

**THE DISTRIBUTION OF THE GENERA *TRINOPHYLUM* BATES,
GRACILIA SERV., *AROMIA* SERV., AND *HYLOTRUPES* SERV.
(COL. : CERAMBYCIDAE) IN THE BRITISH ISLES.**

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INTRODUCTION

THESE four beetles are in strong contrast to each other — in size, appearance, habits and occurrence. Two are serious pests, *Gracilia* and *Hylotrupes*; probably more has been written about the costly infestation and ravages caused by the latter than of any European Longhorn. Of the remaining two, *Aromia*, the Musk Beetle, is one of the largest and arguably the most beautiful of our indigenous Cerambycids; the fourth, *Trinophylum*, is a comparative newcomer from the Indian sub-continent, originally found here by the late J.W. Saunt in 1946. There are no published records to indicate when first it established itself here — presumably it transferred itself from imported host logs. On the other hand, there is the possibility that this rather dull looking beetle has been with us for a considerably longer period and for some unaccountable reason completely overlooked, as was indeed the case with two other British genera, *Tetropium* and *Arhopalus* (*antea* 102: 55).

Balfour-Brownean letters for the counties and vice-counties are used (Kaufmann, 1989); those italicised indicate widespread localities and bracketed ones are dubious records which require confirmation. A dagger (†) denotes an importation or a fortuitous example.

***Trinophylum cribratum* Bates**

Attention to the presence of this Indian species in Britain and at that time still unidentified was indicated by Kaufmann (1947b), who was presented with the first four specimens found in English oak being seasoned in a Cowes boatyard. These beetles were in turn sent to a Longhorn collector who redescribed them (Gilmour, 1948). More examples were subsequently taken from the same site and have since been distributed among various national and international collections.

A year later *Trinophylum* turned up elsewhere, too late, unfortunately, to allow Duffy, in his Handbook (1952) and his Monograph (1953a), to make other than short comments on the history and distribution of the beetle in this country; nonetheless, Fraser's (1948) note on a new occurrence prompted him to undertake a long and thorough investigation, the fruits of which are encapsulated in a paper (1953b) which appeared after the publication of the Monograph.

It is impossible to state with any authority for how long *Trinophylum* has chosen England as a second home, but using the materials he had studied as a guide, Duffy estimated that it had been with us for some seven to ten

years prior to its discovery by Mr Saunt, which suggests that the species was introduced here well before the Second World War. It is now listed as an established indigenous beetle.

ENGLAND: HT IW L MX SR WO

The larval brood trees in the Far East are Indian oaks and probably other native hardwoods; here, it is in the English and Turkey oak that *Trinophylum* is principally found, particularly, it seems, in well-seasoned logs often already heavily infested with the larvae of *Phymatodes testaceus*. However, it soon became apparent that *T. cribratum* was far from confined solely to oaks; the larva is amphixylophagous: it has been found attacking and spoiling hard- and softwood growths, both those being seasoned at the timber merchants, and in some cases standing trees, namely:- apple, ash, beech, birch, hornbeam, larch, oak, pear, plane, *Pyracantha* (rather oddly), Scots pine and walnut.

Metamorphosis takes a year, as it does in India, the adults emerging usually in mid-summer and surviving until as late as September. Diurnally lethargic, the beetle is crepuscular, quite a strong flier, and on more than one occasion attracted to household lights. There are indications that this addition to our fauna is being over-collected.

Damage to heavily infested logs in the merchants' yards has resulted in the timber being sawn up and dispatched to various parts of the country to be disposed of as firewood; this is confirmed by the capture of, for instance, the Middlesex and Worcestershire examples, some two dozen in all, which were found in log piles destined to be chopped and burnt. *Sic transit ...habitatio coleopterorum.*

Gracilia minuta F.

Another very small injurious beetle of destructive habits similar to those of *Nathrius* with which it not infrequently infests the same items of indoor and outdoor finished goods and products.

It is recorded from many parts of the country, ranging from the extreme south-west to East Anglia, the Midlands and as far north as Durham and Cumberland. There is a Welsh entry and one of an importation into Ireland.

