

Revisional notes on selected East Palaearctic species of *Agabus* Leach (Coleoptera, Dytiscidae)

ANDERS N. NILSSON

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Out from the study of some East Palaearctic species of the genus *Agabus* Leach notes are presented on classification and nomenclature. *Agabus inexpectatus* sp. n. is described from a single male from Siberia. The following syn. n. are presented: *Agabus zaitzevi* Poppius, 1909, *Agabus hudsonicus* Leech, 1938, and *Agabus mongolicus* Guéorguiev, 1968 = *Agabus pallens* Poppius, 1905; *Eriglenus charini* Lafer, 1988 = *Ilybius mandsuricus* Guignot, 1956; *Agabus insignis* Guéorguiev, 1969 = *Dytiscus arcticus* Paykull, 1798; *Agabus kurilensis* Kamiya, 1938 = *Agabus tristis* Aubé, 1838; *Mesogabus* Guéorguiev, 1969 = *Gaurodytes* Thomson, 1859. Lectotypes are designated for the following species: *Agabus bergi* Zaitzev, 1913, *Agabus tibetanus* Zaitzev, 1908, *Agabus zimmermanni* Scholtz, 1920, *Colymbetes costulatus* Motschulsky, 1859. *Agabus bergi* is given specific rank. Identification keys are given for the world species of the *A. labiatus* (Brahm) group, and for the males of the Palaearctic species of the *A. confinis* (Gyllenhal) group.

A.N. Nilsson, Department of Animal Ecology, University of Umeå, S-901 87 Umeå, Sweden.

Introduction

The dytiscid genus *Agabus* Leach, 1817, includes almost 200 species, of which the majority are confined to the Holarctic Region. Sharp (1882) recognized 23 species-groups in *Agabus*, with some groups "clearly artificial". Later attempts of classification have created a long list of subgeneric names (Larson 1989:865). However, the current use of subgenera shows a pronounced variation, both personally and geographically. After Sharp's (1882) monography, no work has dealt with the classification of *Agabus* out from the world fauna. However, Zimmermann (1919) studied a large part of it and classified the current subgenus *Gaurodytes* Thomson, 1859, into three groups from structure of male genitalia.

The prevailing regional perspective has probably hampered development, and another basic problem is the position of *Agabus* as the dumping ground of Agabini. It seems logical that a genus defined only on its wanting of the apomorphies of the other genera of the tribe should be impossible to classify. The first step towards a natural classification of *Agabus* must be to ensure that the genus

is monophyletic. In current usage this is most probably not the case, and no single synapomorphy have been given for the large set of species so classified.

In the absence of the analyses asked for above a valuable task is to define natural groups within *Agabus*. A first step in this direction was recently taken by Nilsson & Larson (1990) in a revision of the *A. affinis* (Paykull) group. A classification of the Nearctic species was recently presented by Larsson (1989), whose species-groups names are adopted here. The delimitation of groups calls for better knowledge of many species, as many valuable characters were not given with the original descriptions or in handbooks.

In the present paper, some *Agabus* groups are discussed out from the study of East Palaearctic specimens and species. Some new synonyms are established and a new species is described from Siberia. Most of the material for this investigation was examined or borrowed during a visit to the Zoological Institute of Leningrad in April 1988.

The following abbreviations are used: (MZH)

University Zoological Museum, Helsinki, (ZIL) Zoological Institute, Leningrad; (TL) total length, (MW) maximum width, (WC/WS) ratio between width of metacoxa and width of metasternum (cf. Nilsson 1984). When possible, measurements are given as mean \pm SD.

The *Agabus labiatus* group

This group corresponds to the subgenus *Eriglenus* Thomson, 1859. It is recognized on the apically lobed parameres and the narrow metasternal wings, and includes the six species: *A. fulvaster* Zaitzev, 1906, *A. labiatus* (Brahm, 1790), *A. manduricus* (Guignot, 1956), *A. pallens* Poppius, 1905, *A. undulatus* (Schränk, 1776), and *A. zim-mermanni* Scholtz, 1920. The species of the *labiatus*-group can be separated with the following key.

Leech (1942) included also the Holarctic *A. bifarius* (Kirby) in this group. However, as the parameres of this species are markedly different and the narrow metasternal wings obviously have evolved independently in several *Agabus* lineages, Leech's classification is not followed here. Larson (1989) placed *A. bifarius* in its own group.

Key to species

1. Elytron dark brown to black with yellow fascia or vitta, and meshes of microreticulation small and rounded 2
- Elytron of more or less uniform yellow to brown colour, and meshes of microreticulation of more irregular size and shape 3
2. Elytron with yellow marginal vitta that in posterior 2/3 is split by narrow black stripe. Anterior margin of metacoxa sublaterally not fully reaching level of posterior margin of mesocoxa *manduricus*
- Elytron normally with subbasal and submedian yellow vittae and subapical spot. Anterior margin of metacoxa sublaterally reaching slightly anterior to level of posterior margin of mesocoxa *undulatus*
3. Body elongate oval with total length 7.0 mm or less. Ventral face of metatibia either micropunctate or with macropunctures also on disc 4
- Body broadly oval with total length about 8.0 mm. Ventral face of metatibia without micropunctation and disc without macropunctures *zimmermanni*
4. Ventral face of metatibia without macropunctures on disc. Metafemur with posteroapical angle weakly produced. Elytron with punctures at intersections of meshes much smaller than serial punctures. Male profemur with ventral brush of setae 5
- Ventral face of metatibia with macropunctures

at least on outer half of disc. Metafemur with posteroapical angle strongly produced. Elytron with punctures at intersections of meshes and in longitudinal series of about same size. Male profemur without ventral brush of setae

- *fulvaster*
5. Metasternum with anteromedian impression long, attaining level of hind margin of mesocoxa. Prosternal process narrower; ratio between maximum and minimum width 2.1–2.3. Dorsal surface normally brown to piceous *labiatus*
 - Metasternum with anteromedian impression short, not attaining level of hind margin of mesocoxa. Prosternal process broader; ratio between maximum and minimum width 2.4–2.9. Dorsal surface pale yellowish to reddish brown *pallens*

Agabus pallens Poppius

Agabus femoralis Payk. var. *pallens* Poppius, 1905:22
Agabus zaitzevi Poppius, 1909:12, *syn. n.*
Agabus hudsonicus Leech, 1938:123, *syn. n.*
Agabus mongolicus, Guéorguiev, 1968:27, *syn. n.*

Type material. Holotype σ of *pallens* in MZH (Biström 1987), labelled: "Olekminsk", "Fl. Lena S.", "B. Poppius", "Mus. Zool. H:fors Spec. typ. No 1648 *Agabus* (*Eriglenus*) *femoralis* Payk. v. *pallens* Popp.", and my holotype label. — Lectotype σ and paralectotypes 2 σ of *zaitzevi* in MZH (Biström 1987) labelled: "Kanin", "B. Poppius", and my type labels; lectotype also labelled "zaitzevi typ. m., *A. salinator* typ. m.", and "Mus. Zool. H:fors Spec. typ. No 1851 *Agabus* (*Gaurod.*) *zaitzevi* Popp." Types of *hudsonicus* and *mongolicus* not seen in California Acad. Sci., San Francisco, and Museum of Nat. Hist., Budapest, respectively.

