Koedoe 20: 109–114 (1977)

RECORDS OF ASSASSIN BUG SPECIES (REDUVIIDAE, HETEROPTERA) REPORTED BITING MAN

E. K. HARTWIG
Plant Protection Research Institute
Prive Bag X134
Pretoria
0001

Abstract – In southern Africa *Acanthaspis obscura* Stål, *Pirates conspurcatus* Distant, *Rhinocoris segmentarius* (Germar) and *Pantoleistes princeps* Stål inflict painful bites on humans. Serious consequences can develop. This is unknown to the public in general. Adult *A. obscura* and *P. conspurcatus* are responsible for the greatest number of bites because they are positively phototropic. *R. segmentarius* is not attracted to light but is the most common local species. Bites happen accidentally and could largely be avoided if the bugs could be recognized. The first three species have a wide distribution. Various insects are preyed on. The *R. segmentarius* female can lay 358 fertile eggs in six batches over a period of 77 days without copulating once in this period. Adults are most active in mid-summer although found throughout the year. These three species are abundant in some years and scarce in others. Preventive measures include screening homes and decoy lights. Control involves spraying with carbaryl.

Introduction

Acanthaspis obscura Stål, *Pirates conspurcatus* Distant and *Rhinocoris segmentarius* (Germar) have been captured in 13, 21 and seven instances respectively after biting humans in the Transvaal and the Orange Free State, Republic of South Africa. Several cases of assassin bug bites also involved other reduviids but the bug fragments produced as evidence were insufficient for specific identification. One badly squashed female which had bitten a man pruning shrubs in Pretoria was, however, identified as *Pantoleistes princeps* Stål.

Reduviids are known to bite man in other parts of the world. The four species listed above are the first records of actual bite histories in South Africa. Bites are inflicted in self defence. Some homes, bungalows and rondavels were found to be particularly prone to intrusion by one or other of the assassin species. The bugs are better known to the rural than to the urban population. The two nocturnal species are commonly known as the "nagby", the Afrikaans for bee of the night.

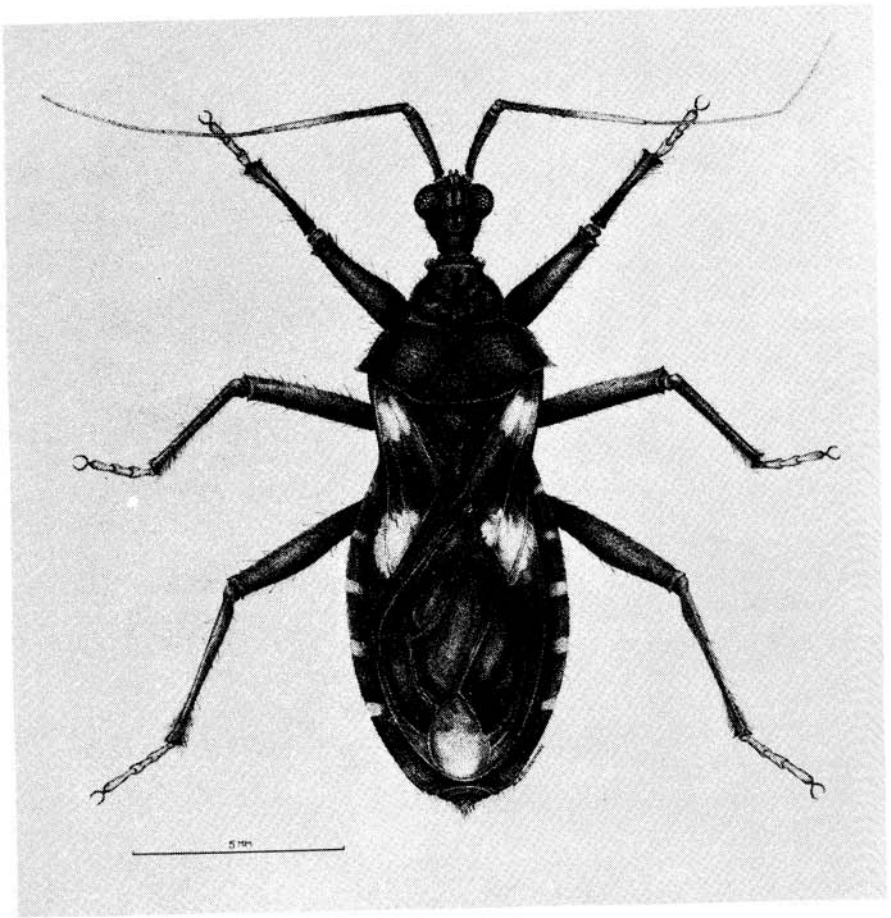

Fig. 1. The assassin bug, *Acanthaspis obscura* Stål, an invader of dwellings known to bite man in 13 cases (♀).

