

Survey of insect pests and their natural enemies on some indigenous trees in Tshikundamalema, Limpopo Province

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Rollet and Rofhiwa are M Sc Entomology students at the University of Venda funded by the CTHB Programme. Rollet's study topic is "Seasonal abundance and diversity of insects on *Sclerocarya birrea* (marula) and *Berchemia discolor* (brown ivory) in Tshikundamalema, Limpopo Province" He is comparing species abundance and diversity between the two tree species and two sites throughout different seasons. Rofhiwa's topic is "Distribution of African mopane psyllids, *Retroacizzia mopani* and their natural enemies in Tshikundamalema Area, Limpopo Province". So far, several field visits have been carried out for sampling through canopy fogging (Rollet) and for collecting mopane leaves infested with psyllid lerps (Rofhiwa). The most recent sampling was from 24th to 26th February 2015.

Rollet is sampling at two sites, which have different biome types: one is woodland bushveld and the other is savannah grassland (Fig 1).



Fig. 1. Biomes where studies are being conducted in Tshikundamalema

Five trees of each species (*B. discolor* and *S. birrea*) are sampled from each site, making a total of ten trees per site. Sampling the canopy is done by fogging (Fig. 2).



Fig. 2. Fogging a marula tree

Fig. 3 shows the commonest insect species caught in the sampling and one of the rarer catches. Results so far indicate that Order Coleoptera has the most abundant insects for both tree species and at both sites (Fig.4). The most common are from Family Coccinellidae. The insects have been grouped into morphospecies (Fig. 5.).



Fig. 3. A sample of insects caught during sampling at Tshikundamalema

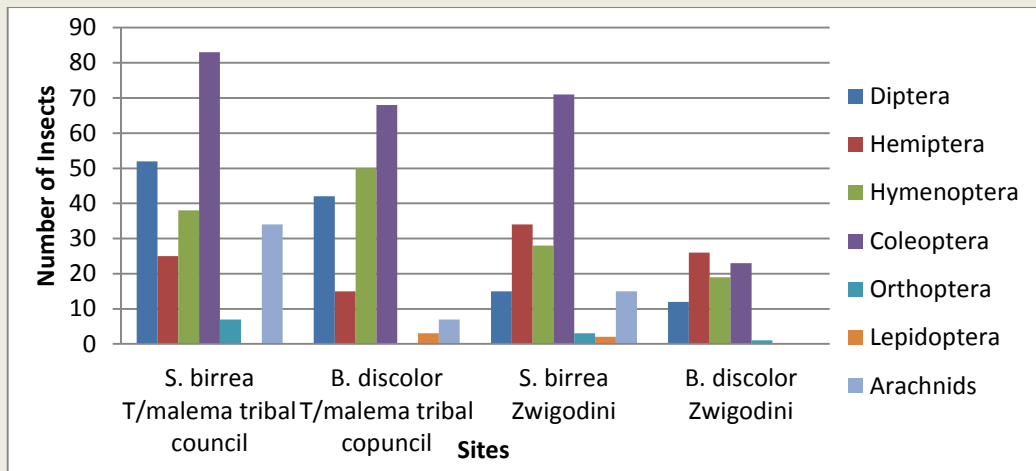


Fig. 4. Comparison of insects sampled from *S. birrea* and *B. discolor* at two sites in Tshikundamalema in February 2015

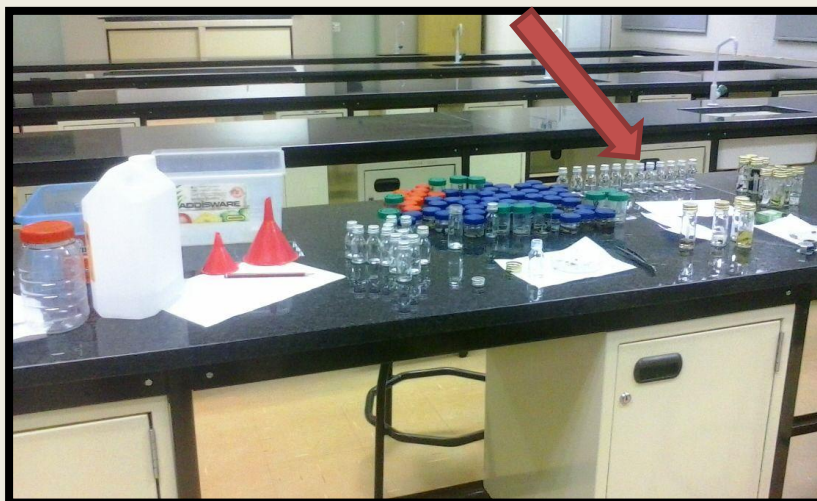


Fig. 5. Vials containing insects in preservative for later identification

From Order Hymenoptera, 13 morphospecies have been identified and 15 morphospecies from Order Coleoptera.

From Rofhiwa's study, three sampling sites with different tree densities of mopane trees (Fig. 7) were selected, each being a quadrat of 80 m X 80 m. Each quadrat was further divided into 20 m X 20 m subplots. The total number of mopane trees from each site as well as trees which were infested with mopane psyllids were counted during the sampling. The most recent sampling was carried out on the 26th of March 2015.



