test at 95% confidence level.







Regarding Figure 1, it is observed that over time (year), the total number of *T. peregrinus* in the three regions decreases. However, the total number of *G. brimblecombei* increases over time, as does *P. bliteus* its parasitoid.

Table 1. Spearman correlation analysis between *T. peregrinus*, *G. brimblecombei*, *P. bliteus* numbers, and climatic variables.

	T. peregrinus	*G. brimblecombei*	*P. bliteus*
Maximum Temperature	0,34220 <0,0001	0,44367 <0,0001	0,32719 0,00500
Minimum Temperature	-0,05045 0,54082	-0,35884 0,00200	-0,06813 0,56960
Average	0,20004 0,01620	0,12592 0,29190	-0,06813 0,56960
Rainfall	-0,05024 0,54990	-0,34692 0,00280	-0,11373 0,34150
Daily Solar Radiation	0,19097 0,02190	0,29051 0,01330	0,26455 0,02470
Vapor Pressure Deficit	0,04015 <0,0001	0,64418 <0,0001	0,37776 0,00110

According to Table 1, *T. peregrinus* increasing number correlates with the maximum temperature, average, daily solar radiation and vapor pressure deficit. *G. brimblecombei* is correlated with the increase of the maximum temperature, vapor pressure deficit, and daily solar radiation, however, the increase of the minimum temperature and the rainfall leads to the decrease in the number of *G. brimblecombei*. Like *G. brimblecombei*, the increase in *P. bliteus* parasitoid is also correlated with maximum temperature, vapor pressure deficit, and daily solar radiation.

Conclusions

Climatic conditions may directly influence the insects increasing in the field, as well as maximum temperature, vapor pressure deficit, and daily solar radiation, influenced the increase of insects of this study.