Sub-theme: II

Plant Surveillance in Phytosanitary Systems

Title:

RED GUM LERP PSYLLID (*Glycaspis brimblecombei*) SPREAD, HOST DAMAGE AND HOST PREFERENCE IN CENTRAL KENYA HIGHLANDS

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Introduction

Invasive insect species can act as a plague across the globe, capable of vast expansion and rapid, proliferate reproduction.

As at 2010, the value of eucalyptus in Kenyan lands was estimated to be Kshs.30 Billion covering approximately 100,000 ha

Glycaspis brimblecombei is the major problem in eucalypt plantations

causes severe defoliation and some tree mortality on some *Eucalyptus spp.,* and has been included in the EPPO list of quarantine species since 2002

Introduction cont’

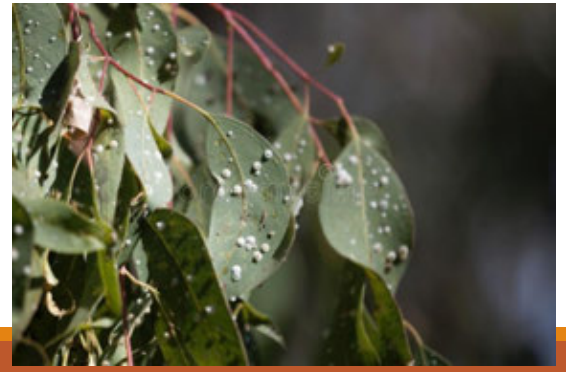
Glycaspis brimblecombei is recognized most readily by the white lerp that they secrete over themselves for protection.

Large number of psyllids can also stress a tree to the point that it sheds its leaves. Nymphal instars of Red Gum Lerp Psyllid produce honeydew after initial feeding

The main natural enemy from Australia, the parasitoid *Psyllaephagus bliteus* Riek (Hymenoptera: Encyrtidae), koinobiont parasitoid

G. brimblecombei can cause 20% to 30% of defoliation, crown thinning, and eucalypt mortality

There is an urgent need to develop strategies aiming to manage *G*. *brimblecombei*



Problem Statement

In Kenya, Lerp Psyllid was first reported in October 2014 and currently observed on *E. camaldulensis* plantations and on-farm trees in Central and Western parts of Kenya

Red Gum Lerp Psyllid attack on Eucalypts result in chlorosis, leaf drop and twig dieback and heavy infestations may lead to death of trees

There is paucity of literature on spread and distribution of Lerp Psyllid and its parasitoid *P. bliteus* in Kenyan forestry systems; despite the economic injury it has caused the Country in terms of loss of quality and quantity in timber and other products of Eucalypts, directly affecting livelihoods of people that rely on Eucalypts

Justification

Red Gum Lerp Psyllid can cause 20% to 30% of defoliation, crown thinning, unthriftness and eucalypt mortality

The lerps formed on the adaxial lamina reduces the leaf surface area hence a reduction in nutrients synthesis in developing Eucalypts. There is an urgent need to develop strategies aimed at at managing this pest in Kenya

Identifying the resistant host Eucalyptus species will inform policy makers on how best to implement the host plant resistant strategy

This study will be a basis to inform its distribution and host preference in terms of different sub-populations of *E. camaldulensis*

