

# Anobiid beetles, Spider beetles (Family: Anobiidae)

## Introduction to family Anobiidae

Two subfamilies of the Anobiidae are associated with stored products: the Anobiinae and the Piniinae. Most Anobiinae are wood borers and many species are serious pests of timber. The Piniinae are scavengers and are associated with dried material of animal and vegetable origin and are frequent inhabitants of animal nests. Members of this subfamily were formerly classified as the family Piniidae.

Adults of the two subfamilies are physically quite different from each other. Members of the Anobiinae are globular or cylindrical beetles. The head is typically held downwards and from above is largely or completely concealed by the pronotum. The Piniinae are commonly known as spider beetles on account of their general appearance, having globular bodies and long legs and antennae.

## Anobiid beetles (Family: Anobiidae, Subfamily: Anobiinae)

<i>Lasioderma serricorne</i>	Cigarette beetle
<i>Stegobium paniceum</i>	Drugstore beetle

### Summary

Feeding strategies	primary pest, secondary pest
Commodities attacked	dried material of animal and vegetable origin e.g. tobacco, nuts, herbs and spices, grain and grain products
Distribution	worldwide
Economic importance	high - in processing /retailing industries
Eggs	laid in crevices and folds of commodity
Larvae	scarabeiform, immobile when mature, internal feeders
Adults	short lived, do not feed on commodity, fly readily

### Introduction

Most Anobiinae are woodborers and many species are serious pests of timber. Two species, *Lasioderma serricorne* and *Stegobium paniceum*, are frequently found infesting a wide range of stored products.

### Identification

*L. serricorne* (Figures 1-2) and *S. paniceum* (Figures 3-4) are oval, globular beetles 3-4 mm long. Both possess long antennae which are waved rapidly when walking. When disturbed, individuals often play dead by remaining motionless and curling up. Larvae are scarabeiform with fully functional legs (Figure 5).



Figure 1 *Lasioderma serricorne*, adult, live

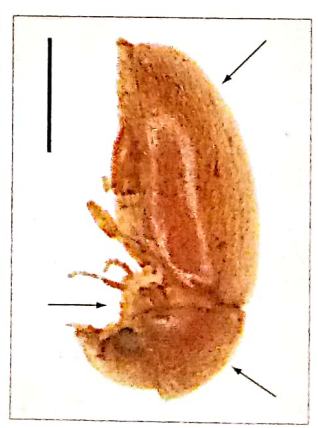


Figure 2 *Lasioderma serricorne*, adult, side view, showing antennae and body covered in fine hairs

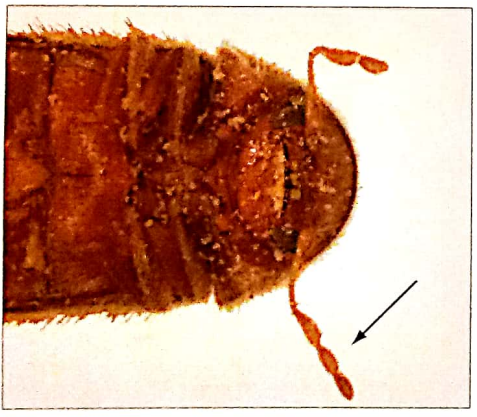


Figure 4 *Stegobium paniceum*, head from underside, showing antennae

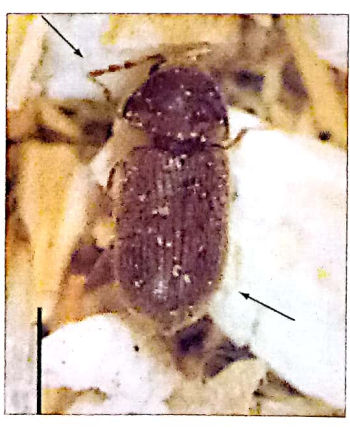


Figure 3 *Stegobium paniceum*, adult, live, showing antennae and longitudinal ridges marked with fine hairs on elytra