Type localities: of *pallens* "Olekminsk" (USSR, Yakutian ASSR); of *zaitzevi* "Tschosha", Kanin Peninsula (USSR, Nenets National Okrug); of *hudsonicus* "Churchill, Manitoba" (Canada); of *mongolicus* "Chentej aimak, 20 km SW von Somon Norovlin" (Mongolian People's Republic).

Note. The holotype of *pallens* was described as a male. However, as the specimen referred to above otherwise fits the description it was probably only erroneously sexed by Poppius. In 1983 I provided the type series of *zaitzevi* with my lectotype and paralectotype labels. However, by mistake these specimens were published as holotype and paratypes respectively (Larsson & Nilsson 1985:126). Instead my lectotype and paralectotype designations were published by Biström (1987:38).

Larsson & Nilsson (1985, as *A. zaitzevi*) recognized the Holarctic distribution of this species and also noted that it eventually was conspecific with *A. labiatus*, as also judged by Poppius (1905) who described it as a colour form of *A. labiatus*. Later, Brinck (1943) reported on specimens from Mongolia and Siberia of the same pale colour and esta-

blished the subspecies *A. labiatus pallens* Poppius. Besides the testaceous dorsum, Brinck (1943) noted upon the larger size and the larger meshes of the more deeply impressed elytral reticulation of this subspecies.

The study of the holotype of *A. pallens* has confirmed the identity of this species with *A. zaitzevi*, and not with *A. labiatus* as previously accepted. The most important characters for the separation of this species-pair are: (1) the development of the anteromedian emargination on the metasternum — deeper in *A. labiatus*; and (2) the width of the prosternal process — broader in *A. pallens*. In contrast to *A. labiatus*, the females of *A. pallens* frequently have the elytral reticulation very deeply impressed with punctures at intersections reduced. There is some variation in the shape of the median lobe of the aedeagus, but the few males of *A. pallens* available do not permit a separation of individual and specific differences.

Guéorguiev (1968) assigned his *A. mongolicus* to subgenus *Gaurodytes*, species-group *A. nebulosus* (Forster). However, my study of the female specimens from Mongolia reported on by Guéorguiev (1969) and additional material in ZIL have shown that *A. mongolicus* is a true member of the *labiatus*-group and identical with *A. pallens*.

Additional specimens studied of *A. pallens* were collected by Dr R. Angus in Siberia: by Lena river to 140 km upstream from Yakutsk 27–29.vi.1970, 4♀; at Tibelti in Irkut valley 28 km W of Lake Baikal 8–15.vi.1970, 1♀; Viliuskiy Trakt to 55 km W of Yakutsk, 2–5.vii.1970, 1♂3♀. A male of *A. labiatus* was taken by Dr Angus at Karasuk in Novosibirsk oblast 28.v.–28.vi.1982 together with *A. fulvaster*. Evidently, *A. pallens* has a wide distribution in the Palaearctic Region from the Kanin Peninsula to East Siberia and Mongolia.

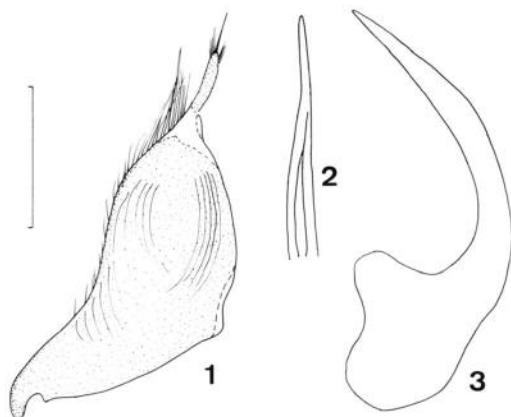
Agabus zimmermanni Scholz

Figs 1–3.

Agabus zimmermanni Scholz, 1920:15, 16.

Type material. Lectotype ♂ here designated, labelled: "Asia Minor", "♂", and my lectotype label. In coll. Zimmermann, National Zoological Collection, Munich.

This rare species was previously known only from Asia Minor (Zimmermann & Gschwendtner 1935: 73, Zaitzev 1953:269). Besides the types series I have seen a specimen collected by Dr G. Wewalka in Turkey, prov. Aydin 27.iv.1969. In ZIL a speci-



Figs 1–3. *Agabus zimmermanni* Scholz. Male genitalia. Scale bar 0.5 mm. —1. Paramere, external aspect. —2–3. Median lobe of aedeagus. —2. Dorsal aspect of distal 2/3. —3. Right lateral aspect.

men of *A. zimmermanni* was found misidentified as *A. labiatus*. The specimen is labelled "Bratolybov. Aleksandr. u. (A. Jacobson)" (here transcribed). According to Dr. I.M. Kerzhner, Leningrad, the locality is Bratolybovka, former in Aleksandriyskiy uезд, now in Dolinskiy rayon of Kirovogradskaya oblast in Ukrain'skaya SSR (appr. 48° 15'N 32° 45'E). If the specimen was correctly labelled, this is the first European record of *A. zimmermanni*, and also the first record from the USSR. Another interesting record of this species is from the Black Sea coast of Bulgaria, Nessebar 26.vi.1965, leg. T. Palm.

Agabus mandsuricus (Guignot)

Ilybius mandsuricus Guignot, 1956a:139; 1956b:396, 397.
Eriglenus charini Lafer, 1988:54–56, fig. 2.

Wewalka (1986) transferred this species from *Ilybius* to *Agabus*, subgenus *Eriglenus*, and provided a detailed description with illustrations of male genitalia. Lafer (1988, 1989) was obviously not aware of Guignot's species when he described *E. charini*. I have not seen Lafer's types, but the original description with illustrations leaves no doubt on the identity of this species.

