:he clay soil. Temperature at the time of collection was 10°C. For this rea-
:s may possibly have been torpid.

overy of a member of the Haglidae in Khabarovsk Territory is further evidence
f relict forms of Orthoptera in East Asia and the northwest of North America.

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Biological and Soil Institute, Far Eastern Scientific Center,
USSR Academy of Sciences, Vladivostok

THE GENUS ACHOROTILE FIEB. (HOMOPTERA, DELPHACIDAE) AND ITS SYSTEMATICS IN THE PALEARCTIC REGION

G.A. ANUFRIYEV (ANUFRIEV) AND A.F. YEMEL'YANOV (EMELJANOV)

Members of the genus Achorotile Fieber, 1866 occur widely in the Holarctic, within the Subarctic and Boreal zones, where they are typical of grass, and moss-grass coniferous (taiga) woodlands, and also of tundra and high mountain meadows. They evidently develop on grasses. The existence of what are known as sensory pits in the imago is a distinct morphological characteristic of Achorotile species, and of species of the related genus Laccocera Van Duzee, 1897, whereas the overwhelming majority of the Delphacidae and of other Fulgoroidea have such pits only in the nymphal stage. There is no doubt as to the affinity of the genera Achorotile and Laccocera, which is confirmed, apart from the presence of pits, by similarity of the structure of the genitalia. In contrast to Achorotile species, Laccocera species have only 1 frontal carina. Laccocera is known only from the Nearctic (Scudder, 1963).

The position of Achorotile in the system of the Delphacidae has been discussed only in Wagner's revision of the European fauna of the family (Wagner, 1962). Wagner created the subfamily Achorotilinae, which he relates to the subfamily Delphacinae (Conomelus Fieber, 1866, Euides Fieber, 1866, Delphax Fabricius, 1798), for the genera Achorotile and Euconomelus Haupt., 1929. It should be noted that subdivision of the Delphacidae (exclusively the European species) into 9 subfamilies, most of which are similar and have no distinct characteristics, is dubious, both as regards the rank of the units distinguished, and also in a number of instances in relation to the affinity of forms united in a given subfamily. The subfamilies that Wagner erected from the tribe Delphacini Muir (Muir, 1930) clearly do not merit a rank above that of tribe. The separation of the subfamilies Stirominae, Achorotilinae, Delphacinae, Chlorioninae and Megamelinae is a cause of great doubt. In particular, returning to the genus Achorotile, it is doubtful whether it should be segregated from subfam. Stirominae and selectively converged with the genus Euconomelus. Wagner does not give reliable characters for such convergence.

To sum up the question of the system of subfam. Delphacinae sensu lato (= Delphacini sensu Muir), it should be stated that it remains far from a natural system, in the first instance owing to the lack of development of really reliable criteria of true affinity, rather than of formal similarity with respect to separately taken and formally interpreted characters.

The genus Achorotile currently comprises 14 species, 6 of them in the Palearctic. One species, A. subarctica Scudd., inhabits northern parts of the Nearctic and of the Palearctic as far as the Yenisei and the Sayans. The genus comprises 3 subgenera, 1 of which is Palearctic, 2 Holoarctic. The differences between the subgenera and the Palearctic species are given in the following key.

IDENTIFICATION KEY TO THE SUBGENERA AND PALEARCTIC SPECIES OF THE GENUS ACHOROTILE*

1 (6). Vertex approximately same length as width (Fig. 10). Inferior margin of pygofer beneath styles with well developed process. Coloration more or less black; vertex, pronotum and scutellum usually lightened, partly or wholly white or creamy.

*A. nobilis Dlab. not included in key.

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2 (3). Anal tube lacking sclerotized bridge below, between bases of processes. Phragma of pygofer lacking vertical keel. Inferior margin of pygofer with columnar process, apically bidentate. Styles comparatively long. (Criochora subgen. n., type species Achorotile caecianta Em.) . . . . . A. caecianta Emeljanov, 1976 (Figs. 34-41).