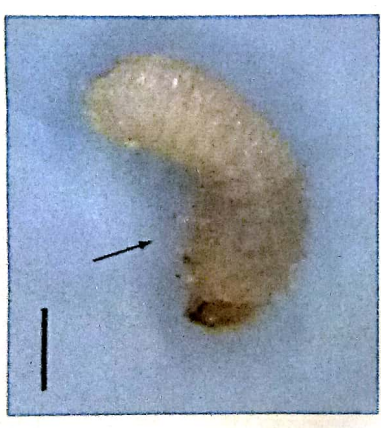


Figure 5 *Lasioderma serricorne*, larva, with fully functional legs



Identification of Anobiinae associated with stored products	
Antennae long, segments serrate (saw like), elytra, smooth with fine hairs (Figure 2) . . . . .	<i>Lasioderma serricorne</i>
Antennae long, last three segments form loose club, elytra with fine longitudinal striae (ridges) and fine hairs (Figure 4) . . . . .	<i>Stegobium paniceum</i>

**Life cycle**

Eggs are laid singly, in crevices or folds of the substrate. About 100 eggs are typically laid over a lifespan of about 25 days. Newly hatched larvae cannot attack undamaged grain but they will investigate cracks and crevices in commodities in search for an entry point. The larvae burrow into the foodstuff, becoming more crescent-shaped and immobile as they mature. When ready to pupate they make a flimsy cocoon in the foodstuff. On emergence, the adult spends a few days within the cocoon before biting its way out. Adults are short lived, feed little or not at all. They run quickly and fly readily and well.

**Physical limits and optimum rate of multiplication**

A low minimum temperature at which development is possible allows *S. paniceum* to breed under cool temperate conditions. The mortality and duration of larval development varies considerably with commodity. Development is slow and mortality is high on material with a low nutritional content, e.g. spices when compared with cereal-based products.

Species	Conditions within which breeding takes place	Shortest development period, with optimum conditions	Maximum monthly rate of increase
<i>Lasioderma serricorne</i>	20–38°C, r.h. > 25%	26 days at 30°C, 70% r.h.	20
<i>Stegobium paniceum</i>	15–34°C, r.h. > 35%	40 days at 30°C, 60–90% r.h.	8

**Economic importance**

Both species are important pests of a wide range of animal and/or plant origin including dried herbs and spices and high-value processed and pre-mixed products. In addition, *L. serricorne* is an important pest of cured tobacco. Both species are often encountered as pests in manufacturing, retail and domestic situations. In grain storage they are relatively unimportant as pests and are usually associated with residues.

**Type of damage and symptoms**

Larvae burrow into the foodstuff leaving irregular holes. Infested material becomes contaminated with pupal cocoons and the dead bodies of short-lived adults (Figure 6). Young larvae are able to locate and enter very small holes in packaging. Mature larvae and adults upon emergence will readily chew through packaging material such as plastic, paper, foil laminate and wooden containers leaving neat round holes. Such holes may be very numerous following a heavy infestation.

**Ecology**

In nature, *S. paniceum* has been found living in bee hives, feeding on pollen collected by bees.



Figure 6 *Lasioderma serricorne*, infestation of dry cat food

**Monitoring**

Adult *L. serricorne* and *S. paniceum* are attracted to light and are often monitored using light traps. Pheromone-based trapping systems are commercially available for both pests. Acoustic detectors are commercially available which detect the sounds that internal stages of these beetles make during feeding. X-ray photography has been used to detect hidden larvae developing within foods.

**Geographical distribution**

Both species are found worldwide. *L. serricorne* is not cold hardy and survives in temperate areas only in heated buildings. *S. paniceum* is more frequently encountered in temperate areas, and is cold hardy and can survive unaided winter conditions in temperate regions.

Species	Pest status	USA & Canada	Central & South America	Europe & N.Asia	Mediterranean basin	Africa	S. & SE. Asia	Australia & Oceania
<i>Lasioderma serricorne</i>	●●●	X	X	X	X	X	X	X
<i>Stegobium paniceum</i>	●●●	X	X	X	X	X	X	X

Pest status: ● minor to ●●● major pest  
X: recorded

**References**

Aitken (1975), Arbogast (1991), Haines (1991).