Harvesting mopane worm in Limpopo and underlying Ecological Infrastructure

Ruan Veldtman*, Zwanda Nethavhani & Stefan Foord
Utilizing mopane worms

- Food Security
- Natural harvesting
- Benefits of Biodiversity
- Ecologically based Adaptation
- Minimum intervention techniques
- Mapping of Ecological Infrastructure
SOME ASPECTS OF THE ECOLOGY & SUSTAINABLE UTILIZATION OF THE MOPANE WORM

Gonimbrasia belina
Phane (Tswana)
Amacimbi (Indebele)
Masonja (Venda)
Madora (Shona)
Mopane Worms

Alan Gardiner (SAWC)
Hendrik Sitole (SANParks)
Richard Sowry (SANParks)
Stephen Midzi (SANParks)
Wild silk moth species - *Gonometa* spp.

*Gonometa* postica

Cryptic vs. non-cryptic

*Gonometa rufobrunnea*
Phylogenetic constraints on dynamics

Flying ability
- Less eggs → small batches → few larvae
- More eggs → large batches → many larvae

Egg clumping
- Latent

Larval aggregation
- Eruptive
Variability across field sites

Gonometa postica cocoons surveyed during fieldwork (on 100 host plants)
Distribution of *Colosphermum mopane* (blue icons) and sites with mopane worm outbreaks in 2016 and 2017 (yellow icons).
Predicted and actual distribution of the mopane tree
Post Harvest Preparation
Squeezing

Slide: Dr Alan Gardiner
14th National Biodiversity Planning Forum
Picture: Dr Alan Gardiner

14th National Biodiversity Planning Forum
Amino Acid Adequacy (amount g/100g)

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<th>Amino acid</th>
<th>amount</th>
<th>Infants</th>
<th>School</th>
<th>Adults</th>
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<td>Histidine</td>
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<td>Threonine</td>
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<td>Methionine</td>
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<td>Isoleucine</td>
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<td>Tryptophan</td>
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Gardiner et al. Some aspects of the ecology and sustainable utilization of mopane worm
MSc project: Development of minimum intervention techniques to reduce variability in Mopane worms supply for harvesting.

By Zwannda Nethavhani

Supervisor: Prof Stefan Foord
University of Venda
Co-supervisor: Dr Ruan Veldtman
SANBI
Research objectives and aims of MSc

i. Develop techniques to **reduce variability in mopane worm supply** for harvesting in both space and time.

ii. Develop an understanding of **mopane worm population dynamics** and spatial **structuring**.

iii. Quantify the effectiveness of sleeves to **reduce** I–III instar **mortality** in the field.

iv. To determine the **spatial structure** of mopane worm.

v. To compare mortality rate of **seeded** local population to that of **established** populations.
Preventing mortality from parasitism
Increasing the benefits from mopane worm
Semi-domestication of mopane worm can increase the amount of biomass available for harvesting. This means that more mopane veld can potentially be used as mopane worm forage as a biodiversity compatible resource use. In the face of climate change population management can reduce variability in mopane worm supply and thus improve food security. This case study has many cross cutters that can highlight the importance of mapping EI that supports food security and ensuring sustainable benefits from biodiversity.
Acknowledgements

• Dr Alan Gardiner (SAWC)
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Key mopane worm related references


