BEETLES AND MAN

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Every fifth kind of living thing is a beetle.

(Photo: c *H E Jaques, 1951*).

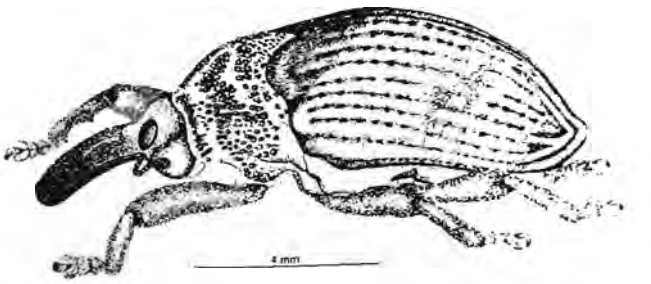
It is estimated that 350 000 different species of beetles (Coleoptera) are known to science today. This makes the Coleoptera the largest group of living organisms by far and in fact means that one out of every five kinds of living things in the world is a beetle. Many people associate beetles with the field, flowers, trees and the countryside in general. While this is true for most beetles, many species affect man by invading his home, crops, barns and food stores.

Usually beetles, like other animals and plants, are kept in a state of balance by natural factors such as food, climate, disease, parasites and predators. Unfortunately man disturbs this balance by either providing conditions for a species to multiply or by introducing alien species without their full range of natural enemies. On account of this a state of affairs is brought about that is prejudicial to man's own activities and he has to control the situation. This mostly results in so-called 'chemical warfare' where man resorts to insecticides in order to eradicate the pests he himself is responsible for. Unfortunately these insecticides are mostly used overzealously which further disrupt the balance of nature, thus creating a 'snowball" effect . . .

Stored products have, ever since Stone Age man, probably been the most ideal man-established living space for many insect pests. Currently some 150 species, the majority of which are beetles, infect man's food supplies. Annually one quarter of the world's food supply is destroyed, resulting in a financial loss of approximately U.S. $ 25,000 million. Probably the most important beetles in this regard are the cosmopolitan grain weevils (*Sitophilus* spp.). which attack all forms of grain — the staple diet of the world's population, and the cowpea bruchid which destroys vast quantities of cowpeas (*e.g.* in Nigeria 250 000 tons of this product are lost annually on account of this beetle). Closer to home, good examples are the Bean gall weevil *Alcidodes erythropterus* which attacks the seeds of various legumes, whilst the Potato snout

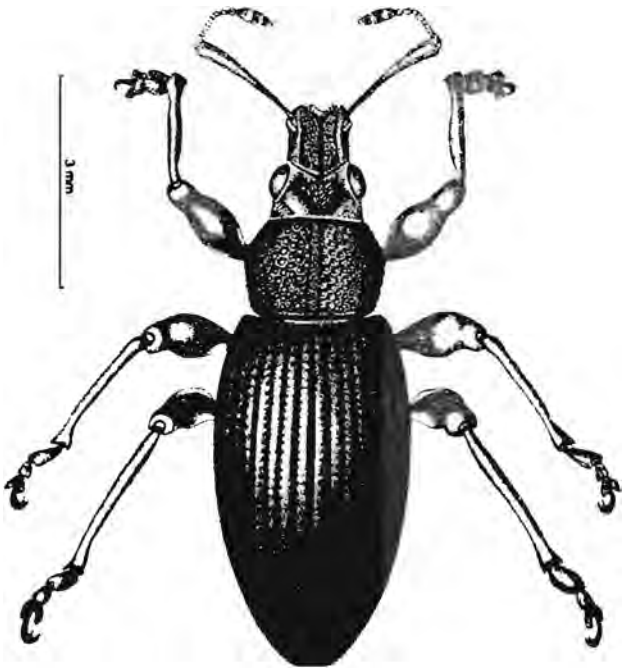
The Grain weevil, a common pest of stored whole grain.

