

Relationship between the altitude and the gall wasp pest infestation of Eucalyptus species in up country Sri Lanka

M. D. S. R. Maddumage*¹, S. M. C. U. P. Subasinghe¹ and K. M. A. Bandara²

¹Department of Forestry and Environmental Science, University of Sri Jayewardenepura, Sri Lanka.

²Forest Research Centre, Passara Road, Badulla, Sri Lanka.

*shanuda1986@gmail.com

Abstract

Eucalyptus is a major plantation crop in Sri Lanka which was introduced in the latter part of the 18th century. Currently about 10 species of Eucalyptus are planted throughout the country in dry, intermediate and wet zones. Up country becomes the most common area for eucalyptus plantation establishment due to the favorable climatic conditions for the species like *E. grandis*, *E. robusta*, *E. microcorys* etc. Therefore there is an extensive Eucalyptus planting in the up country by both Forest Department and private plantation companies. However, the Eucalyptus plantations in up country have been subjected to a threat recently due to the attack of an invasive pest known as the gall wasp (*Leptocybe invasa*). A considerable growth decline has resulted due to this infestation and in severe conditions, a massive damage can occur to all the young plantations.

In the present study, an attempt was made to map the distribution of gall wasp threat in Badulla and Nuwara Eliya districts using GIS techniques and to analyse the relationship between the altitude and the pest infestation.

All affected plantations and two unaffected plantations from each Forest Range were selected from both government and private sector eucalyptus plantations for the data collection covering the entire study area. The selected plantations were below 10 years of age, because this infestation is more common in young stage of plantations. Analog maps were converted to digital maps in this study by georeferencing and screen digitizing. The ground control points required were accurately obtained using a GPS data receiver. The latitudes, longitudes and altitudes for the plantations were collected using the GPS receiver during the ground survey.

The results of the present study indicate that the gall wasp invasion only appear in Badulla district Eucalyptus plantations belong to both government and private sector. All the visited plantations were below 10 years of age and the species were *E. grandis* and *E. microcorys*. The gall wasp infestation only observed in *E. grandis* fields and it was not observed in *E. microcorys* fields. Furthermore a negative relationship was shown between the altitude and the gall wasp pest infestation and the infestation was not discovered on Eucalyptus plantations at altitudes greater than 1200 m above sea level. Therefore a close supervision for the Eucalyptus plantations below this altitude could help to control the further spread of the pest.

Key words: *Leptocybe invasa*, eucalyptus, GIS, altitude