Objectives

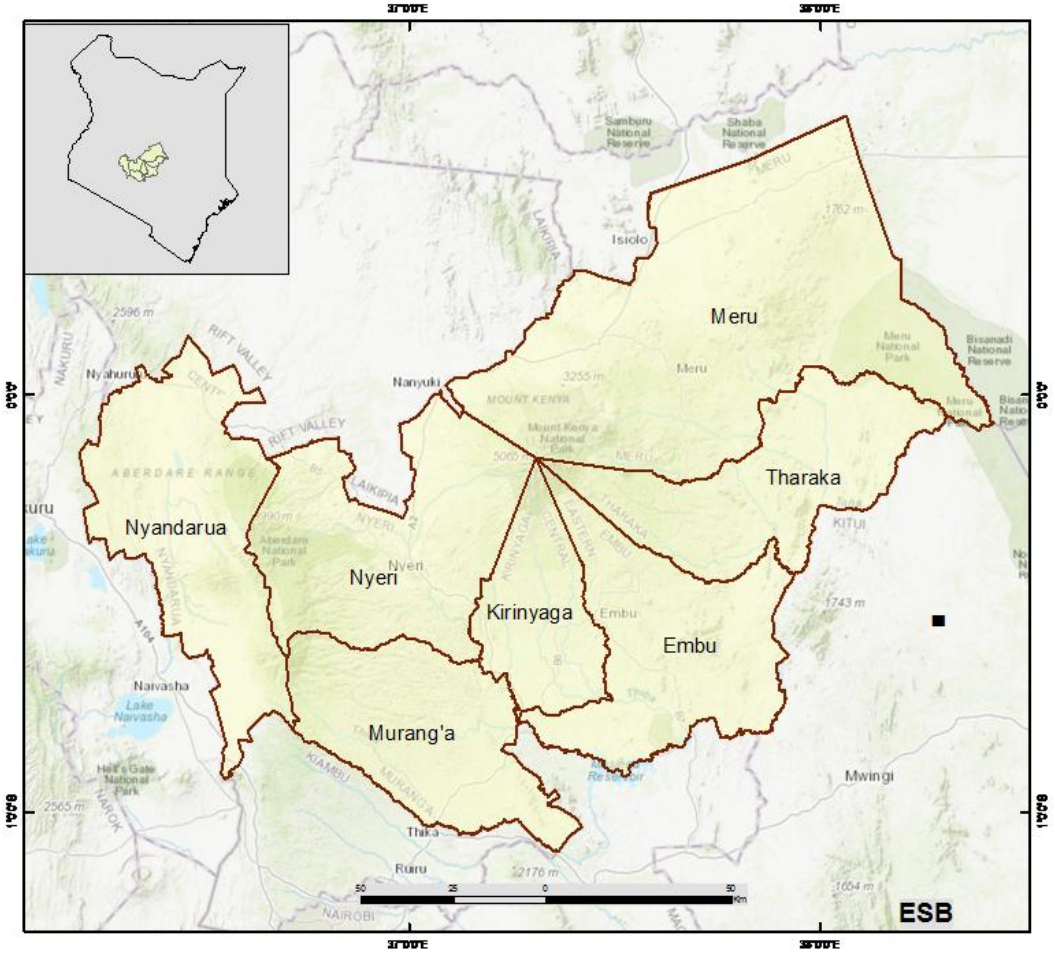
1. To monitor distribution of *Glycaspis brimblecombei* in Central Highlands of Kenya

2. To assess host damage levels by *Glycaspis brimblecombei* in Central Highlands of Kenya

3. To determine host species preference by *Glycaspis brimblecombei*

Methodology

Study area:



Methodology cont’

Sampling parameters

Distribution: GPS gadget (*Garmin GPS 12 XL*)