ENGLAND: BK (BX) CB CH CU DM DT DY EC EK EN ES EX EY† GE GW HF HT IW L LR MX MY NM NS NW OX SD SE SH SL SR ST SY WC† WK WN WO WS WW WY

WALES: GM

IRELAND: WX†

In the wild the larva develops in the dry dead twigs and slender branches of birch, brambles, buckthorn, *Ceratonia siliqua*, dogrose, hawthorn, hazel, horsechestnut, loganberry stems, oak, osiers, raspberry canes and willow. It has also been found in decayed twigs dragged into their nest by the wood ant, *Formica rufa*.

The larva occurs as well in manufactured merchandise such as carboys, garden furniture (which can be reduced to dust), flour casks, hurdles, old basket ware and wickerwork, trellis and even discarded shoe leather.

Metamorphosis normally takes a year to complete, although it may sometimes extend to two years; pupation occurs in March and April, the imagines emerging in May.

The adults may be swept or beaten from then onwards until August off blackthorn, elm, hazel, laurel, lime, osiers, old posts and dead hedgerows. Modern records are becoming increasingly scarce.

Hylotrupes bajulus L.

This very injurious beetle, popularly known as the House Longhorn, thought to have been introduced here from the continent of Africa, has occurred in numbers in the metropolitan area of London, some localities in the Home Counties and a few areas restricted to the south coast. Records of isolated captures, often of single specimens, up and down the country but not specifically of infestations also exist, many dating from the late 18th century onwards (Martyn, 1792; Marsham, 1802, Samouelle, 1819; Curtis, 1830; Stephens, 1831, 1839; Kirby & Spence, 1867 *et. al.*). The Fowlerian collection contains an example caught in 1795 (Fowler, 1890).

The latest infestations in the 1980s have been those at the Royal Naval Hospital, Greenwich and in a church in the same borough.

Whatever its origins, autochthonous — there are one or two published records suggestive of this (Champion, 1917; Duffy, 1953) — or synanthropic, *Hylotrupes* is now confirmed as a truly domestic Cerambycid, responsible for sporadic outbreaks, generally in the upper roof structures of private and public buildings, where, if undetected and left undisturbed over the years, it causes immense damage necessitating in many cases the wholesale replacement of beams, joists and rafters.

The question of autochthonism and synanthropy was discussed in some detail (Kaufmann, 1947a, 1947b): contrary to the opinion then expressed, the latter now accepts that this pest has successfully colonised and established it self as a native household species.

ENGLAND: BK† BX† CB† EK† EN ES EX GW HT IW† L MX† SE SH SR WK† WO WX WY†

WALES: GM

IRELAND: (RO) WI†. Ulster: no further data

Insofar as buildings in this country are concerned the larvae develop in very dry, well-seasoned wood, principally fir, Scots pine and spruce. House infestations are difficult to detect initially as the larvae reduce first the sapwood and then the heartwood to tightly-packed frass, tunnelling to and fro, leaving externally an apparently whole thin shell which will only eventually either break open under the pressure of the frass or rupture round the bolt holes of the emerging beetles. Sometimes a blistering of the

wood surfaces manifests the depredations of the larvae within. The rasping sound the larva makes as it gnaws its way inside the wood is distinctly audible and is sometimes indicative of its presence. It is only on such occasions that the enormous damage to the timbers becomes evident.

Larval development is greatly influenced by seasonal variations and the temperature inside the roof space of the buildings attacked. In consequence the duration of the instar stages varies, depending upon these and other factors, such as the dryness of the wood or the distance the larvae have travelled away from a source of warmth, such as the incorporated brickwork of chimney stacks.

Normally, the life cycle covers three to four years; in less conducive circumstances it may stretch to six years or more: there are exceptional instances recorded in which metamorphosis has lasted more than two and even three decades (Bayford, 1938; Hickin, 1987).

The larva is parasitised by these Hymenoptera:—

Caenocryptus minator Grav., *Cryptus diana*e Grav., *C. seticornis* Ratz., *Doryctes leucogaster* Nees, *Ephialtes manifestator* L., *E. tuberculatus* Fourc. and by *Rhoptrocentrus* species.

Abroad, it is attacked by the predatory beetle, *Opilo domesticus* L., whose introduction to this country might perhaps be one of several advocated methods to control *Hylotrupes*.

Pupation usually takes place in May, but is variable, being sometimes delayed until the autumn or even the winter months; in ideal conditions the perfect insect emerges during June and July.