Bites are very painful due to fluid injected in the process of biting. Assassin bugs prey on insects, often larger than themselves and their formidable bite paralyses and kills the prey within seconds. Sick and dying insects are also sucked out by these bugs. This results in the mouthparts carrying putrefacation organisms which can be transmitted when bitin man. Consequently serious complications can follow a bite by such a bug.

These three assassin species are abundant in some years and scarce in others. *A obscura* was found to occur in South West Africa (Hesse 1926), the Transvaal and Natal; *P. conspurcatus* has been collected throughout South Africa; *R. segmentarius* abounds in the Transvaal and has been taken in Natal, the Cape Province, South West Africa (Hesse 1926) and Moçambique. Some distribution records were obtained from labels on specimens in the National Collection of Insects, Pretoria.

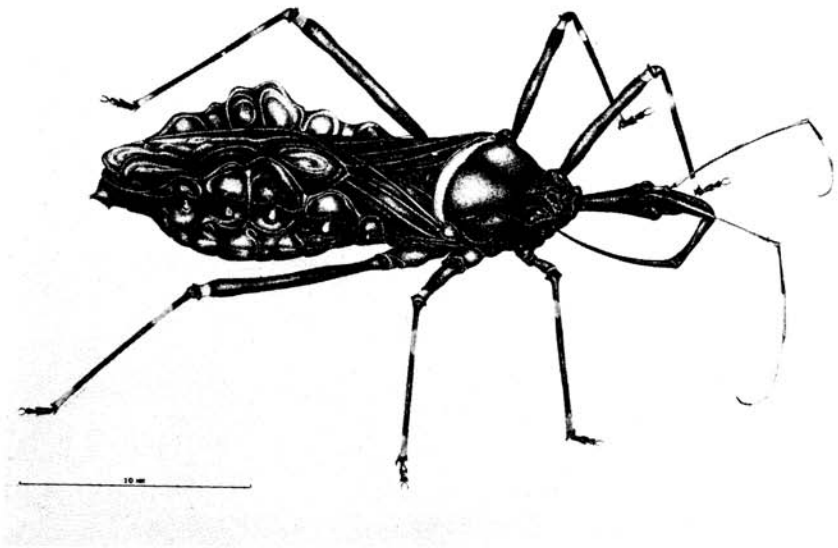

Fig. 2. The assassin bug, *Pantoleistes princeps* Stål, a predator of insects that has bitten a gardener.

A. obscura and *P. conspurcatus* adults are positively phototropic. Up to five bugs have been caught on one single evening in one illuminated room. This is, however, exceptional, the average being closer to one per week and then only in one out of every 20 to 50 dwellings. Almost all assassin bugs entering dwellings end up in bedrooms which are the last to be illuminated. Here the most bites are inflicted because the bugs flit in and out of beds and onto whoever happens to be there. The normal human reaction is to strike at a bug or squash it with the hand – the instant it is contacted, however, the bite is inflicted.

R. segmentarius commonly occurs in the sunny spots, on flowers and anywhere where prey is present. Cases of bites occurred when picking flowers, pruning shrubs, gathering firewood and making accidental contact with the bugs. Two children were bitten when attempting to catch the pretty reddish adults.

All bites seem to be accidental. Bite frequency is higher for assassin bugs than are incidents involving snakes, spiders and scorpions. *A. obscura* adults were collected from November to March, *P. conspurcatus* from August to April and *R. segmentarius* from August to May. In all known cases of bites in man only adult bugs were involved.

Effect of the bite on man

The bite instantaneously causes an intense burning pain and numbness. It feels like the jab of a thorn or wooden splinter deep into the flesh. The pain intensity is similar to that experienced after the sting of a medium sized thicktailed scorpion.