The *Agabus confinis* group

This group has earlier been referred to as the *A. congener* (Thunberg) group (Zimmermann 1934,

Nilsson 1984). Larson's (1989) renaming of the group is accepted as it is based on a well-defined Holarctic species. The *confinis*-group in my sense includes also the *elongatus*- and *zetterstedti*-groups of Larson (1989). In the Palaearctic, the *confinis*-, *japonicus*- and *fuscipennis*-groups are all characterized by the bifid median lobe of the aedeagus. These groups also share the following characters: (1) disc of pronotum black and contrasting with variously paler elytra, (2) clypeus with anterior bead more or less continuous, (3) metasternum with anteromedian emargination long and attaining level of hind margin of mesocoxa, (4) elytron with simple reticulation, (5) metatibia with posteroventral margin impunctate or with few well-separated punctures, (6) pronotum with anterior bead broadly interrupted medially, and (7) paramere stylate. Within the aggregate, the *fuscipennis*-group is characterized by the broadly dilated male protarsus, with tarsomere 1 twice or more as wide as tarsomere 5. The *japonicus*-group is characterized by the short and robust hind legs with tarsomere 5 only about 1/3 longer than tarsomere 4, and pronotum with hind angles posteriorly produced and slightly acute. I have found ny synapomorphies for the *confinis*-group of species, in which distinct evolutionary novelties are restricted to single species. The problem of how to deal with this group demands further study. The separation of it into smaller units will still end up with a large rest-group, and the alternative to fuse the three groups discussed above should also be considered. In this case the subgeneric name *Acatodes* Thomson, 1859, is available.

I will here present drawings of male genitalia (Figs 4–20) and give a key to the Palearctic species of the *confinis*-group. After the key some notes on taxonomy and nomenclature are given for a few poorly known species. A new species is described from Siberia that is provisionally assigned to this group as it differs from all other species in the shape of the aedeagus that lacks a ventral subapical spine. I have not seen *A. turcmenus* Guignot, 1957, that probably belongs to the *confinis*-group. It was described from Turkestan and differs from most other species in its large size, TL 9.5–10.0 mm (Guignot 1957).

Key to males of Palearctic species

1. Aedeagus with subapical spine broadly rounded (Fig. 9)
 sp. n. from Hokkaido and Sachalin (Satô in prep.)

- Aedeagus with subapical spine pointed 2
2. Protarsomere 5 with ventral tooth. Antenna subserrate. Prosternal process flat. Aedeagus as in Fig. 8 *A. elongatus* (Gyllenhal)
- Protarsomere 5 without ventral tooth. Antenna simple in most species. Prosternal process in most species of at least low convexity 3
3. Elytron with a metallic sheen; lines of reticulation coarse and meshes longitudinally stretched basally. Aedeagus as in Fig. 11
 *A. slovzovi* (J. Sahlberg)
- Elytron without metallic sheen; meshes of reticulation not longitudinally stretched 4
4. Elytron with strong subsutural row of punctures that almost reaches base. Epipleuron dark piceous to black, at least in inner third. Aedeagus as in Fig. 10 *A. tibetanus* Zaitzev
- Elytron with subsutural row of punctures weak. Epipleuron testaceous to rufopiceous 5
5. Metasternum and -coxae medially densely punctate and with long conspicuous setation. Aedeagus strongly curved in lateral view (Fig. 12) *A. setulosus* (J. Sahlberg)
- Metasternum and -coxae medially with at most occasional punctures and without setation. Aedeagus less strongly curved in lateral view 6
6. Aedeagus with subapical spine very thin and not protruding (Fig. 20)
 *A. zetterstedti* Thomson
- Aedeagus with subapical spine broader and protruding 7
7. Aedeagus not broadened at level of straight subapical spine (Figs 17–19) 8
- Aedeagus more or less broadened at level of straight or curved subapical spine 10
8. Apical segment of maxillary palpus infusate. Body more elongated with sides subparallel. Pronotum not so broad posteriorly, with greatest width sometimes anterior to hind angles and width at hind angles/width at front angles about 1.4. Aedeagus as in Fig. 17
 *A. moestus* (Curtis)
- Apical segment of maxillary palpus at least basally testaceous. Body with lateral outline more curved. Pronotum broader posteriorly, width at hind angles/width at front angles about 1.6 9
9. Body length 8.3–9.5 mm. Metasternal wing broad, WC/WS 1.9–2.2. Aedeagus as in Fig. 19 *A. confinis* (Gyllenhal)
- Body length 6.7–7.6 mm. Metasternal wing narrow, WC/WS 2.4–2.8. Aedeagus as in Fig. 18 *A. levanderi* Hellén
10. Protarsal claws markedly shorter than protarsomere 5. Prosternal process very slightly convex, almost flat. Metasternal wing narrow, WC/WS 2.7–2.9. Body length 6.0–7.0 mm, lateral outline strongly curved 11
- Protarsal claws subequal to or slightly longer than protarsomere 5. Other characters varying . 12
11. Elytron with meshes of reticulation small, rounded and regular in size. Aedeagus as in Fig. 15 *A. clypealis* (Thomson)
- Elytron with meshes of reticulation larger and more irregular in size and shape. Aedeagus as in Fig. 16 *A. pseudoclypealis* Scholz

12. Aedeagus strongly broadened at level of broad, ventrally curved subapical spine (Figs 4, 13) 13
 — Aedeagus slightly broadened at level of usually narrower subapical spine (Figs 5–7) 14
13. Prosternal process of low convexity, almost flat. Body elongate, TL/MW 1.9–2.0. Aedeagus shorter and more strongly curved (Fig. 13) *A. bergi* Zaitzev
 — Prosternal process distinctly convex in cross section. Body broader, TL/MW 1.7–1.8. Aedeagus longer and less strongly curved (Fig. 4) *A. congener* (Thunberg)
14. Body length 7.9–8.5 mm. TL/MW 1.8–1.9. Aedeagus as in Fig. 7 *A. costulatus* (Motschulsky)
 — Body length normally less than 7.8 mm, TL/MW either slightly larger or smaller 15
15. Body length in most specimens larger, TL 6.8–7.8 mm. Body more elongated, TL/MW 1.9–2.0. Aedeagus as in Fig. 6 *A. thomsoni* (J. Sahlberg)
 — Body length in most specimens smaller, TL 6.3–6.9 mm. Body broader, TL/MW 1.7–1.8. Aedeagus as in Fig. 5 *A. lapponicus* (Thomson)

Agabus bergi Zaitzev

Figs 13, 14.

