

Andreiniimon nuptialis (Karny, 1918), a new genus and species to the orthopteran fauna of Slovenia (Orthoptera: Phaneropteridae)

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Abstract. Two *Andreiniimon nuptialis* males were recorded on August 17th 2005, near Divača, south-western Slovenia. Together with a recent nearby record of the species from the vicinity of Trieste, north-eastern Italy, the new record outlines an apparently small and isolated northern population of the species and considerably extends the knowledge on its distribution range. Further field studies are needed to determine the exact distribution of the species in south-western Slovenia and north-eastern Italy, and to assess its habitat requirements and conservation status.

Keywords: grasshoppers, Slovenia, *Andreiniimon nuptialis*, distribution

Izveček. *Andreiniimon nuptialis* (KARNY, 1918), NOV ROD IN VRSTA ZA FAVNO KOBILIC SLOVENIJE (ORTHOPTERA: PHANEROPTERIDAE) – Dva samca vrste sta bila najdena 17. avgusta 2005 blizu Divače, jugozahodna Slovenija. Skupaj z nedavno bližnjo najdbo vrste iz okolice Trsta, severovzhodna Italija, nova najdba zaokroža domnevno majhno in izolirano severno populacijo vrste in prispeva k precej boljšemu poznavanju njenega območja razširjenosti. Za določitev natančne razširjenosti vrste v jugozahodni Sloveniji in severovzhodni Italiji ter ugotovitev njenih habitatnih zahtev in naravovarstvenega statusa so potrebne nadaljnje terenske raziskave.

Gljučne besede: kobilice, Slovenija, *Andreiniimon nuptialis*, razširjenost

Introduction

Despite the fact that the orthopteroid insects are among the very few animal groups in Slovenia to which a scientific monograph "Orthopteroid fauna of Slovenia" is devoted (Us 1992), the state of orthopterological faunistic research in Slovenia is still rather poor. The knowledge concerning the distribution, habitat requirements and biology of single grasshopper species is very scarce, and generally there are only very few published faunistic data available.

The abovementioned is confirmed by the fact that tentative field studies by younger researchers in last years have yielded more than a half dozen new grasshopper species records for Slovenia. Some of them were expected, some of them, however, are very surprising from the zoogeographical point of view. In this last category we can include the record of *Zeuneriana marmorata* (Fieber, 1853), »endemic« to the coastal part of northeastern Italy but found in Central Slovenia (Gomboc & Šegula 2005), and the record of *Metrioptera prenjica* (Burr, 1899), »endemic« to Bosnia and Montenegro but discovered in the Julian Alps (P. Veenvliet & F. Tami, pers. comm.). In this paper, yet another zoogeographical curiosity is presented – a record of *Andreiniimon nuptialis* (Karny, 1918) in southwestern Slovenia, till now thought to be »endemic« to the southern Balkans and central Italy.

Locality data

When returning from an orthopterological field excursion to Mt. Slavnik in the late afternoon of 17th August 2005, a short stop was made in previously repeatedly visited locality near the village of Podgrad pri Vremah, 7.3 kilometres SE of Divača, southwestern Slovenia (alt. 460m, UTM VL 25). This site lies just north of the small Potok village, on a gentle slope above the Sušica stream and is bordered by two local roads, one of which heads toward the nearby village of Podgrad pri Vremah. From an orthopterological point of view, the locality is best described as »nothing special« - just a small extensive meadow on the slope, a small and almost abandoned field in the plain, all bordered with a light forest edge on one side and a rather narrow belt of dense bushes on the other. Two months earlier, some larvae of an unidentified *Isophya* species were collected at the same spot, so the main aim of this brief stop was to secure some adult specimens for taxonomic and bioacoustic studies. Due to the already late season, the search was unsuccessful in this respect.

Results

Among other recorded grasshopper species, however, two brightly coloured males of an unknown species, sitting on bramble leaves could not escape attention of the camera and were subsequently collected (Fig. 1). A closer examination at home showed that, apart from the very specific coloration, the cerci and epiproct of these animals were so aberrant and

unique that the determination of the genus and species level was straightforward. *Andreiniimon nuptialis* (Karny, 1918) - a putative endemic species originally known from the southern Balkans and central Italy - was found in Slovenia for the first time. Both collected specimens have been included in the author's private collection.



