

Acrotona pilosicollis (Brundin, 1952) (Coleoptera, Staphylinidae) – description of female and notes on biology

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Acrotona pilosicollis (Brundin, 1952) is a poorly known staphylinid species. Only two records exist from NE Europe after it was described in 1952. Here we report 97 individuals caught in pitfall traps in a dry meadow in eastern Finland in 2017. The species is similar to *A. exigua* (Erichson, 1837) but may be distinguished both on genital and external characters. The diagnostic spermatheca of the previously unknown female is described. On the basis of the new finds in Finland, *A. pilosicollis* is considered to be a stenotypic species of dry xerothermic meadows.

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Introduction

Acrotona pilosicollis (Brundin, 1952) is one of the many poorly known Palaearctic staphylinid species. Brundin (1952) described it on the basis of two males caught in Vaaseni, Eastern Karelia, present-day Russia (V. Karvonen leg., 1942). Since then only few records of this species have been made (listed below) and its biology has not been described. Surprisingly this species was caught in large numbers in a survey in south-eastern Finland. Our aim is to describe this find, make some conclusions about the biology of the species and point out the diagnostic characters, including the structure of the previously unknown female spermatheca.

Methods

The author TC has been interested in monitoring beetles inhabiting xerothermic dry meadows in South-eastern Finland during the past few years.

One particular south facing location in Joutseno, Vesikkola (province Sa) caught his attention in 2014. This sandy meadow was covered mostly with Red Catchfly (*Lycnis viscaria* L.), the centre having also stands of Mouse-ear-hawkweed (*Pilosella officinarum* F. W. Schultz & Sch. Bip.) (Fig 1). Small stands of Field Wormwood (*Artemisia campestris* L.) and Breckland Thyme (*Thymus serpyllum* L.) were present as well.

Pit-fall traps were placed along the upper end (10 traps) and the centre of the meadow (12 traps) in early May, 2017. They were emptied every fourth week and removed September 23rd.

Results

The rove-beetle *Acrotona pilosicollis* turned out to be common at the location. Most specimens (70%) were caught from the upper edge of the meadow but the species occurred over the whole meadow area, all in all 97 specimens were trapped in 2017. The

number of specimens was highest in July (33) and June (20). A peak is likely to have been in late June and early to mid-July. However, as specimens were taken both in May (12) and August (11) the activity period of the beetles covered the whole summer.

Distribution and biology

In Schülke & Smetana (2015), Latvia, Russia: Central European Territory and Switzerland are given as the areas where the species has been found, in addition to the type locality (given as Russia: North European Territory). The next published record is from Belorussia (Smetana, 2004). Pentinsaari (2014) reported *A. pilosicollis* from Finland for the first time (Sa: Imatra, Immola airfield, April 2012). Finally, the BOLD Systems internet site includes a barcoded specimen from Estonia (BOLD Systems 2021).

The type-specimens were netted from evening swarm on a sloping meadow (Karvonen, personal comment to JM in the 1970s). The

East Fennoscandian finds all suggest that *A. pilosicollis* is a stenotopic species living in open and dry xerothermic habitats. Both the Immola airfield and the present new location are clearly xerothermic locations. Very little is known of the biology of *A. exigua*. According to Palm (1970) it frequents open, sandy habitats, and seems to prefer locations close to water. As the majority of the *A. pilosicollis* specimens were taken on the more sparsely vegetated upper region of the meadow, it appears that the habitat choice of these two species is fairly similar.

The recent new records of *A. pilosicollis* may indicate expansion towards west and future finds from Southern Sweden can be expected – the meadows in Öland island being a strong candidate.

Identification

A. pilosicollis belongs to the *pygmaea* species group in the genus *Acrotona* Thomson, 1859 (Brundin, 1952: 110). Species belonging to this group have



Figure 1. The Vesikkola dry meadow, early July 2017. Photo: Jussi Vilén.

Figur 1. Vesikkola torräng, tidigt i juli, 2017. Foto: Jussi Vilén.

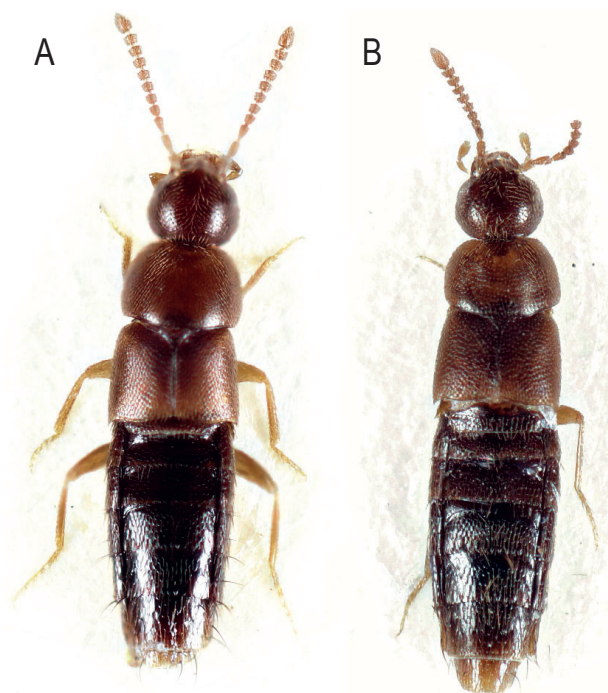


Figure 2. – A) *Acrotona exigua* (Erichson, 1837), female. Sweden, Skåne, Hallands Väderö, G. Gillerfors leg.; – B) *Acrotona pilosicollis* (Brundin, 1952), female. Finland, Sa, Joutseno, Vesikkola, T. Clayhills leg.