Agabus bergi Zaitzev, 1913:195, 196.

Gaurodytes congener bergi Zaitzev, 1953:248.

Type material (in ZIL). Lectotype ♂ (here designated; genitalia extruded) labelled "Lac. Levangöl 8500' prov. Tifl. 25.VI.09 Schmidt" and my lectotype label. — Paralectotypes 2♀, one with same original label as lectotype and the other one labelled "Gr. oz. Levan-gel Azjalg. ol. u. Tifl. L. Berg 25.VI.09" (here transcribed) (head and prothorax lost), and with my paralectotype labels.

Type locality: "Transcaucasia: Prov. Tiflis, lacus Levangöl, 8.500'" (Grusinskaja SSR).

Note. The original description was based on 1♂2♀ collected by Berg and Schmidt and placed in the museum collections in Leningrad and Tbilisi. Evidently Zaitzev later received additional specimens collected together with the type series as his collection in Leningrad includes four specimens so labelled. I have selected 1♂2♀ of this series as types.

Zaitzev (1913) first placed *A. bergi* near *A. lapponicus*, from which it differed in the lighter elytra, the more elongated body shape, and the broader, less convex prosternal process. Later (Zaitzev 1953) he treated *A. bergi* as a subspecies of *A. congener* (Thunberg), confined to the Transcaucasian highlands, and characterized by the above-mentioned characters.

To settle the status of *A. bergi*, the specimens present in the Zaitzev collection were studied. My conclusion is that *A. bergi* is a valid species, and

not a subspecies of *A. congener*. The diagnostic characters are listed below.

Male genitalia: aedeagus (Fig. 13) shorter and more strongly curved in lateral view than in *A. congener*, subapical spine very broad; paramere (Fig. 14) rather broad.

Body size and shape: the six specimens measured are of about the same size as *A. congener* (TL 7.1 ± 0.3 mm), but the shape is much narrower and thus similar to *A. thomsoni* (TL/MW 1.96 ± 0.02).

Colour: pronotum black with only narrow lateral bead rufous; elytron rufous.

Other characters: prosternal process of low convexity, similar to *A. clypealis*; metasternal wing of moderate width, WC/WS 2.51 ± 0.19; elytron with meshes of reticulation irregular and relatively wide.

Distribution. *A. bergi* is so far known only from the highlands of Transcaucasia in the Gruzinskaja and Armjanskaja SSR. Some localities were given by Zaitzev (1927:26). The presence of *A. congener* in this region is uncertain. The single female studied (from Baraleti) of what Zaitzev (1927) listed as *A. congener* is probably *A. pseudoclypealis*.

Agabus costulatus (Motschulsky)

Fig. 7.

Colymbetes costulatus Motschulsky, 1853:8 (nomen nudum).

Colymbetes obscuricollis Motschulsky, 1853:8 (nomen nudum).

Colymbetes costulatus Motschulsky, 1859:541, 542.

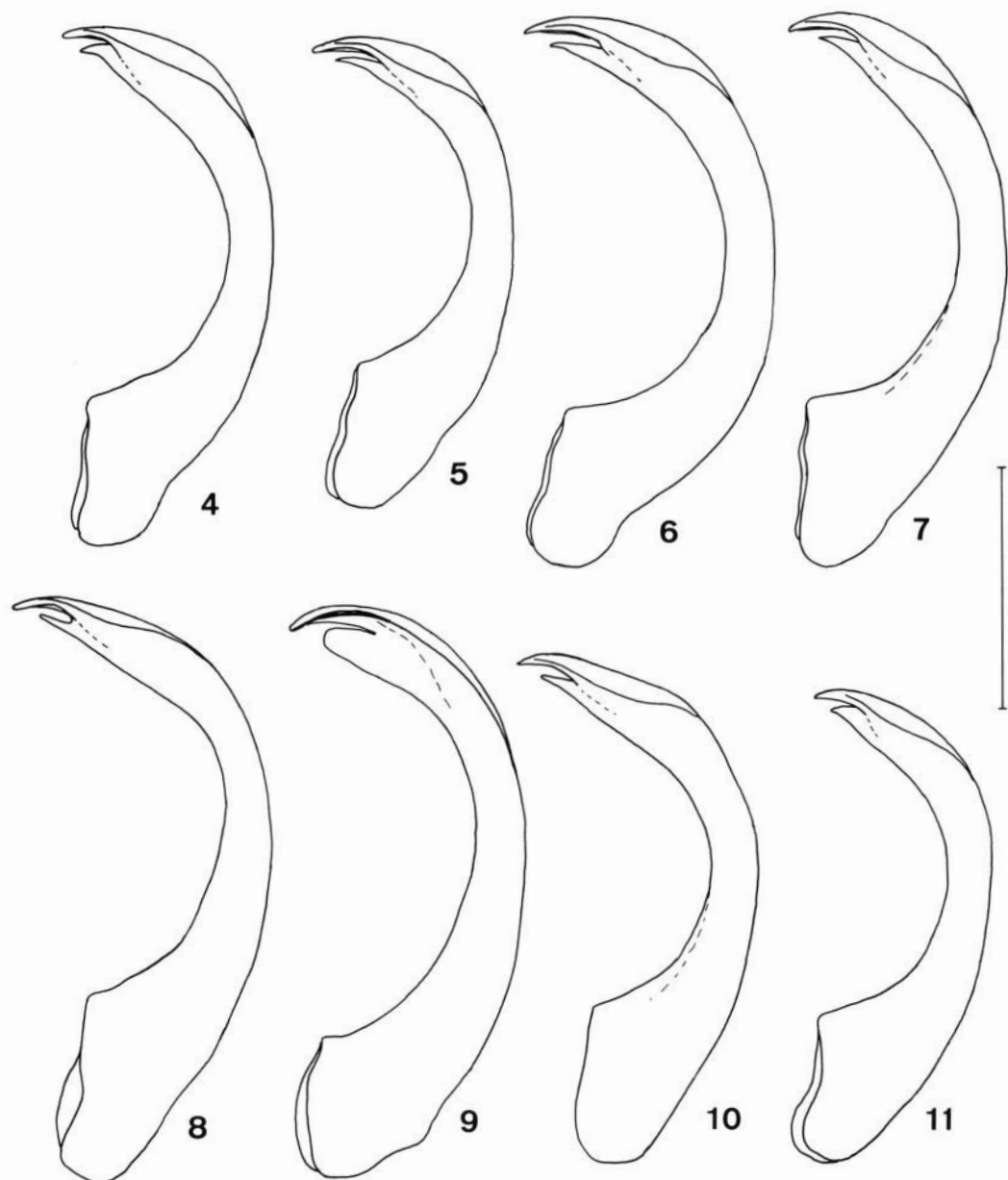
Gaurodytes tunkunensis Zimmermann, 1928:178, 179.

