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The Stockholm beetle [*Trogoderma angustum*]
– A new risk to herbarium collections

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In 2006 and 2007 we have found established populations of *Trogoderma angustum* in the herbarium and mycology store at Royal Botanic Gardens Kew. Where have these pests come from, and what threat do they pose to collections?

Some species of pests are well known to botanists as major risks to their collections. Biscuit beetle *Stegobium paniceum* and cigarette beetle *Lasioderma serricornis* are two of the most notorious. Other species which have been found causing damage over the years are spider beetles [*Ptinus* sp], odd beetle [*Thylodrias contractus*] and carpet beetles [*Anthrenus* sp]. In 1999, Shaw reported the occurrence of an apparently new pest to the UK, identified as *Trogoderma angustum*. He had found these beetles infesting mounted bird specimens in a gallery at the Royal Scottish Museum in Edinburgh in 1998. His subsequent investigation revealed that an infestation in the herbarium of the Royal Botanic Gardens, Edinburgh, initially identified as being *Reesa vespulae*, also included specimens of *Trogoderma angustum*. It had probably been present in the herbarium since 1986 but the similarity between the larvae of this species and *Reesa* had caused some confusion.

The origin of the infestation in Edinburgh is still not clear. *T angustum* was first described from Chile and was first collected in Europe from Poland in 1921 [Mroczkowski 1960]. It is now a well known and established pest in Sweden [Akerlund 1991] and Denmark [Anon 1997]. More recently, it has been found in domestic houses and infesting a wide range of herbarium, entomological and vertebrate collections in Scandinavia [M Akerlund and L Stengard Hansen, pers com]. It has also been found in the Museum Ludwig in Germany [Y Garboroni, pers com]. The only other recorded infestation in the UK was from Glossop in Derbyshire when beetles were collected from a windowsill of a private house in 1996 [Shaw 1999].

In 2000, a few adult beetles were found on sticky traps in the main herbarium of the Natural History Museum in London [A Paul pers com] but an infestation of larvae in collections has never been found. In February 2000, a few larvae were found in the collection areas at the Royal Botanic Gardens, Kew, which were thought to be possibly *T angustum* or *R. vespulae*. In May of that year, adults were found in the main herbarium which were clearly *T. angustum* and subsequently, adults have been found on sticky traps (and also a few walking) in a number of areas in the main collection. Between 2000 and 2006 there has been an increase both in the frequency of the sightings of this beetle and also in the number of locations discovered in the building. They seem to be particularly attracted to flea light traps which were used in the basement to monitor populations of *S paniceum*. Damaged plant specimens were found with heavily chewed flowering and/or fruiting parts covered in frass and discarded larval cases.

In 2007, an inspection of the new Mycology store at Kew revealed live *T angustum* larvae and cast skins and a few adult beetles. A number of specimens of *Boletus* and slime moulds [*Myxomycetes*] had been particularly badly damaged. Some of the collection had been previously stored in the basement of the main herbarium and had almost certainly been transferred when collections were moved into the new store.

How to recognise *T angustum*

The beetles [Figs 1 and 2] are about 2-3mm long and are more elongate than *Anthrenus* or *Attagenus* sp or the other *Trogoderma* sp. They are dark with three distinct bands of whitish hairs on the elytra. In some specimens, the two bands at the rear of the elytra may seem to merge into one. The female beetles are larger and their elytra are wider towards the rear end, whereas the male elytra have parallel sides.

The larvae [Fig 3] are hairy but longer and less rotund than *Anthrenus* sp. They are very similar to the larvae of *Reesa vespulae*, with which they may easily be confused. The arrow hairs of the *T angustum* are however brownish and not as many, compared to the golden hairs of *R vespulae*.

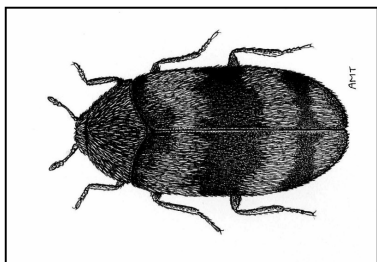


Fig 1 *Trogoderma angustum* Adult
[Drawing by Annette Townsend]



Fig 2 *Trogoderma angustum* Adult female



Fig 3 *Trogoderma angustum* larvae and cast skins [Photo D Pinniger]

Where next?

As there are populations in Edinburgh, South Kensington and Kew, *T angustum* may be present at other locations. If anybody finds beetles which resemble this species, either on sticky traps or near their collections, please get them checked by your local entomologist. If they are indeed confirmed as *T angustum*, could you please let us know the location, if there was any damage to collections, and who did the determination. It is hoped that we can then build a picture of the distribution of this potentially damaging pest.

Why Stockholm beetle? *T angustum* does not have a common name, apart from being a “cabinet beetle”, and the Natural History Museum in Stockholm was the first museum to describe problems with this pest.

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Addendum: A preliminary investigation into using Tyvek® bags for short-term storage as a means of protecting herbaria from damage by insect pests such as *Stegobium paniceum*
 - Rita Owen^a and Adrian Doyle^b
 The Natural History Museum, London

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