(Photo: c *The Manlyn Publishing Group Limited, 1979*)

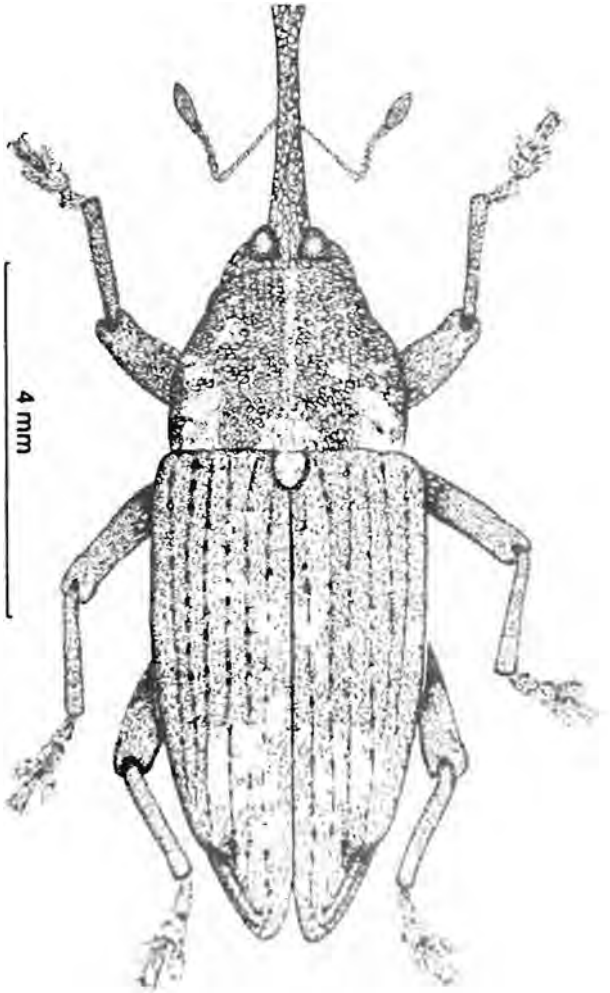


The Bean gall weevil.

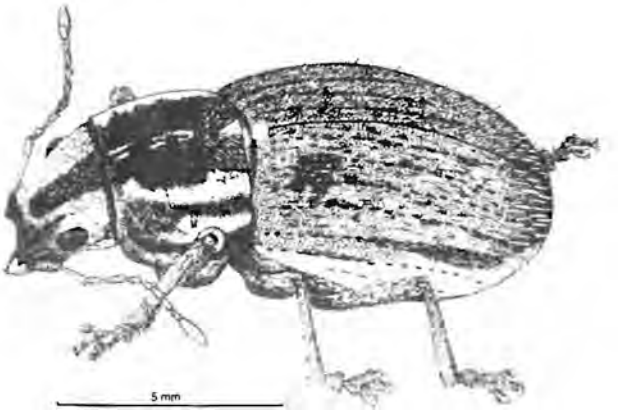
(Photo: c *Butterworths & Co (SA) (Pty) Ltd, 1982*)



The Potato snout beetle.



The Pine weevil.

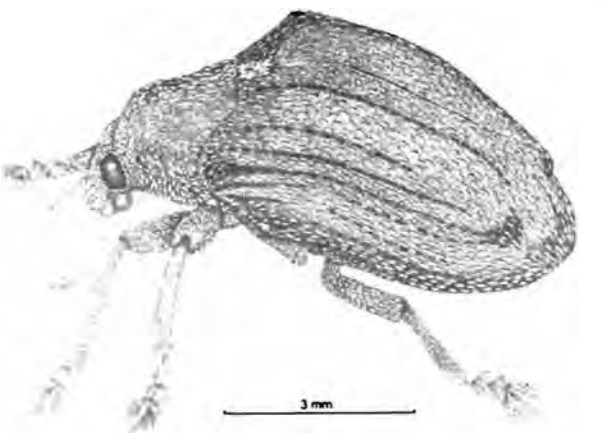


The White-fringed beetle.