Type material (in ZIL). Lectotype ♀ of *Colymbetes costulatus* (here designated) labelled: "Jakutsk 3156-1.", "3156 costulatus Motsch." (in the handwriting of Motschulsky) and my lectotype and identification labels. — Paralectotype ♀ (here designated) labelled "Jakutsk 3156-2", and my paralectotype and identification labels.

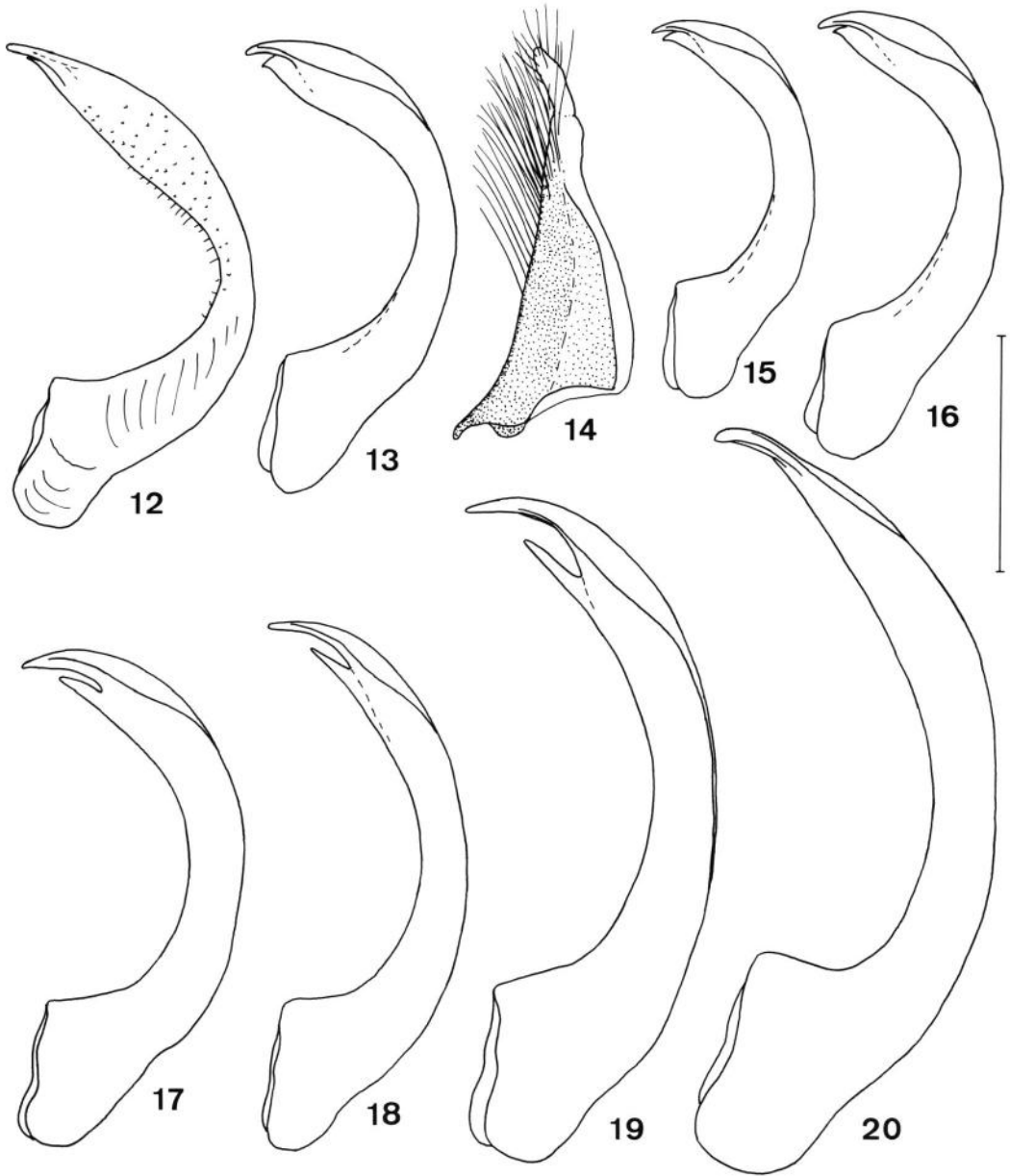
Type locality: "Gouvernement de Iakoutsk" (Jakutskaja ASSR).

Note. Zaitzev (1905) reported on the presence of syntypes of *A. costulatus* in the Zoological Museum, Leningrad. Later (Zaitzev 1910:37) he stated that it was 1♂1♀ from Jakutsk. However, as the paralectotype female lacks both the fore and mid legs, Zaitzev probably misidentified it as a male.

Zaitzev (1905, 1910, 1953) listed the characters that separated *A. costulatus* from *A. congener*. However, in his 1953 key *A. costulatus* is placed



Figs 4-11. *Agabus*, median lobe of aedeagus, right lateral aspect. Scale bar 0.5 mm. -4. *A. congener* (Thunberg). -5. *A. lapponicus* (Thomson). -6. *A. thomsoni* (J. Sahlberg). -7. *A. costulatus* (Motschulsky). -8. *A. elongatus* (Gyllenhal). -9. Species from Japan to be described by Prof. Satô. -10. *A. tibetanus* Zaitzev. -11. *A. slovzovi* (J. Sahlberg).



Figs 12–20. *Agabus*, median lobe of aedeagus (12, 13, 15–20) and paramere (14), right lateral aspect. Scale bar 0.5 mm. –12. *A. setulosus* (J. Sahlberg). –13–14. *A. bergi* Zaitzev. –15. *A. clypealis* (Thomson). –16. *A. pseudoclypealis* Scholz. –17. *A. moestus* (Curtis). –18. *A. levanderi* Hellén. –19. *A. confinis* (Gyllenhal). –20. *A. zetterstedti* Thomson.

