



Mole Crickets

(Gryllotalpidae)



An adult mole cricket, *Gryllotalpa* sp. (australis-group) with fully developed wings: the fore wings extend only about half the length of the abdomen and partially conceal the folded hind wings which extend down the midline beyond the end of the abdomen.

Mole crickets have become one of the most commonly asked-about insects at the WA Museum. This is a result of the establishment and spread of two species not known to occur in Western Australia prior to the 1990's. They are *Gryllotalpa* sp. (australis-group) and *G. pluvialis*. The latter, at least, is native to eastern Australia. They have spread throughout Perth's suburbs and are known also from other south-western population centres. According to enquirers, the insects run rampant in vegetable gardens, plant pots or new lawns, drown in swimming pools, enter houses and cause annoyance by their loud songs.

Mole crickets are most closely related to the true crickets (Orthoptera: Gryllidae) and share with them long, whip-like antennae and fore wings that (in males) can produce sound through stridulation – i.e. friction between a row of 'teeth' on one wing and a ridge-like vein or 'scraper' on the other. Otte & Alexander (1983) included the mole crickets as a subfamily of the true crickets in their revision of the Australian species. Most recent authors, though, have treated them

as a distinct family, Gryllotalpidae (e.g. Rentz 1996). They are distinguished from true crickets in being modified for a burrowing mode of life: the fore legs bear stout spines to assist digging and the first segment of the thorax is enlarged and hardened. Females lack the needle-like ovipositor of the true crickets.

Mole crickets are often confused with the superficially similar sandgropers or cylindrachetids (see separate information sheet). They are readily distinguished by their longer appendages and (usually) the presence of wings in adults. Fully winged individuals are capable of flight but they fly only at night and are sometimes attracted to lights. Sometimes the hind wings may be reduced, especially in the males, and some totally wingless species are known (Tindale 1928, Otte & Alexander 1983).

Otte and Alexander (1983) recognized five genera of mole crickets world-wide and placed all known Australian species in the genus *Gryllotalpa*, a group represented also in Africa, Europe and Asia, with 22

described species in all. They noted only four described species from Western Australia. Examination of Western Australian Museum specimens suggests that these authors have misidentified some of our species and there appear to be at least three native species yet to be described from the south of the State.

Little has been recorded of the lives of Australian species but some good information on the biology of extra-Australian *Gryllotalpa* species is available via the internet, especially from the University of Florida. Mole crickets may be vegetarian, carnivorous or omnivorous. In confined situations they may be cannibalistic. Some pest species in the Americas damage vegetable gardens and seedlings, eat seeds and burrow in turf, causing physical damage (there is no indication, though, that Western Australia's introduced species cause any serious damage).

Mole crickets tunnel just beneath the surface of the ground (much like sandgropers) and produce the same kinds of raised trails on bare ground. They also construct and inhabit vertical burrows and sometimes they gather food on the surface and take it down the burrows.

Males sing at the entrances of vertical burrows specially shaped to amplify their songs. Singing characteristically commences at dusk and usually ceases within a few hours. The songs of mole crickets are deeper than those of typical crickets and many people have attributed them to frogs. *Gryllotalpa pluvialis* has a strident, rapid, chirping song that can be quite intrusive whereas the other introduced species has a slower, quieter trill.

Females deposit their eggs loosely in egg chambers beneath the ground and guard them until they hatch.

One of the less savoury aspects of mole crickets is that they squirt a foul-smelling brown liquid from anal glands when handled. One of the introduced species (pictured lower right) also produces a clear viscous substance from its hind end that would probably serve to entangle potential spider or insect predators.



An unnamed, near-wingless mole cricket native to the Swan Coastal Plain.



A male mole cricket (*Gryllotalpa pluvialis*) from suburban Perth distinguished by its shiny fore body, well-developed fore wings and reduced (hidden) hind wings.

References and further reading:

<http://entomology.ifas.ufl.edu/fasulo/molecrickets/mcri0001.htm>

Otte, D. & Alexander, R.D. (1983). The Australian Crickets (Orthoptera: Gryllidae). Monograph 22 of the Academy of Natural Sciences of Philadelphia.

Rentz, D.C.F. (1996). *Grasshopper Country – the abundant orthopteroid insects of Australia* (University of NSW Press, Sydney).

Tindale, N.B. (1928). Australasian mole-crickets of the family Gryllotalpidae (Orthoptera). *Records of the South Australian Museum* 4: 1-42