Figur 2. – A) *Acrotona exigua* (Erichson, 1837), hona. Sverige, Skåne, Hallands Väderö, G. Gillerfors leg.; – B) *Acrotona pilosicollis* (Brundin, 1952), hona. Finland, Sa, Joutseno, Vesikkola, T. Clayhills leg.

isodiametric microsculpture on tergite 7, head with complete temporal ridges and first metatarsomere distinctly longer than second. The closest relative to *A. pilosicollis* is *A. exigua* (Erichson). Both these species have the pronotal hairs directed fairly evenly caudad and this in combination with the dense vestiture and general body shape suggests a species belonging to the genus *Oxypoda* Mannerheim, 1830. In fact, *A. exigua* was described originally as an *Oxypoda* species. However, the structure of the male genitalia shows that both *exigua* and *pilosicollis* belong to tribe Athetini. The median lobe has an “athetine bridge”, a hinge on the dorsal side of the median lobe (Seevers, 1978; Muona, 1987: 21–22). This is an evolutionary novelty (synapomorphy) of species belonging to the tribe Athetini and absent from most other aleocharines. The *Acrotone* spermatheca is characteristic as well, those of *Oxypoda* species having much slenderer basal coils. With high magnification one can see the four protarsomeres separating Athetini species from the Oxypodini (all tarsi with five tarsomeres) but this feature is not easy to observe.

This superficial similarity between *pygmaea*-group *Acrotone* species and *Oxypoda* should be kept in mind, as the outer shape of the male median lobe, dorsal sculpture and stout antennae of *A. pilosicollis* all bring in mind a common forest *Oxypoda* species, *O. skalitzkyi* Bernhauer. There is a size difference, however, *O. skalitzkyi* being at least 2 mm long, the length of both *A. pilosicollis* and *A. exigua* being less than 2 mm.

When studied side by side, *A. exigua* (Fig. 2A) and *A. pilosicollis* (Fig. 2B) are easy to keep apart. *A. pilosicollis* has stouter and shorter antennae, larger eyes, distinctly wider pronotum and stronger pronotal and elytral punctation and denser and stronger abdominal punctation.

The *pygmaea* group species tend to have very similar aedeagi, but *A. pilosicollis* is an exception to this rule. The apex of the median lobe is abruptly and strongly angled in lateral view (Brundin, 1952: 111, Fig. 20). The spermatheca of *A. pilosicollis* has not been described before, although it is included in the FBOL image previously mentioned. This organ is quite homogeneous within the *pygmaea*-group, but subtle differences can be mentioned. In *A. exigua* the basal coil is wider than the rounded and apically flattened apex (Fig. 3B). The whole organ is more compact than that of the other species. *A.*

pilosicollis in turn has a conspicuously slender spermatheca with relatively small basal coil and evenly rounded, slender apex (Fig. 3A). The shape of these organs represent the opposite ends within the *pygmaea* group in terms of stoutness and slenderness (Strand & Vik, 1964, Figs 187–197).

The last female abdominal ventrite is slightly excavated in *A. pilosicollis* and feebly rounded in *A. exigua*. There seems to be variation in this feature and the material studied was limited. The males of *A. pilosicollis* are for some reason easier to catch and dominate the material.

Acknowledgements

Jussi Vilén is thanked for the nice picture of the dry meadow as well as for good company during the field work. Ivan Löbl kindly arranged the opportunity for JM to see the unique Russian Central European Territory specimen of *Acrotone pilosicollis* in coll. Georg Benick in the Geneva Museum.



Figure 3. Spermatheca of – A) *Acrotone pilosicollis* (Brundin, 1952), Finland, Sa, Joutseno, Vesikkola, T. Clayhills leg.; – B) *Acrotone exigua* (Erichson, 1837), Sweden, Skåne, Hallands Väderö, G. Gillerfors leg.

Figur 3. Spermatheca av – A) *Acrotone pilosicollis* (Brundin, 1952), Finland, Sa, Joutseno, Vesikkola, T. Clayhills leg.; – B) *Acrotone exigua* (Erichson, 1837), Sverige, Skåne, Hallands Väderö, G. Gillerfors leg.

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Sammanfattning

Den hittills mycket sällsynta kortvingen *Acrotona pilosicollis* (Brundin, 1952) hittades som ny för Finland från Sa: Imatra, Immola flygfält, sammanlagt 11 stycken av Mikko Pentinsaari år 2012. Under våra kartläggningar av östra Finlands skalbaggsfauna påträffade vi en torrängslokal i Sa:Joutseno Vesikkola byn, som verkade lovande. Efter tillstånd av markägaren startade vi kartering av torr ängen med burkfällor sommaren 2017. Fällorna placerades i två serier, en i ängens översta kant med 10 burkar och en annan i ängens bredare mittparti med 12 burkar. Torr ängen är lågt sluttande och solbelyst nästan hela dagen. Övre kanten är brantare och har något glesare vegetation samt mera sandbottnade ytor än ängens planare mittparti.

Oväntat var *A. pilosicollis* torr ängens individrikaste kortvingeart med sammanlagt 97 individer. De flesta individerna fångades från den övre kantens öppnare biotop med 70 individer. Arten påträffades under hela sommaren men merparten under juni (20) och juli (33) månaderna. Mitt på torr ängen, i den tätare vegetationen, var beståndet tydligt fattigare med sammanlagt 27 individer. Hanarna dominerade stort i materialet men rikligt med honor påträffades. Den okända honan beskrives och jämförs med den närliggande arten *A. exigua* (Erichson, 1837). Honorna samt sådeskapslarna av båda arterna är avbildade. Också den kända utbredningen diskuteras.

Arten beskrevs av Brundin 1952 efter två hanar tagna av V. Karvonen från Vaaseni, Ost-Karelen 1942 som nuförtiden hör till Ryssland. Nu tycks arten vara på spridning både söderut och västerut.

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