SCIENTIFIC NOTE

THE EUROPEAN SILVERFISH IN AUSTRALIA

G.B. Smith

Australian Museum, 1 William Street, Sydney, New South Wales 2010

le_gbsmith@optusnet.com.au

Summary

Specimens of the anthropophilic silverfish *Lepisma saccharinum*, common in Europe, are reported from Hobart, Tasmania and the history and distribution of this species in Australia is discussed.

INTRODUCTION

Until recent years *Lepisma saccharinum* Linnaeus, 1758 was the most common species of silverfish in homes in the Northern Hemisphere. It is now being displaced in most European countries by *Ctenolepisma longicaudatum* Escherich, 1905 (e.g. Aak, *et al*., 2019, Beijne Nierop & Hakbijl, 2002, Goddard *et al*., 2016). Silvestri (1908) recorded its possible presence in Australia when he found a specimen in a box of corals shipped to Europe from Denham in Western Australia. He noted that it may have got into the box anytime during shipment.

Herbert Womersley (1939) reported that *Lepisma saccharinum* "has been taken in grain and similar stores in most of the larger towns of the Commonwealth". There are several specimens in the South Australian Museum collected in Victoria in the 1930's. There is another specimen in the Queensland University collection (now with the Queensland Museum) from Guluguba, near Miles. The species had clearly been present in Australia but in my 40 years of interest in silverfish I have never collected it. In Smith (2015) I questioned whether the species still existed in Australia.

In April 2020 Stephen Bunton sent some specimens to me collected in a garden shed in Mt Stuart, a suburb of Hobart. He had collected with me before and thought that these specimens looked different to the typical household species in being "shorter and rounder and that they did not have the long tail filaments". After dissecting and mounting two of the specimens, I can confirm they belong to *Lepisma saccharinum*.

I had previously looked at records for this species on the Atlas of Living Australia and noticed that most of the photographs labelled as *Lepisma saccharinum* were probably of *Ctenolepisma longicaudatum*. However some recent 2020 records from Melbourne almost certainly are of *Lepisma saccharinum*, as is a blurry image from Melbourne from 2013.

So *Lepisma saccharinum* has not disappeared from Australia but probably persists in small numbers in certain cooler areas. Two other introduced species, *Ctenolepisma longicaudatum* and *Ctenolepisma rothschildi* Silvestri, 1907 appear to be well established in Australia but only in peridomestic situations not in the wild.

Lepisma saccharinum can easily be distinguished from the more common household species *Ctenolepisma longicaudatum* and *Ctenolepisma rothschildi* by its having much shorter antennae and terminal filaments (half head and body versus as long as or longer than head and body), by the long parabolic last abdominal tergite (versus short trapezoidal), and when using a microscope by the smooth macrochaetae versus macrochaetae with barbs along the length of the shaft. *Lepisma saccharinum* (subfamily Lepismatinae) also bears a superficial resemblance to some more elongate native Australian *Heterolepisma* (Heterolepismatinae) and *Anisolepisma* (Acrotelsatinae) species which also have a round posterior abdominal tergite (albeit mostly much shorter than *Lepisma*) and smooth macrochaetae but can easily be distinguished from Heterolepismatinae as these as they have a "collar" of strong macrochaetae along the anterior margin of the pronotum behind the head whereas this margin is free of macrochaetae in *Lepisma* (Figure 1). The Acrotelsatinae also lack a pronotal collar but instead have 1+1 tufts of macrochaetae at the level of the eyes and behind the margin. The Acrotelsatinae also lack the typical free sternal plates of the other Lepismatid subfamilies.

Womersley also mentioned another few introduced species from Melbourne that I have not managed to see or collect, namely *Ctenolepisma lineatum* (Fabricius, 1775) from warehouses, also *Thermobia aegyptiaca* (Lucas, 1842) as well as the firebrat *Thermobia domestica* (Packard, 1873) from factories.

The latter is a cosmopolitan pest of bakeries and thrives in very warm conditions. There is also a single report of the tropicopolitan pest species *Acrotelsa collaris* (Fabricius, 1793) from Darwin (Watson & Li, 1967). Perhaps these species are no longer here or perhaps they too will turn up again.

For those confused about the spelling of some species names used in this manuscript, the International Commission on Zoological Nomenclature (ICZN, 2018) has resolved an issue dating back to 1758 regarding the gender of the name *Lepisma* and genera with names derived from *Lepisma*. These are henceforth to be treated as of neuter gender which has resulted in the species names *saccharina*, *lineata* and *longicaudata*, changing to s*accharinum*, *lineatum* and *longicaudatum*.

Material examined: TAS: Mt Stuart, Mt Stuart, 42.873°S 147.306°E 316m asl, 23 April, 2020, Stephen Bunton, garden shed 1♂ (K.541608 K.541608.001 on two slides) 1♀ (K.541609 K.541609.001 on two slides), K.377938 12 specimens in 80% ethanol; all in Australian Museum. 1♂ 1♀ (gbs006126, gbs006127) in 100% ethanol retained for possible molecular studies.

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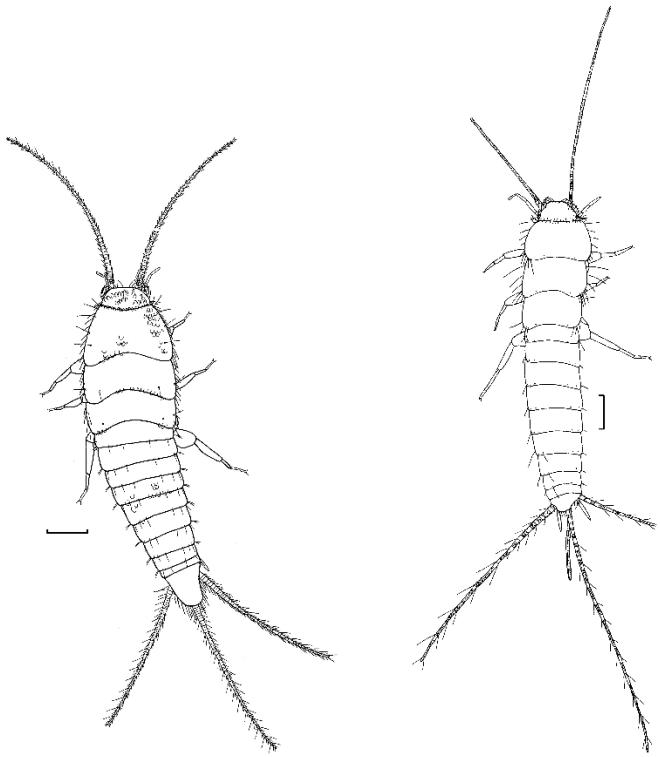

Figure 1. *Lepisma saccharinum* (left) versus *Heterolepisma buntonorum* (right) both ex Hobart. Note the wider shape of *Lepisma*, the presence of scales rather than a collar of macrochaetae behind the head, the longer last abdominal tergite and the shorter terminal filaments held closer together. Scale bars 1 mm.