

SPIXIANA	Supplement 7	39–42	München 1. Mai 1982	ISSN 0343-5512
----------	--------------	-------	---------------------	----------------

Status of Palaearctic Alticinae Larvae Research

(Coleoptera: Chrysomelidae)

By W. R. Steinhausen

Introduction

The aim of studying Alticinae larvae (among others) is first to give some help in determining larvae found in the field and as pests of economic plants. It often occurs, that related species to known pests attack cultivated plants, but this never may reach such a high level of damage, that a campaign against them may be justified. The so-called false cabbage flea beetle, *Altica oleracea*, can be found in gardening and field crops, and the larvae, feeding on weeds may give concern to the owner. But being able to determinate the larvae, one can easily state, that there is no danger to the crop. *Phyllotreta* larvae are nearly all habitants of cruciferous plants, but only few of them are true pests, and the found determined larvae, mostly on the roots, may help to decide, wether it is worthwhile, to start pest control.

Another, very important point of larvae knowledge is the aid in understanding the relationship between genera and also within the genera. But it is evident, that all branches of beetle research, such as biology, ecology, taxonomy and even anatomy, physiology and histology should attribute to the true systematic, which will be illustrated by the erection of groups, and named such as subfamilies, tribus, genera and subgenera.

History

Palaearctic Alticinae larvae were first included in determining keys by HENRIKSEN (1927) with 31 species and 10 genera. Only in *Phyllotreta*, *Longitarsus* and *Psylliodes*, more than 2 species were involved. But only in 1971, a new key was given by OGLOBLIN and MEDVEDEV, including 41 species and 15 genera; this key was mainly used too in the recent table of Chrysomelidae larvae, published by MEDVEDEV and ZAITZEV (1978).

Methods

There are 2 ways of collecting Alticinae larvae. Field sampling is suitable with larvae, which live on the plants, e. g. feading on the leaves (*Altica*) or mining inside the leaves (*Mantura*, *Dibolia*, *Mniophila*, some *Phyllotreta*) or inside the stems (*Psylliodes*, *Asiolestia* (= *Crepidodera* Steph.)). But most of Alticinae larvae are root feeders and collecting them is time consuming, due to the wanted and necessary knowledge of botanical, faunistic, phaenological and climatic conditions. Therefore it

seems to be more promising to breed them under natural conditions. From my experience of collecting larvae in the field, it appears that they are living more frequently on fleshy and therefore mostly on older roots of plant stocks (e. g. *Euphorbia*, *Symphytum*). So it seems to be more suitable to use such plant stocks for breeding purposes.

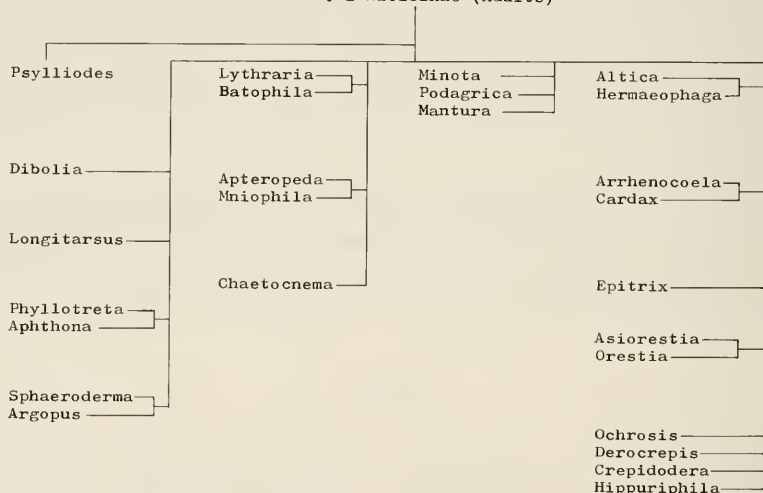
The collected larvae may be killed by a mixture (VAN EMDEN, 1942), which consists of 6 parts of formaldehyde (35%), 15 parts of ethylalcohol (95%), 2 parts of glacial acetic acid and 30 parts of distilled water. After 24 hours, the larvae are transferred to 70% alcohol.

For viewing the larvae under a binocular microscope it has proved very appropriate, to use rectangular vials, such as used for spectroscopic purposes. They are filled up with alcohol (70%) and closed, so the animal material do not dry and shrink.