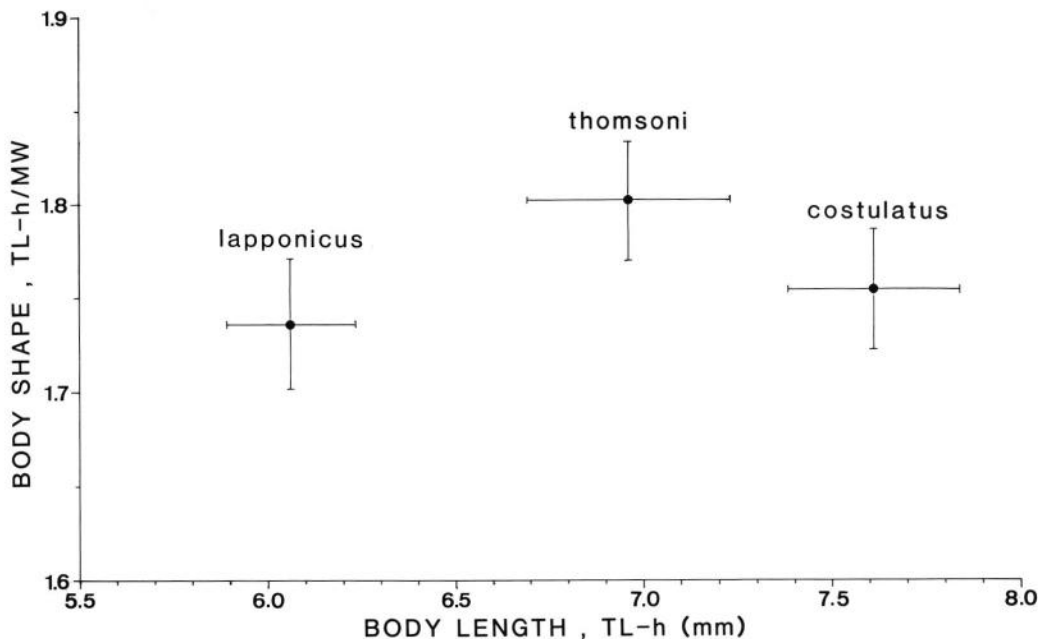


Fig. 21. Relationship between body length (TL-h) and body shape (TL-h/MW) in samples of *Agabus costulatus* (Motschulsky), *A. lapponicus* (Thomson) and *A. thomsoni* (J. Sahlberg). Data on *A. lapponicus* and *A. thomsoni* from Nilsson (1985). For *A. costulatus* mean \pm SD are given for ten Siberian specimens.

Förhållande mellan kroppslängd (utan huvud) och kroppsform (längd utan huvud/största bredd) för tre olika arter. Värderna ges som medelvärde \pm standardavvikelse.

nearest to *A. thomsoni*, and as also noted by Guéorguiev (1972) this is the species that is most difficult to separate *A. costulatus* from. In this species-pair together with *A. lapponicus* the male genitalia are more or less identical (Figs 5–7) and identification is so far only possible from biometric characters like body size and shape (Fig. 21) (Nilsson 1985). Zaitzev's (1953:220–221) key characters based on the size and number of serial punctures on the elytron are not supported from the material I have studied. This goes also for the four characters, inclusive of aedeagal shape listed by Guéorguiev (1972). Some diagnostic characters are given below.

Male genitalia: aedeagus long and only slightly broadened at level of narrow subapical spine (Fig. 7).

Body size and shape: TL 8.2 ± 0.3 mm, and TL/MW 1.90 ± 0.04 , N = 10.

Colour: pronotum black with only narrow lateral bead rufous; elytron rufotestaceous to rufopiceous.

Other characters: prosternal process of moderate, even convexity; metasternal wing broadly triangular, WC/WS 1.85 ± 0.12 , N = 9; male protarsal claws very slightly shorter than protarsomere 5; elytron with lines of reticulation fine, often coarse in female, and meshes irregular in shape and relatively large.

A. costulatus has a wide distribution in the NE Palaearctic (Zaitzev 1953, Guéorguiev 1972). It should be sympatric with *A. thomsoni* in the E Siberian tundra where the latter species has a rare occurrence according to Zaitzev (1953). The study of long series of local populations from this region could improve the current understanding of this species-pair.

Agabus tibetanus Zaitzev

Fig. 10.

Agabus tibetanus Zaitzev, 1908:425, 426.

Type material (in ZIL). Lectotype σ (here designated) labelled "V. tja. Toso-nora 13.300! II.95 Rob. i Kozl."

(here transcribed) and my lectotype label. — Paralectotypes 6♂5♀ (here designated) with same original labels and my paralectotype labels.

Type locality: "Tibet or: lacus Toso-noor, litus orient., 13.300' " (China, prov. Tsinghai).

This rare species is known only from the type series. Within the *confinis*-group it is recognized on the following diagnostic characters.

Male genitalia: aedeagus (Fig. 10) short and robust; only slightly broadened at level of narrow subapical spine.

Body size and shape: relatively small, TL 6.6 ± 0.3 mm; body only slightly narrower than in *A. congener*, TL/MW 1.83 ± 0.03 , N = 11.

Colour: pronotum black with only narrow lateral bead rufous; elytron rufous; epipleuron dark piceous to black, at least in inner third.

Other characters: prosternal process long with apex acute, more or less tectiform in cross-section; metasternal wing broadly triangular, WC/WS 2.08 ± 0.09 , N = 10; elytron with meshes of reticulation large and irregular, and longitudinal series of punctures strong with subsutural row distinct almost to base; male protarsal claws slightly longer than protarsomere 5.

Agabus inexpectatus sp. n.

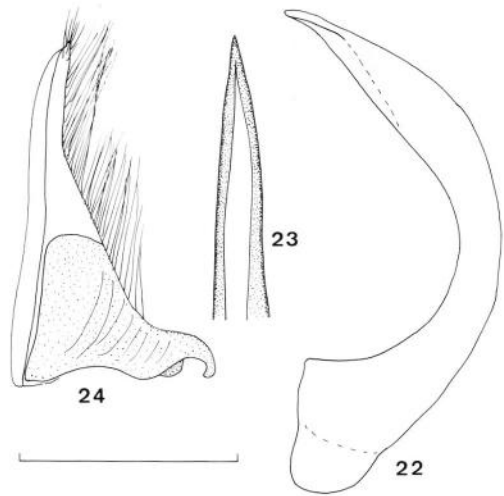
Figs 22–24.