3 (2). Anal tube with sclerotized bridge below between bases of processes. Phragma of pygofer with vertical keel, appearing forked from above. Inferior margin of pygofer with broad, straightly truncated or tridentate dorsoventrally flattened process. Styles very long. Penis with strongly angularly broadened base and apical gonopore slightly displaced to ventral side. (Subgenus Achorotile s. str.).

4 (5). Processes of anal tube widely separated, strong, extending apically beyond lateral margins of pygofer. Process on inferior margin of pygofer squarely truncated, smooth . . . . . A. albosignata (Dahlbom, 1850) (Figs. 3-9).

5 (4). Processes of anal tube approximately parallel, shorter, apically directed toward bases of styles. Process on inferior margin of pygofer tridentate, its medial tooth finely spinose . . . . . A. subarctica Scudder, 1963 (Figs. 10-17).

6 (1). Length of vertex approximately 1.5 times its width (Fig. 18). Inferior margin of pygofer lacking processes. Penis clearly asymmetric, with weakly broadened base and distinctly subapical lateral gonopore. Coloration dark, chestnut-cinnamomeous or practically black; vertex, pronotum, and scutellum not lightened. (Laccoscyta subgen. n., type species Achorotile longicornis J. Shlb.).

7 (8). Antennae long, extending beyond apex of postclypeus. Penis comparatively short, its length in profile no more than 4 times its basal width; row of numerous small teeth (more than 15) on left side of penis . . . . . A. longicornis (J. Sahlberg, 1871) (Figs. 18-27).

8 (7). Antennae shorter, not extending beyond apex of postclypeus. Penis longer, its length in profile more than 5 times its greatest basal width; row of comparatively large teeth, no more than 10, on left side of penis . . . . . A. transbaicalica Kusnezov, 1929 (Figs. 28-33).

Only A. longicornis (J. Shlb.) and A. transbaicalica Kusn., are referred to subgenus Laccoscyta Anufr. et Em. In addition to A. caecianta Em., the Nearctic A. acuta Scudder, 1963, A. distincta Scudder, 1963, A. stylata Beamer, 1954, and, apparently, also A. curvata Beamer, 1954, A. angulata Beamer, 1954, A. foveata Spooner, 1912, and A. pediforma Beamer, 1954 are referred to subgenus Criochora Anufr. et Em. Apart from A. albosignata (Dhlb.) and A. subarctica Scudd., A. coloradensis Beamer, 1954 from the Nearctic apparently belongs to subgenus Achorotile s. str. The subgeneric status of A. nobilis Dlab. has remained unclear owing to the author's lack of material on this species.

NEW FAUNISTIC MATERIALS AND DATA ON THE RANGE OF ACHOROTILE SPECIES

In investigating the range of individual species of the genus we made use of material in the Zoological Institute, USSR Academy of Sciences in Leningrad (ZIN), the Department of Zoology in Gor'kiy University (GGU), the Zoological Museum of Moscow University (ZM), and the Institute for Biological Problems of the North, Far Eastern Scientific Center, USSR Academy of Sciences in Magadan (IBPS). The authors are indebted to A.I. Shatalkin and Ye.M. Antonova (ZM), and to E.G. Matis (IBPS) for the supply of relevant material. When indicating range we cite all sources used in mapping the ranges (Figs. 1-2), and designate new data on range by an exclamation mark. Yemel'yanov's outline biogeographic division of the Palearctic (1974) was used in determining the types of ranges.

Achorotile (Criochora) caecianta Emeljanov, 1976 (Figs. 34-41).

Yemel'yanov, 1976 : 360-361, Fig. 20.

Range (Fig. 1). Chukotsk National Territory (Yemel'yanov, 1976), Mongolia (Yemel'yanov, 1977). Range type — East Euro-Siberian.