Figure 1: Male *Andreiniimon nuptialis* (17-VIII-2005; Podgrad pri Vremah, SW Slovenia; Photo: M. Bedjanič – colour photograph available on <http://www.bf.uni-lj.si/bi/NATURA-SLOVENIAE>; body length: 18 mm)

Slika 1: Samec vrste *Andreiniimon nuptialis* (17-VIII-2005; Podgrad pri Vremah, SZ Slovenia; Foto: M. Bedjanič – barvna fotografija dosegljiva na <http://www.bf.uni-lj.si/bi/NATURA-SLOVENIAE>; dolžina telesa: 18 mm)

The species could be easily determined with the help of Harz (1969). The poor outline sketches of male epiproct and cercus in this monograph give only little justice to the aberrancy and uniqueness of these structures, therefore, some macro photographs taken from frozen and well preserved material of the species are included (Figs. 2 & 3). The only good figures of head, pronotum and first abdominal segments of a male specimen, with outline drawings of its genital structures, can be found in Capra (1937). Two males from the vicinity of Divača show some differences in the shape of pronotum, epiproct and cerci, however, only on the basis of two specimens and without comparative material at hand it is difficult to judge on their eventual taxonomic relevance.

Through personal communication with Dr. Roy Kleukers (Leiden, The Netherlands), it turned out that he had found the species in 1995 in northeastern Italy, at Mattonaia Triestina

near Trieste (alt. 30m, UTM VL 05). This locality is only briefly mentioned beside the photograph of *Andreiniimon nuptialis* in the monograph on the orthopteroid insects of the Veneto Region (Fontana et al. 2002), but is not included in the paper on the Orthoptera of the Adriatic coast of Italy (Fontana & Kleukers 2002). It should be pointed out that the mentioned Italian and Slovenian localities are only 14 kilometres apart. Together with an outline of the known distribution range of *Andreiniimon nuptialis* in Europe, these two isolated localities on the northern border of the species range are presented in Fig. 4.



Figure 2: Epiproct and cerci of the male *Andreiniimon nuptialis* – dorsal view (Photo: M. Bedjanič; scale: 1 mm).

Slika 2: Epiprokt in cerki samca vrste *Andreiniimon nuptialis* – dorzalni pogled (Foto: M. Bedjanič; merilo: 1 mm).

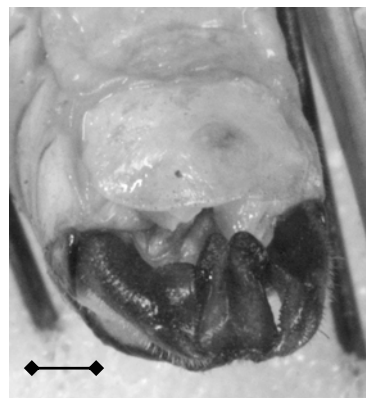


Figure 3: Epiproct, cerci and subgenital plate of the male *Andreiniimon nuptialis* – ventral view (Photo: M. Bedjanič; scale: 1 mm).

Slika 3: Epiprokt, cerki in subgenitalna plošča samca vrste *Andreiniimon nuptialis* – ventralni pogled (Foto: M. Bedjanič; merilo 1 mm).

Discussion

The genus *Andreiniimon* Capra, 1937 is monotypic (Harz 1969, Heller et al. 1998) and is represented only by the species *A. nuptialis* (Karny, 1918). According to Harz (1969), the species is distributed only in Albania, Macedonia, Bulgaria, Greece and Italy. A single known male from central Italy was described as new genus and species *Andreiniimon permirum* by Capra (1937). In his subsequent paper, the author listed some differences between both described taxa (Capra 1946), however, ultimately *A. permirum* was synonymized by Harz

(1969) with *A. nuptialis*. As already stated in the present paper, only recently has the species been discovered also in northeastern Italy near Trieste and in southwestern Slovenia near Divača.

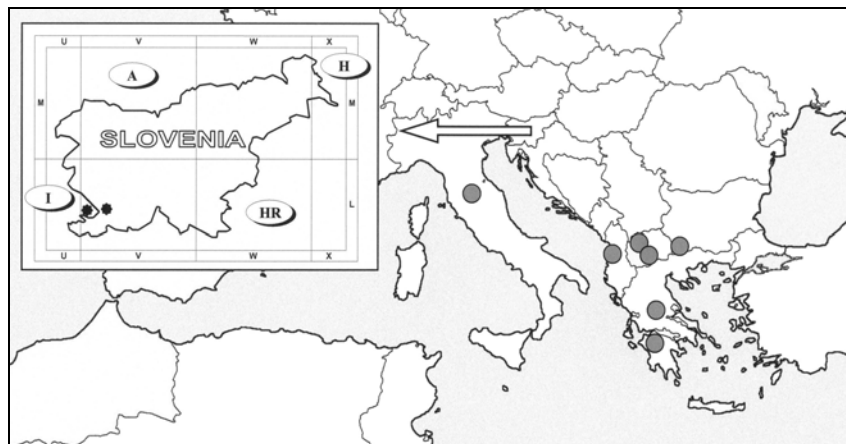


Figure 4: Known distribution of *Andreiniimon nuptialis* in Europe, with indication of two isolated localities on the northern border of its range.

