

THE LEAFHOPPER-GENUS *EUSCELIS* BRULLÉ (Homoptera Auchenorrhyncha Cicadellidae) IN THE SOUTHWESTERN PALAEARCTIS: descriptions of new and remarks on already described taxa.

1. *Euscelis marocisus* nov.spec.

with

3 Figures

by

REINHARD REMANE

Key-words: Speciation, Zoogeography, seasonal modificability, Taxonomy, Evolution, Morocco.

Abstract: A new "morphospecies", *Euscelis marocisus* n.sp. is described from northwestern Morocco - it is clearly distinct from *E.alsius* RIB. (occurring syntopically) and assumed to be the sister-taxon of the eurosiberian, allopatrically distributed *E.incisus* KBM.. Speciation probably has taken place by geographical separation.

The species discrimination of the taxa united to form the genus *Euscelis* BRULLÉ s.str.¹ has proven to be rather difficult due to the notorious modificability of structures (not only size, colouration and extent of markings, but also of the male genitalia) in some of the species (e.g. MÜLLER 1954, 1957, STRÜBING 1970, 1976, 1977, 1980, 1983, REMANE 1967) which in other groups are rather constant and more or less species-specific. As a consequence of this modificability (a review of it is given by MÜLLER, 1979) the number of previously assumed "morphospecies" was drastically reduced (MÜLLER, 1958). Due to breeding experiments subsequently performed by MÜLLER (e.g. 1957, 1961) and especially STRÜBING (e.g. 1965, 1966, 1970, 1980, 1981, 1983) our knowledge about the number of biospecies and the morphological characters apt to distinguish these biospecies from each other increased considerably. By this it became possible to separate and describe additional species (REMANE 1967, 1968, STRÜBING 1980), most of them from the southwestern part of the Palaearctis (Iberian Peninsula, Madeira).

Recent field research in the Southwestern Palaearctis has shown the number of *Euscelis*-species existing in this region to be even

¹HAMILTON (1983) included again into *Euscelis* RIB. the genera *Streptanus* RIB., *Euscelidius* RIB. and *Macustus* RIB. established by RIBAUT (1942) when splitting the polyphyletic "old" genus *Euscelis* diagnostically into probably monophyletic groups. HAMILTON's opinion apparently is not based on a phylogenetic (cladistic) analysis of the taxa proving these and only these genera to be a monophylum in regard to all other taxa - the only scientific base for discussing the usefulness of uniting or keeping apart supraspecific taxa. Until this has been done, this "lumping" should be considered being premature, it is not followed here.

more numerous: without any doubt the center of species density of this taxon is situated here.

This paper deals with a moroccan taxon:

1. *Euscelis marocisus* nov.spec.

During field work in Morocco in September 1976 a population of an *Euscelis*-species was found in the Moyen Atlas near Ifrane (altitude 1500 m) which externally looked different from all other *Euscelis*-species known to the author. The shape of the aedeagus resembled that of *E.alsius* RIB., but did not fit directly into the line of environmentally induced variability of this species. Variations of the aedeagal shape between members of this population seemed to indicate the presence of another taxon with "seasonal" variation in these characters - the description was therefore postponed in order to obtain additional material and information.

An attempt to collect this taxon again at this locality in summer 1980 and in spring 1981 failed. Instead of that in May 1981 a rich population was found on the Oulmès-Harcha-plateau at 1100 m altitude and some additional specimens in the region of Larache. As in the Ifrane population it seemed uncertain, whether the specimens of these populations had already attained the possible maximum development of their genital structures, but they were certainly different from *E.alsius* RIB., which occurred syntopically. A number of specimens was transferred alive to Prof.Strübing - the breeding experiments performed by her confirmed the suspicion of seasonal modificability of this taxon (STRÜBING 1983). According to these experiments the structure of the aedeagus even of long-day-specimens is somewhat intermediate between that of *E.alsius* RIB. and *E.incisus* (KBM.) and by this is not clearly distinguishable from that of slightly "short day modified" *E.incisus* (KBM.), also the mating calls proved to be very similar to those of *E.alsius* RIB. and especially *E.incisus* (KBM.) but slightly shorter than those of the latter (STRÜBING