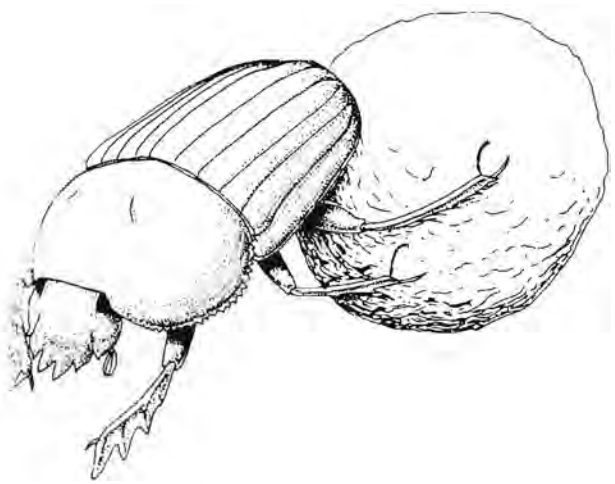
beetle *Sciobius horni* damages potatoes in the eastern Orange Free State.

Examples of the pests which have been introduced are the White-fringed beetle *Graphognathus leucoloma* which extensively damages pastures and crops, the Eucalyptus snout beetle *Gonipterus scutellatus* which attacks eucalyptus trees and the Pine weevil *Pissodes* sp. which injures pine trees.

Pests have also become domesticated and are now so closely linked to man that they are difficult to find in their natural habitat. For example the Varied carpet beetle *Anthrenus* sp. extensively damages clothing, carpets and museum collections, the Death watch beetle *Xestobium* sp. attacks timber structures and the Common furniture beetle *Anobium punctatus* ruins furniture and timber. *A. punctatus* is also



The Eucalyptus snout beetle.



A Dung beetle rolling a ball of dung.

(Photo. c *Butterworths Pub. (Pty) Ltd. 1985*)

An adult Ladybird beetle sinks its jaws into an aphid.

(Photo. c Anthony Bannister, 1979)

an example of an alien species which has accidentally been introduced into South Africa.

Man's association with beetles has, however, also a brighter side and many beetles are in fact very useful. Possibly one of the greatest benefits to man is the role they play in pollinating flowers. For example the Oil palm weevil *Elaeidobius kamerunicus* is used to pollinate Oil palms in Malaysia and are estimated to have an annual pollination value of approximately U.S. $ 115 million.

Beetles also help to keep our environment clean by acting as scavengers. By eating dead animals, decaying plants and dung they can rightfully be dubbed the dustmen and nightcartdrivers of the countryside!

Beetles are also of great importance in biological control (*i.e.* where one organism (the pest) is controlled by other organisms (the natural enemies),. A well-known example is the control of scale insects and plant lice by the Ladybird beetle (Coccinellidae). In South Africa much progress has been made in controlling noxious plants by means of introducing their natural beetle enemies. The notorious Silky hakea, *Hakea sericea* for instance, seems to be affected by the attack of certain erirhinine weevils, while the Long-leaved wattle, *Acacia longifolia* and Stinkbean *Albizia lophanta* are attacked by cryptorynchine weevils and the Lantana *Lantana camara* is defoliated by cassidine leaf beetles.

GEOLOGICAL RESEARCH AT FLORISBAD

B.S. Rubidge & J.S. Brink

The occurrence of fossils in the spring deposits at Florisbad, approximately 42 km north of Bloemfontein, has been known since 1912 when the area was developed as a spa. However, particular attention was focussed on the Florisbad site when a fossilised (now world famous) human skull was unearthed in 1932. During 1980 the National Museum acquired Florisbad as a research station and since has undertaken extensive archaeological excavations in order to find more fossils and to study the sedimentary deposits.

One of the objectives at Florisbad is to determine the structure and nature of the soil below the surface and for this purpose thirty-one boreholes were drilled at various points under the supervision of Dr Clarke during 1981 and 1982. Samples of the sediments were taken at various intervals in each borehole, and their precise depth of origin noted.