Slika 4: Doslej znana razširjenost vrste *Andreiniimon nuptialis* v Evropi, s prikazom obeh izoliranih lokalitet na severnem robu njenega območja razširjenosti.

However, it is worth pointing out that for the most of the above listed countries only individual records of *Andreiniimon nuptialis* are known from the literature. In Albania, the species is known only from its type locality Durrës (Karny 1918, Harz 1969), in Macedonia it was found along the Treska River (Us & Matvejev 1967) and along the Vardar River near Miravci and Demir Kapija (Heller 1988, DORSA). The single Bulgarian record originates from Petrich (Peschev 1960 in Harz 1969), while in Greece the species was recorded near Koumanis on the Peloponnesus and Fthiothis in the central part of the country (Heller et al. 1989, DORSA). In the central Italian region Umbria, Capra (1937) and Capra (1946) list only Lippiano in Alta Valle Tiberina as locality of the species. Harz (1969), most probably referring to the same locality, mentions the region Tuscany, while Fontana et al. (2002) only fleetingly note that it occurs in the region Lazio and near Trieste.

Together with a recent nearby record of the species from the vicinity of Trieste, northeastern Italy (R. Kleukers pers. comm., Fontana et al 2002), the new Slovenian record outlines an apparently small and isolated northern population of the species, and considerably extends the knowledge on its distribution range in Europe. Since both localities lie only 14 kilometres apart, they might indicate presence of a stronger *A. nuptialis* population in the northern

Dinaric region. First ad-hoc habitat analyses have not shown anything special as far as structures or other habitat characteristics are concerned. However, detailed ecological studies are needed to make any conclusions on the ecological demands of the species. It goes without saying that further field studies are urgently needed to determine exact distribution of the species in south-western Slovenia and north-eastern Italy, and to assess its conservation status.

The new record of *Andreiniimon nuptialis* is interesting from the zoogeographical point of view. In any case, it is worth noting that the far isolated northern occurrence of the species may only be apparent, especially if a rather bad orthopterological faunistic coverage of the entire western Balkan Peninsula from Croatia to Albania is taken into account. Future detailed morphological, bioacoustic and genetic studies could shed light on the degree of isolation of the newly discovered northern populations. They could also help to evaluate their taxonomic status by comparison to type and new material from the southern Balkans and central Italy.

Povzetek

Kljub temu, da so ravnokrilci ena redkih skupin živali, katerim je v Sloveniji posvečena samostojna monografija (Us 1992), je njih favnistična raziskanost še vedno razmeroma slaba. Poznavanje razširjenosti, habitatnih zahtev in biologije posameznih vrst kobilic je zelo pomanjkljivo, objavljenih favnističnih podatkov pa je malo. Terensko delo mlajših raziskovalcev je v zadnjih letih prineslo najdbe več kot ducat novih vrst kobilic za favno Slovenije. Med manj pričakovane in najbolj zanimive najdbe iz zoogeografskega vidika, sodi tudi najdba vrste *Andreiniimon nuptialis* (Karny, 1918) v jugozahodni Sloveniji.

V bližini vasi Podgrad pri Vremah, 7.3 kilometrov jugovzhodno od Divače (alt. 460m, UTM VL 25), sta bila pri zaselku Potok, na ekstenzivnem travnem pobočju nad potokom Sušica, dne 17. avgusta 2005 ujeta dva pisano obarvana samčka dotlej neznane vrste (Slika 1). Podroben pregled je pokazal, da so poleg specifične obarvanosti tudi njuni cerki in epiprokt edinstveno oblikovani in dejansko brez primerjave v širšem okviru sorodnih rodov (Sliki 2, 3). S pomočjo opisov iz literature (Harz 1969) je bilo tako hitro jasno, da gre za vrsto *Andreiniimon nuptialis* – domnevno endemično kobilico iz južnega Balkana in osrednje Italije.