The imaginal state, during which no food is partaken (Klausnitzer & Sander, 1981), lasts less than a month. Pairing takes place within this period, either on the infected timbers or even in the multi-tunnelled wood itself.

In hot weather *Hylotrupes* becomes very active, indulging in vigorous short flights. It is then that the beetle, it is suggested, escapes in search of a new, suitable pabulum in a neighbouring building; this may lead to another infestation. It is possible, too, that on such occasions it will attack other acceptable pabula of a coniferous nature within its flight path. In cases where the completed life cycle has been delayed by indoor temperature changes or climatic considerations, imagines have been found until as late as September.

Besides its pernicious and insidious presence in roof spaces and attics, the beetle has been recorded from telegraph poles, fencing, posts and rails, dead tree stumps, orchard trees (Fowler, 1890), packing cases (Duffy, 1952) and orange boxes — known sources of importation into Britain, floorboards, shelving, worked furniture and fittings. There are also records of both larvae and adults biting through lead pipes, cables and metal sheeting protecting wooden frames (Westwood, 1839; Dallas, 1859, Laing, 1919, 1920; Duffy, 1953).

Excellent colour photographs by Dr S. Cymorek showing the life history of *H. bajulus* from egg to fully developed beetles *in copula* are included in Dr Hickin's 1987 booklet and the Ministry of Technology pamphlet (1969) contains various photographs of the extensive damage inflicted on house timbers by this most serious pest.

Aromia moschata L.

Generally widespread throughout the British Islands but declining in numbers, except possibly in certain counties. This may be due to scrub clearance and river bank maintenance.

ENGLAND: *BD BK BX CB CH CU DM DT DY EC EK EN ES EX EY GE (GW) HF HT HU IW L LN LR LS MM MX MY NH NM NS NW NY OX SD SE SH SL SN SR ST SY WC WK WL WO WS WW WX WY*

WALES: *CR DB GMMN*

SCOTLAND: *AS DF HD I KF LA† PN*

IRELAND: *DO NG NK SK WC*

Of the many colour variations which have been described only the under-mentioned have been published in this country:—

v. cuprata Reitt. ENGLAND: *HT*

v. nigrocyanea Reitt. ENGLAND: *SH*

*v. versicolore*a Donis. ENGLAND: *IW*

The Musk Beetle, one of our biggest Cerambycids, usually of an iridescent brassy green coloration, is depicted in every popular work on insects in general. It is not regarded as an economic pest in this country despite the extensive damage it does to a variety of commercially unviable trees; these fortunately do not include the "cricket bat" willow. Nevertheless, *Aromia* can ruin young trees and plantations growing in wetlands and water meadows: it is by no means confined to older dead timber, preferring, as it does, young healthy growths rather than established trees.

The larva, which will eventually riddle its host plants, has been found in alder, Bedford willow, birch, crack willow, great maple, grey sallow (greatly favoured), lime, Lombardy poplar, osier willow, pussy willow and white willow.

Hymenopterous parasites which attack *A. moschata* include *Deuteroxorides albitarsus* Grav., *Ephialtes tuberculatus* Fourc., *E. messor* Grav., *Ischnocerus filicornis* Krb., *I. rusticus* Grav., *Perithous divinator* Rossi, *P. mediator* Grav., *Pyracmon austriacus* Tschek, *Xorides praecatorius* F., and possibly *Pimpla lignicola* Ratz. The Green Woodpecker is also a known predator.

Metamorphosis takes several years to complete — from three to four years or even longer — being perhaps prolonged by the flooding during the winter months of marshy land supporting sallows and willows; the larvae are able to endure and surmount an underwater existence lasting many weeks (Duffy, 1953).

Pupation occurs in spring and early summer, the adults emerging from May until September, the main eclosion taking place from June to August. In hot sunny weather the imagines become very active, taking to flight, though never to any great height, and will settle on tree trunks to sun themselves. They also enjoy the nectar of *Angelica*, chervil, cow parsley, ragweed, Shasta daisy and *Spiraea*. The beetle is sometimes attracted to entomologists' "sugar".

As its name suggests, *Aromia* emits a strong scent, reminiscent of attar of roses, and it stridulates when provoked or picked up.

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