

**THE LIFE HISTORY, USE AND SOCIO-ECONOMICS OF THE
EDIBLE STINKBUG *ENCOSTERNUM DELEGORGUEI* (HEMIPTERA:
TESSARATOMIDAE), IN SOUTH AFRICA**

Catherine Maria Dzerefos

ABSTRACT

Entomophagy, the consumption of insects, has attracted interest as a low input minilivestock with good nutritional value. The inflated stinkbug, *Encosternum delegorguei*, is an appetizing food, a hangover cure and a trade item in South Africa, Malawi and Zimbabwe yet very little is known about it. This study comprehensively integrates plant aspects (food and shelter) and insect biology (distribution, life cycle and fecundity) with socio-economic and conservation aspects. Firstly, *E. delegorguei* was observed in outdoor insectaries where it exhibited reproductive winter diapause and declining abdominal fat content attributed to non-feeding. In spring (September) *E. delegorguei* fed on *Combretum imberbe*, *Combretum molle* (Combretaceae), *Peltophorum africanum* (Fabaceae), and to a lesser degree on *Dodonaea viscosa* (Sapindaceae) and the grass *Pennisetum clandestinum* (Poaceae). Copulation occurred during October/November but eclosion was reduced by the egg parasitoid wasp, *Anastatus* sp. Secondly, structured interview schedules with 106 harvesters indicated that an estimated total of 3803 ± 43.4 kg (mean \pm S.E.) dry stinkbugs was harvested with an annual gross per capita income of \bar{x} =US\$ 345. In South Africa stinkbugs are consumed by two locally separate ethnic groups the Vhavenda and Mapulana, with a third group, the Bolobedu selling them. Ethnic differences in nomenclature and oral history, methods of collection and preparation, as well as perceptions pertaining to availability were documented between the three groups. Damage to host trees occurred when harvesters poached from pine plantations or private land, whereas, in communal-lands, sustainable methods proliferated. Using a regional maximum entropy modelling method (MAXENT) on winter locations of *E. delegorguei* known to harvesters, current and future distribution scenarios were identified. Winter precipitation and to a lesser degree summer precipitation and winter temperature were key climatic variables limiting the regional distribution of *E. delegorguei*. Moreover, potential new sites unknown to harvesters or areas where minilivestock initiatives could be piloted have been highlighted for further investigation. Opportunities to reduce impediments to collection and trade are discussed in a sustainable framework. For example legitimisation of harvesting and introduction of a collection funnel to reduce conflicts with plantation, orchard and private land managers. Awareness and optimal use of beneficial bio-resources, such as *E. delegorguei*, could encourage community driven habitat stewardship.