Description of male

Body size and shape: TL 6.0 mm, MW 3.2 mm; body elongate with lateral outline slightly curved, subparallel, TL/MW 1.85.

Colour: head black with narrow anterior margin and two posteromedian spots rufous; antenna and palpi rufous; pronotum black with narrow lateral bead rufopiceous; elytron rufopiceous; ventral surface mainly black with epipleuron, metacoxal processes and apical margin of abdomen rufous; abdominal sterna 2–4 medially rufopiceous; legs rufous with femora rufopiceous.

Sculpture and setation: clypeus with anterior bead almost continuous, broken medially into closely spaced transverse punctures; dorsal reticulation simple, on head with small irregular meshes that occasionally have a central micropuncture, meshes wider and less deeply engraved on clypeus; pronotum with anterior submarginal row of punctures medially broken, gap subequal to length of antennomere 11; lateral bead well-defined and re-



Figs. 22–24. *Agabus inexpectatus* sp. n., male genitalia. Scale bar 0.5 mm. —22–23. Median lobe of aedeagus. —22. Right lateral aspect. —23. Dorsal aspect of distal 2/3. —24. Paramere, external aspect.

latively narrow, anterior bead only present laterally; reticulation on disc with small meshes irregular in size and shape; elytron relatively shiny, longitudinal series of punctures distinct, reticulation with meshes generally small and rather deeply engraved, irregular in shape and size, and frequently with rather strong punctures at intersections; prosternal process glabrous; metasternal plate with rather fine irregular reticulation, meshes longitudinally stretched towards posterior margin; last abdominal sternum subrugose in posterior half; metafemur ventrally with fine longitudinal reticulation and spread micropunctures; metatibia ventrally with fine transverse reticulation, disc impunctate, anteroventral margin with row of seven separated punctures in proximal 3/4.

Structural characters: head broad, basal width about 2/3 of width of pronotum at base with sides very weakly curved; prosternal process narrow and tectiform, lateral bead well-defined; metasternum with anteromedian emargination attaining level of hind margin of mesocoxa; metasternal wing narrow, WC/WS 2.78; pro- and mesotarsomeres 1–3 weakly dilated and ventrally with transverse rows of small, rounded scales; protarsal claws elongated, slightly longer than protarsomere 5; metafemur slender, posteroapical angle not produced posteriorly; metatarsomere 1 much longer than longer tibial spur.

Genitalia: aedeagus simple (Figs 22, 23), curved in lateral view, submedially broadened and subapically strongly narrowed, distally with ventral ridge; paramere (Fig. 24) simple with inner and apical setation long.

Female and biology unknown.

Type material. Holotype ♂ in ZIL, labelled "Olekminsk Jakutsk. ob. Gerts 30.V.901" (here transcribed).

Type locality: Oljokminsk, Jakutskaja ASSR, Siberia.

Derivation of name. The specific epithet aims at the unexpected combination of characters found in this species.

This small species has the habitus of the *confinis*-group, but the simple aedeagus contradicts group membership. The aedeagus of *A. inexpectatus* has almost the characteristic apex of the group, and the subapical spine could easily have evolved from a split of the ventral ridge. The shape of body and pronotum is reminiscent of *A. elongatus*, in my opinion a species that belongs to a lineage that separated from the rest of the group near its base. In this case, the similarity with *A. elongatus* could indicate that the new species evolved near the base of the sister-group of the *confinis*-group. The recognition of this sister-group is problematic as *A. inexpectatus* has no good apomorphic character relativ to the large group of *Agabus* species with a continuous clypeal bead and a long metasternal impression. The medial gap in the anterior row of punctures on pronotum indicates a relationship with the *A. guttatus* (Paykull) group, but this is contradicted by the broad and flat prosternal process of this group.

The *Agabus fuscipennis* group

This is a small group with four species (Larson 1989), of which three are Holarctic. Only one of them is treated here.

Agabus coxalis Sharp

Acatodes nigriventris (Motschulsky) sensu J. Sahlberg, 1880:55 (misident.).

Agabus coxalis Sharp, 1882:535.

Agabus splichali Reitter, 1899:196.

Agabus schmidtii Zaitzev, 1913:197.

Gaurodytes ermaki Zaitzev, 1953:259.

As noted by Zaitzev (1905), *Rhantus nigriventris* Motschulsky, 1860:101, is a junior synonym of *R.*

notaticollis (Aubé, 1837:107). However, J. Sahlberg (1880:55) interpreted Motschulsky's description as referring to a species of *Acatodes* (now synonym of *Agabus*), which he described under the binomen *Acatodes nigriventris*, attributed to Motschulsky. Zaitzev (1905) stated that *A. nigriventris* is a senior synonym of *Agabus coxalis* Sharp, 1882, and thus the valid name of the species. *A. nigriventris* was described from specimens in the collection of Obert taken at Krasnojarsk by Streblov. This collection is partly lost, and no such specimens could be found in ZIL. However, as Zaitzev (1905) stated that Sahlberg had compared specimens of *A. coxalis* sent to him with the typical specimen of his *nigriventris*, at least one specimen was kept by Sahlberg in his own collection. I have seen a female of *A. coxalis* from coll. Sahlberg in Zoological Museum, University of Turku, labelled as *nigriventris* by Sahlberg. Another specimen in the Sahlberg collection, from E Siberia, has been identified by Zaitzev as "*Acatodes nigriventris* Motsch.". Strangely enough, this specimen belongs to *Agabus tristis* Aubé.

It seems correct that Sahlberg's record of *nigriventris* represents *A. coxalis*. However, *Acatodes nigriventris* is only a misidentification and consequently the name cannot be used as a valid species name (cf. Article 49 of the Code).

A. coxalis is in the group recognized on the reduced subapical spine of the aedeagus.

The *Agabus arcticus* group

Zimmermann (1934) named this group after *A. sturmii* (Gyllenhal), but Larson (1989) changed the name to the *arcticus*-group in order to name groups after Holarctic species when possible. Larson (1989) restricted the group to three species, and discussed the position of *A. zetterstedti* that was placed in its own group (see above). Seemingly, a few more Palaearctic species like *A. conspicuus* Sharp and *A. browni* Kamiya show affinities to this group. Elytral sculpture and the aciculate sculpture of the metafemur unite this group with the *tristis*- and *ambiguus*-groups (Nearctic species revised by Larson 1989), and the classification of this aggregate should be studied further.

Agabus arcticus (Paykull)

Dytiscus arcticus Paykull, 1798:201.