Fig. 6. Mopane vegetation



Fig. 7. Mopane lerps on leaves

The arrow on the Fig. 7 above depicts a common form of a lerp. Under the lerp there is a nymph of the African mopane psyllid (*R. mopani*) and the lerp serves to protect the psyllids from desiccation and other predation. Branchlets with lerps are taken to the lab (Fig 8) to monitor emergence of parasitoids from the psyllids.



Fig. 8. Ventilated containers used for rearing mopane psyllids

The containers are observed each second day for any insects emergence. All emerging natural enemies are kept in 75% ethanol in individual vials.



Fig. 9. Parasitoids being removed from the containers into the vials

The natural enemies will be identified to morphospecies. All the vials are labelled with the date of sampling, site number and the name of the subplot (Fig. 9).

The percentage infestation was highest at Site 3 (Fig. 10), followed by Site 1 and then Site 2, but these data have yet to be analyzed statistically.

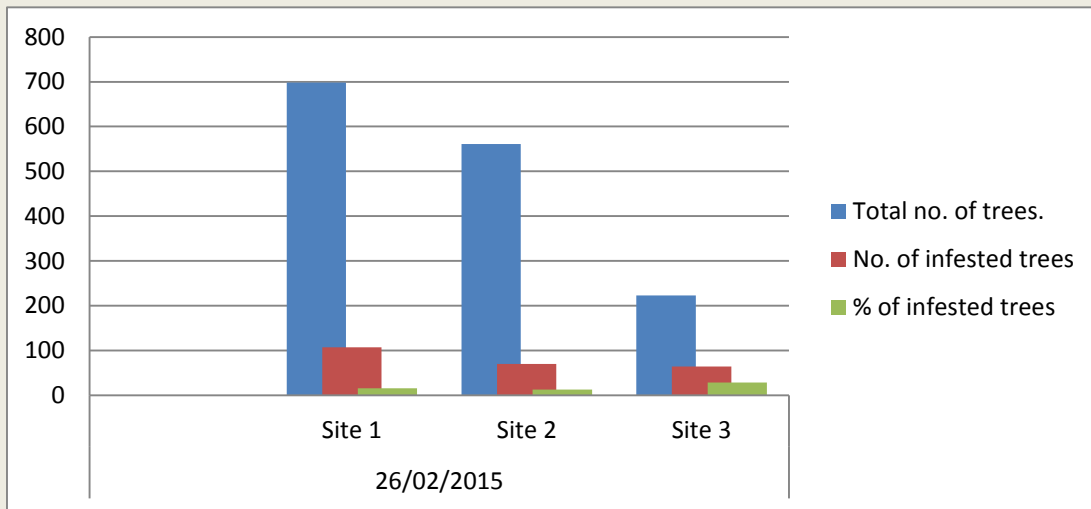


Fig. 10. Comparative data on lerp infestation levels at three sites in Tshikundamalema

The level of parasitism was highest at Site 3 (Fig 11), but the data have yet to be subjected to statistical analyses.

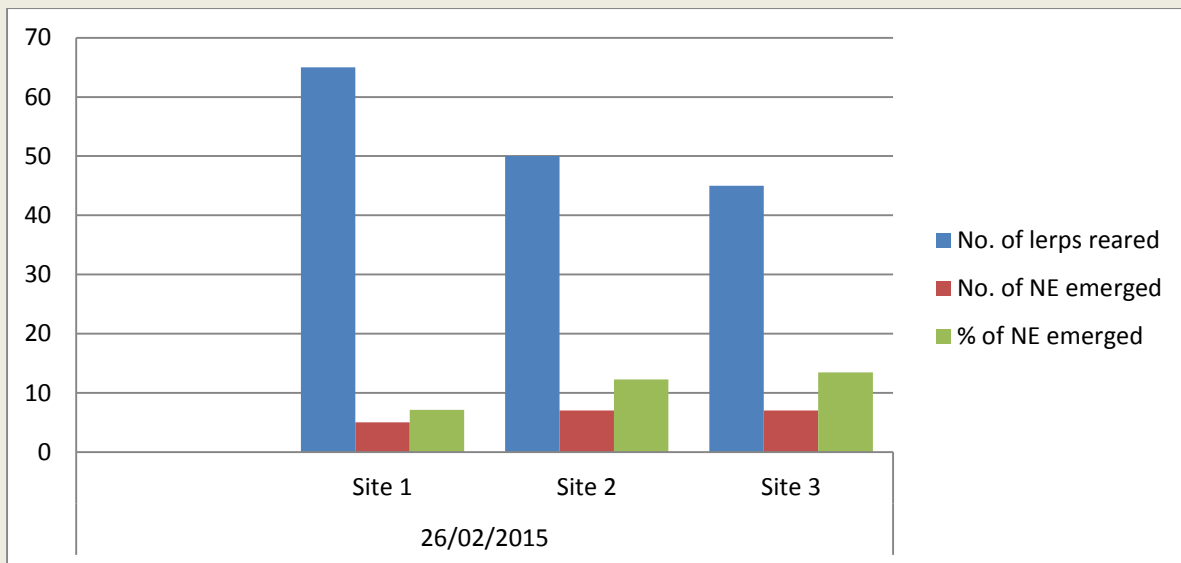


Fig. 11. Comparative data on natural enemy emergence from lerps at three sites in Tshikundamalema