

Hylotrupes (Col., Cerambycidae) in dead trees on Fårön, a Swedish island.

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The Cerambycid pest of structural timber, the House Longhorn Beetle or Housebock, also called Old Houseborer, European Houseborer or Italian Beetle, *Hylotrupes bajulus* L. is distributed widely over the world though it is confined to the warmer temperate and the subtropical zones; for quotations see e. g. Dürr, 1954.

In the northern Europe Lekander 1955 describes the occurrence of *Hylotrupes* in Sweden as concentrated in a belt along the east coast, to about Uppsala in the north and around the south coast to the southernmost part of Halland on the west coast. In Finland Holm and Ekbohm 1958 found *Hylotrupes* to occur only in some islands of the Åland archipelago, where it was very abundant, but to be absent from continental Finland. In Norway Knudsen 1966 describes the distribution as limited to a number of relatively small areas, namely along the east coast of the Oslo fjord and around the middle parts of some of the bigger fjords on the southern west coast. The distribution in Denmark has not been published, but a great number of records in the Government Pest Infestation Laboratory show that *Hylotrupes* is most frequent in the south-eastern part of the country and that the frequency decreases towards the west, so *Hylotrupes* scarcely occurs in a great part of southern West Jutland. In the British Isles *Hylotrupes* is limited to a number of isolated attacks in widely separated areas of England and Wales and an area in Surrey with a denser infestation (White 1959).

All these records are based on its occurrence as a pest in structural timber, and though it is often found in unheated premises and even in timbers out-of-doors, the occurrence in natural dead trees is very scarce and most probably never original. This rather

paradoxical state of affairs might be due to the fact that the original habitat has vanished with the mediterranean primeval forests which were destroyed by felling and sheep-grazing in ancient times. Only the simultaneous presence of a replacing biotope, timbers in houses, saved the species from extinction. The new biotope suited *Hylotrupes bajulus* so excellently that it has spread with applied wood to live in houses in a great part of the world.

In Northern Europe the occurrence of *Hylotrupes* in dead trees is known only in the two small Swedish islands in the Baltic, Fårön immediately north of Gotland, and Gotska Sandön a little further north.

Fårön takes its name from the traditional breeding of sheep, which go in the the open even during the winter. The intense sheep grazing marks the landscape e. g. by the dominance of the poisonous plant *Cynanchum vincetoxicum* L. which is not eaten by the sheep. On Fårön a favorite habitat to *Hylotrupes* is the widespread paling fences, but it is very common in all structural and other converted pine wood just as it is in Gotland and the nearby part of continental Sweden due to the typical warm dry summer climate which is very favourable to this insect. In Fårön an extreme example of this type of climate is combined with a very hard chalky soil, and this combination gives strange conditions for the growth of the pine trees (*Pinus sylvestris*) because their roots must lie very superficially, often even in the open, so they are not in constant contact with the subsoil water. For that reason local populations of pine trees are frequently killed by occasional drought or turned over by strong winds. Hence there is constantly a high density of those insect species which deal with newly killed pine trees, and having built up in an area with dead trees they might attack and kill remaining living trees. This fauna includes such species as the bark beetle *Blastophagus minor* Hartig, which introduces blue-staining fungi and soon loosens the bark. Subsequently the trees dry out quickly, and cracks appear, forming the oviposition sites for *Hylotrupes* which is unable to lay eggs in trees with bark. Not having the roots in contact with the subsoil water the tree might remain standing debarked and dry for several years allowing *Hylotrupes* to complete more of its life cycles before the tree turns over, eventually as the result of the tunnelling of the Cerambycid *Criocephalus rusticus* L. in the lower part of the stem. The lying trees are soaked with water through

the cracks and during the snow melting period, so they soon become wet and cool and are unfavourable to *Hylotrupes*. In such lying decayed trees we found the larvae of the big Cerambycid *Ergates faber* L.

In some of the dead standing trees we found a few *Hylotrupes* beetles sitting in the cracks and a large number of larvae of *Hylotrupes* distributed in the sap wood. They were not concentrated in the outer layer near the cambium as is usually the case when they live in houses, and we found a number of big dead larvae near the surface. This is in accord with Dominik's findings (1966) that *Hylotrupes* larvae cannot survive the very fluctuating temperatures near the surface of the wood in the open during winter-time, because they will not be able to remain in the quiescent state which is necessary for their ability to overwinter. We found *Hylotrupes* also in a dead limb on a living tree.

In the trees where we found the *Hylotrupes* larvae there were also extinct attacks of *Blastophagus minor* and the wood was always more or less blue-stained. In the upper parts of the trees there were usually flight holes of wood wasps, *Sirex* sp., and deserted pupal chambers of the weevil *Hylobius abietis* L, and the Cerambycid *Acanthocinus cædilis* L.

Living together with the *Hylotrupes* larvae in the wood we found larvae of *Leptura sanguinolenta* L. (Cerambycidae) and small black weevils of the species *Eremotes ater* L. In four instances we found an eaten larva or pupa in its chamber together with 3—4 larvae or beetles of *Bothrioderes contractus* Fab, which was thus found to prey upon *Hylotrupes bajulus*. Two deserted *Hylotrupes* pupal chambers were filled with about 50 black aphides, and in one of them was a long slender insect egg and in the other one a dead digger wasp, *Pemphredon lugens* Dahlb. which is known to prey on aphides and to make nests in holes in wood.

Although *Hylotrupes* was found in dead trees more than 1 km from houses to my opinion the occurrence on Fårön does not seem to be natural in the sense that they live without human support. Everywhere on the island they occur mainly in structural timber and even in the forest they seem to spread from the wooden fences, which are seen everywhere. However, this question will be further studied by the Nordic-English *Hylotrupes* group who arranged also this excursion.

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Summary.

In northern Europe the wide-spread pest of structural timbers, *Hylotrupes bajulus*, is patchy distributed and in naturally occurring dead trees it is only found in two Swedish islands in the Baltic, Gotska Sandön and Fårön. In Fårön they were found in a dead limb on a living tree and in characteristic long-standing dry trees together with some other insect species, of which *Bothrideres contractus* (Col.) preyed upon *Hylotrupes*. It is provisionally concluded that on Fårön *Hylotrupes* exists only in the nature because it is supported by the heavy infestation in structural timbers, e.g. wooden fences.

Literature.

- D o m i n i k, J a n. 1964: Some Investigations into Causes of the Two Feeding Forms of *Hylotrupes bajulus* L. (Col. Cerambycidae) (Pol.). — Sylwan CVIII, p. 47.
- H o l m, C l a e s and E k b o m, P e h r, 1958: The Significance of the House Longhorn Beetle as a Destroyer of Buildings and its Control. — The State Institute for Technical Res. Tiedotus, Sarja III, Rakennus 22.
- L e k a n d e r, B e r t i l, 1955: In »Bekämpning av Husbocken och andra virkesförstörande insekter«. — Kungl. Byggnadsstyrelsens Publikationer 1955: 1. Stockholm.
- K n u d s e n, P e r, 1966: The Limited Distribution of *Hylotrupes bajulus* L. in Norway in Relation to Climatic Differences. — Material u. Organismen, Beiheft 1, p. 353—359.
- D ü r r, H. J. R., 1954: The European House Borer *Hylotrupes bajulus* (L.) (Col. Cer.) and its Control in the Western Cape Province. — Dep. of Agric. Union of South Africa Bull. No. 337.
- W h i t e, M. G., 1959: The Status of the House Longhorn Beetle. — Timber Technology, 67, p. 406—11.
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