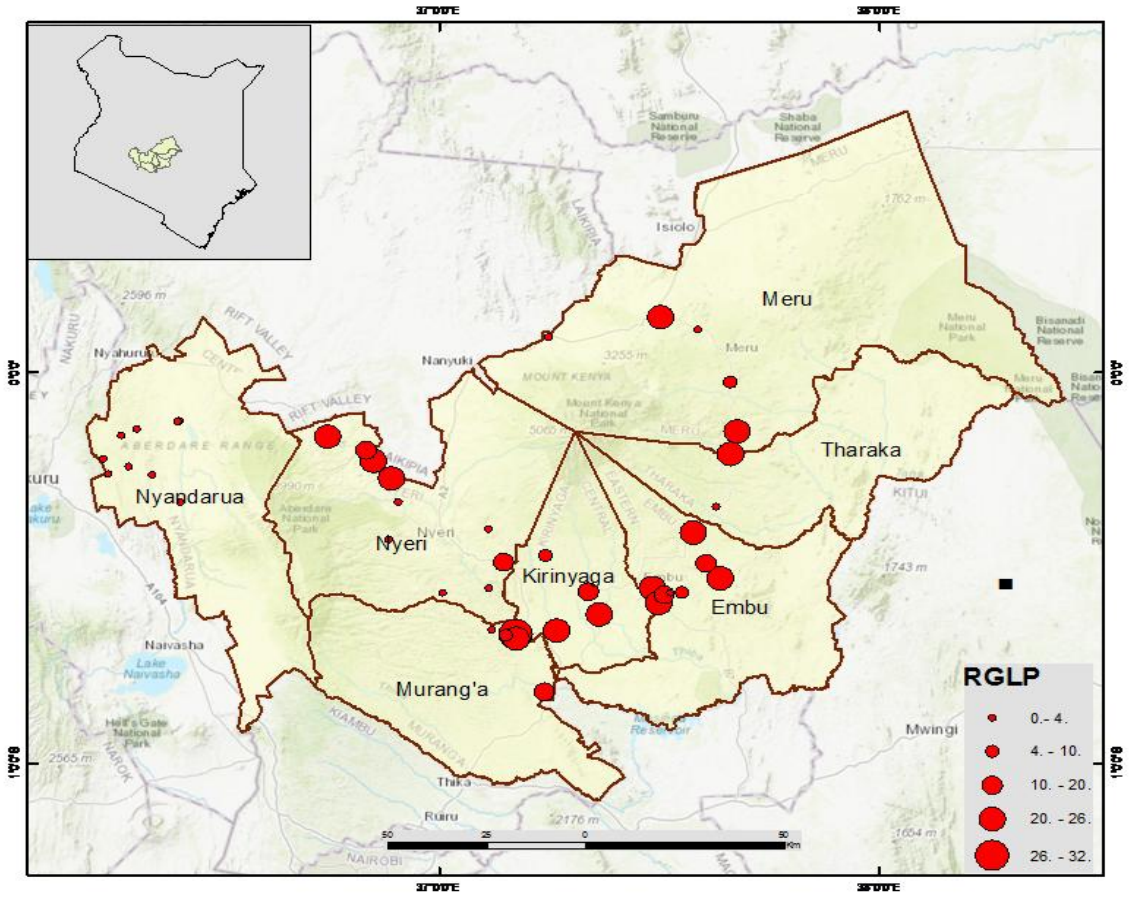
Level of host damage: observation of the foliage crown and assigning damage categories: Category 1: No canopy damage, category 2: less than 25% canopy damage, category 3: between 25%-50% canopy damage, category 4: more than 50% canopy damage.

Host preference: percent infested trees

Statistical analyses: Collected data was managed and cleaned using MS excel, analyzed using SPSS and results presented using descriptive charts and tables.

Results

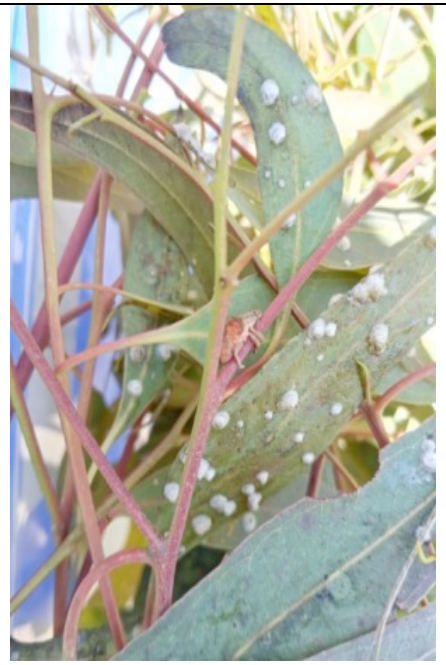
Spread of *Glycaspis brimblecombei* in Central Highlands of Kenya: Distribution map



Results cont': spread

County	Frequency	Percentage
Embu	141	53.21
Kirinyaga	73	58.40
Meru	81	67.50
Murang'a	102	69.39
Nyandarua	28	12.96
Nyeri	104	47.71
TharakaNithi	1	0.00