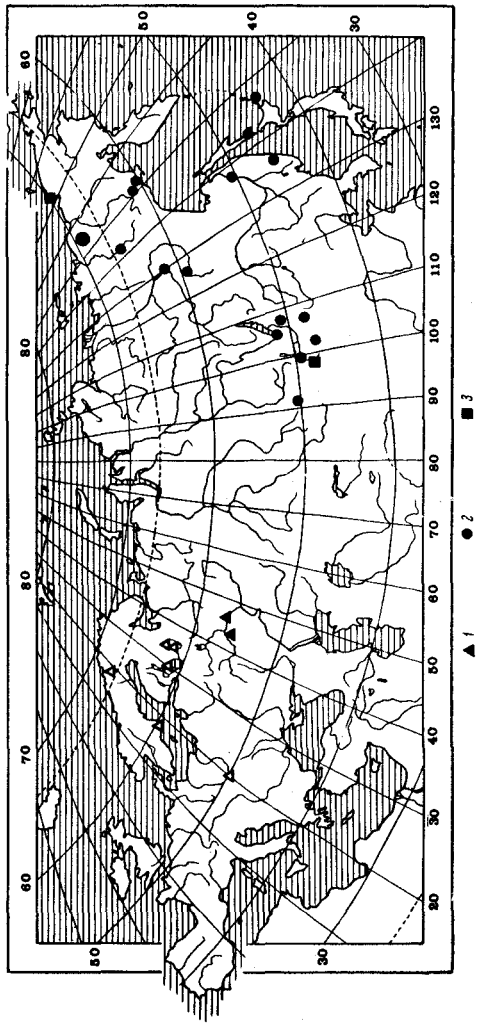


Fig. 1. Range of Achorotile species of subgenera Laccoscyta subgen. n. and Criochora subgen. n. in Palearctic.

1) A. (Laccoscyta) longicornis (J. Shlb.); 2) A. (Laccoscyta) transbaicalica Kusn.; 3) A. (Chriochora) caecianta Em. Hollow symbols) — locations of records from published data; solid symbols) locations of records from author's data; enlarged symbol) area of record without indication of specific location. For the Scandinavian lands each symbol corresponds to a biogeographic entity.

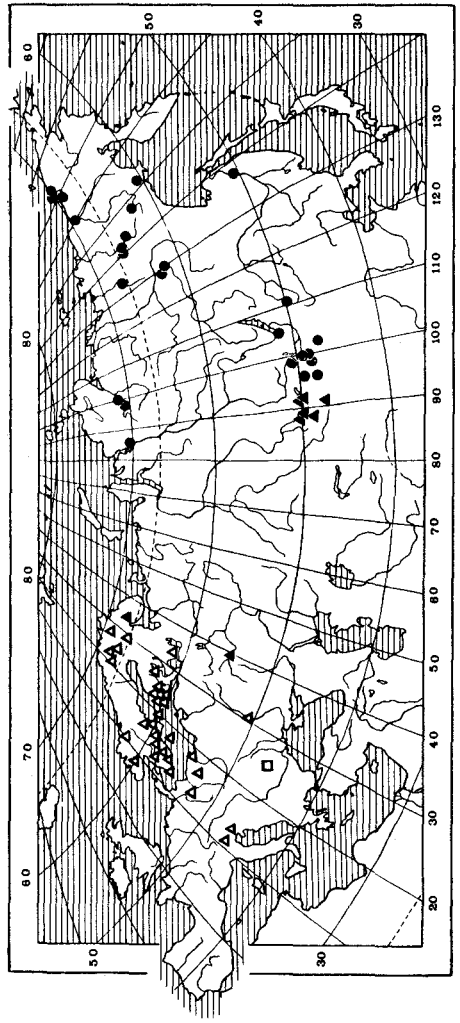
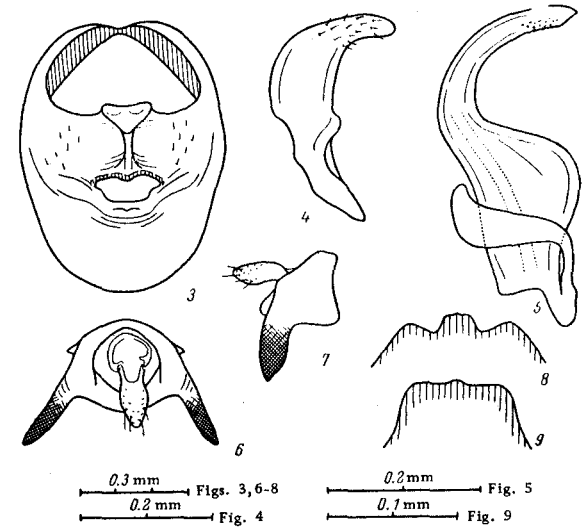


Fig. 2. Range of species of nominate subgenus Achorotile and of A. nobilis Dlab. in Palearctic. 1) A. (s. str.) albosignata (Dhlb.); 2) A. (s. str.) subarctica Scudd.; 3) A. nobilis Dlab. Hollow symbols) locations of records from published data; solid symbols) locations of records from author's data. For the Scandinavian lands each symbol corresponds to a biogeographic entity.