l.c.): the moroccan taxon very probably could be the sister-taxon of *E.incisus*, it might have originated during the climatic changes which happened during the ice age by separation from the ancestor species more widely distributed at that time. Nowadays both taxa are allopatrically distributed and well separated geographically: *E.incisus* (KBM.) has not yet been found south of the Central mountains ranges of the Iberian Peninsula.² The question whether the moroccan taxon has to be regarded as a species of its own or just as a geographical subspecies of *E.incisus* (KBM.) is difficult to decide (as generally in the case of nearly related, but allopatrically distributed taxa), but the constant differences in colour and markings and the slight differences in the calls of the ♂ and the structure of the ♂ and ♀ genitalia (see below) favour the decision to handle it as a species of its own.

Description:

General appearance: seasonally variable species, shape in general rather stout, straw-coloured, many specimens with a distinct yellowish-green tinge (so far not observed in any other *Euscelis*-species), no whitish markings present (not even on the cross-veins of the fore wings), dark markings in lightly coloured specimens (females) wanting, in others present on the fore wings (starting in the apical cells) as a dark irroration accompanying (and finally covering) the veins, on head, pronotum and scutellum similar to *E.incisus* (KBM.) and *E.alsius* RIB. in pattern and variation.

²RIBAUT. 1952. mentions "Afrique du Nord" for *E.incisus* (KBM.). the specimens. If traced and examined, very probably will show to belong to another species.

Size and proportions:

Somewhat more stout and broad than *E.incisus* KBM. and *E.alsius* RIB., but ranges of variation probably overlapping. No distinct wing dimorphism so far observed, fore wings reaching tip of abdomen in males, leaving uncovered the last abdominal segment in females. Hind wings extending to apex of fore wings. Vertex, seen from above, rather short and anteriorly rounded. - Length of body: in "long-day-specimens": ♂♂ up to 4 mm (till apex of tegmina), ♀♀ up to 5 mm (till tip of abdomen), "short-day-specimens" smaller.

Male genitalia:

Genital segment with anal tube, subgenital plates and styli as in *E.incisus* (KBM.) and *E.alsius* RIB., pygopher lobes slightly longer and more acute at their caudal end. Aedeagus (see fig. 1a, b and STRÜBING, 1983) in fully developed specimens ("long-day-morphs") similar to that of *E.incisus* (KBM.), but lateroapical appendages slightly shorter (also in relation to the median incision and the length of the shaft) and by this resembling *E.alsius* RIB., in specimens grown up under suboptimal conditions ("short day morphs") as in *E.alsius* RIB., *E.incisus* (KBM.) and others small, simple, without distinct median incision and lateroapical appendages. Structures of the dorsal margin of the pygofer-lobes ("Dorsalrand-Strukturen" REMANE, 1967) similar to those of *E.alsius* RIB. and other species (see fig. 2a, b), but "dorsal plate" ("Dorsalplatte" REMANE, l.c.) very small: much smaller than in *E.incisus* (KBM.) or *E.alsius* RIB. with comparably developed aedeagi.

Female genitalia:

Very similar to those of *E.incisus* (KBM.) and *E.alsius* RIB., the chitinized plate situated between right and left Valvifer VIII and dorsal of the female genital opening ("Intervalvenstück" of KUNZE, 1959) dorsally broader than ventrally at the genital opening (see fig. 3), by this more resembling *E.alsius* RIB. and

some other species than *E.incisus* (KBM.), the latter having a rather parallel-sided plate.

Colouration and markings:

Basic colour yellowish-grey to greenish-grey, cells of tegmina slightly transparent, veins not. Dark markings in many "long day specimens" completely absent on head, pronotum, scutellum and tegmina, in others present in varying extent: starting on the tegmina with dark irroration in the apical and the distal part of the anteapical cells and the tip of the clavus, spreading along the margins of the veins, in some "short day specimens" covering most of the tegmina and their veins except for the inner part of the cells, tegmina by this looking striped. Dark markings on head, pronotum, scutellum, body and legs like in *E.incisus* (KBM.), *E.distinguendus* (KBM.) and some other species in pattern, proportions and range of variation.