With or without prompt treatment a burning numbness prevails for several hours. The glands of the arms and legs tend to swell and this normally lasts about three days. Nausea, a flushed face, palpitation of the heart, rapid breathing can develop and are followed by welts all over the body and limbs. The effect of the bite may last for months. The bite is visible as a black spot surrounded by a white ring. Around this spot there frequently appears a bulbous vesicle about two cm in diameter and filled with a dark grumous fluid. The surrounding tissues are often swollen and painful.

Egglaying and nymph rearing

Readio (1924) gives the life history of the reduviid *Sinea diadema* (Fabricius) and reports the largest total number of eggs laid by one female to be 412. One *R. segmentarius* female was placed in a glass cage on 1976.01.12, fed regularly and kept under dialy observation. Egg batches containing 63, 54, 64, 46, 62 and 69 eggs were consecutively laid on the 20th and 30th January, 8th, 17th and 23rd of February and the 3rd March 1976. Eggs were deposited on end in a compact, regular five or six sided figure. The newly deposited eggs sometimes leant over in which case the female pulled them upright with the apical cushion on her fore tibia and she then held them in position carefully until the eggs kept their position on release. With her antennae the female constantly checked the position of each egg.

The eggs hatched nine to 14 days after being laid. This female died on 1976.03.28, therefore 358 eggs in all were laid by one female in 77 days. Not once was copulation possible in this period; the female was caged alone. All 358 eggs hatched. The nymphs were initially reared on aphids and after three weeks on lawn catterpillar pupae.

Treatment of bites

As antidote for the painful bites Essig (1951) suggests a generous compress of epsom salts ($MgSO_4$) applied immediately to the wound, which is then kept thoroughly soaked for some hours. The author experienced relief by a prompt application of a paste of bicarbonate of soda ($NaHCO_3$) and repeating this dressing after an hour. Herms (1915) suggests bathing the wound with diluted ammonia or corrosive sublimate, the latter diluted one in 1 000.

The first aid treatments involving corrosive sublimate or ammonia had the most favourable case histories. Bites treated with either re-

covered soon and without any complications. Although both chemicals have good merits for treating bites, care must be taken in their use. Ammonia burns result if a too strong solution is used, especially if a dressing is subsequently applied. Corrosive sublimate is poisonous (British Pharmaceutical Codex 1963).

Bite treatment should serve a dual purpose, first, to neutralize the reduviid's poison and secondly, to prevent infections which are liable to occur because of the indiscriminate feeding habits of the bug.

Preventive measures

Bugs can be prevented from entering houses by screening. Where this is impractical it is advisable to keep a second decoy light burning last together with the study or bedroom light. Experimentation would show which light in the particular house happens to attract the species involved, the brightest light not necessarily proving to be the most attractive. *A. obscura* commonly occurs in poorly lit rooms. *P. conspurcatus* seems to be less particular and is often caught in light traps.

Control

Satisfactory control of infestations in dwellings has been obtained with carbaryl. A coarse spray using 600 g of a 85% active ingredient (mass/mass) wettable powder per 100 *l* of water was applied in 150 bungalows. A survey the day after spraying showed seven *A. obscura* and three *P. conspurcatus* to have been killed. No survivors were found. This carbaryl application is as for bedbug control. Metcalf, Flint and Metcalf (1962) report residual spraying with lindane to be effective against assassin bugs.

Acknowledgements

Thanks are due to Miss Carla Schoeman, formerly from this Institute, for the excellent illustrations and to Mr W. R. Dolling, Heteropterist of the British Museum of Natural History for identifications and the correct scientific name combinations.

REFERENCES

BRITISH PHARMACEUTICAL CODEX. 1963. London: The Pharmaceutical Press.

ESSIG, E. O. 1951. *College Entomology*. New York: The Macmillan Company.

HERMS, W. B. 1915. *Medical and Veterinary Entomology*. New York: The Macmillan Company.

HESSE, A. J. 1926. A List of the Heteropterous and Homopterous Hemiptera of South-West Africa. *Ann. S. Afr. Mus.* 1925–1926. 23 (IV): 1–190.

METCALF, C. L., W. P. FLINT and R. L. METCALF. 1962. *Destructive and Useful Insects*. New York: McGraw-Hill Book Company.

READIO, P. A. 1924. Notes on the life history of a beneficial reduviid, *Sinea diadema* (Fabr.), Heteroptera. *J. econ. Ent.* 17:80–86.