Preferential infestation of host plants by *Xylosandrus compactus* and its implications for the use of shade trees in Robusta coffee and cocoa in Uganda

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The polyphagous twig borer: *Xylosandrus compactus*
Coffee shading
Farmers´ concern: “Some shade tree species like *Albizia chinensis* appear to promote the twig borer”

**Aim**: Establish evidence based influence of shade trees on incidence and damage by the twig borer

**Objective**: Screen hosts of *X. compactus* for preferential infestation by the pest and using the results to simulate potential influence of the shade trees on incidence and damage by the pest
Summary of Materials and Methods

• Potted seedlings of 10 common hosts of *X. compactus* including *Coffea canephora, Coffea arabica, Theobroma cacao* and *Albizia chinensis* were screened

• Seedlings arranged in a CRD on a wooden table, 1m high in a garden of mature *X. compactus* infested *C. canephora*

• The experiment was replicated five times with 10 seedlings per host plant per replicate, totaling 500 seedlings

• *X. compactus* infested seedlings per host were counted weekly

• Counts of infested seedlings per host plant per week were subjected to Poisson generalized linear modeling with logit link

• Models validated using ratios of residual deviances and degrees of freedom, which were all approximately 1

• Scenarios of incidence & damage by the pest were simulated
Results

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Simulations
Conclusions

- *X. compactus* shows marked preference for hosts, with *T. cacao* and *C. canephora* being the most preferred, while *Eucalyptus* sp and *A. chinensis* were the least preferred.

- Volatile cues from the preferred hosts, if identified, could be helpful in developing baited traps for managing *X. compactus*.

- Less preferred shade tree species like *A. chinensis* may not be strong reservoirs that can escalate incidence of *X. compactus* and its damage on its preferred crops like *T. cacao* and *C. canephora*, therefore cutting down these shade trees from the crops as a way of managing the pest is discouraged.

- Further research is necessary to elucidate mechanisms of “apparent” promotion of *X. compactus* by *A. chinensis* on coffee other than preference.
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