Figs. 3-9. Achorotile (s. str.) albosignata (Dhlb.). Structural details of male genitalia (specimen from Sweden).

3) Rear view of pygofer; 4) stylus; 5) side view of penis; 6) rear view of anal tube; 7) side view of anal tube; 8-9) process of inferior margin of pygofer.

Achorotile (s. str.) albosignata (Dahlbom, 1850) (Figs. 3-9).

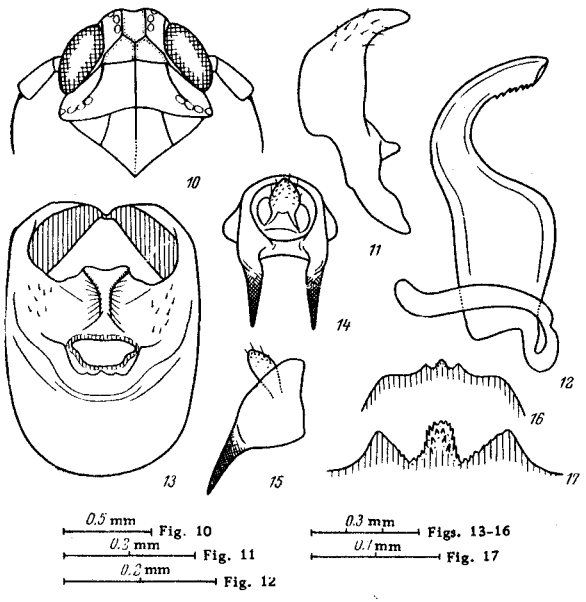
Delphax albosignata Dahlbom, 1850, Handl. Svenska Vet. Acad., 1849 : 199.

Material. USSR - Murmansk Province, Kola Peninsula, Lake Vud''yavr near Kirovsk, July 4, 1931, 1 ♂, 2 ♀ (Fridolin) (ZIN); Ryazan Province, Sel'tsy, June 14, 1867, 1 ♂, 1 ?, 1 spec. lacking abdomen (Oshanin) (ZM - Oshanin's collection)'* Gorno-Altai Autonomous Region: 10 km N of Kosh-Agach, July 2, 1964, 1 ♂ (Yemel'yanov) (ZIN), 10 km W of Tashanta, July 9, 1964, 1 ♂, 3 ♀ (Kerzhnev) (ZIN). Mongolia - Bayan-Ulege Aymak: southeastern shore of Lake Khoton-Nur, July 16, 1978, 27 spec. (Yemel'yanov) (ZIN), 20 km NW of Bulgan, July 23, 1978, 1 ♂, 3 ♀ (Yemel'yanov) (ZIN).

Range (Fig. 2). Denmark?, Finland, France, GDR, N. Italy, N. Poland, Norway, Sweden, Northern and Central European zones of USSR, W. Siberia?, Altai!, W. Mongolia (Oshanin, 1870; Then, 1886; Ivanov, 1928; Metcalf, 1943; Lindberg, 1947; Wessiannilsson, 1948, 1978; Servadei, 1967; Linnavuori, 1969; Nast, 1972, 1976; Yemel'yanov, 1977). Range type - European-West Euro-Siberian.

Achorotile (s. str.) subarctica Scudder, 1963 (Figs. 10-17).

*The specimens have square green labels (to judge by other published materials of Oshanin's collection, green signifies month of collection - June) and they bear the number 11 (date of collection). These specimens were in fact evidently collected in June, not in July, as stated in Oshanin's paper (1870).