Colymbetes reticulatus Kirby, 1837:71.

Colymbetes glacialis Motschulsky, 1853:7 (nomen nudum).

Colymbetes alpinus Motschulsky, 1860:102.

Agabus subfasciatus LeConte, 1863:17 (nomen nudum).

Gaurodytes punctipennis J. Sahlberg, 1880:345.

Gaurodytes sibiricus J. Sahlberg, 1880:345.

Agabus ochoticus Poppius, 1908:54.

Agabus arcticus ab. *collaris* Scholz, 1917:251 (rank infrasubspecific).

Agabus insignis Guéorguiev, 1969:62–64 + figs 1–3, *syn. n.*

When visiting ZIL I was surprised to find in the collections some specimens of the well-known Holarctic species *A. arcticus* from Mongolia identified by Guéorguiev as *A. insignis*. A study of the original description of *A. insignis* made the synonymy given above very likely. The study of the holotype and two paratypes from the Zoological Institute, Warsaw, has confirmed the synonymy. Within the genus, this species is easily identified on the coarse, simple elytral sculpture, the flattened prosternal process, and the denticulate anterior protarsal claw and the large round scales on the ventral surface of protarsomeres 1–3 of the male. The colour of the dorsal surface varies from pale yellow to black. In the former case the pronotum has at least a brown anterior margin and mediobasal spot, and in the latter at least the lateral pronotal margins are rufous. This colour variation is seemingly dependent on the habitat and shows no geographic pattern (cf. Larson 1989). The *A. insignis* types are at the extreme pale end of this colour spectrum.

As described by Poppius (1908), there is in *A. arcticus* a geographic variation in the shape of the anterior male protarsal claw. The three forms recognized by Poppius (l.c.) were later given subspecific rank by Zaitzev (1953:245). The specimens from Mongolia are assigned to the subspecies *A. arcticus alpinus* (Motschulsky), characterized by the acute shape of the tooth on the claw.

Guéorguiev (1969) described the subgenus *Mesogabus* for *A. insignis*. Nilsson et al. (1989) synonymized *Mesogabus* with *Gaurodytes*, based on the synonymy presented above.

The *Agabus tristis* group

Zimmermann (1934) named this group after *A. bipustulatus* (Linnaeus), but Larson (1989) instead based the name on the single Holarctic species of the group. Larson (1989) recognized only six species in this group. It seems likely that also *A. adus-*

tus Guignot, 1954, *A. debilipes* Régimbart, 1899, and *A. solskii* Jakovlev, 1897, belong to this group.

Agabus tristis Aubé

Agabus tristis Aubé, 1838:356.

Agabus kurilensis Kamiya, 1938a:35, *syn. n.*

Larson (1989) listed more synonyms of this species. However, *Agabus subopacus* Mannerheim should be omitted from this list as it is a junior synonym of *Rhantus suturellus* (Harris) (Zaitzev 1906).

The identity of *A. kurilensis* has long been in doubt, and Zaitzev (1953:246) suggested that it was only a colour variant of *A. conspicuus*. On the contrary, Nakane (1989) listed *A. kurilensis* as a valid species. Kamiya's collection, kept at the Entomological Laboratory of the Tokyo University of Agriculture, was destroyed by fire during World War Two (Nakane, in litt.). However, Kôno (1944) reported on additional specimens from the Kuriles collected in 1941. Two females from this series were borrowed from the Entomological Institute of the Hokkaido University. The following labels were attached to these specimens: "Kurilen H. Kôno S. Sumimiya 20.VII", "Agabus (*Gaurodytes*) kurilensis Kamiya det H. Kôno". Both females are identical with *A. tristis*, as also made evident by the habitus illustration of the original description (Kamiya 1938a:35).

A. kurilensis was described in two different publications the same year with the following publication dates (Nakane, in litt.): 1938a — 31 May; 1938b — 5 November.

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Sammanfattning

En undersökning av material av flera dåligt kända östpalearktiska arter av dykarsläktet *Agabus* har resulterat i flera nya synonymer. *Agabus inexpectatus* sp. n. beskrivs från Sibirien. Viktiga karaktärer presenteras för flera arter och lektotyper utses. Bestämningsnycklar ges för *A. labiatus*-gruppens alla arter och *A. confinis*-gruppens palearktiska arter.

Entomologica Fennica

Chefsredaktör: Antti Jansson, Zoologiska museet, N. Järnväggsgatan 13, SF-00100 Helsingfors.

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De tre välkända finländska entomologitidskrifterna *Acta Entomologica Fennica*, *Annales Entomologici Fennici* och *Notulae Entomologicae* har alla nyligen avslutats. Istället har under 1990 den nya tidskriften *Entomologica Fennica* sett dagens ljus. Tanken är att *Entomologica Fennica* ersätter *Annales* och *Notulae*, medan de mer omfattande arbeten som tidigare gått till *Acta Entomologica* i framtiden får utrymme i *Acta Zoologica Fennica*. Denna omstrukturering har framtvingats av de dragsgivande myndigheterna vilka endast vill stödja en finländsk internationell entomologisk tidskrift.

Ett mer formellt problem med en ny tidskrift är hur namnet skall förkortas i en referenslista. Förkortningen *Entomol. Fennica* som används i tidskriften godkänns sannolikt inte som giltig i

Ent. scand., där man nog vill ha det till *Ent. fenn.* Här skulle man gärna vilja se en samordning.

Det första häftet av *Ent. fenn.* som utkom 26 juni 1990 liknar till innehållet helt *Annales*, men ett avsnitt med notiser om nordisk faunistik utlovas ingå i varje årgång. Uppsatserna i det första häftet behandlar taxonomi och faunistik, men enligt omslaget ingår även ekologi och beteende i tidskriftens ämnesval. Alla bidrag utom ett behandlar utomeuropeisk fauna, och det närmaste Finland man kommer är en ny fjärilsart från Lettland. Uppsatserna i häfte 2 behandlar dock nästan alla den inhemska faunan.

Det framgår inte klart vilka som får publicera i tidskriften. Enligt omslaget är *Ent. fenn.* ett forum för främst finländska och nordiska entomologer, och i Antti Janssons presentation sägs att helst någon av författarna skall vara från Finland eller att uppsatsen skall behandla den inhemska faunan. Tydligt tar man inte så hårt på detta då i första häftet Disneys tre uppsatser endast behandlar mer exotiska djur — såvitt jag kan se utan anknytning till Finland.