

LEAFHOPPERS OF THE LINNAEAN LANDSCAPE UPPLAND

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Abstract. Carolus Linnaeus (1707–1778) described a small number of leafhoppers in his most important work, *Systema Naturae* (1758). A brief presentation of these will be given, with a reference to the leafhopper fauna of today, with an attempt to relate Linnaeus' findings to the currently known species in the Swedish leafhopper fauna, which comprises approximately 400 species. Changed agrarian methods which aim to monocultures free from all types of weeds, as well as shorter rotation periods in forestry, are presumably the most important reasons for the changes in fauna over the last 250 years. That sensitive species become extinct has to some extent been countered by more recent imports of species, a result of the increased mobility among countries.

Key words: Linnaeus, Homoptera Auchenorrhyncha, Uppland

Discussion

Carolus Linnaeus lived and worked in the Swedish province of Uppland from 1728 to 1778. While much of his energy was devoted to the study of plants, his interest in botany also included all living organisms and the connections between them (Linnaeus & Biberg, 1749).

The *Cicada* fauna of the area was poorly studied, and only seven species were described as typical for Uppland (Linnaeus, 1761). Linnaeus described 42 species of *Cicada* in his work *Systema Naturae* (Linnaeus, 1758). Why only 42 out of more than global 35 000? Naturally because these were the only species known at this time.

Out of these 42, 20 species originated from places outside Europe. The remaining 22 were either larger species with an unusual appearance with processes as in *Centrotus* and *Ledra*, or with odd larval behavior as in cercopids, or with beautiful colors as in *Cicadella*. Linnaeus divided the genus *Cicada* into six groups, of which four include species found in Sweden.

Through an examination of the *Cicada* species listed in *Systema Naturae* we will get an idea of the criteria which were the basis of the lists of the hoppers known at that time, i.e. planthoppers, treehoppers and leafhoppers. Linnaei pupils sent collections from their journeys abroad home to Sweden. Exotic species which Carolus Linnaeus described have been the objects of detailed studies through the years.

Approximately the same number of hopper species ought to have been present at the time of Carolus Linnaeus as we have today, i.e. 263 Uppland species (Ossiannilsson, 1983). A few are extinct through changes in the environment, and others have been introduced to the fauna in various ways.

Changed agrarian methods which aim for monocultures free from all types of weeds, as well as shorter rotation periods in forestry are presumably the most important reasons for changes in the fauna, together with an increase in the transport of people and goods.

In addition to the seven species (see p.29 Fig. 1) which Linnaeus refers to as existing in the vicinity of Uppsala, e.g. *Ulmi* and *Rosae* may certainly also have been observed by Linnaeus in the province of Uppland. No doubt the varieties of *spumaria* ought also to have been common and observed.

The knowledge about nature *per se* was much greater among the general public as well as among the scientists in Linnaei time than in our days. People existed near nature, survived on it and took a great interest in it. Today, it is usual that leading persons consider that you reduce the environment by looking at beetles and rare plants. Such people will not hesitate to destroy species, rendering them extinct, from the ignorance of the biological connotations.

Through examining the Linnaean time we will better understand why we must use technical development as a tool and not as a goal *per se*. Biology with its many disciplines needs more resources in order for us to be able to understand nature and to predict the effects of the possible use of the global richness of biodiversity.

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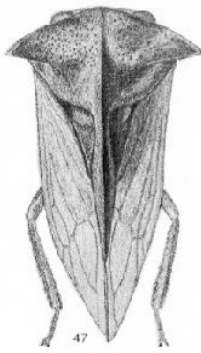
Linėjaus laikų cikados Uplandijos gamtovaizdyje

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Santrauka

Karlas Linėjus (1707–1778) savo svarbiausiame veikle *Systema Naturae* (1758) aprašė nedidelį skaičių cikadų rūšių. Šiame straipsnyje pateikiama trumpa jų apžvalga, lyginama su dabartine Švedijos fauna, kurią sudaro apie 400 rūšių. Pokyčius per 250 metų galėjo įtakoti pasikeitęs žemdirbystės pobūdis (monokultūrų išsigalėjimas, trumpesnis miškų rotacijos periodas), adventyvinių rūšių išsigalėjimas.

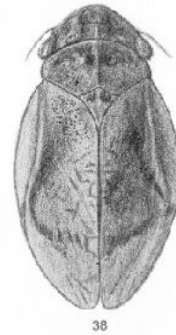
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Cicada cornuta
(*Centrotus cornutus*)
Habitat in *Carduis*. Upsaliae.



Cicada bifasciata
(*Planaphrodes bifasciata*)
Habitat in pratis rarius;
ad Lapices *Morenses* Upsaliae



Cicada coleoprata
(*Lepyronia coleoprata*)
Habitat ad *Gottsumdam*



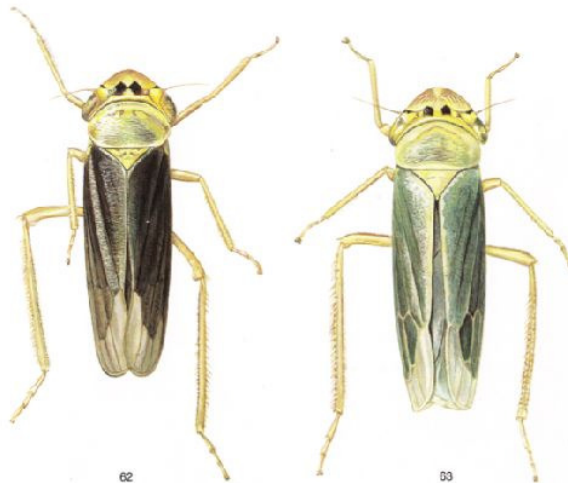
Cicada albifrons
(*Anoscopus albifrons*)
Habitat Upsaliae



Cicada vittata
(*Eupteryx vittata*)
Habitat in Praedio
Cronstediano Fulleróu



Cicada leporina
(*Pentastiridius leporinus*)
Habitat Upsaliae



Cicada viridis (*Cicadella viridis*)
Habitat sub Augusti finem in pratis paucosis Uplanciae

Fig. 1. Species of leafhoppers, mentioned by Linnaeus as existing in the vicinity of Uppsala and other provinces