Distribution:

So far found in the Northwestern parts of Morocco only: Northwestern Moyen Atlas (Ifrane), Plateau of Oulmès-Harcha, and surroundings of Larache, but maybe more widely distributed in Northwestern Africa. Found from rather low elevation (less than 200 m) near Larache up to 1500 m in the Moyen Atlas.

Biology:

At the moroccan localities *E.marocisus* n.sp. was found in open grassy sites more or less regularly grazed by cattle. At Tarmilate (Oulmès-Harcha-plateau) nymphs and adults were found in the tufts of a *Holcus* species, apparently feeding on that Gramineae. Under natural conditions *E.marocisus* n.sp. seems to have at least one generation in spring (May and June) and - maybe locally only - another one in autumn (Moyen Atlas: Ifrane, but this might have been a non-persistent colonisation only). At least at the sites at Tarmilate and around Larache the situation during the summer very probably might become unfavourable for

breeding another generation due to the drought finishing the growth of the Gramineae.

Types:

Holotype ♂ Morocco, Oulmès-Harcha-plateau, Tarmilate, 1100 m, F2 bred by STRÜBING in Berlin under long day conditions (27.2.1982), many paratypes from this locality (30.5.1981: 31♂♂, 10♀♀, 6♂♂ 12♀♀ F2), from Moyen Atlas: Ifrane, 1500 m, 5.9.1976 (10♂ 9♀) from Aounate (s. of Larache) 30.5.1981 1♂ 1♀, and from 15 km NE of Larache, 31.5.1981, 1♂, all collected by the author and kept in his collection.

Systematic position:

As already pointed out, *E.marocisus* n.sp. phenetically belongs to a group of taxa including *E.alsius* RIB. and *E.incisus* (KBM) - as *E.alsius* RIB. occurs syntopically (and synchronous) in some places, these two are certainly true "biospecies". To *E.incisus* (KBM) it is allopatrically distributed, thus the "natural test" of being separate genpools or not does not exist - but the differences in colouration, markings and details of the structure of male as well as female genitalia indicating the interruption of gene-flow and different subsequent pathways of evolutionary change seem to warrant the status of a "morpho-species" of its own.

To this phenetic group possibly belong also *E.tuvenis* VILBASTE, 1980 from Tuva, and *E.taigacolus* DLABOLA, 1971 from Mongolia. *E.tuvenis* VILB. seems to differ (according to the published figures) in the shape of the aedeagus and of the dorsal margin of the pygofer-lobes (the latter resembling those of *E.alsioides* REM.), for *E.taigacolus* DL. the rather poor description and figures do not permit a clear assessment, but at least the dark markings of the vertex (submedian dark spot each connected laterally with the margin in front of the eyes) are clearly different from those of *E.marocisus* n.sp., (submedian spot even

in dark-marked specimens isolated), and the structures of the dorsal margin of the pygofer-lobes (if we assume DLABOLA's figure to be correct) seem to be rather different too, at least bigger than in *E.marocisus* n.sp.).

References:

- DLABOLA, J., 1971: Taxonomische und chorologische Ergänzungen zur türkischen und iranischen Zikadenfauna (Homoptera Auchenorrhyncha). - Acta faun.ent.Mus.Nat.Pragae 14: 115-138.
- HAMILTON, K.G.A., 1983: Introduced and native leafhoppers common to the Old and New Worlds (Rhynchotha: Homoptera: Cicadellidae). - Can.Ent. 115: 473-511.
- KUNZE, L., 1959: Die funktionsanatomischen Grundlagen der Kopulation der Zwergzikaden, untersucht an *Euscelis plebejus* (Fall.) und einigen Typhlocybinen (Homoptera Auchenorrhyncha). - Deutsche Entomologische Zeitschrift, N.F. 6(4): 322-387.
- MÜLLER, H.J., 1954: Der Saisondimorphismus bei Zikaden der Gattung *Euscelis* BRULLÉ. - Beitr.Ent. 4(1): 1-56.
- MÜLLER, H.J., 1957: Die Wirkung exogener Faktoren auf die zyklische Formenbildung der Insekten, insbesondere der Gattung *Euscelis* (Homoptera Auchenorrhyncha). - Zool.Jb.Syst. 85: 317-430.
- MÜLLER, H.J., 1958: The taxonomic value of the male genitalia in leafhoppers in the light of new studies on the seasonal forms of *Euscelis*. - Proc. 10th Int.Congr.Entomology 1956, 1: 357-362.
- MÜLLER, H.J., 1961: Erster Nachweis einer Eidiapause bei den Jassiden *Euscelis plebejus* Fall. und *lineolatus* BRULLÉ (Homoptera Auchenorrhyncha). - Z.ang.Entomologie 48: 233-241.
- MÜLLER, H.J., 1979: Effects of photoperiod and temperature on