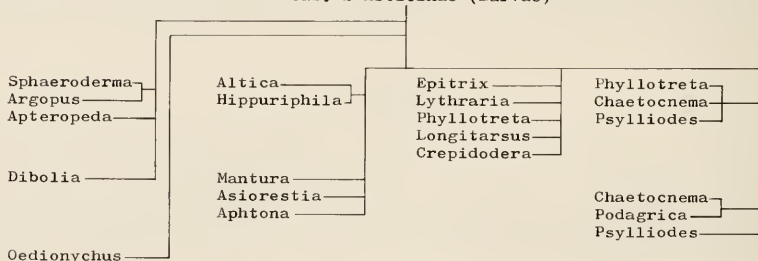
Discussion

For comparing the systematics of adults and larvae the 2 tables of MOHR (1966) (table 1) and OGLOBIN et al. (1971, completed by MEDVEDEV 1978) (table 2) are considered. First of all it has to be noted, that there are no distinct taxa, which can separate the Alticinae from

tab. 1 Alticinae (Adults)



tab. 2 Alticinae (Larvae)



the Galerucinae. It seems, that most Alticinae larvae are lacking the ocelli on the head, but some genera of the Galerucinae have no ocelli either (e. g. *Sermylassa*, *Phyllobrotica*, *Diabrotica*), while there are genera of the Alticinae too with ocelli (e. g. *Dibolia*, *Mantura*, *Podagric*).

From the tables above, relationship schemes are made by grouping the apparently related genera together. By this way, we can differentiate groups, which one may consider as tribus, if a systematical relationship could be established. But even HEIKERTINGER (1940), one of the best-informed Alticinae workers avoided such terms because of the missing characters which should give evidence to such a work.

There are essential differences in these 2 schemes in the position of several genera, which can be noticed very distinctly. The characters of adult discrimination are wellknown and do not need to be repeated. The main larval characters forming the groups, are as follows:

- 1 Epicranial suture of the head absent: *Argopus* Fisch., *Sphaeroderma* Steph., *Dibolia* Latr. – Group 1. Here also *Apteropeda* Steph.
- Epicranial suture of the head very short: *Oedionychus* Er. – Group 2
- Epicranial suture of the head well developed 2
- 2 Abdominal tergits with 2 rows of sclerits: *Altica* F., *Hippuriphila* Fdr., *Asiolestia* Jac., (= *Crepidodera* Steph.), *Aphthona* Chev., *Mantura* Steph. – Group 3
- Abdominal tergits with 3 rows of sclerits 3
- 3 On the meso- and metanotum the premarginal sclerits absent, or if present then with setae: *Epithrix* Fdr., *Longitarsus* Latr., *Lythraria* Bed., *Phyllotreta* Fdr. (partim), *Crepidodera* Chev. (= *Chalcoides* Fdr.) – Group 4
- On the meso- and metanotum marginal sclerits are present, with setae 4
- 4 Apical edge of 9th abdominal segment with one or 2 spines: *Phyllotreta* Fdr. (partim), *Chaetocnema* Steph. (partim), *Psylliodes* Latr. (partim) – Group 5
- Apical edge of 9th abdominal segment without spines: *Chaetocnema* Steph. (partim), *Podagric* Fdr., *Psylliodes* Latr. (partim) – Group 6

From this short key it can be seen, that 3 genera (*Chaetocnema*, *Phyllotreta* and *Psylliodes*) appear twice in different groups and therefore this cannot be used for systematic considerations. On the other hand, the first group, formed by the genera *Argopus*, *Dibolia*, *Sphaeroderma* seems to be very interesting. Some astonishing features are the separating of *Phyllotreta* from *Aphthona* and the group 3, which puts *Altica* together with *Mantura*, *Asiolestia* and *Aphthona*. Because of the very little knowledge of Alticinae larvae, it is not yet feasible to criticize the one or the other scheme of grouping, moreover this should rather emphasize the Alticinae workers in larvae research, and the author expresses the wish to be provided with all larvae collected everywhere.

Literature

- EMDEN, F. I. van 1942: The collection and study of beetle larvae. – Ent. Month. Magaz. LXXVIII, 73–79
- HEIKERTINGER, F. and E. CSIKI 1940: Chrysomelidae: Halticinae I and II. – In JUNK-SCHENKLING: Coleopterorum Catalogus. – Pars 166 and 169, s'Gravenhage
- HENRIKSEN, K. 1927: Bladbiller. Laverne. – In HANSEN, V.: Danmarks Fauna. – Vol. VII, København
- MEDVEDEV, L. N. und Y. M. ZAITZEV 1978: [Blattkäfer-Larven aus Sibirien und dem Fernen Osten]. – Moskau
- MOHR, K.-H. 1966: 88. Familie: Chrysomelidae. – In FREUDE, HARDE, LOHSE: Die Käfer Mitteleuropas. – Bd. 9, Krefeld
- OGLOBLIN, D. A. and L. N. MEDVEDEV 1971: [The larvae of the leaf beetles (Coleoptera, Chrysomelidae) of the European part of the USSR]. Leningrad

Address of the author:

Dr. Walter Steinhausen, Bachstraße 11,

D-8121 Etting/Post Eberfing, Federal Republic of Germany

Angenommen am 1. 10. 1981

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Spixiana, Zeitschrift für Zoologie, Supplement](#)

Jahr/Year: 1982

Band/Volume: [007](#)

Autor(en)/Author(s): Steinhausen W.R.

Artikel/Article: [Status of Alticinae Larvae Research \(Coleoptera: Chrysomelidae\) 39-42](#)