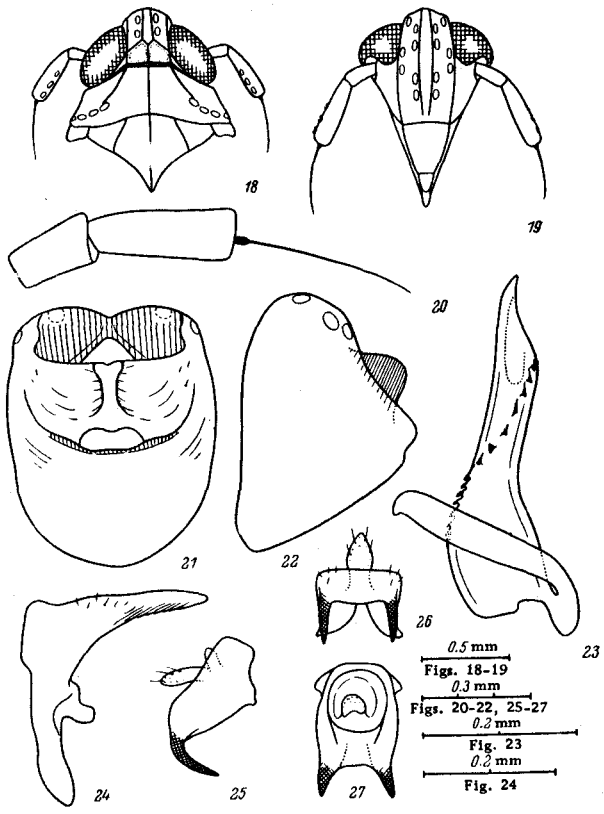
Figs. 10-17. Achorotile (s. str.) subarctica Scudd., external morphological details and structure of male genitalia (specimen from Baikalian Reservation).

10) Anterior part of body from above; 11) style; 12) side view of penis; 13) rear view of pygofer; 14) rear view of anal tube; 15) side view of anal tube; 16-17) process on inferior margin of pygofer.

Achorotile subarctica Scudder, 1963: 169-170, figs. 4a-c, 5. - Achorotile albosignata, non Dahlbom, 1850 : Vilbaste, 1969 : 258; 1971 : 166-167, Fig. 86, A-H.

The species A. albosignata (Dhlb.) and A. subarctica Scudd. are confused in some works. Thus, for example, Vilbaste (1971) gave an illustration of A. subarctica under the name A. albosignata on the basis of material that apparently came from the lower Yenisei (Vilbaste, 1969). A clear illustration of the true A. albosignata had previously been given by Beamer (1954) on the basis of material collected in Sweden and obtained from F. Ossiannilsson.

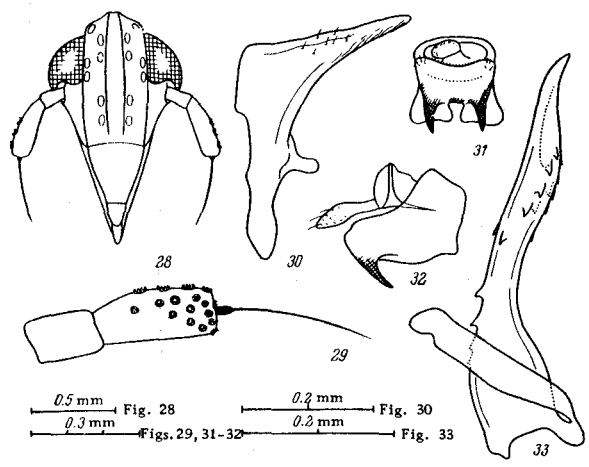
Material. USSR -Taymyr National Territory: Nizhnyaya Agapa River, 104 km NNE of Norilsk, July 9 - Aug. 6, 1973, 14 spec. (Zherikhin and Sukacheva) (ZM, GGU), mouth of Maymecha, July 28, 1970, 1 ♂ (Zherikhin and Sukacheva) (GGU), Kresty, Kotuy River, June 31, 1971, 1 ♀ (Zherikhin and Sukacheva) (GGU); Buryatiya: Baikalian Reservation, upper reaches of Abiduy River, July 11, 1974, 4 ♂, 2 ♀ and 1 larva (Smirnov) (GGU); Chita Province, Sokhondo Reservation: Bukukun, July 7, 1978, 1 ♂ (Averkin) (GGU), Verkhniy Bukukun, July 19, 1978, 51 spec. (Averkin) (GGU), Lake Bukukunskoye, Sokhondo, July 21-24, 1978, 13 spec. (Averkin) (GGU); Yakutia: 8 km N of Namtsy settlement, July 18, 1926, 1 ♂ (Bianki) (ZIN), In'yali River, 150 km above mouth, June 15, 1973, 3 ♂ 1 ♀ (Vinokurov) (ZIN), mouth of In'yali River, July 11, 1974, 1 ♂ (Narchuk) (ZIN), 20 km N of Pokhodsk, July 19, 1973, 2 ♂, 1 ♀ (Vinokurov) (ZIN), Khaptagay, 30 km SSE of Yakutsk, June 30, 1974, 2 ♀ (Yemel'yanov) (ZIN), Ust'-Nera, July 3, 1974, 2 ♂, 3 ♀ (Yemel'yanov)