- leafhopper vectors. - Leafhopper vectors and Plant disease 2: 29-93.
- REMANE, R., 1967: Zur Kenntnis der Gattung *Euscelis* BRULLÉ (Homoptera, Cicadina, Jassidae). - Entomologische Abhandlungen 36(1):1-35.
- REMANE, R., 1968: Ergänzungen und kritische Anmerkungen zu der Heteropteren- und Cicadinen-Fauna der Makaronesischen Inseln. - Bocagiana 16: 1-14.
- RIBAUT, H., 1942: Démembrement des genres *Athysanus* Burm. et *Thamnotettix* Zett. - Bull.Soc.Hist.nat. Toulouse 77: 259-270.
- RIBAUT, H., 1952: Homoptères Auchénorhynques II: Jassidae in: Faune de France, Paris 57.
- STRÜBING, H., 1965: Das Lautverhalten von *Euscelis plebejus* Fall. und *Euscelis ohausi* Wagn. (Homoptera-Cicadina). - Zool.Beiträge (N.F.) 11: 289-341.
- STRÜBING, H., 1966: Ein Vergleich von Lautäußerungen verschiedener *Euscelis*-Arten (Homoptera-Cicadina). - Deutsche Ent.Zeitschrift, N.F. 13: 351-358.
- STRÜBING, H., 1970: Zur Artberechtigung von *Euscelis alsius* RIBAUT gegenüber *Euscelis plebejus* FALL. (Homoptera-Cicadina). Ein Beitrag zur Neuen Systematik. - Zool.Beitr., Berlin, N.F. 16:(2/3): 441-478.
- STRÜBING, H., 1976: *Euscelis ormaderensis* REMANE 1968. - Sitzungsberichte d.Ges.Naturforschender Freunde zu Berlin (N.F.) Bd. 16/2.
- STRÜBING, H., 1977: *Euscelis lineolatus* BRULLÉ 1832 und *Euscelis ononidis* REMANE 1967, ein ökologischer, morphologischer und bioakustischer Vergleich. - Zool.Beitr. Berlin, 24(1): 1-154.
- STRÜBING, H., 1980: *Euscelis remanei*, eine neue *Euscelis*-Art aus Südspanien im Vergleich zu anderen *Euscelis*-Arten (Homoptera-Cicadina). - Zool.Beitr., Berlin, N.F. 26(3): 383-404.

- STRÜBING, H., 1981: *Euscelis remanei* STRÜBING, 1980, from southern Spain compared with other *Euscelis* species. - Acta Ent.Fenn. 38: 44.
- STRÜBING, H., 1983: Eine neue *Euscelis*-Art aus Marokko und ihre verwandtschaftliche Stellung zu anderen *Euscelis*-Arten (Homoptera, Cicadina). - Verh.SIEEC X Budapest: 209-213.
- VILBASTE, J., 1980: Fauna Cikadovych tuvy. - Tallin 1980: 220 p.

Explanation of figures:

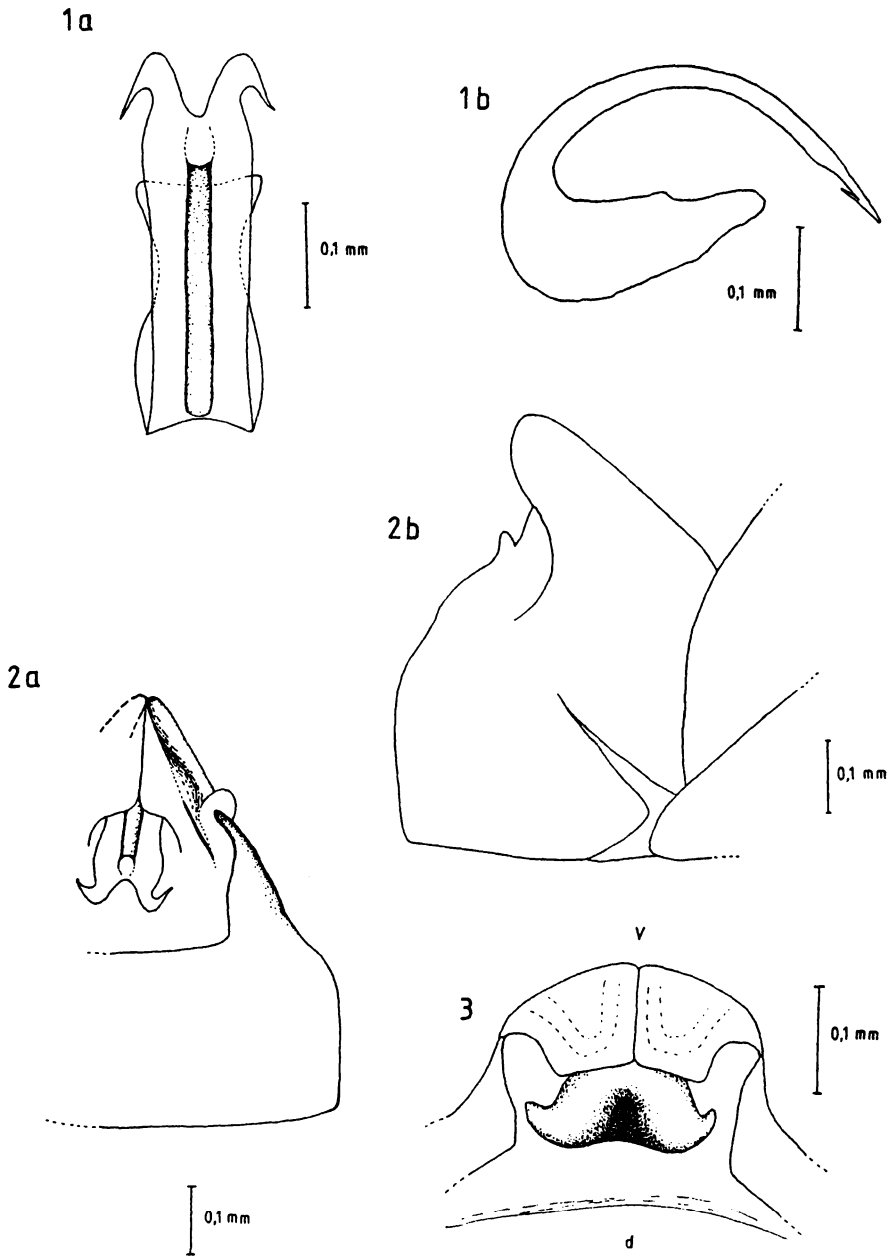
Fig. 1. *E.marocisus* n.sp., aedeagus (Paratypoid, ♂ Tarmilate)

- a) straight on tip of ventral side
- b) lateral view

Fig. 2. *E.marocisus* n.sp., genital segment (Paratypoid, ♂ Tarmilate)

- a) dorsal view
- b) lateral view

Fig. 3. *E.marocisus* n.sp., female genitalia (Paratypoid, ♀ Ifrane) view at base of ovipositor



Adress of the author:

Prof.Dr. Reinhard Remane
Fachbereich Biologie/Zoologie
der Philipps-Universität Marburg
Lahnberge
Postfach 1929

D - 3550 MARBURG/LAHN

ZOBODAT - www.zobodat.at

Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Marburger Entomologische Publikationen](#)

Jahr/Year: 1988

Band/Volume: [2_4](#)

Autor(en)/Author(s): Remane Reinhard

Artikel/Article: [The leafhopper-genus *Euscelis* Brullé \(Homoptera, Auchenorrhyncha, Cicadellidae\) in the southwestern Palaearctis: descriptions of new and remarks on already described taxa. 1. *Euscelis marocisus* nov. spec. 209-220](#)