Kolegi iz tujine so opozorili na dejstvo, da je vrsto v severovzhodni Italiji, blizu kraja Mattonaia Triestina pri Trstu (alt. 30m, UTM VL 05), leta 1995 našel tudi dr. Roy Kleukers iz Nizozemske (R. Kleukers pisno, Fontana et al 2002). Obe izolirani lokaliteti na severnem robu območja razširjenosti vrste sta oddaljeni le 14 kilometrov zračne linije. Skupaj z doslej znano razširjenostjo vrste *A. nuptialis* v Evropi je njuna lega prikazana na zemljevidu (Slika 4).

Rod *Andreiniimon* Capra, 1937 je monotipski (Harz 1969, Heller s sod. 1998) in vključuje le vrsto *A. nuptialis* (Karny, 1918). Po podatkih iz literature je bila vrsta doslej znana iz Albanije, Makedonije, Grčije, Bolgarije in osrednje Italije (Karny 1918, Capra 1937, Capra 1946, Peschev

1960, Us & Matvejev 1967, Harz 1969, Heller 1988, DORSA). Pri tem velja posebej izpostaviti dejstvo, da so iz omenjenih držav večinoma znani le posamični favnistični podatki (Slika 4).

Novi najdbi vrste *A. nuptialis* v Sloveniji in Italiji, zaokrožata domnevno majhno in izolirano severno populacijo vrste in znatno razširjata poznavanje njenega območja razširjenosti v Evropi. Za določitev natančne razširjenosti vrste *A. nuptialis* v jugozahodni Sloveniji in severovzhodni Italiji ter ugotovitev njenih habitatnih zahtev in naravovarstvenega statusa so potrebne nadaljnje terenske raziskave. Dodatne morfološke, bioakustične in genetske raziskave ter primerjava s tipskim, novim materialom iz južnega Balkana in materialom iz osrednje Italije, bi lahko odgovorile na vprašanje o stopnji izolacije novoodkritih severnih populacij vrste in njihovem taksonomskem statusu.

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Literature

- Capra F. (1937): Due nuovi Ortotteri d'Italia, raccolti dal dr. A Andreini. *Boll. Soc. entom. Ital.* 69: 102-107.
- Capra F. (1946): Su Andreiniimon Capra e Leptophyes nuptialis Karny (Orth. Tettigoniidae). *Boll. Soc. entom. Ital.* 76: 12-13.
- DORSA - Deutsche Orthopteren Sammlungen, 04.01.2006, On line: <http://www.dorsa.de>
- Fontana P., Buzzetti F. M., Cogo A., Ode B. (2002): Guida al riconoscimento e allo studio di Carvallette, Grilli, Mantidi e insetti affini del Veneto. (Blattaria, Mantodea, Isoptera, Orthoptera, Phasmatodea, Dermaptera, Embiidina). 592 pp.
- Fontana, P., Kleukers R. M. J. C. (2002): The Orthoptera of the Adriatic coast of Italy (Insecta: Orthoptera). *Biogeographia* 23: 35-53.
- Gomboc S., Šegula B. (2005): The finding of *Zeuneriana marmorata* (Fieber, 1953) in Slovenia (Orthoptera: Tettigoniidae). *Acta entomologica slovenica* 13(2):81-92.
- Harz K. (1969): Die Orthopteren Europas I (Ensifera). *Series Entomologica* 5. Dr. W. Junk B.V. The Hague. i-xx. 749 pp.

- Heller K.-G. (1988): Bioakustik der europäischen Laubheuschrecken. Margraf, Weikersheim. 358 pp.
- Heller K.-G., Achmann R, Reinhold K. (1989): Bemerkenswerte Neunachweise von Heuschrecken für Griechenland. *Articulata* 4: 4-5.
- Heller K.-G., Korsunovskaya O., Ragge D. R., Vedenina V., Willemse F., Zhantiev R.D., Frantsevich L. (1998): Check-List of European Orthoptera. *Articulata*, Beiheft 7: 1-61.
- Karny H. (1918): Zwei neue Laubheuschrecken aus Albanien. *Verh. Zool.-bot. Ges. Wien* 68: 35-39.
- Us P. A. (1992): Favna ortopteroidnih insektov Slovenije. SAZU, Ljubljana. vii+314+xii pp.
- Us P. A., Matvejev S. (1967): Orthopteroidea. *Catalogus faunae Jugoslaviae* III/6, SAZU, Ljubljana. 47 pp.