Figs. 18-27. Achorotile (Laccoscyta) longicornis (J. Shlb.). External morphological details and structure of male genitalia (specimen from Chuvashia).

18) Anterior part of body from above; 19) head from below; 20) antenna (sensory pittings not depicted); 21) rear view of pygofer; 22) side view of pygofer; 23) side view of penis; 24) style; 25) side view of anal tube; 26) rear view of anal tube; 27) anal tube from above.

(ZIN), Balagannakh settlement, 30 km ESE of Ust'-Nera, July 6, 1974, 5 ♂, 2 ♀ (Yemel'yanov) (ZIN), Verkhoyansk, July 11, 1974, 2 ♂, 2 ♀ (Yemel'yanov) (ZIN); Chukotsk National Territory: 18 km NE of Pevek, June 28, 1963, 2 ♂ (Gorodkov) (ZIN), Komsolmolskiy goldfield, Pevek District, July 5, 1963, 3 ♂, 3 ♀ (Gorodkov) (ZIN), shore of Chaunskaya Bay, Kremyanka and Peney, 50-60 km ENE of Baranikha, July 17 - Aug. 14, 1977, 16 imagines and 10 nymphs (Shiryayeva) (GGU); Magadan Province: Madaun, July 2, 1971, 1 ♂ (Gorodkov) (ZIN), Myaundzha, July 18, 1971, 1 ♂ (Budarin) (ZIN), 10 km N of Klepok settlement, July 3, 1975, 1 ♀ (Glushkova and Mashukova) (IBPS), 13 km N of Klepok settlement, July 3, 1975, 1 ♀ (Matis) (GGU); Khabarovsk Territory:



Figs. 28-33. Achorotile (Laccoscyta) transbaicalica Kusn. External morphological details and structure of male genitalia (specimen from Baikalian Reservation).

28) Head from below; 29) antenna; 30) style; 31) rear view of anal tube; 32) side view of anal tube; 33) side view of penis.

Komsomolskiy Reservation, near Pivan', July 6, 1974, 1 ♂ (Golubev) (GGU). Mongolia, Dzabkhan Aymak, Songino, July 1, 1978, 3 ♂, 3 ♀ (Yemel'yanov) (ZIN).

Range (Fig. 2). Alaska, Canada (North Western Territories, Alberta, British Columbia) (Scudder, 1963); lower reaches of Yenisei, Taymyr!, Buryatia!, Chita Province!, Yakutia!, Chukotka!, Magadan Province!, Khabarovsk Territory!, Mongolia (Vilbaste, 1969; Yemel'yanov, 1977). Range type - Holarctic Arcto-Boreal.

Achorotile (Laccoscyta) longicornis (J. Sahlberg, 1871) (Figs. 18-27).

Ditropis longicornis J. Sahlberg, 1871, Not. Fennica (n. s.), 9(12) : 474.