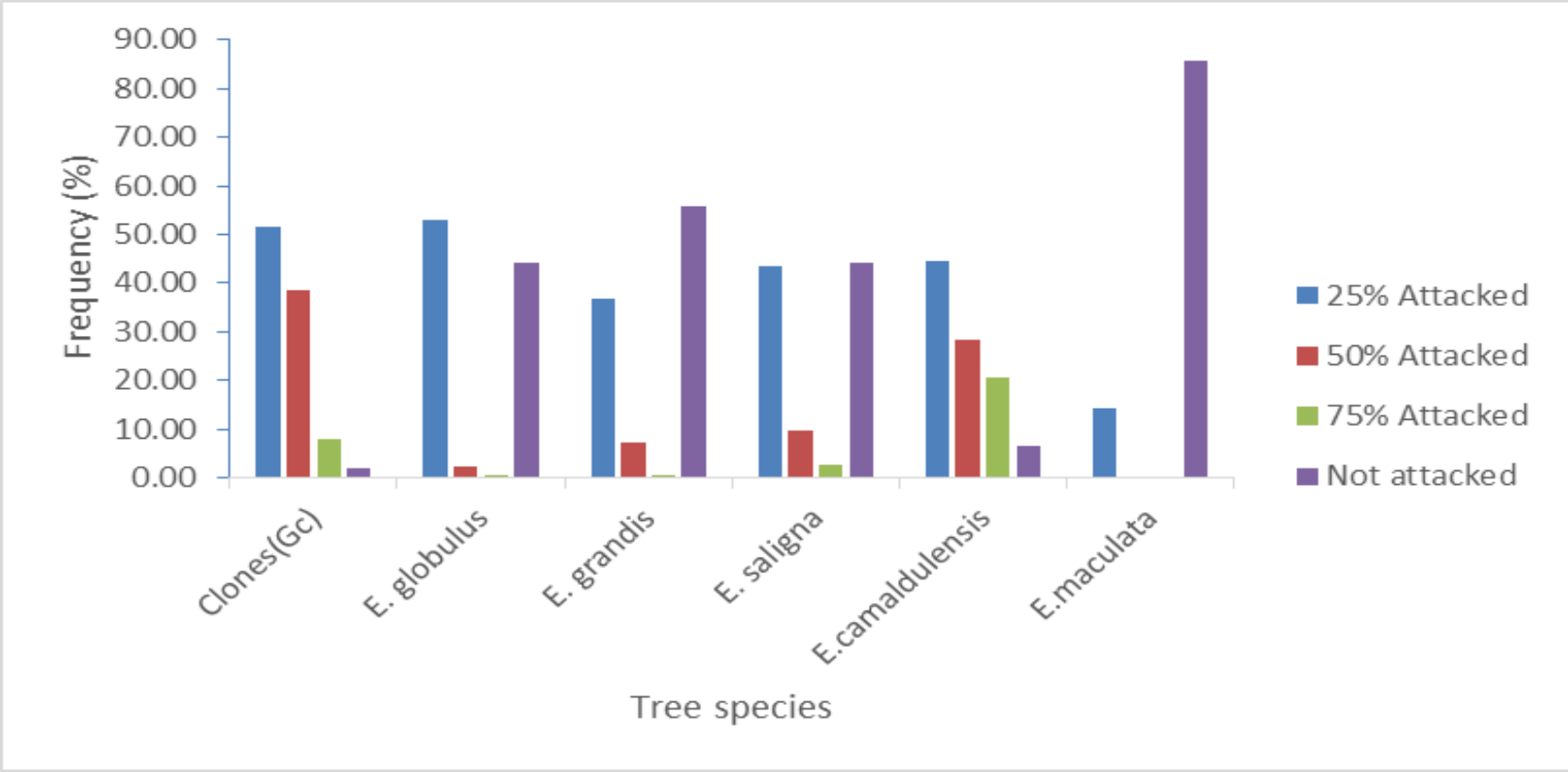
Effect of feeding activity of *G. brimblecombei* on *E. camaldulensis* foliage



Leaves heavily infested by by *G. brimblecombei* at Mweiga, Nyeri

Results cont’

Host damage



Results cont’

G. brimblecombei **host tree preference**

Tree Species	Frequency	Percentage
Clones	173	64.58
E. globulus	1	1
E. grandis	110	37.16
E. saligna	93	47.58
E. camaldulensis	142	94.04
E. maculata	10	18.62

Conclusion

1. Embu, Meru and Kirinyaga Counties have the highest incidence of invasive pests of Eucalyptus trees.

2. Majority of the assessed Eucalyptus trees irrespective of species were 25% attacked followed by those not attacked. More studies on seasonality of attack for invasive insect pests of Eucalyptus is paramount to inform difference in levels of attack in different

seasons.

3. *Eucalyptus camaldulensis* is most preferred followed by hybrid GC clones and *E. saligna.*

Recommendations

Studies recommended include:

1. Telescopic generations and seasonality of attack by *G. brimblecombei*

2. Implementation of Biological control program on *G. brimblecombei*

3. Time of release and identification of host plant resistant species for sustainable management of invasive insect-pests of Eucalypts found in the forestry systems of Kenya.

Acknowledgements

Theme: *"Enhancing Phytosanitary Systems for Healthy Plants, Safe & Sustainable Trade"*
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