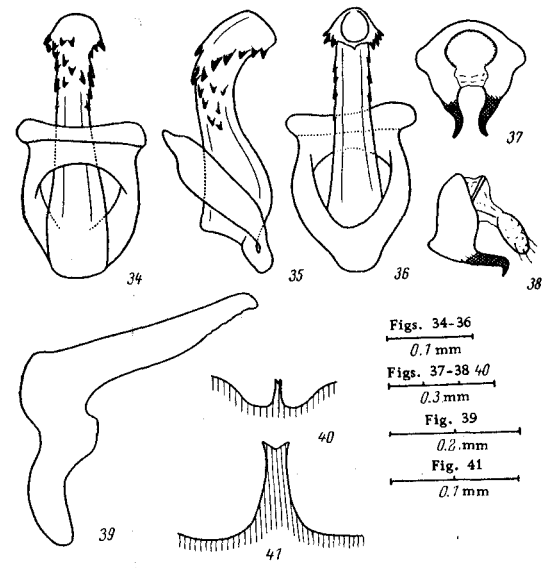
Material. USSR - Gor'kiy Province, Arzamas District, Staraya Pustyn' village, June 4 and June 26, 1970, 2 ♀ (Anufriyev) (GGU); Chuvash ASSR, Cheboksary District, Kuvshinka - Lipshinskiy valley woodland, May 25, 1973, 2 ♂, 1 ♀ (Anufriyev) (GGU).

Range (Fig. 1). Finland, Poland (Tatras), Sweden, Northern European regions of the USSR (Lindberg, 1947; Ossiannilsson, 1953, 1978; Linnavuori, 1969; Nast, 1972, 1973, 1976), Central European zone of the USSR! Range type - European-West Euro-Siberian.

Achorotile (Laccoscyta) transbaicalica Kusnezov, 1929 (Figs. 28-33).

Kuznetsov, 1929 : 169.

Material. USSR - Buryatia: Baikalian Reservation, upper reaches of Abiduy River, 9 ♂, 5 ♀ (Smirnov) (GGU); Yakutia: Aldan River near mouth of Timpton River, June 31, 1926, 1 ♀, July 20, 1926, 1 ♀ (Zaykov) (ZIN), Alazeya River, June 6-10, 1905, 2 ♀, 5 ♀ (Rozhnovskiy) (ZIN, GGU); Khaptagay, 30 km SSE of Yakutsk, June 29, 1974, 3 ♀ (Yemel'yanov) (ZIN), mouth of In'yali River, July 12, 1974, 2 ♀ (Yemel'yanov) (ZIN); Magadan Province: Ust'-Omchug, June 30, 1971, 1 ♀ (Gorodkov) (ZIN), Ol'skaya valley



Figs. 34-41. Achorotile (Criochora) caecianta Em. Structural details of male genitalia (specimen from Mongolia).

34) Penis from above; 35) side view of penis; 36) penis from below; 37) rear view of anal tube; 38) side view of anal tube; 39) style; 40-41) process of inferior margin of pygofer.

10 km N of Klepok settlement, June 27-28, 1975, 5 ♀ (Glushkova, Mashukova, Matis) (GGU, IBPS), Khasyn, 82 km N of Magadan, May 30, 1975, 1 ♂ (Korotyayev) (GGU); Khabarovsk Territory: Komsomol'skiy Reservation, near Pivan', June 4, 1974, 1 ♂ (Golubev) (GGU); Maritime Territory: Sikhote-Alin' Reservation, Shanduy Lakes, June 20, 1967, 1 ♀ (Anufriyev) (GGU); Sakhalin: Yuzhnosakhalinsk, May 27, 1973, 1 ♂ (Kerzhner) (GGU), Aniva District, Urozhaynoye, May 22, 1976, 38 imagines and 2 nymphs (Yemel'enko) (ZIN, GGU).

Range (Fig. 1). Buryatia (Kuznetsov, 1929), Yakutia!, Magadan Province!, Khabarovsk Territory!, Maritime Territory!, Sakhalin!, Kurils (Shikotan) (Anufriyev, 1977); Mongolia (Yemel'yanov, 1977). Range type - Eastern Euro-Siberian.

Achorotile nobilis Dlabola, 1961.

Dlabola, 1961 : 316, Abb. 22.

Range (Fig. 2). Known as yet only from the original description from Romania. Range type - Central European?

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Gor'kiy University, and Zoological Institute,
USSR Academy of Sciences, Leningrad